

53rd Annual Meeting & ToxExpo™

Phoenix, Arizona • March 23–27, 2014

Program

SOT | Society of Toxicology
Creating a Safer and Healthier World
by Advancing the Science of Toxicology

www.toxicology.org

Society of Toxicology

Phoenix Arizona 2014



Awards Ceremony
(All Attendees Welcome)
Sunday, March 23
5:15 PM–6:30 PM
North Ballroom 120D

Welcome Reception
(All Attendees Welcome)
Sunday, March 23
6:30 PM–7:30 PM
Hall 1

25-Year (Or More) Member Reception
(By Invitation Only)
Sunday, March 23
7:00 PM–8:00 PM
North Ballroom Foyer

SOT Annual Business Meeting
(All SOT Members Invited)
Tuesday, March 25
4:30 PM–6:00 PM
North Ballroom 120D

These events take place in the Phoenix Convention Center.

Dear Colleagues:

It is my pleasure to invite you to attend SOT's 53rd Annual Meeting, March 23–27, 2014, at the Phoenix Convention Center in Phoenix, Arizona. The Annual Meeting provides opportunities to learn from your colleagues about their latest scientific achievements in the field of toxicology and related disciplines as well as from Nobel laureates and other distinguished leaders who will expand your scientific horizons. In addition, the SOT Annual Meeting provides a venue for you to share your year's work. For the science of toxicology, this is the premier meeting that shouldn't be missed.

Ample networking time allows Annual Meeting attendees to meet potential collaborators and mentors, and with increasing attendance from scientists around the world, those interactions can take on a global scope. The Annual Meeting also offers a chance to pause to pay tribute to those scientists who have distinguished themselves in their field of expertise as the recipients of the Society's most prestigious awards. I'm sure that all attendees also look forward to enjoying the company of friends and colleagues.

Finally, SOT attendees can take advantage of the ToxExpo, which is the world's largest exposition of its kind. Hundreds of exhibits offer a comprehensive marketplace for product information and cutting-edge technology.

The SOT Annual Meeting is the premier event that the Society hosts every year to meet the needs of the entire toxicology community. Please join me in Phoenix for this meeting and help us to make the SOT 53rd Annual Meeting an event to remember.

Sincerely,

Lois D. Lehman-McKeeman, PhD, ATS

2013–2014 SOT President

2014 Phoenix, Arizona

53rd Annual Meeting and ToxExpo

Scientific Program Overview

THEMATIC APPROACH

The Scientific Program Committee has devised a thematic approach that encompasses five themes of topical interest. Sunday CE course and Monday–Thursday session titles related to each theme are color-coded in this Program Overview.

- Advancing Clinical and Translational Toxicology and Application of Biomarkers
- Enhancing Strategies for Risk Assessment
- New Science and Perspectives Surrounding Environmental and Occupational Exposures
- Safety Assessment: Mechanisms and Novel Methods
- Stem Cell Models for Integrated Biology

A page reference follows the course or session information.

Sunday, March 23

7:00 AM to 7:45 AM

SUNRISE CONTINUING EDUCATION COURSE

1. Combination Products: Toxicology and Regulatory Challenges (p103)

8:15 AM to 12:00 Noon

MORNING CONTINUING EDUCATION COURSES

2. Computational and Experimental Aspects of microRNAs in Toxicology (p104)*
3. Current Trends in Genetic Toxicology Testing (p104)
4. Elucidating Adverse Outcome Pathways (AOPs) for Developmental Toxicity (p105)
5. Inhalation Studies: Challenges and Complexities (p105)
6. Methodologies in Human Health Risk Assessment (p106)
7. Nonclinical Animal Models Enabling Biopharmaceutical Advances in Translational Medicine (p106)

1:15 PM to 5:00 PM

AFTERNOON CONTINUING EDUCATION COURSES

8. Nanotoxicology: Past Achievements, Future Challenges, and Potential Solutions (p107)
9. Epidemiology for Toxicologists: What the Numbers Really Mean (p107)
10. Innovations in Methodologies for Inhalation Exposure and Interpretations of *In Vivo* Toxicity (p108)
11. Nonclinical Pediatric Drug Development: Considerations, Study Designs, and Strategies (p108)
12. Stem Cells in Toxicology (p109)*
13. Translational Biomarkers in the Assessment of Health and Disease (p109)

Two CE Courses will be presented as live webcasts—registration is required.

- **AM02—Computational and Experimental Aspects of microRNAs in Toxicology**
- **PM12—Stem Cells in Toxicology**

WWW.TOXICOLOGY.ORG/REGISTER

If found, please return to:

Name: _____

Contact Telephone: _____

Monday, March 24

8:00 AM to 9:00 AM

PLENARY OPENING LECTURE

The Origins and Future of Pluripotency and Cellular Reprogramming



Lecturer: Sir John B. Gurdon, Wellcome Trust/Cancer Research UK, Gurdon Institute, University of Cambridge (p130)

9:15 AM to 12:00 Noon

SYMPOSIUM SESSIONS

- Air Pollution and Cardiovascular Effects: Mechanisms and Role of Lipid Peroxidation (p130)
- Carbon Nanotubes Are Toxic in Experimental Models: What's Next, Who's Being Exposed, and Should We Be Concerned? (p131)
- Computational Approaches to Predict Repeat-Dose Toxicity: Lessons Learned from Cosmetic Ingredients (p131)
- Induced Human Pluripotent Stem Cells and Their Differentiated Progeny Cells: Implementation in Toxicity Testing (p132)
- Methylmercury's Modes of Action: New Approaches to Understanding an Old Problem (p133)
- To Bug or Not to Bug the Immune System: Benefits and Consequences of Altering the Microbiome (p133)

WORKSHOP SESSIONS

- Developmental Programming of Hepatic Metabolism: Assessing the Impact of Perinatal Exposure to Xenobiotics (p134)
- New Concerns and New Science Addressing Environmental Asbestos Exposures (p134)

PLATFORM SESSION

- Enhancing Strategies for Pesticide Risk Assessment (p135)

SOT Mobile Event App or Event Website

Scan Me!

Use these planning and networking tools to access the latest meeting information, build your own schedule, view presentation details, abstracts, and ePosters, access featured speaker bios, connect with attendees, and provide your feedback for sessions using the survey tool. Download the app from your favorite app marketplace or access it via the SOT website. Scan this QR code for additional instructions.

9:30 AM to 4:00 PM

RESEARCH FUNDING SESSION

Research Funding Information Room (p136)

9:30 AM to 12:30 PM

POSTER SESSIONS

- Alternatives to Mammalian Models I (p144)
- Autoimmunity/Hypersensitivity (p142)
- Biological Modeling (p136)
- Biomarkers I (p139)
- Carcinogenesis I (p151)
- Cell Death/Apoptosis (p155)
- Developmental Toxicology: Mammalian Models (p147)
- Developmental Toxicology: Nonmammalian Models (p148)
- Epidemiology (p150)
- Food Toxicology/Nutrition (p157)
- Neurotoxicity: General (p160)
- Safety Assessment: Drug Development I (p154)

12:10 PM to 1:30 PM

ROUNDTABLE SESSION

- Environmental Factors in Dysregulation of Puberty Timing and Progression (p165)

INFORMATIONAL SESSION

- Nonrodents Can Be Monitored, Too… Characterization of Novel Biomarkers of Drug-Induced Kidney Injury (DIKI) in Rats, Canines, Nonhuman Primates, and Humans (p166)

EDUCATION-CAREER DEVELOPMENT SESSION

- The Role of Consultants in the Science and Practice of Safety Assessment (p166)

12:30 PM to 1:20 PM

MERIT AWARD LECTURE

Toxicology Is Part of the Solution



Lecturer: Jay I. Goodman, Michigan State University (p167)

1:00 PM to 4:30 PM

POSTER SESSIONS

- Biotransformation/Cytochrome P450 (p177)
- Cardiovascular Toxicity and Hemodynamics (p175)
- Chemical and Biological Weapons (p181)
- Computational Toxicology and Data Integration I (p170)
- Ecotoxicology (p191)
- Genetic Toxicity Testing (p172)
- Inflammation: Methods and Mechanisms (p167)
- Nanotoxicology: General and Carbon-Based (p184)
- Pesticide Exposure, Toxicology, and Risk Assessment (p192)
- Pharmacogenomics and Genetic Polymorphisms (p180)
- Regulation and Policy (p189)
- Risk Assessment I (p187)
- Systems Biology and Toxicology (p169)

1:30 PM to 2:30 PM

SPECIAL SYMPOSIUM

A Conversation with the Director of NIEHS: Dr. Linda S. Birnbaum



Lecturer: Linda S. Birnbaum, National Institute of Environmental Health Sciences (p194)

2:00 PM to 4:45 PM

SYMPOSIUM SESSIONS

- Adverse Outcome Pathways As an Integrative Framework for Predictive Toxicology: Combining Top-Down and Bottom-Up Thinking (p195)
- Is Neuroimmune Crosstalk Important to Neurotoxicology? Critical Insight from Animal and Human Studies (p195)
- Perinatal Exposures and Children's Health Outcomes (p196)
- The Emerging Role of Mitochondrial Turnover, Biogenesis, and Dynamics in Tissue Injury (p196)
- Use of Stem Cells in Toxicity Testing—From Basic Research to Personalized Toxicology (p197)

WORKSHOP SESSION

- Skeptically Re-Examining the Limits of Toxicology Evidence in the Courtroom (p197)

EDUCATION-CAREER DEVELOPMENT SESSION

- Scientific Ethics in Research and Publications (p198)

4:45 PM to 6:00 PM

SOT/EUROTOX DEBATE

- Are Nonmonotonic Dose-Responses at Low Dose Levels Toxicologically Relevant? (p200)

Tuesday, March 25

8:00 AM to 8:50 AM

LEADING EDGE IN BASIC SCIENCE AWARD LECTURE

A Two-Pronged Approach to Modernize Toxicology



Lecturer: Vishal S. Vaidya, Harvard Medical School (p202)

9:00 AM to 11:45 AM

SPECIAL SYMPOSIUM

Frontiers for Toxicology Session: Noncoding RNAs in Human Health, Therapeutics, and Environmental Disease (p203)

Lecturers:



John Mattick, Garvan Institute of Medical Research



Muller Fabbri, University of Southern California



Caroline Lee, Duke University/ National University of Singapore



Joshua Mendell, University of Texas Southwestern Medical Center

SYMPOSIUM SESSIONS

- Does This Chemical Make My Liver Look Fat? (Environmental Exposures and Steatosis) (p203)
- Ocular Immunotoxicology: A Privileged View (p204)

WORKSHOP SESSIONS

- Application of the Adverse Outcome Pathway (AOP) Concept to Neurotoxicology: A Challenging Approach (p204)
- Idiosyncrasies of Cells in Culture: Lessons from Genetic Toxicology (p205)
- Photosafety Evaluation of Pharmaceuticals without Testing in Animals (p206)
- Stem Cell-Derived Cardiomyocytes: An Alternative Cardiac Toxicity Model for Assessing Drug Safety and Chemical Health Risk (p206)
- The Doorway between Exposure and Response: How Biologically-Based Inhalation Dosimetry Models Enhance Human Health Risk Assessment (p207)

PLATFORM SESSION

- Risk Assessment of Metals (p207)



9:00 AM to 12:30 PM

POSTER SESSIONS

- Alternatives to Mammalian Models II (p228)
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- Clinical and Translational Toxicology (p213)
- Developmental Toxicology: Mammalian Models II (p234)
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- Epigenetics (p222)
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- Medical Devices (p221)
- Nanotoxicology: Metals, Environmental, and *In Silico* (p210)
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- Natural Products: *In Vivo* (p209)
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- Pharmacokinetics and Disposition (p216)
- Toxicity of Chemical Mixtures (p226)

9:30 AM to 4:00 PM

RESEARCH FUNDING SESSION

Research Funding Information Room (p235)

12:00 Noon to 1:30 PM

RESEARCH FUNDING SESSION

Strategies for Funding Opportunities: Brown Bag Luncheon (p236)

NETWORKING TIME

You are encouraged to connect and engage with your colleagues today between sessions as only networking events and Exhibit Hall activities are scheduled during this time.

1:00 PM to 4:30 PM

POSTER SESSIONS

- Arsenic (p256)
- Carcinogenesis II (p237)
- Cardiovascular Toxicity and Hemodynamics: An *In Vitro* Approach (p239)
- Developmental Neurotoxicity I: Mechanisms, Metals, and Industrial Chemicals (p259)
- Inhalants and Cardiopulmonary: Agents and Methods (p247)
- Inhalants and Cardiopulmonary: PM, Ozone, and Diesel Exhaust (p249)
- Liver (p244)
- Metal Neurotoxicity I: Mn (p261)
- Metal Neurotoxicity II: MeHg and Other Metals (p263)
- Metals I: Zn, Cd, Hg (p251)
- Metals II (p253)
- Receptors (p241)

1:30 PM to 4:15 PM

WORKSHOP SESSIONS

- Addressing Uncertainties of the Toxicology of Nanomaterials in Food and Food Contact Products (p264)
- Adverse Outcome Pathways: A Conceptual Framework for 21st Century Risk Assessment (p265)
- Challenges Facing the Next Generation of Risk Assessment (p265)
- Contribution of Nonimmune Cells to Adverse Immune Responses: Implications for Toxicology (p266)
- Developmental Toxicity from Chemical Mixtures: Research to Application in Susceptible Populations (p266)
- Somatic Cell Therapy—Paradigms for Investigational New Drug (IND)-Enabling Programs, Scientific and Regulatory Considerations, and Clinical Translation (p267)
- The Promise of Translational Imaging in Nonclinical Safety Assessment (p268)
- The Role of Toxicology in Undergraduate STEM Education Reform (p268)

4:30 PM to 6:00 PM

SPECIAL MEMBER SESSION

SOT Annual Business Meeting (p270)

Wednesday, March 26

8:00 AM to 9:00 AM

KEYNOTE MEDICAL RESEARCH COUNCIL (MRC) LECTURE

Guiding Signals through Anchored Enzyme Complexes: Implications for Disease



Lecturer: John D. Scott, Howard Hughes Medical Institute, Department of Pharmacology, University of Washington (p271)

9:00 AM to 11:45 AM

SYMPOSIUM SESSION

- *In Vitro* Microphysiological Systems: Advancing Regulatory Science through Innovation (p271)
- Mechanisms of Metal-Induced Disruption of DNA Repair (p272)
- Molecular Mechanisms Involved in Neuro/Glial Toxicity: From Oxidative Stress to Redox Signal Transduction (p272)
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- Three Dimensions of Nanomaterial Pulmonary Toxicity: Innate Immunity, TLRs, and Inflammasomes (p273)

WORKSHOP SESSIONS

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9:00 AM to 12:30 PM

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9:30 AM to 4:00 PM

RESEARCH FUNDING SESSION

Research Funding Information Room (p299)

12:00 Noon to 1:20 PM

ROUNDTABLE SESSION

- Hydraulic Fracturing: Are There Worker Health Issues? (p300)

INFORMATIONAL SESSION

- Understanding the Implications of Breastfed Infant Exposures to POPs: How Can We Do Better? (p301)

EDUCATION-CAREER DEVELOPMENT SESSION

- Training and Continuing Education for the "Total Toxicologist": How Do We Optimize Training and Educational Opportunities for Different Job Sectors? (p301)

12:30 PM to 1:20 PM

DISTINGUISHED TOXICOLOGY SCHOLAR AWARD LECTURE

Investigating the Toxicity of Dioxin



Lecturer: Richard E. Peterson, University of Wisconsin Madison (p302)

1:00 PM to 4:30 PM

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- Neurotoxicity: Pesticides (p308)
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1:30 PM to 4:15 PM

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- Science-Based Preclinical Safety Assessment: Decision Making to Enhance Regulatory Success (p331)

4:30 PM to 5:20 PM

TRANSLATIONAL IMPACT AWARD LECTURE

Ancient Medicine for the Mitigation of Aflatoxin Exposures



Lecturer: Timothy D. Phillips, Texas A&M University (p332)

4:30 PM to 5:50 PM

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8:30 AM to 12:00 Noon

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9:00 AM to 11:45 AM

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- Does Evolution Matter in Toxicity Testing in the 21st Century? Rethinking Cross-Species Extrapolation in Hazard Characterization (p353)
- Neurobehavioral Impacts of Early-Life Manganese Exposure: Linking Human and Animal Model Studies (p353)

WORKSHOP SESSIONS

- Are Biofuels More or Less Toxic Than Conventional Fuels and What Are the Implications for Human Exposure and Risk? (p354)
- Role of Circulating Factors in Mediating Systemic Toxicity of Inhaled Substances (p354)
- The Use of Dogs and Minipigs As an Alternative to the Nonhuman Primate in Nonclinical Safety Assessment of Biopharmaceuticals (p355)

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- When the Dust Settles: Exposure Assessment and Health Effects from Dust Exposures in the Arid Southwest (p356)

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2014 ToxExpo

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Career Resource and Development Services

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Special Events

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SOT Awards and Honors (Descriptions and History)
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Quick Start Guide—Mobile Event App

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Direct Connection—SOT QR Codes

Scan these QR (Quick Response) codes with your smartphone or mobile device to access the information or service directly. The codes can be decoded by most camera-equipped smartphones or devices with a free downloadable application or reader, thereby offering a direct link to the latest and greatest SOT Annual Meeting information and services on the Internet.

Scan Me!

The 2014 Mobile Event App

Use these planning and networking tools to access the latest meeting information, connect with fellow attendees, build your own schedule, view presentation details and abstracts, request meetings with attendees and exhibitors, and navigate ToxExpo with an interactive floor plan. In addition to these networking and meeting planning tools, use the *app and website* to access a complete Phoenix city guide including hotels, restaurants, attractions, nightlife, and shopping.

One-on-one technology training and support is available during the meeting; visit the @SOT—Internet Access and App Center just across from Registration at the convention center or the SOT Pavilion, Booth 1623 in ToxExpo.

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Job Bank

The SOT Annual Meeting, with over 6,500 attendees including top toxicologists, early-career scientists, and toxicology-related employers, is the best place to make your connection. Whether you are looking for a position or searching for the right candidate, the SOT online Job Bank prepares you to take full advantage of the on-site Job Bank Center in Phoenix.

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Open Table

Make online reservations, read restaurant reviews from diners, and earn points toward free meals. OpenTable is a real-time online reservation network.

Mentor Match

The Society of Toxicology recognizes the importance of mentoring in the scientific and professional development of its members. The SOT Annual Meeting provides a great opportunity for the mentor and mentee to meet in person. We strongly encourage members of the Society to visit the Mentor Match site and register online as mentors and/or mentees.

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Phoenix Travel Website

Your one-stop website for complete Phoenix-area information, including where to eat, what to do, and where to shop. Use the website to find transportation information, to purchase tickets to local attractions, and to make restaurant reservations.

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SOT Website

The SOT website is the portal to all SOT information and services.

Scan Me!

ToXchange

Communicate, connect, and collaborate with colleagues via ToXchange, the professional, secure SOT member network. Access the new mobile option.

SOT 2014 Phoenix, Arizona

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The SOT 2014 Annual Meeting Mobile Event App

This year we are happy to announce a new and improved mobile event app and event website. These tools offers you multiplatform mobile solutions for the SOT Annual Meeting and ToxExpo, provided free of charge to attendees and exhibitors. The mobile event app and event website are available via the SOT website and app marketplaces. These mobile tools enable you, the attendee, to engage with organizers, exhibitors, and each other, and to manage your time and maximize your experience while at the Annual Meeting.

The mobile event app and website will allow you to:

- Connect with fellow attendees
- ***Enhanced for 2014***—Build your own schedule and synchronize from the mobile event website to your iPad, tablet, and smartphone simply by logging in
  - Add individual presentations or entire sessions to your schedule
  - Add a specific session abstract to your schedule
  - Add your own items to your schedule
- ***Enhanced for 2014***—View presentation details, abstracts, and ePosters
- ***Enhanced for 2014***—Search for items based on session title, abstract title, abstract keywords, thematic track, author name or affiliation
- View and interact with speakers
- ***Enhanced for 2014***—Build your own Briefcase and synchronize from mobile event website to your iPad, tablet, and smartphone by logging in
- View the Phoenix Convention Center map and Phoenix city maps
- Request meetings with attendees and exhibitors
- Navigate the real-time ToxExpo floor plan and search for products, specials, and exhibitors
- Contact exhibitors
- Integrate with ToXchange, Twitter, and Facebook
- Scan QR codes quickly and easily within the app

To connect to the free wireless Internet, browse the available wireless networks and select the **SOT2014** wireless network. When prompted for a password, use **sotguest** to connect to the network.

Access information from any mobile device, including popular smartphones, tablets, and iPads—Synchronize your personal schedule by logging in.

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See more details on inside back cover.



How to Use This *Program*

The Society of Toxicology's (SOT) Annual Meeting is always an exciting opportunity to highlight advancements in the science of toxicology. In order to maximize the value of your Annual Meeting attendance, we offer this *Program* Publication Layout Overview, the Scientific Session Reference, and Scientific Session Type Legend to assist you. We hope that you find this information useful and welcome your comments.

Program Publication Layout Overview

Section	Description
Front Fold-Out Cover—Scientific Program Overview	This quick reference guide lists the Annual Meeting scientific sessions with corresponding page numbers in the Program Description section. Color-coded presentation titles assist you in identifying sessions within each theme.
Daily Pocket Calendar (pages 5–13)	This at-a-glance calendar is your guide to the daily activities of the Annual Meeting, including special sessions; Regional Chapter, Special Interest Group, Specialty Section, and ancillary functions; and SOT committee meetings. We encourage you to tear out the daily guide for easy reference. Please note that the scientific session details are included at the end of each day's guide.
Schedule by Event Name (pages 15–24)	This is an alphabetical listing of all the functions held during the Annual Meeting. You may use this easy-to-read schedule to quickly locate an event. Please note that for the scientific session details, you must refer to the Scientific Program Overview on the front fold-out cover or Daily Pocket Calendar on pages 5–13.
Scientific Session Index (pages 112–117)	This index lists the scientific sessions by type, date, and time. In addition, this information includes the session titles with abstract numbers, poster boards, session locations, and corresponding page numbers in the Program Description section.
Poster Session Schedules and Board Surface Maps (pages 119–126)	The Poster Session Schedule and Poster Board Surface Maps are displayed with a mock layout of the ToxExpo Exhibit Hall to assist you in finding poster sessions. Each poster schedule and surface map shows the poster session abstract numbers and the poster surface locations for each poster session time. Posters are displayed in the Exhibit Hall, Monday–Wednesday and Hall 1 on Thursday.
Author Index (pages 359–388)	The numerals following the author' names refer to the abstract numbers referenced in this *Program*, *The Toxicologist,* and the *mobile event app* or *event website*. The asterisk after the abstract number indicates the author is the first presenter.
Abstract Keyword Index (pages 390–406)	This index provides a listing of keywords by subject or chemical and the relevant abstract(s) referenced in this *Program*, *The Toxicologist*, and the *mobile event app* or *event website*.

Program Description Scientific Session Reference (pages 127–357)

The Program Description layout is ordered by date and start time. Please refer to the description below. Each scientific session listing includes a session abstract and list of speakers or the featured presenters.

Listing	Description
Session Type and Title	Session type and title display in bold type. A brief description for each scientific session type is listed below.
Sponsor(s)	This section lists the sponsors from SOT Special Interest Groups, Specialty Sections, Regional Chapters, or SOT Committees. Sponsors are listed alphabetically.
Abstract Number or Presentation Time	The first number listed is the abstract number, or the SOT final identifying number. For scientific sessions (but not Continuing Education Courses or Poster Presentations), the second number is the presentation time. Individual abstracts can be found using the *mobile event app* or *event website*, in the PDF of *The Toxicologist* via the SOT website (free to all attendees), and in *The Toxicologist* publication (available for purchase on-site for $25).
Poster Sessions	The poster board surface number is listed above the title of each individual poster presentation for easy reference.

Session Type Legend

- Education-Career Development Sessions (80 minutes)—Sessions that provide the tools and resources to toxicologists that will enhance their professional and scientific development
- Exhibitor-Hosted Sessions (60 minutes)—Informative sessions developed by an exhibiting company
- Featured Sessions (50–165 minutes)—Keynote and other special lectures
- Historical Highlights Session (80 minutes)—Session that provide a review of a historical body of science that has impacted toxicology
- Informational Sessions (80 minutes)—Scientific planning or membership development
- Platform Sessions (165 minutes)—Oral presentations that cover new areas, concepts, or data
- Poster Sessions (180–210 minutes)—Topic-specific presentations that cover new areas, concepts, or data
- Regional Interest Session (165 minutes)—Central topics of relevance that describe public health and/or ecological problems of a particular region
- Roundtable Sessions (80 minutes)—Controversial subjects
- Symposium Sessions (165 minutes)—Cutting-edge science: new areas, concepts, or data
- Thematic Sessions (45–225 minutes)—Timely topics of relevance to toxicology
- Workshop Sessions (165 minutes)—State-of-the-art knowledge in toxicology

Daily Pocket Calendar

Tired of carrying the *Program* during the meeting? Access the real-time schedule via the *mobile event app* or *online event website*.

For your convenience, please tear out and carry with you. Easily folds to nest within your badge holder.
(Calendar as of February 4; private events are not listed.)

Saturday — March 22

Events are listed alphabetically by the event start time.

Most events will be held in the Phoenix Convention Center in the North Building unless otherwise noted. **Events at the Phoenix Convention Center are noted as CC.**

7:30 AM to 8:00 AM
Council Orientation Breakfast
Sheraton Camelback B

8:00 AM to 11:30 AM
Council Orientation Meeting
Sheraton Camelback A

8:00 AM to 5:00 PM
ToxExpo Set Up
CC Exhibit Hall

8:30 AM to 4:15 PM
High School Student and Teacher Workshop: Lotions Are Not Potions: Toxicology and Product Safety
Health Science Education Building, University of Arizona Biomedical Campus

10:30 AM to 12:30 PM
Public Outreach Event:
All About Poisons—Toxicology Revealed!
Burton Barr Central Library, Phoenix

11:30 AM to 1:00 PM
Council Orientation Luncheon
Sheraton Camelback B

12:00 Noon to 6:00 PM
American Board of Toxicology
Board of Directors Meeting
Renaissance Salon 7

1:00 PM to 5:30 PM
Council Meeting
Sheraton North Mountain

4:00 PM to 7:00 PM
@SOT—Internet Access and App Center
CC Lower Level

4:00 PM to 7:00 PM
Housing Desk
CC Lower Level

4:00 PM to 7:00 PM
Registration
CC Lower Level

4:00 PM to 7:00 PM
SOT Office
CC Room 224A

4:00 PM to 7:00 PM
Speaker Ready Room
(Scientific Session and ePoster Upload)
CC Room 123

4:30 PM to 5:15 PM
Continuing Education Committee Walk-Through
CC North Ballroom 120A

5:00 PM to 5:15 PM
Undergraduate Education Program: Registration for Students
CC Room 102 West

5:15 PM to 6:55 PM
Undergraduate Education Program: Opening Event *(CDI Travel Awardees)*
CC Room 102 West

7:00 PM to 9:00 PM
CDI Reunion and 25th Anniversary Celebration of the Undergraduate Education Program for Minority Students *(Invited: All Current and Past Participants and Volunteers in the Undergraduate Education Program)*
CC Room 105 West

Sunday — March 23

Events are listed alphabetically by the event start time.

Most events will be held in the Phoenix Convention Center in the North Building unless otherwise noted. **Events at the Phoenix Convention Center are noted as CC.**

7:00 AM to 6:00 PM
@SOT—Internet Access and App Center
CC Lower Level

7:00 AM to 7:45 AM
Continuing Education Sunrise Mini-Course *(Ticket Required)*
CC *(See Signage or Mobile Event App for Room Location)*

7:00 AM to 8:00 PM
Registration
CC Lower Level

7:00 AM to 5:30 PM
SOT Office
CC Room 224A

7:00 AM to 5:30 PM
Speaker Ready Room
(Scientific Session and ePoster Upload)
CC Room 123

7:30 AM to 9:30 AM
Career Resource and Development Committee Meeting
CC Room 225B

7:30 AM to 2:30 PM
Concession Stands
CC Metro Marché

8:00 AM to 8:00 PM
Coat/Luggage Check
CC Lower Level

8:00 AM to 5:00 PM
Guest/Spouse Hospitality Room
Sheraton Room 428

8:00 AM to 5:00 PM
Housing Desk
CC Lower Level

8:00 AM to 12:00 Noon
Scientific Liaison Coalition Meeting
Sheraton Alhambra

8:00 AM to 5:00 PM
ToxExpo Set Up
CC Exhibit Hall

8:00 AM to 12:00 Noon
Toxicology Education Foundation Board of Trustees Meeting
Sheraton Estrella

8:00 AM to 10:40 AM
Undergraduate Education Program: Toxicology Lectures *(CDI Travel Awardees and Registered Participants)*
CC Room 105 West

8:15 AM to 12:00 Noon
Continuing Education Morning Courses *(Ticket Required)*
CC *(See Signage or Mobile Event App for Room Location)*

10:45 AM to 12:00 Noon
Undergraduate Education Program: Interactive Presentation *(CDI Travel Awardees and Registered Participants)*
CC Room 102 West

11:30 AM to 1:00 PM
K–12 Subcommittee Meeting
CC Room 228A

11:45 AM to 1:15 PM
Continuing Education Luncheon for Speakers, Committee, and Student Volunteers *(By Invitation Only)*
CC Room 127

12:00 Noon to 3:00 PM
Toxicological Sciences Associate Editors Meeting
Sheraton Maryvale A

12:15 PM to 12:55 PM
Undergraduate Education Program: Luncheon *(CDI Travel Awardees and Registered Participants)*
CC Room 102 West

1:00 PM to 5:00 PM
Job Bank Center
CC Room 130

1:00 PM to 5:00 PM
Job Bank/Mentor Match Lounge
CC Room 131A

1:00 PM to 1:55 PM
Undergraduate Education Program: Advisors Breakout Session—Tips for Advising Prospective Graduate Students *(CDI Travel Awardees and Registered Participants)*
CC Room 101C West

1:00 PM to 1:55 PM
Undergraduate Education Program: Students Breakout Sessions—Planning for Graduate School *(CDI Travel Awardees and Registered Participants)*
CC Rooms 103A, 104A, 104B West

1:15 PM to 5:00 PM
Continuing Education Afternoon Courses *(Ticket Required)*
CC *(See Signage or Mobile Event App for Room Location)*

2:00 PM to 2:45 PM
Undergraduate Education Program: Career Opportunities in Toxicology, Linda S. Birnbaum, NIEHS *(CDI Travel Awardees and Registered Participants)*
CC Room 102 West

3:00 PM to 5:00 PM
Congressional Subcommittee Meeting
CC Room 228A

3:00 PM to 4:00 PM
Council Members Photographed
CC North Ballroom 120D

3:00 PM to 3:30 PM
NIEHS-SOT Memorandum of Understanding Signing Ceremony
CC North Ballroom 120D

3:00 PM to 5:00 PM
Undergraduate Education Program: Open Time with Academic Program Directors and Internship Sponsors *(CDI Travel Awardees and Registered Participants)*
CC Room 105 West

4:00 PM to 5:00 PM
Awards Recipients Photographed
CC North Ballroom 120D

4:45 PM to 5:15 PM
Awards Ceremony Music—Performed by Nicole Pesce *(All Attendees Welcome)*
CC North Ballroom 120D

5:15 PM to 6:30 PM
Awards Ceremony *(All Attendees Welcome)*
CC North Ballroom 120D

6:30 PM to 7:30 PM
Welcome Reception *(All Attendees Welcome)*
CC Hall 1

7:00 PM to 8:00 PM
25-Year (Or More) Member Reception *(By Invitation Only)*
CC North Ballroom Foyer

7:30 PM to 10:30 PM
Lovelace Respiratory Research Institute Reception
Hyatt Cassidy

7:30 PM to 9:00 PM
Student/Postdoctoral Scholar Mixer *(Ticket Required)*
CC Room 301C West

8:00 PM to 10:30 PM
Arizona Night
Hyatt Sundance



Daily Pocket Calendar (Continued)

For your convenience, please tear out and carry with you. Easily folds to nest within your badge holder.
(Calendar as of February 4; private events are not listed.)

Scientific Program Overview by Day & Time

Sunday — March 23

7:00 AM to 7:45 AM

CONTINUING EDUCATION SUNRISE MINI-COURSE

1. Combination Products: Toxicology and Regulatory Challenges

Pick up a course location flyer upon entering the convention center or see signage at the CE booths on the 100 Level for room assignments.

8:15 AM to 12:00 Noon

CONTINUING EDUCATION MORNING COURSES

2. Computational and Experimental Aspects of microRNAs in Toxicology
3. Current Trends in Genetic Toxicology Testing
4. Elucidating Adverse Outcome Pathways (AOPs) for Developmental Toxicity
5. Inhalation Studies: Challenges and Complexities
6. Methodologies in Human Health Risk Assessment
7. Nonclinical Animal Models Enabling Biopharmaceutical Advances in Translational Medicine

1:15 PM to 5:00 PM

CONTINUING EDUCATION AFTERNOON COURSES

8. Nanotoxicology: Past Achievements, Future Challenges, and Potential Solutions
9. Epidemiology for Toxicologists: What the Numbers Really Mean
10. Innovations in Methodologies for Inhalation Exposure and Interpretations of *In Vivo* Toxicity
11. Nonclinical Pediatric Drug Development: Considerations, Study Designs, and Strategies
12. Stem Cells in Toxicology
13. Translational Biomarkers in the Assessment of Health and Disease

SOT Society of Toxicology — Creating a Safer and Healthier World by Advancing the Science of Toxicology

ToXchange

Home | Members | Member CVs | Blogs | Communities

At the heart of ToXchange is an enhanced SOT membership directory that allows you to:

- Create a customized SOT member My Page that you can update online 24/7
- Search for and find other SOT members based on their profile information
- Be found by other SOT members based on YOUR profile information
- Communicate with your SOT peers with easy-to-use, secure networking tools
- Participate in blogs, community discussions, and more!

Plus, you can pull in content from other social networking systems, making ToXchange your one-stop professional online resource.

Hosted on a safe and secure network platform, ToXchange is specifically designed for SOT members.

Be sure to visit the SOT Pavilion, booth 1623 in the Exhibit Hall for on-site information.

ToXchange

It's YOUR Network. Be a part of it.

For online information, go to www.toXchange.org.

Daily Pocket Calendar (Continued)

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(Calendar as of February 4; private events are not listed.)

Monday March 24

Events are listed alphabetically by the event start time.

Most events will be held in the Phoenix Convention Center in the North Building unless otherwise noted. **Events at the Phoenix Convention Center are noted as CC.**

6:15 AM to 7:45 AM
SOT Mentoring Breakfast *(Reservations Required)*
CC Room 221A

6:30 AM to 8:00 AM
Clinical and Translational Toxicology Specialty Section Officers Meeting
CC Room 222

6:30 AM to 8:00 AM
Dermal Toxicology Specialty Section Officers Meeting
CC Room 222

6:30 AM to 8:00 AM
Food Safety Specialty Section Officers Meeting
CC Room 222

6:30 AM to 8:00 AM
In Vitro and Alternative Methods Specialty Section Officers Meeting
CC Room 222

6:30 AM to 8:00 AM
Mechanisms Specialty Section Officers Meeting
CC Room 222

6:30 AM to 8:00 AM
Molecular and Systems Biology Specialty Section Officers Meeting
CC Room 221C

6:30 AM to 8:00 AM
Neurotoxicology Specialty Section Officers Meeting
CC Room 222

6:30 AM to 8:00 AM
Past Presidents Breakfast
CC Room 225B

6:30 AM to 8:00 AM
Regulatory and Safety Evaluation Specialty Section Officers Meeting
CC Room 222

6:30 AM to 8:00 AM
Risk Assessment Specialty Section Officers Meeting
CC Room 222

6:30 AM to 7:30 AM
Toxicologic and Exploratory Pathology Specialty Section Officers Meeting
CC Room 228A

7:00 AM to 6:00 PM
@SOT—Internet Access and App Center
CC Lower Level

7:00 AM to 8:00 AM
Central States Regional Chapter Meeting
Renaissance Marston Café

7:00 AM to 6:00 PM
Coat/Luggage Check
CC Lower Level

7:00 AM to 5:00 PM
Registration
CC Lower Level

7:00 AM to 8:30 AM
Reproductive and Developmental Toxicology Specialty Section Officers Meeting
CC Room 226A

7:00 AM to 7:45 AM
Scientific Program Committee Walk-Through
CC North Ballroom 120A

7:00 AM to 5:00 PM
SOT Office
CC Room 224A

7:00 AM to 5:00 PM
Speaker Ready Room
(Scientific Session and ePoster Upload)
CC Room 123

7:30 AM to 9:30 AM
Concession Stands
CC Metro Marché

7:30 AM to 9:30 AM
Poster Set Up *(See Poster Board Surface Maps on Pages 120–121 or Mobile Event App for Details)*
CC Exhibit Hall

8:00 AM to 5:00 PM
Guest/Spouse Hospitality Room
Sheraton Room 428

8:00 AM to 5:00 PM
Housing Desk
CC Lower Level

8:00 AM to 9:00 AM
Plenary Opening Lecture: The Origins and Future of Pluripotency and Cellular Reprogramming, *Lecturer: Sir John B. Gurdon, Wellcome Trust/Cancer Research UK, Gurdon Institute, University of Cambridge*
CC Hall 1

8:00 AM to 3:45 PM
Undergraduate Education Program: Meeting Participation
CC Room 102 West

9:00 AM to 10:00 AM
Complimentary Coffee
CC Exhibit Hall

9:00 AM to 4:30 PM
Concession Stands
CC Exhibit Hall

9:00 AM to 5:00 PM
Job Bank Center
CC Room 130

9:00 AM to 5:00 PM
Job Bank/Mentor Match Lounge
CC Room 131A

9:00 AM to 4:30 PM
SOT Pavilion, Booth 1623
CC Exhibit Hall

9:00 AM to 4:30 PM
ToxExpo Exhibits Open
CC Exhibit Hall

9:15 AM to 10:15 AM
Exhibitor-Hosted Session: ChanTest Corp.
CC Room 106C West

9:15 AM to 10:15 AM
Exhibitor-Hosted Session: Huntingdon Life Sciences
CC Room 106A West

9:15 AM to 10:15 AM
Exhibitor-Hosted Session: MPI Research
CC Room 101C West

9:15 AM to 10:15 AM
Exhibitor-Hosted Session: TSE Systems, Inc.
CC Room 101A West

9:15 AM to 12:00 Noon
Scientific Sessions
CC *(See Session Index on Pages 112–117 or Mobile Event App for Room Locations)*

9:30 AM to 11:30 AM
Global Collaboration Coffee
CC Room 127C

9:30 AM to 12:30 PM
Poster Sessions
CC Exhibit Hall

9:30 AM to 4:00 PM
Research Funding Information Room
CC Room 127A

10:00 AM to 11:00 AM
Trainee Discussion with Plenary Lecturer: Dr. Gurdon
(Ticket Required; SOT Student and Postdoctoral members only, limited seating)
CC Room 103A West

10:30 AM to 11:30 AM
Exhibitor-Hosted Session: Korea Institute of Toxicology
CC Room 106C West

10:30 AM to 11:30 AM
Exhibitor-Hosted Session: Lhasa Limited
CC Room 101C West

10:30 AM to 11:30 AM
Exhibitor-Hosted Session: National Toxicology Program
CC Room 101A West

10:30 AM to 11:30 AM
Exhibitor-Hosted Session: NSF International Applied Research Center
CC Room 106A West

11:00 AM to 12:00 Noon
CME Task Force Meeting
CC Room 228A

11:30 AM to 2:30 PM
Human & Experimental Toxicology Editorial Board Meeting
Hyatt Cassidy

11:45 AM to 12:45 PM
Exhibitor-Hosted Session: Fraunhofer ITEM
CC Room 106A West

11:45 AM to 12:45 PM
Exhibitor-Hosted Session: Harlan Contract Research Services
CC Room 106C West

11:45 AM to 12:45 PM
Exhibitor-Hosted Session: MultiCASE Inc
CC Room 101A West

11:45 AM to 12:45 PM
Exhibitor-Hosted Session: VisualSonics
CC Room 101C West

11:45 AM to 12:15 PM
Global Gallery of Toxicology Poster Session—Representative Attended
(Across from SOT Pavilion, Booth 1623)
CC Exhibit Hall

12:00 Noon to 1:30 PM
Carcinogenesis Specialty Section Officers Meeting
CC Room 230

12:00 Noon to 1:30 PM
Continuing Education Committee Meeting
CC Room 225B

12:00 Noon to 1:30 PM
HESI Luncheon Seminar *(Registration Required)*
Sheraton Valley of the Sun A

12:00 Noon to 1:20 PM
In Vitro Toxicology Lecture and Luncheon for Students, *Lecturer: Helena Kandarova, MatTek Corp. and MatTek* In Vitro *Life Science Laboratories (Ticket Required)*
CC Room 301C West

12:00 Noon to 2:00 PM
Mid-Atlantic Regional Chapter Luncheon
Majerle's Sports Grill

12:00 Noon to 1:00 PM
QIAGEN's Ingenuity Pathway Analysis Workshop
Sheraton Deer Valley

12:00 Noon to 1:30 PM
Occupational and Public Health Specialty Section Meeting/Luncheon
CC Room 222

12:00 Noon to 1:30 PM
Special Interest Group Collaboration Group Meeting
CC Room 226A

12:00 Noon to 1:30 PM
Toxicologic and Exploratory Pathology Specialty Section Meeting/Luncheon
CC Room 227

12:00 Noon to 2:00 PM
Toxicology and Applied Pharmacology Associate Editor Board Meeting
Hyatt Sundance

12:10 PM to 1:30 PM
Scientific Sessions
CC *(See Session Index on Pages 112–117 or Mobile Event App for Room Locations)*

12:30 PM to 1:20 PM
Merit Award Lecture: Toxicology Is Part of the Solution, *Lecturer: Jay I. Goodman, Michigan State University*
CC North Ballroom 120B

12:30 PM to 1:00 PM
Poster Set Up *(See Poster Board Surface Maps on Pages 120–121 or Mobile Event App for Details)*
CC Exhibit Hall

1:00 PM to 2:00 PM
Exhibitor-Hosted Session: BioReliance
CC Room 106A West

1:00 PM to 2:00 PM
Exhibitor-Hosted Session: Gentronix Limited
CC Room 101C West

1:00 PM to 2:00 PM
Exhibitor-Hosted Session: Hurel Corporation
CC Room 101A West

1:00 PM to 2:00 PM
Exhibitor-Hosted Session: PDS Preclinical Data Systems Inc.
CC Room 106C West

1:00 PM to 2:00 PM
International Neurotoxicology Association Business Meeting
Sheraton Ahwatukee

1:00 PM to 2:00 PM
Molecular Devices, LLC: *In Vitro* Assessment of Environmental Compound-Induced Cardiotoxicity Potential Using Human Induced Pluripotent Stem Cell (iPSC)-Derived Cardiomyocytes
Hyatt Ballroom D

1:00 PM to 4:30 PM
Poster Sessions
CC Exhibit Hall

1:30 PM to 2:30 PM
Special Symposium: A Conversation with Director of NIEHS: Dr. Linda S. Birnbaum
(See Page 194 or Mobile Event App for Details)
CC North Ballroom 120D

2:00 PM to 4:45 PM
Scientific Sessions
CC *(See Session Index on Pages 112–117 or Mobile Event App for Room Locations)*

2:00 PM to 3:00 PM
Specialty Section Collaboration and Communication Group Meeting
CC Room 226C

2:15 PM to 3:15 PM
Exhibitor-Hosted Session: Charles River
CC Room 106C West

2:15 PM to 3:15 PM
Exhibitor-Hosted Session: National Institute of Environmental Health Sciences
CC Room 101C West

2:15 PM to 3:15 PM
Exhibitor-Hosted Session: SNBL USA, Ltd.
CC Room 106A West

2:15 PM to 3:15 PM
Exhibitor-Hosted Session: Tandem Labs
CC Room 101A West

2:30 PM to 3:30 PM
Complimentary Lemonade and Popcorn
CC Exhibit Hall

2:30 PM to 3:30 PM
ToxLearn Work Group
CC Room 228A

3:15 PM to 4:45 PM
Government Liaison Groups Collaboration Meeting
CC Room 127C

3:30 PM to 4:30 PM
Exhibitor-Hosted Session: Biopredic International
CC Room 101C West

3:30 PM to 4:30 PM
Exhibitor-Hosted Session: In Vitro ADMET Laboratories LLC
CC Room 101A West

3:30 PM to 4:30 PM
Exhibitor-Hosted Session: InSphero AG
CC Room 106A West

Continued on next page



Daily Pocket Calendar (Continued)

Tired of carrying the *Program* during the meeting? Access the real-time schedule via the *mobile event app* or *online event website*.

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Monday (Continued) — March 24

3:30 PM to 4:30 PM
Exhibitor-Hosted Session:
Stemina Biomarker Discovery
CC Room 106C West

3:45 PM to 4:45 PM
Undergraduate Education Program: Career Opportunities in Toxicology—Small Group Discussions *(CDI Travel Awardees)*
CC Room 102 West

3:45 PM to 4:45 PM
Undergraduate Education Program: Host Mentor and Peer Mentor Meeting
CC Room 104B West

4:30 PM to 6:00 PM
American Board of Toxicology Open Mixer Meeting
Renaissance Salon 6

4:30 PM to 5:30 PM
K–12 Regional Outreach Contacts Meeting
CC Room 228A

4:30 PM to 6:30 PM
Roundtable of Toxicology Consultants Annual Business Meeting
Hyatt Cassidy

4:45 PM to 6:00 PM
SOT/EUROTOX Debate: Are Nonmonotonic Dose-Responses at Low Dose Levels Toxicologically Relevant?, *SOT Debater: James C. Lamb, IV, Exponent, and EUROTOX Debater: Dieter Schrenk, Technische Universitat Kaiserslautern*
CC North Ballroom 120D

4:45 PM to 5:15 PM
Undergraduate Education Program: Recognitions and Closing Session *(CDI Travel Awardees)*
CC Room 102 West

5:00 PM to 6:30 PM
Allegheny-Erie and Michigan Regional Chapter Joint Reception—Hyatt Sundance

5:00 PM to 6:00 PM
American Association of Chinese in Toxicology Special Interest Group Distinguished Chinese Toxicologist Lectureship Award Seminar: Career vs. Business—Personal Experience in the US and China,
Lecturer: Dr. Lijie Fu, SNBL USA Ltd.
Sheraton Phoenix Ballroom A

5:00 PM to 7:00 PM
Elsevier Editorial Board Member Reception
Sheraton Estrella

5:00 PM to 6:30 PM
Human Toxicology Project Consortium: Development of a Knowledge Base for Quantitative Modelling of Adverse Outcome Pathways: Stakeholder Input Session
Hyatt Borein

5:00 PM to 6:30 PM
Michigan and Allegheny-Erie Regional Chapter Joint Reception—Hyatt Sundance

5:00 PM to 6:30 PM
Special Interest Group: Global Hot Topics Event—Air Pollution around the World: Global Concerns
(See Page 200 or Mobile Event App for Details)
CC Room 221A

5:00 PM to 6:00 PM
Toxicologists of African Origin Special Interest Group Executive Board Meeting
CC Room 221A

5:00 PM to 6:00 PM
Women in Toxicology Special Interest Group Executive Committee Meeting
Sheraton Arcadia

5:30 PM to 7:30 PM
Pacific Northwest Regional Chapter Reception
Tom's Tavern

6:00 PM to 9:00 PM
American Association of Chinese in Toxicology Special Interest Group Meeting/Reception
Sheraton Phoenix Ballroom A

6:00 PM to 7:30 PM
Carcinogenesis Specialty Section Meeting/Reception
Sheraton Encanto A

6:00 PM to 7:30 PM
Food Safety Specialty Section Meeting/Reception
Sheraton Valley of the Sun D

6:00 PM to 7:30 PM
Inhalation and Respiratory Specialty Section Meeting/Reception
Sheraton Valley of the Sun C

6:00 PM to 8:00 PM
Korean Toxicologists Association in America Meeting/Reception
Thaid Up Restaurant

6:00 PM to 7:30 PM
Medical Device Specialty Section Meeting/Reception
Sheraton Paradise Valley

6:00 PM to 7:30 PM
Metals Specialty Section Meeting/Reception
Sheraton Encanto B

6:00 PM to 7:30 PM
Molecular and Systems Biology Specialty Section Meeting/Reception
Sheraton Alhambra

6:00 PM to 10:00 PM
MPI Research: Got Science?
Renaissance Terrace

6:00 PM to 7:30 PM
Nanotoxicology Specialty Section Meeting/Reception
Sheraton Valley of the Sun A

6:00 PM to 8:00 PM
Southeastern Regional Chapter Reception
Canyon Cafe

6:30 PM to 8:00 PM
Toxicologists of African Origin Special Interest Group Reception
Sheraton Ahwatukee

7:00 PM to 9:00 PM
Association of Scientists of Indian Origin Special Interest Group Meeting/Reception
Sheraton Deer Valley

7:00 PM to 9:00 PM
Toxicological Sciences/Oxford University Press Appreciation Dinner *(By Invitation Only)*
Province Restaurant

Scientific Program Overview by Day & Time

Monday — March 24

8:00 AM to 9:00 AM

PLENARY OPENING LECTURE

The Origins and Future of Pluripotency and Cellular Reprogramming *Lecturer: Sir John B. Gurdon, University of Cambridge* (Hall 1)

9:15 AM to 12:00 Noon

SYMPOSIUM SESSIONS

- Air Pollution and Cardiovascular Effects: Mechanisms and Role of Lipid Peroxidation (Room 122)
- Carbon Nanotubes Are Toxic in Experimental Models: What's Next, Who's Being Exposed, and Should We Be Concerned? (North Ballroom 120A)
- Computational Approaches to Predict Repeat-Dose Toxicity: Lessons Learned from Cosmetic Ingredients (Room 126)
- Induced Human Pluripotent Stem Cells and Their Differentiated Progeny Cells: Implementation in Toxicity Testing (North Ballroom 120B)
- Methylmercury's Modes of Action: New Approaches to Understanding an Old Problem (Room 124)
- To Bug or Not to Bug the Immune System: Benefits and Consequences of Altering the Microbiome (Room 121)

9:15 AM to 12:00 Noon

WORKSHOP SESSION

- Developmental Programming of Hepatic Metabolism: Assessing the Impact of Perinatal Exposure to Xenobiotics (Room 129)
- New Concerns and New Science Addressing Environmental Asbestos Exposures (North Ballroom 120D)

PLATFORM SESSION

- Enhancing Strategies for Pesticide Risk Assessment (Room 125)

9:30 AM to 4:00 PM

RESEARCH FUNDING SESSION

Research Funding Information Room (Room 127A)

9:30 AM to 12:30 PM

POSTER SESSIONS

(Exhibit Hall—*See Poster Board Surface Map on pages 120–121*)

- Alternatives to Mammalian Models I
- Autoimmunity/Hypersensitivity
- Biological Modeling
- Biomarkers I
- Carcinogenesis I
- Cell Death/Apoptosis
- Developmental Toxicology: Mammalian Models
- Developmental Toxicology: Nonmammalian Models
- Epidemiology
- Food Toxicology/Nutrition
- Neurotoxicity: General
- Safety Assessment: Drug Development I

12:10 PM to 1:30 PM

ROUNDTABLE SESSION

- Environmental Factors in Dysregulation of Puberty Timing and Progression (Room 125)

INFORMATIONAL SESSION

- Nonrodents Can Be Monitored, Too…Characterization of Novel Biomarkers of Drug-Induced Kidney Injury (DIKI) in Rats, Canines, Nonhuman Primates, and Humans (Room 124)

EDUCATION-CAREER DEVELOPMENT SESSION

- The Role of Consultants in the Science and Practice of Safety Assessment (Room 126)

12:30 PM to 1:20 PM

MERIT AWARD LECTURE

Toxicology Is Part of the Solution
Lecturer: Jay I. Goodman, Michigan State University
(North Ballroom 120B)

1:00 PM to 4:30 PM

POSTER SESSIONS

(Exhibit Hall—*See Poster Board Surface Map on pages 120–121*)

- Biotransformation/Cytochrome P450
- Cardiovascular Toxicity and Hemodynamics
- Chemical and Biological Weapons
- Computational Toxicology and Data Integration I
- Ecotoxicology
- Genetic Toxicity Testing
- Inflammation: Methods and Mechanisms
- Nanotoxicology: General and Carbon-Based
- Pesticide Exposure, Toxicology, and Risk Assessment
- Pharmacogenomics and Genetic Polymorphisms
- Regulation and Policy
- Risk Assessment I
- Systems Biology and Toxicology

1:30 PM to 2:30 PM

SPECIAL SYMPOSIUM

A Conversation with the Director of NIEHS: Dr. Linda S. Birnbaum *Lecturer: Linda S. Birnbaum, National Institute of Environmental Health Sciences* (North Ballroom 120D)

2:00 PM to 4:45 PM

SYMPOSIUM SESSIONS

- Adverse Outcome Pathways As an Integrative Framework for Predictive Toxicology: Combining Top-Down and Bottom-Up Thinking (North Ballroom 120A)
- Is Neuroimmune Crosstalk Important to Neurotoxicology? Critical Insight from Animal and Human Studies (Room 122)
- Perinatal Exposures and Children's Health Outcomes (Room 121)
- The Emerging Role of Mitochondrial Turnover, Biogenesis, and Dynamics in Tissue Injury (Room 124)
- Use of Stem Cells in Toxicity Testing—From Basic Research to Personalized Toxicology (North Ballroom 120B)

WORKSHOP SESSION

- Skeptically Re-Examining the Limits of Toxicology Evidence in the Courtroom (Room 129)

EDUCATION-CAREER DEVELOPMENT SESSION

- Scientific Ethics in Research and Publications (Room 126)

4:45 PM to 6:00 PM

SOT/EUROTOX DEBATE

Are Nonmonotonic Dose-Responses at Low Dose Levels Toxicologically Relevant? (North Ballroom 120D)

Daily Pocket Calendar (Continued)

Tired of carrying the *Program* during the meeting? Access the real-time schedule via the *mobile event app* or *online event website*.

For your convenience, please tear out and carry with you. Easily folds to nest within your badge holder.
(Calendar as of February 4; private events are not listed.)

Tuesday — March 25

Events are listed alphabetically by the event start time.

Most events will be held in the Phoenix Convention Center in the North Building unless otherwise noted. **Events at the Phoenix Convention Center are noted as CC.**

6:30 AM to 8:00 AM
Past Presidents' 5k Fun Run/Walk
Steele Indian School Park

6:45 AM to 7:45 AM
Postdoctoral Assembly Board Meeting
CC Room 225B

7:00 AM to 6:00 PM
@SOT—Internet Access and App Center
CC Lower Level

7:00 AM to 8:00 AM
Awards Committee Meeting
CC Room 226A

7:00 AM to 6:00 PM
Coat/Luggage Check
CC Lower Level

7:00 AM to 8:30 AM
Education Committee Meeting
CC Room 228B

7:00 AM to 8:00 AM
Research Funding Committee Meeting
CC Room 225A

7:00 AM to 4:30 PM
SOT Office
CC Room 224A

7:00 AM to 4:30 PM
Speaker Ready Room
(Scientific Session and ePoster Upload)
CC Room 123

7:30 AM to 9:00 AM
American Association of Chinese in Toxicology and Korean Toxicologists Association in America Special Interest Groups' Career Workshop
CC Room 227

7:30 AM to 9:30 AM
Concession Stands
CC Metro Marché

7:30 AM to 9:00 AM
Poster Set Up *(See Poster Board Surface Maps on Pages 122–123 or Mobile Event App for Details)*
CC Exhibit Hall

7:30 AM to 9:00 AM
Toxicology Consultants Breakfast:
GLP Toxicology in China—Q&A with Pharmaron
Sheraton North Mountain

8:00 AM to 5:00 PM
Guest/Spouse Hospitality Room
Sheraton Room 428

8:00 AM to 11:00 AM
Housing Desk
CC Lower Level

8:00 AM to 8:50 AM
Leading Edge in Basic Science Award Lecture:
A Two-Pronged Approach to Modernize Toxicology,
Lecturer: Vishal S. Vaidya, Harvard Medical School
CC North Ballroom 120B

8:00 AM to 4:00 PM
Registration
CC Lower Level

8:30 AM to 4:30 PM
Concession Stands
CC Exhibit Hall

8:30 AM to 9:30 AM
Exhibitor-Hosted Session: Covance
CC Room 106A West

8:30 AM to 9:30 AM
Exhibitor-Hosted Session:
EMD Millipore Corporation
CC Room 106C West

8:30 AM to 9:30 AM
Exhibitor-Hosted Session: Promega Corporation
CC Room 101A West

8:30 AM to 9:30 AM
Exhibitor-Hosted Session: WuXi Apptec Inc.
CC Room 101C West

8:30 AM to 9:30 AM
Graduate Education Subcommittee Meeting
CC Room 228B

8:30 AM to 5:00 PM
Job Bank Center
CC Room 130

8:30 AM to 5:00 PM
Job Bank/Mentor Match Lounge
CC Room 131A

8:30 AM to 4:30 PM
SOT Pavilion, Booth 1623
CC Exhibit Hall

8:30 AM to 4:30 PM
ToxExpo Exhibits Open
CC Exhibit Hall

9:00 AM to 10:30 AM
Audit Committee Meeting
CC Room 225A

9:00 AM to 10:00 AM
Complimentary Coffee
CC Exhibit Hall

9:00 AM to 12:30 PM
Poster Sessions
CC Exhibit Hall

9:00 AM to 11:45 AM
Scientific Sessions
CC *(See Session Index on Pages 112–117 or Mobile Event App for Room Locations)*

9:00 AM to 11:45 AM
Special Symposium: Frontiers for Toxicology Session: Noncoding RNAs in Human Health, Therapeutics, and Environmental Disease
(See Page 203 or Mobile Event App for Details)
CC North Ballroom 120A

9:30 AM to 4:00 PM
Research Funding Information Room
CC Room 127A

9:45 AM to 10:45 AM
Exhibitor-Hosted Session: Algorithme Pharma
CC Room 101C West

9:45 AM to 10:45 AM
Exhibitor-Hosted Session: Charles River
CC Room 101A West

9:45 AM to 10:45 AM
Exhibitor-Hosted Session: MPI Research
CC Room 106A West

9:45 AM to 10:45 AM
Exhibitor-Hosted Session: Malvern Instruments
CC Room 106C West

10:30 AM to 2:30 PM
High School Poster Exposition
(Across from SOT Pavilion, Booth 1623)
CC Exhibit Hall

11:00 AM to 12:00 Noon
Exhibitor-Hosted Session:
Ellegaard Göttingen Minipigs
CC Room 106A West

11:00 AM to 12:00 Noon
Exhibitor-Hosted Session: EPL, Inc.
CC Room 101A West

11:00 AM to 12:00 Noon
Exhibitor-Hosted Session: Sigma-Aldrich
CC Room 106C West

11:00 AM to 12:00 Noon
Exhibitor-Hosted Session: Tandem Labs
CC Room 101C West

11:00 AM to 12:00 Noon
ToxExpo Exhibit Hall Council Walk-Through
CC Exhibit Hall

11:45 AM to 1:30 PM
Toxicology Letters Editorial Board Meeting
Hyatt Sundance

12:00 Noon to 1:30 PM
Association of Scientists of Indian Origin Special Interest Group Lunch and Learn
Sheraton Camelback

12:00 Noon to 1:30 PM
Endowment Fund Board Meeting
CC Room 225B

12:00 Noon to 1:30 PM
Ethical, Legal, and Social Issues Specialty Section Meeting/Luncheon
CC Room 231A

12:00 Noon to 1:30 PM
Human Toxicology Project Consortium: Development of a Knowledge Base for Quantitative Modelling of Adverse Outcome Pathways: Stakeholder Input Session
Hyatt Cassidy

12:00 Noon to 1:30 PM
Networking Time
CC

12:00 Noon to 1:30 PM
Northeast Regional Chapter Student Luncheon
CC Room 222A

12:00 Noon to 1:15 PM
Postdoctoral Assembly Luncheon
(Ticket Required)
CC Room 105B West

12:00 Noon to 1:30 PM
Strategies for Funding Opportunities:
Brown Bag Luncheon
CC Room 221

12:15 PM to 1:15 PM
Exhibitor-Hosted Session:
ACEA Biosciences, Inc.
CC Room 106C West

12:15 PM to 1:15 PM
Exhibitor-Hosted Session: DiscoveRx Corporation, BioSeek Division
CC Room 101C West

12:15 PM to 1:15 PM
Exhibitor-Hosted Session: ICF International
CC Room 101A West

12:15 PM to 1:15 PM
Exhibitor-Hosted Session: WIL Research
CC Room 106A West

12:30 PM to 1:00 PM
Poster Set Up *(See Poster Board Surface Maps on Pages 122–123 or Mobile Event App for Details)*
CC Exhibit Hall

1:00 PM to 6:00 PM
EPA CSS STAR Research Grants Kick-Off Meeting: Developmental Neurotoxicity AOP
CC Room 226B

1:00 PM to 4:30 PM
Poster Sessions
CC Exhibit Hall

1:30 PM to 2:30 PM
Exhibitor-Hosted Session: Cellular Dynamics International
CC Room 106C West

1:30 PM to 2:30 PM
Exhibitor-Hosted Session: CiToxLAB & Ellegaard Göttingen Minipigs
CC Room 101C West

1:30 PM to 2:30 PM
Exhibitor-Hosted Session: Hepregen Corporation
CC Room 101A West

1:30 PM to 2:30 PM
Exhibitor-Hosted Session: Huntingdon Life Sciences
CC Room 106A West

1:30 PM to 3:00 PM
IUTOX Future ICT Meetings
CC Room 226A

1:30 PM to 4:15 PM
Scientific Sessions
CC *(See Session Index on Pages 112–117 or Mobile Event App for Room Locations)*

2:30 PM to 3:30 PM
Complimentary Lemonade and Popcorn
CC Exhibit Hall

2:45 PM to 3:45 PM
Exhibitor-Hosted Session: Battelle Memorial Institute
CC Room 101C West

2:45 PM to 3:45 PM
Exhibitor-Hosted Session:
Harlan Contract Research Services
CC Room 106C West

2:45 PM to 3:45 PM
Exhibitor-Hosted Session: Leadscope, Inc.
CC Room 106A West

2:45 PM to 3:45 PM
Exhibitor-Hosted Session:
PDS Preclinical Data Systems Inc.
CC Room 101A West

4:15 PM to 6:30 PM
Ohio Valley Regional Chapter Reception
Copper Blues

4:30 PM to 6:00 PM
SOT Annual Business Meeting
(All SOT Members Invited)
CC North Ballroom 120D

4:30 PM to 5:30 PM
Toxicology and Industrial Health
Editorial Board Meeting
Sheraton Deer Valley

4:45 PM to 6:00 PM
ToxExpo 2015 Exhibit Space Selection Process
CC Room 106C West

5:00 PM to 7:00 PM
Human Toxicology Project Consortium:
Adverse Outcome Pathways 101: The How and Why of Development and Use
Hyatt Ballroom C

5:30 PM to 7:30 PM
Lone Star and South Central Regional Chapter Joint Mixer
Tom's Tavern

6:00 PM to 7:30 PM
Biological Modeling Specialty Section Meeting/Reception
Sheraton Valley of the Sun B

6:00 PM to 7:30 PM
Biotechnology Specialty Section Meeting/Reception
Sheraton Maryvale

6:00 PM to 7:30 PM
Cardiovascular Toxicology Specialty Section Meeting/Reception
Sheraton Valley of the Sun C

6:00 PM to 7:30 PM
Clinical and Translational Toxicology Specialty Section Meeting/Reception
Sheraton Laveen B

6:00 PM to 7:30 PM
Dermal Toxicology Specialty Section Meeting/Reception
Sheraton Valley of the Sun A

6:00 PM to 7:30 PM
Ocular Toxicology Specialty Section Meeting/Reception
Sheraton Ahwatukee

6:00 PM to 7:30 PM
Reproductive and Developmental Toxicology Specialty Section Meeting/Reception
Sheraton Valley of the Sun D

6:00 PM to 7:30 PM
Stem Cells Specialty Section Meeting/Reception
Sheraton Estrella

6:00 PM to 8:00 PM
Women in Toxicology Special Interest Group Meeting/Reception
Sheraton Phoenix Ballroom D

Continued on next page



Daily Pocket Calendar (Continued)

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(Calendar as of February 4; private events are not listed.)

Tuesday (Continued) — March 25

6:30 PM to 9:30 PM
Hispanic Organization of Toxicologists Special Interest Group Reception and Awards Ceremony
Arizona Latino Arts and Culture Center

6:30 PM to 8:00 PM
Kettering Reception, University of Cincinnati
Sheraton Alhambra

7:00 PM to 10:00 PM
Northern California Regional Chapter Reception
The Arrogant Butcher

7:30 PM to 9:00 PM
Tox ShowDown *(All Attendees Invited)*
Sheraton Encanto

7:30 PM to 10:00 PM
University of Rochester
Toxicology Program Alumni Reception
Sheraton North Mountain

8:00 PM to 10:00 PM
Food and Chemical Toxicology Associate and Managing Editor Board Meeting
Hyatt Cassidy

9:00 PM to 11:00 PM
Michigan State University
Environmental Toxicology Reception
Sheraton Camelback B

9:00 PM to 11:00 PM
Rutgers University Joint Graduate Program in Toxicology Annual Dessert Reception
Hyatt Ballroom D

Scientific Program Overview by Day & Time

Tuesday — March 25

8:00 AM to 8:50 AM

LEADING EDGE IN BASIC SCIENCE AWARD LECTURE

A Two-Pronged Approach to Modernize Toxicology
Lecturer: Vishal S. Vaidya, Harvard Medical School
(North Ballroom 120B)

9:00 AM to 11:45 AM

SPECIAL SYMPOSIUM

- Frontiers for Toxicology Session: Noncoding RNAs in Human Health, Therapeutics, and Environmental Disease (North Ballroom 120A)

SYMPOSIUM SESSIONS

- Does This Chemical Make My Liver Look Fat? (Environmental Exposures and Steatosis) (Room 122)
- Ocular Immunotoxicology: A Privileged View (Room 124)

WORKSHOP SESSIONS

- Application of the Adverse Outcome Pathway (AOP) Concept to Neurotoxicology: A Challenging Approach (North Ballroom 120D)
- Idiosyncrasies of Cells in Culture: Lessons from Genetic Toxicology (Room 126)
- Photosafety Evaluation of Pharmaceuticals without Testing in Animals (Room 121)
- Stem Cell-Derived Cardiomyocytes: An Alternative Cardiac Toxicity Model for Assessing Drug Safety and Chemical Health Risk (North Ballroom 120B)
- The Doorway between Exposure and Response: How Biologically-Based Inhalation Dosimetry Models Enhance Human Health Risk Assessment (Room 129)

PLATFORM SESSION

- Risk Assessment of Metals (Room 125)

9:30 AM to 4:00 PM

RESEARCH FUNDING SESSION

Research Funding Information Room (Room 127A)

9:00 AM to 12:30 PM

POSTER SESSIONS

(Exhibit Hall—*See Poster Board Surface Map on pages 122–123*)

- Alternatives to Mammalian Models II
- Children's Health and Juvenile Toxicity
- Clinical and Translational Toxicology
- Developmental Toxicology: Mammalian Models II
- Endocrine Toxicology
- Epigenetics
- Gene Regulation and Signal Transduction I
- Inflammation in Disease
- Medical Devices
- Nanotoxicology: Metals, Environmental, and *In Silico*
- Natural Products: *In Vitro*
- Natural Products: *In Vivo*
- New Science on Neurodegenerative Disease
- Pharmacokinetics and Disposition
- Toxicity of Chemical Mixtures

12:00 Noon to 1:30 PM

RESEARCH FUNDING SESSION

Strategies for Funding Opportunities: Brown Bag Luncheon (Room 221)

1:00 PM to 4:30 PM

POSTER SESSIONS

(Exhibit Hall—*See Poster Board Surface Map on pages 122–123*)

- Arsenic
- Carcinogenesis II
- Cardiovascular Toxicity and Hemodynamics: An *In Vitro* Approach
- Developmental Neurotoxicity I: Mechanisms, Metals, and Industrial Chemicals
- Inhalants and Cardiopulmonary: Agents and Methods
- Inhalants and Cardiopulmonary: PM, Ozone, and Diesel Exhaust
- Liver
- Metal Neurotoxicity I: Mn
- Metal Neurotoxicity II: MeHg and Other Metals
- Metals I: Zn, Cd, Hg
- Metals II
- Receptors

1:30 PM to 4:15 PM

WORKSHOP SESSIONS

- Addressing Uncertainties of the Toxicology of Nanomaterials in Food and Food Contact Products (North Ballroom 120A)
- Adverse Outcome Pathways: A Conceptual Framework for 21st Century Risk Assessment (Room 124)
- Challenges Facing the Next Generation of Risk Assessment (Room 122)
- Contribution of Nonimmune Cells to Adverse Immune Responses: Implications for Toxicology (Room 129)
- Developmental Toxicity from Chemical Mixtures: Research to Application in Susceptible Populations (Room 125)
- Somatic Cell Therapy—Paradigms for Investigational New Drug (IND)-Enabling Programs, Scientific and Regulatory Considerations, and Clinical Translation (North Ballroom 120B)
- The Promise of Translational Imaging in Nonclinical Safety Assessment (Room 121)
- The Role of Toxicology in Undergraduate STEM Education Reform (Room 126)

4:30 PM to 6:00 PM

SPECIAL MEMBER SESSION

SOT Annual Business Meeting (North Ballroom 120D)

Daily Pocket Calendar (Continued)

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(Calendar as of February 4; private events are not listed.)

Wednesday — March 26

Events are listed alphabetically by the event start time.

Most events will be held in the Phoenix Convention Center in the North Building unless otherwise noted. **Events at the Phoenix Convention Center are noted as CC.**

6:30 AM to 8:00 AM
Academy of Toxicological Sciences Board of Directors Meeting
Sheraton Arcadia

6:45 AM to 7:45 AM
Graduate Student Leadership Committee Meeting
CC Room 224B

7:00 AM to 6:00 PM
Coat/Luggage Check
CC Lower Level

7:00 AM to 8:30 AM
Committee on Diversity Initiatives Meeting
CC Room 225B

7:00 AM to 8:00 AM
Contemporary Concepts in Toxicology Conferences Committee Meeting
CC Room 226A

7:00 AM to 4:30 PM
SOT Office
CC Room 224A

7:00 AM to 4:30 PM
Speaker Ready Room
(Scientific Session and ePoster Upload)
CC Room 123

7:00 AM to 8:00 AM
ToXchange Task Force Meeting
CC Room 228B

7:30 AM to 9:30 AM
Concession Stands
CC Metro Marché

7:30 AM to 9:00 AM
Poster Set Up *(See Poster Board Surface Maps on Pages 124–125 or Mobile Event App for Details)*
CC Exhibit Hall

8:00 AM to 6:00 PM
@SOT—Internet Access and App Center
CC Lower Level

8:00 AM to 9:00 AM
Graduate Student Leadership Committee Executive Board Meeting
CC Room 228A

8:00 AM to 5:00 PM
Guest/Spouse Hospitality Room
Sheraton Room 428

8:00 AM to 9:30 AM
Inhalation and Respiratory Specialty Section Technical Meeting
CC Room 230

8:00 AM to 9:00 AM
Keynote Medical Research Council (MRC) Lecture: Guiding Signals through Anchored Enzyme Complexes: Implications for Disease, *Lecturer: John D. Scott, Howard Hughes Medical Institute, Department of Pharmacology, University of Washington*
CC North Ballroom 120A

8:00 AM to 4:00 PM
Registration
CC Lower Level

8:30 AM to 4:30 PM
Concession Stands
CC Exhibit Hall

8:30 AM to 5:00 PM
Job Bank Center
CC Room 130

8:30 AM to 5:00 PM
Job Bank/Mentor Match Lounge
CC Room 131A

8:30 AM to 4:30 PM
SOT Pavilion, Booth 1623
CC Exhibit Hall

8:30 AM to 4:30 PM
ToxExpo Exhibits Open
CC Exhibit Hall

9:00 AM to 10:00 AM
Complimentary Coffee
CC Exhibit Hall

9:00 AM to 12:30 PM
Poster Sessions
CC Exhibit Hall

9:00 AM to 11:45 AM
Scientific Sessions
CC *(See Session Index on Pages 112–117 or Mobile Event App for Room Locations)*

9:15 AM to 10:15 AM
Exhibitor-Hosted Session: Charles River
CC Room 101A West

9:15 AM to 10:15 AM
Exhibitor-Hosted Session: Harlan Contract Research Services
CC Room 106C West

9:15 AM to 10:15 AM
Exhibitor-Hosted Session: MPI Research
CC Room 106A West

9:15 AM to 10:15 AM
Exhibitor-Hosted Session: Tandem Labs
CC Room 101C West

9:30 AM to 4:00 PM
Research Funding Information Room
CC Room 127A

10:00 AM to 11:30 AM
Board of Publications Meeting
CC Room 225B

10:00 AM to 11:00 AM
Trainee Discussion with Medical Research Council (MRC) Lecturer: Dr. Scott *(Ticket Required; SOT Student and Postdoctoral members only, limited seating)*
CC Room 103A West

10:30 AM to 11:30 AM
Exhibitor-Hosted Session: Covance
CC Room 106C West

10:30 AM to 11:30 AM
Exhibitor-Hosted Session: Exiqon, Inc.
CC Room 101C West

10:30 AM to 11:30 AM
Exhibitor-Hosted Session: Huntingdon Life Sciences
CC Room 106A West

10:30 AM to 11:30 AM
Exhibitor-Hosted Session: Toxikon Corporation
CC Room 101A West

11:30 AM to 1:30 PM
Finance Committee Meeting
CC Room 225A

11:30 AM to 1:00 PM
Membership Committee Meeting
CC Room 226A

11:45 AM to 12:45 PM
Exhibitor-Hosted Session: Cellectis AB
CC Room 101A West

11:45 AM to 1:30 PM
Toxicology Editorial Board Meeting
Hyatt Sundance

12:00 Noon to 1:30 PM
Comparative and Veterinary Specialty Section Meeting/Luncheon
CC Room 221A

12:00 Noon to 1:30 PM
In Vitro and Alternative Methods Specialty Section Meeting/Luncheon
CC Room 222

12:00 Noon to 1:30 PM
Regional Chapter Collaboration and Communications Committee Meeting
CC Room 228A

12:00 Noon to 1:20 PM
Scientific Sessions
CC *(See Session Index on Pages 112–117 or Mobile Event App for Room Locations)*

12:30 PM to 1:20 PM
Distinguished Toxicology Scholar Award Lecture: Investigating the Toxicity of Dioxin, *Lecturer: Richard E. Peterson, University of Wisconsin*
CC North Ballroom 120B

12:30 PM to 1:00 PM
Poster Set Up *(See Poster Board Surface Maps on Pages 124–125 or Mobile Event App for Details)*
CC Exhibit Hall

1:00 PM to 2:00 PM
Exhibitor-Hosted Session: DiaPharma Group, Inc.
CC Room 101A West

1:00 PM to 4:30 PM
Poster Sessions
CC Exhibit Hall

1:30 PM to 4:15 PM
Scientific Sessions
CC *(See Session Index on Pages 112–117 or Mobile Event App for Room Locations)*

1:30 PM to 2:00 PM
Undergraduate Subcommittee Meeting
CC Room 226A

2:00 PM to 4:00 PM
ToxExpo Liaison Working Group
CC Room 228B

2:00 PM to 4:00 PM
Tri-Service Toxicology Consortium (TSTC)
Hyatt Ballroom A

2:15 PM to 3:30 PM
Undergraduate Educator Network Meeting
CC Room 226A

2:30 PM to 3:30 PM
Complimentary Lemonade and Popcorn
CC Exhibit Hall

4:00 PM to 5:00 PM
Undergraduate Student Meeting
CC Room 226A

4:30 PM to 5:50 PM
Scientific Sessions *(Sunset)*
CC *(See Session Index on Pages 112–117 or Mobile Event App for Room Locations)*

4:30 PM to 12:00 Midnight
ToxExpo Tear Down
CC Exhibit Hall

4:30 PM to 5:20 PM
Translational Impact Award Lecture: Ancient Medicine for the Mitigation of Aflatoxin Exposures, *Lecturer: Timothy D. Phillips, Texas A&M University*
CC North Ballroom 120B

6:00 PM to 7:30 PM
Drug Discovery Toxicology Specialty Section Meeting/Reception
Sheraton Maryvale

6:00 PM to 7:30 PM
Immunotoxicology Specialty Section Meeting/Reception
Sheraton Valley of the Sun C

6:00 PM to 7:30 PM
Mechanisms Specialty Section Meeting/Reception
Sheraton Valley of the Sun A

6:00 PM to 7:30 PM
Mixtures Specialty Section Meeting/Reception
Sheraton Estrella

6:00 PM to 7:30 PM
Neurotoxicology Specialty Section Meeting/Reception
Sheraton Valley of the Sun D

6:00 PM to 7:30 PM
Regulatory and Safety Evaluation Specialty Section Meeting/Reception
Sheraton Encanto

6:00 PM to 7:30 PM
Risk Assessment Specialty Section Meeting/Reception
Sheraton Phoenix Ballroom D

7:00 PM to 8:30 PM
President's Reception *(By Invitation Only)*
Sheraton Phoenix Ballroom C

8:30 PM to 10:00 PM
Academy of Toxicological Sciences Reception
Sheraton Phoenix Ballroom A

9:00 PM to 11:00 PM
University of Texas at Austin College of Pharmacy Alumni Dessert Reception
Sheraton North Mountain



Daily Pocket Calendar (Continued)

For your convenience, please tear out and carry with you. Easily folds to nest within your badge holder.
(Calendar as of February 4; private events are not listed.)

Scientific Program Overview by Day & Time

Wednesday — March 26

8:00 AM to 9:00 AM

KEYNOTE MEDICAL RESEARCH COUNCIL (MRC) LECTURE

Guiding Signals through Anchored Enzyme Complexes: Implications for Disease
Lecturer: John D. Scott, Howard Hughes Medical Institute, Department of Pharmacology, University of Washington
(North Ballroom 120A)

9:00 AM to 11:45 AM

SYMPOSIUM SESSIONS

- *In Vitro* Microphysiological Systems: Advancing Regulatory Science through Innovation (North Ballroom 120D)
- Mechanisms of Metal-Induced Disruption of DNA Repair (Room 126)
- Molecular Mechanisms Involved in Neuro/Glial Toxicity: From Oxidative Stress to Redox Signal Transduction (Room 122)
- The Role of the AhR in Stem Cell Development and Lineage Specification (Room 124)
- Three Dimensions of Nanomaterial Pulmonary Toxicity: Innate Immunity, TLRs, and Inflammasomes (Room 121)

WORKSHOP SESSIONS

- Improving the Safety of Dietary Supplements and Natural Health Products by Assessing Effects in Humans (Room 125)
- Toxicogenomic Technologies Can Improve the Assessment of Xenobiotic-Induced Liver Injury and Inform Human Relevance (North Ballroom 120B)
- Understanding Weight of Evidence: Exploring Different Approaches to Integrating Evidence from Diverse Data Streams (Room 129)

9:00 AM to 12:30 PM

POSTER SESSIONS

(Exhibit Hall—*See Poster Board Surface Map on pages 124–125*)

- Biomarkers II
- Carcinogenesis III
- Developmental Basis of Adult Disease
- Developmental Neurotoxicity II: New Methods, Persistent Chemicals, and Flame Retardants
- Developmental Neurotoxicity III: Pesticides, Food, and Drugs
- Education, Ethical, Legal, and Social Issues
- Exposure Assessment and Biomonitoring
- Gene Regulation and Signal Transduction II
- Immunotoxicity II
- Nonpharmaceuticals: Safety Evaluation
- Reproductive Toxicology: Male
- Safety Assessment: Drug Development II
- Safety Assessment: Pharmaceutical Drug Discovery

9:30 AM to 4:00 PM

RESEARCH FUNDING SESSION

Research Funding Information Room (Room 127A)

12:00 Noon to 1:20 PM

ROUNDTABLE SESSION

- Hydraulic Fracturing: Are There Worker Health Issues? (Room 124)

INFORMATIONAL SESSION

- Understanding the Implications of Breastfed Infant Exposures to POPs: How Can We Do Better? (Room 128)

EDUCATION-CAREER DEVELOPMENT SESSION

- Training and Continuing Education for the "Total Toxicologist": How Do We Optimize Training and Educational Opportunities for Different Job Sectors? (Room 126)

12:30 PM to 1:20 PM

DISTINGUISHED TOXICOLOGY SCHOLAR AWARD LECTURE

Investigating the Toxicity of Dioxin
Lecturer: Richard E. Peterson, University of Wisconsin Madison
(North Ballroom 120B)

1:00 PM to 4:30 PM

POSTER SESSIONS

(Exhibit Hall—*See Poster Board Surface Map on pages 124–125*)

- Genotoxicity Mechanisms
- Immunotoxicity
- Kidney
- Liver and Models
- Nanotoxicology: *In Vitro*
- Nanotoxicology: *In Vivo*
- Neurotoxicity: Pesticides
- Oxidative Injury and Redox Biology
- Risk Assessment II
- Stem Cell Biology and Toxicology

1:30 PM to 4:15 PM

SYMPOSIUM SESSION

- Exploring the Interface between Air Pollution and Metabolic Syndrome: The Bittersweet Dilemma (North Ballroom 120B)

WORKSHOP SESSIONS

- Advances in the Application of Imaging Technologies to Developmental Toxicology (Room 129)
- Beyond hERG: Novel Cardiovascular De-Risking Strategies and Their Regulatory Acceptance (North Ballroom 120D)
- Communication and Engagement with the Public about Toxicology in a World That Misunderstands Science and Scientists: How Do You Make Your Message Relevant and "Sticky"? (Room 126)
- Databases Facilitating Systems Biology Approaches to Toxicology (Room 122)
- Genomics in Toxics Regulation and Litigation in the Era of Whole Genome Sequencing (Room 121)
- Is Manganese-Induced Parkinsonism Mediated via Dopamine Neuron Degeneration or Dysfunction? (Room 124)
- Science-Based Preclinical Safety Assessment: Decision-Making to Enhance Regulatory Success (North Ballroom 120A)

4:30 PM to 5:20 PM

TRANSLATIONAL IMPACT AWARD LECTURE

Ancient Medicine for the Mitigation of Aflatoxin Exposures
Lecturer: Timothy D. Phillips, Texas A&M University
(North Ballroom 120B)

4:30 PM to 5:50 PM

HISTORICAL HIGHLIGHTS SESSION

- A History of the 3Rs in Toxicity Testing: From Russell and Burch to 21st Century Toxicology (Room 124)

INFORMATIONAL SESSIONS

- Leadership in Science: Skills and Styles (Room 126)
- Recent Challenges Beyond the Usual Toxicological and Public Health Challenges in Africa (Room 125)

ePosters—A Convenient Way to View Posters

In addition to attending Poster Sessions at their scheduled presentation times and boards during the SOT Annual Meeting, there are two new ways to view the posters presented at the SOT Annual Meeting.

1. Search and view the ePosters on high-definition monitors in the Exhibit Hall during the scheduled ToxExpo hours, Monday through Wednesday.
2. Search and view the ePosters on your mobile device or computer using the ePoster feature in the SOT mobile event app and event website—before, during, and after the meeting.

If you are a poster presenter, please take a few minutes to upload your PowerPoint poster through an Internet-based, user-friendly presentation system prior to the meeting at **https://cms.psav.com/e35f808** or during the meeting in the Speaker Ready Room at the Phoenix Convention Center, Room 123.



Daily Pocket Calendar (Continued)

Tired of carrying the *Program* during the meeting? Access the real-time schedule via the *mobile event app* or *online event website*.

For your convenience, please tear out and carry with you. Easily folds to nest within your badge holder. *(Calendar as of February 4; private events are not listed.)*

Thursday — March 27

Events are listed alphabetically by the event start time.

Most events will be held in the Phoenix Convention Center in the North Building unless otherwise noted. **Events at the Phoenix Convention Center are noted as CC.**

7:00 AM to 12:00 Noon
Coat/Luggage Check
CC Lower Level

7:00 AM to 8:30 AM
Poster Set Up *(See Poster Board Surface Maps on Page 126 or Mobile Event App for Details)*
CC Hall 1

7:00 AM to 12:00 Noon
SOT Office
CC Room 224A

7:00 AM to 11:30 AM
Speaker Ready Room
(Scientific Session and ePoster Upload)
CC Room 123

7:30 AM to 12:00 Noon
Concession Stands
CC Metro Marché

8:00 AM to 12:00 Noon
@SOT—Internet Access and App Center
CC Lower Level

8:00 AM to 10:00 AM
Guest/Spouse Hospitality Room
Sheraton Room 428

8:00 AM to 9:00 AM
Human Toxicology Project Consortium: Development of a Knowledge Base for Quantitative Modelling of Adverse Outcome Pathways: Stakeholder Input Session
Hyatt Remington

8:00 AM to 12:00 Noon
Registration
CC Lower Level

8:30 AM to 12:00 Noon
Poster Sessions
CC Hall 1

8:30 AM to 10:00 AM
Research Data Alliance Toxicogenomics Interoperability Interest Group
Sheraton Alhambra

9:00 AM to 11:45 AM
Scientific Sessions
CC *(See Session Index on Page 117 or Mobile Event App for Room Locations)*

12:00 Noon to 5:00 PM
Satellite Meeting: Workshop on Translational Biomarkers of Neurotoxicity *(See Page 100 or Mobile Event App for Details)*
Sheraton Laveen

12:00 Noon to 1:30 PM
Scientific Program Committee Meeting
CC Room 225B

12:30 PM to 4:30 PM
Satellite Meeting: Updates on 21st Century Toxicology Activities and Related Efforts: Invited Presentations and Open Microphone *(See Page 100 or Mobile Event App for Details)*
Sheraton Deer Valley

Scientific Program Overview by Day & Time

Thursday — March 27

8:30 AM to 12:00 Noon

POSTER SESSIONS

(Hall 1—See Poster Board Surface Map on page 126)

- Animal Models of Disease
- Animal Models: Measurements and Validation
- Animal Models: Methods Development
- Computational Toxicology and Data Integration II
- Computational Toxicology and Data Integration III
- Exposure Assessment and Biomonitoring II
- Metals in the Environment
- Persistent Organic Pollutants
- Reproductive Toxicology: Female
- Risk Assessment III
- Safety Assessment: Drug Development III
- Skin

9:00 AM to 11:45 AM

SYMPOSIUM SESSIONS

- Clinical Evaluation of Emerging Biomarkers of Drug-Induced Liver Injury (North Ballroom 120A)
- Does Evolution Matter in Toxicity Testing in the 21st Century? Rethinking Cross-Species Extrapolation in Hazard Characterization (Room 121)
- Neurobehavioral Impacts of Early-Life Manganese Exposure: Linking Human and Animal Model Studies (North Ballroom 120B)

WORKSHOP SESSIONS

- Are Biofuels More or Less Toxic Than Conventional Fuels and What Are the Implications for Human Exposure and Risk? (North Ballroom 120D)
- Role of Circulating Factors in Mediating Systemic Toxicity of Inhaled Substances (Room 122)
- The Use of Dogs and Minipigs As an Alternative to the Nonhuman Primate in Nonclinical Safety Assessment of Biopharmaceuticals (Room 129)

REGIONAL INTEREST SESSION

- When the Dust Settles: Exposure Assessment and Health Effects from Dust Exposures in the Arid Southwest (Room 126)

PLATFORM SESSIONS

- Autoimmunity/Hypersensitivity to Environmental Contaminants (Room 125)
- Ozone: Multiple Tissue Endpoints (Room 128)

Home Members Member CVs Blogs Communities

ToXchange *It's YOUR Network. Be a part of it.*

Introducing the ToXchange mobile application created to put access to SOT members and your online communities in the palm of your hands. This mobile version of ToXchange features virtually everything that you can do online including:

- Searching for other users
- Viewing all information for your communities
- Reading new blog articles
- Participating in forums
- Downloading new files
- Viewing upcoming events and meetings
- And much more!

Networking is expanding far beyond face to face events or computer-to-computer interactions; be the first in the industry to take advantage of our new mobile application and connect via ToXchange anywhere, at any time.

Scan Me!

SOT Has Gone Global!

To increase the impact of toxicology in addressing global health and environmental issues, SOT has adopted a series of initiatives to enrich toxicology resources for scientists throughout the world, especially in developing countries.

SOT Global Initiatives include:

Reduced Dues and Membership Dues Assistance for Scientists from Developing Countries*—Dues for Full and Associate membership are $50; dues for Student and Postdoctoral Scholars are $10. This includes membership in one Special Interest Group and one Specialty Section. Full and Associate members qualify for free online access to SOT's journal, *Toxicological Sciences*. Student and Postdoctoral members may qualify for a dues waiver through SOT's Membership Dues Assistance Program.

Free Continuing Education (CEd-Tox)—Online courses for member scientists from developing countries.* Some courses offer English transcriptions with video start-stop capability.

Global Senior Scholar Exchange Program (GSSEP)—Each year the program funds exchange visits between two Senior Scholar toxicologists from developing countries and hosts working in academia, government, or industry from established toxicology programs.

International ToxScholar Outreach Grants—SOT senior toxicologists visit campuses in developing countries through support from this grant.

Global Initiatives Funds—Offers a total of $20,000 annually to support collaborative projects between SOT Regional Chapters (RC), Specialty Sections (SS), and Special Interest Groups (SIG) and other international organizations. Bring your ideas!

Global Travel Fellowships/Awards—Assists senior scientists from countries where toxicology is underrepresented with travel funding to attend the SOT Annual Meeting. Graduate Student Travel Awards also are available for funding travel to the SOT Annual Meeting.

For more information on SOT Global Initiatives, go to **www.toxicology.org/ms/globalfunds**.
Or visit the SOT Poster in the Global Gallery

* 2011 World Bank list of countries with GNI <$8,000.



Global Gallery of Toxicology

Celebrate Toxicology Globally

Toxicology-related scientific societies are invited to display a poster showcasing their formation, key accomplishments, strategic initiatives, current and future activities, and more.

The Global Gallery is located in the Exhibit Hall adjacent to Component Group posters.

Please see details on page 57.

Schedule by Event Name

Tired of carrying the *Program* during the meeting? Access the real-time schedule via the *mobile event app* or *online event website*. *(Schedule as of February 4; private events are not listed.)*

Event:	Date:	Time:	Location:	Room:
@SOT Center—Internet Access and App Center	Saturday, Mar 22	4:00 PM to 7:00 PM	Convention Center	Lower Level
@SOT Center—Internet Access and App Center	Sunday, Mar 23	7:00 AM to 6:00 PM	Convention Center	Lower Level
@SOT Center—Internet Access and App Center	Monday, Mar 24	7:00 AM to 6:00 PM	Convention Center	Lower Level
@SOT Center—Internet Access and App Center	Tuesday, Mar 25	7:00 AM to 6:00 PM	Convention Center	Lower Level
@SOT Center—Internet Access and App Center	Wednesday, Mar 26	8:00 AM to 6:00 PM	Convention Center	Lower Level
@SOT Center—Internet Access and App Center	Thursday, Mar 27	8:00 AM to 12:00 Noon	Convention Center	Lower Level
25-Year (Or More) Member Reception *(By Invitation Only)*	Sunday, Mar 23	7:00 PM to 8:00 PM	Convention Center	North Ballroom Foyer
A				
American Association of Chinese in Toxicology and Korean Toxicologists Association in America Special Interest Groups' Career Workshop	Tuesday, Mar 25	7:30 AM to 9:00 AM	Convention Center	Room 227
Academy of Toxicological Sciences Board of Directors Meeting	Wednesday, Mar 26	6:30 AM to 8:00 AM	Sheraton	Arcadia
Academy of Toxicological Sciences Reception	Wednesday, Mar 26	8:30 PM to 10:00 PM	Sheraton	Phoenix Ballroom A
Allegheny-Erie and Michigan Regional Chapter Joint Reception	Monday, Mar 24	5:00 PM to 6:30 PM	Hyatt	Sundance
American Association of Chinese in Toxicology Special Interest Group Distinguished Chinese Toxicologist Lectureship Award Seminar : Career vs. Business—Personal Experience in the US and China, *Lecturer: Dr. Lijie Fu, SNBL USA Ltd.*	Monday, Mar 24	5:00 PM to 6:00 PM	Sheraton	Phoenix Ballroom A
American Association of Chinese in Toxicology Special Interest Group Meeting/Reception	Monday, Mar 24	6:00 PM to 9:00 PM	Sheraton	Phoenix Ballroom A
American Board of Toxicology Board of Directors Meeting	Saturday, Mar 22	12:00 Noon to 6:00 PM	Renaissance	Salon 7
American Board of Toxicology Open Mixer Meeting	Monday, Mar 24	4:30 PM to 6:00 PM	Renaissance	Salon 6
Arizona Night	Sunday, Mar 23	8:00 PM to 10:30 PM	Hyatt	Sundance
Association of Scientists of Indian Origin Special Interest Group Lunch and Learn	Tuesday, Mar 25	12:00 Noon to 1:30 PM	Sheraton	Camelback
Association of Scientists of Indian Origin Special Interest Group Meeting/Reception	Monday, Mar 24	7:00 PM to 9:00 PM	Sheraton	Deer Valley
Audit Committee Meeting	Tuesday, Mar 25	9:00 AM to 10:30 AM	Convention Center	Room 225A
Awards Ceremony *(All Attendees Welcome)*	Sunday, Mar 23	5:15 PM to 6:30 PM	Convention Center	North Ballroom 120D
Awards Ceremony Music—Performed by Nicole Pesce *(All Attendees Welcome)*	Sunday, Mar 23	4:45 PM to 5:15 PM	Convention Center	North Ballroom 120D
Awards Committee Meeting	Tuesday, Mar 25	7:00 AM to 8:00 AM	Convention Center	Room 226A
Awards Recipients Photographed	Sunday, Mar 23	3:45 PM to 4:45 PM	Convention Center	North Ballroom 120D
B				
Biological Modeling Specialty Section Meeting/Reception	Tuesday, Mar 25	6:00 PM to 7:30 PM	Sheraton	Valley of the Sun B
Biotechnology Specialty Section Meeting/Reception	Tuesday, Mar 25	6:00 PM to 7:30 PM	Sheraton	Maryvale
Board of Publications Meeting	Wednesday, Mar 26	10:00 AM to 11:30 AM	Convention Center	Room 225B
C				
Carcinogenesis Specialty Section Meeting/Reception	Monday, Mar 24	6:00 PM to 7:30 PM	Sheraton	Encanto A
Carcinogenesis Specialty Section Officers Meeting	Monday, Mar 24	12:00 Noon to 1:30 PM	Convention Center	Room 230
Cardiovascular Toxicology Specialty Section Meeting/Reception	Tuesday, Mar 25	6:00 PM to 7:30 PM	Sheraton	Valley of the Sun C
Career Resource and Development Committee Meeting	Sunday, Mar 23	7:30 AM to 9:30 AM	Convention Center	Room 225B
CDI Reunion and 25th Anniversary Celebration of the Undergraduate Education Program for Minority Students *(Invited: All Current and Past Participants and Volunteers in the Undergraduate Education Program)*	Saturday, Mar 22	7:00 PM to 9:00 PM	Convention Center	Room 105 West
Central States Regional Chapter Meeting	Monday, Mar 24	7:00 AM to 8:00 AM	Renaissance	Marston Café
Clinical and Translational Toxicology Specialty Section Meeting/Reception	Tuesday, Mar 25	6:00 PM to 7:30 PM	Sheraton	Laveen B



Schedule by Event Name (Continued)

Tired of carrying the *Program* during the meeting? Access the real-time schedule via the *mobile event app* or *online event website*. *(Schedule as of February 4; private events are not listed.)*

Event:	Date:	Time:	Location:	Room:
Clinical and Translational Toxicology Specialty Section Officers Meeting	Monday, Mar 24	6:30 AM to 8:00 AM	Convention Center	Room 222
CME Task Force Meeting	Monday, Mar 24	11:00 AM to 12:00 Noon	Convention Center	Room 228A
Coat/Luggage Check	Sunday, Mar 23	8:00 AM to 8:00 PM	Convention Center	Lower Level
Coat/Luggage Check	Monday, Mar 24	7:00 AM to 6:00 PM	Convention Center	Lower Level
Coat/Luggage Check	Tuesday, Mar 25	7:00 AM to 6:00 PM	Convention Center	Lower Level
Coat/Luggage Check	Wednesday, Mar 26	7:00 AM to 6:00 PM	Convention Center	Lower Level
Coat/Luggage Check	Thursday, Mar 27	7:00 AM to 12:00 Noon	Convention Center	Lower Level
Committee on Diversity Initiatives Meeting	Wednesday, Mar 26	7:00 AM to 8:30 AM	Convention Center	Room 225B
Comparative and Veterinary Specialty Section Meeting/Luncheon	Wednesday, Mar 26	12:00 Noon to 1:30 PM	Convention Center	Room 221A
Complimentary Coffee	Monday, Mar 24	9:00 AM to 10:00 AM	Convention Center	Exhibit Hall
Complimentary Coffee	Tuesday, Mar 25	9:00 AM to 10:00 AM	Convention Center	Exhibit Hall
Complimentary Coffee	Wednesday, Mar 26	9:00 AM to 10:00 AM	Convention Center	Exhibit Hall
Complimentary Lemonade and Popcorn	Monday, Mar 24	2:30 PM to 3:30 PM	Convention Center	Exhibit Hall
Complimentary Lemonade and Popcorn	Tuesday, Mar 25	2:30 PM to 3:30 PM	Convention Center	Exhibit Hall
Complimentary Lemonade and Popcorn	Wednesday, Mar 26	2:30 PM to 3:30 PM	Convention Center	Exhibit Hall
Concession Stands	Sunday, Mar 23	7:30 AM to 2:30 PM	Convention Center	Metro Marché
Concession Stands	Monday, Mar 24	7:30 AM to 9:30 AM	Convention Center	Metro Marché
Concession Stands	Monday, Mar 24	9:00 AM to 4:30 PM	Convention Center	Exhibit Hall
Concession Stands	Tuesday, Mar 25	7:30 AM to 9:30 AM	Convention Center	Metro Marché
Concession Stands	Tuesday, Mar 25	8:30 AM to 4:30 PM	Convention Center	Exhibit Hall
Concession Stands	Wednesday, Mar 26	7:30 AM to 9:30 AM	Convention Center	Metro Marché
Concession Stands	Wednesday, Mar 26	8:30 AM to 4:30 PM	Convention Center	Exhibit Hall
Concession Stands	Thursday, Mar 27	7:30 AM to 12:00 Noon	Convention Center	Metro Marché
Congressional Subcommittee Meeting	Sunday, Mar 23	3:00 PM to 5:00 PM	Convention Center	Room 228A
Contemporary Concepts in Toxicology Conferences Committee Meeting	Wednesday, Mar 26	7:00 AM to 8:00 AM	Convention Center	Room 226A
Continuing Education Sunrise Mini-Course *(Ticket Required)*	Sunday, Mar 23	7:00 AM to 7:45 AM	Convention Center *(See Signage or Mobile Event App for Room Location)*	
Continuing Education Morning Courses *(Ticket Required)*	Sunday, Mar 23	8:15 AM to 12:00 Noon	Convention Center *(See Signage or Mobile Event App for Room Location)*	
Continuing Education Afternoon Courses *(Ticket Required)*	Sunday, Mar 23	1:15 PM to 5:00 PM	Convention Center *(See Signage or Mobile Event App for Room Location)*	
Continuing Education Committee Meeting	Monday, Mar 24	12:00 Noon to 1:30 PM	Convention Center	Room 225B
Continuing Education Committee Walk-Through	Saturday, Mar 22	4:30 PM to 5:15 PM	Convention Center	North Ballroom 120A
Continuing Education Luncheon for Speakers, Committee, and Student Volunteers *(By Invitation Only)*	Sunday, Mar 23	11:45 AM to 1:15 PM	Convention Center	Room 127
Council Meeting	Saturday, Mar 22	1:00 PM to 5:30 PM	Sheraton	North Mountain
Council Members Photographed	Sunday, Mar 23	3:30 PM to 3:45 PM	Convention Center	North Ballroom 120D
Council Orientation Breakfast	Saturday, Mar 22	7:30 AM to 8:00 AM	Sheraton	Camelback B
Council Orientation Meeting	Saturday, Mar 22	8:00 AM to 11:30 AM	Sheraton	Camelback A
Council Orientation Luncheon	Saturday, Mar 22	11:30 AM to 1:00 PM	Sheraton	Camelback B
D				
Dermal Toxicology Specialty Section Meeting/Reception	Tuesday, Mar 25	6:00 PM to 7:30 PM	Sheraton	Valley of the Sun A
Dermal Toxicology Specialty Section Officers Meeting	Monday, Mar 24	6:30 AM to 8:00 AM	Convention Center	Room 222

Schedule by Event Name (Continued)

Tired of carrying the *Program* during the meeting? Access the real-time schedule via the *mobile event app* or *online event website*. *(Schedule as of February 4; private events are not listed.)*

Event:	Date:	Time:	Location:	Room:
Distinguished Toxicology Scholar Award Lecture: Investigating the Toxicity of Dioxin, *Lecturer: Richard E. Peterson, University of Wisconsin*	Wednesday, Mar 26	12:30 PM to 1:20 PM	Convention Center	North Ballroom 120B
Drug Discovery Toxicology Specialty Section Meeting/Reception	Wednesday, Mar 26	6:00 PM to 7:30 PM	Sheraton	Maryvale
E				
Education Committee Meeting	Tuesday, Mar 25	7:00 AM to 8:30 AM	Convention Center	Room 228B
Elsevier Editorial Board Member Reception	Monday, Mar 24	5:00 PM to 7:00 PM	Sheraton	Estrella
Endowment Fund Board Meeting	Tuesday, Mar 25	12:00 Noon to 1:30 PM	Convention Center	Room 225B
EPA CSS STAR Research Grants Kick-Off Meeting: Developmental Neurotoxicity AOP	Tuesday, Mar 25	1:00 PM to 6:00 PM	Convention Center	Room 226B
Ethical, Legal, and Social Issues Specialty Section Meeting/Luncheon	Tuesday, Mar 25	12:00 Noon to 1:30 PM	Convention Center	Room 231A
Exhibitor-Hosted Sessions *(See Pages 43–45 or Mobile Event App for Details)*				
Exhibitor-Hosted Session: ACEA Biosciences, Inc.	Monday, Mar 24	12:15 PM to 1:15 PM	Convention Center	Room 106C West
Exhibitor-Hosted Session: Algorithme Pharma	Tuesday, Mar 25	9:45 AM to 10:45 AM	Convention Center	Room 101C West
Exhibitor-Hosted Session: Battelle Memorial Institute	Monday, Mar 24	2:45 PM to 3:45 PM	Convention Center	Room 101C West
Exhibitor-Hosted Session: Biopredic International	Monday, Mar 24	3:30 PM to 4:30 PM	Convention Center	Room 101C West
Exhibitor-Hosted Session: BioReliance	Monday, Mar 24	1:00 PM to 2:00 PM	Convention Center	Room 106A West
Exhibitor-Hosted Session: Cellectis AB	Wednesday, Mar 26	11:45 AM to 12:45 PM	Convention Center	Room 101A West
Exhibitor-Hosted Session: Cellular Dynamics International	Tuesday, Mar 25	1:30 PM to 2:30 PM	Convention Center	Room 106C West
Exhibitor-Hosted Session: ChanTest Corp.	Monday, Mar 24	9:15 AM to 10:15 AM	Convention Center	Room 106C West
Exhibitor-Hosted Session: Charles River	Monday, Mar 24	2:15 PM to 3:15 PM	Convention Center	Room 106C West
Exhibitor-Hosted Session: Charles River	Tuesday, Mar 25	9:45 AM to 10:45 AM	Convention Center	Room 101A West
Exhibitor-Hosted Session: Charles River	Wednesday, Mar 26	9:15 AM to 10:15 AM	Convention Center	Room 101A West
Exhibitor-Hosted Session: CiToxLAB & Ellegaard Göttingen Minipigs	Tuesday, Mar 25	1:30 PM to 2:30 PM	Convention Center	Room 101C West
Exhibitor-Hosted Session: Covance	Tuesday, Mar 25	8:30 AM to 9:30 AM	Convention Center	Room 106A West
Exhibitor-Hosted Session: Covance	Wednesday, Mar 26	10:30 AM to 11:30 AM	Convention Center	Room 106C West
Exhibitor-Hosted Session: DiaPharma Group, Inc.	Wednesday, Mar 26	1:00 PM to 2:00 PM	Convention Center	Room 101A West
Exhibitor-Hosted Session: DiscoveRx Corporation, BioSeek Division	Tuesday, Mar 25	12:15 PM to 1:15 PM	Convention Center	Room 101C West
Exhibitor-Hosted Session: Ellegaard Göttingen Minipigs	Tuesday, Mar 25	11:00 AM to 12:00 Noon	Convention Center	Room 106A West
Exhibitor-Hosted Session: EMD Millipore Corporation	Tuesday, Mar 25	8:30 AM to 9:30 AM	Convention Center	Room 106C West
Exhibitor-Hosted Session: EPL, Inc.	Tuesday, Mar 25	11:00 AM to 12:00 Noon	Convention Center	Room 101A West
Exhibitor-Hosted Session: Exiqon, Inc.	Wednesday, Mar 26	10:30 AM to 11:30 AM	Convention Center	Room 101C West
Exhibitor-Hosted Session: Fraunhofer ITEM	Monday, Mar 24	11:45 AM to 12:45 PM	Convention Center	Room 106A West
Exhibitor-Hosted Session: Gentronix Limited	Monday, Mar 24	1:00 PM to 2:00 PM	Convention Center	Room 101C West
Exhibitor-Hosted Session: Harlan Contract Research Services	Monday, Mar 24	11:45 AM to 12:45 PM	Convention Center	Room 106C West
Exhibitor-Hosted Session: Harlan Contract Research Services	Tuesday, Mar 25	2:45 PM to 3:45 PM	Convention Center	Room 106C West
Exhibitor-Hosted Session: Harlan Contract Research Services	Wednesday, Mar 26	9:15 AM to 10:15 AM	Convention Center	Room 106C West
Exhibitor-Hosted Session: Hepregen Corporation	Tuesday, Mar 25	1:30 PM to 2:30 PM	Convention Center	Room 101A West
Exhibitor-Hosted Session: Huntingdon Life Sciences	Monday, Mar 24	9:15 AM to 10:15 AM	Convention Center	Room 106A West
Exhibitor-Hosted Session: Huntingdon Life Sciences	Tuesday, Mar 25	1:30 PM to 2:30 PM	Convention Center	Room 106A West
Exhibitor-Hosted Session: Huntingdon Life Sciences	Wednesday, Mar 26	10:30 AM to 11:30 AM	Convention Center	Room 106A West
Exhibitor-Hosted Session: Hurel Corporation	Monday, Mar 24	1:00 PM to 2:00 PM	Convention Center	Room 101A West
Exhibitor-Hosted Session: ICF International	Tuesday, Mar 25	12:15 PM to 1:15 PM	Convention Center	Room 101A West
Exhibitor-Hosted Session: In Vitro ADMET Laboratories LLC	Monday, Mar 24	3:30 PM to 4:30 PM	Convention Center	Room 101A West
Exhibitor-Hosted Session: InSphero AG	Monday, Mar 24	3:30 PM to 4:30 PM	Convention Center	Room 106A West
Exhibitor-Hosted Session: Korea Institute of Toxicology	Monday, Mar 24	10:30 AM to 11:30 AM	Convention Center	Room 106C West
Exhibitor-Hosted Session: Leadscope, Inc.	Monday, Mar 24	2:45 PM to 3:45 PM	Convention Center	Room 106A West
Exhibitor-Hosted Session: Lhasa Limited	Monday, Mar 24	10:30 AM to 11:30 AM	Convention Center	Room 101C West



Schedule by Event Name (Continued)

Tired of carrying the *Program* during the meeting? Access the real-time schedule via the *mobile event app* or *online event website*. *(Schedule as of February 4; private events are not listed.)*

Event:	Date:	Time:	Location:	Room:
Exhibitor-Hosted Session: Malvern Instruments	Tuesday, Mar 25	9:45 AM to 10:45 AM	Convention Center	Room 106C West
Exhibitor-Hosted Session: MPI Research	Monday, Mar 24	9:15 AM to 10:15 AM	Convention Center	Room 101C West
Exhibitor-Hosted Session: MPI Research	Tuesday, Mar 25	9:45 AM to 10:45 AM	Convention Center	Room 106A West
Exhibitor-Hosted Session: MPI Research	Wednesday, Mar 26	9:15 AM to 10:15 AM	Convention Center	Room 106A West
Exhibitor-Hosted Session: MultiCASE Inc	Monday, Mar 24	11:45 AM to 12:45 PM	Convention Center	Room 101A West
Exhibitor-Hosted Session: National Institute of Environmental Health Sciences	Monday, Mar 24	2:15 PM to 3:15 PM	Convention Center	Room 101C West
Exhibitor-Hosted Session: National Toxicology Program	Monday, Mar 24	10:30 AM to 11:30 AM	Convention Center	Room 101A West
Exhibitor-Hosted Session: NSF International Applied Research Center	Monday, Mar 24	10:30 AM to 11:30 AM	Convention Center	Room 106A West
Exhibitor-Hosted Session: PDS Preclinical Data Systems Inc.	Monday, Mar 24	1:00 PM to 2:00 PM	Convention Center	Room 106C West
Exhibitor-Hosted Session: PDS Preclinical Data Systems Inc.	Tuesday, Mar 25	2:45 PM to 3:45 PM	Convention Center	Room 101A West
Exhibitor-Hosted Session: Promega Corporation	Tuesday, Mar 25	8:30 AM to 9:30 AM	Convention Center	Room 101A West
Exhibitor-Hosted Session: Sigma-Aldrich	Tuesday, Mar 25	11:00 AM to 12:00 Noon	Convention Center	Room 106C West
Exhibitor-Hosted Session: SNBL USA, Ltd.	Monday, Mar 24	2:15 PM to 3:15 PM	Convention Center	Room 106A West
Exhibitor-Hosted Session: Stemina Biomarker Discovery	Monday, Mar 24	3:30 PM to 4:30 PM	Convention Center	Room 106C West
Exhibitor-Hosted Session: Tandem Labs	Monday, Mar 24	2:15 PM to 3:15 PM	Convention Center	Room 101A West
Exhibitor-Hosted Session: Tandem Labs	Tuesday, Mar 25	11:00 AM to 12:00 Noon	Convention Center	Room 101C West
Exhibitor-Hosted Session: Tandem Labs	Wednesday, Mar 26	9:15 AM to 10:15 AM	Convention Center	Room 101C West
Exhibitor-Hosted Session: Toxikon Corporation	Wednesday, Mar 26	10:30 AM to 11:30 AM	Convention Center	Room 101A West
Exhibitor-Hosted Session: TSE Systems, Inc.	Monday, Mar 24	9:15 AM to 10:15 AM	Convention Center	Room 101A West
Exhibitor-Hosted Session: VisualSonics	Monday, Mar 24	11:45 AM to 12:45 PM	Convention Center	Room 101C West
Exhibitor-Hosted Session: WIL Research	Tuesday, Mar 25	12:15 PM to 1:15 PM	Convention Center	Room 106A West
Exhibitor-Hosted Session: WuXi Apptec Inc.	Tuesday, Mar 25	8:30 AM to 9:30 AM	Convention Center	Room 101C West
F				
Finance Committee Meeting	Wednesday, Mar 26	11:30 AM to 1:30 PM	Convention Center	Room 225A
Food and Chemical Toxicology Associate and Managing Editor Board Meeting	Tuesday, Mar 25	8:00 PM to 10:00 PM	Hyatt	Cassidy
Food Safety Specialty Section Meeting/Reception	Monday, Mar 24	6:00 PM to 7:30 PM	Sheraton	Valley of the Sun D
Food Safety Specialty Section Officers Meeting	Monday, Mar 24	6:30 AM to 8:00 AM	Convention Center	Room 222
G				
Global Collaboration Coffee	Monday, Mar 24	9:30 AM to 11:30 AM	Convention Center	Room 127C
Global Gallery of Toxicology Poster Session—Representative Attended *(Across from SOT Pavilion, Booth 1623)*	Monday, Mar 24	11:45 AM to 12:15 PM	Convention Center	Exhibit Hall
Government Liaison Groups Collaboration Meeting	Monday, Mar 24	3:15 PM to 4:45 PM	Convention Center	Room 127C
Graduate Education Subcommittee Meeting	Tuesday, Mar 25	8:30 AM to 9:30 PM	Convention Center	Room 228B
Graduate Student Leadership Committee Executive Board Meeting	Wednesday, Mar 26	8:00 AM to 9:00 AM	Convention Center	Room 228A
Graduate Student Leadership Committee Meeting	Wednesday, Mar 26	6:45 AM to 7:45 AM	Convention Center	Room 224B
Guest/Spouse Hospitality Room	Sunday, Mar 23	8:00 AM to 5:00 PM	Sheraton	Room 428
Guest/Spouse Hospitality Room	Monday, Mar 24	8:00 AM to 5:00 PM	Sheraton	Room 428
Guest/Spouse Hospitality Room	Tuesday, Mar 25	8:00 AM to 5:00 PM	Sheraton	Room 428
Guest/Spouse Hospitality Room	Wednesday, Mar 26	8:00 AM to 5:00 PM	Sheraton	Room 428
Guest/Spouse Hospitality Room	Thursday, Mar 27	8:00 AM to 10:00 AM	Sheraton	Room 428
H				
HESI Luncheon Seminar *(Registration Required)*	Monday, Mar 24	12:00 Noon to 1:30 PM	Sheraton	Valley of the Sun A
High School Poster Exposition *(Across from SOT Pavilion, Booth 1623)*	Tuesday, Mar 25	10:30 AM to 2:30 PM	Convention Center	Exhibit Hall
High School Student and Teacher Workshop: Lotions Are Not Potions: Toxicology and Product Safety	Saturday, Mar 22	8:30 AM to 4:15 PM	Health Science Education Building, University of Arizona Biomedical Campus	

Schedule by Event Name (Continued)

Tired of carrying the *Program* during the meeting? Access the real-time schedule via the *mobile event app* or *online event website*. *(Schedule as of February 4; private events are not listed.)*

Event:	Date:	Time:	Location:	Room:
Hispanic Organization of Toxicologists Special Interest Group Reception and Awards Ceremony	Tuesday, Mar 25	6:30 PM to 9:30 PM	Arizona Latino Arts and Culture Center	
Housing Desk	Saturday, Mar 22	4:00 PM to 7:00 PM	Convention Center	Lower Level
Housing Desk	Sunday, Mar 23	8:00 AM to 5:00 PM	Convention Center	Lower Level
Housing Desk	Monday, Mar 24	8:00 AM to 5:00 PM	Convention Center	Lower Level
Housing Desk	Tuesday, Mar 25	8:00 AM to 11:00 AM	Convention Center	Lower Level
Human & Experimental Toxicology Editorial Board Meeting	Monday, Mar 24	11:30 AM to 2:30 PM	Hyatt	Cassidy
Human Toxicology Project Consortium: Adverse Outcome Pathways 101: The How and Why of Development and Use	Tuesday, Mar 25	5:00 PM to 7:00 PM	Hyatt	Ballroom C
Human Toxicology Project Consortium: Development of a Knowledge Base for Quantitative Modelling of Adverse Outcome Pathways: Stakeholder Input Session	Monday, Mar 24	5:00 PM to 6:30 PM	Hyatt	Borein
Human Toxicology Project Consortium: Development of a Knowledge Base for Quantitative Modelling of Adverse Outcome Pathways: Stakeholder Input Session	Tuesday, Mar 25	12:00 Noon to 1:30 PM	Hyatt	Cassidy
Human Toxicology Project Consortium: Development of a Knowledge Base for Quantitative Modelling of Adverse Outcome Pathways: Stakeholder Input Session	Thursday, Mar 27	8:00 AM to 9:00 AM	Hyatt	Remington
I				
Immunotoxicology Specialty Section Meeting/Reception	Wednesday, Mar 26	6:00 PM to 7:30 PM	Sheraton	Valley of the Sun C
In Vitro and Alternative Methods Specialty Section Meeting/ Luncheon	Wednesday, Mar 26	12:00 Noon to 1:30 PM	Convention Center	Room 222
In Vitro and Alternative Methods Specialty Section Officers Meeting	Monday, Mar 24	6:30 AM to 8:00 AM	Convention Center	Room 222
In Vitro Toxicology Lecture and Luncheon for Students *(Ticket Required), Lecturer: Helena Kandarova, MatTek Corp. and MatTek In Vitro Life Science Laboratories*	Monday, Mar 24	12:00 Noon to 1:20 PM	Convention Center	Room 301C West
Inhalation and Respiratory Specialty Section Meeting/Reception	Monday, Mar 24	6:00 PM to 7:30 PM	Sheraton	Valley of the Sun C
Inhalation and Respiratory Specialty Section Technical Meeting	Wednesday, Mar 26	8:00 AM to 9:30 AM	Convention Center	Room 230
International Neurotoxicology Association Business Meeting	Monday, Mar 24	1:00 PM to 2:00 PM	Sheraton	Ahwatukee
IUTOX Future ICT Meetings	Tuesday, Mar 25	1:30 PM to 3:00 PM	Convention Center	Room 226A
J				
Job Bank Center	Sunday, Mar 23	1:00 PM to 5:00 PM	Convention Center	Room 130
Job Bank Center	Monday, Mar 24	9:00 AM to 5:00 PM	Convention Center	Room 130
Job Bank Center	Tuesday, Mar 25	8:30 AM to 5:00 PM	Convention Center	Room 130
Job Bank Center	Wednesday, Mar 26	8:30 AM to 5:00 PM	Convention Center	Room 130
Job Bank/Mentor Match Lounge	Sunday, Mar 23	1:00 PM to 5:00 PM	Convention Center	Room 131A
Job Bank/Mentor Match Lounge	Monday, Mar 24	9:00 AM to 5:00 PM	Convention Center	Room 131A
Job Bank/Mentor Match Lounge	Tuesday, Mar 25	8:30 AM to 5:00 PM	Convention Center	Room 131A
Job Bank/Mentor Match Lounge	Wednesday, Mar 26	8:30 AM to 5:00 PM	Convention Center	Room 131A
K				
K–12 Regional Outreach Contacts Meeting	Monday, Mar 24	4:30 PM to 5:30 PM	Convention Center	Room 228A
K–12 Subcommittee Meeting	Sunday, Mar 23	11:30 AM to 1:00 PM	Convention Center	Room 228A
Kettering Reception, University of Cincinnati	Tuesday, Mar 25	6:30 PM to 8:00 PM	Sheraton	Alhambra
Keynote Medical Research Council (MRC) Lecture: Guiding Signals through Anchored Enzyme Complexes: Implications for Disease, *Lecturer: John D. Scott, Howard Hughes Medical Institute, Department of Pharmacology, University of Washington*	Wednesday, Mar 26	8:00 AM to 9:00 AM	Convention Center	North Ballroom 120A
Korean Toxicologists Association in America Meeting/Reception	Monday, Mar 24	6:00 PM to 8:00 PM	Thai'd Up Restaurant	
L				
Leading Edge in Basic Science Award Lecture: A Two-Pronged Approach to Modernize Toxicology, *Lecturer: Vishal S. Vaidya, Harvard Medical School*	Tuesday, Mar 25	8:00 AM to 8:50 AM	Convention Center	North Ballroom 120B



Schedule by Event Name (Continued)

Tired of carrying the *Program* during the meeting? Access the real-time schedule via the *mobile event app* or *online event website*. *(Schedule as of February 4; private events are not listed.)*

Event:	Date:	Time:	Location:	Room:
Lone Star and South Central Regional Chapter Joint Mixer	Tuesday, Mar 25	5:30 PM to 7:30 PM	Tom's Tavern	
Lovelace Respiratory Research Institute Reception	Sunday, Mar 23	7:30 PM to 10:30 PM	Hyatt	Cassidy
M				
Mechanisms Specialty Section Meeting/Reception	Wednesday, Mar 26	6:00 PM to 7:30 PM	Sheraton	Valley of the Sun A
Mechanisms Specialty Section Officers Meeting	Monday, Mar 24	6:30 AM to 8:00 AM	Convention Center	Room 222
Medical Device Specialty Section Meeting/Reception	Monday, Mar 24	6:00 PM to 7:30 PM	Sheraton	Paradise Valley
Membership Committee Meeting	Wednesday, Mar 26	11:30 AM to 1:00 PM	Convention Center	Room 226A
Merit Award Lecture: Toxicology Is Part of the Solution, *Lecturer: Jay I. Goodman, Michigan State University*	Monday, Mar 24	12:30 PM to 1:20 PM	Convention Center	North Ballroom 120B
Metals Specialty Section Meeting/Reception	Monday, Mar 24	6:00 PM to 7:30 PM	Sheraton	Encanto B
Michigan State University Environmental Toxicology Reception	Tuesday, Mar 25	9:00 PM to 11:00 PM	Sheraton	Camelback B
Mid-Atlantic Regional Chapter Luncheon	Monday, Mar 24	12:00 Noon to 2:00 PM	Majerle's Sports Grill	
Mixtures Specialty Section Meeting/Reception	Wednesday, Mar 26	6:00 PM to 7:30 PM	Sheraton	Estrella
Molecular and Systems Biology Specialty Section Meeting/Reception	Monday, Mar 24	6:00 PM to 7:30 PM	Sheraton	Alhambra
Molecular and Systems Biology Specialty Section Officers Meeting	Monday, Mar 24	6:30 AM to 8:00 AM	Convention Center	Room 221C
Molecular Devices, LLC: *In Vitro* Assessment of Environmental Compound-Induced Cardiotoxicity Potential Using Human Induced Pluripotent Stem Cell (iPSC)-Derived Cardiomyocytes	Monday, Mar 24	1:00 PM to 2:00 PM	Hyatt	Ballroom D
MPI Research: Got Science?	Monday, Mar 24	6:00 PM to 10:00 PM	Renaissance	Terrace
N				
Nanotoxicology Specialty Section Meeting/Reception	Monday, Mar 24	6:00 PM to 7:30 PM	Sheraton	Valley of the Sun A
Networking Time	Tuesday, Mar 25	12:00 Noon to 1:30 PM	Convention Center	
Neurotoxicology Specialty Section Meeting/Reception	Wednesday, Mar 26	6:00 PM to 7:30 PM	Sheraton	Valley of the Sun D
Neurotoxicology Specialty Section Officers Meeting	Monday, Mar 24	6:30 AM to 8:00 AM	Convention Center	Room 222
NIEHS-SOT Memorandum of Understanding Signing Ceremony	Sunday, Mar 23	3:00 PM to 3:30 PM	Convention Center	North Ballroom 120D
Northeast Regional Chapter Student Luncheon	Tuesday, Mar 25	12:00 Noon to 1:30 PM	Convention Center	Room 222A
Northern California Regional Chapter Reception	Tuesday, Mar 25	7:00 PM to 10:00 PM	The Arrogant Butcher	
O				
Occupational and Public Health Specialty Section Meeting/Luncheon	Monday, Mar 24	12:00 Noon to 1:30 PM	Convention Center	Room 222
Ocular Toxicology Specialty Section Meeting/Reception	Tuesday, Mar 25	6:00 PM to 7:30 PM	Sheraton	Ahwatukee
Ohio Valley Regional Chapter Reception	Tuesday, Mar 25	4:15 PM to 6:30 PM	Copper Blues	
P				
Pacific Northwest Regional Chapter Reception	Monday, Mar 24	5:30 PM to 7:30 PM	Tom's Tavern	
Past Presidents Breakfast	Monday, Mar 24	6:30 AM to 8:00 AM	Convention Center	Room 225B
Past Presidents' 5k Fun Run/Walk	Tuesday, Mar 25	6:30 AM to 8:00 AM	Steele Indian School Park	
Plenary Opening Lecture: The Origins and Future of Pluripotency and Cellular Reprogramming, *Lecturer: Sir John B. Gurdon, Wellcome Trust/Cancer Research UK, Gurdon Institute, University of Cambridge*	Monday, Mar 24	8:00 AM to 9:00 AM	Convention Center	Hall 1
Postdoctoral Assembly Board Meeting	Tuesday, Mar 25	6:45 AM to 7:45 AM	Convention Center	Room 225B
Postdoctoral Assembly Luncheon *(Ticket Required)*	Tuesday, Mar 25	12:00 Noon to 1:15 PM	Convention Center	Room 105B West
Poster Sessions	Monday, Mar 24	9:30 AM to 12:30 PM	Convention Center	Exhibit Hall
Poster Sessions	Monday, Mar 24	1:00 PM to 4:30 PM	Convention Center	Exhibit Hall
Poster Sessions	Tuesday, Mar 25	9:00 AM to 12:30 PM	Convention Center	Exhibit Hall
Poster Sessions	Tuesday, Mar 25	1:00 PM to 4:30 PM	Convention Center	Exhibit Hall
Poster Sessions	Wednesday, Mar 26	9:00 AM to 12:30 PM	Convention Center	Exhibit Hall
Poster Sessions	Wednesday, Mar 26	1:00 PM to 4:30 PM	Convention Center	Exhibit Hall
Poster Sessions	Thursday, Mar 27	8:30 AM to 12:00 Noon	Convention Center	Hall 1

Schedule by Event Name (Continued)

Tired of carrying the *Program* during the meeting? Access the real-time schedule via the *mobile event app* or *online event website*. *(Schedule as of February 4; private events are not listed.)*

Event:	Date:	Time:	Location:	Room:
Poster Set Up *(See Poster Board Surface Maps on Pages 120–121 or Mobile Event App for Details)*	Monday, Mar 24	7:30 AM to 9:30 AM	Convention Center	Exhibit Hall
Poster Set Up *(See Poster Board Surface Maps on Pages 120–121 or Mobile Event App for Details)*	Monday, Mar 24	12:30 PM to 1:00 PM	Convention Center	Exhibit Hall
Poster Set Up *(See Poster Board Surface Maps on Pages 122–123 or Mobile Event App for Details)*	Tuesday, Mar 25	7:30 AM to 9:00 AM	Convention Center	Exhibit Hall
Poster Set Up *(See Poster Board Surface Maps on Pages 122–123 or Mobile Event App for Details)*	Tuesday, Mar 25	12:30 PM to 1:00 PM	Convention Center	Exhibit Hall
Poster Set Up *(See Poster Board Surface Maps on Pages 124–125 or Mobile Event App for Details)*	Wednesday, Mar 26	7:30 AM to 9:00 AM	Convention Center	Exhibit Hall
Poster Set Up *(See Poster Board Surface Maps on Pages 124–125 or Mobile Event App for Details)*	Wednesday, Mar 26	12:30 PM to 1:00 PM	Convention Center	Exhibit Hall
Poster Set Up *(See Poster Board Surface Map on Page 126 or Mobile Event App for Details)*	Thursday, Mar 27	7:00 AM to 8:30 Noon	Convention Center	Hall 1
President's Reception *(By Invitation Only)*	Wednesday, Mar 26	7:00 PM to 8:30 PM	Sheraton	Phoenix Ballroom C
Public Outreach Event: All About Poisons—Toxicology Revealed!	Saturday, Mar 22	10:30 AM to 12:30 PM	Burton Barr Central Library, Phoenix	
Q				
QIAGEN's Ingenuity Pathway Analysis Workshop	Monday, Mar 24	12:00 Noon to 1:00 PM	Sheraton	Deer Valley
R				
Regional Chapter Collaboration and Communications Committee Meeting	Wednesday, Mar 26	12:00 Noon to 1:30 PM	Convention Center	Room 228A
Registration	Saturday, Mar 22	4:00 PM to 7:00 PM	Convention Center	Lower Level
Registration	Sunday, Mar 23	7:00 AM to 8:00 PM	Convention Center	Lower Level
Registration	Monday, Mar 24	7:00 AM to 5:00 PM	Convention Center	Lower Level
Registration	Tuesday, Mar 25	8:00 AM to 4:00 PM	Convention Center	Lower Level
Registration	Wednesday, Mar 26	8:00 AM to 4:00 PM	Convention Center	Lower Level
Registration	Thursday, Mar 27	8:00 AM to 12:00 Noon	Convention Center	Lower Level
Regulatory and Safety Evaluation Specialty Section Meeting/ Reception	Wednesday, Mar 26	6:00 PM to 7:30 PM	Sheraton	Encanto
Regulatory and Safety Evaluation Specialty Section Officers Meeting	Monday, Mar 24	6:30 AM to 8:00 AM	Convention Center	Room 222
Reproductive and Developmental Toxicology Specialty Section Meeting/Reception	Tuesday, Mar 25	6:00 PM to 7:30 PM	Sheraton	Valley of the Sun D
Reproductive and Developmental Toxicology Specialty Section Officers Meeting	Monday, Mar 24	7:00 AM to 8:30 AM	Convention Center	Room 226A
Research Data Alliance Toxicogenomics Interoperability Interest Group	Thursday, Mar 27	8:30 AM to 10:00 AM	Sheraton	Alhambra
Research Funding Committee Meeting	Tuesday, Mar 25	7:00 AM to 8:00 AM	Convention Center	Room 225A
Research Funding Information Room	Monday, Mar 24	9:30 AM to 4:00 PM	Convention Center	Room 127A
Research Funding Information Room	Tuesday, Mar 25	9:30 AM to 4:00 PM	Convention Center	Room 127A
Research Funding Information Room	Wednesday, Mar 26	9:30 AM to 4:00 PM	Convention Center	Room 127A
Risk Assessment Specialty Section Meeting/Reception	Wednesday, Mar 26	6:00 PM to 7:30 PM	Sheraton	Phoenix Ballroom D
Risk Assessment Specialty Section Officers Meeting	Monday, Mar 24	6:30 AM to 8:00 AM	Convention Center	Room 222
Roundtable of Toxicology Consultants Annual Business Meeting	Monday, Mar 24	4:30 PM to 6:30 PM	Hyatt	Cassidy
Rutgers University Joint Graduate Program in Toxicology Annual Dessert Reception	Tuesday, Mar 25	9:00 PM to 11:00 PM	Hyatt	Ballroom D
S				
Satellite Meeting: Updates on 21st Century Toxicology Activities and Related Efforts: Invited Presentations and Open Microphone	Thursday, Mar 27	12:30 PM to 4:30 PM	Sheraton	Deer Valley
Satellite Meeting: Workshop on Translational Biomarkers of Neurotoxicity	Thursday, Mar 27	12:00 Noon to 5:00 PM	Sheraton	Laveen



Schedule by Event Name (Continued)

Tired of carrying the *Program* during the meeting? Access the real-time schedule via the *mobile event app* or *online event website*. *(Schedule as of February 4; private events are not listed.)*

Event:	Date:	Time:	Location:	Room:
Scientific Liaison Coalition Meeting	Sunday, Mar 23	8:00 AM to 12:00 PM	Sheraton	Alhambra
Scientific Program Committee Meeting	Thursday, Mar 27	12:00 Noon to 1:30 PM	Convention Center	Room 225B
Scientific Program Committee Walk-Through	Monday, Mar 24	7:00 AM to 7:45 AM	Convention Center	North Ballroom 120A
Scientific Sessions	Monday, Mar 24	9:15 AM to 12:00 Noon	Convention Center *(See Session Index on Pages 112–117 or Mobile Event App for Room Locations)*	
Scientific Sessions	Monday, Mar 24	12:10 PM to 1:30 PM	Convention Center *(See Session Index on Pages 112–117 or Mobile Event App for Room Locations)*	
Scientific Sessions	Monday, Mar 24	2:00 PM to 4:45 PM	Convention Center *(See Session Index on Pages 112–117 or Mobile Event App for Room Locations)*	
Scientific Sessions	Tuesday, Mar 25	9:00 AM to 11:45 AM	Convention Center *(See Session Index on Pages 112–117 or Mobile Event App for Room Locations)*	
Scientific Sessions	Tuesday, Mar 25	1:30 PM to 4:15 PM	Convention Center *(See Session Index on Pages 112–117 or Mobile Event App for Room Locations)*	
Scientific Sessions	Wednesday, Mar 26	9:00 AM to 11:45 AM	Convention Center *(See Session Index on Pages 112–117 or Mobile Event App for Room Locations)*	
Scientific Sessions	Wednesday, Mar 26	12:00 Noon to 1:20 PM	Convention Center *(See Session Index on Pages 112–117 or Mobile Event App for Room Locations)*	
Scientific Sessions	Wednesday, Mar 26	1:30 PM to 4:15 PM	Convention Center *(See Session Index on Pages 112–117 or Mobile Event App for Room Locations)*	
Scientific Sessions *(Sunset)*	Wednesday, Mar 26	4:30 PM to 5:50 PM	Convention Center *(See Session Index on Pages 112–117 or Mobile Event App for Room Locations)*	
Scientific Sessions	Thursday, Mar 27	9:00 AM to 11:45 AM	Convention Center *(See Session Index on Page 117 or Mobile Event App for Room Locations)*	
SOT Annual Business Meeting *(All SOT Members Invited)*	Tuesday, Mar 25	4:30 PM to 6:00 PM	Convention Center	North Ballroom 120D
SOT Mentoring Breakfast *(Reservations Required)*	Monday, Mar 24	6:15 AM to 7:45 AM	Convention Center	Room 221A
SOT Office	Saturday, Mar 22	4:00 PM to 7:00 PM	Convention Center	Room 224A
SOT Office	Sunday, Mar 23	7:00 AM to 5:30 PM	Convention Center	Room 224A
SOT Office	Monday, Mar 24	7:00 AM to 5:00 PM	Convention Center	Room 224A
SOT Office	Tuesday, Mar 25	7:00 AM to 4:30 PM	Convention Center	Room 224A
SOT Office	Wednesday, Mar 26	7:00 AM to 4:30 PM	Convention Center	Room 224A
SOT Office	Thursday, Mar 27	7:00 AM to 12:00 Noon	Convention Center	Room 224A
SOT Pavilion, Booth 1623	Monday, Mar 24	9:00 AM to 4:30 PM	Convention Center	Exhibit Hall
SOT Pavilion, Booth 1623	Tuesday, Mar 25	8:30 AM to 4:30 PM	Convention Center	Exhibit Hall
SOT Pavilion, Booth 1623	Wednesday, Mar 26	8:30 AM to 4:30 PM	Convention Center	Exhibit Hall
SOT/EUROTOX Debate: Are Nonmonotonic Dose-Responses at Low Dose Levels Toxicologically Relevant?, *SOT Debater: James C. Lamb, IV, Exponent, and EUROTOX Debater: Dieter Schrenk, Technische Universitat Kaiserslautern*	Monday, Mar 24	4:45 PM to 6:00 PM	Convention Center	North Ballroom 120D
Southeastern Regional Chapter Reception	Monday, Mar 24	6:00 PM to 8:00 PM	Canyon Cafe	
Speaker Ready Room *(Scientific Session and ePoster Upload)*	Saturday, Mar 22	4:00 PM to 7:00 PM	Convention Center	Room 123
Speaker Ready Room *(Scientific Session and ePoster Upload)*	Sunday, Mar 23	7:00 AM to 5:30 PM	Convention Center	Room 123
Speaker Ready Room *(Scientific Session and ePoster Upload)*	Monday, Mar 24	7:00 AM to 5:00 PM	Convention Center	Room 123
Speaker Ready Room *(Scientific Session and ePoster Upload)*	Tuesday, Mar 25	7:00 AM to 4:30 PM	Convention Center	Room 123

Schedule by Event Name (Continued)

Tired of carrying the *Program* during the meeting? Access the real-time schedule via the *mobile event app* or *online event website*. *(Schedule as of February 4; private events are not listed.)*

Event:	Date:	Time:	Location:	Room:
Speaker Ready Room *(Scientific Session and ePoster Upload)*	Wednesday, Mar 26	7:00 AM to 4:30 PM	Convention Center	Room 123
Speaker Ready Room *(Scientific Session and ePoster Upload)*	Thursday, Mar 27	7:00 AM to 11:30 AM	Convention Center	Room 123
Special Interest Group Collaboration Group Meeting	Monday, Mar 24	12:00 Noon to 1:30 PM	Convention Center	Room 226A
Special Interest Group: Global Hot Topics Event—Air Pollution around the World: Global Concerns *(See Page 200 or Mobile Event App for Details)*	Monday, Mar 24	5:00 PM to 6:30 PM	Convention Center	Room 221A
Specialty Section Collaboration and Communication Group Meeting	Monday, Mar 24	2:00 PM to 3:00 PM	Convention Center	Room 226C
Special Symposium: A Conversation with Director of NIEHS: Dr. Linda S. Birnbaum *(See Page 194 or Mobile Event App for Details)*	Monday, Mar 24	1:30 PM to 2:30 PM	Convention Center	North Ballroom 120D
Special Symposium: Frontiers for Toxicology Session: Noncoding RNAs in Human Health, Therapeutics, and Environmental Disease *(See Page 203 or Mobile Event App for Details)*	Tuesday, Mar 25	9:00 AM to 11:45 AM	Convention Center	North Ballroom 120A
Stem Cells Specialty Section Meeting/Reception	Tuesday, Mar 25	6:00 PM to 7:30 PM	Sheraton	Estrella
Strategies for Funding Opportunities: Brown Bag Luncheon	Tuesday, Mar 25	12:00 Noon to 1:30 PM	Convention Center	Room 221
Student/Postdoctoral Scholar Mixer *(Ticket Required)*	Sunday, Mar 23	7:30 PM to 9:00 PM	Convention Center	Room 301C West
T				
Tox ShowDown *(All Attendees Invited)*	Tuesday, Mar 25	7:30 PM to 9:00 PM	Sheraton	Encanto
ToXchange Task Force Meeting	Wednesday, Mar 26	7:00 AM to 8:00 AM	Convention Center	Room 228B
ToxExpo 2015 Exhibit Space Selection Process	Tuesday, Mar 25	4:45 PM to 6:00 PM	Convention Center	Room 106C West
ToxExpo Exhibit Hall Council Walk-Through	Tuesday, Mar 25	11:00 AM to 12:00 Noon	Convention Center	Exhibit Hall
ToxExpo Exhibits Open	Monday, Mar 24	9:00 AM to 4:30 PM	Convention Center	Exhibit Hall
ToxExpo Exhibits Open	Tuesday, Mar 25	8:30 AM to 4:30 PM	Convention Center	Exhibit Hall
ToxExpo Exhibits Open	Wednesday, Mar 26	8:30 AM to 4:30 PM	Convention Center	Exhibit Hall
ToxExpo Liaison Working Group	Wednesday, Mar 26	2:00 PM to 4:00 PM	Convention Center	Room 228B
ToxExpo Set Up	Saturday, Mar 22	8:00 AM to 5:00 PM	Convention Center	Exhibit Hall
ToxExpo Set Up	Sunday, Mar 23	8:00 AM to 5:00 PM	Convention Center	Exhibit Hall
ToxExpo Tear Down	Wednesday, Mar 26	4:30 PM to 12:00 Midnight	Convention Center	Exhibit Hall
Toxicologic and Exploratory Pathology Specialty Section Meeting/Luncheon	Monday, Mar 24	12:00 Noon to 1:30 PM	Convention Center	Room 227
Toxicologic and Exploratory Pathology Specialty Section Officers Meeting	Monday, Mar 24	6:30 AM to 7:30 AM	Convention Center	Room 228A
Toxicological Sciences Associate Editors Meeting	Sunday, Mar 23	12:00 Noon to 3:00 PM	Sheraton	Maryvale A
Toxicological Sciences/Oxford University Press Appreciation Dinner *(By Invitation Only)*	Monday, Mar 24	7:00 PM to 9:00 PM	Province Restaurant	
Toxicologists of African Origin Special Interest Group Executive Board Meeting	Monday, Mar 24	5:00 PM to 6:00 PM	Sheraton	Coronado
Toxicologists of African Origin Special Interest Group Reception	Monday, Mar 24	6:30 PM to 8:00 PM	Sheraton	Ahwatukee
Toxicology and Applied Pharmacology Associate Editor Board Meeting	Monday, Mar 24	12:00 Noon to 2:00 PM	Hyatt	Sundance
Toxicology and Industrial Health Editorial Board Meeting	Tuesday, Mar 25	4:30 PM to 5:30 PM	Sheraton	Deer Valley
Toxicology Consultants Breakfast: GLP Toxicology in China—Q&A with Pharmaron	Tuesday, Mar 25	7:30 AM to 9:00 AM	Sheraton	North Mountain
Toxicology Editorial Board Meeting	Wednesday, Mar 26	11:45 AM to 1:30 PM	Hyatt	Sundance
Toxicology Education Foundation Board of Trustees Meeting	Sunday, Mar 23	8:00 AM to 12:00 Noon	Sheraton	Estrella
Toxicology Letters Editorial Board Meeting	Tuesday, Mar 25	11:45 AM to 1:30 PM	Hyatt	Sundance
ToxLearn Work Group	Monday, Mar 24	2:30 PM to 3:30 PM	Convention Center	Room 228A
Trainee Discussion with Medical Research Council (MRC) Lecturer: Dr. Scott *(Ticket Required; SOT Student and Postdoctoral members only, limited seating)*	Wednesday, Mar 26	10:00 AM to 11:00 AM	Convention Center	Room 103A West
Trainee Discussion with Plenary Lecturer: Dr. Gurdon *(Ticket Required; SOT Student and Postdoctoral members only, limited seating)*	Monday, Mar 24	10:00 AM to 11:00 AM	Convention Center	Room 103A West



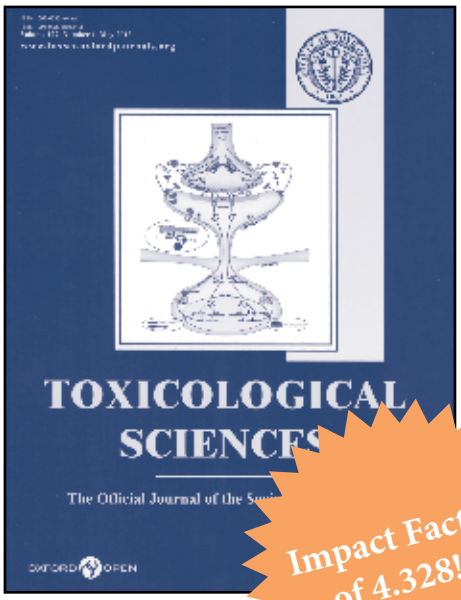
Schedule by Event Name (Continued)

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Event:	Date:	Time:	Location:	Room:
Translational Impact Award Lecture: Ancient Medicine for the Mitigation of Aflatoxin Exposures, *Lecturer: Timothy D. Phillips, Texas A&M University*	Wednesday, Mar 26	4:30 PM to 5:20 PM	Convention Center	North Ballroom 120B
Tri-Service Toxicology Consortium (TSTC)	Wednesday, Mar 26	2:00 PM to 4:00 PM	Hyatt	Ballroom A
U				
Undergraduate Education Program: Registration for Students	Saturday, Mar 22	5:00 PM to 5:15 PM	Convention Center	Room 102 West
Undergraduate Education Program: Opening Event *(CDI Travel Awardees)*	Saturday, Mar 22	5:15 PM to 6:55 PM	Convention Center	Room 102 West
Undergraduate Education Program: Toxicology Lectures *(CDI Travel Awardees and Registered Participants)*	Sunday, Mar 23	8:00 AM to 10:40 AM	Convention Center	Room 105 West
Undergraduate Education Program: Interactive Presentation *(Undergraduates Only, Ticket Required)*	Sunday, Mar 23	10:45 AM to 12:00 Noon	Convention Center	Room 102 West
Undergraduate Education Program: Luncheon *(CDI Travel Awardees and Registered Participants)*	Sunday, Mar 23	12:15 PM to 12:55 PM	Convention Center	Room 102 West
Undergraduate Education Program: Advisors Breakout Session—Tips for Advising Prospective Graduate Students *(CDI Travel Awardees and Registered Participants)*	Sunday, Mar 23	1:00 PM to 1:55 PM	Convention Center	Room 101C West
Undergraduate Education Program: Students Breakout Sessions—Planning for Graduate School *(CDI Travel Awardees and Registered Participants)*	Sunday, Mar 23	1:00 PM to 1:55 PM	Convention Center	Rooms 103A, 104A, 104B West
Undergraduate Education Program: Career Opportunities in Toxicology, Linda S. Birnbaum, NIEHS *(CDI Travel Awardees and Registered Participants)*	Sunday, Mar 23	2:00 PM to 2:45 PM	Convention Center	Room 102 West
Undergraduate Education Program: Open Time with Academic Program Directors and Internship Sponsors *(CDI Travel Awardees and Registered Participants)*	Sunday, Mar 23	3:00 PM to 5:00 PM	Convention Center	Room 105 West
Undergraduate Education Program	Monday, Mar 24	8:00 AM to 3:45 PM	Convention Center	Room 102 West
Undergraduate Education Program: Career Opportunities in Toxicology—Small Group Discussions *(CDI Travel Awardees)*	Monday, Mar 24	3:45 PM to 4:45 PM	Convention Center	Room 102 West
Undergraduate Education Program: Host Mentor and Peer Mentor Meeting	Monday, Mar 24	3:45 PM to 4:45 PM	Convention Center	Room 104B West
Undergraduate Education Program: Recognitions and Closing Session *(CDI Travel Awardees)*	Monday, Mar 24	4:45 PM to 5:15 PM	Convention Center	Room 102 West
Undergraduate Educator Network Meeting	Wednesday, Mar 26	2:15 PM to 3:30 PM	Convention Center	Room 226A
Undergraduate Student Meeting	Wednesday, Mar 26	4:00 PM to 5:00 PM	Convention Center	Room 226A
Undergraduate Subcommittee Meeting	Wednesday, Mar 26	1:30 PM to 2:00 PM	Convention Center	Room 226A
University of Rochester Toxicology Program Alumni Reception	Tuesday, Mar 25	7:30 PM to 10:00 PM	Sheraton	North Mountain
University of Texas at Austin College of Pharmacy Alumni Dessert Reception	Wednesday, Mar 26	9:00 PM to 11:00 PM	Sheraton	North Mountain
W				
Welcome Reception *(All Attendees Welcome)*	Sunday, Mar 23	6:30 PM to 7:30 PM	Convention Center	Hall 1
Women in Toxicology Special Interest Group Executive Committee Meeting	Monday, Mar 24	5:00 PM to 6:00 PM	Sheraton	Arcadia
Women in Toxicology Special Interest Group Meeting/Reception	Tuesday, Mar 25	6:00 PM to 8:00 PM	Sheraton	Phoenix Ballroom D

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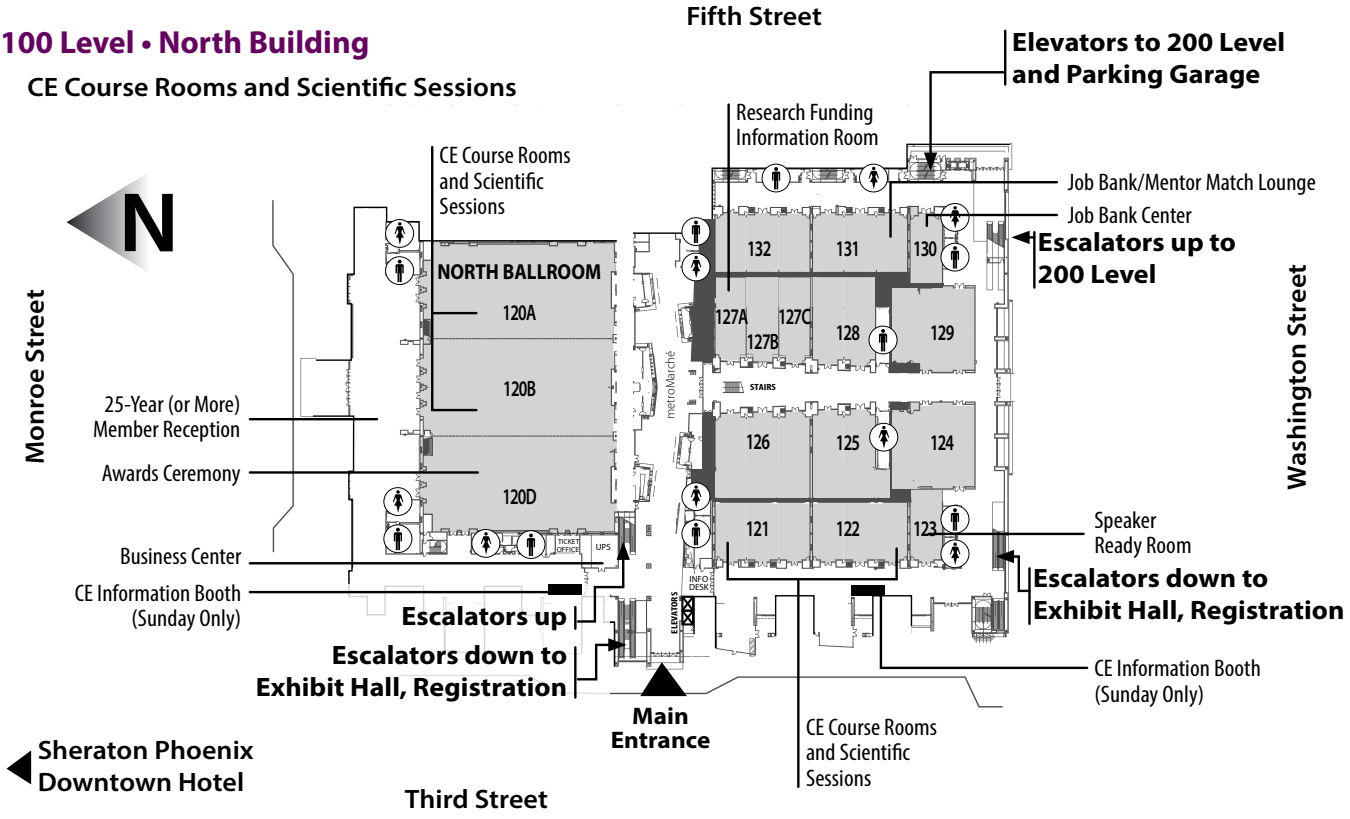
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Phoenix Convention Center Maps

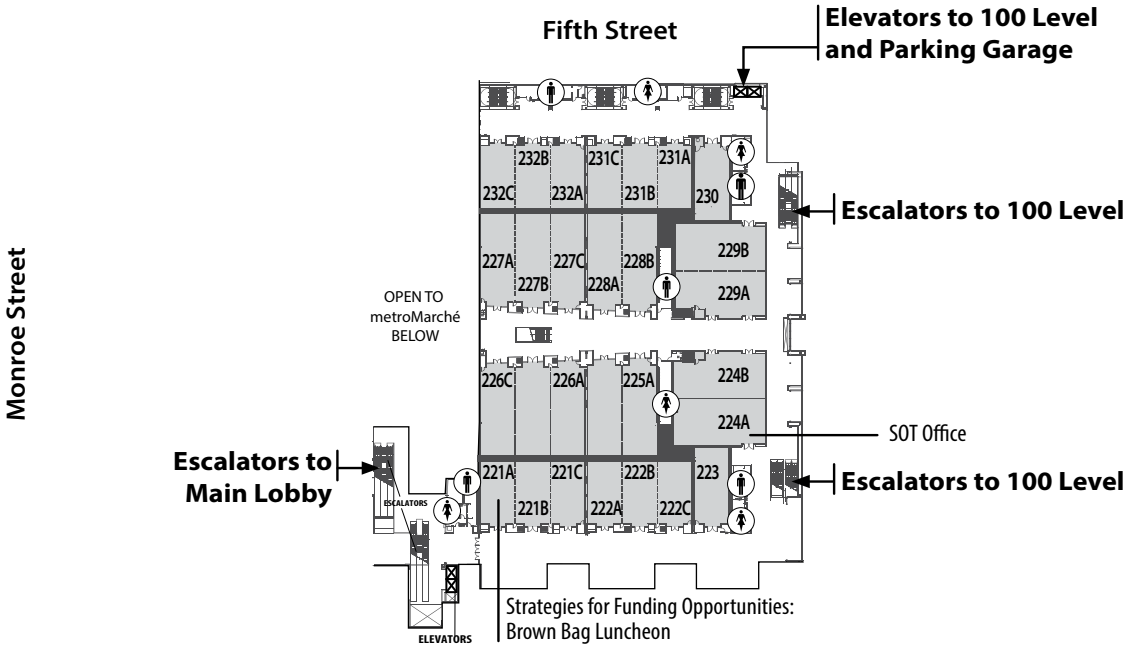
100 Level • North Building

CE Course Rooms and Scientific Sessions



200 Level • North Building

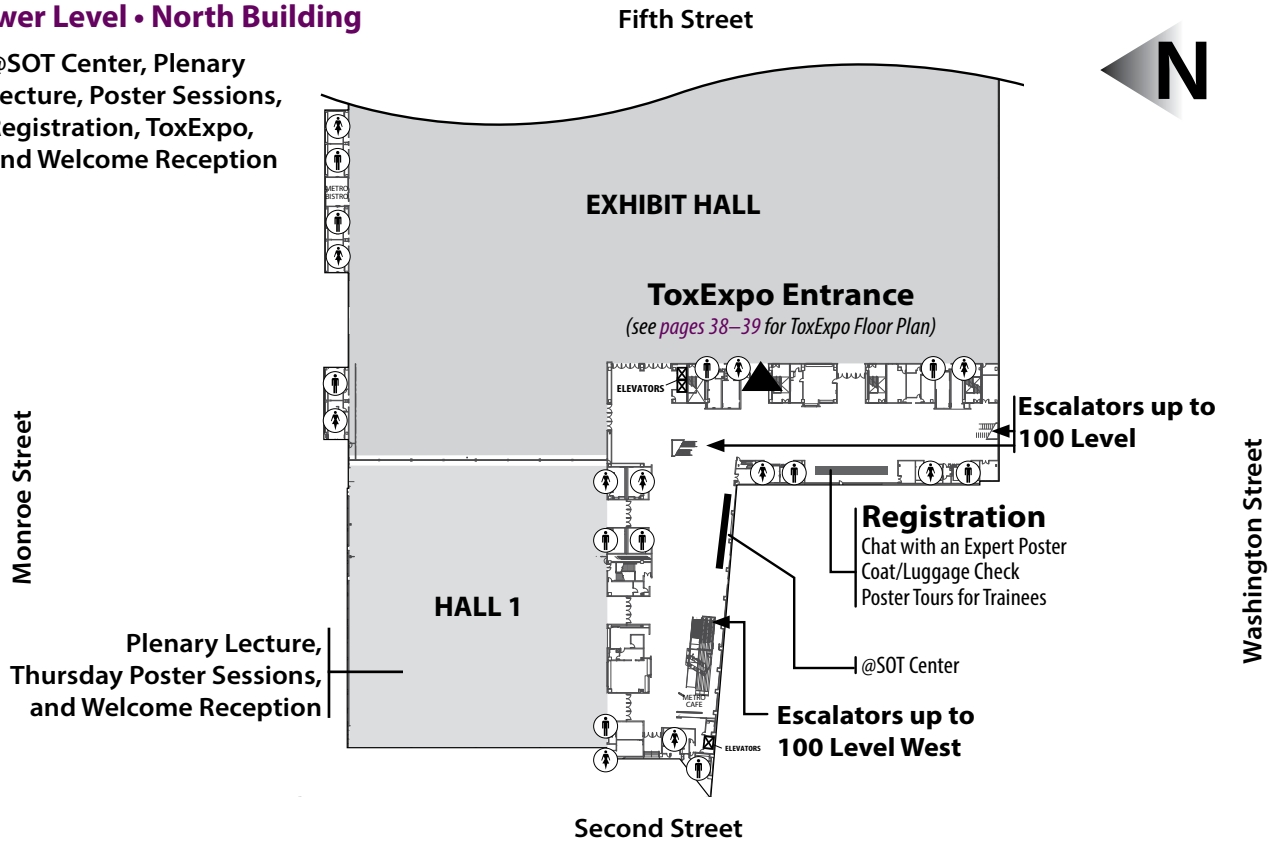
RC, SIG, and SS Events



Phoenix Convention Center Maps (Continued)

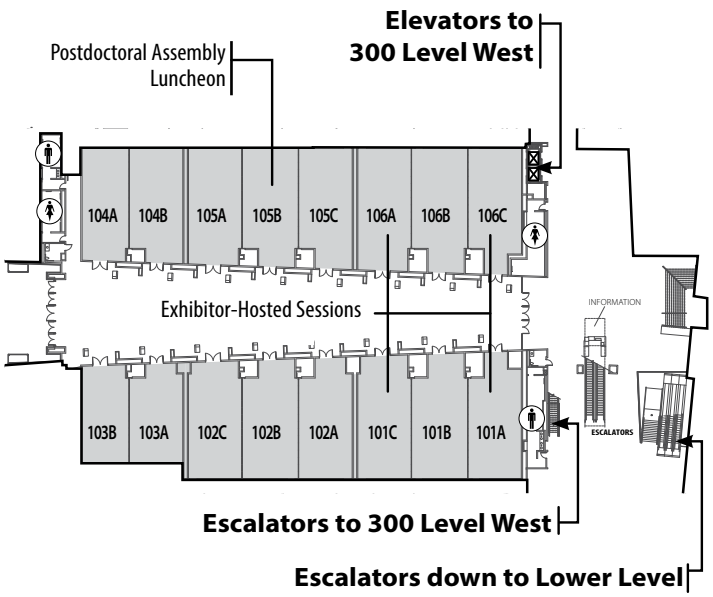
Lower Level • North Building

@SOT Center, Plenary Lecture, Poster Sessions, Registration, ToxExpo, and Welcome Reception



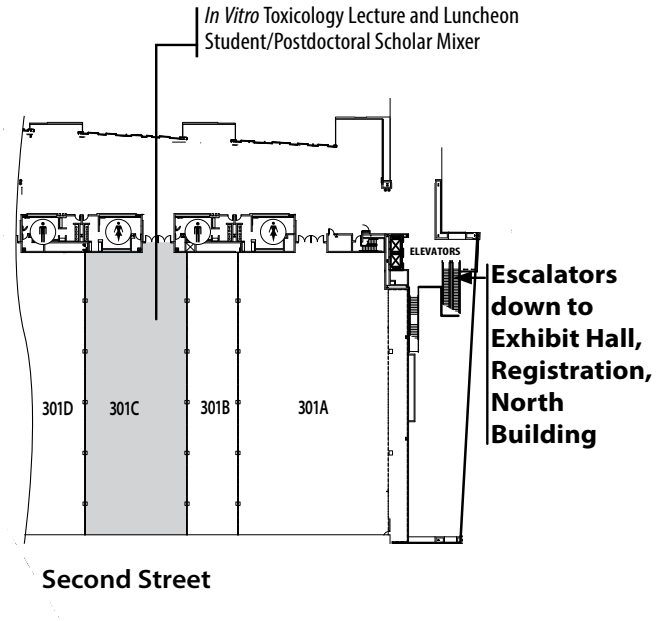
100 Level • West Building

Exhibitor-Hosted Sessions and Undergraduate Program



300 Level • West Building

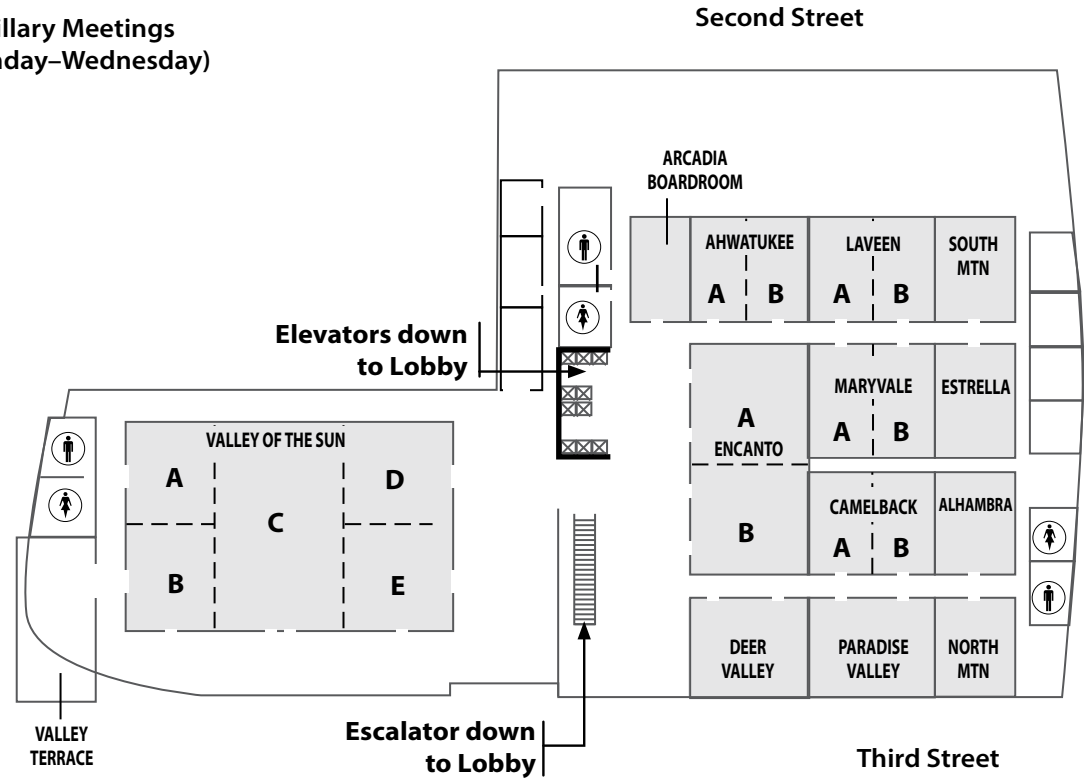
Third Street



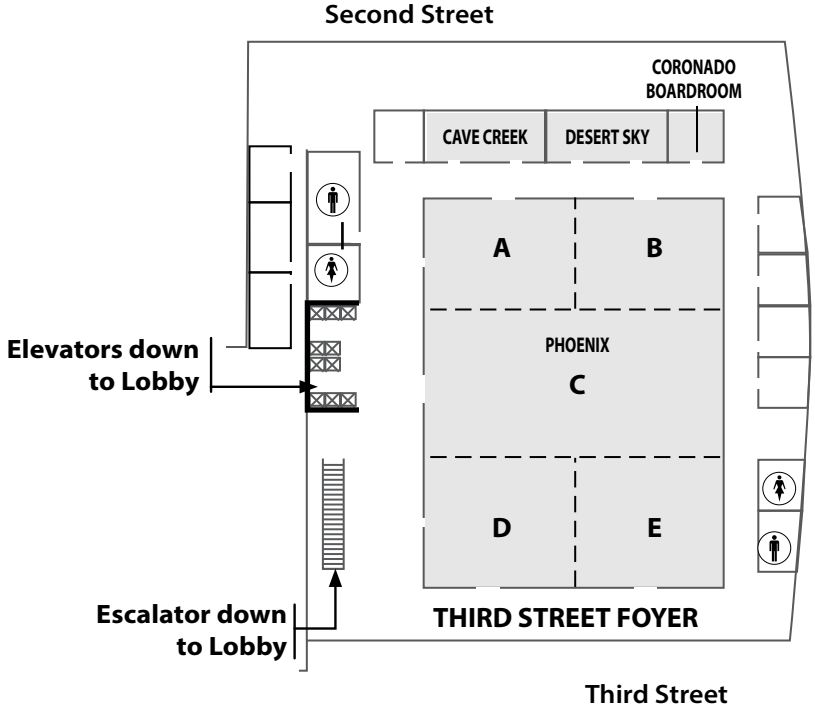
Sheraton Phoenix Downtown Hotel Maps

Second Level

Ancillary Meetings
(Sunday–Wednesday)



Third Level

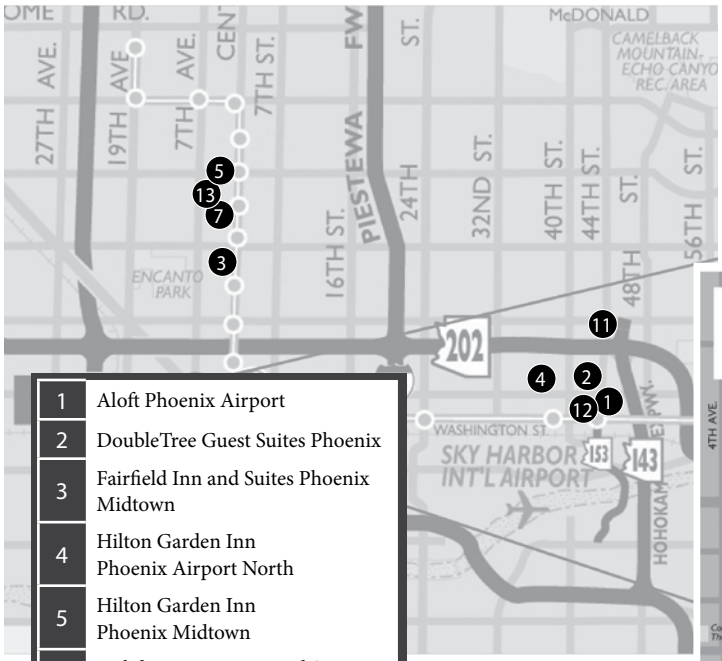


Fourth Level

SUITE 428

SOT Guest/Spouse Hospitality Room

Map of Phoenix Hotel Locations



1	Aloft Phoenix Airport
2	DoubleTree Guest Suites Phoenix
3	Fairfield Inn and Suites Phoenix Midtown
4	Hilton Garden Inn Phoenix Airport North
5	Hilton Garden Inn Phoenix Midtown
6	Holiday Inn Express and Suites Phoenix Downtown
7	Holiday Inn Phoenix Downtown North
8	Hotel Palomar Phoenix CityScape
9	Hotel San Carlos
10	Hyatt Regency Phoenix
11	Phoenix Airport Marriott
12	Crowne Plaza *(formerly Phoenix Airport Plaza Hotel)*
13	Wyndham Garden Phoenix Midtown *(formerly Phoenix Place Hotel and Suites)*
14	Renaissance Phoenix Downtown *(formerly Wyndham)*
15	Sheraton Phoenix Downtown Hotel* ** SOT Headquarters Hotel*
16	SpringHill Suites Phoenix Downtown
17	Westin Phoenix Downtown
	Phoenix Convention Center

High School Student and Teacher Workshop: Lotions Are Not Potions: Toxicology and Product Safety—Health Science Education Building, University of Arizona Biomedical Campus



Metro Light Rail

Tel: 602.253.5000 | www.valleymetro.org

The Metro Light Rail is a convenient, cost effective, and the easiest way to get around downtown Phoenix. Vending machines are located at each light rail station and have on-screen instructions for purchasing tickets, which makes your transaction simple and fast. A one-ride pass is $2 or for an all-day pass is $4. Trains arrive at stations every 10 minutes between 6:00 am–7:00 pm on weekdays and every 15 minutes on Saturdays. All other times are every 20 minutes. Trains operate seven days a week, 20+ hours a day, 365 days a year.

Use the SOT mobile event app or event website to access a complete Phoenix city guide, including hotels, restaurants, attractions, nightlife, and shopping. Download the app from the your favorite app marketplace or access it via the SOT website. Scan this QR code for additional instructions.

Scan Me!



Phoenix Hotel Accommodations

1) Aloft Phoenix Airport

$189 single/double
4450 E. Washington Street, Phoenix, AZ 85034
Tel: 602.275.6300
Club: Starwood Preferred Guests
Check-in: 3:00 PM/Check-out: 12:00 Noon
5 Miles from convention center
.5 Block to light rail
Complimentary self-parking
Complimentary wireless Internet in guest rooms

2) DoubleTree Guest Suites Phoenix

$199 single/double
320 N. 44th Street, Phoenix, AZ 85008
Tel: 602.225.0500
Club: Hilton Honors
Check-in: 3:00 PM/Check-out: 12:00 Noon
5 Miles from convention center
1 Block to light rail
Complimentary self-parking
Complimentary wireless Internet in guest rooms

3) Fairfield Inn and Suites Phoenix Midtown

$179 single/double
2520 N. Central Avenue, Phoenix, AZ 85004
Tel: 602.716.9900
Club: Marriott Rewards
Check-in: 3:00 PM/Check-out: 12:00 Noon
2 Miles from convention center
1 Block to light rail
Complimentary self-parking
Complimentary wireless Internet in guest rooms

4) Hilton Garden Inn Phoenix Airport North

$179 single/double
3838 E. Van Buren Street, Phoenix, AZ 85008
Tel: 602.306.2323
Club: Hilton Honors
Check-in: 3:00 PM/Check-out: 12:00 Noon
4 Miles from convention center
3 Blocks to light rail
Complimentary self-parking
Complimentary wireless Internet in guest rooms

5) Hilton Garden Inn Phoenix Midtown

$199 single/double
4000 N. Central Avenue, Phoenix, AZ 85012
Tel: 602.279.9811
Club: Hilton Honors
Check-in: 3:00 PM/Check-out: 12:00 Noon
3 Miles from convention center
3 Blocks to light rail
Complimentary self-parking
Complimentary wireless Internet in guest rooms

6) Holiday Inn Express and Suites Phoenix Downtown

$209 single/double
620 N. 6th Street, Phoenix, AZ 85004
Tel: 602.452.2020
Club: Priority Club Rewards
Check-in: 3:00 PM/Check-out: 11:00 AM
7 Blocks from convention center
7 Blocks to light rail
Complimentary self-parking
Complimentary wireless Internet in guest rooms

7) Holiday Inn Phoenix Downtown North

$159 single/double
212 W. Osborn Road, Phoenix, AZ 85031
Tel: 602.595.4444
Club: Priority Club Rewards
Check-in: 2:00 PM/Check-out: 12:00 Noon
3 Miles from convention center
2 Blocks to light rail
Complimentary self-parking
Complimentary wireless Internet in guest rooms

8) Hotel Palomar Phoenix CityScape

$239 single/double
2 E. Jefferson Street, Phoenix, AZ 85004
Tel: 602.253.6633
Club: Kimpton InTouch Loyalty Program
Check-in: 3:00 PM/Check-out: 12:00 Noon
4 Blocks from convention center
1 Block to light rail
$27/night valet parking, $20/night self-parking
Complimentary wireless Internet in guest rooms with InTouch Rewards

Housing Bureau/Connections Housing Information

Contact SOT Housing Bureau, the SOT Housing representative, for information regarding your hotel room reservations on-site. A convenient SOT Housing Desk is located in the Registration area of the Phoenix Convention Center Saturday, March 22, through Tuesday, March 25.

You may also contact SOT Housing Bureau directly:

- Tel: 800.262.9974 (USA) or 404.842.0000 (Domestic and International)
  Hours of Operation: 9:00 AM–7:00 PM (EST) Monday–Friday

All hotel accommodations, rates, Internet access, and parking pricing are subject to change. Early departures are subject to penalty fees set by the hotels.

Although we understand that making your reservations outside of the SOT hotel block can sometimes be more economical, it decreases the money available to the Society to carry out its strategic goals and may cause the Society to have to pay attrition fees for unutilized hotel rooms. In addition, the Society is unable to assist you if you have any difficulties with your room reservation, such as the hotel over-booking or misplacing your reservation.

SOT depends on the Annual Meeting revenue (hotel room commissions and rebates) to fund other programs throughout the year and to keep future registration fees low. Please assist the Society by making your hotel room reservation through SOT Housing Bureau.

Phoenix Hotel Accommodations (Continued)

9) Hotel San Carlos

$149 single/double
202 N. Central Avenue, Phoenix, AZ 85004
Tel: 602.253.4121
Club: N/A
Check-in: 3:00 PM/Check-out: 12:00 Noon
3 Blocks from convention center
1 Block to light rail
$20/night valet parking, $15/night self-parking
Complimentary wireless Internet in guest rooms

10) Hyatt Regency Phoenix

$220 single/double
122 N. 2nd Street, Phoenix, AZ 85004
Tel: 602.252.1234
Club: Gold Passport
Check-in: 3:00 PM/Check-out: 12:00 Noon
1 Block from convention center
1 Block to light rail
$28/day valet parking, $12/night self-parking ($19/day—in/out self-parking)
Wireless Internet in guest rooms is $9.95/day

11) Phoenix Airport Marriott

$184 single/double
1101 N. 44th Street, Phoenix, AZ 85008
Tel: 602.273.7778
Club: Marriott Rewards
Check-in: 3:00 PM/Check-out: 12:00 Noon
6 Miles from convention center
8 Blocks to light rail
Complimentary self-parking
Complimentary wireless Internet in guest rooms

12) Crowne Plaza
(Formerly Phoenix Airport Plaza Hotel)

$169 single/double
4300 E. Washington Street, Phoenix, AZ 85034
Tel: 602.286.1120
Club: Coast Rewards
Check-in: 3:00 PM/Check-out: 12:00 Noon
5 Miles from convention center
.5 Block to light rail
Complimentary valet parking for overnight guests
Complimentary wireless Internet in guest rooms

13) Wyndham Garden Phoenix Midtown
(Formerly Phoenix Place Hotel and Suites)

$129 single/double
3600 N. 2nd Avenue, Phoenix, AZ 85013
Tel: 602.604.4900
Club: N/A
Check-in: 3:00 PM/Check-out: 11:00 AM
3 Miles from convention center
2 Blocks to light rail
Complimentary self-parking
Complimentary wireless Internet in guest rooms

14) Renaissance Phoenix Downtown
(Formerly Wyndham)

$220 single/double
50 E. Adams Street, Phoenix, AZ 85004
Tel: 602.333.0000
Club: Marriott Rewards
Check-in: 4:00 PM/Check-out: 12:00 Noon
2 Blocks from convention center
.5 Block to light rail
$27/day valet parking
Wireless Internet in guest rooms is $12.95/day

15) Sheraton Phoenix Downtown Hotel

** SOT Headquarters Hotel*

$229 single/double
340 N. 3rd Street, Phoenix, AZ 85004
Tel: 602.262.2500
Club: Starwood Preferred Guests
Check-in: 3:00 PM/Check-out: 12:00 Noon
2 Blocks from convention center
3 Blocks to light rail
$27/day valet parking, $17/day self-parking
Wireless Internet in guest rooms is $14.95/day

16) SpringHill Suites Phoenix Downtown

$201 single/double
802 E. Van Buren Street, Phoenix, AZ 85006
Tel: 602.307.9929
Club: Marriott Rewards
Check-in: 3:00 PM/Check-out: 12:00 Noon
4 Blocks from convention center
8 Blocks to light rail
Complimentary self-parking
Complimentary wireless Internet in guest rooms

17) Westin Phoenix Downtown

$235 single/double
333 N. Central Avenue, Phoenix, AZ 85004
Tel: 602.429.3500
Club: Starwood Preferred Guests
Check-in: 3:00 PM/Check-out: 12:00 Noon
4 Blocks from convention center
.5 Block to light rail
$28/day valet parking
Wireless Internet in guest rooms is $10/day

Legend:

	Valet Parking
	Self Parking
	Fitness Center
	Swimming Pool
	Business Center
	In-Room Wireless
	In-Room Safe
	Gift Shop
	Complimentary Breakfast
	Restaurant

All hotels have Internet access.
Hotel sales tax is currently 12.27%



Phoenix Restaurant Listing

Use the SOT mobile event app or event website to access a complete Phoenix city guide, including hotels, restaurants, attractions, nightlife, and shopping. Download the app from your favorite app marketplace or access it via the SOT website. Scan this QR code for complete details.

Scan Me!

Restaurants within Seven Blocks of the Convention Center, Listed Alphabetically

$ = Under $12 $$ = $12–$18 $$$ = $18–$30 $$$$ = over $30

1130 The Restaurant	455 N. 3rd Street	602.368.3046	LD	$$
Alexi's Grill	3550 N. Central Avenue	602.279.0982	D	$$
Alice Cooper'stown	101 E. Jackson Street	602.253.7337	LD	$$
Angel's Trumpet Ale House	810 N. 2nd Street	602.252.2630	LD	$$
The Arrogant Butcher	2 E. Jefferson Street, Suite 150	602.324.8502	LD	$$
Avanti	2728 E. Thomas Road	602.956.0900	LD	$$$
Barrio Café	2841 N. 16th Street	602.636.0240	LD	$$$
Beckett's Table	3717 E. Indian School Road	602.954.1700	D	$$
BKLYN'S NYC Pizza	201 E. Washington Street	602.253.7499	L	$
Bliss ReBAR	901 N. 4th Street	602.795.1792	LD	$$
Blue Hound Kitchen and Cocktails	2 E. Jefferson Street	602.258.0231	D	$$$
Blue Water Grill	1720 E. Camelback Road	602.277.3474	D	$$
Bowl of Greens	555 N. Central Avenue, Suite 102	602.795.9710	BL	$
Bonjour Vietnam	202 N. Central Avenue	602.252.1223	LD	$$
The Breadfruit	108 E. Pierce Street	602.267.1266	D	$$
Breakfast Club	1 E. Washington Street	602.354.7284	BL	$
Brick Pizzeria and Wine Bar	455 N. 3rd Street, Suite 154	602.258.3665	LD	$$$
Bubba Phatz BBQ	510 E. Roosevelt Street	602.595.4101	LD	$$
Café Roma	455 N. 3rd Street, Suite 1030	602.281.6121	LD	$
Canyon Café *(previously Sam's Cafe)*	455 N. 3rd Street, Suite 114	602.252.3545	LD	$$
The Capital Grille	2502 E. Camelback Road, Suite 199	602.952.8900	LD	$$$
Carly's Bistro	128 E. Roosevelt Street	602.262.2759	LD	$$
Cartel Coffee Lab	1 N. 1st Street	480.432.8237	BL	$
Change of Venue Café	101 W. Jefferson Street, Suite 100	602.712.9474	BL	$
Cheesecake Factory	2402 E. Camelback Road	602.778.6501	LD	$$
Chelsea's Kitchen	5040 N. 40th Street	602.957.2555	LD	$$$
Cheuvront Restaurant and Wine Bar	1326 N. Central Avenue	602.307.0022	LD	$$
Chipotle Mexican Grill	11 W. Washington Street	602.513.5751	LD	$
Chloe's Corner	50 W. Jefferson Street, Suite 100	602.252.7600	BL	$
Christopher's Restaurant	2502 E. Camelback Road	602.522.2344	LD	$$$

B=Breakfast, L=Lunch, D=Dinner (as of 1/10/2014)

Phoenix Restaurant Listing (Continued)

Restaurants within Seven Blocks of the Convention Center, Listed Alphabetically *(continued)*				
$ = Under $12	$$ = $12–$18	$$$ = $18–$30	$$$$ = over $30	
Cibo Urban Wine Cafe	603 N. 5th Avenue	602.441.2697	LD	$$
Cocina 10 at Crescent Ballroom	308 N. 2nd Avenue	602.716.2222	LD	$$
Compass Arizona Grill	122 N. 2nd Street	602.440.3166	D	$$$$
Copper Blues	50 W. Jefferson Street, Suite 200	480.719.5005	LD	$$
Corner Bakery Cafe	455 N. 3rd Street, Suite 1065	602.252.1346	BLD	$
Crave Sandwich Café and Catering	541 E. Van Buren Street, Suite B3	602.257.1616	BL	S
Crazy Jims	305 W. Washington Avenue, Suite 104	602.254.6550	BL	$$
Devil's Greens	206 E. Taylor Street	602.496.6708	L	$
Dick's Hideaway	6008 N. 16th Street	602.241.1881	BLD	$$$
District American Kitchen and Wine Bar	320 N. 3rd Street	602.817.5400	BLD	$$$
Donovan's Steak and Chop House	3101 E. Camelback Road	602.955.3666	D	$$$$
Downtown Deli	130 N. Central Avenue	602.258.3069	L	$
Downtown Pizza Lounge	144 E. Washington Street	602.254.1522	L	$
Duck and Decanter	1 N. Central Avenue	602.266.6637	BL	$
Durant's	2611 N. Central Avenue	602.264.5967	LD	$$$
Einstein Bros. Café	122 N. 2nd Street	602.440.3185	BL	$
El Portal Mexican Grill	555 N. Central Avenue, Suite 106	602.296.7029	L	$
Fabulous Foods Café at Arizona Science Center	600 E. Washington Street	602.253.9050	L	$
Fair Trade Café	424 N. Central Avenue	602.253.6912	BL	$
Fez	3815 N. Central Avenue	602.287.8700	LD	$$
Five Guys Burgers and Fries	50 W. Jefferson Street, Suite 180	602.687.7575	LD	$
Focaccia Fiorentina	112 N. Central Avenue	602.252.0007	BL	$
Friday's Front Row Sports Grill	401 E. Jefferson Street	602.462.3506	LD	$$
Fuego CityScape	1 E. Washington Street	602.374.2541	LD	$$
Gallo Blanco Café and Bar	401 W. Clarendon Avenue, Suite 175	602.327.0880	BLD	$$
Hanny's	40 N. 1st Street	602.252.2285	LD	$$
Hard Rock Cafe	3 S. 2nd Street, Suite 117	602.261.7625	LD	$$$
Hero Factory	114 W. Adams Street, Suite C102	602.254.6763	BL	$$
Hooters	455 N. 3rd Street, Suite 190	602.495.1234	LD	$$
Hula's Modern Tiki	4700 N. Central Avenue	602.265.8454	LD	$$$
Humble Pie	2333 N. 7th Street	602.229.1289	LD	$$
ICON Lounge	50 E. Adams Street	602.333.0000	D	$$
Jimmy John's	11 W. Washington Street, Suite 175	602.688.8170	LD	$
Jobot Coffee	918 N. 5th Street	602.228.7373	BLD	$
Karim's Cobbler Shop and Deli	333 E. Jefferson Street, Suite 102	602.257.1801	L	$
Kincaid's Classic American Dining	2 S. 3rd Street	602.340.0000	LD	$$$$
KoKoRo Sushi	455 N. 3rd Street, Suite 1120	602.254.3366	LD	$$

B=Breakfast, L=Lunch, D=Dinner (as of 1/10/2014)



Phoenix Restaurant Listing (Continued)

Restaurants within Seven Blocks of the Convention Center, Listed Alphabetically *(continued)*				
$ = Under $12	$$ = $12–$18	$$$ = $18–$30	$$$$ = over $30	
La Condesa	1919 N. 16th Street	602.254.6330	LD	$$
Legends Sports Bar and Restaurant	412 S. 3rd Street	602.254.5272	LD	$$
Ling and Louie's Asian Kitchen	2502 E. Camelback Road	602.955.5593	LD	$$
Lon's at the Hermosa Inn	5532 N. Palo Cristi Road	602.955.7878	BLD	$$$
Los Dos Molinos	1044 E. Camelback Road	602.528.3535	LD	$
Lucky Strike Lanes and Lounge and Gypsy Bar	50 W. Jefferson Street, Suite 240	602.732.5490	LD	$$
Lustre Rooftop Garden	2 E. Jefferson Street	602.876.5432	D	$$
Majerle's Sports Grill	24 N. 2nd Street	602.253.0118	LD	$
Marston's Café	50 E. Adams Street	602.333.0000	LD	$$
Matt's Big Breakfast	116 E. Garfield Street	602.254.1074	BL	$
Mi Amigos Mexican Grill	455 N. 3rd Street, Suite 110	602.256.7355	LD	$$
Moira Sushi	215 E. McKinley Street	602.254.5085	LD	$$
Mrs. White's Golden Rule Café	808 E. Jefferson Street	602.262.9256	LD	$$
My Big Fat Greek Restaurant	455 N. 3rd Street, Suite 108	602.254.5730	LD	$$
My Mom's Thai Kitchen	20 W. Adams Street	602.252.3873	LD	$
Networks Bar and Grill	122 N. 2nd Street	602.440.3198	LD	$$
Nobuo at Teeter House	622 E. Adams Street	602.254.0600	D	$$$
The Old Spaghetti Factory	1418 N. Central Avenue	602.257.0380	LD	$$
Pallets Food and Bar	1011 N. 3rd Street	602.254.1168	LD	$
Papa Christo's	2 N. Central Avenue, Suite 117	602.261.7780	BL	$
Paradise Bakery and Café, Collier Center	3 S. 2nd Street	602.256.0462	BL	$
Phoenix Public Market Cafe	14 E. Pierce Street	602.253.2700	BLD	$$
Pita Jungle	1001 N. 3rd Avenue, Suite 4	602.258.7482	LD	$
Pizzeria Bianco	623 E. Adams Street	602.258.8300	LD	$$
Portland's	105 W. Portland Street	602.795.7480	LD	$$
Postino's	5144 N. Central Avenue	602.274.5144	LD	$$
Potbelly Sandwich Shop	1 E. Washington Street, Suite 170	602.283.1491	L	$
Province	333 N. Central Avenue	602.429.3600	BLD	$$$
Quiessence	6106 S. 32nd Street	602.276.0601	D	$$$
Rokerij/Richardson's of New Mexico	6335 N. 16th Street	602.265.5886	LD	$$$
Rose and Crown	628 E. Adams Street	602.256.0223	LD	$$
Scratch Café	1011 N. 3rd Street	602.252.8900	BL	$$
Seamus McCaffrey's Irish Pub	18 W. Monroe Street	602.253.6081	LD	$$
Sing High Chop Suey House	27 W. Madison Street	602.253.7848	LD	$$
Songbird Coffee and Tea House	214 E. Roosevelt Street	602.374.4192	BLD	$
Squash Blossom	705 N. 1st Street	602.253.4606	BL	$
St. Francis	211 E. Camelback Road	602.200.8111	LD	$$

B=Breakfast, L=Lunch, D=Dinner (as of 1/10/2014)

Phoenix Restaurant Listing (Continued)

Restaurants within Seven Blocks of the Convention Center, Listed Alphabetically *(continued)*				
$ = Under $12	$$ = $12–$18	$$$ = $18–$30	$$$$ = over $30	
Starbucks—Arizona Center	455 N. 3rd Street	602.258.8472	B	$
Starbucks—City Hall	200 W. Washington Street	602.258.3670	B	$
Starbucks—CityScape	50 W. Jefferson Street, Suite 170	602.340.0455	B	$
Starbucks—Phoenix CC West	125 N. 2nd Street, Suite 100	602.534.8901	B	$
Starbucks—Taylor Place	120 E. Taylor Street	480.965.0653	B	$
Starbucks—US Airways Center	201 E. Jefferson Street	602.514.8565	B	$
Steve's Greenhouse Grill	139 E. Adams Street	602.252.2742	BLD	$$
Stingray Sushi	2502 E. Camelback Road, Suite 156	602.955.2008	LD	$$
Stockyards Restaurant and 1899 Saloon	5009 E. Washington Street	602.273.7378	D	$$$
Strand Urban Italian	2 E. Jefferson Street, Suite 113	602.253.1600	LD	$$
Subway—Arizona Center	455 N. 3rd Street, Suite 1015	602.258.7560	BLD	$
Subway—Central	144 N. Central Avenue	602.271.9866	BLD	$
Subway—Cronkite/8	555 N. Central Avenue, Suite 104	602.253.4244	BLD	$
Subway—Luhrs	35 W. Jefferson Street, Suite K	602.283.5030	BL	$
Sun Up Brewing Company	322 E. Camelback Road	602.279.8909	LD	$$
Tarbells	3213 E. Camelback Road	602.955.8100	D	$$$
Terrace Café	122 N. 2nd Street	602.440.3180	B	$$
TGI Friday's Front Row	401 E. Jefferson Street	602.462.3503	LD	$$
Thai Basil	114 W. Adams Street	602.759.8736	LD	$
Thai'd Up Restaurant	110 N. Central Avenue	480.420.8424	LD	$$
Tilted Kilt	2 E. Jefferson Street	602.293.3888	LD	$$
Tom's Tavern and 1929 Grill	2 N. Central Avenue	602.257.1688	LD	$$
True Food Kitchen	2502 E. Camelback Road	602.774.3488	LD	$$
Turf Irish Pub	705 N. 1st Street	602.296.5043	LD	$
Uno Mas Mexican Grill	114 W. Adams Street	602.252.2556	LD	$
Vincent's	3930 E. Camelback Street	602.224.0225	D	$$$$
Wild Thaiger Restaurant	2631 N. Central Avenue	602.241.8995	LD	$$
Windsor	5223 N. Central Avenue	602.279.1111	LD	$$
Zinburger Wine and Burger Bar	2502 E. Camelback Road, Suite 127	602.424.9500	LD	$$
Z Pizza	111 W. Monroe Street, Suite 130	602.254.4145	LD	$

B=Breakfast, L=Lunch, D=Dinner (as of 1/10/2014)

SOT Pavilion

Your Place to Connect at the Annual Meeting

Located in the ToxExpo Exhibit Hall, the SOT Pavilion is your place to connect and learn about SOT programs, services, membership benefits, and more. Find out about the SOT Endowment Fund, Toxicological Sciences, *SOT awards and sponsored awards and fellowships, ToXchange—the SOT member network, educational programs across the spectrum from K–12 through the toxicology career, and everything taking place at the Annual Meeting. The SOT Pavilion is your place on the exhibit floor for all you want to learn about SOT and more. It's a great place to connect, network, and discover what's new.*

The SOT Pavilion is inside the Exhibit Hall in Booth 1623.

Find out how you can:







- Be an Advocate for Toxicology
- Participate in Your SOT Regional Chapter
- Choose a Special Interest Group
- Join a Specialty Section
- Connect through the SOT Website
- Use the SOT Job Bank
- Lead an SOT Committee or Activity
- Get one-on-one SOT Mobile Event App and Event Website Assistance and Learn about the Wide Variety of SOT's Online Resources
- Actively Participate in ToXchange, the Private and Secure SOT Member Network
- Nominate and Apply for SOT Awards
- Experience ToxExpo

SOT component group (Regional Chapters, Special Interest Groups, and Specialty Sections) and Global Gallery of Toxicology posters will be on display each day throughout ToxExpo hours. Stop by for a special "Representative Attended" poster session from 11:45 am–12:15 pm on Monday, March 24. "Meet the Leaders"each day from 3:00 pm–4:00 pm and learn more about all the different groups within the Society of Toxicology.

Also, come see the High School Poster Exposition across from the SOT Pavilion from 10:30 am–2:30 pm on Tuesday, March 25.

A schedule of events at the SOT Pavilion can be found on page 59.

toxexpo

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Use the mobile event app or the event website to create your own personal list of ToxExpo exhibitors with whom to connect. Pinpoint exhibitor booths and details quickly and easily with the interactive floor plan.

SOT 2014 Phoenix, Arizona

ToxExpo Hours:

Monday, March 24	Tuesday, March 25	Wednesday, March 26
9:00 AM–4:30 PM	8:30 AM–4:30 PM	8:30 AM–4:30 PM

ToxExpo is the exhibition associated with the Society of Toxicology's Annual Meeting—it's that—but it's also a great deal more.

- A website that offers 24/7 comprehensive online resources, searchable by company name or by product or service.
- A comprehensive approach to organizing the wealth of ideas and insights in cross-disciplinary areas of toxicology.
- The toxicology market place—your source for product information and resources to keep your lab competitive.
- The place where professionals will learn how to explore a rapidly changing science.
- A chance to think outside the box—find out how your work relates to research in other disciplines.
- Up-to-date information on state-of-the-art research equipment, technology, and the latest publications.
- A unique environment in which to research products and services of exhibiting companies and keep informed of new cutting-edge science and technology.

Looking for a particular product or service? Check the category listing on www.ToxExpo.com and in the mobile event app to see which companies offer the best product or service for your needs.

ToxExpo Prize Drawing $500!

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Drawings to take place on Monday, Tuesday, and Wednesday in the Exhibit Hall.

$500 American Express Gift card awarded each day.

ToxExpo 2015 Exhibit Space Selection Process

Tuesday, March 25, at 4:45 PM in Room 106C, West Building

Priority Point booth sales for 2015 will take place on an appointment basis at the ToxExpo Sales Office. Those companies in higher point levels will be contacted in advance of the show with their scheduled appointment time. If you did not receive an appointment in advance, please plan to attend the 2015 Sales Meeting.

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ToxExpo Floor Plan

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Pinpoint exhibitor booths and details quickly and easily with the interactive floor plan.

Exhibit Hall • Lower Level

ToxExpo Hours:

Monday
9:00 AM–4:30 PM

Tuesday
8:30 AM–4:30 PM

Wednesday
8:30 AM–4:30 PM

Exhibit Hall Concession Stand Hours:

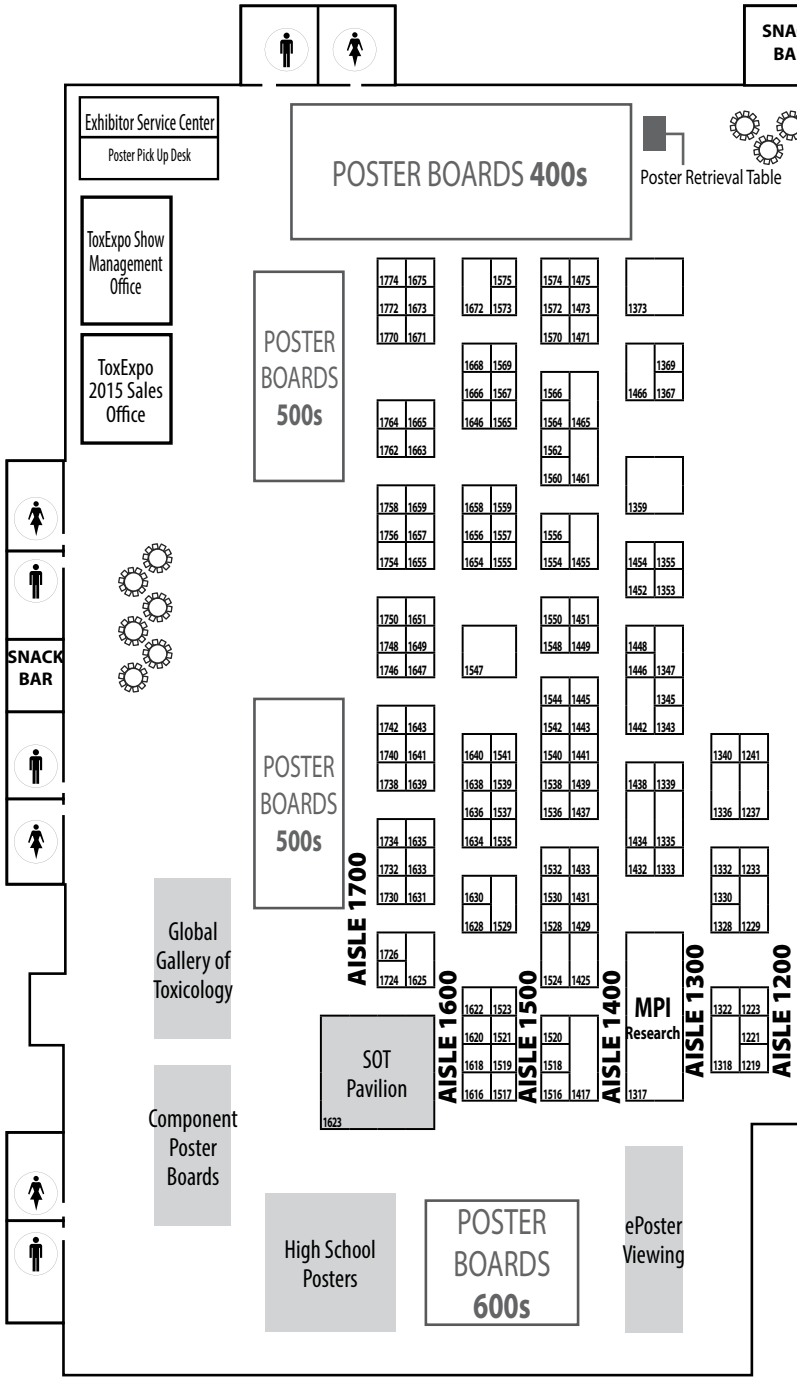
Monday..... 9:00 AM–4:30 PM
Tuesday..... 8:30 AM–4:30 PM
Wednesday..... 8:30 AM–4:30 PM



In addition to attending Poster Sessions at their scheduled presentation times and boards during the SOT Annual Meeting, there are two new ways to view the posters presented at the SOT Annual Meeting.

1. Search and view the ePosters on high-definition monitors in the Exhibit Hall during the scheduled ToxExpo hours, Monday through Wednesday.
2. Search and view the ePosters on your mobile device or computer using the ePoster feature in the SOT mobile event app and event website—before, during, and after the meeting.

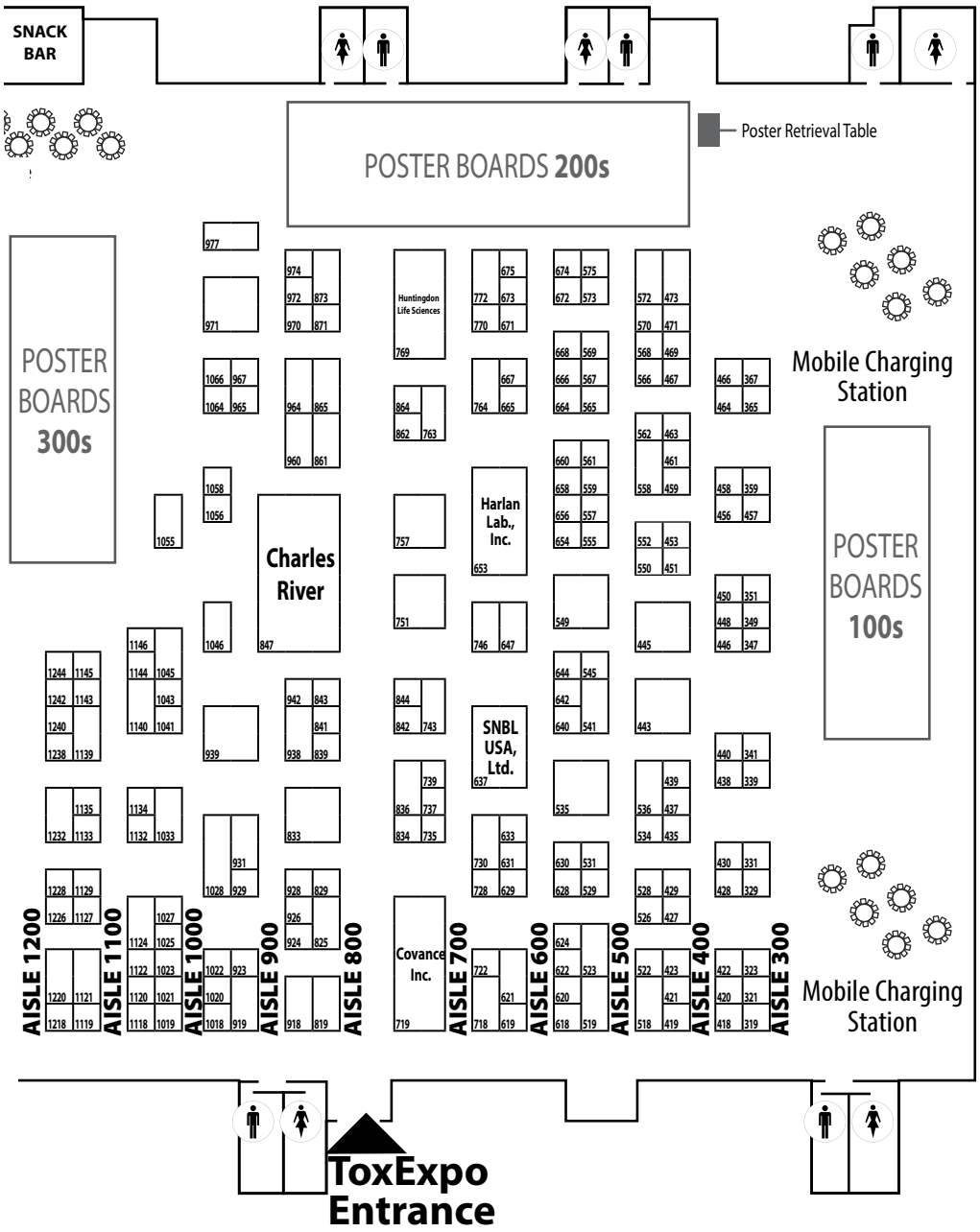
If you are a poster presenter, please take a few minutes to upload your PowerPoint poster through an Internet-based, user-friendly presentation system prior to the meeting at **https://cms.psav.com/e35f808** or during the meeting in the Speaker Ready Room at the Phoenix Convention Center, Room 123.



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ToxExpo Floor Plan (Continued)

Exhibit Hall • Lower Level



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ToxExpo 2014 Exhibitors

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(As of February 4, 2014)

Please access the mobile event app or visit **www.ToxExpo.com** *or the* **ToxExpo Directory** *for product/service descriptions, a map of booth locations, and other information.*

♦ Diamond Level Supporters.
★ 2014 Annual Meeting Supporters are indicated by the star.
See complete listing of supporters on page 440 and Back Cover.

▲ SOT Affiliates are indicated by a triangle.
Complete list of SOT Affiliates can be found on page 437.

Companies that have been ToxExpo Exhibitors for 25 years or more are in bold.

♦ **SOT Pavilion 1623**
- Endowment Opportunities
- Member Services, RC, SIG, and SS Activities
- Outreach Information
- *Toxicological Sciences*

Company Name	Booth Number
Abcam	1434
Accelera S.r.l.	1345
ACEA Biosciences, Inc.	561
ACGIH®	1562
Advinus Therapeutics Limited	1020
AEgis Technologies Group	1018
AIT Bioscience	1437
Alabama Research & Development	862
Algorithme Pharma	660
Alliance Pharma	534
ALPCO	1758
Alpha Genesis, Inc. (AGI)	519
Alpha MED Scientific Inc.	438
Alturas Analytics, Inc.	1242
American Association for Laboratory Animal Science (AALAS)	1633
American Board of Toxicology (ABT)	926
★ American College of Toxicology (ACT)	1618
American College of Veterinary Ophthalmologists	1518
American Preclinical Services	443
Analytical Bio-Chemistry Labs, Inc. (ABC)	1145
★ **Ani Lytics, Inc.**	**864**
ANILAB, LLC	619
Antech Diagnostics GLP	1021
Applied BioPhysics, Inc.	1454
Aptuit LLC	**865**
Arbor Assays	1762
ArunA Biomedical, Inc.	1655
Axiogenesis	567
Axion Biosystems, Inc.	566
BASF SE	1465
BASi (Bioanalytical Systems, Inc)	**621**
♦ **Battelle**	**757**
BBD BIOPHENIX S.L.—BIOBIDE	1730
Bio Medic Data Systems, Inc.	**1028**
Bio-Rad Laboratories	1566
Bio-Serv	735
BioAgilytix Labs	1647
Bioagri, a Merieux NutriSciences Company	965
Bioculture (Mauritius) Ltd	558
Biologics Development Services	531
BioMed Central	1639
Bioneeds	329
BioPorto Diagnostics A/S	642
Biopredic International	1732
Biopta Ltd	545
BioreclamationIVT	**919**
BioStat Consultants, Inc.	1343
BioTek Instruments, Inc.	1122
BioTox Sciences	1425
Buxco Research Systems	**929**
★ **Calvert Laboratories, Inc.**	**1229**
Caprion Proteome Inc.	359
Cardno ChemRisk	633
CARE Research LLC/Colorado Histo-Prep	**871**
Cayman Chemical	1119
CBSET, Inc.	562
Cedarlane	1223
Cellectis AB	1340
Cellular Dynamics International, Inc.	518
Center for Drug Safety Evaluation and Research, Shanghai Institute of Materia Medica, Chinese Academy of Science	1520
CH Technologies (USA), Inc.	**1353**
ChanTest Corp.	737
♦▲ **Charles River**	**847**
Chemical Solutions Ltd.	631
ChemRisk	633
Chilworth Technology Ltd	673
CITI Program at University of Miami	1431
♦ **CiToxLAB**	**971**
ClearH2O, Inc.	453
Clever Sys Inc	1658
Comparative Biosciences (CBI)	770
Conestoga-Rovers & Associates	1517
Contract Pharma	570
CorDynamics	1118
Corning Incorporated	1634
▲ **Covance Inc.**	**719**
CRC Press - Taylor & Francis Group LLC	**523**
CTEH®	658
Cureline BioPathology	522
CXR Biosciences Limited	1333
Cyprotex	1455
Data Sciences International (DSI)	**931**
Datamars, Inc.	1573
Detroit R & D, Inc.	1241
Dextronix, Inc.	1542
DiaPharma Group, Inc.	1537
DiscoveRx	1555
DMT-USA Inc.	1574
Douglas Connect GmbH	1770
Drik, LLC	1539
DV Biologics	437
eBioscience, an Affymetrix Company	526
Ellegaard Göttingen Minipigs A/S	1140
Elm Hill Breeding Labs, Inc.	1367
★ **Elsevier**	**825**
★ EMD Millipore Corporation	1417
emka TECHNOLOGIES, INC.	964
Environ International Corp.	575
Environmental Health Perspectives (EHP)	1226, 1228

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ToxExpo 2014 Exhibitors (Continued)

ToxExpo Directories are available at Registration and inside the entrance of ToxExpo.

Company Name	Booth Number
Enzo Life Sciences	1734
Epithelix	1575
EPL Archives, Inc.	728
★ **EPL, Inc.**	**730**
Equitech-Bio	1523
Eurofins | Cerep-Panlabs	1134
Eurotox 2014	1330
Exemplar Genetics	1143
Exiqon, Inc	341
Experimur	671
★ Exponent, Inc.	923
ExPub (Expert Publishing)	1233
FIRALIS	1668
Fraunhofer ITEM	763
★▲ Genentech	1544
Genox Corporation	1756
Gentronix, Limited	1133
GLP Neuroscience Center	1560
Gyros	1475
H&T Corporation	1240
Hamilton Thorne	942
♦ **Harlan Laboratories, Inc.**	**653**
HCT Instruments Inc.	1640
HemoGenix Inc.	1528
Hepregen Corporation	1471
Histo-Scientific Research Laboratories (HSRL)	628
HistoTox Labs, Inc.	1219
Huntingdon Life Sciences	**769**
Hurel Corporation	569
ICDD-sas	1446
ICF International	1625
IDEXX Laboratories, Inc.	1441
IIT Research Institute (IITRI)	1347
In Vitro ADMET Laboratories (IVAL)	**722**
INDIGO Biosciences, Inc.	1559
Inhalation Sciences Sweden AB	430
InSphero AG	972
InSphero Inc.	972
Instech Laboratories	**1045**
Instem	**1046, 1724**
Institute for *In Vitro* Sciences, Inc.	1027
Institute of Neurotoxicology & Neurological Disorders	1567
Integrated Laboratory Systems, Inc. (ILS)	622
IntelliCyt Corporation	624
International Institute for the Advancement of Medicine	666
INTOX Pvt. Ltd.	1635
InvivoSciences Inc.	450
Ionic Transport Assays, Inc	568
IonsGate Preclinical Services	1530
IPS Therapeutique	970
ITR Canada (Bozo & ITR Group)	**549**
IUTOX	1519
Jackson Laboratory, The	419
Jai Research Foundation (JRF - America)	1529
Japanese Society of Toxicology	1521
KAER Biotherapeutics	1126
Kallistem	1557
KCAS Bioanalytical Services	1429
Kinder Scientific Company	1066
Konigsberg Instruments, Inc.	1221
Korea Institute of Toxicology (KIT)	541

Company Name	Booth Number
Kunming Biomed International (KBI)	1220
L'Oreal Research & Innovation	1461
Lab Products, Inc.	**819**
LabLogic Systems, Ltd.	1449
Lampire Biological Laboratories, Inc.	1218
Leadscope, Inc.	418
Leyden Group	1332
Lhasa Limited	656
Life Sciences Connect	461
Litron Laboratories	1322
Lomir Biomedical, Inc.	960
Lovelace Respiratory Research Institute (LRRI)	977
Luxcel Biosciences, Ltd.	1369
Maccine Pte Ltd	1232
Malvern Instruments	675
Marken	422
Marshall BioResources	**1139**
MatTek Corporation	1570
MB Research Laboratories	974
Medicilon Preclinical Research (Shanghai) LLC	843
Medline Industries, Inc.	1550
MetaSystems Group, Inc.	421
Michelson Prize and Grants in Reproductive Biology	1636
MicroMatrices Associates Ltd	1443
Millar, Inc.	1452
Millbrook Breeding Labs	1622
Molecular Devices, LLC	1620
Molecular Networks GmbH	439
Moltox	630
♦▲ **MPI Research**	**1317**
MRIGlobal	**1146**
Multi Channel Systems	459
MultiCASE Inc	654
Myriad RBM	1144
NAMSA	620
Nanion Technologies Inc.	429
nanoComposix	1535
★ National Institute of Environmental Health Sciences (NIEHS)	1129
National Institute of Technology and Evaluation	1673
National Library of Medicine	1064
National Toxicology Program	1127
Nat'l Center for Toxicological Research	471
NeuroScience Associates (NSA)	1244
Nexcelom Biosciences	463
★ NSF Health Sciences	1672
Nucro-Technics Incorporated	**839**
Oak Hill Genetics	573
Oxford Biomedical Research, Inc.	1538

(continued on next page)

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ToxExpo 2014 Exhibitors (Continued)

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Company Name	Booth Number
Oxford University Press	1564
Pacific BioLabs	842
PamGene International	446
PDS Preclinical Data Systems, Inc.	**836**
Penn-Century, Inc.	428
Perceptive Instruments Ltd.	924
♦▲ Pfizer Worldwide Research and Development	739
Pharmaron	1237
PhoenixBio Co., Ltd.	668
Phylonix Pharmaceuticals Inc	665
Poly Scientific R&D Corp.	1774
Porsolt	528
Pre-Clinical Research Services, Inc. (PCRS)	529
♦ PreLabs	1056
Primate Products, Inc.	**1019**
Product Safety Labs/Xenometrics	**918**
Promega Corp	1373
Public Interest Incorporated Foundation Biosafety Research Center(BSRC)	844
Puracyp, Inc.	1746
Purina LabDiet	**718**
PWG Genetics	1335
QIAGEN	**843, 1121**
QPS LLC	1433
Qualyst Transporter Solutions	618
Quotient Bioresearch	1132
Rainin Instrument, LLC	1754
ReachBio	1451
ReproCELL	1556
Research Diets, Inc.	565
Ricerca Biosciences LLC	**647**
Ridglan Farms, Inc	674
RightAnswer.com	629
Rockland Immunochemicals, Inc.	423
Royal Society of Chemistry, Cambridge	1540
▲ RTC, Research Toxicology Centre S.p.A.	746
RTI International	938
SAGE Labs	1764
Sarstedt, Inc.	1438
Science/AAAS	1135
SCIREQ, Inc. (Scientific Respiratory Equipment)	640
Seahorse Bioscience	1675
▲ **Sequani Limited**	**861**
Seventh Wave	1023
Shanghai InnoStar Biotech Co., Ltd (InnoStar)	1318
Sigma-Aldrich/BioReliance	**833**
Simulations Plus, Inc.	1466
Sinclair Bio Resources	664
Sinclair Research Center LLC	772
Singulex	1565
Smithers Viscient	**751**
SNBL USA SRC	1548
▲ SNBL USA, Ltd.	637
SoBran Inc.	552
Society of Quality Assurance (SQA)	1572
Solomon Scientific	1043
SOLVO Biotechnology	451
♦ ***SOT Pavilion***	***1623***
★ Southern Research	1359
Spring Valley Laboratories, Inc. (SVL)	1022

Company Name	Booth Number
Springer	1641
★ **SRI International**	**1524**
STEMCELL Technologies Inc	967
Stemgent-Asterand	1750
Stemina Biomarker Discovery, Inc.	1536
Stillmeadow Inc	**829**
Strand Life Sciences	1628
Strategic Applications, Inc. (SAI)	**1033**
SUBURBAN SURGICAL COMPANY	**1058**
Suven Life Sciences Limited	1726
Syngene International Limited	440
Taconic	**873**
TAP Biosystems	1339
Tecan	1120
That's Nice	448
THINKY U.S.A., INC.	1616
Thomson Reuters	435
Three S Japan Co., Ltd.	1238
Tianjin Institute of Pharmaceutical Research	559
TNO Triskelion	644
Toxicology Education Foundation (TEF)	1649
★▲ Toxicology Excellence for Risk Assessment (TERA)	1656
Toxicology Regulatory Services (TRS)	928
Toxicology Research Laboratory (TRL)	841
TOXI-COOP Toxicological Research Center	351
Toxikon Corporation	**939**
★ ToxServices LLC	1432
ToxStrategies	347
Trevigen Inc.	1328
★ Triangle Research Labs, LLC	1654
TSE Systems, Inc.	1055
TSI Incorporated	1541
University of Florida Clinical Toxicology	1748
US Army Medical Research Institute of Chemical Defense (USAMRICD)	1657
US EPA/Office of Research and Development	1547
Vanta Bioscience	1336
Veritox, Inc.	1041
Vet Path Services (VPS)	743
Vimta Labs Limited	550
VisualSonics	1532
Vitrocell Systems GmbH	1355
Vitron, Inc.	557
Vivo Bio Tech Limited	667
★ vivoPharm	1516
VRL Laboratories	536
VxP Pharma	1473
Wake Forest Innovations	1666
WestChina-Frontier PharmaTech Co., Ltd.	1442
★▲ **WIL Research**	**445**
Wildlife International, a Division of EAG, Inc.	**834**
World Precision Instruments	1445
Worldwide Primates, Inc.	1025
Worthington Biochemical Corp	427
★▲ WuXi AppTec	535
XenoBiotic Laboratories, Inc.	555
XpressBio	1554
Xybion Medical Systems	764
ZenBio, Inc	1631

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Exhibitor-Hosted Session Index

All sessions will be held at the Phoenix Convention Center in the West Building.

Exhibitor-Hosted Sessions

(Listed by date and time, then alphabetically by presenter)

Exhibitor-Hosted Sessions are informative sessions developed by an exhibiting company.

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Monday

Time: 9:15 AM to 10:15 AM

Presented by	Topic	Room	Page
ChanTest Corp.	Novel ChanTest Assays for Assessing Cardiotox, Contractility, and ECG-Like Aberrations in Stem Cell-Derived Cardiomyocytes	106C West	136
Huntingdon Life Sciences	Is There Such Thing As a "Normal" Biopharmaceutical Anymore?	106A West	136
MPI Research	Challenging Contemporary Status on Drug Safety Evaluation: A Case for the Implementation of Ototoxicity Screening into Toxicology Programs	101C West	135
TSE Systems, Inc.	The Use of a Next Generation Telemetry System in Animal Research	101A West	136

Time: 10:30 AM to 11:30 AM

Presented by	Topic	Room	Page
Korea Institute of Toxicology	Recent Research for Airborne Materials on Biological Systems at KIT	106C West	163
Lhasa Limited	The Use of Integrated *In Silico* Solutions under the Proposed ICH M7 Guidelines	101C West	163
National Toxicology Program	The National Toxicology Program Nonneoplastic Lesion Atlas	101A West	163
NSF International Applied Research Center	Dietary Ingredient Safety Determinations—Third-Party Organization and Regulatory Perspectives	106A West	163

Time: 11:45 AM to 12:45 PM

Presented by	Topic	Room	Page
Fraunhofer ITEM	Databases—A Powerful Tool in Regulatory Toxicology	106A West	164
Harlan Contract Research Services	Alternative Testing for Human Health—Endpoints from a CRO's Perspective	106C West	164
MultiCASE Inc	*In Silico* Assessment of Genotoxic Impurities According to the ICH M7 Guideline: Recommendations and Case Studies	101A West	164
VisualSonics	*In Vivo* Small-Animal Imaging: Latest Developments in Cardiovascular and Cancer Research	101C West	164

Time: 1:00 PM to 2:00 PM

Presented by	Topic	Room	Page
BioReliance	ICH S1 Proposal—Reducing the Need for Rat Carcinogenicity Studies	106A West	194
Gentronix Limited	*In Vitro* Genotoxicity Screening—Industry Perspective	101C West	194
Hurel Corporation	Validation of Novel Multispecies Primary Hepatic Tissue Constructs for Use in Extended DMPK/Tox Studies	101A West	194
PDS Preclinical Data Systems Inc.	New Ways to Optimize Preclinical Workflow	106C West	194

Time: 2:15 PM to 3:15 PM

Presented by	Topic	Room	Page
Charles River	Microsampling in Adult and Juvenile Rodents: A Little May Go a Long Way!	106C West	198
National Institute of Environmental Health Sciences	Advancing Environmental Health Data Sharing and Analysis	101C West	198
SNBL USA, Ltd.	Phenotypic and Functional Evaluation of Drug-Induced Platelet Alterations in Nonclinical Laboratory Studies	106A West	199
Tandem Labs	Regulated Bioanalysis of Oligonucleotide Therapeutics and Biomarkers	101A West	199

Time: 3:30 PM to 4:30 PM

Presented by	Topic	Room	Page
Biopredic International	HepaRG Human Hepatic Cells an *In Vitro* Tool for Predicting Cholestasis	101C West	199
In Vitro ADMET Laboratories LLC	Evaluation of Species Differences in Adverse Drug Properties with Plateable Cryopreserved Hepatocytes from Human, Monkey, Dog, Rat, and Mouse	101A West	199
InSphero AG	Advanced 3D Liver Co-Culture Models for Predictive *In Vitro* Testing	106A West	199
Stemina Biomarker Discovery	Human Pluripotent Stem (hPS) Cells As a Tool for Developmental Toxicity Screening	106C West	199

TOXEXPO

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Exhibitor-Hosted Session Index (Continued)



Tuesday

Time: 8:30 AM to 9:30 AM

Presented by	Topic	Room	Page
Covance	The Pros and Cons of Adding Safety Pharmacology End-Points into Toxicology Studies	106A West	202
EMD Millipore Corporation	EMD Millipore's Optimized Assays and Benchtop Single-Cell Analysis Systems Provide Comprehensive Assessment of Cellular Toxicity	106C West	202
Promega Corporation	Validating Cell-Based Assays for 3D Culture Models	101A West	203
WuXi Apptec, Inc.	Use of Chemical Analyses and Toxicological Risk Assessments to Support the Biological Evaluation of Medical Devices	101C West	203

Time: 9:45 AM to 10:45 AM

Presented by	Topic	Room	Page
Algorithme Pharma	Dried Blood Spots (DBS) in Toxicology: Can Science Overcome the Regulatory Challenge?	101C West	235
Charles River	Beyond the Basics: Specialized Ocular Evaluations in Systemic Toxicology Studies	101A West	235
Malvern Instruments	Nanomaterial Characterization Techniques in Regard to Current EU Regulations	106C West	235
MPI Research	Nonclinical Juvenile Toxicity Testing: Lessons Learned	106A West	235

Time: 11:00 AM to 12:00 Noon

Presented by	Topic	Room	Page
Ellegaard Göttingen Minipigs	Practicalities of Juvenile, Inhalation, and Safety Pharmacology Studies in the Minipig	106A West	236
EPL, Inc.	Pathology Working Groups (PWGs): Definition, Application in Toxicity and Carcinogenicity Studies, and Case Presentations	101A West	236
Sigma-Aldrich	Big Blue® Transgenic Rodent Mutation Assay and Novel Renal Proximal Tubule Epithelial Cell Line (RPTECs)—Fulfillment of an Unmet Need in Genetic Toxicology and Nephrotoxicity	106C West	236
Tandem Labs	Developing LC-MS/MS Methods for Common Lipids Used in Lipid Formulations Employed in Drug Delivery	101C West	235

Time: 12:15 PM to 1:15 PM

Presented by	Topic	Room	Page
ACEA Biosciences, Inc.	Using the xCELLigence® RTCA Cardio System for Assessment of Preclinical Cardiac Safety	106C West	237
DiscoveRx Corporation, BioSeek Division	Analysis of Failed Pharmaceutical Compounds in the BioMAP Platform of Primary Human Cell Systems	101C West	237
ICF International	From Systematic Review to Assessment Development: Managing Big (and Small) Datasets with DRAGON	101A West	237
WIL Research	Comparative Placental Transfer of Biologicals: Preclinical Alternatives to the Nonhuman Primate?	106A West	237

Time: 1:30 PM to 2:30 PM

Presented by	Topic	Room	Page
Cellular Dynamics International	Phenotypic *In Vitro* Assessment of Compound Effects on Cardiomyocyte Physiology Using Human iPSC-Derived Cardiomyocytes	106C West	269
CiToxLAB and Ellegaard Göttingen Minipigs	The Minipig As a Model for Ocular Toxicity Studies	101C West	269
Hepregen Corporation	The Use of Human HepatoPac™, an *In Vitro* Microliver Platform, for Predictive Toxicology	101A West	269
Huntingdon Life Sciences	Inhalation As a Route for Systemic Drug Delivery	106A West	269

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Exhibitor-Hosted Session Index (Continued)

ToxExpo 2015 Exhibit Space Selection Process

Tuesday, March 25, at 4:45 PM in Room 106C, West Building

Priority Point booth sales for 2015 will take place on an appointment basis at the ToxExpo Sales Office. Those companies in higher point levels will be contacted in advance of the show with their scheduled appointment time. If you did not receive an appointment in advance, please plan to attend the 2015 Sales Meeting.

Time: 2:45 PM to 3:45 PM

Presented by	Topic	Room	Page
Battelle Memorial Institute	Alternate Nicotine Delivery Systems (ANDS): An Integrated Approach to Risk Assessment	101C West	269
Harlan Contract Research Services	Biomarkers and Profiling: An Added Value in Pharmaceutical Drug Development	106C West	270
Leadscope, Inc.	Practical Issues Combining Multiple *In Silico* Systems to Support the ICH M7 Guidelines	106A West	270
PDS Preclinical Data Systems Inc.	Applying Novel Bioinformatics to Preclinical Data	101A West	269

Wednesday

Time: 9:15 AM to 10:15 AM

Presented by	Topic	Room	Page
Charles River	Risk Assessment of Postnatal Musculoskeletal Development—Juvenile and Reproductive Toxicology Studies	101A West	299
Harlan Contract Research Services	Reproduction Toxicology for Chemicals	106C West	299
MPI Research	Application of Molecular Imaging and Radiochemistry in Drug Development	106A West	299
Tandem Labs	Developing LC-MS/MS Methods for Quantitation of Therapeutic Peptides: Challenges and Solutions	101C West	299

Time: 10:30 AM to 11:30 AM

Presented by	Topic	Room	Page
Covance	Solutions for Biologics Development	106C West	300
Exiqon, Inc	Discovery and Clinical Application of microRNA Biomarkers in Biofluids and Biofluid Subcompartments Like Exosomes	101C West	300
Huntingdon Life Sciences	Developments in Global Regulations for Crop Protection Products: Meeting the Challenge	106A West	300
Toxikon Corporation	Developing a Comprehensive Preclinical Safety Program for Your Pharmaceutical Product: Influential Factors and Key Decisions	101A West	299

Time: 11:45 AM to 12:45 PM

Presented by	Topic	Room	Page
Cellectis AB	Cellectis' New Generation of Human iPS Derived Specialized Cells with Improved Functionality: Enhanced hiPS-HEP2™, hiPS-CM™ and Pure hES-CM™ Highly Suitable for Toxicity Assessment	101A West	300

Time: 1:00 PM to 2:00 PM

Presented by	Topic	Room	Page
DiaPharma Group, Inc.	The Dead Cells Still Count in Liver Injury Biomarker Research	101A West	327

Additional sessions may be scheduled after the printing of this Program. *Please see* ToxExpo Directory *or use the mobile event app for the most current schedule.*

ToxExpo Prize Drawing Win $500!

Drawings to take place on Monday, Tuesday, and Wednesday in the Exhibit Hall

$500 American Express Gift card awarded each day

Drop your business cards in the ToxExpo prize drawing boxes found in all Diamond Level Supporter booths



ePosters—A Convenient Way to View Posters

In addition to attending Poster Sessions at their scheduled presentation times and boards during the SOT Annual Meeting, there are two new ways to view the posters presented at the SOT Annual Meeting.



1. Search and view the ePosters on high-definition monitors in the Exhibit Hall during the scheduled ToxExpo hours, Monday through Wednesday.
2. Search and view the ePosters on your mobile device or computer using the ePoster feature in the SOT mobile event app and event website—before, during, and after the meeting.

If you are a poster presenter, please take a few minutes to upload your PowerPoint poster through an Internet-based, user-friendly presentation system prior to the meeting at **https://cms.psav.com/e35f808** or during the meeting in the Speaker Ready Room at the Phoenix Convention Center, Room 123.

***ToxExpo Directories* are available at Registration and inside the entrance of ToxExpo.**

TOXEXPO

SOT | Society of Toxicology

Creating a Safer and Healthier World by Advancing the Science of Toxicology

JOIN as a new member or upgrade to the level of membership that's right for you

Founded in 1961, the Society of Toxicology (SOT) includes more than 7,700 members from nearly 60 countries worldwide. SOT members are drawn from academic institutions, industry, and government service, among others, and are active in myriad related fields and professions. All members partner with SOT in advancing science to enhance human, animal, and environmental health. You may apply to join the SOT at the following membership levels:

Student—enrolled in a graduate degree program related to toxicology.

Postdoctoral—hold a PhD or other doctoral degree (e.g., MD, DVM) with an interest in toxicology and be under the direction of a research mentor.

Associate—engaged in continuing professional scientific activities in toxicology.

Full—demonstrate a continuing professional interest in toxicology and have conducted and published original research and/or are generally recognized as expert in some area of toxicology.

Apply for or upgrade to the level of membership that's right for you! Please see the "Join SOT" section of the SOT website at **www.toxicology.org/ms/join.asp** for further information.

Undergraduate students may become SOT **Undergraduate Student Affiliates**.

As an SOT member you can…

Communicate, connect, and collaborate with colleagues via **ToXchange**, the professional, secure SOT member network, and keep current at **www.toxicology.org** with member-only information.

Qualify for reduced SOT member rates for the SOT Annual Meeting, Continuing Education Courses, and Contemporary Concepts in Toxicology topical meetings.

Access the official journal of SOT, *Toxicological Sciences,* online and/or choose to receive in print.

Utilize free career resources, such as the SOT Job Bank, and register for Mentor Match as a mentor or mentee.

Qualify for exclusive SOT member awards—from Graduate Student Travel Support and Research Training to Postdoctoral Fellowships, Traveling Lectureships, SOT Awards, and more!

Plus…
Choose to join one or more of 27 Specialty Sections, 18 Regional Chapters, or 6 Special Interest Groups that provide a variety of networks for exchanging information and collaborating with peers. ***Note:*** Graduate Student and Postdoctoral members may ***join one Specialty Section and one Special Interest Group at no additional cost.***

Membership Fees:

Full Membership	**$138**	**Postdoctoral Membership**	**$35**
Associate Membership	**$138**	**Student Membership**	**$20**

Reduced Dues and Membership Dues Assistance for Scientists from Developing Countries*

Dues for Full and Associate membership are $50 and include membership in one Special Interest Group and one Specialty Section as well as online access to ToxSci. *Dues for Student and Postdoctoral membership are $10 and include membership in one Special Interest Group and one Specialty Section. Student and Postdoctoral members may also qualify for a dues waiver through the Membership Dues Assistance Program.*

Join or upgrade your membership using the easy online membership application at **www.toxicology.org**.

Membership

www.toxicology.org

*For complete information about membership in the Society of Toxicology, visit the SOT website at **www.toxicology.org** and select Join SOT at the top of the page.



53rd Annual Meeting and ToxExpo • Phoenix, Arizona

March 23–27, 2014 • Phoenix Convention Center

Registration

Annual Meeting Registration Fees

	On-Site
SOT Member	$420
Nonmember	$760
SOT Retired/Emeritus Member	$170
Postdoctoral SOT Member	$185
Postdoctoral Nonmember	$270
Graduate Student SOT Member	$165
Graduate Student Nonmember	$230
Undergraduate Student	$0
SOT Affiliate	$0
Press	$0
Guest *(Nonscientist)*	$100
(Guests do not have access to the Scientific Sessions or the ToxExpo.)	
CME Only *(Wednesday and Thursday)*	$185
CME Only *(Wednesday)*	$120
CME Only *(Thursday)*	$65

Continuing Education Sunrise Mini-Course Fees

(includes continental breakfast)

(Only Annual Meeting Registrants may enroll in CE Courses.)

	On-Site
SOT Member/SOT Affiliate	$125
SOT Retired/Emeritus Member	$125
Nonmember	$145
Postdoctoral *(SOT Member or Nonmember)*	$125
Graduate or Undergraduate Student *(SOT Member or Nonmember)*	$95
Press	$0

Continuing Education Course Fees

(per morning or afternoon course)

(Only Annual Meeting Registrants may enroll in CE Courses.)

	On-Site
SOT Member/SOT Affiliate	$220
SOT Retired/Emeritus Member	$180
Nonmember	$370
Postdoctoral *(SOT Member or Nonmember)*	$160
Graduate or Undergraduate Student *(SOT Member or Nonmember)*	$115
Press	$0

Annual Meeting Registration Includes:

- Awards Ceremony, Sunday, March 23 from 5:15 pm–6:30 pm.
- Welcome Reception, Sunday, March 23 from 6:30 pm–7:30 pm.
- Plenary Opening Lecture, Monday, March 24 from 8:00 am–9:00 am.
- All Scientific Sessions, 9:15 am, Monday, March 24, through 12:00 noon, Thursday, March 27 (see Program Description beginning on page 127 for additional details).
- ToxExpo, Exhibit Hall, 9:00 am–4:30 pm Monday, March 24; 8:30 am–4:30 pm Tuesday, March 25, and Wednesday, March 26.

Participants also are encouraged to register for the Continuing Education Courses. These are available during three time intervals on Sunday, March 23—the Sunrise Mini-Course is 7:00 am–7:45 am, morning courses are 8:15 am–12:00 noon, and afternoon courses are 1:15 pm–5:00 pm.

Badges

Annual Meeting attendees who register by January 31, 2014, will receive badges and registration materials in the mail. Attendees who already have their 2014 Annual Meeting badges do not need to wait in the registration line. If you have registered and have NOT received your badge by mail, or need a replacement badge, go to the "BADGE PICK UP" registration counter to pick up your badge. You will be asked to show a photo ID.

If you have not registered for the meeting before you arrive in Phoenix, please complete the on-site Registration Form found at the kiosks in the Registration area and proceed to the appropriate registration line.

For security reasons, badges may not be altered. Please go to the SOT on-site Registration to update information on your badge.

Registration Hours

The Registration Desk is located in the Lower Level in the Phoenix Convention Center.

Registration hours:

Saturday	4:00 PM–7:00 PM
Sunday	7:00 AM–8:00 PM
Monday	7:00 AM–5:00 PM
Tuesday	8:00 AM–4:00 PM
Wednesday	8:00 AM–4:00 PM
Thursday	8:00 AM–12:00 Noon

Registration Confirmation

You should receive a registration confirmation/receipt via email regardless of whether you registered online, by mail, or by fax. If you don't receive your confirmation within two weeks, please contact SOT Headquarters at sothq@toxicology.org or call 703.438.3115.

2014 SOT Annual Meeting Policies

By registering for the 2014 SOT Annual Meeting, you are agreeing to the following terms and conditions:

For individuals who are not members of SOT, participation in SOT's Annual Meeting and ToxExpo is available only to bona fide individuals who are engaged in or promote the field of toxicology or biotechnology research and support the growth and development of the toxicology field. For organizations, participation in the SOT's Annual Meeting and ToxExpo is available only to bona fide organizations with public policy positions and business practices that are generally consistent with SOT's mission, goals, reputation, and its policies and principles as determined by SOT. SOT reserves the right to review applications for participation at SOT's Annual Meeting and ToxExpo to confirm that the applicant meets these criteria and may, at SOT's sole discretion, reject a registration by any individual or organization or withdraw registration privileges at any time if any individual or organization is found to be inconsistent with SOT's principles and interests.

Unless written notification by the registrant, stating otherwise, is submitted to SOT Headquarters prior to the Annual Meeting or while registering on-site, SOT Annual Meeting registrants grant SOT permission:

- To reproduce, copy, and publish image, voice, and any or all media taken at the Annual Meeting.
- To share registrant contact information with organizations that we believe might have a product or service of interest to you. Limited data provided to third parties include name, affiliation, title, and business address. Your telephone and fax numbers, and email will not be disclosed to third parties.
- To share registrant name and affiliation with SOT exhibiting companies.
- To be included in the Attendee listing accessible to meeting registrants using the mobile event app or event website—registrant name and affiliation shared.

SOT Annual Meeting registrants are prohibited from:

- Inviting children under the age of 15 and guest/spouse registrants into the Exhibit Hall. Session chair must provide consent for the guest/spouse or child to attend the session.
- Soliciting in the exhibit hall unless they are an approved exhibitor.
- Taking photographs or other electronic capture of scientific sessions in meeting rooms or the ToxExpo without the consent of the session chair and the presenter(s)/author(s).
- Photographing colleagues against the backdrop of scientific posters on display without the express consent of the presenting author(s).
- Photographing exhibit booths.
- Speaking on cell phone while attending scientific sessions.

The policies adopted above will be enforced by the Society. Those individuals who do not comply will be asked to leave the session or ToxExpo floor. If you have any questions regarding these policies, please contact the SOT Headquarters Office.



2014 Past Presidents' 5k Fun Run/Walk

"People who get together to sweat together, stay together!"
– Jay Goodman, SOT Past President

Steele Indian School Park

Tuesday, March 25, 2014

6:30 AM



To register, visit the Social Events under the Special Events section of the SOT Annual Meeting website or scan the QR code with your smartphone or mobile device.

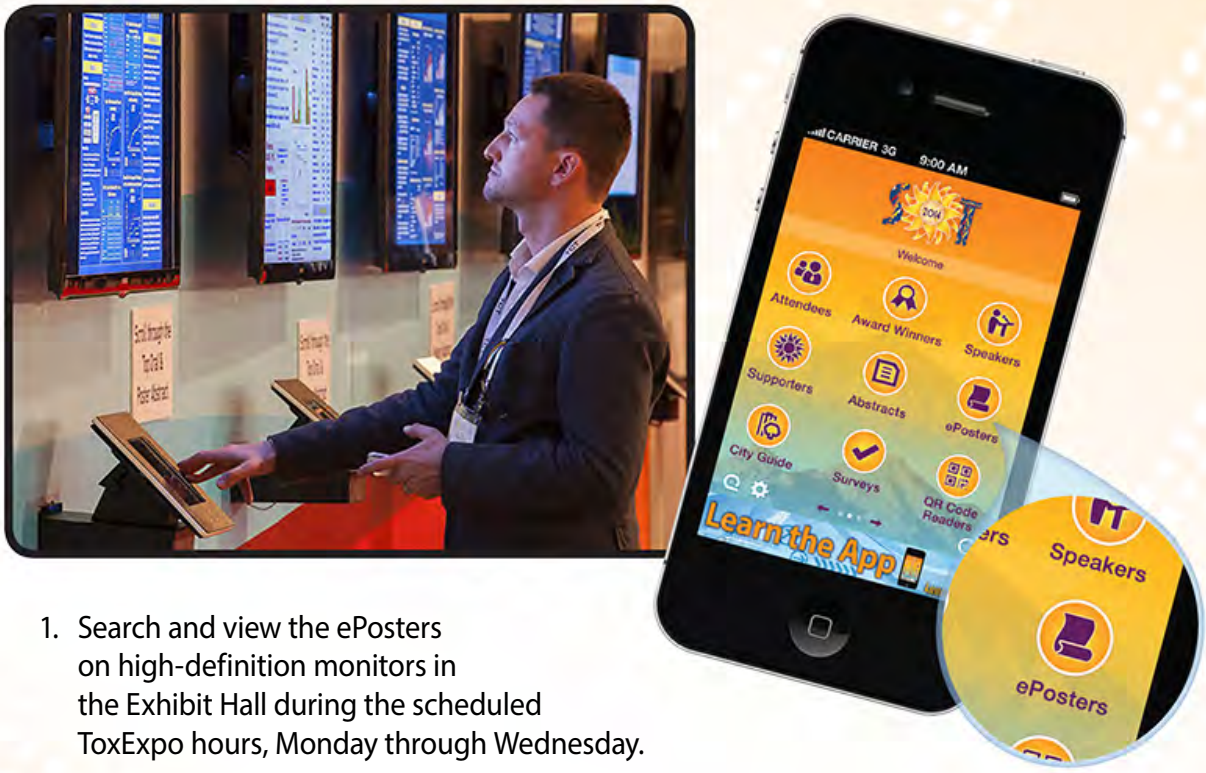
Registration is only $18 and all proceeds will go toward the SOT Endowment Fund.

Download QR code scanner app with your smartphone or mobile device.

Thank You to Our Supporter:
ReproCELL

ePosters—A Convenient Way to View Posters

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2. Search and view the ePosters on your mobile device or computer using the ePoster feature in the SOT mobile event app and event website—before, during, and after the meeting.

If you are a poster presenter, please take a few minutes to upload your PowerPoint poster through an Internet-based, user-friendly presentation system prior to the meeting at **https://cms.psav.com/e35f808** or during the meeting in the Speaker Ready Room at the Phoenix Convention Center, Room 123.

General Information

Accessibility for Persons with Disabilities

The Phoenix Convention Center and most of the SOT hotels are accessible to persons with disabilities. If you require special services, please mark the appropriate box on the Annual Meeting Registration Form.

LSA Interpretation Services
800.305.9673
www.lsaweb.com

Language Services Associates is a nationwide full-service firm providing translators and interpreters in 180 languages.

Scooter Rentals:

Scoot Around
888.441.7575
www.scootaround.com

If you require more information about accessibility, please contact Heidi Prange at SOT Headquarters: 703.438.3115 ext. 1424.

Annual Meeting Materials

All Annual Meeting registrants receive a copy of the *Program* that can be picked up on-site. In an effort to conserve resources, the printed *Program* will be mailed ONLY by request (in the US and Canada only). If you wish to receive your printed *Program* before the meeting (request made by February 28), please select the "I want to receive the printed *Program* before the meeting by mail" checkbox on the Registration Form, and the *Program* will be mailed in late February (in the US and Canada only). The *Program* and *The Toxicologist,** a special issue of *Toxicological Sciences* that includes all meeting abstracts, will be available for download on the SOT website prior to the Annual Meeting.

Pre-Registered: When you arrive at the Phoenix Convention Center, if you have received your badge and your requested copy of the *Program* in the mail, you will only need to pick up a badge holder and a copy of the *ToxExpo Directory*, which will be available throughout the center and inside Exhibit Hall. If you have registered and have NOT received your badge by mail, or need a replacement badge, please visit the "BADGE PICK UP" registration counter located in Registration. Your 2014 Annual Meeting registration badge must be presented to obtain access to SOT functions.

Should you need to pick up materials on-site, present your badge to an attendant at one of the handout tables and your request will be fulfilled. Please read the information below:

- SOT Members in the United States and Canada attending the Annual Meeting who selected "I want to receive the printed *Program* before the meeting by mail" when they registered received the printed *Program* prior to the Annual Meeting.
- SOT Members in the United States and Canada not attending the Annual Meeting may request that a copy of the *Program* to be mailed following the Annual Meeting. Send email requests to jimd@toxicology.org.
- SOT Members outside of the United States and Canada may pick up the printed *Program* at the meeting or may request that it be mailed following the Annual Meeting. Send email requests to jimd@toxicology.org.
- Non-SOT Members in the United States and Canada who register on or before February 28 and check the "I want to receive the printed *Program* before the meeting by mail," received the printed *Program* prior to the Annual Meeting. All non-SOT Members who register after February 28 (and non-SOT Members from outside of the United States or Canada) may pick up the printed *Program* at the meeting.

Materials for Those Who Need to Register On-Site: If you have not already registered, please go to the counter in Registration in the Phoenix Convention Center to complete this process. When you have received your registration badge and event/CE course tickets, simply stop by one of the handout tables and present your badge to obtain the Annual Meeting materials (i.e., the *Program*, the *ToxExpo Directory*, and other supplementary materials).

Download the mobile event app or access the event website to view the most up-to-date meeting information. These tools enable you, the attendee, to engage with organizers, exhibitors, and each other, and to manage your time and maximize your experience while at the Annual Meeting.

NOTE: Please bring your copy of the* Program *with you to the Annual Meeting.

*Annual Meeting attendees may purchase a printed version of *The Toxicologist* for $25 per copy in Registration at the Phoenix Convention Center. You may preorder using the Registration Form and pick up a copy on-site or wait to purchase a copy on-site (while supplies last). *The Toxicologist* will be available for download (beginning February 2014) free of charge on the SOT website.

Attire

The official attire for the Annual Meeting is business casual. No coat or tie is required! We encourage you to bring comfortable clothing and shoes. Because meeting rooms may seem cold, please bring a sweater or jacket and/or dress in layers.



General Information (Continued)

Business Center

T: 602.251.0135
F: 602.251.0136
Email: store5750@theupsstore.com

The Phoenix Convention Center Business Center is conveniently located in the lobby on the 100 Level of the North Building. The Business Center offers services such as UPS shipping, common office supplies, Internet access, high-quality full color and B&W copying, printing, and uploading documents from a memory stick or CD.

Business Center Hours:

Saturday ..... 8:00 AM–2:00 PM
Sunday ..... Closed
Monday–Friday ..... 9:00 AM–5:00 PM

Career Resource and Development Services

As part of the Career Resource and Development (CRAD) services, the on-site Job Bank Center is located in the Phoenix Convention Center in Rooms 130 (Office) and 131 (Job Bank/Mentor Match Lounge and Interview Rooms) on the 100 Level North.

The Job Bank Center Hours:

Sunday ..... 1:00 PM–5:00 PM
Monday ..... 9:00 AM–5:00 PM
Tuesday ..... 8:30 AM–5:00 PM
Wednesday ..... 8:30 AM–5:00 PM

Full CRAD services and event details may be found on page 66.

Chat with an Expert Poster

The Chat with an Expert (CWAE) events are informal gatherings of small groups of students and a Toxicology Expert over a snack or coffee. The Graduate Student Leadership Committee sponsors these events to provide students with an opportunity to network with well-established toxicologists while obtaining career advice and meeting new colleagues. The groups are matched by research interests, and the Expert for each group identifies a time and place to assemble. The CWAE Poster provides all the details for the group meetings and is located in the Registration area. Groups meet at the poster before proceeding to their informal meeting location.

Child Care Services

Arrangements for child care services during the Annual Meeting may be made by contacting the concierge desk at your hotel. To ensure safety, children are not permitted in session rooms, ToxExpo, or the poster areas.

Coat/Luggage Check

For your convenience, a coat/luggage check will be available in the Registration area. The coat/luggage check will be open Sunday, March 23 through Thursday, March 27. There will be a fee of $2 per item checked. Laptops, cameras, and other electronics will not be accepted.

Hours of operation:

Sunday ..... 8:00 AM–8:00 PM
Monday ..... 7:00 AM–6:00 PM
Tuesday ..... 7:00 AM–6:00 PM
Wednesday ..... 7:00 AM–6:00 PM
Thursday ..... 7:00 AM–12:00 Noon

Coat/Luggage Check hours are subject to change.

Emergency/Facility Security

If an emergency should occur while at the Phoenix Convention Center, proceed directly to the Information Desk located in the North and West Buildings and speak to the venue host or pick up the house phone and dial 85. You will be connected directly to the 24-hour manned security department at the convention center. From your cell phone, dial 602.262.7271, which will connect directly to security. There is also a HELP button located on the light control panel in the back of each meeting room. This will connect you to security.

Please note that in accordance with regulations, the First Aid Administrator is not permitted to dispense any medication.

Exhibitor Information

Full exhibit information details may be found on pages 37–45.

Exhibit Hall (Hours/Location)

Exhibit Hours at the Convention Center:

Monday ..... 9:00 AM–4:30 PM
Tuesday ..... 8:30 AM–4:30 PM
Wednesday ..... 8:30 AM–4:30 PM

The ToxExpo Exhibition is located on the Lower Level of the convention center. A map of the Exhibit Hall is located on pages 38–39. Exhibit personnel may enter the hall one hour before the ToxExpo opens with appropriate identification. Poster presenters may enter the hall at the poster set-up times specified on page 119. *ToxExpo Directories* are available at Registration and inside each entrance of ToxExpo.

General Information (Continued)

Exhibitor Information (continued)

ToxExpo 2015 Exhibit Space Selection Process

Priority Point booth sales for 2015 will take place on an appointment basis at the ToxExpo Sales Office. Companies in higher point levels will be contacted in advance of the show with their scheduled appointment time. If you did not receive an appointment in advance, please plan to attend the 2015 Sales Meeting on Tuesday, March 25, at 4:45 pm in Room 106C, West Building of the convention center.

Food Services

Coffee Breaks

The exhibiting companies are pleased to sponsor complimentary coffee in the Exhibit Hall between 9:00 am–10:00 am Monday–Wednesday. See Exhibit Hall signage for locations.

Concessions

Concession stands are available in Exhibit Hall Monday 9:00 am–4:30 pm and Tuesday and Wednesday 8:30 am–4:30 pm. Breakfast and lunch items will be available for purchase, as well as coffee, soda, bottled water, and snacks. Seating is available in the Concession areas in the Exhibit Hall. Please see the map on pages 38–39 for location. Concessions are run by Aventure Catering, providing outstanding and delectable food and beverage in the Phoenix Convention Center.

The Metro Marché, located in the North Building, has four food outlets (Crust, Urban Wok, B3, and Tortillas) open for lunch from 10:30 am–2:00 pm, Sunday through Thursday. City Central Coffee will be open in the mornings at 7:00 am for coffee/pastries. Starbucks, located in the West Building, is open daily from 6:30 am–4:00 pm.

Restaurants

A full restaurant listing may be found on pages 32–35.

Green in Phoenix

Phoenix is green! The Phoenix Convention Center says sustainability is one of their core values and missions. Their West Building is certified by the US Green Building Council with a Leadership in Energy and Environmental Design (LEED) Silver Rating. They provide clients with energy-efficient facilities and venues. The convention center also has a long-standing recycling program that includes not only paper, but the collection of plastic, cardboard, and glass materials.

Last year the convention center recycled more than 500 tons of material. In conjunction with the City of Phoenix Environmentally Preferable Purchasing (EPP) program, the Phoenix Convention Center strives to purchase products or services that have a reduced effect on the environment. The convention center's green purchases include 31,000 KI Daylight chairs made from recycled car battery casings and seatbelts, tablecloths made from recycled plastic bottles, and fresh produce purchased from local farms. There are also rooftop solar panels and a water-harvesting garden that converts condensation from the building's heating and cooling system into water for landscaping. Outside of the Phoenix Convention Center, the City of Phoenix is also doing its part in being green. The Metro Light Rail serves the greater Phoenix area and has a stop assigned to the Phoenix Convention Center and Symphony Hall. Hybrid cabs are also available throughout downtown Phoenix, and the city's bus lines operate exclusively with low-emissions natural gas.

Use our QR *(Quick Response)* codes and go green!

QR codes are the fast, easy way to save paper while getting the most out of your SOT Annual Meeting experience. Simply scan the desired code with any tablet or smartphone QR code reader and find a wealth of information regarding the 53rd SOT Annual Meeting and ToxExpo, and the surrounding city of Phoenix. See more details on page 2.

Guest/Spouse Hospitality Room

The SOT Guest/Spouse Hospitality Room provides guest participants (nonscientists) with a place to meet and socialize with other guests. To visit the Hospitality Room, guests must register for the Annual Meeting with the person they are accompanying. Guests will not have access to the scientific sessions or ToxExpo. Please remember to wear your badge to all SOT events. The Guest/Spouse Hospitality Room will be located in the Sheraton Phoenix Downtown Hotel, Suite 428.

Guest/Spouse Hospitality Room Hours:

Sunday	8:00 AM–5:00 PM
Monday	8:00 AM–5:00 PM
Tuesday	8:00 AM–5:00 PM
Wednesday	8:00 AM–5:00 PM
Thursday	8:00 AM–10:00 AM



General Information (Continued)

Housing Desk

SOT Housing Partner—*Connections Housing*

The deadline date for new housing reservations is February 20, 2014. For information regarding your hotel reservation on-site, please visit the SOT Housing Desk located in the Registration area of Phoenix Convention Center.

Housing Desk Hours:

Saturday..... 4:00 PM–7:00 PM
Sunday ..... 8:00 AM–5:00 PM
Monday..... 8:00 AM–5:00 PM
Tuesday.....8:00 AM–11:00 AM

Housing desk hours are subject to change.

Internet Access at the Convention Center

SOT knows the importance of staying connected to your daily activities while attending the Annual Meeting and provides several ways for you to access the Internet while at the Phoenix Convention Center.

Free Wireless Internet Access

As a service to Annual Meeting attendees, SOT will be providing free wireless Internet access in designated areas of the Phoenix Convention Center, including the entire North Building and the 100 and 300 Levels of the West Building. SOT is providing wireless Internet access to help attendees access the 2014 SOT Annual Meeting App and help make the Annual Meeting a more productive and enjoyable experience.

To connect to the free wireless Internet, browse the available wireless networks and select the ***SOT2014*** wireless network. When prompted for a password, use ***sotguest*** to connect to the network. Once connected, launch your web browser and the SOT welcome splashpage will automatically load.

@SOT—Internet Access and App Center

One-on-one app training and support is available during the meeting—stop in early to get the most out of the 2014 SOT mobile event app and event website.

SOT will provide computers you can use to access the Internet. These computers are available to attendees in the @SOT Center located outside of ToxExpo.

Letter of Attendance

Please stop by Registration after Tuesday morning if you would like a letter of attendance for your participation in the 2014 SOT Annual Meeting and/or the Continuing Education Course(s). If you missed your chance to get your attendance letter at the meeting, you can send your request to sothq@toxicology.org or call 703.438.3115.

Lost and Found

Lost and found articles may be taken to the SOT Headquarters Office, Room 224A, of the Phoenix Convention Center. Any items left in the office after 11:30 am, Thursday, March 27, will be taken back to SOT Headquarters. If you do not remove your poster at the end of your session, you will find it on the "Poster Retrieval Tables" located at the rear of the Exhibit Hall to the left and right of poster sections 300 and 500. Any posters left behind at 4:30 pm on Wednesday will be taken to SOT Headquarters Office, Room 224A, Thursday morning, March 27. All posters not claimed by 1:00 pm on Thursday, March 27, will be recycled.

Media Support Services

The Society of Toxicology welcomes accredited representatives of media organizations. Journalists receive complimentary registration for all meeting sessions, as well as media kits. Interviews can be arranged with SOT Council, members, and speakers. For information about the program speakers and/or sessions, please contact Michelle Werts at SOT Headquarters: 703.438.3115, ext. 1640, or email at michelle@toxicology.org.

Networking Time

The Scientific Program Committee has created a time on Tuesday, March 25, especially for attendee networking. We encourage you to connect and engage with your colleagues at the Annual Meeting from 12:00 noon to 1:30 pm on Tuesday between sessions. Only networking events and Exhibit Hall activities are scheduled during this time, so meet your colleagues in ToxExpo, grab a bite to eat, and grow your network!

Phoenix General Information

Phoenix is America's fifth-largest city with over 1.5 million residents. It is located in the heart of the Sonoran Desert and is known as the gateway to the Grand Canyon. Arizona itself is known as the Grand Canyon State. Its elevation is 1,117 ft. For more information on things to do, where to eat, special events, etc., please visit **www.visitphoenix.com/aboutphoenix/downtown-phx-sot/index.aspx**.

Science in Phoenix

Arizona Science Center

600 E. Washington Street
Tel: 602.716.2000
www.azscience.org

Located in the heart of downtown Phoenix, the Arizona Science Center offers hands-on, eye-opening fun with more than 300 interactive exhibits, a state-of-the-art planetarium, five-story giant screen theatre, live demonstrations, and traveling exhibitions.

General Information (Continued)

Desert Botanical Garden

1201 N. Galvin Parkway
Tel: 480.941.1225
www.dbg.org

The world's largest collection of desert plants has more than 50,000 plants on display throughout five thematic trails. In addition to the natural botanical art and opportunities for beautiful photographs, the garden offers specialized tours, concerts, special events, seasonal exhibits, an outdoor café, gift shop, and much more.

Heritage Square and Science Park

115 N. 6th Street
Tel: 602.262.5071
www.phoenix.gov/parks/parks/heritagepk.html

Home to James Beard Award-winning restaurants, the world-class Arizona Science Center, the historic 1895 Rosson House Museum, and its collection of carefully restored historic homes and buildings, Heritage and Science Park is a crucial piece of the cultural landscape in downtown Phoenix. The tree-lined park also is a popular home for major festivals and special events that bring thousands to the area each year.

Phoenix Zoo

455 N. Galvin Parkway
www.phoenixzoo.org

The Phoenix Zoo is the nation's largest privately owned, nonprofit zoological park. This zoo is home to more than 1,300 animals, including 200 endangered or threatened birds, mammals, and reptiles from around the world.

Pueblo Grande Museum and Archaeological Park

4619 E. Washington Street
Tel: 602.495.0901
www.phoenix.gov/recreation/arts/museums/pueblo/index.html

Experience an interesting juxtaposition of centuries and cultures as cars whoosh by on nearby freeways and jets thunder above this prehistoric 1,500-year-old Hohokam village ruin in the center of the city.

Phoenix Area Activities

For Things to Do in Greater Phoenix,
Go to **www.visitphoenix.com**.

Camelback Mountain

E. McDonald Drive at Tatum Boulevard
Tel: 602.261.8318
www.phoenix.gov/parks/trails/locations/camelback

Climb the city's most famous landmark, the mountain resembling a crouching dromedary, for superb valley views, or visit the Echo Canyon recreation area, where sheer red cliffs and hiking paths attract outdoor enthusiasts.

Children's Museum of Phoenix

215 N. 7th Street
Tel: 602.253.0501
www.childrensmuseumofphoenix.org

Hands-on interactive exhibits are designed to engage the minds, muscles, and imaginations of children up to age ten.

Heard Museum

2101 N. Central Avenue
Tel: 602.252.8848
www.heard.org

If you're interested in ancient cultures of the Southwest, visit this world-renowned museum. You'll find a staggering collection of Native American art and artifacts, including the largest kachina doll collection of any museum in the country.

Musical Instrument Museum (MIM)

4725 E. Mayo Boulevard
Tel: 480.478.6000
www.mim.org

The MIM features more than 10,000 instruments and artifacts from every country in the world and an ongoing program of exciting live performances.

Phoenix Art Museum

1625 N. Central Avenue
Tel: 602.257.1222
www.phxart.org

The Phoenix Art Museum showcases more than 18,000 works of American, Asian, European, Latin American, Western American, modern and contemporary paintings, photography, and fashion design.

Phoenix Heritage Square

115 N. 6th Street
Tel: 602.262.5071
www.phoenix.gov/parks/parks/heritagepk.html

Stroll through a city block of museums, gift shops, and restaurants in buildings that date to the late 1800s, anchored by the Rossen House.

Rosson House Museum

113 N. 6th Street
Tel: 602.262.5070
www.rossonhousemuseum.org

Restored to its Victorian grandeur, the Rosson House brings Phoenix's past to life. The 1895 historic house museum is open for public tours, special events, and school tours. Located at Historic Heritage Square inside Heritage and Science Park. Hours: Wednesday–Saturday, 10:00 am–4:00 pm; Sunday, 12:00 noon–4:00 pm; Tuesday, 10:00 am–4:00 pm.



General Information (Continued)

St. Mary's Basilica

3rd and Monroe Streets
Tel: 602.354.2100
www.saintmarysbasilica.org

Erected in 1881, the oldest standing church in Phoenix adds historic flavor to the downtown area.

Taliesin West

12621 N. Frank Lloyd Wright Boulevard
Tel: 480.860.2700
www.franklloydwright.org

Tour the winter home of the famed Frank Lloyd Wright, which now serves as a school of architecture.

Phoenix Golf Courses

Greater Phoenix is home to more than 200 golf courses. Below are just a few of the closet courses to the convention center.

Papago Golf Course

5595 E. Moreland Street *(nine miles from the convention center)*
Tel: 602.275.8428
www.papagogolfcourse.net

Papago Golf Course, owned by the City of Phoenix, was long considered the finest public golf course in the state. It was designed by well known and esteemed golf course architect William Francis (Billy) Bell, who learned his craft from his father, William Park Bell. They collaborated on many highly rated California courses. Perhaps best known among the nearly one hundred courses to Billy's credit is Torrey Pines in San Diego.

Encanto Park Golf Course

2775 N. 15th Avenue *(three miles from the convention center)*
Tel: 602.253.3963
www.phoenix.gov/recreation/rec/facilities/golf/golfcourses/encanto

Built in 1935, located in the core of the Encanto Historic District, Encanto is the third-oldest golf course in Arizona. It sports a relaxed atmosphere enhanced by the course's abundance of mature palm and salt cedar trees, plus some truly spectacular views of downtown Phoenix. William P. Bell designed both the traditional 18-hole championship course and the executive 9-hole course, which is just a block away. Encanto is ideally suited for the average golfer. Its level fairways are wide, and it has a limited number of hazards. Amenities include driving range and practice green.

Raven Golf Club—Phoenix
(Formerly the Phoenix Raven at South Mountain Golf Course)

3636 E. Baseline Road *(ten minutes from the convention center)*
Tel: 602.243.3636
www.ravenphx.com/home

Raven Golf Club—Phoenix provides a unique golf experience in the desert. From the Georgia pine tree-lined fairways to the multitiered greens, this Gary Panks and David Graham golf course design is a "must-play" in the Phoenix, area. Raven Golf Club—Phoenix is proud to have received a 4.5-star rating from Golf Digest and has been recognized as having the best guest service in North America.

Arizona Grand Golf Course

8000 S. Arizona Grand Parkway *(ten minutes from the convention center)*
Tel: 602.438.9000
www.arizonagrandresort.com/arizona-golfcourses.php

For over two decades, Arizona Grand Golf Course has supported the rich tradition of the game with its unique links course, featuring panoramic views of the surrounding desert landscape. Dramatic elevation changes and breathtaking mountain vistas highlight the diverse and challenging par 71 layout. The course complements the grandeur of the spectacular Sonoran Desert with stunning conditions and a service staff committed to creating exceptional experiences for players of all ability levels.

Phoenix Fun Facts

1. Phoenix is the sixth-largest US city.
2. Greater Phoenix has a population of approximately 2.97 million and covers 2,000 square miles.
3. Maricopa County—where Greater Phoenix is located—covers 9,222 square miles.
4. Phoenix's elevation is 1,117 feet.
5. According to legend, Phoenix gets its name from Cambridge-educated pioneer Darrell Duppa, who saw the ruins and prehistoric canals of the Hohokam and believed another civilization would rise from the ashes.
6. Greater Phoenix is located in the Sonoran Desert, which is one of the wettest and greenest deserts in North America, thanks to 3–15 inches of annual rainfall.
7. Phoenix basks in more than 300 days of sunshine per year, more than any other major metropolitan area in the US.
8. Phoenix has an average annual temperature of 72.6°F and an average annual high temperature of 85°F. Phoenix has an average annual rainfall of 7.7 inches. The average high temperature in winter is 67°F.
9. Arizona is home to 23 reservations representing 21 different Native American tribes.

General Information (Continued)

10. Phoenix is one of only 13 US cities with franchises in all four major professional sports leagues: Phoenix Suns (NBA), Arizona Diamondbacks (MLB), Arizona Cardinals (NFL), and Phoenix Coyotes (NHL). Phoenix will host Super Bowl XLIX in 2015.
11. Greater Phoenix plays host to 15 Major League Baseball Cactus League Spring teams, including the Chicago Cubs, Chicago White Sox, Cleveland Indians, Colorado Rockies, Kansas City Royals, Anaheim Angels, Los Angeles Dodgers, Milwaukee Brewers, Oakland Athletics, San Diego Padres, San Francisco Giants, Seattle Mariners, Texas Rangers, and Arizona Diamondbacks.
12. Greater Phoenix consistently ranks among the nation's top cities in the number of four- and five-diamond and four- and five-star resorts.
13. More than 15 million people visit Phoenix each year.
14. Greater Phoenix is home to more than 200 golf courses.
15. Phoenix is home to the largest municipal park in North America. South Mountain Park and Preserve covers more than 20,000 acres and has more than 50 miles of hiking, biking, and equestrian trails.

Poster Displays

Global Gallery of Toxicology

Toxicology Societies from around the world are invited to participate in the Global Gallery of Toxicology. Now in its fourth year, posters showcasing the history, key accomplishments, strategic initiatives, and current and future activities of these sister societies will be prominently displayed during the meeting. In addition, the 2014 Global Gallery poster session has a "Representative Attended" poster time of 11:45 am–12:15 pm on Monday, March 24. The goal of SOT and of all these societies is to further the science of toxicology to advance human health and disease prevention. The Global Gallery posters are located in the Exhibit Hall across from SOT Pavilion, Booth 1623. List of participates can be found on page 164. For more information, please contact Susan Simmons at susan@toxicology.org.

RC, SIG, and SS Posters

SOT will have dedicated poster space available for the Regional Chapters, Special Interest Groups, and Specialty Sections at the 2014 SOT Annual Meeting. The poster area will be located across from SOT Pavilion, Booth 1623 in the ToxExpo Exhibit Hall and will be attended on Monday, March 24, 11:45 am–12:15 pm.

Scientific Poster Printing Service

SOT is pleased to offer our poster presenters a convenient poster printing service through Shepard Exposition Services, the official general service contractor for the Annual Meeting. No need to worry about traveling with your poster or having your poster lost in shipping. Simply fill out the online form, email or upload your poster using the link provided, review and approve the final layout of your poster, and then pick up your poster on-site at the "POSTER PICK UP DESK" near the Exhibitor Service Center (at the end of the 1700 Aisle or left-hand side of the hall). Shepard will produce the materials for a reasonable price, which will include production, transportation, and storage during the meeting. It's as simple as that! Please call 703.352.4900 or send an email to Michael Graham at mgraham@shepardes.com for more information. More information and the order form can also be found on the SOT website at **www.toxicology.org/ai/meet/am2014/present.asp**.

Scientific Poster Sessions

Poster sessions will take place in the Exhibit Hall on Monday, March 24, 9:30 am–12:30 pm, and 1:00 pm–4:30 pm; and on Tuesday, March 25, and Wednesday, March 26, poster sessions will be presented 9:00 am–12:30 pm and 1:00 pm–4:30 pm, respectively. On Thursday, March 27, poster sessions are from 8:30 am–12:00 noon in Hall 1.

Full Scientific Poster Session details and information about retrieving your poster may be found on page 119.

Scientific ePosters

SOT is pleased to offer our poster presenters the opportunity to share their research electronically as well as in their assigned poster sessions. If you are a poster presenter, please take a few minutes to upload your PowerPoint poster through an Internet-based, user-friendly presentation system prior to the meeting at **https://cms.psav.com/e35f808** or during the meeting at the Speaker Ready Room at the Phoenix Convention Center, Room 123. ePosters will be available to meeting attendees at kiosks located in the Exhibit Hall during ToxExpo. Attendees will also be able to access ePosters though the meeting event app anytime during the meeting.

Program

This is the 2014 Annual Meeting *Program*. This publication is made available to all Annual Meeting registrants and SOT members. Physical copies are available on-site in the Registration area for anyone with a meeting badge. A PDF version is available on the SOT website.

Instructions for How to Use This *Program* are located on page 4.

General Information (Continued)

Recording, Photography, and Cell Phone Policies



Each year, we welcome more than 6,500 attendees to the Society of Toxicology's Annual Meeting and ToxExpo. With more than 2,500 presentations, this meeting is the largest international forum for toxicological research.

The Society does not permit photography or the electronic capture of scientific sessions in meeting rooms or the ToxExpo without the consent of the session chair and the presenter(s)/author(s). This policy also includes photographing colleagues against the backdrop of scientific posters on display without the express consent of the presenting author(s).

- Photographing exhibit booths is prohibited.
- Electronic capture of scientific sessions by any method is prohibited.
- All cell phones and electronic devices must be put on mute while attending scientific sessions.

The policies adopted above will be enforced by the Society. Those individuals who do not comply will be asked to leave the session or ToxExpo floor. If you have any questions regarding these policies, please contact the SOT Headquarters Office.

Registration Hours

The Annual Meeting Registration Desk is located on the Lower Level in the Phoenix Convention Center.

Registration Hours:

Saturday	4:00 PM–7:00 PM
Sunday	7:00 AM–8:00 PM
Monday	7:00 AM–5:00 PM
Tuesday	8:00 AM–4:00 PM
Wednesday	8:00 AM–4:00 PM
Thursday	8:00 AM–12:00 Noon

Full registration details may be found on page 47.

Research Funding Information Room

Program and review staff from agencies that fund research, including NIH, US FDA, NIEHS, CDC, and US EPA will be available in the Research Funding Information Room (Room 127A) for individual conversations. Check the posted schedule at the NIEHS booth 1129 for specific times staff members will be available all week to answer your questions about the scientific review or grant opportunities. The schedule also will be available in the Registration area and in Room 127A, and during the "Strategies for Funding Opportunities: Brown Bag Luncheon." On Wednesday, the Research Funding Information Room will host webinars with review staff who are unable to attend the Annual Meeting.

Research Funding Information Room Hours:

Monday	9:30 AM–4:00 PM
Tuesday	9:30 AM–4:00 PM
Wednesday	9:30 AM–4:00 PM

Safety and Security

The possibility of demonstrators is very real given the nature of our conference. Activities might range from verbal confrontations, protests, and strikes, to riots. We recommend the following procedures:

- Have your name badge available upon entering the convention center. Wear your name badge in the convention center. When leaving the facility, remove it so as to blend with other people. Conceal bags and other items that might identify you as an SOT meeting attendee.
- If you see a demonstration or protest beginning, please contact any member of the SOT Annual Meeting staff and they will initiate an SOT response. If you see actions that appear threatening, notify the nearest security officer.
- Do not engage, defend either side, or subdue person(s) in any type of disturbance. Demonstrators are usually trying to attract media attention. Don't help them!
- SOT representatives will respond to media inquiries. Do not participate in interviews or other media responses.
- In the unlikely event that outsiders disrupt a scientific session or other event, SOT security officials have developed a contingency plan. Please follow directions from the chairperson and avoid becoming involved in the situation.

General Information (Continued)

Safety Tips

Walk "smart" when you leave the convention center:

- Know your destination and the best way to reach it.
- Travel along sidewalks in lighted areas at night, and don't walk alone.
- Establish a "buddy" system with another attendee to walk to and from the convention center.
- Share schedules and check up on each other periodically.
- Build your awareness of unknown surroundings by reviewing local information.
- Laptop computers, smartphones, and electronic tablets are attractive, easy targets for thieves. Be sure they are stored in a secure place.
- Jackets with pockets provide a convenient alternative to reduce the chance for lost or stolen handbags.

Our first priority is safety. The best way to stay safe is to be aware of your surroundings and to avoid situations where you feel uncomfortable.

Session Etiquette for Attendees

Attendees are encouraged to ask questions following the presentations by speakers or at the direction of the moderator.

Given the importance of the scientific program to attendees and out of respect for the presenters, we ask that you adhere to the following rules of etiquette:



- Cell phones and other electronic devices should be set on mute.
- Electronic capture of scientific sessions by any method is prohibited.
- Inviting children under the age of 15 and guest/spouse registrants into the Exhibit Hall is prohibited. Session chair must provide consent for the guest/spouse or child to attend the session.

These policies will be enforced by the Society. Individuals who do not comply will be asked to leave the session.

Any items that are left behind in any of the rooms should be taken to the SOT Headquarters Office, Room 224A.

If you have any questions regarding these polices, please contact the SOT Headquarters staff at Registration.

SOT Headquarters Office

The SOT Headquarters Office is located in the Phoenix Convention Center Room 224A on the 200 Level. SOT leadership and staff utilize this office to conduct SOT business while on-site. Use the office to report or reclaim lost and found items at the Phoenix Convention Center.

SOT Headquarters Office Hours:

Saturday..... 4:00 PM–7:00 PM
Sunday .....7:00 AM–5:30 PM
Monday..... 7:00 AM–5:00 PM
Tuesday..... 7:00 AM–4:30 PM
Wednesday..... 7:00 AM–4:30 PM
Thursday .....7:00 AM–12:00 Noon

SOT Pavilion

Located in the ToxExpo Exhibit Hall, the SOT Pavilion, Booth 1623 is your place to connect and learn about SOT programs, services, membership benefits, and more. Find out about the SOT Endowment Fund, *Toxicological Sciences*, SOT awards, and sponsored awards and fellowships, ToXchange—the SOT member network, educational programs directed across the spectrum from K–12 throughout the toxicology career, and everything taking place at the Annual Meeting.

All SOT Annual Meeting attendees are welcome to stop by at any time during ToxExpo hours as follows:

Pavilion Hours:

Monday..... 9:00 AM–4:30 PM
Tuesday..... 8:30 AM–4:30 PM
Wednesday..... 8:30 AM–4:30 PM

Be sure to stop by during one of the scheduled events listed in the following list for specific information on these topics, programs, or component groups.

Pavilion Events

Monday, March 24 through Wednesday, March 26

Please stop by for these scheduled events each day:

9:00 AM–4:00 PM	***Toxicological Sciences*—**Managing Editor Virginia Hawkins will be available to answer your questions about the operations of the journal.
	Hispanic Organization of Toxicologists—Meet and Greet
10:00 AM–10:30 AM	**ToXchange Tutorial 1—**Getting Started on ToXchange
11:00 AM–12:00 Noon (Tuesday only)	**Graduate Student Leadership Committee (GSLC)**—Meet and Greet
12:00 Noon–1:00 PM	**Mechanisms Specialty Section—**Meet and Greet

(continued to next page)



General Information (Continued)

2:00 PM–2:30 PM	**ToXchange Tutorial 2**—Updating your MyPage and Profile
3:00 PM–4:00 PM	**Meet the Leaders**—Regional Chapters, Special Interest Groups, and Specialty Sections
	Toxicological Sciences—Editor-in-Chief Gary W. Miller will be available to answer your questions about research trends, vision for the journal, and new initiatives that are underway.
4:00 PM–4:30 PM	**ToXchange Tutorial 3**—Surveys and Polls; Advanced Features

Also, be sure to visit the Global Gallery, Regional Chapter, Special Interest Group, and Specialty Section poster displays across from SOT Pavilion (Booth 1623)—open throughout ToxExpo hours.

And don't miss the specially attended Global Gallery and RC/SIG/SS poster presentations on Monday, March 24, 11:45 am–12:15 pm.

Speaker Ready Room

The Speaker Ready Room will be located in Room 123. SOT will provide all confirmed presenters in scientific sessions with login credentials to access the submission site to preload your presentations. Poster presenters should use the submission site at **https://cms.psav.com/e35f808** to upload ePosters. Scientific session presenters should use the submission site at **https://cms.psav.com/e612ff6** to preload presentations. All presentations should be preloaded in advance of the meeting, but not fewer than 30 minutes prior to the start of the sessions if loaded in the Speaker Ready Room. Presenters will not be able to upload a presentation in the session room.

Speaker Ready Room Hours:

Saturday	4:00 PM–7:00 PM
Sunday	7:00 AM–5:30 PM
Monday	7:00 AM–5:00 PM
Tuesday	7:00 AM–4:30 PM
Wednesday	7:00 AM–4:30 PM
Thursday	7:00 AM–11:30 AM

Supporting Opportunities

The SOT Annual Meeting is the largest scientific gathering of toxicologists in the world, and our Annual Meeting Supporters play an integral role in the success of this important event. Becoming an Annual Meeting Supporter demonstrates your organization's commitment to SOT's vision of "creating a safer and healthier world by advancing the science of toxicology."

Being an Annual Meeting Supporter also provides an opportunity for better name recognition of your company among SOT members and the Annual Meeting attendees.

In addition, your support allows the Society to keep registration fees low, thereby enabling us to attract more than 6,500 attendees to the Annual Meeting.

There are five levels of support available:
Diamond ($10,000 or more), Platinum ($5,000–$9,999), Gold ($2,500–$4,999), Silver ($2,000–$2,499), and Contributor ($1,000–$1,999). You will find a complete menu of supporting opportunities designed to assist your organization in establishing a leadership position at the SOT Annual Meeting on the website at **www.toxicology.org**.

Supporter names are prominently displayed on the Annual Meeting website, as well as in print materials that are distributed before and during the Annual Meeting. Supporters also are recognized through signage displayed throughout the convention center during the Annual Meeting.

Annual Meeting support contributions are tax deductible per IRS regulations. For detailed information about SOT supporting opportunities, please contact Ray Luca at SOT Headquarters: 703.438.3115 or email: ray@toxicology.org.

For a complete list of our 2014 Annual Meeting Supporters (as of press time), please see page 440 and the back cover, or access them via the mobile event app or event website.

Tour Information

For tour information, visit the Tour Desk located in the Registration area on the Lower Level.

Tour Desk Hours:

Sunday	11:00 AM–12:45 PM
Monday	8:00 AM–9:45 AM
Tuesday	8:00 AM–9:45 AM

Tour desk hours are subject to change based on tour signups.

Tour Tickets

Prepurchased ticket holders, as of February 21, will receive an email confirmation or information on the tour after February 21. Your email confirmation serves as the ticket for admission. Tickets are sold on a first-come, first-served basis at the Tour Desk. After February 21, call Avalon Meetings & Entertainment, Inc. (AME) for availability of tickets at 480.860.2423, or email alysiab@avalonme.com. No refunds will be made for prepurchased tours.

Tour Departures

Tour departure information will be available at the Tour Desk located on the Lower Level. All tours will leave from the south end of the North Building of the Phoenix Convention Center. Please arrive 15 minutes prior to your scheduled tour departure time.

The Toxicologist and Annual Meeting *Program*

The Toxicologist: *The Official Record of the 2014 Annual Meeting Abstracts*



The Toxicologist is an important scientific resource, as it is the official compilation of all accepted abstracts for the 53rd Annual Meeting of the Society of Toxicology. With almost 2,900 abstracts for the meeting, this supplementary issue of *Toxicological Sciences* is a critical publication to access the latest findings in toxicology.

- A copy of the printed version of *The Toxicologist* may be preordered via the registration form or purchased on-site while supplies last for $25.
- *The Toxicologist* PDF is available for download via the SOT website.
- Full abstracts can be accessed via the mobile event app or event website available on the SOT website and app market places.

For the 2014 Annual Meeting only, abstracts accepted from the second abstract submission period will be incorporated into the regular scientific program so as to be presented with relevant thematic content. These abstracts are searchable by the Annual Meeting mobile app, and appear in the printed *Program* and in *The Toxicologist*.

The Program: *The Official Guide to the SOT 2014 Annual Meeting and ToxExpo*

The *Program* is the official guide to all the activities of the 2014 Annual Meeting and ToxExpo. The *Program* includes detailed information on the scientific sessions including an overview for these sessions, with the exception of the poster and platform sessions. The *Program* includes the poster session schedule and a map of the poster sessions, as well as an abstract overview of all the Continuing Education course offerings. The *Program* details the schedule of events by name and a listing of all the special events including 2014 award recipients, 2014 Honorary members, SOT Endowment Fund 2013 award recipients, recognition and special events; and Regional Chapter, Special Interest Group, and Specialty Section meetings and receptions. In addition, the *Program* includes a general section that highlights tour, travel, hotel, registration, parking, and safety and security information. The complete listing of the ToxExpo exhibitors is provided along with the floor plan for the ToxExpo and a complete listing of exhibitor-hosted sessions.



- The *Program* PDF is available for download via the SOT website.
- Copies of the *Program* can be picked up on-site. In an effort to better use resources, the printed *Program* will be mailed ONLY by request (within the US and Canada only). If you wish to receive your printed *Program* before the meeting (request made by February 28), please select the "I want to receive the printed *Program* before the meeting by mail" checkbox on the registration form, and the *Program* will be mailed in late February (in the US and Canada only).



General Information (Continued)

Transportation

Air Transportation

Special Airfare Discounts

SOT has established discounted rates through Southwest and United Airlines originating in the United States and Canada. Be sure to use the reference numbers when making your reservations. You may purchase your ticket online, call the airline directly using the toll-free numbers, or provide your travel agent with the reference/discount numbers listed below to receive the discount.

Southwest Airlines

Tel: 800.435.9792
www.southwest.com
Company ID: 99150833

Southwest Airlines is offering a 10% discount off the Business Select or Anytime fare classes and 5% off Wanna Get Away fares for attendees traveling to Phoenix for the SOT Annual Meeting. The discount is valid for travel dates of March 18–31, 2014. Discounts are not applicable for bookings made within two weeks of the travel date. You may book your ticket at **www.southwest.com** (no service fee applies); in the promotion code box, type 99150833 to receive the discount.

United Airlines

Tel: 800.426.1122
www.united.com
SOT Discount Code: ZR5G796287

United Airlines is offering up to a 10% discount on fares for attendees traveling to Phoenix for the SOT Annual Meeting. The discount is valid March 20–30, 2014. You may book your ticket at **www.united.com** (no service fee applies); in the offer code box, type ZR5G796287 to receive the discount. You may also book your reservation by calling United Meetings at 800.426.1122; however, a service fee will apply. International attendees should call their local United Airlines reservations office. If you are booking through a travel professional, please give them the following information: Agreement Code: 796287, Z Code: ZR5G.

SOT Travel Agent—Carlson Wagonlit

Carlson Wagonlit is the official travel management firm for SOT's 53rd Annual Meeting. To take advantage of their services and savings, call toll-free 800.669.6024 Monday through Friday, 9:00 am–5:30 pm (Eastern Standard Time) and ask to speak to anyone on our SOT-dedicated team, or email arlington.us@contactcwt.com. To obtain the maximum discounted fares, call at least 60 days prior to departure. Discounted fares are still obtainable up to 14 days in advance. Please note that Carlson Wagonlit charges a $42 service fee per ticket.

Before calling Carlson Wagonlit, please gather the following information:

- Your name as it appears on your ID, and your date of birth
- The desired dates of arrival to and departure from Phoenix
- Your home city or originating airport
- Your approximate time of departure from the originating airport
- The number of persons traveling (adults/children)
- Your method of payment, either credit card or check
- Your airline frequent flyer number(s)

Phoenix Sky Harbor International Airport (PHX)

Phoenix Sky Harbor International Airport (PHX) is a joint civil-military public airport located three miles southeast of the central business district of the city of Phoenix, in Maricopa County, Arizona. Phoenix Sky Harbor International Airport is one of the ten busiest in the nation for passenger traffic, serving over 40 million passengers per year. Sky Harbor services more than 80 domestic and approximately 21 international cities with daily flights, most of them nonstop. For more information, go to **www.skyharbor.com**.

Ground Transportation—From the Airport

Ground transportation is located curbside in each of the four terminals at Phoenix Sky Harbor International Airport (PHX).

Car Rental

Hertz

US and Canada: 800.654.2240
Local: 405.749.4434
www.toxicology.org/ai/meet/am2014/hertz.asp
SOT Discount Code: CV#04X50001

Hertz is the official car rental company for the 53rd SOT Annual Meeting. SOT discounted rates begin at $47 per day. These special group rates are good one week before and after the SOT Annual Meeting. To reserve your car online go to **www.toxicology.org/ai/meet/am2014/hertz.asp**. You may also call Hertz directly at the numbers listed above. Be sure to mention the SOT Hertz discount number CV#04X50001.

General Information (Continued)

Taxi Cabs

Apache Taxi: 480.804.1000
AAA/Yellow Cab: 480.888.8888
Mayflower Cab: 602.955.1355

Taxi fares to Phoenix downtown areas are $5 for the first mile; each additional mile is $2.30. Each hour of a traffic delay is $23. The minimum fare is $15. The above taxis are contracted to pick up passengers at Phoenix Sky Harbor, and the rate remains the same regardless of the company, number of passengers, and number of bags.

Shuttle Service

SuperShuttle

Tel: 602.244.9000
www.supershuttle.com/?gc=2unm9&port= phx&atype=m
SOT Discount Code: 2UNM9 only online

Execucar

Tel: 800.410.4444
www.execucar.com
SOT Discount Code: 2UNM9 only online

SuperShuttle and Execucar provide the easiest and most cost-effective ground transportation service between the Phoenix Sky Harbor International Airport and all other major hotels in the downtown area. Shuttles depart from 9:00 am–9:00 pm daily to downtown hotels every 15 minutes. Passengers may purchase tickets at the airport baggage claim area. Ticket fares are $18 per person to downtown hotels or $34 for a roundtrip ticket. Book online and receive an additional discount. Online rates are $11 one way and $22 roundtrip per person. The SOT discount is valid March 20–31, 2014 and available only online.

PHX Sky Train and METRO Rail

The PHX Sky Train™ is an automated train that transports travelers from 44th Street/ Washington Valley Metro Light Rail to the East Economy parking area and Terminal 4. The PHX Sky Train™ is free to the public and runs 24 hours a day, arriving at stations about every three minutes during peak periods.

Once at the 44th Street and Washington Metro Light Rail station, board a westbound train taking you into downtown Phoenix, past the Phoenix Convention Center, and to the convention hotels in the area.

Approximate cost is $2, and transfer time is 15 minutes. For more information, visit **www.valleymetro.org** or call 602.253.5000.

Public Transportation—Getting around Town

Metro Light Rail

Tel: 602.253.5000
www.valleymetro.org

The Metro Light Rail is convenient, cost-effective, and the easiest way to get around downtown Phoenix. Vending machines are located at each light rail station and have on-screen instructions for purchasing tickets, which makes your transaction simple and fast. A one-ride pass is $2 or for an all-day pass is $4. Trains arrive at stations every 10 minutes between 6:00 am–7:00 pm on weekdays and every 15 minutes on Saturdays. All other times are every 20 minutes. Trains operate seven days a week, 20+ hours a day, 365 days a year.

Arizona Pedal Cab Company

Tel: 602.252.1152
www.azpedicab.com

The Arizona Pedal Cab Company is the oldest established pedicab company in the state. It is a human-powered, radio-dispatch cycle shuttle between hotels, bars, eateries, and the Phoenix Convention Center. Downtown tours available.

Phoenix Convention Center Parking

The Phoenix Convention Center operates and manages approximately 8,000 parking spaces in the downtown area. Getting to the convention center is relatively simple. The center is within walking distance of two light rail stations, and they offer four convenient parking garages to choose from. Event parking fees in covered garages average $12. Metered parking is also available for $1.50 an hour until 5:00 pm Monday–Friday, and is free after 5:00 pm weeknights and all day Saturday and Sunday.

East Parking Garage

602 E. Washington Street
Phoenix, AZ 85004
Capacity: 2,876 spaces, 7 levels Venues Serviced: PCC North Building, PCC South Building, Chase Field, and US Airways Center Entry Locations: Jefferson Street between 5th Street and 7th Street; Washington Street between 5th Street and 7th Street; 5th Street between Washington Street and Jefferson Street (buses and trucks only)

West Parking Garage

185 N. 2nd Street
Phoenix, AZ 85003
Capacity: 194 spaces, 2 levels Venues Serviced: PCC West Building, Symphony Hall, and Herberger Theatre
Entry Location: Corner of 2nd Street and Monroe Street

General Information (Continued)

North Parking Garage
475 E. Monroe Street
Phoenix, AZ 85004
Capacity: 325 spaces, 2 levels Venues Serviced: PCC North Building, Arizona Science Center, and St. Mary's Basilica Entry Location: Monroe Street between 3rd Street and 5th Street

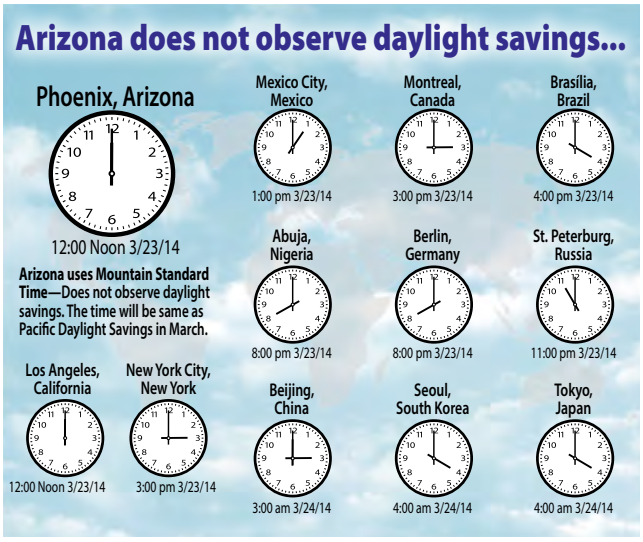
Regency Parking Garage
40 N. 2nd Street
Phoenix, AZ 85004
Capacity: 513 spaces, 5 levels Venues Serviced: PCC West Building, Symphony Hall, and the Hyatt Regency
Entry Location: Corner of 2nd Street and Adams Street

Overnight Parking
Due to city zoning restrictions, overnight parking is not permitted in Phoenix Convention Center parking garages.

Please check the SOT Hotel Accommodations and Services on pages 30–31 for valet and self-parking rates for your hotel.

SOT Ride Share
SOT offers a Ride Share Program in conjunction with the Annual Meeting. For those who live close enough to the Phoenix area or those who do not wish to fly, you may want to consider the Ride Share Program. Avoid airport hassles by driving and make it easier for other scientists to attend by sharing rides. Students, especially, appreciate ways to make the meeting even more economical.

Once you have registered for the Annual Meeting, you can access the Ride Share Program. You can indicate whether you want to drive or be a passenger, and then see a list of others who are participating. It will be up to you to match your plans with someone else who is registered, and then to remove your names when you have travel plans in place.



Weather
Phoenix has a subtropical desert climate, typical of the Sonoran Desert in which it lies. Although Phoenix has extremely hot summers and warm winters, the average temperature for March is a pleasant 62.2°F. For an up-to-date, detailed weather forecast, visit the National Weather Service Forecast Office at www.wrh.noaa.gov/psr.



Photo is courtesy of SanDiego.org/Joanne DiBona.

job bank

www.toxicology.org/jobbank

Your Employment and Recruitment Resource

Job Seekers—Find Your Next Opportunity

Employers Are Looking for Candidates through the SOT Job Bank

- Every SOT member can utilize the SOT Job Bank as a job seeker **free of charge.**
- SOT members can log in to instantly browse posted positions.
- Post your resume and activate your profile to be seen by potential employers.
- Review the positions posted by major corporations, academic institutions, government agencies, and private research organizations; positions range from junior to senior level.
- Search by geographic location, employer name, salary, and other criteria.
- Find potential matches to your skills and training at any stage of your career.
- Gain access to information that will help you plan your near-term and long-term goals and objectives.
- See which sectors are hiring.
- Stay abreast of new and emerging fields.

Employers—Recruit Highly Qualified Candidates

The SOT Job Bank Is the Ideal Place to Streamline Your Hiring Process

- Join the many employers who rely on this cost-effective and efficient database to assist with their employment needs.
- Find the right candidate from among scientists trained in toxicology and the biological sciences with the expertise and work experience you are looking for.
- Schedule interviews to be held during the SOT Annual Meeting at the on-site Job Bank Center.
- Reserve interview rooms in advance or on-site.
- SOT Affiliates receive a reduced registration rate in appreciation for supporting the Society in achieving its objectives.

The SOT Job Bank is available any time at
www.toxicology.org/jobbank

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Career Resource and Development Services

The Society of Toxicology's Career Resource and Development services include the online Mentor Match program and Job Bank, special Job Bank amenities at the Annual Meeting, career development seminars, and employer ads in SOT's newsletter, the *Communiqué*, which reaches the entire SOT membership and beyond.

Online Mentor Match Program

Be a Mentor, Mentee—or Both!

The Society of Toxicology recognizes the importance of mentoring in the scientific and professional development of its members. The Mentor Match online mentoring program, available only to SOT members, connects mentees with potential mentors, who can provide advice on career path selection, professional development, and life/work balance issues. SOT members are encouraged to share their professional knowledge and experience by serving as mentors for colleagues and for the next generation of toxicologists. The SOT Annual Meeting provides a great opportunity for the mentor and mentee to meet in person. We strongly encourage members of the Society to visit the Mentor Match site and register online as mentors and/or mentees. The Mentor Match program is accessible to all active SOT members by visiting **www.toxicology.org/ai/newcrad/mentormatch.asp.**

SOT Online Job Bank

Free Job Search for SOT Members!

The Society's online Job Bank is easy for candidates and employers alike to access any time, any place via the SOT website at **www.toxicology.org/jobbank**.

This forum links job candidates with employment positions in toxicology and related biological sciences. The SOT Job Bank allows you to:

- Register as an employer or candidate
- Post employment positions
- Search the Job Bank database
- Contact candidates or employers

SOT Members can access the positions posted in the Job Bank and register as job seekers at no charge.

The online Job Bank lists positions available at corporations, academic institutions, government agencies, and private research organizations. Employers rely on this online service to provide them with a robust database of candidates available for career opportunities ranging from junior- to senior-level positions.

The Job Bank helps streamline the process for candidates and employers. Candidates can gain access to a variety of positions suited to their experience, areas of expertise, and desired geographical location. In addition, job seekers can see which sectors are hiring and stay abreast of new and emerging fields.

Employers can attract potential candidates in a targeted and cost-effective manner through this SOT service. By having access to detailed candidate resumes, employers can determine the right match for a specific position and expedite the recruitment process. **SOT Corporate Affiliates receive a reduced rate for position posting in appreciation for supporting the Society in achieving its objectives.**

Job Seeker Registration for SOT Online Job Bank

Candidate Types	Fees
SOT Member	$ 0
Non-SOT Member	$80
Non-SOT Member—Postdoctoral	$45
Non-SOT Member—Student	$30

Employer Registration for SOT Online Job Bank

Employer Types	Fees
SOT Affiliate	$220
Corporation	$440
University or Government	$110
Nonprofit Organization	$110

Annual Meeting On-Site Job Bank Center

Located in the Phoenix Convention Center, the on-site Job Bank Center provides Annual Meeting attendees with access to the SOT Job Bank system and facilitate face-to-face interviews. **All users with current registrations at the time of the Annual Meeting will be permitted to use this service.**

Career Resource and Development Services (Continued)

A bank of computers will be available in the SOT Job Bank Center for last-minute updates to your account information or posting, as well as printers for producing paper copies of candidate profiles and position descriptions. **If you are a candidate attending the Annual Meeting, you should bring multiple copies of your personal resume for interviews.** All candidates and positions should be sought via the online Job Bank.

Employers recognize that the Annual Meeting On-Site Job Bank Center provides a cost-effective and efficient way to interview a distinguished pool of candidates. Employers and candidates may take advantage of the multiple spaces available for interviews in Room 131 on the 100 Level North. Rooms are available to be scheduled in advance of the meeting or on-site, on a first-come, first-served basis.

To ensure privacy for candidates, the SOT Job Bank Center is located away from the scientific sessions. Interview rooms will be fitted with modular hard walls to increase privacy.

Job seekers and employers are encouraged to pre-register before visiting the Job Bank Center. Registration is also available on-site in Room 130.

The center is available during the following hours of operation:

Sunday ..... 1:00 PM–5:00 PM
Monday ..... 9:00 AM–5:00 PM
Tuesday ..... 8:30 AM–5:00 PM
Wednesday ..... 8:30 AM–5:00 PM

Online Job Bank access will be available—as always—through your personal computer and at the Annual Meeting @SOT Center (information on page 54). Access to the online Job Bank in the Job Bank Center is limited to short searches for updates or new information.

For additional information, contact Kevin Merritt at SOT Headquarters: 703.438.3115 ext. 1601 or email: careerresources@toxicology.org.

Job Bank/Mentor Match Lounge

A new addition this year to the SOT Job Bank Center, the Job Bank/Mentor Match Lounge is open to all meeting attendees in Room 131A. The Lounge is a semi-private space that may be used for a variety of purposes, including but not limited to:

- Mentor/Mentee face-to-face meetings
- Pre-interview preparation
- Small component group mentoring activities

The Job Bank/Mentor Match Lounge will be open during SOT Job Bank Center hours Sunday through Wednesday.

SOT's Career Development Program Track

To help you develop your near-term and long-term career pathway, plan on attending the Education-Career Development Sessions scheduled this year that will be of special interest to you. Sessions include the following:

- The Role of Consultants in the Science and Practice of Safety Assessment—Monday, March 24, 12:10 pm to 1:30 pm, Room 126
- Scientific Ethics in Research and Publications—Monday, March 24, 2:00 pm to 4:45 pm, Room 126
- Training and Continuing Education for the "Total Toxicologist": How Do We Optimize Training and Educational Opportunities for Different Job Sectors?—Wednesday, March 26, 12:00 noon to 1:20 pm, Room 126

Employer Ads in SOT *Communiqué*

The Society's newsletter/blog is disseminated each week and offers employers the opportunity to attract a pool of highly qualified candidates. It includes employment position advertisements from corporate, university, governmental, and nonprofit organizations wishing to reach the entire SOT membership and beyond. For more information, contact Marcia Lawson at SOT Headquarters: 703.438.3115 ext. 1446 or email: marcia@toxicology.org.

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Creating a Safer and Healthier World by Advancing the Science of Toxicology

SOT Encourages the Recruitment of Undergraduates to Toxicology

Undergraduates can sign up on the SOT website for special status as Undergraduate Student Affiliates

Participate in the Undergraduate ToXchange community

Special Programs for Undergraduates at the SOT Annual Meeting

These are coordinated by the SOT Education Committee and Committee on Diversity Initiatives.

- **Undergraduate Education Program for students from groups underrepresented in the sciences and their advisors**
- **Undergraduate Education Program for students at institutions that receive low federal funding in science, math, engineering, and technology**
- **Sunday Undergraduate Education Program for any undergraduate student registering for this event with Annual Meeting registration**
- **Pfizer SOT Undergraduate Student Travel Award for outstanding students presenting abstracts**
- **Undergraduate Student Meeting Wednesday, March 26, 4:00 pm–5:00 pm *(all undergraduates welcome)***

Support for toxicology career presentations through the ToxScholar Outreach Grants

Toxicologists receive travel support for visits to campuses to present seminars and meet informally with students to introduce toxicology and discuss career pathways. Funds are also available for international career presentations.

SOT Recognizes Undergraduate Educators

The SOT 2014 Undergraduate Educator Award is presented to William D. Atchison, Michigan State University



Find more information at www.toxicology.org

SOT 2014 Award Recipients

Achievement Award



Matthew J. Campen

Matthew J. Campen, PhD, MSPH, is awarded the 2014 SOT Achievement Award.

Dr. Campen received his PhD degree from the Department of Environmental Science and Engineering at the University of North Carolina at Chapel Hill, School of Public Health in 2000 and has served as an Associate Professor, Pharmaceutical Sciences Department, College of Pharmacy, University of New Mexico, in Albuquerque, New Mexico, since 2009.

Dr. Campen has established methods to assess mode of action of vascular dysfunction and mediator-based injury. He has developed an innovative approach *in vitro* in which he can use rodent blood vessels as a biometric tool to detect and assess mediators that arise in the serum in humans exposed to ozone or PM. His laboratory is unique in its ability to explore acute vascular injury and the pathogenesis of atherosclerotic disease due to chronic air pollution exposure.

Dr. Campen has contributed a great deal to our understanding of how airborne toxicants, such as particulate matter and ozone, cause systemic vascular insult. His most recent work (Channell et al., *ToxSci* 2012; Robertson et al., 2013) has shown that, in both rodents and humans, exposure to inhaled pollutants can induce compositional changes in the blood that leads to inflammatory responses in the systemic vasculature, which is effectively the initiating step in atherosclerosis. Additionally, Dr. Campen has contributed to regulatory efforts by the Environmental Protection Agency, writing sections on cardiovascular health outcomes related to carbon monoxide and particulate matter for recent Integrated Science Assessments.

Dr. Campen has been a member of SOT since 2002. He received the Mary O. Amdur Award for Environmental Inhalation Toxicology in 1999 and the Young Investigator Award from the Inhalation and Respiratory Specialty Section in 2013. He served in the presidential chain for the Mountain West Regional Chapter of SOT from 2005–2007. He was a member of the SOT Disease Prevention Task Force, 2008–2011. In addition, Dr. Campen was President and a Founding Officer of the Cardiovascular Specialty Section, 2010–2012. He currently serves on the Publications Committee (2012–2016, Co-Chair, 2013). Dr. Campen served with distinction as the interim Co-Editor-in-Chief of *Toxicological Sciences* during this past year.

The Society is pleased to present Dr. Campen with the 2014 SOT Achievement Award.

Arnold J. Lehman Award



B. Bhaskar Gollapudi

B. Bhaskar Gollapudi, PhD, is awarded the 2014 SOT Arnold J. Lehman Award.

Dr. Gollapudi received his PhD degree in Biology from Dalhousie University, Canada. He is currently a Senior Managing Scientist in Exponent's Health Sciences Center for Toxicology and Mechanistic Biology.

Dr. Gollapudi specializes in genetic toxicology and chemical carcinogenesis with emphasis on the identification of mode of action and human relevance. Dr. Gollapudi has made many contributions to the field of Genetic Toxicology, including the development of novel approaches for assessing genotoxicity, integration of contemporary molecular biology techniques to understand the mode of genotoxic action, and, more importantly, in leading the push for a paradigm shift in the dogma that there are no thresholds for genotoxic chemicals.

Currently, he is leading an effort under the auspices of International Workshops on Genotoxicity Testing (IWGT) to standardize a new *in vivo* gene mutation assay (Pig-a), which can be easily integrated into any repeat-dose toxicity studies. Dr. Gollapudi has contributed to the area of transgenic animal models for mutagenicity and carcinogenicity assessment and spearheaded their validation in the chemical/agrochemical industry to inform risk assessment. His focus has been on the application of genetically engineered animal models for the identification of mode of action and human relevance of toxicology findings. In recent years, Dr. Gollapudi contributed to the emerging field of epigenetics by critically evaluating its role in product safety assessment and investigating potential markers predictive of adverse toxicological outcomes. He has applied latest technologies in the safety assessment of a diverse portfolio of substances.

Dr. Gollapudi has been a member of the Society of Toxicology since 1998. He has been very active within the Society, having served as Associate Editor of *Toxicological Sciences* from 2005–Present; member of the SOT Scientific Program Committee from 2011–Present; and member of SOT Career Resource and Development (CRAD) Committee from 2007–2010.

The Society is pleased to present Dr. Gollapudi with the 2014 Arnold J. Lehman Award.

SOT 2014 Award Recipients (Continued)

Best Postdoctoral Publication Awards

The Postdoctoral Assembly congratulates these three recipients for their accomplishment. These awards are presented during the Postdoctoral Assembly Luncheon.



Annie Lumen

Annie Lumen, PhD, *National Center for Toxicological Research/US FDA, Jefferson, AK*

Lumen A, Mattie DR, Fisher JW.

Evaluation of Perturbations in Serum Thyroid Hormones during Human Pregnancy Due to Dietary Iodide and Perchlorate Exposure Using a Biologically Based Dose-Response Model

Toxicological Sciences, 2013 Mar;133(2): 320–341.



Gul Mehnaz Mustafa

Gul Mehnaz Mustafa, PhD, *University of Texas Medical Branch, Galveston, TX*

Mustafa GM, Petersen JR, Ju H, Cicalese L, Snyder N, Haidacher SJ, Denner L, Elferink C.

Biomarker Discovery for Early Detection of Hepatocellular Carcinoma (HCC) in Hepatitis C (HCV) Infected Patients

Molecular and Cellular Proteomics, 2013 Dec;12(12):3640-52. doi: 10.1074/mcp. M113.031252. Epub 2013 Sep 5



Phoebe A. Stapleton

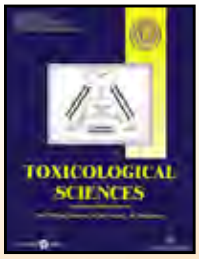
Phoebe A. Stapleton, PhD, *West Virginia University, Morgantown, WV*

Stapleton PA, Minarchick VC, Yi J, Engels K, McBride CR, Nurkiewicz TR.

Maternal Engineered Nanomaterial Exposure and Fetal Microvascular Function: Does the Barker Hypothesis Apply?

American Journal of Obstetrics and Gynecology, 2013 Sep; 209(3): 227.e1–227.e11.

Board of Publications Award for the Best Paper in *Toxicological Sciences*



The Society of Toxicology Board of Publications has selected the paper titled "The Threshold Length for Fiber-Induced Acute Pleural Inflammation: Shedding Light on the Early Events in Asbestos-Induced Mesothelioma" as the best paper published in *Toxicological Sciences* in the past year. The authors are Anja Schinwald, Fiona A. Murphy, Adriele Prina-Mello, Craig A. Poland, Fiona Byrne, Dania Movia, James R. Glass, Janet C. Dickerson, David A. Schultz, Chris E. Jeffree, William MacNee, and Ken Donaldson. The research was conducted at MRC/University of Edinburgh.

Nano-Engineering Answers to Asbestos Toxicity

Many individuals are familiar with the commercials recruiting people into class-action lawsuits for mesothelioma. The scruples of the late-night Saul Goodmans notwithstanding, mesothelioma is a real health concern. Inhalation of asbestos fibers can lead to chronic lung inflammation with devastating results. The malignancies that develop in the parietal pleura impair pulmonary function, cause significant chest pain, and lead to other abdominal difficulties. Thousands of people are diagnosed every year. Many of the sufferers were exposed in the workplace decades ago.

For years we have known that inhalation of the fibers was dangerous. The precautionary steps taken during asbestos abatement are with good reason, but we know less about the process of mesothelioma initiation. What is the role of the fiber dimensions in the disease? Specifically, the field has wanted to ascertain the length at which the fibers become pathogenic. Asbestos products used in industrial nations are a mixed bag with a wide array of fiber lengths. It has been nearly impossible to figure out this threshold length.

In *Toxicological Sciences* (*Tox. Sci.* 2012, 128(2): 461–470), research from the laboratory of Ken Donaldson took advantage of high aspect ratio nanomaterials (HARN), nanowires, nanotubes, and nanorods to shed some light on this problem. The explosive growth of nanotechnology has put an ominous cloud over HARN. There is concern that such materials may lead to future health concerns analogous to the asbestos-mesothelioma connection, but the Donaldson group went right to the silver lining…literally. By synthesizing silver nanowires of precise lengths and then testing them for their ability to cause pleural inflammation, they were able to identify the toxic threshold as 4 microns.

SOT 2014 Award Recipients (Continued)

Additional experiments with carbon nanotubes and nickel fibers confirmed the results; fibers longer than 4 microns induced inflammation, which is a key event in mesothelioma initiation.

While the direct introduction of the materials into the pleural cavity bypasses the normal route of inhalation, we know that long (> 25 micron) asbestos fibers traverse these barriers and end up in this pleural space. It is likely that many of the HARN will possess the same qualities as asbestos. Fortunately, we know the dangers of fiber particles and with HARN we have the ability to control their synthesis.

This study not only provided much needed insight into the initiating events in asbestos-induced mesothelioma, it could also prompt changes in industry practices that can prevent future disease incidence. By identifying the threshold length for inflammation, they have generated a blueprint for safer products. As they suggest in the paper, the engineering process of synthetic nanofibers should follow the green chemistry slogan of "benign-by-design." Ideally, industries involved in the production of HARN will read the findings published here in *ToxSci,* embrace the benign mantra, and work to design and produce products with reduced toxic potential. The field of toxicology will always be open for business, but wouldn't it be nice if things slowed down a bit?

Distinguished Toxicology Scholar Award



Richard E. Peterson

Richard E. Peterson, PhD, is awarded the 2014 SOT Distinguished Toxicology Scholar Award.

Dr. Peterson currently serves as the Charles Melbourne Johnson Distinguished Chair in Pharmaceutical Sciences, School of Pharmacy, University of Wisconsin-Madison. He received his PhD in Pharmacology in 1972 from Marquette University School of Medicine, Milwaukee, Wisconsin.

Dr. Peterson has made a number of seminal contributions in the areas of reproductive and developmental toxicology, ecotoxicology, cardiovascular toxicology, and risk assessment. He helped to develop and apply TEQ approaches to real-world scenarios, resulting in a tremendous positive societal benefit. He determined, for the first time, that lake trout embryos in Lake Ontario were exquisitely sensitive to dioxin and dioxin-like compounds. He predicted that if the environmental contaminant levels declined, the population would thrive. The breeding recovery in Lake Ontario lake trout that has taken place is consistent with the decrease in dioxin and dioxin-like compounds. He observed that the cardiovascular system was the primary target of these compounds in fish embryos. This led his group to establish zebrafish as a model for developmental toxicity. Recent efforts have demonstrated that dioxin impacts the development of the cardiovascular and craniofacial system by altering the expression of well-conserved genes, opening up opportunities for rapid translational studies. His work has led to a paradigm shift to allow the use of aquatic models for human health-related research and has laid a path for scientists to follow. His research on dioxin in fish, birds and mammals demonstrated that embryo and/or fetal exposure is far more susceptible to dioxin toxicity than adult exposure. These findings enhanced recognition of the risk that embryonic exposure to dioxin poses to fish and wildlife populations and to children's health and revealed how little is known about environmental factors, like dioxin, in the fetal basis of adult disease.

The Society is pleased to present Dr. Peterson with the 2014 SOT Distinguished Toxicology Scholar Award.

Distinguished Toxicology Scholar Award Lecture: Investigating the Toxicity of Dioxin, Wednesday, March 26, 12:30 PM–1:20 PM, North Ballroom 120B

Education Award



Herman N. Autrup

Herman N. Autrup, PhD, ATS, is awarded the 2014 SOT Education Award.

Dr. Autrup received his PhD in Experimental Pathology in 1975 from the University of Nairobi, Kenya. He currently serves as a professor in Environmental Medicine at the Institute of Public Health, at University of Aarhus in Denmark.

Dr. Autrup has made impressive contributions to education in the area of environmental health. He established the curriculum in environmental and occupational medicine at Aarhus University in 1990 and currently teaches courses in Human Toxicology, a course in Toxicology and Environmental Health as part of a diploma program offered by Aarhus University, and lectures in environmental and occupational medicine for medical students. These courses are widely recognized in Scandanavia and are well attended each year. Professor Autrup is also editor for the textbook *Miljø-og Arbejdsmedicin* (Environmental and Occupational Medicine) that is used throughout Denmark.

Even more impressive than his teaching efforts within Denmark, Professor Autrup has made a concerted effort to bring education in environmental health to other areas of the world—often where it is most needed. In 1998, he developed a graduate-level course in Environmental and Health Risk Assessment and Management of Toxic Chemicals for the Chulabhorn Research Institute in Bangkok, Thailand.

(continued to next page)

SOT 2014 Award Recipients (Continued)

More recently, he also has developed an Advanced Environmental Health Sciences for the doctoral training program at the Chulabhorn Research Institute. Finally, Professor Autrup has extended his global outreach and has been invited to give lectures and present executive-level short courses on risk assessment and toxicology by professional organizations in Uganda, Zimbabwe, Kenya, Bolivia, Thailand, Vietnam, and Bhutan.

Dr. Autrup serves as an Associate Editor of *Toxicological Sciences* and has been a member of SOT since 1998.

The Society is pleased to present Dr. Autrup with the 2014 Education Award.

Founders Award



John A. Thomas

John A. Thomas, PhD, ATS, FACT, is awarded the 2014 SOT Founders Award.

Dr. Thomas received his PhD from the University of Iowa in 1961. Currently he is a Professor Emeritus in the Department of Pharmacology at the University of Texas Health Science Center, San Antonio, Texas; as well as an Adjunct Professor at the Indiana University School of Medicine, Indiana.

Throughout his distinguished career, Dr. Thomas' contributions to toxicological sciences in many different areas ranging from the safety of nutrients and food ingredients, to pharmaceuticals, diagnostics, health-promoting agents and environmental chemicals, have been highly recognized by his peers and the scientific community. He continues to be an educator and a scientist, and the discipline of toxicology will continue to benefit from his vision and leadership. During his years in academia, he mentored undergraduate and graduate students, postdoctoral fellows and numerous colleagues.

In addition to his several decades as an educator in the United States and internationally, Dr. Thomas has volunteered his expertise as a member of various governmental science boards and advisory committees, on various editorial boards, and has provided his expertise as a consultant to the US FDA, National Academy of Sciences and the Department of Defense. Dr. Thomas is a Past President of the Academy of Toxicological Sciences and also the American College of Toxicology. He is a Fellow in the American College of Toxicology and also the Russian Academy of Medical Sciences.

As a member of SOT since 1971, Dr. Thomas has served as an SOT Continuing Education Lecturer (1983, 1985, and 1988); SOT Councilor (1985–1987); President of two Regional Chapter Executive Committees: Midwest Chapter (1988) and Gulf Coast Chapter (now Lone Star Chapter, 1998); and as the SOT Education Committee Chair (2000). He is the recipient of multiple prestigious awards including the SOT Merit Award (1998) and both the Commissioner's and Distinguished Service Awards from the US FDA.

The Society is pleased to further recognize Dr. Thomas with the 2014 Founders Award.

Global Senior Scholar Exchange Program

The Society of Toxicology Global Senior Scholar Exchange Program aims to increase the global impact of toxicology on human health and safety by working to strengthen toxicology programs and capacity in universities in developing countries. SOT sponsors specific collaborations between selected Senior Scholars from academic institutions in developing countries and SOT Member Hosts from established academic, government, and industry toxicology programs worldwide. The program enables an exchange visit of these scientists to support the developing country university's core toxicology curriculum, increase research collaborations, provide courses or symposia on toxicology topics of high priority in the developing country, and fund the senior scholar to attend the SOT Annual Meeting as an opportunity to present research and establish networking opportunities.



Gonzalo J. Diaz

Gonzalo J. Diaz, DVM, PhD, *National University of Colombia, Bogotá, Colombia*

Dr. Diaz is widely recognized in the field of mycotoxins and plant toxins especially in the Andean region. He is a Professor of Toxicology in the Department of Sciences for Animal Health, College of Veterinary Medicine, at the National University of Colombia. He received his MS and PhD degrees at the University of Guelph, Ontario, Canada, with Colombian sponsorship. His PhD in Toxicology/Nutrition was in the Department of Animal and Poultry Science, Ontario Agricultural College and he continued there with postdoctoral research in the Proteomics Laboratory, Department of Biomedical Sciences. He holds two patents, has authored four books and numerous book chapters and other publications.

The National University of Colombia is the largest academic institution in Colombia, having close to 30,000 students and 8 campuses across the country. The Toxicology Program is under the Department of Toxicology in the College of Medicine, consisting of faculty from different departments and colleges. Currently he serves as the head of the Toxicology Laboratory and director of the Avian Nutrition and Toxicology Research Group. He supervises graduate students in both the Human Toxicology and Veterinary

SOT 2014 Award Recipients (Continued)

Toxicology programs as well as teaches an undergraduate course on Veterinary Toxicology and two graduate courses on Advanced Toxicology and Toxicants of Natural Origin.

The Global Senior Scholar Exchange Program will assist Dr. Diaz in establishing collaboration in the field of mycotoxins as well as strengthening the existing toxicology graduate program. Dr. Diaz is interested in toxins produced during the processing of foods such as acrylamides. This is of particular interest in Colombia, as deep-fried carbohydrate-containing foods are normally consumed and may contain these toxins. Some foods such as yucca (*Manihot sculenta*), plantain, potato, and corn chips are of particular interest in Dr. Diaz's research. Specific areas of collaboration between Dr. Diaz and his host institution will focus on toxicants of natural origin and from food processing. Toxins from plants and from fungi can affect both animals and humans and are strictly regulated in human foods. Investigating fungi requires the existence of laboratories that are highly competent in mycotoxin testing and staffed with experienced toxicologists in this field.



Wilson Kiiza Rumbeiha

Host:
Wilson Kiiza Rumbeiha, DVM, PhD, DABT, DABVT, Iowa State University College of Veterinary Medicine, Ames, IA

Dr. Diaz will be hosted by Wilson K. Rumbeiha under the Interdepartmental Graduate Toxicology Program at Iowa State University (ISU). Dr. Rumbeiha was the Section Head of the Veterinary Diagnostic Toxicology Laboratory, College of Veterinary Medicine, at Michigan State for over 12 years before relocating to ISU, where he now conducts research on neurotoxicology of sulfide gases, cyanotoxins, and applied clinical and diagnostic veterinary toxicology. He also is the president of Toxicologists Without Borders, a humanitarian organization of toxicologists working with other professions to solve toxicology-related issues in developing countries. ISU is an institution with a vibrant interdepartmental toxicology program with an intense curriculum leading to the award of MS and PhD degrees. The Veterinary Toxicology Training Program is one of two active Veterinary Toxicology Residency Training programs in the US. The broader interdepartmental program has core members from departments across campus including Food Safety and Nutrition. Some of the core faculty are engaged in mycotoxin research. Dr. Diaz will have the opportunity to interact with faculty of the Interdepartmental Toxicology Program. Dr. Diaz's program will benefit from learning how the host curriculum is structured to strengthen the existing toxicology graduate program at the National University of Colombia. In addition, Dr. Rumbeiha will travel to Colombia to engage in teaching, curriculum development, and to explore collaborative research projects.



Ebenezer O. Farombi

Ebenezer O. Farombi, PhD, FRSC,
University of Ibadan, Ibadan, Nigeria

Dr. Farombi is currently Dean, Faculty of Basic Medical Sciences, and Director, Molecular Drug Metabolism and Toxicology Research Laboratories, at the University of Ibadan. He received his PhD from the University of Ibadan and completed his postdoctoral training at the University of Liverpool, United Kingdom.

Dr. Farombi's research over the past 20 years has included molecular toxicology, cellular oxidative stress mechanisms in toxicology, reproductive and environmental toxicology, antioxidant redox biochemistry, nutraceuticals as prophylactic agents, and nutrigenomics. He is known nationally and internationally for his contributions on the biochemical and molecular mechanisms of chemoprevention using Kolaviron, a natural antioxidant biflavonoid from the seed of *Garcinia kola* (bitter kola, a widely consumed nut in West Africa). The Department of Biochemistry and its Toxicology program are recognized for their pioneering research on environmental compounds such as aflatoxins, palmotoxins, N-nitroso compounds, perfluidone and aryl alkyl sulfonamide pesticides, glyphosates (a broad-spectrum herbicide), naturally occurring coumarin compounds chalepin, imperatorin and oxypeucadanine isolated from medicinal plants, and polycyclic aromatic hydrocarbons.

An effective and productive researcher and supervisor, he has mentored over 150 graduate students in areas including environmental and reproductive toxicology and chemoprevention. He has authored or co-authored over 130 scientific articles and ten book chapters and recently edited the book *Nutritional Antioxidants in Cancer and Degenerative Diseases* with contributors from Nigeria, Cameroon, USA, Mauritius, South Africa, Japan, and Denmark. Dr. Farombi has received several international fellowships and grants. He is currently Vice President of the Society for Free Radical Research (SFRR)–Africa, and serves as Editor-in-Chief of the journal of the West Africa Society of Toxicology (WASOT).

(continued to next page)

SOT 2014 Award Recipients (Continued)



James E. Klaunig

Host:
James E. Klaunig, PhD, ATS, IATP,
Indiana University, Bloomington, IN

Dr. Klaunig will host Dr. Farombi in the Toxicology Program at Indiana University (IU). Dr. Klaunig is Professor of Environmental Health in the IU School of Public Health at Bloomington. His research for the past 38 years has been devoted to understanding the mechanism of action of toxic agents and the risk of these agents to humans with emphasis in the field of chemically induced cancer and pathology. The Toxicology Program at IU Bloomington is a multidisciplinary program in the Department of Environmental Health with significant collaborations of faculty across the Bloomington campus, including the School of Public and Environmental Affairs. The IU Toxicology Program has a long history of international interactions both at the student and visiting scientist levels as well as through international research collaborations. A major new strategic initiative of Indiana University is further development of international interactions, particularly in Africa.

Some of the expectations for this Global Senior Scholar Exchange include updating graduate training in molecular and biochemical toxicology at the University of Ibadan, developing a mechanism for interchange of graduate and postdoctoral trainees, strengthening collaboration and facilitating technology transfer, and increasing exposure to toxicogenomics and molecular techniques relevant to probing the underlying toxicity mechanisms of environmental chemicals. Ultimately Dr. Farombi would like to increase the capacity of the toxicology program in Ibadan University and the region to produce well-trained toxicologists to address safety, quality, and regulatory standards for drugs, chemicals, and foods. For example, the use of complementary and alternative medicines derived from medicinal plants prepared by traditional doctors is very common in the region and there is a dearth of appropriately trained scientists to investigate the safety profiles of these medicines. This and similar programs are invaluable in helping the region make a dent in the vast need for local expertise.

Leading Edge in Basic Science Award



Vishal S. Vaidya

Vishal S. Vaidya, PhD, is awarded the 2014 SOT Leading Edge in Basic Science Award.

Dr. Vaidya received his PhD in Toxicology from the University of Louisiana in 2003. As an Assistant Professor at Harvard Medical School, he leads the Systems Toxicology Program within the Harvard Program in Therapeutic Sciences and directs the Laboratory of Kidney Toxicology and Regeneration at Brigham and Women's Hospital.

His work in the past five years will change the way textbooks are written and science is conducted with respect to deploying biomarkers for monitoring kidney damage. Dr. Vaidya challenged the fundamental mechanism of kidney toxicity regarding injury assessment and developed, evaluated, and validated novel tools for biomarker detection applicable from bench to bedside, comparing the remarkably consistent sensitivity and specificity of urinary Kim-1 over several other potential biomarkers in a large number of collaborative studies. These studies are going to have a very significant impact on the way we monitor for kidney toxicity in drug development and in the clinic.

The outcome of his work in collaboration with Predictive Safety Testing Consortium is such that Kim-1 is now accepted by US, European, and Japanese Regulatory Agencies as a suitable marker of kidney injury to be used in drug discovery. Currently he is exploring the role of fibrinogen and related molecules and miRNA's as possible mechanistic markers of kidney injury in humans.

In 2011, Dr. Vaidya was awarded the Outstanding New Environmental Scientist Award by NIEHS, and in 2013, he was chosen to be one of six North American scientists to receive the Innovation in Regulatory Science Award from Burroughs Wellcome Fund. Dr. Vaidya has been a member of the Society since 1999. During this time he has served as a member of the CRAD Committee (2006–2009) and Continuing Education Committee (2011–2014). He has also served as Councilor to the SOT Northeast Regional Chapter.

The Society is pleased to present Dr. Vaidya with the 2014 Leading Edge in Basic Science Award.

Leading Edge in Basic Science Award Lecture:
A Two-Pronged Approach to Modernize Toxicology
Tuesday, March 25, 8:00 AM–8:50 AM, North Ballroom 120B

SOT 2014 Award Recipients (Continued)

Merit Award



Jay I. Goodman

Jay I. Goodman, PhD, ATS, is awarded the 2014 SOT Merit Award.

Dr. Goodman is a Professor in the Department of Pharmacology and Toxicology, and Faculty Member, at the Center for Environmental Toxicology, Michigan State University. He is a Diplomate of the American Board of Toxicology and a Fellow of the Academy of Toxicological Sciences. His research interests are focused on discerning epigenetic mechanisms underlying carcinogenesis and other chemical-induced toxicities, and testing the hypothesis that the capacity to maintain the normal epigenetic status is related inversely to susceptibility to carcinogenesis.

Extensively involved in the training of the next generation of toxicologists, scientists, and physicians, Dr. Goodman has served as a mentor and advisor for many PhD students and postdoctoral fellows. He chaired his Department's Graduate Committee from 1979–1997 and served as the Interim Chair of the Department of Pharmacology and Toxicology, Michigan State University from 2001–2002.

Dr. Goodman has received numerous awards for his scientific achievements, including the Distinguished Alumnus Award, Doctoral Program in Pharmacology, University of Michigan; the John Barnes Prize Lecture, British Toxicology Society; and the George H. Scott Memorial Award from the Toxicology Forum, among others. He is also the first American to serve on a EUROTOX committee.

Dr. Goodman has participated actively on numerous SOT Committees and Task Forces including the Awards, Nominating, and Program Committees, and in SOT leadership as President of the Michigan Regional Chapter, SOT Secretary, and SOT President. He has published more than 125 peer reviewed manuscripts, given numerous invited presentations both nationally and internationally, and has participated on review panels and advisory boards for the NIH, NIEHS, NSF, NTP, US EPA, CDC, American Board of Toxicology, Academy of Toxicological Sciences, and the International Life Sciences Institute, Health and Environmental Sciences Institute. He continues to serve on editorial boards and as an advisor on toxicologic issues.

The Society is pleased to present Dr. Goodman with the 2014 Merit Award.

FS **Merit Award Lecture: Toxicology Is Part of the Solution**
Monday, March 24, 12:30 PM–1:20 PM, North Ballroom 120B

SOT | Society of Toxicology

Creating a Safer and Healthier World by Advancing the Science of Toxicology

Do you know a toxicologist who deserves to be recognized?

SOT recognizes distinguished toxicologists and students with many prestigious awards each year. In addition to receiving the specific award, recipients are honored at a special Awards Ceremony at the SOT Annual Meeting and their names are listed in SOT publications. Most award nominations and applications are submitted through a quick online process.

Applications for 2015 national SOT awards are due October 9, 2014.

Regional Chapter Awards, Special Interest Group Awards, and Specialty Section Awards have various deadlines throughout the year.

Visit the Awards and Fellowships section of the website for award descriptions, and additional information, and to make nominations.

www.toxicology.org

SOT 2014 Award Recipients (Continued)

Perry J. Gehring Diversity Student Travel Award

This award is presented during the CDI Reunion.



Pamella B. Tijerina

Pamella B. Tijerina, *New York University School of Medicine, Tuxedo Park, NY*

Abstract Number: 824
Poster Board Number: 151

Abstract Title: Gene Expression Alterations in the Brain Elicited by Inhalation of Silver Nanoparticles

Pfizer SOT Endowment Fund Undergraduate Student Travel Awards



Wesley Cai

Wesley Cai, *University of Arizona, Tucson, AZ*

Abstract Number: 916
Poster Board Number: 315

Abstract Title: Pentoxifylline Induces GSK-3-Independent Proteasomal Degradation of Cyclin D1 and Arrests Renal Cancer Cells in the G1 Phase



Cory V. Gerlach

Cory V. Gerlach, *Oregon State University, Corvallis, OR*

Abstract Number: 212
Poster Board Number: 344

Abstract Title: Mono-Substituted Isopropylated Triaryl Phosphate, a Major Component of Firemaster 550, Is an AhR Agonist That Exhibits AhR-Independent Toxicity



Lukas Gora

Lukas Gora, *Michigan State University, East Lansing, MI*

Abstract Number: 1199
Poster Board Number: 276

Abstract Title: NSAIDs Synergize with Inflammatory Cytokines to Kill Hepatocytes: Implications in Idiosyncratic Reactions



Elaine Kuo

Elaine Kuo, *Stanford University, Stanford, CA*

Abstract Number: 965
Poster Board Number: 411

Abstract Title: Effect of 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) Exposure on the Expression of DNMT Genes during Development in Zebrafish (*Danio rerio*)

Institution Where Research Was Conducted: Woods Hole Oceanographic Institution



Virginia Mitchell

Virginia Mitchell, *University of Utah, Salt Lake City, UT*

Abstract Number: 1241
Poster Board Number: 348

Abstract Title: Differential Activation of Transietn Receptor Potential Ankyrin-1 (TRPA1) by Diesel Exhaust Particulate Materials



Kia Z. Perez-Vale

Kia Z. Perez-Vale, *University of Puerto Rico Arecibo, Arecibo, PR*

Abstract Number: 1370
Poster Board Number: 627

Abstract Title: Effects of Methylmercury (MeHg) on mRNA Expression of Voltage Gated Calcium Channels (VGCCs) in Naïve and Differentiated F11 Cell

Institution Where Research Was Conducted: Michigan State University

SOT 2014 Award Recipients (Continued)



Ricardo Rivera-Soto

Ricardo Rivera-Soto, *University of Puerto Rico Arecibo, Arecibo, PR*

Abstract Number: 1214
Poster Board Number: 314

Abstract Title: The Role of HIF-1 in regulating Cobalt-Induced Cytokine Expression in Alveolar Type II Cells

Institution Where Research Was Conducted: Michigan State University



Bradley Rowland

Bradley Rowland, *McMurray University, Abilene, TX*

Abstract Number: 1999
Poster Board Number: 466

Abstract Title: Impact of Liposome-Induced Complement Activation on Tumor Growth and Angiogenesis

Institution Where Research Was Conducted: Texas Tech University Health Science Center



Kelly Schlotman

Kelly Schlotman, *Purdue University, West Lafayette, IN*

Abstract Number: 204
Poster Board Number: 336

Abstract Title: Deregulation of miRNA-126 Expression in Developing Zebrafish Exposed to the Herbicide Atrazine



Jennette Shoots

Jennette Shoots, *Kenyon College, Gambier, OH*

Abstract Number: 1142
Poster Board Number: 213

Abstract Title: An Aryl Hydrocarbon Receptor from the Salamander *Ambystoma mexicanum* Exhibits Low Responsiveness to 2,3,7,8-Tetrachlorodibenzo-p-Dioxin



Kelly VanDenBerg

Kelly VanDenBerg, *Michigan State University, East Lansing, MI*

Abstract Number: 145
Poster Board Number: 223

Abstract Title: Inhibition of Early T Cell Cytokine Productions by Arsenic Occurs Independently of Nrf2

Public Communications Award



David L. Eaton

David L. Eaton, PhD, ATS, is awarded the 2014 SOT Public Communications Award.

Dr. Eaton is Professor of Environmental and Occupational Health Sciences and Dean and Vice Provost of the Graduate School at the University of Washington (UW), in Seattle, Washington. He also has served as the Director of the NIEHS P30 Center for Ecogenetics and Environmental Health at UW since 1995, and currently Chairs the Research Committee of the Health Effects Institute.

Dr. Eaton has and continues to communicate understanding of toxicology to a broad community of non-toxicologists. He has served as an ambassador of toxicology in many circles and helped to promote the understanding of toxicology and environmental health sciences through the world. In addition to his many scientific contributions, Dr. Eaton was one of the pioneers in recognizing the importance of disseminating the message of toxicology to the public and launched one of the first community outreach and education programs in environmental health in the nation.

Dr. Eaton has authored 115 peer-reviewed publications, 40 book chapters, including the "Principles of Toxicology" chapters in *Casarett and Doull's Toxicology*, Rosenstock and Cullen's *Textbook of Occupational and Environmental Medicine*, and Sipes, McQueen et al.'s *Comprehensive Toxicology* series. Relevant to this award, he has an additional 17 general education articles that target audiences outside of toxicology. He reached out to the legal community providing presentations to law students and has publications directly targeted to lawyers. Some attorneys and judges tout Dr. Eaton's article "Scientific Judgment and Toxic Torts: A Primer in Toxicology for Judges and Lawyers" as the definitive source on adjudicating expert testimony and determining whether acceptable scientific practices have been followed in tort cases.

(continued to next page)

SOT 2014 Award Recipients (Continued)

Dr. Eaton has served on numerous National Academy of Sciences/ National Research Council committees, helping to communicate scientific advice to federal agencies and organizations, often related to controversial areas in toxicology.

Dr. Eaton has been very active in the leadership of the Society of Toxicology. Appropriately he first began as a member on the Committee on Public Communications, from there he served on various committees including the Membership and Finance Committees. He also served as a member on the Board of Publications in addition to many other advisory boards, task forces, and working groups. He received the SOT Achievement Award in 1993. He has the distinction of having served on the Society's Council as SOT Secretary and SOT President. Dr. Eaton was elected, as a fellow of the Academy of Toxicological Sciences in 2000, and as a fellow of the American Association for the Advancement of Science in 2003. He was recently elected to the Washington Academy of Sciences and in 2011 was elected to the Institute of Medicine of the National Academies.

The Society is pleased to present Dr. Eaton with the 2014 Public Communications Award.

SOT/AstraZeneca/SOT Endowment Fund/ IUTOX Travel Awards

Samir Abbès, PhD, *Higher Institute of Biotechnology of Béja, Béja, Tunisia*

Wafa Hassen, PhD, *High Institute of Biotechnology, University of Monastir, Monastir, Tunisia*

Gopabandhu Jena, PhD, *National Institute of Pharmaceutical Education and Research (NIPER), Mohali, India*

Sameeh A. Mansour, PhD, *National Research Centre, Giza, Egypt*

Siti N. Mubarokah, MSc, *Laboratory of Pharmacology, School of Medicine, University of Islam Malang, Malang, Indonesia*

Olufunke E. Ola-Davies, PhD, *University of Ibadan, Ibadan, Nigeria*

Iyekhoetin M. Omoruyi, MSc, *Benson Idahosa University, Benin City, Nigeria*

Ishiaq Omotosho, PhD, *College of Medicine, University of Ibadan, Ibadan, Nigeria*

Muneeb U. Rehman, PhD, *Department of Pharmaceutical Sciences, University of Kashmir, Sprinagar, India*

Yang Song, PhD, *Zhejiang Academy of Medical Sciences, Hangzhou, China*

Jing Zhang, MSc, *Shanxi Medical University, Taiyuan City, China*

Translational Impact Award



Timothy D. Phillips

Timothy D. Phillips, PhD, ATS, is awarded the 2014 SOT Translational Impact Award.

Dr. Phillips is a Distinguished Professor and holds the Reed Endowed Chair in Toxicology at Texas A&M University. Since joining the faculty in 1979, he has published more than 185 papers.

Dr. Phillips' pioneering research in the United States and Africa has established that dioctahedral smectite clays, used as ancient medicine more than 2,000 years ago, can bind and render harmless food-born contaminants such as aflatoxin B_1. These toxins have been strongly associated with disease and death in people, particularly infants and children in developing countries. The findings from his research are directly relevant to high-risk populations (animals and humans) who suffer the consequences as a result of frequent dietary aflatoxin exposure. This work is expected to improve food and feed safety, quality, and security for greater than 4.5 billion people and their animals living in climates conducive to the growth of fungi.

Dr. Phillips' ongoing translational work in the US and Africa has confirmed the safety, palatability and efficacy of field-practical, clay-based strategies. The delivery of a therapeutic dose of clay has been established using common foods and nutritional supplements. Further developments of his research have resulted in wide-ranging implications for the prevention of chemotherapy-induced diarrhea and the treatment of chronic gastrointestinal illness.

Additionally, Dr. Phillips teaches future toxicologists on the subjects of Food Toxicology, Scientific Ethics, and Chemical Hazard Assessment. He is an internationally recognized leader in Food Safety and Toxicology, and has served on panels for numerous International Organizations and Academic Institutions worldwide.

Dr. Phillips has been a member of SOT for over 30 years. During this time he has served on the SOT Awards and Nominating Committees. He was also the President of the Lone Star Regional Chapter (formerly known as the Gulf Coast Chapter).

The Society is pleased to present Dr. Phillips with the 2014 SOT Translational Impact Award.

Translational Impact Award Lecture: Ancient Medicine for the Mitigation of Aflatoxin Exposures, Wednesday, March 26, 4:30 PM–5:20 PM, North Ballroom 120B

SOT 2014 Award Recipients (Continued)

Undergraduate Educator Award



William D. Atchison

William D. Atchison, PhD, is awarded the SOT 2014 Undergraduate Educator Award.

Dr. Atchison received his PhD in Pharmacology from the University of Wisconsin, School of Pharmacy. Currently he serves as an Associate Dean for Research and Graduate Studies, College of Veterinary Medicine, Michigan State University. There he received the MSU Distinguished Faculty Award, which is among the highest honors bestowed upon faculty members. Dr. Atchison's research has resulted in over 95 articles in peer-reviewed literature and 14 book chapters. During his tenure, he has trained 17 PhD students, 6 graduate students, and more than 100 undergraduate students.

Dr. Atchison's passion is to provide opportunities for undergraduate education in the biomedical sciences coupled with research experiences aimed at underrepresented minority students. In collaboration with the University of Puerto Rico, he developed and established an NIH, NINDS-funded R25-Diversity Education grant that provides research experiences for Hispanic undergraduates, since 2005. Dr. Atchison makes annual visits to campuses of the University of Puerto Rico to recruit/interview students for the program. Many of these students have gone on to participate in SOT's Annual Meeting by presenting their research. To date, 40 undergraduate students have received training through this program. Similarly, Dr. Atchison has received funding from Michigan State University's College of Veterinary Medicine to initiate a smaller program for preveterinary students.

Dr. Atchison has been a very active member of SOT. He has served on the SOT Program Committee and as Secretary/Treasurer and then President of the Neurotoxicology Specialty Section. He is a recipient of the SOT AstraZeneca Traveling Lectureship, and at the SOT Annual Meeting, Dr. Atchison contributes yearly to the Undergraduate Education Program that serves underrepresented minority students.

The Society is proud to present Dr. Atchison with the 2014 SOT Undergraduate Educator Award.

Sponsored 2014 Award Recipients

Colgate-Palmolive Awards for Student Research Training in Alternative Methods



Laura E. Armstrong

Laura E. Armstrong, BS, *University of Rhode Island, Kingston, RI*

Project Title: Isolation and Culture of Mature Adipocytes to Study Induction of the Antioxidant Response in Dieting and Obesity

Host Institution: Boston Nutrition Obesity Research Center—Adipose Biology and Nutrient Metabolism Core (ABM), Boston University—Department of Medicine, Boston, MA



Christin M. Grabinski

Christin M. Grabinski, MS, *US Air Force Research Laboratory, Dayton, OH*

Project Title: Design and Validation of Nanomaterial Aerosol Exposure Techniques for *In Vitro* Toxicology

Host Institution: University of Pennsylvania, Philadelphia, PA

Colgate-Palmolive Grants for Alternative Research



Patricia E. Ganey

Patricia E. Ganey, PhD, *Michigan State University, East Lansing, MI*

Project Title: Prediction of Idiosyncratic, Drug-Induced Liver Injury from Drug-Cytokine Interaction *In Vitro*



Matthew Troese

Matthew Troese, PhD, *MB Research Laboratories, Spinnerstown, PA*

Project Title: *In Vitro* Coculture Assay for Identification of Dermal Sensitizers

Colgate-Palmolive Postdoctoral Fellowship Award in *In Vitro* Toxicology



Jonathan H. Shannahan

Jonathan H. Shannahan, PhD, *University of Colorado, Aurora, CO*

Project Title: *In Vitro* Assessment of Vascular Nanoparticle-Induced Toxicity: Implications for a Susceptible Human Subpopulation

Syngenta Fellowship Award in Human Health Applications of New Technologies



Dilshan S. Harischandra

Dilshan S. Harischandra, BS, *Iowa State University, Ames, IA*

Project Title: Role of the Environmental Neurotoxicant Manganse in Cell-to-Cell Transmission on α-Synuclein in Parkinson's Disease

SOT 2014 Honorary Memberships

Honorary membership is awarded by the Society of Toxicology to people who are not members of the Society in recognition of outstanding and sustained contributions to advancing the science and field of toxicology. The 2014 SOT Honorary members are Dr. John B. Gurdon and Dr. Donald E. Ingber.



John B. Gurdon

Sir John B. Gurdon, Kt, DPhil, DSc, FRS, was a zoology undergraduate at Oxford University and returned, after a postdoc year at CalTech, as Lecturer in Embryology. In 1971, he joined the MRC molecular biology lab in Cambridge to continue his work on amphibian developmental biology. In 1983 as John Humphrey Plummer Professor of Cell Biology at the University of Cambridge, he co-founded a research institute of developmental and cancer biology (now named the Gurdon Institute) with Professor Laskey, acting as Chairman until 2002. His career has concentrated on nuclear transplantation in the frog and experiments to discover the value of mRNA microinjection, mechanisms of response to morphogen gradients, and recently, mechanisms of nuclear reprogramming by Xenopus oocytes and eggs. Master of Magdalene College Cambridge from 1995–2002, he has received various recognitions, including the 2009 Lasker Award for Basic Medical Science and the Nobel Prize for Physiology or Medicine in 2012.

The Society is pleased to recognize Dr. Gurdon as a 2014 SOT Honorary member.



Donald E. Ingber

Donald E. Ingber, MD, PhD, is the Founding Director of the Wyss Institute for Biologically Inspired Engineering, Harvard University; the Judah Folkman Professor of Vascular Biology at Harvard Medical School and Boston Children's Hospital; and Professor of Bioengineering at the Harvard School of Engineering and Applied Sciences. He also leads the Biomimetic Microsystems platform in which microfabrication techniques from the computer industry are used to build functional circuits with living cells as components. Dr. Ingber has authored more than 325 publications and 70 patents and has received numerous honors including the Holst Medal, Pritzker Award from the Biomedical Engineering Society, Rous-Whipple Award from the American Society for Investigative Pathology, Lifetime Achievement Award from the Society of *In Vitro* Biology, the Department of Defense Breast Cancer Innovator Award and SOT Leading Edge in Basic Science Award.

The Society is pleased to recognize Dr. Ingber as a 2014 SOT Honorary member.

SOT | Society of Toxicology
ENDOWMENT
Investing in the Future ...

SOCIETY OF TOXICOLOGY
ENDOWMENT FUND

Building for the Future

Contributors to the SOT Endowment Fund are helping to build for the future of toxicology through long-term financial support that generates critical resources to enable the Society to fulfill its mission, now and in the years to come.

Since its inception in 2006, contributors to the Endowment Fund have:

- Underwritten more than 140 Student Travel Awards to the SOT Annual Meeting.
- Recognized colleagues who have made enormous contributions to improving human health and the environment.
- Created funds that acknowledge the contributions of toxicology educators to undergraduate students in toxicology and toxicology-related areas.
- Strengthened global participation by providing financial support to scientists from developing countries to attend the SOT Annual Meeting.



We are thrilled to announce that the Society of Toxicology is matching 1 to 1 dollar contributions to all established funds. The 1 to 1 dollar match is effective for contributions made between July 1, 2013 until June 30, 2016 or until the $400,000 in matching funds has been expended.

Please help SOT continue to make a difference by becoming a contributor to the SOT Endowment Fund. For more information, go to www.toxicology.org/endowment.

The Endowment Fund Contribution Donor Form can be found on page 435.

SOT Endowment Fund 2013 Award Recipients

SOT Endowment Fund—Helping the Society Fulfill Its Mission to Build for the Future

The SOT Endowment Fund is a family of funds comprising the Education Fund, Global Activities Fund, SOT Priorities Fund, and the 34 Named Funds.

In the SOT 2012–2013 fiscal year, the Education, Global Activities, SOT Strategic Priorities Society Funds, and the Named Endowment Funds, the Harry W. Hays Memorial Fund and the Sheldon D. Murphy Memorial Fund, contributed funding to SOT initiatives that addressed one or more of the Society's strategic objectives.

The Founders Award

The Founders Award was conferred on William Alfred Suk. This award was established for his leadership in advancing the role of toxicology.

Undergraduate Educator Award

The Undergraduate Educator Award was conferred on Sidharatha Ray. This award was established to recognize efforts to increase the pipeline of future toxicologists and was funded through the SOT Endowment Education Fund.

SOT/AstraZeneca/SOT Endowment Fund/IUTOX Travel Awards

As part of our effort to strengthen global participation, the Global Activities Fund and the SOT Strategic Priorities Fund provided financial assistance for scientists from countries where toxicology is underrepresented to assist with travel to the Annual Meeting. The principal goal of these fellowships is to increase capacity in the developing country through strengthening toxicology within the university and the country. The International Union of Toxicology (IUTOX) administered the award review process. Historical listing of recipients can be found on page 428.

Student Travel to SOT Annual Meeting

Hundreds of students, many of them now leaders in SOT, attended their first SOT meeting by winning a Student Travel Award funded by the Society. From the early days of SOT to the present, it has been understood that such participation is essential to "building for the future of toxicology." For the 2013 Annual Meeting, the SOT Priorities and Education Society Endowment Funds provided funding for an additional ten students, who might not otherwise have found funding, to participate in the Annual Meeting.

SOT Endowment Fund 2013 Award Recipients

Mary Amdur Student Award Fund



Desinia Johnson, BS, *University of North Carolina at Chapel Hill, Chapel Hill, NC*

Young Soo Choi Student Scholarship Award Fund



Narae Lee, MS, PhD candidate, *Tulane University, New Orleans, LA*

Laxman S. Desai Association of Scientists of Indian Origin Student Award Fund



Hemantkumar Chavan, MS, *University of Kansas Medical Center, Kansas City, KS*



Amy Sharma, PhD, *University of Toronto, Toronto, ON, Canada*

John Doull Student Award Fund



Rachel Church, PhD, *The Hamner Institutes for Health Sciences, Research Triangle Park, NC*

Education Fund: Undergraduate Educator Award



Sidhartha Ray, PhD, FACN, *Manchester University College of Pharmacy, Fort Wayne, IN*

Founders Fund



William Alfred Suk, BS, MS, PhD, MPH, *NIEHS-NIH, Research Triangle Park, NC*

SOT | Society of Toxicology ENDOWMENT Investing in the Future ...

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SOT Endowment Fund 2013 Award Recipients (Continued)

Perry J. Gehring Biological Modeling Student Award Fund



Zhoumeng Lin, MB, *University of Georgia, Athens, GA*

Perry J. Gehring Diversity Student Travel Award Fund



Alexandra Colón-Rodríguez, *Michigan State University, East Lansing, MI*

Perry J. Gehring Risk Assessment Student Award Fund



Virunya Bhat, MS, *University of California, Riverside, CA*



Merrie Mosedale, PhD, *The Hamner Institutes, Research Triangle Park, NC*

Health and Environmental Science Institute Immunotoxicology Young Investigator Student Award Fund



Mili Mandal, PhD, *Rutgers University, Piscataway, NJ*

Vera W. Hudson and Elizabeth K. Weisburger Scholarship Fund



Weimin Chen, PhD candidate, *Michigan State University, East Lansing, MI*

Frank C. Lu Food Safety Student Award Fund



Brenna Flannery, BSc, *Michigan State University, East Lansing, MI*

Jean Lu Student Scholarship Award Fund



Weimin Chen, PhD candidate, *Michigan State University, East Lansing, MI*

Roger O. McClellan Student Award Fund



Vinicius Carreira, DVM, DACVP, *University of Cincinnati, Cincinnati, OH*

Harihara Mehendale Association of Scientists of Indian Origin Student Award Fund



Mansi Krishan, PhD, *University of Cincinnati, Cincinnati, OH*



Tejas Lahoti, PhD, *The Pennsylvania State University, University Park, PA*

SOT | Society of Toxicology ENDOWMENT *Investing in the Future ...*

To become an Endowment Fund contributor and enjoy the fulfillment of knowing that you are helping to build for the future of toxicology, please visit the Endowment Fund Section of the SOT website. You can make a difference in the lives of toxicologists by your generous support. Add your name to the Honor Roll of Contributors.

SOT Endowment Fund 2013 Award Recipients (Continued)

Molecular Biology Student Award Fund



Aditya Joshi, PhD, *University of Texas Medical Branch, Galveston, TX*



Tejas Lahoti, PhD, *The Pennsylvania State University, University Park, PA*



Xiao Pan, BS, *Michigan State University, East Lansing, MI*



Ley Cody Smith, MS, *University of Florida, Gainesville, FL*



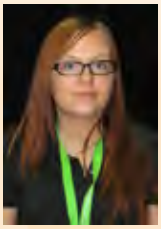
Durga Tripathi, PhD, *Institute of Biosciences & Technology, Texas A&M Health Science Center, Houston, TX*

(not pictured)
Vincent Ramirez, BS, *University of Connecticut, Storrs, CT*

Emil A. Pfitzer Drug Discovery Student Award Fund



Rachel Church, PhD, *The Hamner Institutes of Health Sciences, Research Triangle Park, NC*



Monica Langley, BS, *Iowa State University, Ames, IA*



Mili Mandal, PhD, *Rutgers University, Piscataway, NJ*



Kazuhisa Miyakawa, DVM, *Michigan State University, East Lansing, MI*



Arya Sobhakumari, DVM, *University of Iowa, Iowa City, IA*



Durga Tripathi, PhD, *Institute of Biosciences & Technology, Texas A&M Health Science Center, Houston, TX*

Gabriel L. Plaa Education Award Fund



John Clarke, PhD, *University of Arizona, Tucson, AZ*

Regulatory and Safety Evaluation Student Award Fund



Merrie Mosedale, PhD, *The Hamner Institutes, Research Triangle Park, NC*

Renal Toxicology Fellowship Award Fund



Greg Landry, BS, *Louisiana State University Health Sciences Center, Shreveport, LA*

Robert J. Rubin Student Travel Award Fund



Xiao Pan, BS, *Michigan State University, East Lansing, MI*

(continued to next page)

Please refer to the mobile event app or event website or these sections of this Program*—Daily Pocket Calendar, Event Listing, or Program Description for date, time, and location of the Committee on Diversity Initiatives, Regional Chapter, Specialty Interest Group, and Specialty Section receptions, where the Endowment Fund Awards are conferred.*

SOT Endowment Fund 2013 Award Recipients (Continued)

Dharm V. Singh Association of Scientists of Indian Origin Student Award Fund



Amrendra Ajay, PhD, *Harvard Medical School, Boston, MA*



Aditya Joshi, PhD, *University of Texas Medical Branch, Galveston, TX*

Dharm V. Singh Carcinogenesis Award Fund



Chad Walesky, MS, *University of Kansas Medical Center, Kansas City, KS*

Carl C. Smith Student Mechanisms Award Fund



Daniel Ferreira, BS, *University of Connecticut, Storrs, CT*



David Klein, BS, *University of Arizona, Tucson, AZ*



Tongde Wu, MS, *University of Arizona, Tucson, AZ*

Notes

SOT | Society of Toxicology

Creating a Safer and Healthier World
by Advancing the Science of Toxicology

Interested in the SOT Component Groups?

The component groups serve to bring together toxicologists of different specialities, backgrounds, and local regions to advance the science of toxicology.



SOT Regional Chapters, Special Interest Groups, and Specialty Sections will have a special, dedicated space for their poster displays adjacent to the SOT Pavilion in the ToxExpo Exhibit Hall.

Meet the component group leaders!
Stop by for a special "Representative Attended" poster session from 11:45 am–12:15 pm on Monday, March 24, to learn more about all of the different groups within the Society of Toxicology. Plus, come to the SOT Pavilion (Booth 1623) each day from 3:00 pm–4:00 pm to "Meet the Leaders"of YOUR component group.





Social Events

All activities will be held at the Phoenix Convention Center in the North Building unless otherwise noted.

Regional Chapter, Special Interest Group, and Specialty Section Receptions

Monday, March 24–Wednesday, March 26, Various Times

Many of the SOT RC, SIG, and SS meet during the SOT Annual Meeting. All current and prospective RC, SIG, and SS members are encouraged to attend. More information can be found on pages 92–94.

SATURDAY

Committee on Diversity Initiatives (CDI) Reunion and 25th Anniversary Celebration of the Undergraduate Education Program for Minority Students

Saturday, March 22, 7:00 PM to 9:00 PM
Room 105 West

Hosted by:
Committee on Diversity Initiatives

This year the CDI Reunion, hosted by the Committee on Diversity Initiatives, will celebrate the 25th anniversary of the Undergraduate Education Program for Minority Students. This event will provide a great opportunity for former students, mentors, speakers, and, most especially, the organizers of the program to gather and celebrate its accomplishments—accomplishments made possible through the commitment and dedication of its volunteers. As always, 2014 program participants will be on hand for you to meet and greet, and the Gehring Diversity Student Travel Award will be presented. Dessert, coffee, and tea will be served. Start the 53rd Annual Meeting with this special 25th anniversary celebration of your contributions to the Undergraduate Education Program for Minority Students.

SUNDAY

NIEHS-SOT Memorandum of Understanding Signing Ceremony

Sunday, March 23, 3:00 PM to 3:30 PM
North Ballroom 120D

The Director of the National Institute of Environmental Health Sciences (NIEHS) Linda S. Birnbaum and the President of the Society of Toxicology (SOT) Lois D. Lehman-McKeeman, 2013–2014 SOT Council, and invited dignitaries will attend a Memorandum of Understanding (MOU) signing ceremony to further strengthen the partnership between these organizations committed to human health and disease prevention. This MOU sets forth a framework for an alliance between NIEHS and SOT to foster their shared dedication to providing global leadership toward creating a safer and healthier world by increasing the impact of the science of toxicology. Dr. Birnbaum, 2004–2005 SOT President, also is the Director of the National Toxicology Program. This ceremony will commemorate the joint efforts of NIEHS and SOT in initiatives addressing research and training now and in the future.

Awards Ceremony

Sunday, March 23, 4:45 PM to 6:30 PM
North Ballroom 120D
(All Attendees Welcome)

Pre-Ceremony Musical Performance



Performed by Nicole Pesce
4:45 PM to 5:15 PM

Nicole Pesce will perform for SOT Annual Meeting attendees prior to the SOT Awards Ceremony. This pianist is currently nominated by *Arizona Foothills Magazine's* "Best of 2014 Award" for "Best Local Band/Musician." She has been recognized as one of the "top ten musicians to hear in Phoenix" by the *Arizona Republic* and plays everything from Chopin to Lady Gaga. Nicole is currently the resident pianist at the Ritz-Carlton Hotel, Phoenix, and has enticed fans both old and new there for over 14 years. Find additional event details on the SOT 2014 Annual Meeting website at **www.toxicology.org/ai/meet/am2014/socialevents.asp**.

Awards Ceremony

5:15 PM to 6:30 PM

SOT will recognize our 2014 Honorary Members, SOT award recipients, and our sponsored award recipients at the SOT Awards Ceremony (pages 69–81) following the pre-Ceremony musical performance. Please refer to the Awards and Fellowships section of the SOT website for complete details.

Welcome Reception

Sunday, March 23, 6:30 PM to 7:30 PM
Hall 1
(All Attendees Welcome)

Continue the celebration by attending the Welcome Reception following the Awards Ceremony. The Welcome Reception is a great opportunity to renew old friendships and to make new acquaintances. Please join the Society in this kick-off of the Annual Meeting.

Social Events (Continued)

25-Year (or More) Member Reception

Sunday, March 23, 7:00 PM to 8:00 PM
North Ballroom Foyer

If you have been a member of the Society of Toxicology for 25 years or more, please join your colleagues to celebrate and recognize the scientists who established the Society. Be sure to wear your anniversary pin.

MONDAY

SOT Mentoring Breakfast

Monday, March 24, 6:15 AM to 7:45 AM
Room 221A
(Reservation Required)

Sponsor(s):
Career Resource and Development (CRAD) Committee
Graduate Student Leadership Committee (GSLC)
Postdoctoral Assembly (PDA)

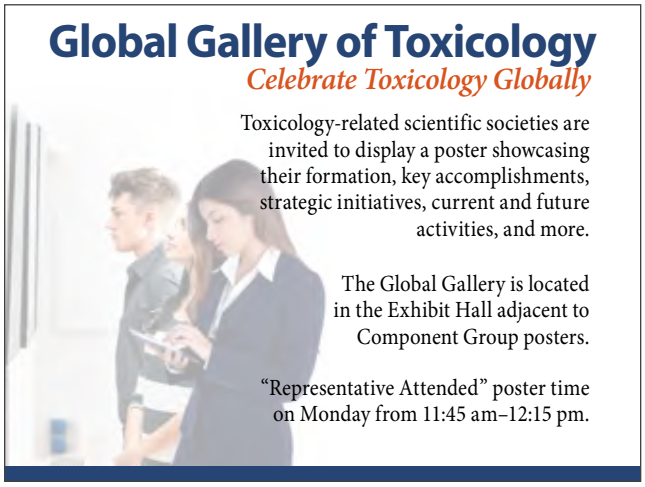
The Society of Toxicology recognizes the importance of mentoring in the scientific and professional development of its members. As such, the Career Resource and Development Committee, in conjunction with the Postdoctoral Assembly and Graduate Student Leadership Committee, is pleased to host the third annual Mentoring Breakfast.

The Mentoring Breakfast is for SOT members at any career stage—from graduate students and postdoctoral fellows to senior scientists— who are seeking a mentor. Brief presentations will be followed by small group discussions led by trained facilitators. Facilitators will work to match participants with compatible mentors.

Global Collaboration Coffee

Monday, March 24, 9:30 AM to 11:30 AM
Room 127C

The SOT Council invites all Global Gallery participants and representatives of societies from around the world to the Global Collaboration Coffee. Other invitees include SOT Special Interest Group leaders, IUTOX Executive Committee members, SOT Councilors, 2014 Global Senior Scholars and their hosts, and the 2014 recipients of the SOT/AstraZeneca/SOT Endowment Fund/IUTOX Travel Award. This event offers an opportunity for scientific leaders to meet, discuss important issues facing the global toxicology community, and lay the groundwork for future collaborations. Following the coffee, attendees will adjourn together to the Global Gallery where presenters will share their posters in a "Representative Attended" poster time from 11:45 am–12:15 pm. See the Global Gallery information that follows for more details.



Global Gallery of Toxicology

Monday, March 24, 11:45 am–12:15 pm
Representative Attended
Exhibit Hall *(Across from SOT Pavilion, Booth 1623)*

Toxicology Societies from around the world are invited to participate in the Global Gallery of Toxicology. Now in its fourth year, posters showcasing the history, key accomplishments, strategic initiatives, and current and future activities of these sister societies will be prominently displayed during the meeting. In addition, the 2014 Global Gallery poster session has a "Representative Attended" poster time of 11:45 am–12:15 pm on Monday, March 24. The goal of SOT and of all these societies is to further the science of toxicology to advance human health and disease prevention. The Global Gallery posters are located in the Exhibit Hall across from SOT Pavilion, Booth 1623. List of participates can be found on page 164. For more information, please contact Susan Simmons at susan@toxicology.org.



Social Events (Continued)

In Vitro Toxicology Lecture and Luncheon for Students: Searching for Reliable Replacement Models in Topical Toxicology—Focus on Skin and Eye Toxicity

Monday, March 24, 12:00 Noon to 1:20 PM
Room 301C West
(Ticket Required)

Chairperson(s): *Teresa Leavens, Education Committee Chair, Cary, NC, and Emily G. Notch, Dartmouth Medical School, Hanover, NH.*

Lecturer: *Helena Kandarova, MatTek Corp. and MatTek* In Vitro *Life Science Laboratories Bratislava, Slovakia.*

Supported by an Educational Grant from the Colgate-Palmolive Company

Host:
Education Committee

The goal of the *In Vitro* Toxicology Lecture series is to feature important research using *in vitro* and alternative techniques to study basic mechanisms and to illustrate how these test methods benefit animal welfare by refining, reducing, and replacing animal use whenever it is feasible. Undergraduates, graduate students, postdoctoral scholars, and recipients of Colgate-Palmolive awards are among the guests at the *In Vitro* Toxicology Lecture and Luncheon. Students and postdoctoral scholars register for $10 (nonrefundable) via the Annual Meeting registration. Dr. Kandarova will present an introduction to the topic and then participants will discuss related questions and report responses. More information can be found on page 95.

Government Liaison Groups Collaboration Meeting

Monday, March 24, 3:15 PM to 4:45 PM
Room 127C

SOT 2013–2014 Officers and Councilors and officials from various federal government agencies will meet jointly to discuss mutual areas of interest.

TUESDAY

Past Presidents' 5k Fun Run/Walk

Tuesday, March 25, 6:30 AM
Steele Indian School Park

Supporters Include:
ReproCELL

Join us for the fourth annual Past Presidents' 5k Fun Run/Walk! Open to anyone interested, this event is a great opportunity to meet old friends and make new friends in a casual environment, joining SOT's Past Presidents in showing support for SOT. Whether you're in it for some friendly competition or would rather take a leisurely stroll, this event's emphasis is on camaraderie and will bring together runners and walkers of all levels and paces. Come join us—we look forward to seeing you!

To register, visit the Special Events section of the SOT Annual Meeting website. Registration is only $18, and all proceeds will go towards the SOT Endowment Fund.

Postdoctoral Assembly Luncheon

Tuesday, March 25, 12:00 Noon to 1:15 PM
Room 105B West
(Ticket Required)

Chairperson(s): *Ebany Martinez-Finlay, The MIND Research Network, Albuquerque, NM.*

Sponsor(s):
Postdoctoral Assembly

Amidst the hubbub of Annual Meeting events, the Postdoctoral Assembly (PDA) Luncheon is time for postdocs to relax, celebrate achievements, and have fun! All postdocs are invited to this casual luncheon organized by the PDA Executive Board. The Best Postdoctoral Publication Award will be given to three postdoctoral scholars, and postdoc award recipients from SOT Regional Chapters, Special Interest Groups, and Specialty Sections will be recognized. The PDA Board will review the year's accomplishments and share their vision for the future. Newly elected Executive Board members for 2014–2015 will be introduced. Door prizes are always a big hit and add to the fun of the event. Postdocs should reserve a ticket for $10 when they register for the Annual Meeting. Guests should plan to arrive by 12:30 pm in order to be served.

Social Events (Continued)

SOT Annual Business Meeting

Tuesday, March 25, 4:30 PM to 6:00 PM
North Ballroom 120D
(All SOT Members Invited)

Members are invited and encouraged to attend the 53rd SOT Annual Business Meeting. The agenda includes discussion of plans for 2014–2015, a financial summary, and a review of the 2013–2014 activities.

Tox ShowDown

Tuesday, March 25, 7:30 PM to 9:00 PM
Sheraton Hotel, Encanto Room

Chairperson(s): *Sue M. Ford, St. John's University, Jamaica, NY, and Phil Wexler, NIH-NLM, Bethesda, MD.*

Sponsor(s):
Graduate Student Leadership Committee

Join the Graduate Student Leadership Committee (GSLC) and your peers Tuesday night for the *Tox ShowDown*, an engaging quiz game patterned off of the popular long-running show *It's Academic*. Three teams—The Endocrine Distruptors, the Free Radicals, and the Toxic Metabolites—will compete at answering questions concerning toxicology not only in its historical and scientific context, but as it relates to the arts, and culture. Supported by GSLC, this event is sure to be both informative and entertaining and a perfect way to celebrate the halfway point of the SOT Annual Meeting. The game will provide attendees with a break, albeit still toxicologically-oriented, from the more technical business of the meeting.

WEDNESDAY

Undergraduate Educator Network Meeting

Wednesday, March 26, 2:15 PM to 3:30 PM
Room 226A

Chairperson(s): *Mindy F. Reynolds, Washington College, Chestertown, MD.*

Sponsor(s):
Education Committee
Undergraduate Education Subcommittee

The Education Committee and the Undergraduate Education Subcommittee are hosting the Undergraduate Educator Network Meeting for all faculty involved in the teaching of toxicology to undergraduates, as well as those interested in including toxicology at the undergraduate level. Hear an update on initiatives for undergraduate faculty, provide your input, and network.

SOT Has Gone Global!

To increase the impact of toxicology in addressing global health and environmental issues, SOT has adopted a series of initiatives to enrich toxicology resources for scientists throughout the world, especially in developing countries.

SOT Global Initiatives include:

Reduced Dues and Membership Dues Assistance for Scientists from Developing Countries*—Dues for Full and Associate membership are $50; dues for Student and Postdoctoral Scholars are $10. This includes membership in one Special Interest Group and one Specialty Section. Full and Associate members qualify for free online access to SOT's journal, *Toxicological Sciences*. Student and Postdoctoral members may qualify for a dues waiver through SOT's Membership Dues Assistance Program.

Free Continuing Education (CEd-Tox)—Online courses for member scientists from developing countries.* Some courses offer English transcriptions with video start-stop capability.

Global Senior Scholar Exchange Program (GSSEP)—Each year the program funds exchange visits between two Senior Scholar toxicologists from developing countries and hosts working in academia, government, or industry from established toxicology programs.

International ToxScholar Outreach Grants—SOT senior toxicologists visit campuses in developing countries through support from this grant.

Global Initiatives Funds—Offers a total of $20,000 annually to support collaborative projects between SOT Regional Chapters (RC), Specialty Sections (SS), and Special Interest Groups (SIG) and other international organizations. Bring your ideas!

Global Travel Fellowships/Awards—Assists senior scientists from countries where toxicology is underrepresented with travel funding to attend the SOT Annual Meeting. Graduate Student Travel Awards also are available for funding travel to the SOT Annual Meeting.

For more information on SOT Global Initiatives, go to **www.toxicology.org/ms/globalfunds**.
Or visit the SOT Poster in the Global Gallery

* 2011 World Bank list of countries with GNI <$8,000.

RC, SIG, and SS Receptions

(as of February 4)

Regional Chapter Meetings, Luncheons, and Receptions

Monday, March 24, through Wednesday, March 26, Various Times

Many of the SOT Regional Chapters meet during the SOT Annual Meeting. All current and prospective Regional Chapter members are encouraged to attend.

Event	Date	Time	Location	Room
Allegheny-Erie and Michigan Regional Chapter Joint Reception	Monday, Mar 24	5:00 PM to 6:30 PM	Hyatt	Sundance
Central States Regional Chapter Meeting	Monday, Mar 24	7:00 AM to 8:00 AM	Renaissance	Marston Café
Lone Star and South Central Regional Chapter Joint Mixer	Tuesday, Mar 25	5:30 PM to 7:30 PM	Tom's Tavern	
Michigan and Allegheny-Erie Regional Chapter Joint Reception	Monday, Mar 24	5:00 PM to 6:30 PM	Hyatt	Sundance
Mid-Atlantic Regional Chapter Luncheon	Monday, Mar 24	12:00 Noon to 2:00 PM	Majerle's Sports Grill	
Northeast Regional Chapter Student Luncheon	Tuesday, Mar 25	12:00 Noon to 1:30 PM	Convention Center	Room 222A
Northern California Regional Chapter Reception	Tuesday, Mar 25	7:00 PM to 10:00 PM	The Arrogant Butcher	
Ohio Valley Regional Chapter Reception	Tuesday, Mar 25	4:15 PM to 6:30 PM	Copper Blues	
Pacific Northwest Regional Chapter Reception	Monday, Mar 24	5:30 PM to 7:30 PM	Tom's Tavern	
Regional Chapter Collaboration and Communications Committee Meeting	Wednesday, Mar 26	12:00 Noon to 1:30 PM	Convention Center	Room 228A
Southeastern Regional Chapter Reception	Monday, Mar 24	6:00 PM to 8:00 PM	Canyon Cafe	

Special Interest Group Meetings, Luncheons, and Receptions

Monday, March 24, through Wednesday, March 26, Various Times

Each of the six Special Interest Groups will hold a meeting/reception during the 2014 SOT Annual Meeting. All current and prospective SOT Special Interest Group members are encouraged to attend.

Event	Date	Time	Location	Room
American Association of Chinese in Toxicology and Korean Toxicologists Association in America Special Interest Groups' Career Workshop	Tuesday, Mar 25	7:30 AM to 9:00 AM	Convention Center	Room 227
American Association of Chinese in Toxicology Special Interest Group Distinguished Chinese Toxicologist Lectureship Award Seminar: Career vs. Business—Personal Experience in the US and China, Lecturer: *Dr. Lijie Fu, SNBL USA Ltd.*	Monday, Mar 24	5:00 PM to 6:00 PM	Sheraton	Phoenix Ballroom A
American Association of Chinese in Toxicology Special Interest Group Meeting/Reception	Monday, Mar 24	6:00 PM to 9:00 PM	Sheraton	Phoenix Ballroom A
Association of Scientists of Indian Origin Special Interest Group Lunch and Learn	Tuesday, Mar 25	12:00 Noon to 1:30 PM	Sheraton	Camelback
Association of Scientists of Indian Origin Special Interest Group Meeting/Reception	Monday, Mar 24	7:00 PM to 9:00 PM	Sheraton	Deer Valley
Hispanic Organization of Toxicologists Special Interest Group Reception and Awards Ceremony	Tuesday, Mar 25	6:30 PM to 9:30 PM	Arizona Latino Arts and Culture Center	
Korean Toxicologists Association in America Meeting/Reception	Monday, Mar 24	6:00 PM to 8:00 PM	Thai'd Up Restaurant	
Special Interest Group Collaboration Group Meeting	Monday, Mar 24	12:00 Noon to 1:30 PM	Convention Center	Room 226A

(continued to next page)

RC, SIG, and SS Receptions (Continued)

(as of February 4)

Special Interest Group Meetings, Luncheons, and Receptions (Continued)

Event	Date	Time	Location	Room
Special Interest Group: Global Hot Topics Event—Air Pollution around the World: Global Concerns *(See Page 200 or Mobile Event App for Details)*	Monday, Mar 24	5:00 PM to 6:30 PM	Convention Center	Room 221A
Toxicologists of African Origin Special Interest Group Executive Board Meeting	Monday, Mar 24	5:00 PM to 6:00 PM	Sheraton	Coronado
Toxicologists of African Origin Special Interest Group Reception	Monday, Mar 24	6:30 PM to 8:00 PM	Sheraton	Ahwatukee
Women in Toxicology Special Interest Group Executive Committee Meeting	Monday, Mar 24	5:00 PM to 6:00 PM	Sheraton	Arcadia
Women in Toxicology Special Interest Group Meeting/Reception	Tuesday, Mar 25	6:00 PM to 8:00 PM	Sheraton	Phoenix D

Specialty Section Meetings, Luncheons, and Receptions

Monday, March 24, through Wednesday, March 26, Various Times

Each of the 27 SOT Specialty Sections will hold either a luncheon or early evening meeting/reception during the SOT 2014 Annual Meeting. All current and prospective SOT Specialty Section members are encouraged to attend.

Event	Date	Time	Location	Room
Biological Modeling Specialty Section Meeting/Reception	Tuesday, Mar 25	6:00 PM to 7:30 PM	Sheraton	Valley of the Sun B
Biotechnology Specialty Section Meeting/Reception	Tuesday, Mar 25	6:00 PM to 7:30 PM	Sheraton	Maryvale
Carcinogenesis Specialty Section Meeting/Reception	Monday, Mar 24	6:00 PM to 7:30 PM	Sheraton	Encanto A
Carcinogenesis Specialty Section Officers Meeting	Monday, Mar 24	12:00 Noon to 1:30 PM	Convention Center	Room 230
Cardiovascular Toxicology Specialty Section Meeting/Reception	Tuesday, Mar 25	6:00 PM to 7:30 PM	Sheraton	Valley of the Sun C
Comparative and Veterinary Specialty Section Meeting/Luncheon	Wednesday, Mar 26	12:00 Noon to 1:30 PM	Convention Center	Room 221A
Clinical and Translational Toxicology Specialty Section Meeting/Reception	Tuesday, Mar 25	6:00 PM to 7:30 PM	Sheraton	Laveen B
Clinical and Translational Toxicology Specialty Section Officers Meeting	Monday, Mar 24	6:30 AM to 8:00 AM	Convention Center	Room 222
Dermal Toxicology Specialty Section Meeting/Reception	Tuesday, Mar 25	6:00 PM to 7:30 PM	Sheraton	Valley of the Sun A
Dermal Toxicology Specialty Section Officers Meeting	Monday, Mar 24	6:30 AM to 8:00 AM	Convention Center	Room 222
Drug Discovery Toxicology Specialty Section Meeting/Reception	Wednesday, Mar 26	6:00 PM to 7:30 PM	Sheraton	Maryvale
Ethical, Legal, and Social Issues Specialty Section Meeting/Luncheon	Tuesday, Mar 25	12:00 Noon to 1:30 PM	Convention Center	Room 231A
Food Safety Specialty Section Meeting/Reception	Monday, Mar 24	6:00 PM to 7:30 PM	Sheraton	Valley of the Sun D
Food Safety Specialty Section Officers Meeting	Monday, Mar 24	6:30 AM to 8:00 AM	Convention Center	Room 222
Immunotoxicology Specialty Section Meeting/Reception	Wednesday, Mar 26	6:00 PM to 7:30 PM	Sheraton	Valley of the Sun C
In Vitro and Alternative Methods Specialty Section Meeting/Luncheon	Wednesday, Mar 26	12:00 Noon to 1:30 PM	Convention Center	Room 222
In Vitro and Alternative Methods Specialty Section Officers Meeting	Monday, Mar 24	6:30 AM to 8:00 AM	Convention Center	Room 222
Inhalation and Respiratory Specialty Section Meeting/Reception	Monday, Mar 24	6:00 PM to 7:30 PM	Sheraton	Valley of the Sun C

(continued to next page)



RC, SIG, and SS Receptions (Continued)

(as of February 4)

Specialty Section Meetings, Luncheons, and Receptions (Continued)

Event	Date	Time	Location	Room
Inhalation and Respiratory Specialty Section Technical Meeting	Wednesday, Mar 26	8:00 AM to 9:30 AM	Convention Center	Room 230
Mechanisms Specialty Section Meeting/Reception	Wednesday, Mar 26	6:00 PM to 7:30 PM	Sheraton	Valley of the Sun A
Mechanisms Specialty Section Officers Meeting	Monday, Mar 24	6:30 AM to 8:00 AM	Convention Center	Room 222
Medical Device Specialty Section Meeting/Reception	Monday, Mar 24	6:00 PM to 7:30 PM	Sheraton	Paradise Valley
Metals Specialty Section Meeting/Reception	Monday, Mar 24	6:00 PM to 7:30 PM	Sheraton	Encanto B
Mixtures Specialty Section Meeting/Reception	Wednesday, Mar 26	6:00 PM to 7:30 PM	Sheraton	Estrella
Molecular and Systems Biology Specialty Section Meeting/Reception	Monday, Mar 24	6:00 PM to 7:30 PM	Sheraton	Alhambra
Molecular and Systems Biology Specialty Section Officers Meeting	Monday, Mar 24	6:30 AM to 8:00 AM	Convention Center	Room 221C
Nanotoxicology Specialty Section Meeting/Reception	Monday, Mar 24	6:00 PM to 7:30 PM	Sheraton	Valley of the Sun A
Neurotoxicology Specialty Section Meeting/Reception	Wednesday, Mar 26	6:00 PM to 7:30 PM	Sheraton	Valley of the Sun D
Neurotoxicology Specialty Section Officers Meeting	Monday, Mar 24	6:30 AM to 8:00 AM	Convention Center	Room 222
Occupational and Public Health Specialty Section Meeting/Luncheon	Monday, Mar 24	12:00 Noon to 1:30 PM	Convention Center	Room 222
Ocular Toxicology Specialty Section Meeting/Reception	Tuesday, Mar 25	6:00 PM to 7:30 PM	Sheraton	Ahwatukee
Regulatory and Safety Evaluation Specialty Section Meeting/Reception	Wednesday, Mar 26	6:00 PM to 7:30 PM	Sheraton	Encanto
Regulatory and Safety Evaluation Specialty Section Officers Meeting	Monday, Mar 24	6:30 AM to 8:00 AM	Convention Center	Room 222
Reproductive and Developmental Toxicology Specialty Section Meeting/Reception	Tuesday, Mar 25	6:00 PM to 7:30 PM	Sheraton	Valley of the Sun D
Reproductive and Developmental Toxicology Specialty Section Officers Meeting	Monday, Mar 24	7:00 AM to 8:30 AM	Convention Center	Room 226A
Risk Assessment Specialty Section Meeting/Reception	Wednesday, Mar 26	6:00 PM to 7:30 PM	Sheraton	Phoenix Ballroom D
Risk Assessment Specialty Section Officers Meeting	Monday, Mar 24	6:30 AM to 8:00 AM	Convention Center	Room 222
Specialty Section Collaboration and Communication Group Meeting	Monday, Mar 24	2:00 PM to 3:00 PM	Convention Center	Room 226C
Stem Cells Specialty Section Meeting/Reception	Tuesday, Mar 25	6:00 PM to 7:30 PM	Sheraton	Estrella
Toxicologic and Exploratory Pathology Specialty Section Meeting/Luncheon	Monday, Mar 24	12:00 Noon to 1:30 PM	Convention Center	Room 227
Toxicologic and Exploratory Pathology Specialty Section Officers Meeting	Monday, Mar 24	6:30 AM to 7:30 AM	Convention Center	Room 228A

Student and Postdoctoral Scholar Events

Chat with an Expert

Monday, March 24, to Thursday, March 27
Time Varies by Group
(Meet at the Chat with an Expert Poster in Registration Area)

Sponsor(s):
Graduate Student Leadership Committee

The purpose of Chat with an Expert is to provide students and postdoctoral scholars with the opportunity to network informally with well-established toxicologists while obtaining career advice and meeting new colleagues. Small groups are composed by matching research interests of students and postdocs with those of an expert. The expert for each group identifies a time and a place for an informal meeting (such as a coffee house or inexpensive restaurant), and the group meets at the Chat with an Expert poster before proceeding to the meeting location. This program also includes opportunities for postdocs to host informal meetings with graduate students. Sign up via the Graduate Student section of the SOT website. Details for each group meeting will be sent to participants in advance of the meeting.

Student/Postdoctoral Scholar Mixer

Sunday, March 23, 7:30 PM to 9:00 PM
Room 301C West
(Ticket Required)

Sponsor(s):
Graduate Student Leadership Committee

The Graduate Student Leadership Committee hosts this opportunity for students and postdoctoral scholars to gather, to meet new colleagues, and to re-establish relationships in an informal atmosphere at the beginning of the meeting. Tickets are obtained at no cost by registering for this event on the Annual Meeting Registration Form and are required. Complimentary refreshments and a cash bar will be available.

Poster Tours for Trainees

Monday, March 24, to Wednesday, March 26
Meet at Poster Tour Sign in Registration Area

Sponsor(s):
Postdoctoral Assembly

Poster Tours for Trainees was a well-received event at the 2013 Annual Meeting, and graduate students and postdoctoral scientists will again have the opportunity participate in a one-hour guided poster tour with an expert toxicologist. Participation will allow trainees to take part in critical evaluation of cutting-edge toxicology methods and research findings, network with an expert, and perhaps even build a mentoring relationship with a senior toxicologist. Options to sign up for specific times will be provided on the Annual Meeting website.

Trainee Discussion with Plenary Lecturer: Dr. Gurdon

Monday, March 24, 10:00 AM to 11:00 AM
Room 103A West
(Ticket Required; SOT Student and Postdoctoral members only, limited seating)

Chairperson(s): *Ebany Martinez-Finlay, The MIND Research Network, Albuquerque, NM.*

Lecturer: *Sir John B. Gurdon, Wellcome Trust/Cancer Research UK, Gurdon Institute, University of Cambridge, Cambridge, United Kingdom.*

Dr. Gurdon will meet informally for discussion with graduate students and postdoctoral scholars after his Plenary Opening Lecture (*see page 130*). Room occupancy is limited, and participants register for a ticket with their Annual Meeting registration.

In Vitro Toxicology Lecture and Luncheon for Students: Searching for Reliable Replacement Models in Topical Toxicology—Focus on Skin and Eye Toxicity

Monday, March 24, 12:00 Noon to 1:20 PM
Room 301C West
(Ticket Required)

Chairperson(s): *Teresa Leavens, Education Committee Chair, NC, and Emily G. Notch, Dartmouth Medical School, Hanover, NH.*



Lecturer: *Helena Kandarova, MatTek Corp. and MatTek* In Vitro *Life Science Laboratories, Bratislava, Slovakia.*

Supported by an Educational Grant from the Colgate-Palmolive Company

Host:
Education Committee

The goal of the *In Vitro* Toxicology Lecture series is to feature important research using *in vitro* and alternative techniques to study basic mechanisms and to illustrate how these test methods benefit animal welfare by refining, reducing, and replacing animal use whenever it is feasible. Undergraduate students, graduate students, postdoctoral scholars, and recipients of Colgate-Palmolive awards are among the guests at the *In Vitro* Toxicology Lecture and Luncheon. Students and postdoctoral scholars register for $10 (nonrefundable) via the Annual Meeting registration.

Remember to bring your mobile devices to the event. Dr. Kandarova will present an introduction to the topic and then challenge discussion among participants. This year's format will include electronic audience polling and activities based on the review of data related to the development and validation of *in vitro* models.

(continued to next page)

Student and Postdoctoral Scholar Events (Continued)

Lord Kelvin is reputed to have said: "If you can't make a model of it, you do not understand it." This maxim can be applied perfectly to the situation of searching for replacement models (i.e., models where animals are not required) in toxicology. The more we know about *in vivo* models used to study toxicity effects and the more we know about biological pathways and events that lead to their modulations and perturbations, the more precisely we can create reliable *in vitro* and *in silico* replacement systems to predict human toxicity. However, development of reliable and relevant replacement models is, in many cases, hindered by technical difficulties or lack of knowledge and, at later stages, by lack of scientific and regulatory willingness to accept the novel systems.

Major progress in development and broad acceptance of replacement models have been achieved in the area of topical toxicity. Since 2004, the Organization for Economic Cooperation and Development (OECD) Test Guidelines Program has adopted three methods for skin irritation and four methods for skin corrosion testing that are based on the use of *in vitro* reconstructed human skin models. Reconstructed cornea models are being validated for general prediction of eye irritation, and they now are accepted by the US Environmental Protection Agency (EPA) for antimicrobial pesticides toxicity testing. This success was achieved because these *in vitro* systems are able to mimic with great fidelity many responses of native human tissues to toxic stimuli. However, one key problem in establishing reliable and relevant replacement models and methods is linked to the *in vivo* animal models used currently in regulatory toxicology. There are questions of their prediction accuracy for human responses despite acceptance of the animal models as the "gold standards" for human skin and eye toxicity. Animal models correctly predict only 40–70% of human responses depending on the toxicity endpoint. Therefore, *in vitro* assays calibrated against over-predictive or under-predictive *in vivo* animal assays may be challenged for their prediction accuracy. Ongoing scientific dialogue between the developers and users of these systems and involvement of the regulators at early stages of the validation processes makes the scientific as well as regulatory acceptance significantly easier.

Postdoctoral Assembly Luncheon

Tuesday, March 25, 12:00 Noon to 1:15 PM
Room 105B West
(Ticket Required)

Chairperson(s): *Ebany Martinez-Finlay, The MIND Research Network, Albuquerque, NM*

Sponsor(s):
Postdoctoral Assembly

Amidst the hubbub of Annual Meeting events, the Postdoctoral Assembly (PDA) Luncheon is time for postdocs to relax, celebrate achievements, and have fun! All postdocs are invited to this casual luncheon organized by the PDA Executive Board. The Best Postdoctoral Publication Award will be given to three postdoctoral scholars, and postdoc award recipients from SOT Regional Chapters, Special Interest Groups, and Specialty Sections will be recognized. The PDA Board will review the year's accomplishments and share their vision for the future. Newly elected Executive Board members for 2014–2015 will be introduced. Door prizes are always a big hit and add to the fun of the event. Postdocs should reserve a ticket for $10 when they register for the Annual Meeting. Guests should plan to arrive by 12:30 pm in order to be served.

Trainee Discussion with Medical Research Council (MRC) Lecturer: Dr. Scott

Wednesday, March 26, 10:00 AM to 11:00 AM
Room 103A West
(Ticket Required; SOT Student and Postdoctoral members only, limited seating)

Chairperson(s): *Colleen E. McLoughlin, CDC-NIOSH, Morgantown, WV.*

Lecturer: *John D. Scott, Howard Hughes Medical Institute, Department of Pharmacology, University of Washington, Seattle, WA.*

Dr. Scott will meet informally for discussion with graduate students and postdoctoral scholars after his Keynote MRC Lecture (*see page 271*). Room occupancy is limited, and participants register for a ticket with their Annual Meeting registration.

Student and Postdoctoral Scholar Events (Continued)

Undergraduate Student Meeting

Wednesday, March 26, 4:00 PM to 5:00 PM
Room 226A

Chairperson(s): *Mindy F. Reynolds, Washington College, Chestertown, MD, and Catherine West, University of Southern Maine, Portland, ME.*

Sponsor(s):
Education Committee
Undergraduate Education Subcommittee

All undergraduate students attending the meeting are encouraged to participate in an informal meeting to talk about shared interests related to career paths in toxicology, discuss undergraduate tox-related activities, clubs, and majors on their campuses, and to provide feedback to the Undergraduate Education Subcommittee.





Education Outreach Activities and Events

High School Student and Teacher Workshop: Lotions Are Not Potions: Toxicology and Product Safety

Saturday, March 22, 8:30 AM to 4:15 PM
Health Science Education Building, University of Arizona, Phoenix Biomedical Campus

Chairperson(s): *Angie Slitt, University of Rhode Island, Providence, RI, K–12 Subcommittee Chair, Todd Camenisch, University of Arizona, Tucson, AZ, and Virunya Bhat, NSF International, Encinitas, CA.*

Sponsor(s):
Education Committee
K–12 Subcommittee
Mountain West Regional Chapter

How do toxicologists make our homes and world safer? Arizona high school teachers and students will find out when the Society of Toxicology hosts them during an all-day workshop at the University of Arizona Phoenix Biomedical Campus. Activities will include featured presentations by SOT members and a consumer products safety activity that includes making lotion and exploration of safety evaluation data. Students and teachers will meet informally at lunch with toxicologists to learn about the exciting and diverse options for careers in toxicology.

8:00 AM–8:30 AM	**Registration.**
9:00 AM–9:15 AM	**Welcoming Remarks.** Angela S. Slitt, Chair, SOT K–12 Subcommittee, University of Rhode Island, Providence, RI, and Todd Camenisch, Event Chair, University of Arizona, Phoenix, AZ.
9:15 AM–9:45 AM	**Speaker Introduction.** Virunya Bhat, NSF International, Encinitas, CA.
	Keynote Presentation: Small Matter Things: Why Small Things Matter. Martin A. Philbert, Dean, School of Public Health, University of Michigan, Ann Arbor, MI.
9:45 AM–10:00 AM	**Break**
10:00 AM–11:45 AM	**Teacher Workshop.** ***Facilitator:*** Marie Bourgeios, University of South Florida, Tampa, FL.
	Student Workshop. ***Group A:*** **Lotions Are Not Potions Lab.** ***Facilitator:*** Virunya Bhat, NSF International, San Diego, CA. ***Group B:*** **From Micelles to My Cells: Data Analysis and Exposure Assessment Principles.** ***Facilitator:*** Caroline English, NSF International, Santa Cruz, CA.
12:00 Noon–1:30 PM	**Lunch with SOT Mentors.**
1:30 PM–3:00 PM	**Teacher Workshop.** ***Facilitator:*** Marie Bourgeios, University of South Florida, Tampa, FL.
	Student Workshop. ***Group A:*** **From Micelles to My Cells: Data Analysis and Exposure Assessment Principles.** ***Facilitator:*** Caroline English, NSF International, Santa Cruz, CA. ***Group B:*** **Lotions Are Not Potions Lab.** ***Facilitator:*** Virunya Bhat, NSF International, San Diego, CA.
3:00 PM–3:10 PM	**Break.**
3:10 PM–3:40 PM	***Career Presentations.*** **Making the World a Healthier Place: How to Become a Toxicologist.** Nathan Cherrington, University of Arizona, Tucson, AZ.
3:40 PM–4:00 PM	**From Summer Intern to Graduate Student: My Experience.** Jamie Moscovitz, Rutgers University, Rutgers, NJ.
4:00 PM–4:15 PM	**Concluding Remarks.** Angela S. Slitt, Chair, SOT K–12 Subcommittee, University of Rhode Island, Providence, RI.

For more information please visit the Special Events section of the Annual Meeting website.

Public Outreach Event: All About Poisons—Toxicology Revealed!

Saturday, March 22, from 10:30 AM to 12:30 PM
Burton Barr Central Library, 1221 North Central Avenue, Phoenix

Chairperson(s): *Phil Wexler, National Library of Medicine, Bethesda, MD.*

Sponsor(s):
Society of Toxicology

This is a free event for the public. Speakers will cover the history and science of toxicology, venomous animals and poisonous plants, and lead poisoning, with a focus on concerns in Arizona but of relevance to all.

Education Outreach Activities and Events (Continued)

Undergraduate Education Program

Saturday, March 22 to Monday, March 24
Convention Center

Chairperson(s): *Ofelia A. Olivero, National Institutes of Health–National Cancer Center, Bethesda, MD.*

Sponsor(s):
Committee for Diversity Initiatives (CDI)

For schedule details go to **www.toxicology.org/ai/meet/am2014/edout.asp** or contact CDI Staff Liaison Susan D. Simmons at susan@toxicology.org.

Saturday, March 22

Open to CDI Travel Awardees in the Undergraduate Education Program.

5:00 PM–5:15 PM	**Registration for Undergraduate Students.**
5:15 PM–6:55 PM	**Opening Program.**
7:00 PM–9:00 PM	**CDI Reunion, Celebrating the 25th Anniversary of the Undergraduate Education Program for Minority Students.** Open to anyone previously involved with CDI programs.
	Recognition of the 2014 Perry J. Gehring Diversity Student Travel Award Recipient.

Sunday, March 23

Open to CDI Travel Awardees in the Undergraduate Education Program. and undergraduates who register through Annual Meeting registration.

8:00 AM–8:15 AM	**Welcome from SOT President.** Lois D. Lehman-McKeeman
8:15 AM–10:40 AM	**Toxicology Lectures—Introduction to Toxicology.** Antonio Baines, 1993 Program Alumni, North Carolina Central University, Durham, NC
	Use of Smoked and Smokeless Tobacco Products during Pregnancy Causes Lifelong Health Consequences to the Offspring. Judith T. Zelikoff, New York University School of Medicine, Tuxedo Park, NY.
	Optical Nanotechnologies for Imaging of Cellular Processes and Neurosurgery. Martin A. Philbert, University of Michigan, Ann Arbor, MI.
10:45 AM–12:00 Noon	**Interactive Presentation.**
12:15 PM–12:55 PM	**Education Program: Luncheon and Networking.**
1:00 PM–1:55 PM	**Breakout Sessions—** *For Students:* What Is Graduate School and What Can I Expect: How to Get into Graduate School *For Advisors:* Tips for Advising Prospective Graduate Students
2:00 PM–2:45 PM	**Sunday Career Session—** **My Career: A Winding Road.** Linda S. Birnbaum, Director, NIEHS, Research Triangle Park, NC.
3:00 PM–5:00 PM	**Open Time with Academic Toxicology Program Directors and Internship Sponsors.** *Featuring representatives from academic programs across the country looking for talented students interested in advanced studies in the biomedical sciences.*

Monday, March 24

Open to CDI Travel Awardees in the Undergraduate Education Program.

8:00 AM–9:00 AM	**Plenary Lecture.**
9:10 AM–11:30 AM	**Students Attend Planned Annual Meeting Sessions with Their SOT Mentors and Small Groups.**
12:00 Noon–1:20 PM	***In Vitro* Lecture and Luncheon for Students.**
1:20 PM–3:30 PM	**Students Attend Planned Annual Meeting Sessions with Their SOT Mentors and Small Groups.**
3:45 PM–4:45 PM	**Monday Career Session—***Small group sessions in which students meet with scientists from academia, government, and industry to investigate the variety of career paths available in toxicology.*
4:15 PM–5:15 PM	**Program Recognitions and Wrap-Up.**

High School Poster Exposition

Tuesday, March 25, 10:30 AM to 2:30 PM
Exhibit Hall *(Across from SOT Pavilion, Booth 1623)*

Chairperson(s): *Daniel E. Arrieta, Chevron Phillips Chemical Company LP, The Woodlands, TX.*

Sponsor(s):
Education Committee
K–12 Subcommittee

High school student research related to toxicology is featured in an area across from SOT Pavilion. This display recognizes student effort and provides the high school students who have engaged in research with scientific meeting experience. Meeting attendees are invited to drop by to visit with these outstanding potential future toxicologists. More information is available on the SOT Annual Meeting website.



Satellite Meetings

Updates on 21st Century Toxicology Activities and Related Efforts: Invited Presentations and Open Microphone

Thursday, March 27, 12:30 PM to 4:00 PM
Sheraton Phoenix Hotel, Deer Valley Room

Presented by: *Center for Alternatives to Animal Testing & Human Toxicology Project Consortium*

Purpose of the Meeting: For the past several years the Johns Hopkins Center for Alternatives to Animal Testing (CAAT) has organized informal satellite meetings in conjunction with the SOT annual conferences. The Human Toxicology Project Consortium (HTPC) joined CAAT in co-organizing these satellite meetings beginning in 2012. The meetings have focused on "21st century toxicology" involving *in vitro*, pathway-based approaches, and, more recently, have also addressed evidence-based toxicology, that is, attempts to encourage the use of systematic reviews and related approaches from evidence-based medicine into toxicology. The purpose of these satellite meetings has been to provide a forum for interested stakeholders to update each other on their research and other efforts related to these topics. The meetings have been largely informal in the sense that anyone could give a presentation, provided that it was germane and brief.

As in 2013, CAAT/HTPC plan to "seed" the 2014 satellite meeting with a limited number of invited presentations, but leave ample time for additional presentations and discussion during an "open microphone" segment.

The draft program is as follows (indicates confirmed):*

12:30	**Box lunch and Welcome.** Thomas Hartung,* *Johns Hopkins University* **ToxCast Update.** David Dix, *US Environmental Protection Agency* **Tox21 Update.** Raymond Tice, *US National Institute of Environmental Health Science* **Hamner TT21C-Related Activity Update.** Melvin Andersen, *Hamner Institutes for Biomedical Sciences* **The Center for Alternatives to Animal Testing's TT21C-Related Activity Update.** Thomas Hartung,* *Johns Hopkins* **Human Toxicology Project Consortium Update.** Catherine Willett,* *Humane Society of the United States* **Evidence-based Toxicology Update.** Martin Stephens,* *Johns Hopkins*
2:30	**Open microphone for additional presentations and discussion.**
4:00	**Adjourn.**

Workshop on Translational Biomarkers of Neurotoxicity

Thursday, March 27, 12:00 Noon to 5:00 PM
Sheraton Phoenix Hotel, Laveen Room

Presented by: *The ILSI-Health and Environmental Sciences Institute*

Purpose of Meeting: The workshop will seek input from the broader scientific community of neurotoxicology experts on the draft process, as outlined by the HESI Subcommittee, to be used to identify biomarkers of neurotoxicity, and assess and validate these biomarkers. Participants will develop a white paper based on the recommendations from the workshop. The workshop will include lunch.

Confirmed speakers:

Current Screens for TMT and MPTP.
Ruth Roberts, *AstraZeneca*

Selection of Parameters and Endpoints.
Merle Paule, *US EPA*

Adverse Effects on the CNS.
David Calligaro, *Eli Lilly and Co.*

All participants are encouraged to actively participate in idea generation and discussion.

Registration is required. Please email your name, preferred email address, telephone number, and organization/affiliation to Jennifer Pierson (jpierson@hesiglobal.org) by February 15, 2014.

SOT | Contemporary Concepts in Toxicology

Advance the Science of Toxicology

Consider Organizing a Contemporary Concepts in Toxicology Meeting

Contemporary Concepts in Toxicology (CCT) Meetings expand the opportunities and forums for members to engage in the exchange of ideas and information relevant to toxicology. CCT Meetings are one- to two-day focused, open registration, scientific meetings in contemporary and rapidly progressing areas of toxicological sciences. CCT Meetings also can be held as webinars.

If you think that your research area could be enhanced by thought leader collaboration or that public health and safety could be improved by disseminating your research findings more broadly, please consider organizing an SOT CCT Meeting. The CCT Conference Committee and the SOT Headquarters staff are prepared to help move your meeting forward.

The Society will underwrite all the liabilities of the CCT Meeting (up to the $25,000 in seed money) with the expectation that the meeting at least break even financially. Profit sharing for SOT component groups is available. For more information about CCT Meetings, please visit the SOT website at **www.toxicology.org/cct**.

CCT Meetings focus on a wide range of topics and future CCTs address the following:

- Toxicity of Biodiesel and Other Biofuels: Implication for Global Use—September 4–5, 2014, Edinburgh, Scotland



In order to sustain the quality standards of the Society, only meetings in which SOT maintains scientific and administrative control will be considered. Meetings developed and administered by other organizations may be eligible for endorsement by the Society of Toxicology.

www.toxicology.org

CEd-Tox

SOT | Society of Toxicology

Creating a Safer and Healthier World
by Advancing the Science of Toxicology

Continuing Education Courses Online

CEd-Tox offers a great, low-cost way to expand your professional development or stay current in the field of toxicology, all year long. A diversity of CE courses from SOT Annual Meetings are now available, including slide presentations and audio; English-language transcriptions are available for select courses. SOT Graduate Student and Postdoctoral members receive complimentary access to all courses!

Whether to update your knowledge or to explore a new area, we invite you to register for CEd-Tox. For more information or to register, visit the SOT website: **www.toxicology.org/cedtox.asp**.

Cardiovascular Toxicology:
- Current Nonclinical Strategies and Methods for Evaluating Drug-Induced Cardiovascular Toxicity (2011)

Dermal Toxicology:
- Cutaneous Toxicity: *In Vitro* Methods for Toxicity and Safety Evaluation (2012)

Drug Discovery Toxicology:
- Mitochondrial Toxicity: Animal Models and Screening Methods in Drug Development (2010)
- The What, When, and How of Nonclinical Support for an IND Submission (2013)

Food Safety:
- Weighing in on Nutrition—Essential Concepts for Toxicologists (2013)

Immunotoxicology:
- Drug Hypersensitivity Reactions: Risk Assessment and Management (2011)
- Overview and Application of the WHO-IPCS Harmonized Guidance for Immunotoxicity Risk Assessment for Chemicals (2012)

***In Vitro* and Alternative Methods:**
- Alternative *In Vitro* Tox Testing for the 21st Century (2012)
- Quantitative *In Vitro* to *In Vivo* Extrapolation: The Essential Element of *In Vitro* Assay-Based Risk Assessment (2011)

Inhalation and Respiratory:
- Comparative Biology of the Lung (2010)

Metals:
- Toxic Effects of Metals (2013)

Mixtures:
- Toxicology and Risk Assessment of Chemical Mixtures (2011)

Molecular Biology:
- Applications of Computational Systems Biology for Toxicology (2011)
- Epigenetics in Toxicology: Introduction, Mechanistic Understanding and Applications in Safety Assessment (2011)

Nanotoxicology:
- Evaluating Toxicity of Engineered Nanomaterials: Issues with Conventional Toxicology Approaches (2011)

Neurotoxicology:
- The Practice and Implementation of Neural Stem Cell-Based Approaches to Neurotoxicology (2013)

Occupational and Public Health:
- Protecting Human Health: Use of Toxicological and Epidemiological Data in Determining Safe Levels for Human Exposure (2011)

Ocular Toxicology:
- Assessment of Ocular Toxicity in Toxicology Studies Conducted for Regulatory Purposes (2010)

Regulatory and Safety Evaluation:
- New Technologies and Approaches in Genetic Toxicology and Their Expanding Role in General Toxicology and Safety Assessment (2011)
- Translation of Safety Biomarkers in Drug Discovery and Development (2009)

Reproductive and Developmental Toxicology:
- Basic Embryology and Developmental Toxicity Testing (2012)
- Biology and Toxicology of the Peri- and Postnatal Development (2011)

Risk Assessment:
- Basic Principles of Risk Assessment (2013)
- Best Practices for Developing, Characterizing, and Applying Physiologically-Based Pharmacokinetic Models in Risk Assessment (2011)

Stem Cells:
- Stem Cells in Toxicology (2012)
- Stem Cells Utility in Toxicology Screening (2011)

Toxicologic and Exploratory Pathology:
- Segment-Specific Renal Pathology for the Nonpathologist (2010)
- Stress As a Confounding Factor (2009)

Scan Me!

Scan for information on these online courses from your mobile device.

Download QR code scanner app with your smartphone or mobile device.

Continuing Education

Continuing Education Courses

The Continuing Education (CE) Program offers a wide range of courses that cover established knowledge in toxicology, as well as new developments in toxicology and related disciplines. Courses can be applied toward certifying and licensing board requirements and may also be used for recertification with the American Board of Toxicology (ABT). Both basic and advanced course topics are offered. The basic course is intended to provide a broad overview of an area or to assist individuals in learning new techniques or approaches. The advanced course is intended to be of interest to individuals with previous knowledge of the subject or already working in the field.

All courses will be held on Sunday, March 23, 2014, at the Phoenix Convention Center. Please check the signage in the Registration area and at the CE Booth for room assignments. Note: Your course materials will be available in the room immediately prior to the course (they will not be available at the Registration area). If you have your course ticket, go directly to the assigned course room. If you have not received your course ticket or have not registered, please check in at Registration on Saturday afternoon/evening or on Sunday morning. If you have misplaced your ticket, please go to the Continuing Education Booth near the course classrooms on Sunday. The booth will be open from 6:30 am–5:30 pm.

7:00 AM–7:45 AM Continuing Education Sunrise Mini-Course:

1. Combination Products: Toxicology and Regulatory Challenges

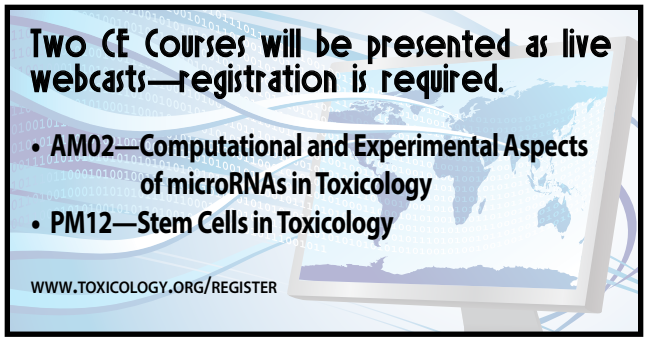
8:15 AM–12:00 Noon Continuing Education Morning (AM) Courses:

2. Computational and Experimental Aspects of microRNAs in Toxicology
3. Current Trends in Genetic Toxicology Testing
4. Elucidating Adverse Outcome Pathways (AOPs) for Developmental Toxicity
5. Inhalation Studies: Challenges and Complexities
6. Methodologies in Human Health Risk Assessment
7. Nonclinical Animal Models Enabling Biopharmaceutical Advances in Translational Medicine

1:15 PM–5:00 PM Continuing Education Afternoon (PM) Courses:

8. Nanotoxicology: Past Achievements, Future Challenges, and Potential Solutions
9. Epidemiology for Toxicologists: What the Numbers Really Mean
10. Innovations in Methodologies for Inhalation Exposure and Interpretations of *In Vivo* Toxicity
11. Nonclinical Pediatric Drug Development: Considerations, Study Designs, and Strategies
12. Stem Cells in Toxicology
13. Translational Biomarkers in the Assessment of Health and Disease

Registration for the Annual Meeting and a Continuing Education course ticket are required.



Abstract #

2014 Continuing Education Courses

SUNDAY MORNING

Sunday Morning, March 23
7:00 AM to 7:45 AM
CC 100 Level
(See signage at CE Booth for room location)

Continuing Education: Combination Products: Toxicology and Regulatory Challenges

SR01 **CE Basic**

Safety Assessment: Mechanisms and Novel Methods

Chairperson(s): *Jon N. Cammack, MedImmune Inc, Gaithersburg, MD, and Chandramallika (Molly) Ghosh, US FDA, Silver Spring, MD.*

Sponsor(s):
Career Resource and Development Committee
Drug Discovery Toxicology Specialty Section
Medical Device Specialty Section

Therapeutic and diagnostic products that combine drugs, devices, and/or biological elements are termed and regulated by the US Food and Drug Administration (US FDA) as combination products. Technological advances continue to merge product types and blur the historical lines of separation among traditional drugs, biologics, and medical devices. Concomitantly, US FDA's medical product centers, the Center for Biologics Evaluation and Research (CBER), the Center for Drug Evaluation and Research (CDER), and the Center for Devices and Radiological Health (CDRH) are employing ever-evolving collaborative efforts to address the regulatory complexities of combination products. Because combination products involve components that would normally be developed and regulated under different types of processes and policies (and frequently submitted to different US FDA centers), these products raise challenging development, regulatory, and review–management questions. Differences in these pathways for each combination product type can impact the processes for all aspects of product development and management (especially preclinical testing), but also clinical investigation, marketing applications, manufacturing and quality control, adverse event reporting, promotion and advertising, and post-approval modifications. Trends and strategies for addressing the impact of overlapping technologies and evolving regulatory processes in developing a successful preclinical evaluation program will be highlighted. A regulatory overview of definitions and combination product examples, as well as a high-level review of US FDA's final rule (effective July 22, 2013), will be included. A primary focus of the course is discussion of approaches in optimizing a preclinical program for a hypothetical drug-device combination product (e.g., a monoclonal antibody packaged in a prefilled syringe). Additionally, regulatory overview of the preclinical evaluation program will be provided. Future trends in combination product therapies will also be highlighted.

#1	7:00	**Combination Products: Toxicology and Regulatory Challenges.** *J. N. Cammack*[1], *C. Ghosh*[2], and T. Nguyen[2]. [1]AstraZeneca Biologics, Gaithersburg, MD; and [2]US FDA, Silver Spring, MD.
	7:00	**Overview of Combination Products.** T. Nguyen. US FDA, Silver Spring, MD.
	7:15	**Overview of a Development Program for a Hypothetical Combination Product.** J. N. Cammack. AstraZeneca Biologics, Gaithersburg, MD.
	7:30	**Regulatory Overview of Preclinical Assessment of Combination Products.** C. Ghosh. US FDA, Silver Spring, MD.

CE Continuing Education Courses Thematic Sessions

Continuing Education (Continued)

Abstract #

Sunday Morning, March 23
8:15 AM to 12:00 Noon
CC 100 Level
(See signage at CE Booth for room location)

Continuing Education: Computational and Experimental Aspects of microRNAs in Toxicology

AM02 **CE Advanced**

Also Presented As Live Webcast—Registration Required.

Advancing Clinical and Translational Toxicology and Application of Biomarkers

Chairperson(s): *Susan C. Tilton, Pacific Northwest National Laboratory, Computational Biology & Bioinformatics, Richland, WA, and Tamara L. Tal, US EPA, Integrated Systems Toxicology Division, Research Triangle Park, NC.*

Sponsor(s):
Drug Discovery Toxicology Specialty Section
Mechanisms Specialty Section
Molecular Biology Specialty Section

MicroRNAs (miRNAs) are small noncoding RNAs that function as post-transcriptional regulators of gene expression. miRNAs are increasingly recognized for their importance in regulating mechanisms of disease and exposure, including those associated with nervous system development, cardiac function, metabolism and cancer. miRNAs and their transcriptional targets are highly conserved across species. They are also stable in plasma and urine as biomarkers of tissue-specific damage or response. Furthermore, miRNAs are unique in that not only can they be experimentally measured along with their inhibitory effects on transcript and protein levels, but their post-transcriptional regulation can also be computationally predicted based on sequence specificity and conservation across species. Given the overall importance of miRNAs in toxicology, it is necessary to understand both computational and experimental aspects of miRNAs for accurate miRNA quantification and discovery of the functional consequences of their disruption by chemical or drug exposure. The goal of the course is to provide toxicologists with a better understanding of miRNA biology (biogenesis, sequence, structure, function, and species similarities), the experimental and computational resources available for identification and target prediction- and how these resources can be leveraged to identify mechanisms and biomarkers of toxicity.

#2	8:15	**Computational and Experimental Aspects of microRNAs in Toxicology.** *S. C. Tilton*[1], K. Wang[3], *I. Pogribny*[2], *R. J. Brennan*[4], and *K. Thompson*[5]. [1]Pacific Northwest National Laboratory, Richland, WA; [2]US FDA-NCTR, Jefferson, AR; [3]Institute for Systems Biology, Seattle, WA; [4]Sanofi, Waltham, MA; and [5]US FDA, Silver Spring, MD.
	8:15	**Background on miRNA Biology and Relationship to Toxicology.** I. Pogribny. US FDA-NCTR, Jefferson, AR.
	8:50	**Experimental Methods for Measuring Circulating RNAs.** K. Wang. Institute for Systems Biology, Seattle, WA.
	9:25	**Computational Resources for miRNA Identification, Target Prediction, and Integration of Co-Expressed miRNAs and mRNAs.** S. C. Tilton. Pacific Northwest National Laboratory, Richland, WA.
	10:00	**Beverage Break.**
	10:30	**Network and Pathway Analysis of miRNA Data.** R. J. Brennan. Sanofi, Waltham, MA.
	11:05	**Strategies for Developing miRNA Biomarkers of Toxicity.** K. Thompson. US FDA, Silver Spring, MD.
	11:45	**Panel Discussion/Q&A.**

Abstract #

Sunday Morning, March 23
8:15 AM to 12:00 Noon
CC 100 Level
(See signage at CE Booth for room location)

Continuing Education: Current Trends in Genetic Toxicology Testing

AM03 **CE Basic**

Safety Assessment: Mechanisms and Novel Methods

Chairperson(s): *B. Bhaskar Gollapudi, Exponent, Midland, MI, and Stephen Dertinger, Litron Laboratories, Rochester, NY.*

Sponsor(s):
Regulatory and Safety Evaluation Specialty Section

The scientific discipline of genetic toxicology has played an important role in the safety assessment of existing and new chemicals during the past four decades. This field has undergone significant changes during this time, not only in its regulatory applications, but also in the tools and technologies employed to identify adverse events. While the emphasis during the early years was on protecting germ cells and future generations from the deleterious effects of mutagenic agents, the focus shifted in later years toward identifying carcinogenic chemicals through the use of short-term assays. Furthermore, genetic toxicology tended to operate as a stand-alone discipline, generating qualitative data and placing little importance on dose-response analysis or integration with other toxicology measurements. The field is now in the midst of a sea change. Regulatory requirements across the globe are being harmonized, with emphasis on "3 Rs." For example, recent changes to ICH and OECD testing guidelines promote the integration of genetic toxicology endpoints (e.g., Comet, micronucleus, and gene mutation) into repeat-dose general toxicology studies. This integrated approach benefits the interpretation of genotoxic findings by placing them in context with other toxicology data, including pharmacokinetics and pharmacodynamics. Additionally, regulatory initiatives such as REACH stress the importance of germ cell effects as part of a comprehensive assessment of genotoxicity. Guidelines for the study of mutations in germ cells of transgenic animals (OECD 488) have recently been finalized. Rapid advances in molecular biology are facilitating the integration of genomic biomarkers into standard toxicology studies to identify various classes of genotoxic agents (DNA reactive and DNA nonreactive). Finally, genetic toxicology is moving from a qualitative science to the quantitative assessment of dose-responses including the identification of point-of-departure (PoD) metrics to extrapolate effects to realistic human exposure levels. The course is designed to provide a comprehensive overview of recent changes and newly established practices in the field with emphasis on their application in safety assessments.

#3	8:15	**Current Trends in Genetic Toxicology Testing.** *B. Gollapudi*[1], *S. Dertinger*[2], *R. H. Heflich*[3], and *M. J. LeBaron*[4]. [1]Exponent, Midland, MI; [2]Litron Laboratories, Rochester, NY; [3]US FDA-NCTR, Jefferson, AR; and [4]The Dow Chemical Company, Midland, MI.
	8:15	**Introduction.** B. Gollapudi. Exponent, Midland, MI.
	8:30	**Integration of Genetic Toxicology Endpoints Into Repeat Dose Studies.** S. Dertinger. Litron Laboratories, Rochester, NY.
	9:15	**Resurgence of Transgenic Animals in Genotoxicity Testing.** R. H. Heflich. US FDA-NCTR, Jefferson, AR.
	10:00	**Beverage Break.**
	10:30	**Approaches to Genetic Toxicology Testing in the Era of Genomics.** M. J. LeBaron. The Dow Chemical Company, Midland, MI.
	11:15	**Quantitative Assessment of Dose-Response in Genetic Toxicology Studies.** B. Gollapudi. Exponent, Midland, MI.

Continuing Education (Continued)

Abstract #

Sunday Morning, March 23
8:15 AM to 12:00 Noon
CC 100 Level
(See signage at CE Booth for room location)

Continuing Education: Elucidating Adverse Outcome Pathways (AOPs) for Developmental Toxicity

AM04 **CE Basic**

Safety Assessment: Mechanisms and Novel Methods

Chairperson(s): *Thomas B. Knudsen, US EPA, National Center Computational Toxicology, Research Triangle Park, NC, and George Daston, Procter & Gamble, Miami Valley Labs, Cincinnati, OH.*

Sponsor(s):
Regulatory and Safety Evaluation Specialty Section
Reproductive and Developmental Toxicology Specialty Section
Scientific Liaison Coalition

An Adverse Outcome Pathway (AOP) is a theoretical construct that integrates the biological plausibility grates the biological plausibility and weight of evidence supporting a linkage between a Molecular Initiating Event (MIE) to adverse response at the individual or population level. Conceptually, an AOP spans multiple levels of biological organization and organizes the stepwise propagation of chemical disruption from MIE to toxicological outcome via a series of key events. Qualitatively, the concept of an AOP is basic to establishing plausible hypotheses and weight of evidence for chemical mode of action. This has practical use in the integration of high-dimensional data with knowledge of a complex biological system and focusing research planning on critical data needs identified as gaps in the AOP, thereby enhancing current risk assessment practices. Alternatively, development of more quantitative AOP constructs requires a framework to delineate causal relationships across a temporal series of events, and will support more realistic quantitative risk assessment. As AOPs are initially governed by signaling networks and metabolic processes, SNPs in key genes relevant to the AOP could point toward susceptible populations. The course will delve into the science of AOP elucidation from a systems biology perspective, focusing on developmental processes and toxicities for early-life-stage susceptibilities. The presenters will each focus on making extensive use of current knowledge, informatics, and data-mining tools to advance predictive toxicology.

#4	8:15	**Elucidating Adverse Outcome Pathways (AOPs) for Developmental Toxicity.** *T. B. Knudsen*[1], *G. Daston*[2], D. L. Villeneuve[3], *N. Kleinstreuer*[4], and A. Terskikh[5]. [1]US EPA, Research Triangle Park, NC; [2]Procter & Gamble Company, Mason, OH; [3]US EPA, Duluth, MN; [4]NIEHS, Research Triangle Park, NC; and [5]Sanford-Burnham Medical Research Institute, La Jolla, CA.
	8:15	**Systems Pathway-Knowledge Tools for Constructing AOPs.** D. L. Villeneuve. US EPA, Duluth, MN.
	8:55	**Constructing AOPs for Developmental Toxicities.** N. Kleinstreuer. NIEHS, Research Triangle Park, NC.
	9:35	**AOP Frameworks for Simulating Dysmorphogenesis.** T. B. Knudsen. US EPA, Research Triangle Park, NC.
	10:00	**Beverage Break.**
	10:30	**AOPs for Endocrine Signaling and Reproductive Development.** G. Daston. Procter & Gamble Company, Mason, OH.
	11:15	**AOPs for Developmental Neurotoxicity: Principles and Experimental Approaches.** A. Terskikh. Sanford-Burnham Medical Research Institute, La Jolla, CA.

Abstract #

Sunday Morning, March 23
8:15 AM to 12:00 Noon
CC 100 Level
(See signage at CE Booth for room location)

Continuing Education: Inhalation Studies: Challenges and Complexities

AM05 **CE Basic**

New Science and Perspectives Surrounding Environmental and Occupational Exposures

Chairperson(s): *Willie J. McKinney, Altria Client Services Inc., Product Integrity, Richmond, VA, and Gregory L. Baker, Battelle, West Jefferson, OH.*

Sponsor(s):
Inhalation and Respiratory Specialty Section

The successful execution of animal inhalation studies (e.g., acute, subchronic, and chronic) presents many challenges and complexities not encountered with other routes of exposure. Five inhalation study challenges will be addressed: 1) comparison of methods of exposure and potential impact on inhalation studies; 2) using various test materials, generating simple atmospheres (e.g., exposures to gases, nanoaerosols, bioaerosols, micron-sized aerosols) and mixtures (e.g., semivolatile compounds and particles, tobacco smoke); 3) selection of the appropriate animal species (e.g., species-specific dosimetry); 4) incorporating standard and novel toxicological endpoints; 5) deciding which regulatory guidance document or specifications (e.g., US EPA, US FDA, OECD, and NTP) to follow. The diversity of presenters' backgrounds (government, contract research organization, industry, and academic) and depth of experience will provide a broad and rich resource for the participants.

#5	8:15	**Inhalation Studies: Challenges and Complexities.** *G. L. Baker*[1], *W. J. McKinney*[2], *R. F. Phalen*[3], *M. Oldham*[2], *J. Harkema*[4], and *M. A. Higuchi*[5]. [1]Battelle, West Jefferson, OH; [2]Altria Client Services Inc., Richmond, VA; [3]University of California Irvine, Irvine, CA; [4]Michigan State University, East Lansing, MI; and [5]US EPA, Research Triangle Park, NC.
	8:15	**Introduction.** W. J. McKinney. Altria Client Services Inc., Richmond, VA.
	8:30	**Comparison of Whole Body vs. Nose-Only Exposure.** R. F. Phalen. University of California Irvine, Irvine, CA.
	9:05	**Test Materials for Inhalation Studies.** G. L. Baker. Battelle, West Jefferson, OH.
	9:40	**Inhalation Studies—Test Subjects and Dose Predictions.** M. Oldham. Altria Client Services Inc., Richmond, VA.
	10:00	**Beverage Break.**
	10:30	**Toxicological Endpoints in Inhalation Studies.** J. Harkema. Michigan State University, East Lansing, MI.
	11:15	**Regulatory Guidance for Inhalation Studies.** M. A. Higuchi. US EPA, Research Triangle Park, NC.

Continuing Education (Continued)

Abstract #

Sunday Morning, March 23
8:15 AM to 12:00 Noon
CC 100 Level
(See signage at CE Booth for room location)

Continuing Education: Methodologies in Human Health Risk Assessment

AM06 **CE Basic**

Enhancing Strategies for Risk Assessment

Chairperson(s): *Qiyu J. Zhao, US EPA, National Center for Environmental Assessment, Cincinnati, OH, and Bette Meek, University of Ottawa, McLaughlin Centre for Population Health Risk Asses, Ottawa, ON, Canada.*

Sponsor(s):
Biological Modeling Specialty Section
Regulatory and Safety Evaluation Specialty Section
Risk Assessment Specialty Section

This course provides an overview of more advanced aspects of chemical risk assessment, following up from a successful CE course on basic principles offered at the Annual Meeting in 2013. This new course will focus on methodologies, which incorporate increased use of biological-and chemical-specific data as a basis to providing more accurate estimates of risk. In addition, it will address evolving areas, such as problem formulation, as a basis to better target toxicity testing and tailor assessments to the needs of risk management. The course will feature presentations and discussions focusing on the value of mode-of-action analysis for characterization of hazard, the fundamental tenets of physiologically-based pharmacokinetic (PBPK) model development and implementation, use of benchmark dose (BMD) models to identify points of departure, and use of chemical-specific adjustment factors to address inter- and intraspecies uncertainty and variability. The principles and key components of these methodologies will be illustrated with applied case examples from the regulatory risk assessment arena.

#6	8:15	**Methodologies in Human Health Risk Assessment.** *Q. J. Zhao*[1], *B. Meek*[2], *H. A. Barton*[3], and *J. C. Lipscomb*[1]. [1]US EPA, Cincinnati, OH; [2]University of Ottawa, Ottawa, ON, Canada; and [3]Pfizer Inc., Groton, CT.
	8:15	**An Overview of Advanced Aspects of Risk Assessment.** B. Meek. University of Ottawa, Ottawa, ON, Canada.
	8:30	**Mode of Action Analysis.** B. Meek. University of Ottawa, Ottawa, ON, Canada.
	9:15	**Benchmark Dose Modeling.** Q. J. Zhao. US EPA, Cincinnati, OH.
	10:00	**Beverage Break.**
	10:30	**Physiologically Based Pharmacokinetic and Pharmacodynamic Modeling.** H. A. Barton. Pfizer Inc., Groton, CT.
	11:15	**Nondefault Uncertainty Factor Values.** J. C. Lipscomb. US EPA, Cincinnati, OH.

Abstract #

Sunday Morning, March 23
8:15 AM to 12:00 Noon
CC 100 Level
(See signage at CE Booth for room location)

Continuing Education: Nonclinical Animal Models Enabling Biopharmaceutical Advances in Translational Medicine

AM07 **CE Basic**

Advancing Clinical and Translational Toxicology and Application of Biomarkers

Chairperson(s): *Thomas Monticello, Amgen, CBSS, Thousand Oaks, CA, and Vivek J. Kadambi, Millennium: The Takeda Oncology Company, Drug Safety Evaluation, Cambridge, MA.*

Sponsor(s):
Clinical and Translational Toxicology Specialty Section
Comparative and Veterinary Specialty Section
Toxicologic and Exploratory Pathology Specialty Section

A fundamental theme in drug discovery and nonclinical development is the utilization of appropriate animal models that are predictive for efficacy or adverse events in humans administered a novel biopharmaceutical. The accurate prediction of human adverse effects using nonclinical animal toxicology studies remains a major goal in drug development and relies on appropriate animal models. Essential attributes for an appropriate animal model include similar target distribution, target pharmacology, systemic pharmacokinetics, metabolism, and distribution to those of humans. Utilization of the most appropriate animal model aligns with the 2011 US FDA Strategic Plan to advance regulatory science and modernize toxicology in order to enhance product safety and develop better models of human adverse responses. The Preclinical Safety Leadership Group (PSLG) of the International Consortium for Innovation and Quality in Pharmaceutical Development (IQ) is creating a contemporary industry-wide database to determine the accuracy with which the interpretation of nonclinical safety assessments in animal models correctly predicts human risk. The course will present considerations for the selection of an appropriate animal model for nonclinical safety, the use of animal models of disease in safety testing, emerging use of the minipig in safety testing, data from an industry-wide nonclinical to clinical translational database, and the use of animal safety data in the design and conduct of clinical trials. Output from the course will help identify advances and remaining gaps in the utilization of animal models in biopharmaceutical development.

#7	8:15	**Nonclinical Animal Models Enabling Biopharmaceutical Advances in Translational Medicine.** *T. M. Monticello*[1], *R. Dixit*[2], S. Morgan[3], N. Ganerup[4], *V. Kadambi*[5], and J. T. Sullivan[1]. [1]Amgen Inc., Thousand Oaks, CA; [2]MedImmune, Gaithersburg, MD; [3]Abbvie, Abbott Park, IL; [4]Ellegaard Göttingen Minipigs A/S, Dalmose, Denmark; and [5]Millennium, Cambridge, MA.
	8:15	**Introduction.** T. Monticello. Amgen Inc., Thousand Oaks, CA.
	8:25	**What Constitutes a Relative Animal Model in Translational Medicine?** R. Dixit. MedImmune, Gaithersburg, MD.
	9:05	**Use of Animal Models of Human Disease for Nonclinical Safety Assessment of Pharmaceuticals.** S. Morgan. Abbvie, North Chicago, IL.
	9:45	**The Minipig As a Nonrodent Species in Nonclinical Safety Testing and Where Are We Now?** N. Ganerup. Ellegaard Göttingen Minipigs A/S, Dalmose, Denmark.
	10:00	**Beverage Break.**

Continuing Education (Continued)

Abstract #

10:30 **Nonclinical to Clinical Translational Safety Database Initiative.** V. Kadambi. Millennium, Cambridge, MA.

11:15 **Utilization of Nonclinical Animal Data in the Conduct of Human Clinical Trials.** J. T. Sullivan. Amgen Inc., Thousand Oaks, CA.

SUNDAY AFTERNOON

Sunday Afternoon, March 23
1:15 PM to 5:00 PM
CC 100 Level
(See signage at CE Booth for room location)

Continuing Education: Nanotoxicology: Past Achievements, Future Challenges, and Potential Solutions

PM08 **CE Basic**

Chairperson(s): *Saber M. Hussain, US Air Force, Air Force Research Laboratory, Wright-Patterson AFB, Dayton, OH, and David B. Warheit, DuPont Haskell Laboratories, Newark, DE.*

Sponsor(s):
Nanotoxicology Specialty Section

Nanomaterials (NM) possess tremendous promise to advance consumer, military, and medical applications due to their unique physicochemical properties, such as enhanced surface area, tunable size, modifiable surface chemistry, and particle reactivity. However, these same properties have made NMs a potential health hazard, thus giving rise to the field of nanotoxicology (NT), which has become a prominent player in toxicological advancement and research over the past decade. Initial NT studies were limited by a lack of both available materials and characterization tools. Through advances in material science, enhanced capabilities have been developed that allow for the synthesis of distinctive NMs and the ability to accurately evaluate their characteristics. Taking advantage of these developments, NT has made remarkable progress in evaluating the hazards of NMs and correlating specific properties, such as size, shape, coating, and composition, to observe cytotoxicity. However, even with these numerous advances, there are still a number of constraints plaguing the field of NT. One principal area of concern is the development of procedures that account for new NT facets, including NM behavior in a physiological environment, varied aggregate structure, role of ionic dissolution, and realistic modes of exposure. Another limitation is the need for new and more powerful characterization tools. Recently, the question of dosimetry has become a forefront topic and whether a universal, conceptual standard should be adopted, such as mass, surface area, or particle number. Arriving at a consensus on this issue is critical for the establishment of NM exposure limits and risk-assessment metrics, which are significantly lacking. To accomplish accurate risk assessment and regulatory evaluations, NT will have to develop a means to improve the correlation of *in vitro* data to *in vivo* predictions, via enhanced cell models, relevant dosages (low vs. high), and realistic exposure scenarios. This course will evaluate where NT stands, by highlighting key research successes, identifying challenges facing the field today, and exploring solutions to overcome current limitations.

#8 1:15 **Nanotoxicology: Past Achievements, Future Challenges, and Potential Solutions.** *S. M. Hussain*[1], *D. B. Warheit*[2], *L. K. Braydich-Stolle*[1], *C. Grabinski*[1], K. K. Comfort[3], and C. Geraci Jr.[4]. [1]US Air Force, Wright-Patterson AFB, OH; [2]DuPont Haskell Laboratories, Newark, DE; [3]University of Dayton, Dayton, OH; and [4]CDC-NIOSH, Cincinnati, OH.

1:15 **Introduction and Overview.** S. M. Hussain. US Air Force, Wright-Patterson AFB, OH.

1:25 **Importance of Robust Nanomaterial Characterization As a Necessary Prerequisite for Evaluating the Results of *In Vivo* Nanotoxicity Studies.** D. B. Warheit. DuPont Haskell Laboratories, Newark, DE.

2:05 **Nanotoxicology: What Has Been Done for the Past Decade.** L. K. Braydich-Stolle. US Air Force, Wright-Patterson AFB, OH.

2:45 **Dosimetry Issues and Relevance for Risk Assessment.** C. Grabinski. US Air Force, Wright-Patterson AFB, OH.

3:00 **Beverage Break.**

3:30 **Unresolved Challenges: Biological Models and Future Directions Overcome These Challenges.** K. K. Comfort. University of Dayton, Dayton, OH.

4:15 **Occupational Hazards and Risks in the Workplace: Where We Stand.** C. Geraci Jr. CDC-NIOSH, Cincinnati, OH.

Sunday Afternoon, March 23
1:15 PM to 5:00 PM
CC 100 Level
(See signage at CE Booth for room location)

Continuing Education: Epidemiology for Toxicologists: What the Numbers Really Mean

PM09 **CE Basic**

New Science and Perspectives Surrounding Environmental and Occupational Exposures

Chairperson(s): *Nancy B. Beck, American Chemistry Council, Regulatory and Technical Affairs, Washington, DC, and Julie E. Goodman, Gradient, Cambridge, MA.*

Sponsor(s):
Occupational and Public Health Specialty Section
Regulatory and Safety Evaluation Specialty Section
Risk Assessment Specialty Specialty Section

Twenty-first-century risk assessment relies on data from multiple lines of evidence. High-quality human epidemiology data are generally preferred for regulatory decision-making, but the body of evidence often includes animal toxicity, *in vitro*, *in silico*, animal dosimetry, and human exposure data. The quality of individual epidemiology studies can be highly variable and dependent on study design as well as other critical factors that sometimes cannot be controlled for. For risk assessors to fully understand the implications of epidemiology evidence, they must understand how the overall integration of toxicity and mechanistic data with human epidemiology findings facilitates science-informed decision-making. A sufficient understanding of the epidemiology data is a necessary starting point for appropriately integrating all the available information. The course is geared towards the toxicologist who is trying to determine how to appropriately evaluate, use, and integrate epidemiology data in a weight-of-evidence evaluation or risk assessment. Attendees first will be given a basic overview of epidemiology, with a focus on different epidemiology study designs and their strengths and weaknesses. Attendees will also gain an understanding of exposure assessment and biomonitoring, and how this information is used and evaluated in epidemiology studies. Additional learning objectives of the course: How to determine when an association may be supportive of a causal relationship and what confidence intervals mean; how to use trend information; how to evaluate and understand adjustments that are made for potential confounding factors; and how to evaluate several epidemiology studies on the same topic, particularly in light of available toxicity and mechanistic data. Finally, attendees will learn to integrate all types of data streams with a real example. Attendees will leave the course with a stronger understanding of how to interpret and use epidemiology data in their weight-of-evidence analyses and risk assessments, and how epidemiology can help inform regulatory decision-making.

Continuing Education (Continued)

Abstract #		
#9	1:15	**Epidemiology for Toxicologists: What the Numbers Really Mean.** *N. B. Beck*[1], M. Goodman[2], S. Eftim[3], *J. E. Goodman*[4], and *J. Bus*[5]. [1]American Chemistry Council, Washington, DC; [2]Emory University, Atlanta, GA; [3]George Washington University School of Public Health, Fairfax, VA; [4]Harvard School of Public Health and Gradient, Cambridge, MA; and [5]Exponent, Midland, MI.
	1:15	**Setting the Stage.** N. B. Beck. American Chemistry Council, Washington, DC.
	1:30	**Overview of Epidemiologic Studies.** M. Goodman. Emory University, Atlanta, GA.
	2:15	**Exposure Assessment and Biomonitoring in Epidemiologic Studies.** S. Eftim. George Washington University School of Public Health, Fairfax, VA.
	3:00	**Beverage Break.**
	3:30	**When an Association Indicates Causation.** J. E. Goodman. Harvard School of Public Health and Gradient, Cambridge, MA.
	4:15	**A Case Study Showing How Toxicology Complements Epidemiology for Informing Human Risk.** J. Bus. Exponent, Midland, MI.

Sunday Afternoon, March 23
1:15 PM to 5:00 PM
CC 100 Level
(See signage at CE Booth for room location)

Continuing Education: Innovations in Methodologies for Inhalation Exposures and Interpretations of *In Vivo* Toxicity

PM10 **CE Advanced**

New Science and Perspectives Surrounding Environmental and Occupational Exposures

Chairperson(s): *Urmila P. Kodavanti, Robert S. Kerr Environmental Research Center, EPHD/NHEERL, Research Triangle Park, NC, and Juergen Pauluhn, Bayer Pharma AG, Toxicology, Wuppertal, Germany.*

Sponsor(s):
Inhalation and Respiratory Specialty Section
Regulatory and Safety Evaluation Specialty Section

The respiratory system presents most diverse structural and cellular heterogeneity suited to handling complicated aspects of air-liquid interface, such as the direct exposure of the delicate cellular and capillary surfaces to the atmosphere and the encounter of lung epithelial cells to complex mixtures of particles and gases. Not only the respiratory depositions of inhaled substances vary regionally but also the regional responses generated by the respiratory tract. Recently the field of inhalation technology and respiratory toxicology has seen revolutionary growth because of the emergence of the use of nanomaterials and renewable energy sources creating new environmental challenges. Moreover, the paradigm shift of toxicology testing to high-throughput screening has led to the development of novel inhalational approaches for cells. The course will cover the recent advances in inhalation methodologies for various types of emerging inhalants and focus on generation of atmospheres for *in vivo* and *in vitro* toxicity assessment. These aerosols will include gas and particulate emissions from vehicles using old and new energy sources, forest fires, coal combustion, manufactured nanomaterials and mixtures formed from atmospheric aging. The dynamic of physicochemical composition of such mixed aerosols will be discussed to allow for identification of causative constituents and lung site-specific injuries. Structural differences in the respiratory tract of rodents and large mammals, including humans, impacting dosimetry will be discussed. Respiratory system heterogeneity between humans and animals, and their differential neurohumoral mechanisms, will be discussed to aid in interpretation of inhalational hazard for humans. This course will be useful for those

Abstract #		
		involved in air pollution toxicology, nanotoxicology, novel drug delivery systems, pulmonary toxicology, and risk assessment.
#10	1:15	**Innovations in Methodologies for Inhalation Exposure and Interpretations of *In Vivo* Toxicity.** *J. Pauluhn*[2], *J. D. McDonald*[3], B. T. Chen[4], T. E. Kleindienst[1], and *M. A. Higuchi*[1]. [1]US EPA, Research Triangle Park, NC; [2]Bayer HealthCare, Wuppertal, Germany; [3]Lovelace Respiratory Research Institute, Albuquerque, NM; and [4]NIOSH, Morgantown, WV.
	1:15	**Inhalation Exposure Methodologies of Rodents and Nonrodents.** J. Pauluhn. Bayer HealthCare, Wuppertal, Germany.
	1:55	**Aspects of Inhalation Studies with Complex Mixtures—Aerosol Generations, Chemistry, and Exposure.** J. D. McDonald. Lovelace Respiratory Research Institute, Albuquerque, NM.
	2:35	**Inhalation Exposure Methodologies for Manufactured Nanomaterials.** B. T. Chen. NIOSH, Morgantown, WV.
	3:00	**Beverage Break.**
	3:30	**The Use of Environmental Irradiation Chambers to Test Health Effects of Controlled Air Atmospheres.** K. G. Sexton. University of North Carolina at Chapel Hill, Chapel Hill, NC.
	4:15	**Methodologies to Conduct *In Vitro* Exposures to Aerosols and Vapors.** M. A. Higuchi. US EPA, Research Triangle Park, NC.

Sunday Afternoon, March 23
1:15 PM to 5:00 PM
CC 100 Level
(See signage at CE Booth for room location)

Continuing Education: Nonclinical Pediatric Drug Development: Considerations, Study Designs, and Strategies

PM11 **CE Basic**

Safety Assessment: Mechanisms and Novel Methods

Chairperson(s): *Kary E. Thompson, Bristol-Myers Squibb Company, Reproductive Toxicology, New Brunswick, NJ, and Elise M. Lewis, Charles River, Research, Horsham, PA.*

Sponsor(s):
Reproductive and Developmental Toxicology Specialty Section

Although nonclinical and clinical testing needs for drugs for pediatric populations have been discussed for more than 40 years, there is no default approach to evaluating safety in this age group. Over the last decade there has been a heightened awareness of the differences between the pediatric and adult patient, and these differences are being addressed by the pharmaceutical and healthcare industries, as well as the governmental and regulatory bodies that sanction the development and testing of drugs for children. As regulatory demands evolve for nonclinical safety assessments in juvenile animals, industry leaders are developing innovative ways to meet the regulatory expectations and to overcome the challenges associated with pediatric drug development. Many practical issues regarding nonclinical testing in immature animals have been surmounted, using novel and/or adapted approaches. There are considerations related to the differences in regional guidelines (US FDA, EU, and Japan); therefore, development of appropriate information for submission to worldwide agencies is critical. History and experience provide the best scientific arguments as to why juvenile animals can be useful. There are numerous examples of drugs that have identified findings in various species, including information regarding kinetic and toxicity differences that highlight considerations regarding nonclinical testing models. Additionally, there are unique challenges associated with nonclinical juvenile toxicity testing for biopharmaceuticals, including selection of appropriate animal models, immunogenicity, dose selection (toxicity vs. pharmacology), and relevant endpoints. Developing a juvenile animal

Continuing Education (Continued)

Abstract #

program requires an appreciation of the complexity of the nonclinical strategies to enable pediatric trials and an overview of the historical perspective and the current approaches to evaluating safety during this unique period of life.

#11 1:15 **Nonclinical Pediatric Drug Development: Considerations, Study Designs, and Strategies.** *K. E. Thompson*[1], *E. M. Lewis*[2], K. Davis-Bruno[3], J. Carleer[4], *S. B. Laffan*[5], and *G. J. Chellman*[6]. [1]Bristol-Myers Squibb Company, New Brunswick, NJ; [2]Charles River Laboratories, Horsham, PA; [3]US FDA, Silver Spring, MD; [4]Belgian Federal Agency for Medicines and Health Products, Brussels, Belgium; [5]GlaxoSmithKline, King of Prussia, PA; and [6]Charles River Laboratories, Reno, NV.

1:15 **Introduction.** E. M. Lewis. Charles River Laboratories, Horsham, PA.

1:30 **FDA Regulatory Perspective on Pediatric Product Development.** K. Davis-Bruno. US FDA, Silver Spring, MD.

2:05 **EU Pediatric Regulation (EC) 1901/2006: Impact on Nonclinical Development Plans.** J. Carleer. Belgian Federal Agency for Medicines and Health Products, Brussels, Belgium.

2:40 **Nonclinical Strategies to Support Pediatric Trials.** K. E. Thompson. Bristol-Myers Squibb Company, New Brunswick, NJ.

3:00 **Beverage Break.**

3:30 **Juvenile Toxicity Studies: What Can We Do?** S. B. Laffan. GlaxoSmithKline, King of Prussia, PA.

4:15 **Biologics Juvenile Toxicity Testing: Exploring Options to Address the Challenges.** G. J. Chellman. Charles River Laboratories, Reno, NV.

Sunday Afternoon, March 23
1:15 PM to 5:00 PM
CC 100 Level
(See signage at CE Booth for room location)

CE

Continuing Education: Stem Cells in Toxicology

PM12 **CE Basic**

Also Presented As Live Webcast—Registration Required.

Stem Cell Models for Integrated Biology

Chairperson(s): *Erik J. Tokar, NIEHS, NTP, Research Triangle Park, NC, and Michael P. Waalkes, NIEHS, NTP, Research Triangle Park, NC.*

Sponsor(s):
Stem Cells Specialty Section

Stem cells are revolutionizing toxicological research and remain an area with tremendous potential. Recently, research on stem cells has generated tremendous public and professional interest. However, some areas of toxicological research have lagged behind in the integration of stem cells as a concept in toxicant-induced disease etiology. We will describe the utility and suitability of the assorted types of stem cell models (i.e. embryonic, fetal, progenitor, induced pluripotent, immortalized stem cell lines, etc.) for various research purposes, including disease modeling, drug discovery and toxicity testing in order to describe the potential applications of stem cells in toxicological research. This important overview of stem cells will highlight their nomenclature, properties, and their roles in the genesis of various diseases.

Abstract #

#12 1:15 **Stem Cells in Toxicology.** *E. J. Tokar*[1], *M. P. Waalkes*[1], *A.B. Bowman*[2], and *K. L. Kolaja*[3]. [1]NIEHS, Research Triangle Park, NC; [2]Vanderbilt University Medical Center, Nashville, TN; and [3]Cellular Dynamics International, Montclair, NJ.

1:15 **Introduction.** E. J. Tokar. NIEHS, Research Triangle Park, NC.

1:30 **The Concepts and Methods for Stem Cells.** E. J. Tokar. NIEHS, Research Triangle Park, NC.

2:15 **Stem Cells in Carcinogenesis.** M. P. Waalkes. NIEHS, Research Triangle Park, NC.

3:00 **Beverage Break.**

3:30 **Applications of Stem Cells for Toxicology and Regenerative Medicine.** Aaron B. Bowman, Vanderbilt University Medical Center, Nashville, TN.

4:15 **Stem Cells in Safety Testing.** K. L. Kolaja. Cellular Dynamics International, Montclair, NJ.

Sunday Afternoon, March 23
1:15 PM to 5:00 PM
CC 100 Level
(See signage at CE Booth for room location)

CE

Continuing Education: Translational Biomarkers in the Assessment of Health and Disease

PM13 **CE Advanced**

Advancing Clinical and Translational Toxicology and Application of Biomarkers

Chairperson(s): *Vishal S. Vaidya, Harvard Medical School, Renal Division, Boston, MA, and Donna L. Mendrick, US FDA, NCTR, Division of Systems Biology, Jefferson, AR.*

Sponsor(s):
Association of Scientists of Indian Origin Special Interest Group

Biomarkers serve as quantitative measures of chemical exposures and biologically effective doses—early warning signals of biologic effect, they predict outcome in a patient with disease, and identify who will respond to an intervention and whether the intervention is working. The current era of scientific discovery has brought seemingly limitless opportunities for improvements in medical care. Translational biomarkers that can be measured in blood or urine in both experimental animals and man are of particular interest. Given the importance to the clinical, pharmaceutical, and regulatory communities motivated by more specific and timely diagnoses, early intervention and safer therapies, clinically useful biomarkers have evolved over time, reflecting the scientific and technologic progress made over the centuries. An increasing number of clinically relevant tests and procedures are available to estimate organ injury and guide treatment. The use of molecular signals in the assessment of health and disease is not new; however, the concept of what constitutes a useful biomarker has evolved considerably in the past two to three decades given the advanced enabling technologies, deeper molecular understanding of disease, and the advent of a regulatory framework for biomarker qualification. Our panel experts will highlight the potential of these biomarkers over a wide variety of applications spanning preclinical-clinical safety in liver and kidney to disease monitoring in cancer. The panel will also demonstrate the application of translational biomarkers in clinical trial design. Coordinated efforts at biomarker discovery and validation as well as technologies for biomarker measurement will help ensure that the ultimate goal of safer drugs, a cleaner environment, and improved patient outcomes are realized.

#13 1:15 **Translational Biomarkers in the Assessment of Health and Disease.** *V. S. Vaidya*[1], *M. Moses*[4], *D. L. Mendrick*[2], *J. Aubrecht*[3], and F. Goodsaid[5]. [1]Harvard Medical School, Boston, MA; [2]US FDA-NCTR, Jefferson, AR; [3]Pfizer Inc., Groton, CT; [4]Children's Hospital Boston, Boston, MA; and [5]Vertex Pharmaceuticals, Washington, DC.

1:15 **Introduction.** D. L. Mendrick. US FDA-NCTR, Jefferson, AR.

CE

Continuing Education (Continued)

1:30 **Discovering Cancer Biomarkers: From Diagnosis and Prognosis Through Therapy.** M. Moses. Children's Hospital Boston, Boston, MA.

2:15 **Kidney Safety Biomarkers: From Proteins to microRNAs.** V. S. Vaidya. Harvard Medical School, Boston, MA.

3:00 **Beverage Break.**

3:30 **Liver Safety Biomarkers: A Comprehensive Evaluation in Human Subjects.** J. Aubrecht. Pfizer Inc., Groton, CT.

4:15 **Application of Biomarkers in Clinical Trial Design.** Federico Goodsaid, Vertex Pharmaceuticals, Washington, DC.

Notes

Thank You, Speakers

On behalf of the SOT Council and the entire membership of the Society of Toxicology (SOT), thank you to all of the speakers who graciously agreed to come to Phoenix, Arizona, to participate in the 2014 Annual Meeting. SOT's Annual Meeting is the largest international forum to highlight novel discoveries and emerging fields and how they apply to toxicology. You played an important role in helping SOT showcase this year's achievements in research and education and your time, efforts, and expertise are truly appreciated.

CE Continuing Education Courses Thematic Sessions



Some San Diego photos are courtesy of SanDiego.org. Some photos by Joanne DiBona.

Deadline for Proposals for SOT 2015 Annual Meeting Sessions: April 30, 2014

Why Submit a Proposal?

1. To present new developments in toxicology.
2. To provide attendees with an opportunity to learn about state-of-the-art technology and how it applies to toxicological research.
3. To provide attendees with an opportunity to learn about the emerging fields and how they apply to toxicology.

Session Types

Continuing Education—Emphasis on quality presentations of generally accepted, established knowledge in toxicology
Note: CE courses will be held on Sunday.

Symposia—Cutting-edge science; new areas, concepts, or data

Workshops—State-of-the-art knowledge in toxicology

Roundtables—Controversial subjects

Continuing Medical Education—Emphasis on state-of-the-art knowledge to assist medical doctors, health professionals, and researchers in life-long learning for providing high-quality health care
Note: Any session type may be considered for CME.

Historical Highlights—Review of a historical body of science that has impacted toxicology

Informational Sessions—Scientific planning or membership development

Education-Career Development Sessions—Sessions that provide the tools and resources to toxicologists that will enhance their professional and scientific development

Regional Interest—Central topics of relevance that describe public health and/or ecological problems of a particular region

Submit your proposal online at www.toxicology.org

Scientific Session Index

All sessions will be held at the Phoenix Convention Center in the North Building.

General Scientific Sessions

(Listed by type, then date and time)

- EC Education-Career Development Sessions
- FS Featured Sessions
- HH Historical Highlights Session
- IS Informational Sessions
- PL Platform Sessions
- PS Poster Sessions
- RI Regional Interest Session
- R Roundtable Sessions
- S Symposium Sessions
- Thematic Sessions
- W Workshop Sessions

Exhibitor-Hosted Sessions are informative sessions developed by an exhibiting company or SOT supporter. The Exhibitor-Hosted Session Index is located on pages 43–45.

Monday

SYMPOSIUM SESSIONS S

Date/Time	Topic/Abstract #	Room	Page
Monday 9:15 AM	Air Pollution and Cardiovascular Effects: Mechanisms and Role of Lipid Peroxidation #14–19	Room 122	130
Monday 9:15 AM	Carbon Nanotubes Are Toxic in Experimental Models: What's Next, Who's Being Exposed, and Should We Be Concerned? #20–25	North Ballroom 120A	131
Monday 9:15 AM	Computational Approaches to Predict Repeat-Dose Toxicity: Lessons Learned from Cosmetic Ingredients #26–31	Room 126	131
Monday 9:15 AM	Induced Human Pluripotent Stem Cells and Their Differentiated Progeny Cells: Implementation in Toxicity Testing #32–36	North Ballroom 120B	132
Monday 9:15 AM	Methylmercury's Modes of Action: New Approaches to Understanding an Old Problem #37–42	Room 124	133
Monday 9:15 AM	To Bug or Not to Bug the Immune System: Benefits and Consequences of Altering the Microbiome #43–47	Room 121	133

WORKSHOP SESSIONS W

Date/Time	Topic/Abstract #	Room	Page
Monday 9:15 AM	Developmental Programming of Hepatic Metabolism: Assessing the Impact of Perinatal Exposure to Xenobiotics #48–52	Room 129	134
Monday 9:15 AM	New Concerns and New Science Addressing Environmental Asbestos Exposures #53–58	North Ballroom 120D	134

PLATFORM SESSION PL

Date/Time	Topic/Abstract #	Room	Page
Monday 9:15 AM	Enhancing Strategies for Pesticide Risk Assessment #59–65	Room 125	135

POSTER SESSIONS PS

**Author attended 9:30 am–11:00 am; otherwise author attended 11:00 am–12:30 pm. Poster Board Surface Maps are on pages 120–121.*

Date/Time		Topic/Abstract #	Room	Page
Monday 9:30 AM	*	Biological Modeling #66–96i Poster Boards 101–140	Exhibit Hall	136
Monday 9:30 AM		Biomarkers I #97–122i Poster Boards 141–175	Exhibit Hall	139
Monday 9:30 AM	*	Autoimmunity/Hypersensitivity #123–145b Poster Boards 201–225	Exhibit Hall	142
Monday 9:30 AM		Alternatives to Mammalian Models I #146–173p Poster Boards 231–274	Exhibit Hall	144
Monday 9:30 AM	*	Developmental Toxicology: Mammalian Models #174–200 Poster Boards 301–327	Exhibit Hall	147
Monday 9:30 AM		Developmental Toxicology: Nonmammalian Models #201–223e Poster Boards 333–360	Exhibit Hall	148
Monday 9:30 AM	*	Epidemiology #223f–235a Poster Boards 369–372, 401–413	Exhibit Hall	150
Monday 9:30 AM		Carcinogenesis I #236–265e Poster Boards 416–450	Exhibit Hall	151
Monday 9:30 AM	*	Safety Assessment: Drug Development I #266–288 Poster Boards 451–473	Exhibit Hall	154
Monday 9:30 AM		Cell Death/Apoptosis #289–312f Poster Boards 501–530	Exhibit Hall	155
Monday 9:30 AM	*	Food Toxicology/Nutrition #313–343j Poster Boards 533–573	Exhibit Hall	157
Monday 9:30 AM		Neurotoxicity: General #344–378i Poster Boards 601–644	Exhibit Hall	160

ROUNDTABLE SESSION R

Date/Time	Topic/Abstract #	Room	Page
Monday 12:10 PM	Environmental Factors in Dysregulation of Puberty Timing and Progression #379	Room 125	165

NOTE: Abstract numbers including a lower-case letter were programmed during second submission phase.

Scientific Session Index (Continued)

INFORMATIONAL SESSION IS

Date/Time		Topic/Abstract #	Room	Page
Monday 12:10 PM		Nonrodents Can Be Monitored, Too…Characterization of Novel Biomarkers of Drug-Induced Kidney Injury (DIKI) in Rats, Canines, Nonhuman Primates, and Humans #380	Room 124	166

EDUCATION-CAREER DEVELOPMENT SESSION EC

Date/Time		Topic/Abstract #	Room	Page
Monday 12:10 PM		The Role of Consultants in the Science and Practice of Safety Assessment #381	Room 126	166

POSTER SESSIONS PS

**Author attended 1:00 pm–2:45 pm; otherwise author attended 2:45 pm–4:30 pm. Poster Board Surface Maps are on pages 120–121.*

Date/Time		Topic/Abstract #	Room	Page
Monday 1:00 PM	*	Inflammation: Methods and Mechanisms #382–408b Poster Boards 101–129	Exhibit Hall	167
Monday 1:00 PM		Systems Biology and Toxicology #409–418e Poster Boards 131–145	Exhibit Hall	169
Monday 1:00 PM	*	Computational Toxicology and Data Integration I #419–440l Poster Boards 146–179	Exhibit Hall	170
Monday 1:00 PM		Genetic Toxicity Testing #441–467h Poster Boards 201–235	Exhibit Hall	172
Monday 1:00 PM	*	Cardiovascular Toxicity and Hemodynamics #468–504c Poster Boards 236–275	Exhibit Hall	175
Monday 1:00 PM		Biotransformation/ Cytochrome P450 #505–539e Poster Boards 301–340	Exhibit Hall	177
Monday 1:00 PM	*	Pharmacogenomics and Genetic Polymorphisms #540–552c Poster Boards 341–356	Exhibit Hall	180
Monday 1:00 PM		Chemical and Biological Weapons #552d–581k Poster Boards 369–372, 401–440	Exhibit Hall	181
Monday 1:00 PM	*	Nanotoxicology: General and Carbon-Based #582–603l Poster Boards 441–474	Exhibit Hall	184
Monday 1:00 PM		Risk Assessment I #604–632j Poster Boards 501–539	Exhibit Hall	187
Monday 1:00 PM	*	Regulation and Policy #633–649d Poster Boards 541–561	Exhibit Hall	189
Monday 1:00 PM		Ecotoxicology #650–669e Poster Boards 601–625	Exhibit Hall	191
Monday 1:00 PM	*	Pesticide Exposure, Toxicology, and Risk Assessment #670–689b Poster Boards 626–647	Exhibit Hall	192

SYMPOSIUM SESSIONS S

Date/Time	Topic/Abstract #	Room	Page
Monday 2:00 PM	Adverse Outcome Pathways As an Integrative Framework for Predictive Toxicology: Combining Top-Down and Bottom-Up Thinking #690–695	North Ballroom 120A	195
Monday 2:00 PM	Is Neuroimmune Crosstalk Important to Neurotoxicology? Critical Insight from Animal and Human Studies #696–701	Room 122	195
Monday 2:00 PM	Perinatal Exposures and Children's Health Outcomes #702–707	Room 121	196
Monday 2:00 PM	The Emerging Role of Mitochondrial Turnover, Biogenesis, and Dynamics in Tissue Injury #708–713	Room 124	196
Monday 2:00 PM	Use of Stem Cells in Toxicity Testing—From Basic Research to Personalized Toxicology #714–718	North Ballroom 120B	197

WORKSHOP SESSION W

Date/Time	Topic/Abstract #	Room	Page
Monday 2:00 PM	Skeptically Re-Examining the Limits of Toxicology Evidence in the Courtroom #719–724	Room 129	197

EDUCATION-CAREER DEVELOPMENT SESSION EC

Date/Time	Topic/Abstract #	Room	Page
Monday 2:00 PM	Scientific Ethics in Research and Publications #725–729	Room 126	198

Tuesday

SYMPOSIUM SESSIONS S

Date/Time	Topic/Abstract #	Room	Page
Tuesday 9:00 AM	Frontiers for Toxicology Session: Noncoding RNAs in Human Health, Therapeutics, and Environmental Disease #730–734	North Ballroom 120A	203
Tuesday 9:00 AM	Does This Chemical Make My Liver Look Fat? (Environmental Exposures and Steatosis) #735–739	Room 122	203
Tuesday 9:00 AM	Ocular Immunotoxicology: A Privileged View #740–745	Room 124	204

NOTE: Abstract numbers including a lower-case letter were programmed during second submission phase.

Scientific Session Index (Continued)

WORKSHOP SESSIONS W

Date/Time	Topic/Abstract #	Room	Page
Tuesday 9:00 AM	Application of the Adverse Outcome Pathway (AOP) Concept to Neurotoxicology: A Challenging Approach #746–752	North Ballroom 120D	204
Tuesday 9:00 AM	Idiosyncrasies of Cells in Culture: Lessons from Genetic Toxicology #753–758	Room 126	205
Tuesday 9:00 AM	Photosafety Evaluation of Pharmaceuticals without Testing in Animals #759–763	Room 121	206
Tuesday 9:00 AM	Stem Cell-Derived Cardiomyocytes: An Alternative Cardiac Toxicity Model for Assessing Drug Safety and Chemical Health Risk #764–769	North Ballroom 120B	206
Tuesday 9:00 AM	The Doorway between Exposure and Response: How Biologically-Based Inhalation Dosimetry Models Enhance Human Health Risk Assessment #770–775	Room 129	207

PLATFORM SESSION PL

Date/Time	Topic/Abstract #	Room	Page
Tuesday 9:00 AM	Risk Assessment of Metals #776–782	Room 125	207

POSTER SESSIONS PS

**Author attended 9:00 am–11:00 am; otherwise author attended 11:00 am–12:30 pm. Poster Board Surface Maps are on pages 122–123.*

Date/Time		Topic/Abstract #	Room	Page
Tuesday 9:00 AM	*	Natural Products: *In Vitro* #783–797c Poster Boards 101–118	Exhibit Hall	208
Tuesday 9:00 AM		Natural Products: *In Vivo* #798–813d Poster Boards 121–140	Exhibit Hall	209
Tuesday 9:00 AM	*	Nanotoxicology: Metals, Environmental, and *In Silico* #814–841e Poster Boards 141–173	Exhibit Hall	210
Tuesday 9:00 AM		Children's Health and Juvenile Toxicity #842–848c Poster Boards 201–210	Exhibit Hall	213
Tuesday 9:00 AM	*	Clinical and Translational Toxicology #849–876d Poster Boards 211–242	Exhibit Hall	213
Tuesday 9:00 AM		Pharmacokinetics and Disposition #877–901f Poster Boards 246–276	Exhibit Hall	216
Tuesday 9:00 AM	*	Gene Regulation and Signal Transduction I #902–922d Poster Boards 301–325	Exhibit Hall	218
Tuesday 9:00 AM		New Science on Neurodegenerative Disease #923–942e Poster Boards 326–350	Exhibit Hall	219
Tuesday 9:00 AM	*	Medical Devices #943–954d Poster Boards 351–366	Exhibit Hall	221
Tuesday 9:00 AM		Epigenetics #954e–978e Poster Boards 369–372, 401–429	Exhibit Hall	222
Tuesday 9:00 AM	*	Inflammation in Disease #979–1006b Poster Boards 431–460	Exhibit Hall	224
Tuesday 9:00 AM		Toxicity of Chemical Mixtures #1007–1018f Poster Boards 461–478	Exhibit Hall	226
Tuesday 9:00 AM	*	Alternatives to Mammalian Models II #1019–1062i Poster Boards 501–553	Exhibit Hall	228
Tuesday 9:00 AM		Endocrine Toxicology #1063–1087k Poster Boards 601–636	Exhibit Hall	231
Tuesday 9:00 AM	*	Developmental Toxicology: Mammalian Models II #1087l–1087x Poster Boards 638–650	Exhibit Hall	234

POSTER SESSIONS PS

**Author attended 1:00 pm–2:45 pm; otherwise author attended 2:45 pm–4:30 pm. Poster Board Surface Maps are on pages 122–123.*

Date/Time		Topic/Abstract #	Room	Page
Tuesday 1:00 PM	*	Carcinogenesis II #1088–1110g Poster Boards 101–130	Exhibit Hall	237
Tuesday 1:00 PM		Cardiovascular Toxicity and Hemodynamics: An *In Vitro* Approach #1111–1129f Poster Boards 141–165	Exhibit Hall	239
Tuesday 1:00 PM	*	Receptors #1130–1163b Poster Boards 201–236	Exhibit Hall	241
Tuesday 1:00 PM		Liver #1164–1200i Poster Boards 241–286	Exhibit Hall	244
Tuesday 1:00 PM	*	Inhalants and Cardiopulmonary: Agents and Methods #1201–1229g Poster Boards 301–336	Exhibit Hall	247
Tuesday 1:00 PM		Inhalants and Cardiopulmonary: PM, Ozone, and Diesel Exhaust #1230–1242i Poster Boards 337–358	Exhibit Hall	249
Tuesday 1:00 PM	*	Metals I: Zn, Cd, Hg #1243–1264c Poster Boards 401–425	Exhibit Hall	251
Tuesday 1:00 PM		Metals II #1265–1297g Poster Boards 436–475	Exhibit Hall	253
Tuesday 1:00 PM	*	Arsenic #1297h–1327f Poster Boards 476-480, 501–536	Exhibit Hall	256
Tuesday 1:00 PM		Developmental Neurotoxicity I: Mechanisms, Metals, and Industrial Chemicals #1328–1347l Poster Boards 537–568	Exhibit Hall	259
Tuesday 1:00 PM	*	Metal Neurotoxicity I: Mn #1348–1368b Poster Boards 601–623	Exhibit Hall	261
Tuesday 1:00 PM		Metal Neurotoxicity II: MeHg and Other Metals #1369–1392a Poster Boards 626–650	Exhibit Hall	263

NOTE: Abstract numbers including a lower-case letter were programmed during second submission phase.

Scientific Session Index (Continued)

WORKSHOP SESSIONS

Date/Time	Topic/Abstract #	Room	Page
Tuesday 1:30 PM	Addressing Uncertainties of the Toxicology of Nanomaterials in Food and Food Contact Products #1393–1397	North Ballroom 120A	264
Tuesday 1:30 PM	Adverse Outcome Pathways: A Conceptual Framework for 21st Century Risk Assessment #1398–1403	Room 124	265
Tuesday 1:30 PM	Challenges Facing the Next Generation of Risk Assessment #1404–1409	Room 122	265
Tuesday 1:30 PM	Contribution of Nonimmune Cells to Adverse Immune Responses: Implications for Toxicology #1410–1415	Room 129	266
Tuesday 1:30 PM	Developmental Toxicity from Chemical Mixtures: Research to Application in Susceptible Populations #1416–1421	Room 125	266
Tuesday 1:30 PM	Somatic Cell Therapy—Paradigms for Investigational New Drug (IND)-Enabling Programs, Scientific and Regulatory Considerations, and Clinical Translation #1422–1428	North Ballroom 120B	267
Tuesday 1:30 PM	The Promise of Translational Imaging in Nonclinical Safety Assessment #1429–1434	Room 121	268
Tuesday 1:30 PM	The Role of Toxicology in Undergraduate STEM Education Reform #1435–1440	Room 126	268

Wednesday

SYMPOSIUM SESSIONS

Date/Time	Topic/Abstract #	Room	Page
Wednesday 9:00 AM	*In Vitro* Microphysiological Systems: Advancing Regulatory Science through Innovation #1441–1446	North Ballroom 120D	271
Wednesday 9:00 AM	Mechanisms of Metal-Induced Disruption of DNA Repair #1447–1451	Room 126	272
Wednesday 9:00 AM	Molecular Mechanisms Involved in Neuro/Glial Toxicity: From Oxidative Stress to Redox Signal Transduction #1452–1457	Room 122	272
Wednesday 9:00 AM	The Role of the AhR in Stem Cell Development and Lineage Specification #1458–1463	Room 124	273
Wednesday 9:00 AM	Three Dimensions of Nanomaterial Pulmonary Toxicity: Innate Immunity, TLRs, and Inflammasomes #1464–1468	Room 121	273

WORKSHOP SESSIONS

Date/Time	Topic/Abstract #	Room	Page
Wednesday 9:00 AM	Improving the Safety of Dietary Supplements and Natural Health Products by Assessing Effects in Humans #1469–1475	Room 125	274
Wednesday 9:00 AM	Toxicogenomic Technologies Can Improve the Assessment of Xenobiotic-Induced Liver Injury and Inform Human Relevance #1476–1481	North Ballroom 120B	275
Wednesday 9:00 AM	Understanding Weight of Evidence: Exploring Different Approaches to Integrating Evidence from Diverse Data Streams #1482–1489	Room 129	275

POSTER SESSIONS

**Author attended 9:00 am–11:00 am; otherwise author attended 11:00 am–12:30 pm. Poster Board Surface Maps are on pages 124–125.*

Date/Time		Topic/Abstract #	Room	Page
Wednesday 9:00 AM	*	Carcinogenesis III #1490–1514b Poster Boards 101–127	Exhibit Hall	276
Wednesday 9:00 AM		Biomarkers II #1515–1549h Poster Boards 131–173	Exhibit Hall	278
Wednesday 9:00 AM	*	Exposure Assessment and Biomonitoring #1550–1581 Poster Boards 201–232	Exhibit Hall	281
Wednesday 9:00 AM		Nonpharmaceuticals: Safety Evaluation #1582–1616g Poster Boards 241–282	Exhibit Hall	283
Wednesday 9:00 AM	*	Safety Assessment: Pharmaceutical Drug Discovery #1617–1639c Poster Boards 301–326	Exhibit Hall	285
Wednesday 9:00 AM		Safety Assessment: Drug Development II #1640–1662 Poster Boards 333–355	Exhibit Hall	287
Wednesday 9:00 AM	*	Education, Ethical, Legal, and Social Issues #1662a–1680a Poster Boards 369–372, 401–419	Exhibit Hall	289
Wednesday 9:00 AM		Developmental Basis of Adult Disease #1681–1690b Poster Boards 421–432	Exhibit Hall	290
Wednesday 9:00 AM	*	Reproductive Toxicology: Male #1691–1713k Poster Boards 436–469	Exhibit Hall	291
Wednesday 9:00 AM		Immunotoxicity II #1713l–1713u Poster Boards 471–480	Exhibit Hall	293
Wednesday 9:00 AM	*	Gene Regulation and Signal Transduction II #1714–1736e Poster Boards 501–528	Exhibit Hall	294

NOTE: Abstract numbers including a lower-case letter were programmed during second submission phase.

Scientific Session Index (Continued)

Wednesday 9:00 AM		Developmental Neurotoxicity II: New Methods, Persistent Chemicals, and Flame Retardants #1737–1747e Poster Boards 533–548	Exhibit Hall	296
Wednesday 9:00 AM	*	Developmental Neurotoxicity III: Pesticides, Food, and Drugs #1748–1764e Poster Boards 549–570	Exhibit Hall	297

ROUNDTABLE SESSION

Date/Time	Topic/Abstract #	Room	Page
Wednesday 12:00 Noon	Hydraulic Fracturing: Are There Worker Health Issues? #1765	Room 124	300

INFORMATIONAL SESSION

Date/Time	Topic/Abstract #	Room	Page
Wednesday 12:00 Noon	Understanding the Implications of Breastfed Infant Exposures to POPs: How Can We Do Better? #1766	Room 128	301

EDUCATION-CAREER DEVELOPMENT SESSION

Date/Time	Topic/Abstract #	Room	Page
Wednesday 12:00 Noon	Training and Continuing Education for the "Total Toxicologist": How Do We Optimize Training and Educational Opportunities for Different Job Sectors? #1767	Room 126	301

POSTER SESSIONS

**Author attended 1:00 pm–2:45 pm; otherwise author attended 2:45 pm–4:30 pm. Poster Board Surface Maps are on pages 124–125.*

Date/Time		Topic/Abstract #	Room	Page
Wednesday 1:00 PM	*	Oxidative Injury and Redox Biology #1768–1804c Poster Boards 101–140	Exhibit Hall	302
Wednesday 1:00 PM		Risk Assessment II #1805–1831m Poster Boards 141–180	Exhibit Hall	305
Wednesday 1:00 PM	*	Neurotoxicity: Pesticides #1832–1863c Poster Boards 201–235	Exhibit Hall	308
Wednesday 1:00 PM		Liver and Models #1864–1899e Poster Boards 236–276	Exhibit Hall	310
Wednesday 1:00 PM	*	Stem Cell Biology and Toxicology #1900–1922f Poster Boards 301–329	Exhibit Hall	313
Wednesday 1:00 PM		Genotoxicity Mechanisms #1923–1943j Poster Boards 333–363	Exhibit Hall	315
Wednesday 1:00 PM	*	Nanotoxicology: *In Vitro* #1944–1973j Poster Boards 401–440	Exhibit Hall	317
Wednesday 1:00 PM		Nanotoxicology: *In Vivo* #1974–2004h Poster Boards 441–479	Exhibit Hall	320
Wednesday 1:00 PM	*	Immunotoxicity #2005–2040c Poster Boards 501–539	Exhibit Hall	322
Wednesday 1:00 PM		Kidney #2041–2067a Poster Boards 541–568	Exhibit Hall	325

SYMPOSIUM SESSION

Date/Time	Topic/Abstract #	Room	Page
Wednesday 1:30 PM	Exploring the Interface between Air Pollution and Metabolic Syndrome: The Bittersweet Dilemma #2068–2073	North Ballroom 120B	327

WORKSHOP SESSIONS

Date/Time	Topic/Abstract #	Room	Page
Wednesday 1:30 PM	Advances in the Application of Imaging Technologies to Developmental Toxicology #2074–2079	Room 129	328
Wednesday 1:30 PM	Beyond hERG: Novel Cardiovascular De-Risking Strategies and Their Regulatory Acceptance #2080–2086	North Ballroom 120D	328
Wednesday 1:30 PM	Communication and Engagement with the Public about Toxicology in a World That Misunderstands Science and Scientists: How Do You Make Your Message Relevant and "Sticky"? #2087–2090	Room 126	329
Wednesday 1:30 PM	Databases Facilitating Systems Biology Approaches to Toxicology #2092–2097	Room 122	330
Wednesday 1:30 PM	Genomics in Toxics Regulation and Litigation in the Era of Whole Genome Sequencing #2098–2102	Room 121	330
Wednesday 1:30 PM	Is Manganese-Induced Parkinsonism Mediated via Dopamine Neuron Degeneration or Dysfunction? #2103–2108	Room 124	331
Wednesday 1:30 PM	Science-Based Preclinical Safety Assessment: Decision-Making to Enhance Regulatory Success #2109–2114	North Ballroom 120A	331

HISTORICAL HIGHLIGHTS SESSION

Date/Time	Topic/Abstract #	Room	Page
Wednesday 4:30 PM	A History of the 3Rs in Toxicity Testing: From Russell and Burch to 21st Century Toxicology #2115	Room 124	332

INFORMATIONAL SESSIONS

Date/Time	Topic/Abstract #	Room	Page
Wednesday 4:30 PM	Leadership in Science: Skills and Styles #2116	Room 126	333
Wednesday 4:30 PM	Recent Challenges Beyond the Usual Toxicological and Public Health Challenges in Africa #2117	Room 125	333

NOTE: Abstract numbers including a lower-case letter were programmed during second submission phase.

Scientific Session Index (Continued)

Thursday

POSTER SESSIONS PS

Author attended 8:30 am–12:00 noon.
Poster Board Surface Map is on page 126.

Date/Time	Topic/Abstract #	Room	Page
Thursday 8:30 AM	Animal Models of Disease #2118–2129d Poster Boards 101–116	Hall 1	335
Thursday 8:30 AM	Animal Models: Measurements and Validation #2130–2151d Poster Boards 121–146	Hall 1	336
Thursday 8:30 AM	Animal Models: Methods Development #2152–2163c Poster Boards 151–165	Hall 1	337
Thursday 8:30 AM	Skin #2164–2182c Poster Boards 201–222	Hall 1	338
Thursday 8:30 AM	Reproductive Toxicology: Female #2183–2196d Poster Boards 226–243	Hall 1	340
Thursday 8:30 AM	Safety Assessment: Drug Development III #2196e–2196bb Poster Boards 246–269	Hall 1	341
Thursday 8:30 AM	Persistent Organic Pollutants #2197–2213b Poster Boards 301–319	Hall 1	342
Thursday 8:30 AM	Metals in the Environment #2214–2234d Poster Boards 326–350	Hall 1	343
Thursday 8:30 AM	Exposure Assessment and Biomonitoring II #2234e–2234aa Poster Boards 355–377	Hall 1	345
Thursday 8:30 AM	Risk Assessment III #2235–2250l Poster Boards 401–428	Hall 1	347
Thursday 8:30 AM	Computational Toxicology and Data Integration II #2251–2273n Poster Boards 431–467	Hall 1	348
Thursday 8:30 AM	Computational Toxicology and Data Integration III #2273o–2273cc Poster Boards 470–484	Hall 1	351

SYMPOSIUM SESSIONS S

Date/Time	Topic/Abstract #	Room	Page
Thursday 9:00 AM	Clinical Evaluation of Emerging Biomarkers of Drug-Induced Liver Injury #2274–2279	North Ballroom 120A	352
Thursday 9:00 AM	Does Evolution Matter in Toxicity Testing in the 21st Century? Rethinking Cross-Species Extrapolation in Hazard Characterization #2280–2285	Room 121	353
Thursday 9:00 AM	Neurobehavioral Impacts of Early-Life Manganese Exposure: Linking Human and Animal Model Studies #2286–2292	North Ballroom 120B	353

WORKSHOP SESSIONS W

Date/Time	Topic/Abstract #	Room	Page
Thursday 9:00 AM	Are Biofuels More or Less Toxic Than Conventional Fuels and What Are the Implications for Human Exposure and Risk? #2293–2298	North Ballroom 120D	354
Thursday 9:00 AM	Role of Circulating Factors in Mediating Systemic Toxicity of Inhaled Substances #2299–2304	Room 122	354
Thursday 9:00 AM	The Use of Dogs and Minipigs As an Alternative to the Nonhuman Primate in Nonclinical Safety Assessment of Biopharmaceuticals #2305–2310	Room 129	355

REGIONAL INTEREST SESSION RI

Date/Time	Topic/Abstract #	Room	Page
Thursday 9:00 AM	When the Dust Settles: Exposure Assessment and Health Effects from Dust Exposures in the Arid Southwest #2311–2315	Room 126	356

PLATFORM SESSIONS PL

Date/Time	Topic/Abstract #	Room	Page
Thursday 9:00 AM	Autoimmunity/Hypersensitivity to Environmental Contaminants #2316–2322	Room 125	356
Thursday 9:00 AM	Ozone: Multiple Tissue Endpoints #2323–2330	Room 128	357

NOTE: Abstract numbers including a lower-case letter were programmed during second submission phase.



Notes

Poster Session Schedule and Board Surface Maps

Monday, March 24 to Wednesday, March 26—Exhibit Hall—Lower Level *(See Map below)*

MONDAY

Morning, March 24—9:30 AM to 12:30 PM
Poster Set Up—7:30 AM to 9:30 AM

Afternoon, March 24—1:00 PM to 4:30 PM
Poster Set Up—12:30 PM to 1:00 PM

TUESDAY

Morning, March 25—9:00 AM to 12:30 PM
Poster Set Up—7:30 AM to 9:00 AM

Afternoon, March 25—1:00 PM to 4:30 PM
Poster Set Up—12:30 PM to 1:00 PM

WEDNESDAY

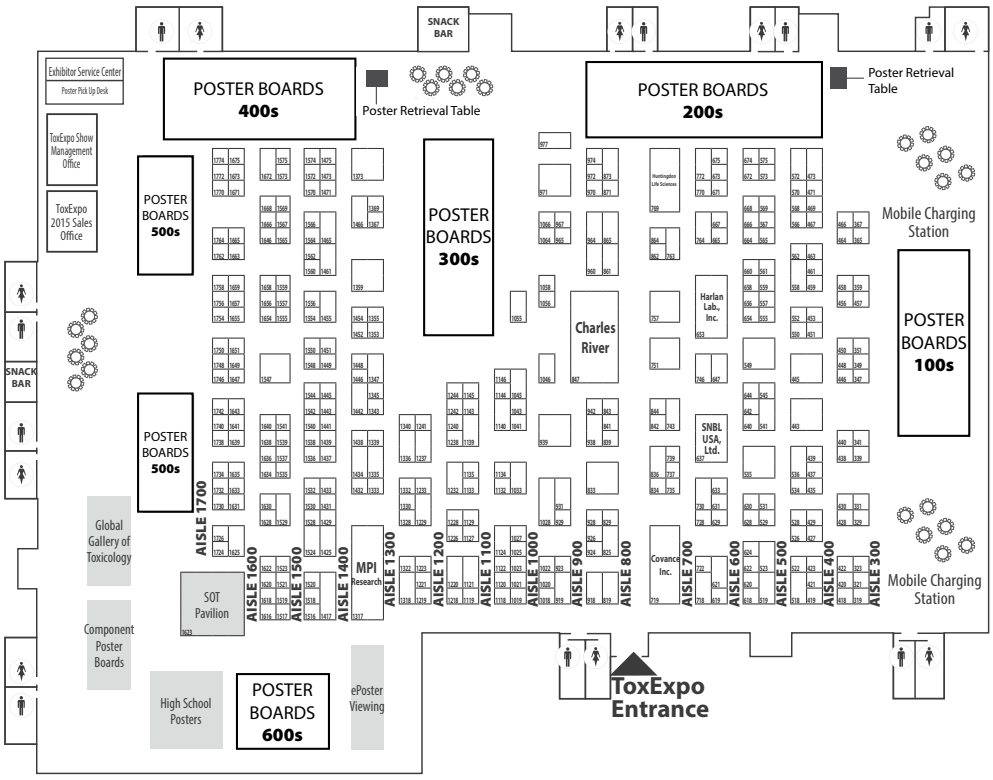
Morning, March 26—9:00 AM to 12:30 PM
Poster Set Up—7:30 AM to 9:00 AM

Afternoon, March 26—1:00 PM to 4:30 PM
Poster Set Up—12:30 PM to 1:00 PM

Thursday, March 27—Hall 1—Lower Level *(See Map on page 126)*

THURSDAY

Morning, March 27—8:30 AM to 12:00 Noon
Poster Set Up—7:00 AM to 8:30 AM



If you do not remove your poster at the end of your session, you will find it on the "Poster Retrieval Tables" located at the rear of the Exhibit Hall to the right of poster sections 200 and right of 400. Any posters left behind at 4:30 pm on Wednesday will be taken to SOT Headquarters Office, Room 224A, Thursday morning, March 27. All posters not claimed by 1:00 pm on Thursday, March 27, will be recycled.

Photography in the ToxExpo and all poster sessions is prohibited without the consent of exhibitors or poster presenter(s)/author(s). Please respect your colleagues' right to privacy.

The numbers listed refer to the poster location that does not change throughout the week. Presenters should display posters ONLY on the date and time communicated in their acceptance notice. A list of poster session dates and times with abstract numbers can be found on pages 119–126. The full map of the Exhibit Hall can be found on pages 38–39 to assist you in finding poster sessions.

Poster Session Schedule and Board Surface Maps (Continued)

Monday Morning, March 24—9:30 AM to 12:30 PM—Exhibit Hall
Poster Set Up—7:30 AM to 9:30 AM

SESSION TITLE	ABSTRACT NUMBERS	POSTER BOARD NUMBERS
Biological Modeling	66–96i	101–140
Biomarkers I	97–122i	141–175
Autoimmunity/Hypersensitivity	123–145b	201–225
Alternatives to Mammalian Models I	146–173p	231–274
Developmental Toxicology: Mammalian Models	174–200	301–327
Developmental Toxicology: Nonmammalian Models	201–223e	333–360
Epidemiology	223f–235a	369–372, 401–413
Carcinogenesis I	236–265e	416–450
Safety Assessment: Drug Development I	266–288	451–473
Cell Death/Apoptosis	289–312f	501–530
Food Toxicology/Nutrition	313–343j	533–573
Neurotoxicity: General	344–378i	601–644

Monday Afternoon, March 24—1:00 PM to 4:30 PM—Exhibit Hall
Poster Set Up—12:30 PM to 1:00 PM

SESSION TITLE	ABSTRACT NUMBERS	POSTER BOARD NUMBERS
Inflammation: Methods and Mechanisms	382–408b	101–129
Systems Biology and Toxicology	409–418e	131–145
Computational Toxicology and Data Integration I	419–440l	146–179
Genetic Toxicity Testing	441–467h	201–235
Cardiovascular Toxicity and Hemodynamics	468–504c	236–275
Biotransformation/Cytochrome P450	505–539e	301–340
Pharmacogenomics and Genetic Polymorphisms	540–552c	341–356
Chemical and Biological Weapons	552d–581k	369–372, 401–440
Nanotoxicology: General and Carbon-Based	582–603l	441–474
Risk Assessment I	604–632j	501–539
Regulation and Policy	633–649d	541–561
Ecotoxicology	650–669e	601–625
Pesticide Exposure, Toxicology, and Risk Assessment	670–689b	626–647

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Poster Session Schedule and Board Surface Maps (Continued)

400s

480	471	470	461	460	451	450	441	440	431	430	421	420	411	410	401
479	472	469	462	459	452	449	442	439	432	429	422	419	412	409	402
478	473	468	463	458	453	448	443	438	433	428	423	418	413	408	403
477	474	467	464	457	454	447	444	437	434	427	424	417	414	407	404
476	475	466	465	456	455	446	445	436	435	426	425	416	415	406	405

200s

288	281	280	271	270	261	260	251	250	241	240	231	230	221	220	211	210	201
287	282	279	272	269	262	259	252	249	242	239	232	229	222	219	212	209	202
286	283	278	273	268	263	258	253	248	243	238	233	228	223	218	213	208	203
285	284	277	274	267	264	257	254	247	244	237	234	227	224	217	214	207	204
		276	275	266	265	256	255	246	245	236	235	226	225	216	215	206	205

500s

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300s

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100s

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175	174	173	172	171
166	167	168	169	170
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600s

605	606	615	616	625	626	635	636	645	646
604	607	614	617	624	627	634	637	644	647
603	608	613	618	623	628	633	638	643	648
602	609	612	619	622	629	632	639	642	649
601	610	611	620	621	630	631	640	641	650

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Poster Session Schedule and Board Surface Maps (Continued)

Tuesday Morning, March 25—9:00 AM to 12:30 PM—Exhibit Hall
Poster Set Up—7:30 AM to 9:00 AM

SESSION TITLE	ABSTRACT NUMBERS	POSTER BOARD NUMBERS
Natural Products: *In Vitro*	783–797c	101–118
Natural Products: *In Vivo*	798–813d	121–140
Nanotoxicology: Metals, Environmental, and *In Silico*	814–841e	141–173
Children's Health and Juvenile Toxicity	842–848c	201–210
Clinical and Translational Toxicology	849–876d	211–242
Pharmacokinetics and Disposition	877–901f	246–276
Gene Regulation and Signal Transduction I	902–922d	301–325
New Science on Neurodegenerative Disease	923–942e	326–350
Medical Devices	943–954d	351–366
Epigenetics	954e–978e	369-372, 401–429
Inflammation in Disease	979–1006b	431–460
Toxicity of Chemical Mixtures	1007–1018f	461–478
Alternatives to Mammalian Models II	1019–1062i	501–553
Endocrine Toxicology	1063–1087k	601–636
Developmental Toxicology: Mammalian Models II	1087l–1087x	638–650

Tuesday Afternoon, March 25—1:00 PM to 4:30 PM—Exhibit Hall
Poster Set Up—12:30 PM to 1:00 PM

SESSION TITLE	ABSTRACT NUMBERS	POSTER BOARD NUMBERS
Carcinogenesis II	1088–1110g	101–130
Cardiovascular Toxicity and Hemodynamics: An *In Vitro* Approach	1111–1129f	141–165
Receptors	1130–1163b	201–236
Liver	1164–1200i	241–286
Inhalants and Cardiopulmonary: Agents and Methods	1201–1229g	301–336
Inhalants and Cardiopulmonary: PM, Ozone, and Diesel Exhaust	1230–1242i	337–358
Metals I: Zn, Cd, Hg	1243–1264c	401–425
Metals II	1265–1297g	436–475
Arsenic	1297h–1327f	476-480, 501–536
Developmental Neurotoxicity I: Mechanisms, Metals, and Industrial Chemicals	1328–1347l	537–568
Metal Neurotoxicity I: Mn	1348–1368b	601–623
Metal Neurotoxicity II: MeHg and Other Metals	1369–1392a	626–650

NOTE: Abstract numbers including a lower-case letter were programmed during second submission phase.

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Poster Session Schedule and Board Surface Maps (Continued)

400s

480	471	470	461	460	451	450	441	440	431	430	421	420	411	410	401
479	472	469	462	459	452	449	442	439	432	429	422	419	412	409	402
478	473	468	463	458	453	448	443	438	433	428	423	418	413	408	403
477	474	467	464	457	454	447	444	437	434	427	424	417	414	407	404
476	475	466	465	456	455	446	445	436	435	426	425	416	415	406	405

200s

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500s

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300s

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100s

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600s

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Poster Session Schedule and Board Surface Maps (Continued)

Wednesday Morning, March 26—9:00 AM to 12:30 PM—Exhibit Hall
Poster Set Up—7:30 AM to 9:00 AM

SESSION TITLE	ABSTRACT NUMBERS	POSTER BOARD NUMBERS
Carcinogenesis III	1490–1514b	101–127
Biomarkers II	1515–1549h	131–173
Exposure Assessment and Biomonitoring	1550–1581	201–232
Nonpharmaceuticals: Safety Evaluation	1582–1616g	241–282
Safety Assessment: Pharmaceutical Drug Discovery	1617–1639c	301–326
Safety Assessment: Drug Development II	1640–1662	333–355
Education, Ethical, Legal, and Social Issues	1662a–1680a	369–372, 401–419
Developmental Basis of Adult Disease	1681–1690b	421–432
Reproductive Toxicology: Male	1691–1713k	436–469
Immunotoxicity II	1713l–1713u	471–480
Gene Regulation and Signal Transduction II	1714–1736e	501–528
Developmental Neurotoxicity II: New Methods, Persistent Chemicals, and Flame Retardants	1737–1747e	533–548
Developmental Neurotoxicity III: Pesticides, Food, and Drugs	1748–1764e	549–570

Wednesday Afternoon, March 26—1:00 PM to 4:30 PM—Exhibit Hall
Poster Set Up—12:30 PM to 1:00 PM

SESSION TITLE	ABSTRACT NUMBERS	POSTER BOARD NUMBERS
Oxidative Injury and Redox Biology	1768–1804c	101–140
Risk Assessment II	1805–1831m	141–180
Neurotoxicity: Pesticides	1832–1863c	201–235
Liver and Models	1864–1899e	236–276
Stem Cell Biology and Toxicology	1900–1922f	301–329
Genotoxicity Mechanisms	1923–1943j	333–363
Nanotoxicology: *In Vitro*	1944–1973j	401–440
Nanotoxicology: *In Vivo*	1974–2004h	441–479
Immunotoxicity	2005–2040c	501–539
Kidney	2041–2067a	541–568

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Poster Session Schedule and Board Surface Maps (Continued)

400s

480	471	470	461	460	451	450	441	440	431	430	421	420	411	410	401
479	472	469	462	459	452	449	442	439	432	429	422	419	412	409	402
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476	475	466	465	456	455	446	445	436	435	426	425	416	415	406	405

200s

288	281	280	271	270	261	260	251	250	241	240	231	230	221	220	211	210	201
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300s

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100s

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Poster Session Schedule and Board Surface Maps (Continued)

Thursday Morning, March 27—8:30 AM to 12:00 Noon—Hall 1
Poster Set Up—7:00 AM to 8:30 AM

SESSION TITLE	ABSTRACT NUMBERS	POSTER BOARD NUMBERS
Animal Models of Disease	2118–2129d	101–116
Animal Models: Measurements and Validation	2130–2151d	121–146
Animal Models: Methods Development	2152–2163c	151–165
Skin	2164–2182c	201–222
Reproductive Toxicology: Female	2183–2196d	226–243
Safety Assessment: Drug Development III	2196e–2196bb	246–269
Persistent Organic Pollutants	2197–2213b	301–319
Metals in the Environment	2214–2234d	326–350
Exposure Assessment and Biomonitoring II	2234e–2234aa	355–377
Risk Assessment III	2235–2250l	401–428
Computational Toxicology and Data Integration II	2251–2273n	431–467
Computational Toxicology and Data Integration II	2273o–2273cc	470–484

301	312	313	324	325	336	337	348	349	360	361	372	373	384	401	412	413	424	425	436	437	448	449	460	461	472	473	484
302	311	314	323	326	335	338	347	350	359	362	371	374	383	402	411	414	423	426	435	438	447	450	459	462	471	474	483
303	310	315	322	327	334	339	346	351	358	363	370	375	382	403	410	415	422	427	434	439	445	451	458	463	470	475	482
304	309	316	321	328	333	340	345	352	357	364	369	376	381	404	409	416	421	428	433	440	445	452	457	464	469	476	481
305	308	317	320	329	332	341	344	353	356	365	368	377	380	405	408	417	420	429	432	441	444	453	456	465	468	477	480
306	307	318	319	330	331	342	343	354	355	366	367	378	379	406	407	418	419	430	431	442	443	454	455	466	467	478	479

266	265	256	255	246	245	236	235	226	225	216	215	206	205	166	165	156	155	146	145	136	135	126	125	116	115	106	105
267	264	257	254	247	244	237	234	227	224	217	214	207	204	167	164	157	154	147	144	137	134	127	124	117	114	107	104
268	263	258	253	248	243	238	233	228	223	218	213	208	203	168	163	158	153	148	143	138	133	128	123	118	113	108	103
269	262	259	252	249	242	239	232	229	222	219	212	209	202	169	162	159	152	149	142	139	132	129	122	119	112	109	102
270	261	260	251	250	241	240	231	230	221	220	211	210	201	170	161	160	151	150	141	140	131	130	121	120	111	110	101

Entrance

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Program Description

The Program Description layout is ordered by date and start time. All scientific sessions and special events will be held in the Phoenix Convention Center in the North Building unless otherwise noted.

SOT general events and functions are displayed with a color background.

Scientific Session Types: *Exhibitor-Hosted Sessions are informative sessions developed by an exhibiting company or SOT supporter.*
See pages 43–45 for the Exhibitor-Hosted Session Index.

- EC Education-Career Development Sessions
- I Exhibitor-Hosted Sessions
- FS Featured Sessions
- HH Historical Highlights Session
- IS Informational Sessions
- PL Platform Sessions
- PS Poster Sessions
- RI Regional Interest Session
- R Roundtable Sessions
- S Symposium Sessions
- Thematic Sessions
- W Workshop Sessions

SATURDAY MORNING

Saturday Morning, March 22
8:30 AM to 4:15 PM
Health Science Education Building
University of Arizona, Phoenix, Biomedical Campus

High School Student and Teacher Workshop: Lotions Are Not Potions: Toxicology and Product Safety

Chairperson(s): *Angie Slitt, University of Rhode Island, Providence, RI, K–12 Subcommittee Chair, Todd Camenisch, University of Arizona, Tucson, AZ, and Virunya Bhat, NSF International, Encinitas, CA.*

Sponsor(s):
Education Committee
K–12 Subcommittee
Mountain West Regional Chapter

How do toxicologists make our homes and world safer? Arizona high school teachers and students will find out when the Society of Toxicology hosts them during an all-day workshop at the University of Arizona Phoenix Biomedical Campus. Activities will include featured presentations by SOT members, a consumer products safety activity that includes making lotion, and exploration of safety evaluation data. Students and teachers will meet informally at lunch with toxicologists to learn about the exciting and diverse options for careers in toxicology.

8:00 AM–8:30 AM	**Registration.**
9:00 AM–9:15 AM	**Welcoming Remarks.** Angela S. Slitt, Chair, SOT K–12 Subcommittee, University of Rhode Island, Providence, RI, and Todd Camenisch, Event Chair, University of Arizona, Phoenix, AZ.
9:15 AM–9:45 AM	**Speaker Introduction.** Virunya Bhat, NSF International, Encinitas, CA. **Keynote Presentation: Small Matter Things: Why Small Things Matter.** Martin A. Philbert, Dean, School of Public Health, University of Michigan, Ann Arbor, MI.
9:45 AM–10:00 AM	**Break.**
(Cont')	
10:00 AM–11:45 AM	**Teacher Workshop.** ***Facilitator:*** Marie Bourgeios, University of South Florida, Tampa, FL. **Student Workshop.** ***Group A:*** **Lotions Are Not Potions Lab.** ***Facilitator:*** Virunya Bhat, NSF International, San Diego, CA. ***Group B:*** **From Micelles to My Cells: Data Analysis and Exposure Assessment Principles.** ***Facilitator:*** Caroline English, NSF International, Santa Cruz, CA.
12:00 Noon–1:30 PM	**Lunch with SOT Mentors.**
1:30 PM–3:00 PM	**Teacher Workshop.** ***Facilitator:*** Marie Bourgeios, University of South Florida, Tampa, FL. **Student Workshop.** ***Group A:*** **From Micelles to My Cells: Data Analysis and Exposure Assessment Principles.** ***Facilitator:*** Caroline English, NSF International, Santa Cruz, CA. ***Group B:*** **Lotions Are Not Potions Lab.** ***Facilitator:*** Virunya Bhat, NSF International, San Diego, CA.
3:00 PM–3:10 PM	**Break.**
3:10 PM–3:40 PM	***Career Presentations.*** **Making the World a Healthier Place: How to Become a Toxicologist.** Nathan Cherrington, University of Arizona, Tucson, AZ.
3:40 PM–4:00 PM	**From Summer Intern to Graduate Student: My Experience** Jamie Moscovitz, Rutgers University, Rutgers, NJ.
4:00 PM–4:15 PM	**Concluding Remarks.** Angela S. Slitt, Chair, SOT K–12 Subcommittee, University of Rhode Island, Providence, RI.

For more information please visit the Special Events section of the Annual Meeting website.

SATURDAY EVENING

Saturday Evening, March 22
5:15 PM to 7:00 PM
Room 102 West
(By Invitation Only)

Undergraduate Education Program Opening Event

Chairperson(s): *Ofelia A. Olivero, National Institutes of Health, National Cancer Center, Bethesda, MD.*

Sponsor(s):
Committee for Diversity Initiatives

CDI Travel Awardees in the Undergraduate Education Program, and SOT program volunteers assisting with the Undergraduate Program. Full program details are found on page 99.

Saturday Evening, March 22
7:00 PM to 9:00 PM
Room 105 West

CDI Reunion and 25th Anniversary Celebration of the Undergraduate Education Program for Minority Students

Hosted by:
Committee on Diversity Initiatives

This year the CDI Reunion will mark the 25th Anniversary of the Undergraduate Education Program for Minority Students. Program founders, volunteers and alumni are urged to join us for the special celebration. As always, 2014 program participants will be on hand for you to meet and greet, and the Gehring Diversity Student Travel Award will be presented. Start the 53rd Annual Meeting with this special 25th anniversary celebration of your contributions to the Undergraduate Education Program for Minority Students. Coffee, tea and dessert will be served.

Program Description (Continued)

SUNDAY MORNING

Sunday Morning, March 23
7:00 AM to 7:45 AM
100 Level
(Ticket Required; See mobile event app or signage at CE Booth for room location)

Continuing Education Sunrise Mini-Course

Full Continuing Education Course details may be found on pages 103–110.

Sunday Morning and Afternoon, March 23
8:00 AM to 5:00 PM
Room 105 West
(Registration Required; See mobile event app or pages 5–13 for room information)

Undergraduate Education Program

Chairperson(s): *Ofelia A. Olivero, National Institutes of Health National Cancer Center, Bethesda, MD.*

Sponsor(s):
Committee for Diversity Initiatives

The Sunday program is open to undergraduate students who register for this event using the Annual Meeting Registration Form, the undergraduate students and advisors receiving SOT travel funding, and SOT program volunteers. Full program details are found on page 99.

Sunday Morning, March 23
8:15 AM to 12:00 Noon
100 Level
(Ticket Required; See mobile event app or signage at CE Booth for room location)

Continuing Education Morning Courses

Full Continuing Education Course details may be found on pages 103–110.

SUNDAY AFTERNOON

Sunday Afternoon, March 23
1:15 PM to 5:00 PM
100 Level
(Ticket Required; See mobile event app or signage at CE Booth for room location)

Continuing Education Afternoon Courses

Full Continuing Education Course details may be found on pages 103–110.

Sunday Afternoon, March 23
3:00 PM to 3:30 PM
North Ballroom 120D

NIEHS-SOT Memorandum of Understanding Signing Ceremony

The Director of the National Institute of Environmental Health Sciences (NIEHS) Linda S. Birnbaum and the President of the Society of Toxicology (SOT) Lois D. Lehman-McKeeman, 2013–2014 SOT Council, and invited dignitaries will attend a Memorandum of Understanding (MOU) signing ceremony to further strengthen the partnership between these organizations committed to human health and disease prevention. This MOU sets forth a framework for an alliance between NIEHS and SOT to foster their shared dedication to providing global leadership toward creating a safer and healthier world by increasing the impact of the science of toxicology. Dr. Birnbaum, 2004–2005 SOT President, also is the Director of the National Toxicology Program. This ceremony will commemorate the joint efforts of NIEHS and SOT in initiatives addressing research and training now and in the future.

Sunday Afternoon, March 23
3:00 PM to 5:00 PM
Room 105 West
(Registration Required)

Undergraduate Education Program: Open Time with Academic Program Directors and Internship Sponsors

Chairperson(s): *Kristini Miles, Kimberly Clark Corporation, Roswell, GA, and Douglas K. Stevens, Salish Kootenai College, Pablo, MT.*

Sponsor(s):
Committee for Diversity Initiatives

The Sunday program is open to undergraduate students who register for this event using the Annual Meeting Registration Form, the undergraduate students and advisors receiving SOT travel funding, and SOT program volunteers. This is the opportunity for academic program directors, internship hosts, undergraduate students, and faculty advisors to meet informally to discuss research and graduate study opportunities. Full program details are found on page 99.

SUNDAY EVENING

Sunday Afternoon, March 23
4:45 PM to 6:30 PM
North Ballroom 120D
(All Attendees Welcome)

Awards Ceremony



Pre-Ceremony Musical Performance

4:45 PM to 5:15 PM

Nicole Pesce will perform for SOT Annual Meeting attendees prior to the SOT Awards Ceremony. This pianist is currently nominated by *Arizona Foothills Magazine's* "Best of 2014 Award" for "Best Local Band/Musician." She has been recognized as one of the "top ten musicians to hear in Phoenix" by the *Arizona Republic* and plays everything from Chopin to Lady Gaga. Nicole is currently the resident pianist at the Ritz-Carlton Hotel, Phoenix, and has enticed fans both old and new there for over 14 years. Find additional event details on the SOT 2014 Annual Meeting website at **www.toxicology.org/ai/meet/am2014/socialevents.asp**.

(continued to next page)

Education-Career Development Sessions
Exhibitor-Hosted Sessions
Featured Sessions
Historical Highlights Session
Informational Sessions
Platform Sessions

Program Description (Continued)

(continued from previous page)

Awards Ceremony

5:15 PM to 6:30 PM

SOT will honor our 2014 Honorary Members, SOT award recipients, and our sponsored award recipients at the SOT Awards Ceremony (pages 69–81) following the pre-Ceremony musical performance.

Presentation of plaques will be made to:

- Honorary Members
- Global Senior Scholar Exchange Program
- Sponsored Awards:
  - Colgate-Palmolive Award for Student Research Training in Alternative Methods
  - Colgate-Palmolive Postdoctoral Fellowship Award in *In Vitro* Toxicology
  - Colgate-Palmolive Grants for Alternative Research
  - Syngenta Fellowship Award in Human Health Applications of New Technologies
- SOT Awards:
  - Achievement Award
  - Arnold J. Lehman Award
  - Board of Publications Best Paper in Toxicological Sciences
  - Distinguished Toxicology Scholar Award
  - Education Award
  - Founders Award*
  - Leading Edge in Basic Science Award
  - Merit Award
  - Public Communications Award
  - Translational Impact Award
  - Undergraduate Educator Award*

**Sponsored by the SOT Endowment Fund*

In addition, awardees of the Pfizer SOT Undergraduate Student Travel Awards and SOT/AstraZeneca/SOT Endowment Fund/IUTOX Travel Awards will be recognized.

Sunday Evening, March 23
6:30 PM to 7:30 PM
Hall 1
(All Attendees Welcome)

Welcome Reception

Continue the celebration by attending the Welcome Reception following the Awards Ceremony. The Welcome Reception is a great opportunity to renew old friendships and to make new acquaintances. Please join the Society in this kick-off of the Annual Meeting.

Sunday Evening, March 23
7:00 PM to 8:00 PM
North Ballroom Foyer

25-Year (Or More) Member Reception

If you have been a member of the Society of Toxicology for 25 years or more, please join your colleagues to celebrate and recognize the scientists who established the Society. Be sure to wear your anniversary pin.

Sunday Evening, March 23
7:30 PM to 9:00 PM
Room 301C West
(Ticket Required)

Student/Postdoctoral Scholar Mixer

Sponsor(s):
Graduate Student Leadership Committee

The Graduate Student Leadership Committee hosts this opportunity for students and postdoctoral scholars to gather, to meet new colleagues, and to re-establish relationships in an informal atmosphere at the beginning of the meeting. Tickets are obtained at no cost by registering for this event on the Annual Meeting Registration Form and are required. Complimentary refreshments and a cash bar will be available.

Explore Federal Research Funding Opportunities and Strategies with Federal Agency Staff

All meeting attendees invited

Meet with Agency Review Administrators and Program Officers

Research Funding Information Room

Monday, March 24 to Wednesday, March 26
9:30 AM–4:00 PM
Room 127A

See pages 136, 235, and 299 for more information

Strategies for Funding Opportunities: Brown Bag Luncheon

Tuesday, March 25
12:00 Noon–1:30 PM
Room 221

See page 236 for more information

PS Poster Sessions
RI Regional Interest Session
R Roundtable Sessions
S Symposium Sessions
Thematic Sessions
W Workshop Sessions

Program Description (Continued)

MONDAY MORNING

Monday Morning, March 24
6:15 AM to 7:45 AM
Room 221A
(Reservation Required)

SOT Mentoring Breakfast

Sponsor(s):
Career Resource and Development Committee
Graduate Student Leadership Committee
Postdoctoral Assembly

The Society of Toxicology recognizes the importance of mentoring in the scientific and professional development of its members. As such, the Career Resource and Development Committee, in conjunction with the Postdoctoral Assembly and Graduate Student Leadership Committee, is pleased to host the third annual Mentoring Breakfast.

The Mentoring Breakfast is for SOT members at any career stage—from graduate students to postdoctoral fellows to senior scientists—who are seeking a mentor. Brief presentations will be followed by small group discussions led by trained facilitators. Facilitators will work to match participants with compatible mentors following the Annual Meeting.

Monday Morning, March 24
6:30 AM to 8:00 AM
Room 221C

Molecular and Systems Biology Specialty Section Officers Meeting

Monday Morning, March 24
6:30 AM to 8:00 AM
Room 222

Specialty Section Officers Meetings: Clinical and Translational Toxicology; Food Safety; Dermal Toxicology; *In Vitro* and Alternative Methods; Mechanisms; Neurotoxicology; Regulatory and Safety Evaluation; Risk Assessment

Monday Morning, March 24
6:30 AM to 7:30 AM
Room 228A

Toxicologic and Exploratory Pathology Specialty Section Officers Meeting

Monday Morning, March 24
7:00 AM to 8:00 AM
Renaissance Marston Café

Central States Regional Chapter Meeting

Monday Morning, March 24
7:00 AM to 8:30 AM
Room 226A

Reproductive and Developmental Toxicology Specialty Section Officers Meeting

Monday Morning, March 24
8:00 AM to 9:00 AM
Hall 1

FS

Plenary Opening Lecture: The Origins and Future of Pluripotency and Cellular Reprogramming



Lecturer: *Sir John B. Gurdon, Wellcome Trust/Cancer Research UK, Gurdon Institute, University of Cambridge, Cambridge, United Kingdom.*

The different cell types that compose our bodies are remarkably stable. Hardly ever do we find skin cells in the brain or liver cells in the heart. In those very special cases where some regeneration can take place in vertebrates, there is little if any evidence for a switch in cell type. Nevertheless, nuclear transfer, cell fusion, and induced pluripotency can result in pluripotent embryo cells being derived from specialized adult cells. The mechanisms by which nuclear reprogramming can occur in these cases is beginning to be understood. It may become possible for new, regenerated cell types to be derived from adult cells and given back to a patient so that they receive new cells of their own genetic constitution, thereby avoiding the need for immunosuppression. The history of work in this area, and the prospects for cell replacement in the future, will be discussed.

Monday Morning, March 24
8:00 AM to 12:00 Noon
(See pages 5–13 for room information)

Undergraduate Education Program

Chairperson(s): *Ofelia A. Olivero, National Institutes of Health National Cancer Center, Bethesda, MD.*

Sponsor(s):
Committee for Diversity Initiatives

Monday morning activities are for CDI Travel Awardees in the Undergraduate Education Program and SOT program volunteers assisting with the Undergraduate Program. Full program details are found on page 99.

Monday Morning, March 24
9:15 AM to 12:00 Noon
Room 122

S

Symposium Session: Air Pollution and Cardiovascular Effects: Mechanisms and Role of Lipid Peroxidation

New Science and Perspectives Surrounding Environmental and Occupational Exposures

Chairperson(s): *Daniel J. Conklin, University of Louisville, Cardiovascular Medicine, Louisville, KY, and Jesus Araujo, University of California Los Angeles, David Geffen School of Medicine, Los Angeles, CA.*

Sponsor(s):
Cardiovascular Toxicology Specialty Section

The mechanisms by which air pollution, including particulate matter (PM2.5) and volatile gases, affect human cardiovascular health are incompletely known. Yet many animal studies performed to probe these mechanisms have observed changes in the levels of lipids and/or lipid peroxidation products regardless of the specific form of air pollution, e.g., diesel engine exhaust, concentrated ambient particulate matter, or volatile gases, used in the exposure that associates with severity of injury. These studies suggest a potential common pathway of injury that is dependent on oxidative stress and an increased production of lipid mediators. The role of lipids and lipid peroxi-

Program Description (Continued)

Abstract #

dation as final common mediators of air pollution-induced injury in the cardiovascular system is the focus of this symposium. Speakers will address how exposures to diverse types of air pollutants, including complex mixtures, traffic emissions, volatile acrolein, and concentrated ambient particulate matter, result in alterations in circulating lipid levels, lipids structure and function, and lipid peroxidation products in target organs including lungs, blood, and the vasculature. Collectively, these presentations will shed light on the specific role of lipids and lipid peroxidation in air pollution-induced cardiovascular injury.

#14	9:15	**Air Pollution and Cardiovascular Effects: Mechanisms and Role of Lipid Peroxidation.** *D. J. Conklin*. Cardiovascular Medicine, University of Louisville, Louisville, KY.
	9:15	**Introduction.** D. J. Conklin. University of Louisville, Louisville, KY.
#15	9:20	**Air Pollution, Lipid Oxidation, and Cardiovascular Effects in Humans and Animals Models.** A. Bhatnagar. Cardiovascular Medicine, University of Louisville, Louisville, KY. Sponsor: *D. Conklin*.
#16	10:00	**Vascular Lipid Peroxidation Induced by Complex Emissions Indicates Gas-Particle Interactions in Driving Systemic Toxicity.** *M. Campen*. Pharmaceutical Sciences, University of New Mexico, Albuquerque, NM.
#17	10:30	**Effects of Acrolein or Concentrated Ambient Particulate Matter Exposure on Plasma Lipids and Vascular Targets.** *D. J. Conklin*. Cardiovascular Medicine, University of Louisville, Louisville, KY.
#18	11:00	**Vehicle Emissions-Exposure Results in Increased Cerebrovascular Lipid Peroxidation Associated with Altered Blood Brain Barrier Permeability.** *A. K. Lund*. Biological Sciences, University of North Texas, Arlington, TX.
#19	11:30	**Air Pollution, Lipid Peroxidation, and Alterations in HDL Functionality.** J. Araujo. Medicine, University of California Los Angeles, Los Angeles, CA. Sponsor: *D. Conklin*.

Monday Morning, March 24
9:15 AM to 12:00 Noon
North Ballroom 120A

Symposium Session: Carbon Nanotubes Are Toxic in Experimental Models: What's Next, Who's Being Exposed, and Should We Be Concerned?

New Science and Perspectives Surrounding Environmental and Occupational Exposures

Chairperson(s): *Aaron Erdely, NIOSH, Morgantown, WV, and James M. Antonini, CDC-NIOSH, Health Effects Laboratory Division, Morgantown, WV.*

Sponsor(s):
Inhalation and Respiratory Specialty Section
Nanotoxicology Specialty Section
Occupational and Public Health Specialty Section

Engineered nanomaterials have vast potential with applications in medicine, electronics, and composites. Carbon nanotubes (CNT) represent one such material with broad applications, but this material also has the propensity for significant toxicity. Toxicities include pulmonary and systemic inflammation, fibrosis, immunosuppression, and cardiovascular dysfunction, and evidence is growing that CNT may have properties that influence carcinogenicity. Over the past decade there has been a significant investment in research to examine the *in vivo* and *in vitro* toxicity of CNT. Conversely,

Abstract #

very little is known about the exposure level and chemical and physical properties of airborne CNT that humans are exposed to, especially in the workplace. These deficiencies make the interpretation of the vast number of experimental studies to human relevance difficult. Initial findings from epidemiological studies of workers handling engineered nanomaterials, recent advancements in detailed facility exposure assessment, pertinent *in vivo* toxicology studies with dosimetry-based human health implications, regulatory aspects, and risk assessment based on results from animal inhalation studies will be included. The outcome of this session is to provide the most recent human exposure assessment and epidemiological findings and to gather perspective on *in vivo* toxicology studies involving risk estimates and potential carcinogenicity. This data should have direct influence on the course of newly designed studies and add perspective on previous studies of CNT-induced toxicity.

#20	9:15	**Carbon Nanotubes Are Toxic in Experimental Models: What's Next, Who's Being Exposed, and Should We Be Concerned?** *A. Erdely*, and *J. M. Antonini*. CDC-NIOSH, Morgantown, WV.
	9:15	**Introduction.** A. Erdely. CDC-NIOSH, Morgantown, WV.
#21	9:20	**Epidemiological Study of Workers Handling Carbon Nanotube and Engineered Nanomaterials.** S. Liou[1], H. Liao[1], W. Wu[1], Y. Chung[1], and M. Lin[2]. [1]Division of Environmental Health & Occupational Medicine, National Health Research Institutes, Miaoli County, Taiwan; and [2]Institute of Occupational Safety and Health, Council of Labor Affairs, Taipei, Taiwan. Sponsor: *J. Antonini.*
#22	9:52	**Carbon Nanotube Exposure Assessment: An Evaluation of Workplace Exposures in the US.** M. Dahm[1], M. Schubauer-Berigan[1], and *A. Erdely*[2]. [1]CDC-NIOSH, Cincinnati, OH; and [2]CDC-NIOSH, Morgantown, WV.
#23	10:24	**Relationship between *In Vivo* Carcinogenicity and Human Risk to Carbon Nanotubes.** *L. M. Sargent*[1], *D. W. Porter*[1], L. Staska[2], *A. F. Hubbs*[1], M. L. Kashon[1], D. T. Lowry[1], L. A. Battelli[1], *B. T. Chen*[1], D. G. Frazer[1], *V. Castranova*[1], and *S. H. Reynolds*[1]. [1]CDC-NIOSH, Morgantown, WV; and [2]Integrated Laboratory Systems, Inc., Morrisville, NC.
#24	10:56	**Review of CNT Health and Environmental Risks under TSCA, and Areas Where More Data Are Needed.** *P. Sayre*. US EPA, Washington, DC.
#25	11:28	**Evaluation of Human Risks on Animal Models.** *J. Pauluhn*. Bayer Pharma AG, Wuppertal, Germany.

Monday Morning, March 24
9:15 AM to 12:00 Noon
Room 126

Symposium Session: Computational Approaches to Predict Repeat-Dose Toxicity: Lessons Learned from Cosmetic Ingredients

Enhancing Strategies for Risk Assessment

Chairperson(s): *Chihae Yang, Altamira LLC, Columbus, OH, and Mark T. Cronin, Liverpool John Moores University, School of Pharmacy and Biomolecular Sciences, Liverpool, United Kingdom.*

Sponsor(s):
Biological Modeling Specialty Section
Regulatory and Safety Evaluation Specialty Section
Risk Assessment Specialty Section

Assessing the toxicity of cosmetic ingredients presents numerous challenges, the solution of which will contribute to the general understanding

MONDAY

Program Description (Continued)

Abstract #

of chemically-induced toxicity. The goal is to predict the effects to humans of long-term repeated low-dose exposure to chemicals used in cosmetics. For risk assessment, the results of *in vivo* assays are often distilled in terms of NOAELs and LOAELs. However, alternatives are required for cases where animal test data are lacking or cannot be obtained due to cost, time, or legislation. The past decade has seen an immense growth in attempts to predict toxicity computationally, but even with these advances traditional approaches (e.g., quantitative structure-activity relationships (QSARs)) are limited due to the lack of understanding of xenobiotic targets and small molecular interactions associated with observed phenotypic effects. QSAR is also not appropriate for making reliable estimates of NOAELs; thus, a new paradigm is being sought. Despite these drawbacks, the key premise is that structure-based computational analysis of a chemical of interest and close structural analogues for which experimental data are available will lead to improved predictivity due to greater association with mechanisms of toxicity. Exposure is often dermal, but inhalation or oral routes are also possible. Penetration and metabolism within the dermis, possibly followed by target organ toxicity, must all be considered and accounted for when necessary. The combined factors of relatively low-dose, dermal ADME properties and toxicity to specific organs are amongst the greatest challenges facing computational toxicology for the prediction of the effects of exposure to cosmetics. This session will address these issues and review the current state of the art of computational modeling at the organ level to support risk assessment as it is being developed in a unique European Union Project called COSMOS. The funding of the COSMOS Project is from the European Commission and Cosmetics Europe.

#26 9:15 **Computational Approaches to Predict Repeat-Dose Toxicity: Lessons Learned from Cosmetic Ingredients.** M. T. Cronin[1], and *C. Yang*[2]. [1]Liverpool John Moores University, Liverpool, United Kingdom; and [2]Altamira LLC, Columbus, OH.

9:15 **Introduction.** M. T. Cronin. Liverpool John Moores University, Liverpool, United Kingdom.

#27 9:25 **Databases, Tools, and TTC Approach Applied to Chemicals in Cosmetics Products.** *C. Yang*[1], M. Ambrosio[2], *K. Arvidson*[3], M. T. Cronin[4], E. Fioravanzo[5], K. Muldoon-Jacobs[3], D. Keller[6], J. Rathman[1], A. N. Richarz[4], L. Terfloth[7], I. Tsakovska[8], V. Vitcheva[8], and A. P. Worth[9]. [1]Altamira LLC, Columbus, OH; [2]ILSI Europe, Brussels, Belgium; [3]CFSAN, US FDA, College Park, MD; [4]Liverpool John Moores University, Liverpool, United Kingdom; [5]S-IN, Vicenza, Italy; [6]Henkel AG & Co. KGaA, Dusseldorf, Germany; [7]Molecular Networks, Erlangen, Germany; [8]BAS, Sofia, Bulgaria; and [9]EC JRC, Ispra, Italy.

#28 9:55 **Role of Bioavailability in Risk Assessment of Cosmetic Ingredients: Kinetics, Permeation, and Metabolism.** E. Fioravanzo[1], M. T. Cronin[2], A. R. Pery[3], L. Terfloth[4], I. Tsakovska[5], *C. Yang*[6], and A. P. Worth[7]. [1]S-IN Soluzioni Informatiche, Vicenza, Italy; [2]Liverpool John Moores University, Liverpool, United Kingdom; [3]INERIS, Verneuil en Halatte, France; [4]Molecular Networks GmbH, Erlangen, Germany; [5]Institute of Biophysics and Biomedical Engineering, Sofia, Bulgaria; [6]Altamira LLC, Columbus, OH; and [7]EC JRC, Ispra, Italy.

#29 10:20 **Adverse Outcome Pathways (AOPs) for Target Organ Effects: The Role of Structural Alerts and Chemotypes for Liver Toxicity to Group Compounds and Apply Read-Across.** M. T. Cronin[1], E. Fioravanzo[2], A. R. Pery[3], L. Terfloth[4], I. Tsakovska[5], A. P. Worth[6], and *C. Yang*[7]. [1]Liverpool John Moores University, Liverpool, United Kingdom; [2]S-IN Soluzioni Informatiche srl, Vicenza, Italy; [3]INERIS, Verneuil en Halatte, France; [4]Molecular Networks GmbH, Erlangen, Germany; [5]Institute of Biophysics and Biomedical Engineering, Sofia, Bulgaria; [6]EC JRC, Ispra, Italy; and [7]Altamira LLC, Columbus, OH.

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#30 11:00 **Applying Databases and Tools from COSMOS to the Scientific Needs of US FDA's CERES Project.** *K. Arvidson*[1], A. McCarthy[1], D. Hristozov[1], *C. Yang*[2], and M. T. Cronin[3]. [1]CFSAN OFAS, US FDA, College Park, MD; [2]Altamira LLC, Columbus, OH; and [3]Liverpool John Moores University, Liverpool, United Kingdom.

#31 11:20 **US EPA's ToxCast, Tox21, and COSMOS Projects: Cheminformatics Approaches to Creating Data Linkages and Synergies.** *A. M. Richard*[1], *C. Yang*[2], J. Rathman[2], R. Bienstock[3], M. Martin[1], L. Truong[1], M. T. Cronin[4], A. Tarkhov[5], and C. Schwab[5]. [1]NCCT, US EPA, Research Triangle Park, NC; [2]Altamira LLC, Columbus, OH; [3]Lockheed Martin, Contractor to the US EPA, Research Triangle Park, NC; [4]Liverpool John Moores University, Liverpool, United Kingdom; and [5]Molecular Networks, Erlangen, Germany.

11:40 **Panel Discussion/Q&A.**

Monday Morning, March 24
9:15 AM to 12:00 Noon
North Ballroom 120B

S

Symposium Session: Induced Human Pluripotent Stem Cells and Their Differentiated Progeny Cells: Implementation in Toxicity Testing

Stem Cell Models for Integrated Biology

Chairperson(s): *Kyle L. Kolaja, Cellular Dynamics International, Marketing and Sales, Montclair, NJ, and Blake D. Anson, Cellular Dynamics International, Madison, WI.*

Sponsor(s):
Stem Cells Specialty Section

Over the past two decades stem cell technology has progressed from isolating murine and nonhuman primate embryonic stem cells (ESCs) to reprogramming fully differentiated human samples into induced pluripotent stem cells (iPSCs). Concurrent advances have been made in the differentiation of stem cells into progeny tissue cells and the ability of those cells to increasingly recapitulate native behavior. Together, these advances have driven the translation of this technology from small-scale basic biological investigations into large-scale use within the pharmaceutical industry and potential clinical applications. This symposium will focus on several examples of iPSC-derived tissue cell use in understanding and translating preclinical cardiotoxicity to the clinic; hepatocyte function, toxicity, and idiosyncratic drug-induced liver injury; and developmental neuronal toxicity. Particular emphasis will be placed on practical implementations in toxicity testing as well as the ever-expanding functional incorporation of samples from clinic populations.

#32 9:15 **Induced Human Pluripotent Stem Cells and Their Differentiated Progeny Cells: Implementation in Toxicity Testing.** B. D. Anson. Cellular Dynamics International, Madison, WI. Sponsor: *K. Kolaja*.

9:15 **Introduction.** B. D. Anson. Cellular Dynamics International, Madison, WI.

#33 9:20 **Engineering the Microscale Environment around iPSC-Derived Human Hepatocytes *In Vitro*.** S. R. Khetani. Colorado State University, Fort Collins, CO. Sponsor: *K. Kolaja*.

#34 9:56 **iPSC-Derived Liver Cultures to Study Mechanisms Underlying Idiosyncratic Hepatotoxicity.** *P. Watkins*[1,2]. [1]The Hamner Institutes For Health Sciences, Research Triangle Park, NC; and [2]Institute for Drug Safety Sciences, University of North Carolina at Chapel Hill, Chapel Hill, NC.

MONDAY

Education-Career Development Sessions
Exhibitor-Hosted Sessions
Featured Sessions
Historical Highlights Session
Informational Sessions
Platform Sessions

Program Description (Continued)

Abstract #

#35	10:32	**Induced Pluripotent Stem Cell-Derived Neurons As a Human Model for Testing Environmentally-Induced Developmental Neurotoxicity.** *I. L. Druwe*[1], *T. J. Shafer*[2], K. A. Wallace[2], P. A. Valdivia[3], and *W. Mundy*[2]. [1]Curriculum in Toxicology, University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]Integrated Systems Toxicology Division, NHEERL, US EPA, Research Triangle Park, NC; and [3]Axion Biosystems, Atlanta, GA.
#36	11:08	**Improved Translation from Preclinical to Clinical Outcomes Using Human IPSC-Derived Cardiomyocytes.** H. Shi. Cardiovascular Safety Pharmacology, Discovery Toxicology, Bristol-Myers Squibb Company, Hopewell, NJ. Sponsor: *K. Kolaja*.
	11:44	**Panel Discussion/Q&A.**

Monday Morning, March 24
9:15 AM to 12:00 Noon
Room 124

Symposium Session: Methylmercury's Modes of Action: New Approaches to Understanding an Old Problem

New Science and Perspectives Surrounding Environmental and Occupational Exposures

Chairperson(s): *Nicholas V. Ralston, University of North Dakota, Grand Forks, ND, and Michael Aschner, Albert Einstein College of Medicine, Bronx, NY.*

Sponsor(s):
Mechanisms Specialty Section
Metals Specialty Section
Neurotoxicology Specialty Section

Recent advances in understanding of methylmercury (MeHg) chemistry and ecogenetics provide important insights into its molecular mechanisms of toxicity and modes of action in cells of various tissues. These new perspectives clarify MeHg's pathophysiological effects at the organism level and indicate that the findings of epidemiological studies that were thought to be in conflict are actually highly consistent with expectations. Biochemical associations between MeHg and various biomolecules influence its bioavailability, tissue distributions, dose-effect relationships, and its characteristic signs and symptoms of toxicity. Sensitivity to MeHg exposure is also notably dependent upon other physiological factors, some which have been recognized for decades, but are only now becoming well understood, as well as emerging concepts such as epigenetics and gene-environment interactions. Like other soft electrophiles, MeHg's notable toxicity occurs as a direct result of binding with biological ligands from the chalcogen series (group 16 in the periodic table), which include sulfur (S), and selenium (Se). Speakers will provide the latest information and evidence regarding the molecular targets, genetic/epigenetic underpinnings, and physiological pathways that are modulated by MeHg and how these aspects correlate with disease outcomes. Participation in this symposium acquaints the audience with the latest developments and scientific breakthroughs regarding molecular targets of Hg, its modes of action, neurodevelopmental effects, and outcomes of epidemiology studies. This will inform toxicologists, neurobiologists, and biochemists, and will be of interest to anyone who wants to understand MeHg's roles in human and environmental health.

#37	9:15	**Methylmercury's Modes of Action: New Approaches to Understanding an Old Problem.** *N. V. Ralston*. University of North Dakota, Grand Forks, ND.
	9:15	**Introduction.** N. V. Ralston. University of North Dakota, Grand Forks, ND.

Abstract #

#38	9:20	**What Can Be Learned from the Nematode (*C. elegans*) about Molecular Targets Associated with MeHg Toxicity?** *M. Aschner*, and K. J. Helmcke. Department of Pediatrics, Vanderbilt University Medical Center, Nashville, TN.
#39	9:50	**Inhibition of the Human Thioredoxin System As a Mechanism of Mercury Toxicity.** C. M. Carvalho. Faculdade de Farmácia, Universidade de Lisboa, Lisbon, Portugal. Sponsor: *N. Ralston*.
#40	10:20	**Inherited Effects of Low Levels of Methylmercury in Neural Stem Cells.** *S. Ceccatelli*, R. Bose, K. Edoff, M. Moors, and N. Onishchenko. Department of Neuroscience, Karolinska Institutet, Stockholm, Sweden.
#41	10:50	**Can Genetic Polymorphisms and Epigenetics Advance Mercury Risk Assessment? Evidence from Humans and Animals.** *N. Basu*[1,2]. [1]University of Michigan School of Public Health, Ann Arbor, MI; and [2]McGill University, Montreal, QC, Canada.
#42	11:20	**The "SOS" Molecular Mechanisms of Mercury Toxicity.** *N. V. Ralston*. University of North Dakota, Grand Forks, ND.
	11:50	**Panel Discussion/Q&A.**

Monday Morning, March 24
9:15 AM to 12:00 Noon
Room 121

Symposium Session: To Bug or Not to Bug the Immune System: Benefits and Consequences of Altering the Microbiome

Advancing Clinical and Translational Toxicology and Application of Biomarkers

Chairperson(s): *Victor J. Johnson, BRT-Burleson Research Technologies, Morrisville, NC, and Berran Yucesoy, CDC-NIOSH, Toxicology & Molecular Biology Branch, Morgantown, WV.*

Sponsor(s):
Immunotoxicology Specialty Section
Metals Specialty Section
Reproductive and Developmental Toxicology Specialty Section

The Human Microbiome Project, a NIH initiative to understand the complexity, constitution, and diversity of microbes living on and in the human body, was recently completed in 2012. The term "Super-Organism" was coined to describe humans as a result of characterization of the breadth and diversity of microbes that live on the external surface as well as in the blood, tissues, and cells of the human body. What role do commensal organisms play in health and disease? What role do pathogenic microbes play in health and disease? For decades, a major emphasis in the field of immunotoxicology has been to understand the impact of environmental/occupational/therapeutic exposures on host defense against invading and opportunistic pathogens. Mounting evidence suggests that equal effort should be provided to understanding the relationship between the human microbiome and how alterations thereof can have profound implications for the development of complex immune and inflammatory diseases. Individuality of the microbiome contributes to immune-diversity, "metagenetic" diversity, and interindividual differences in susceptibility to many complex diseases, including allergic disease, autoimmune diseases, cancer, and others. Evidence suggests that development of an individual's microbiome begins before birth, and the nature of this colonization can influence susceptibility to disease later in life. In addition, homeostasis of the microbiome is under continual attack due to exposures encountered in daily life. Recent research shows that exposure to toxic chemicals can shift the dominant characteristics of the microbiome, thereby providing a strong contribution to disease susceptibility. Therefore, it is important to consider this research in the context of human health risk assessment. The purpose of this symposium is to provide evidence of beneficial and detrimental contributions of the microbiome to the development of immune and inflammatory diseases and provide insight into how microbiome research integrates into human health risk assessment.

Program Description (Continued)

Abstract #		
#43	9:15	**To Bug or Not to Bug the Immune System: Benefits and Consequences of Altering the Microbiome.** *V. J. Johnson*[1], and *B. Yucesoy*[2]. [1]BRT-Burleson Research Technologies, Morrisville, NC; and [2]CDC/NIOSH, Morgantown, WV.
	9:15	**Introduction.** V. J. Johnson[1], and B. Yucesoy[2]. [1]BRT-Burleson Research Technologies, Morrisville, NC; and [2]CDC-NIOSH, Morgantown, WV.
#44	9:20	**Living with a Microbiome: The Role of Exposures and Toxicity in Shaping "The Completed Self"** *R. R. Dietert*. Department of Microbiology and Immunology, Cornell University, Ithaca, NY.
#45	9:58	**Toxic Exposures and the Microbiome: Their Input Counts, Too.** *E. Silbergeld*. Environmental Health Sciences, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD.
#46	10:36	**The Human Microbiome and Autoimmunity.** A. Proal. Autoimmunity Research Foundation, Thousand Oaks, CA. Sponsor: *V. Johnson*.
#47	11:14	**The Microbiome in Human Health Risk Assessment: Where Do We Go from Here?** *K. L. Dearfield*. Food Safety and Inspection Service, US Department of Agriculture, Washington, DC.
	11:52	**Panel Discussion/Q&A.**

Monday Morning, March 24
9:15 AM to 12:00 Noon
Room 129

Workshop Session: Developmental Programming of Hepatic Metabolism: Assessing the Impact of Perinatal Exposure to Xenobiotics

Advancing Clinical and Translational Toxicology and Application of Biomarkers

Chairperson(s): *Lauren M. Aleksunes, Rutgers University, Piscataway, NJ, and Angela L. Slitt, University of Rhode Island, Biomedical and Pharmaceutical Sciences, Kingston, RI.*

Sponsor(s):
Mechanisms Specialty Section
Molecular Biology Specialty Section
Reproductive and Developmental Toxicology Specialty Section

It is becoming increasingly evident that epigenetics is important in the ontogeny of hepatic metabolism and transport pathways. This workshop highlights the most recent knowledge of the developmental regulation of hepatic metabolism through transcriptional and epigenetic mechanisms in rodents and humans. Interestingly, emerging research from a number of laboratories demonstrates that maternal exposure to environmental chemicals during the perinatal period alters the expression and function of metabolic and transport proteins in progeny later in life. Up- or down-regulation of key hepatic metabolic processes, including cytochrome (Cyp) P450 and carboxylesterase (Ces) enzymes, as well as excretory transporters, may have a significant impact on the pharmacological and toxicological responses to xenobiotics during puberty and adulthood and, additionally, impact systemic hormone levels. The purpose of this workshop is to bring together experts in the field of toxicology to highlight the regulatory mechanisms underlying the developmental programming of hepatic metabolism and transport, and to discuss the potential impact of early exposure to xenobiotics on the ability of the liver to metabolize and excrete chemicals later in life. Experimental design and cutting-edge technologies will also be discussed. The workshop contains presentations and a roundtable discussion that will address four questions: What is the role of nuclear receptors and transcription factors in the ontogenic regulation of hepatic metabolism? What epigenetic mechanisms are involved in the hepatic programming of the liver? Do environmentally-relevant concentrations of chemicals alter the developmental programming of xenobiotic metabolism pathways? What are the potential long-term consequences resulting from altered hepatic programming of metabolic enzymes, including the toxicity of pollutants and the efficacy of pharmaceuticals?

Abstract #		
#48	9:15	**Developmental Programming of Hepatic Metabolism: Assessing the Impact of Perinatal Exposure to Xenobiotics.** *L. M. Aleksunes*[1], *A. L. Slitt*[4], *J. R. Richardson*[1], X. Zhong[2], and W. Huang[3]. [1]Rutgers, The State University of New Jersey, Piscataway, NJ; [2]University of Connecticut, Storrs, CT; [3]City of Hope National Medical Center, Duarte, CA; and [4]University of Rhode Island, Kingston, RI.
	9:15	**Introduction.** L. M. Aleksunes. Rutgers University, Piscataway, NJ.
#49	9:25	**Hepatic Ontogeny of Drug Processing Genes in Mouse Liver.** X. Zhong[1], L. Peng[1], *J. Cui*[2], *H. J. Renaud*[2], B. Yoo[3], S. Gunewardena[3], *H. Lu*[4], and *C. D. Klaassen*[2]. [1]University of Connecticut, Storrs, CT; [2]University of Kansas Medical Center, Kansas City, KS; [3]Kansas Intellectual and Developmental Disabilities Research Center, Kansas City, KS; and [4]State University of New York, Syracuse, NY.
#50	9:55	**Xenobiotic Receptor CAR and Epigenetic Misprogramming.** W. Huang. Beckman Research Institute, City of Hope National Medical Center, Duarte, CA. Sponsor: *L. Aleksunes*.
#51	10:25	**Pharmacokinetic and Pharmacodynamic Consequences of Long-Term Increases in Carboxylesterase Expression following Developmental Pesticide Exposure.** *J. R. Richardson*[1,2]. [1]Department of Environmental and Occupational Medicine, Rutgers Robert Wood Johnson Medical School, Piscataway, NJ; and [2]Environmental and Occupational Health Sciences Institute, Rutgers, The State University of New Jersey, Piscataway, NJ.
#52	10:55	**Developmental Bisphenol A Exposure Alters Hepatic Phase II Metabolism and Transport via Histone Deacetylase.** *A. L. Slitt*. Department of Biomedical and Pharmaceutical Sciences, University of Rhode Island, Kingston, RI.
	11:25	**Panel Discussion/Q&A.**

Monday Morning, March 24
9:15 AM to 12:00 Noon
North Ballroom 120D

Workshop Session: New Concerns and New Science Addressing Environmental Asbestos Exposures

New Science and Perspectives Surrounding Environmental and Occupational Exposures

Chairperson(s): *Danielle J. Carlin, NIEHS, Division of Extramural Research and Training, Research Triangle Park, NC, and Ronald N. Hines, US EPA, NHEERL, Research Triangle Park, NC.*

Sponsor(s):
Carcinogenesis Specialty Section
Inhalation and Respiratory Specialty Section
Mechanisms Specialty Section

Although extensive research has been conducted on asbestos health effects for specific fiber types, there are still many unresolved issues and controversies, particularly related to environmental asbestos exposures. Further, the health effects of mixtures of elongate mineral fibers have not previously been studied in detail. Approximately 120,000 asbestos-related deaths occur in the US and worldwide every year, and it has been well known for the past 30–40 years that occupational exposure to asbestos causes mesothelioma, asbestosis, and lung cancer. Moreover, environmental asbestos exposures have led to a declared public health emergency in Libby, Montana, an area known to have a higher incidence of asbestos-related diseases than the rest

Program Description (Continued)

Abstract #

of the US. Other areas, such as El Dorado Hills, California, and Nooksack and Sumas, Washington, are also currently being evaluated for asbestos-contaminated soils and potential exposure to populations living in these areas. Although occupational asbestos exposures have been limited, there is increased concern related to exposures to environmental asbestos. For both environmental and occupational exposures, there are a number of critical issues, including: (1) How can complex mixtures of different forms of asbestos and nonasbestos contaminants be evaluated?; (2) What are the cellular and systemic mechanisms resulting in fibrosis and/or tumor development?; (3) What is the relative toxicity of different forms of asbestos?; (4) What is the proper dose-metric to consider (e.g., mass, fiber number, or surface area of fibers) when interpreting asbestos toxicity?; (5) What are the effects of asbestos exposure on susceptible populations (e.g., children and adolescents)?; and (6) How do we implement toxicological findings into risk assessment and clean-up efforts? This workshop has been designed to present the latest epidemiological and basic research findings in an attempt to address some of these questions, and to highlight the efforts of all stakeholders in determining the role of asbestos in various disease endpoints.

#53	9:15	**New Concerns and New Science Addressing Environmental Asbestos Exposures.** *D. J. Carlin*[1], and *R. N. Hines*[2]. [1]NIEHS, Research Triangle Park, NC; and [2]USEPA, Research Triangle Park, NC.
	9:15	**Introduction.** R. N. Hines. NHEERL, US EPA, Research Triangle Park, NC.
#54	9:20	**Human Health and Environmental Exposure to Libby Amphibole Asbestos.** T. Larson. ATSDR, Atlanta, GA. Sponsor: *D. Carlin*.
#55	9:50	**Autoimmune Responses following Asbestos Exposure.** *J. C. Pfau*. Idaho State University, Pocatello, ID.
#56	10:20	**Determinants of Toxicity of Environmental Asbestos Fibers.** *S. H. Gavett*. US EPA, Research Triangle Park, NC.
#57	10:50	**Role of Inflammasomes in Malignant Mesotheliomas.** A. Shukla. University of Vermont, Burlington, VT. Sponsor: *D. Carlin*.
#58	11:20	**Challenges and Recommendations for Future Asbestos Research.** *A. Miller*. NIEHS, Bethesda, MD.
	11:50	**Panel Discussion/Q&A.**

Monday Morning, March 24
9:15 AM to 12:00 Noon
Room 125

PL

Platform Session: Enhancing Strategies for Pesticide Risk Assessment

Enhancing Strategies for Risk Assessment

Chairperson(s): *B. Bhaskar Gollapudi, Exponent, Midland, MI, and Anna Lowit, US EPA, Washington, DC.*

#59	9:15	**Analysis of EPA FQPA Safety Factors for 363 Pesticides.** *A. A. Li*[1], and B. M. Polakoff[2]. [1]Health Sciences, Exponent, Inc., San Francisco, CA; and [2]Health Sciences, Exponent, Inc., Washington, DC.
#60	9:38	**Predicting Children's Internal Exposure to Pyrethroids Using a Physiologically-Based Pharmacokinetic Model with Age-Appropriate *In Vitro* Metabolism Data.** *H. J. Clewell*[1], *H. Wu*[1], *B. G. Lake*[2], *T. G. Osimitz*[3], N. Assaf[3], and *M. Yoon*[1]. [1]The Hamner Institutes for Health Sciences, RTP, NC; [2]LFR Molecular Sciences, Surrey, United Kingdom; [3]Science Strategies, LLC, Charlottesville, VA; and [4]Valent BioSciences, Libertyville, IL.

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#61	10:01	**Using a Two-Dimension Monte Carlo Model to Develop Chemical Specific Adjustment Factors (CSAFs) for Chlorpyrifos and Chlorpyrifos Oxon.** *P. S. Price*[1], *T. Poet*[3], *M. J. Bartels*[1], and *D. R. Juberg*[2]. [1]Toxicology & Environmental Research & Consulting, Dow Chemical Company, Midland, MI; [2]Dow AgroSciences, Indianapolis, IN; and [3]Summit Toxicology, Richland, WA.
#62	10:24	**Predicting Inhalation Toxicity of Bifenthrin Using a Pharmacokinetic Rationale.** *Z. Liu*, A. Chandrasekaran, and *D. W. Gammon*. FMC Corporation, Ewing, NJ.
#63	10:47	**Refinement of an Acute Inhalation Reference Concentration for 1,3-Dichloropropene.** *A. Maier*[1], A. Parker[2], *L. T. Haber*[2], and *S. C. Gehen*[3]. [1]University of Cincinnati, Cincinnati, OH; [2]Toxicology Excellence for Risk Assessment, Cincinnati, OH; and [3]Dow AgroSciences, LLC, Indianapolis, IN.
#64	11:10	**Integrating Toxicokinetics into the Human Health Risk Assessment Process for Agrochemicals: Halauxifen-methyl.** *C. Terry*[1], *L. A. Murphy*[2], K. Saffour[1], *A. T. McCoy*[2], *M. Aggarwal*[1], L. G. McFadden[2], *R. J. Rasoulpour*[2], D. Rick[2], *M. Bartels*[2], and *R. Billington*[1]. [1]Human Health, Dow AgroSciences, Oxon, United Kingdom; and [2]TERC, The Dow Chemical Company, Midland, MI.
#65	11:33	**Mode of Action Profiles for Pesticide Compounds with Rodent Liver Tumor Outcomes.** *A. D. Lake*[1], *S. D. Hester*[1], *J. Liu*[2], J. Rowland[3], and C. E. Wood[1]. [1]National Health and Environmental Effects Research Laboratory; Integrated Systems Toxicology Division, U.S. Environmental Protection Agency, Research Triangle Park, NC; [2]National Center for Computational Toxicology, U.S. Environmental Protection Agency, Research Triangle Park, NC; and [3]Health Effects Division, Office of Pesticide Programs, U.S. Environmental Protection Agency, Washington, DC.

Monday Morning, March 24
9:15 AM to 10:15 AM
Room 101C West

E

Exhibitor-Hosted Session: Challenging Contemporary Status on Drug Safety Evaluation: A Case for the Implementation of Ototoxicity Screening into Toxicology Programs

Presented by:
MPI Research

Of the primary senses assessed, hearing is not commensurately evaluated in spite of cases of post-market, drug-induced hearing loss. Past challenges associated with evaluating hearing have impeded progress toward integration into toxicology programs. Advances in assessing audition and histopathological processing now enable an efficient means for ototoxicity screening.

MONDAY

Poster Sessions
Regional Interest Session
Roundtable Sessions
Symposium Sessions
Thematic Sessions
Workshop Sessions

Program Description (Continued)

Monday Morning, March 24
9:15 AM to 10:15 AM
Room 106A West

E

Exhibitor-Hosted Session: Is There Such Thing As a "Normal" Biopharmaceutical Anymore?

Presented by:
Huntingdon Life Sciences

Increasingly, drug developers are finding ever more novel ways to combine the activities of different biological and chemical drugs to produce new products. This can range from enhancing binding and effector functions of monoclonal antibodies to conjugating cytotoxic drugs to biological molecules to increase drug effectiveness.

Monday Morning, March 24
9:15 AM to 10:15 AM
Room 106C West

E

Exhibitor-Hosted Session: Novel ChanTest Assays for Assessing Cardiotox, Contractility, and ECG-Like Aberrations in Stem Cell-Derived Cardiomyocytes

Presented by:
ChanTest Corp.

This session will cover, in detail, the assay services provided by ChanTest for assessing cardiotox, contractility and ECG-like aberrations in stem cell-derived cardiomyocytes. Results from studies with human iPSC-derived cardiomyocytes from different sources will be presented. Higher-throughput assay tools used by ChanTest help to minimize costs for compound providers.

Monday Morning, March 24
9:15 AM to 10:15 AM
Room 101A West

E

Exhibitor-Hosted Session: The Use of a Next Generation Telemetry System in Animal Research

Presented by:
TSE Systems, Inc.

The Stellar product line is a next-generation telemetry system (ECG, blood pressure, temperature, etc.), in which longer battery life is combined with the ability of running sophisticated experimental protocols while allowing unparalleled freedom of activity, social interaction, and freedom to work and exercise (swim, run) by the animal (and investigator).

Abstract #

Monday Morning, March 24
9:30 AM to 4:00 PM
Room 127A

FS

Research Funding Session: Research Funding Information Room

Chairperson(s): *David Dorman, North Carolina State University, Raleigh, NC.*

Sponsor(s):
Research Funding Committee

Program and review staff from agencies that fund research, including NIH, US FDA, NIEHS, CDC, and US EPA will be available in the Research Funding Information Room (Room 127A) for individual conversations. Check the posted schedule at the NIEHS booth 1129 for specific times staff members will be available all week to answer your questions about the scientific review or grant opportunities. The schedule also will be available in the Registration area and in Room 127A, and during the "Strategies for Funding Opportunities: Brown Bag Luncheon." On Wednesday, the Research Funding Information Room will host webinars with review staff who are unable to attend the Annual Meeting.

Monday Morning, March 24
9:30 AM to 11:30 AM
Room 127C

Global Collaboration Coffee

The SOT Council invites all Global Gallery participants and representatives of societies from around the world to the Global Collaboration Coffee. Other invitees include SOT Special Interest Group leaders, IUTOX Executive Committee members, SOT Councilors, 2014 Global Senior Scholars and their hosts, and the 2014 recipients of the SOT/AstraZeneca/SOT Endowment Fund/IUTOX Travel Awards. This event offers an opportunity for scientific leaders to meet, discuss important issues facing the global toxicology community, and lay the groundwork for future collaborations. Following the coffee, attendees will adjourn together to the Global Gallery where presenters will share their posters in a "Representative Attended" poster time from 11:45 am–12:15 pm. See page 164 for more information about the Global Gallery of Toxicology.

Monday Morning, March 24
9:30 AM to 12:30 PM
Exhibit Hall

PS

Poster Session: Biological Modeling

Chairperson(s): *Hugh A. Barton, Pfizer, Inc., Pharmacokinetics, Pharmacodynamics, and Metabolism, Groton, CT.*

Displayed: *9:30 AM–12:30 PM*

Author Attended: *9:30 AM–11:00 AM*

#66 **Poster Board Number 101**
Dose Assessment of Inhaled Cigarette Smoke Particles in the Oral Cavity and Lungs. O. Price[1], *B. Asgharian*[1], J. McAughey[2], and Y. Caner[2]. [1]Arlington Division, Applied Research Associates, Raleigh, NC; and [2]British American Tobacco, Southampton, United Kingdom.

MONDAY

Education-Career Development Sessions
Exhibitor-Hosted Sessions
Featured Sessions
Historical Highlights Session
Informational Sessions
Platform Sessions

Program Description (Continued)

Abstract #

#67 **Poster Board Number 102**
Inhalation Dosimetry and Dose-Response Analysis of the Flavoring Agents Diacetyl; 2; 3- Pentanedione, and Acetoin in the Rodent Respiratory Tract. *J. D. Schroeter*[1], *J. Kimbell*[2], *B. Asgharian*[1], O. Price[1], *J. Randazzo*[3], *D. T. Kirkpatrick*[3], *D. Vitale*[4], and *M. Singal*[4]. [1]Applied Research Associates, Raleigh, NC; [2]Otolaryngology/HNS, University of North Carolina, Chapel Hill, NC; [3]WIL Research, Ashland, OH; and [4]Research Institute for Fragrance Materials, Woodcliff Lake, NJ.

#68 **Poster Board Number 103**
Evaluation and Comparison of Inhalation Dosimetric Models for Applicability to Diesel Exhaust Particle (DEP)-Retention Modeling. A. Willis[1], *L. T. Haber*[1], *L. M. Sweeney*[1], and C. J. Matz[2]. [1]Toxicology Excellence for Risk Assessment (TERA), Cincinnati, OH; and [2]Air Health Effects Assessment Division, Ottawa, ON, Canada.

#69 **Poster Board Number 104**
Cross-Species Dosimetry for Upper Respiratory Tract Naphthalene Exposure with a Hybrid CFD-PBPK Model. *J. Campbell*, *M. E. Andersen*, and *H. J. Clewell*. The Hamner Institutes, Research Triangle Park, NC.

#70 **Poster Board Number 105**
A Regional Model of Lung Metabolism for Improving Species-Dependent Descriptions of 1,3-Butadiene and Its Metabolites. C. Van Landingham[1], *S. Crowell*[2], *R. Gentry*[1], *D. Kaden*[3], S. A. Fiebelkorn[4], and *A. Loccisano*[5]. [1]ENVIRON International Corporation, Monroe, LA; [2]Pacific Northwest National Laboratory, Richland, WA; [3]ENVIRON International Corporation, Boston, MA; [4]British American Tobacco, Group Research and Development, Southampton, United Kingdom; and [5]R. J. Reynolds Tobacco Company, Winston-Salem, NC.

#71 **Poster Board Number 106**
Development of an Inhalation PBPK Model for Benzo[a]pyrene in Rats and Humans. *M. H. Lumpkin*[1], *S. Crowell*[2], *A. Franzen*[3], *R. Gentry*[3], *D. Kaden*[4], C. Meredith[5], and *R. J. Potts*[6]. [1]ENVIRON International Corporation, Atlanta, GA; [2]Pacific Northwest National Laboratory, Richland, WA; [3]ENVIRON International Corporation, Monroe, LA; [4]ENVIRON International Corporation, Boston, MA; [5]British American Tobacco, Group Research and Development, Southampton, United Kingdom; and [6]R. J. Reynolds Tobacco Company, Winston-Salem, NC.

#72 **Poster Board Number 107**
Predicting Blood Lead Following Short-Term Exposures Using the All Ages Lead Model (AALM). *R. DeWoskin*[1], *J. S. Brown*[1], *G. L. Diamond*[2], *M. H. Follansbee*[2], *C. R. Partridge*[3], and K. Keteles[3]. [1]ORD/NCEA, US EPA, Research Triangle Park, NC; [2]SRC, Inc., Syracuse, NY; and [3]Region 8, US EPA, Denver, CO.

#73 **Poster Board Number 108**
Sensitivity Analysis of Internal Dose-Metrics for Hexavalent Chromium Toxicity Using Physiologically-Based Pharmacokinetic Modeling. A. F. Sasso[1], and *P. M. Schlosser*[2]. [1]NCEA, US EPA, Washington, DC; and [2]NCEA, US EPA, Research Triangle Park, NC.

Abstract #

#74 **Poster Board Number 109**
Improved Toxicokinetic Model for Cadmium Using Urine, Blood, and Kidney Cortex Concentrations from Living Kidney Donors. M. N. Fransson[1], L. Barregard[2], G. Sallsten[2], M. Akerstrom[2], and *G. Johanson*[1]. [1]Institute of Environmental Medicine, Karolinska Institutet, Stockholm, Sweden; and [2]Department of Occupational and Environmental Medicine, Sahlgrenska University Hospital, University of Gothenburg, Gothenburg, Sweden.

#75 **Poster Board Number 110**
Pharmacokinetic Modeling of Inhaled Cadmium Oxide (CdO) Nanoparticles in Pregnant Mice to Interpret Observed Developmental Effects. Y. Zhao[1], *M. Yoon*[1], *J. L. Blum*[2], *J. T. Zelikoff*[2], *T. Fennell*[3], and *H. J. Clewell*[1]. [1]The Hamner Institutes for Health Sciences, Research Triangle Park, NC; [2]New York University School of Medicine, Tuxedo, NY; and [3]RTI International, Research Triangle Park, NC.

#76 **Poster Board Number 111**
Updating Physiologically-Based Pharmacokinetic Models for Manganese to Include Rates of Cellular Uptake and Efflux. C. Peeples[1], *M. Yoon*[1], *A. M. Keene*[2], *M. Taylor*[3], *H. J. Clewell*[1], and *M. E. Andersen*[1]. [1]The Hamner Institutes for Health Sciences, Cary, NC; [2]Afton Chemical Corporation, Richmond, VA; and [3]NiPERA, Research Triangle Park, NC.

#77 **Poster Board Number 112**
A Refined Co Biokinetic Model Based on Human Data. K. Unice[1], *B. D. Kerger*[2], *D. J. Paustenbach*[3], *B. L. Finley*[3], and *B. E. Tvermoes*[4]. [1]ChemRisk, Pittsburgh, PA; [2]ChemRisk, Aliso Viejo, CA; [3]ChemRisk, San Francisco, CA; and [4]ChemRisk, Boulder, CO.

#78 **Poster Board Number 113**
A Physiologically-Based Pharmacokinetic Model of Alpha-Tocopherol in Squalene-Containing Emulsion Vaccine Adjuvants. M. Tegenge, and *R. J. Mitkus*. Center for Biologics Evaluation and Research, USFDA, Rockville, MD.

#79 **Poster Board Number 114**
Improvements of Structure-Based Guidance Tools in Early Drug Discovery: Evaluation of the Relative Influence of Active and Passive Transport Processes in Drug Absorption. *M. Kansy*[1], L. Fenu[3], P. Matsson[2], and P. Artursson[2]. [1]Non Clinical Safety/Translational Technologies & Bioinformatics, F. Hoffmann-La Roche, Basel, Switzerland; [2]Department of Pharmacy, Uppsala University, Sweden, Uppsala, Sweden; and [3]CADD Group, Eli Lilly & Co, Erl Wood Manor, Windlesham, United Kingdom.

#80 **Poster Board Number 115**
Physiologically-Based Pharmacokinetic Modeling for Telmisartan and Its Glucuronide and Their Liver Transporter Activity in Humans. *H. A. Barton*[1], R. Li[2], A. Ghosh[2], E. Kimoto[1], and T. S. Maurer[2]. [1]Pharmacokinetics, Pharmacodynamics, and Metabolism, Pfizer, Inc., Groton, CT; and [2]Pharmacokinetics, Dynamics, and Metabolism, Pfizer, Inc., Cambridge, MA.

MONDAY

Program Description (Continued)

Abstract #

#81 **Poster Board Number 116**
A Physiologically-Based Pharmacokinetic and Pharmacodynamic (PBPK/PD) Model of Daily Chlorpyrifos Exposure in Egyptian Agricultural Workers. *S. T. Singleton*[1], *J. B. Knaak*[1], *C. A. Ellison*[1], *R. McDougall*[2], *D. Rohlman*[3], *W. K. Anger*[4], T. Taghreed Farahat[5], F. Farahat[5], and *J. R. Olson*[1]. [1]University at Buffalo, Buffalo, NY; [2]The AEgis Technologies Group, Huntsville, AL; [3]University of Iowa, Iowa City, IA; [4]OHSU, Portland, OR; and [5]Menoufia University, Shebin El-Kom, Egypt.

#82 **Poster Board Number 117**
Multiroute PBPK/PD Model for Predictions of Chlorpyrifos Exposure and Effects in Humans and Rat. *M. Bartels*[1], *T. S. Poet*[3], *P. S. Price*[1], *J. A. Hotchkiss*[2], *D. R. Juberg*[2], and *S. Marty*[1]. [1]Toxicology, Dow Chemical, Midland, MI; [2]Regulatory Laboratories, Dow AgroSciences LLC, Indianapolis, IN; and [3]Summit Toxicology, LLC, Richland, WA.

#83 **Poster Board Number 118**
Comparison of the Toxicokinetic Modeling of Permethrin and Cypermethrin Biomarkers of Exposure. J. Côté, and *M. Bouchard*. Department of Environmental and Occupational Health, University of Montreal, Montreal, QC, Canada.

#84 **Poster Board Number 119**
A Population PBPK Model for Acetaminophen and Its Key Metabolites. *T. Zurlinden*[1], and *B. Reisfeld*[1,2]. [1]Department of Chemical and Biological Engineering, Colorado State University, Fort Collins, CO; and [2]School of Biomedical Engineering, Colorado State University, Fort Collins, CO.

#85 **Poster Board Number 120**
A Multiscale *In Silico* Modeling Framework of Xenobiotics. J. P. Sluka, X. Fu, J. Belmonte, A. Cosmanescu, M. Swat, and J. A. Glazier. Physics, Indiana University, Bloomington, IN. Sponsor: *J. Klaunig*.

#86 **Poster Board Number 121**
A General PBPK Model for IV-Injected Nanoparticles. U. Carlander, and *G. Johanson*. IMM, Unit of Work Environmental Toxicology, Karolinska Institutet, Stockholm, Sweden.

#87 **Poster Board Number 122**
A PBPK Model of Hypobaric and Hyperbaric Toluene Exposure. C. Hack[1], T. R. Covington[1], P. J. Robinson[1], P. Shiyanov[1], D. A. Mahle[2], and *J. M. Gearhart*[1]. [1]HJF, AFRL, Wright-Patterson AFB, OH; and [2]RHDJ, AFRL, Wright-Patterson AFB, OH.

#88 **Poster Board Number 123**
Understanding the Differences in the Toxicity of Tolcapone and Entacapone: A Comparative Study Using the Virtual Liver Platform—Heptox. R. Kumar, S. Das, A. Khanna, D. Srivastava, S. Louha, K. Rajendran, B. Thota, D. Raman, N. Mandyam, N. Rajeswara, S. Raghavan, and *K. Subramanian*. Strand Life Sciences, Bangalore, India.

Abstract #

#89 **Poster Board Number 124**
The Association between Prenatal Exposure to Perfluoroalkyl Substances (PFAS) and Reduced Birth Weight: Is Glomerular Filtration Rate the Underlying Cause? *M. Verner*[1,2], *A. Loccisano*[3], *M. Yoon*[3], *H. Wu*[3], *R. McDougall*[4], M. Maisonet[5], M. Marcus[5], R. Kishi[6], C. Miyashita[6], M. Chen[7], W. Hsieh[7], *M. E. Andersen*[3], *H. J. Clewell*[3], and M. P. Longnecker[8]. [1]Harvard Medical School, Boston, MA; [2]Karolinska Institutet, Stockholm, Sweden; [3]The Hamner Institutes for Health Sciences, Research Triangle Park, NC; [4]Aegis Technologies, Huntsville, AL; [5]Emory University, Atlanta, GA; [6]Hokkaido University, Sapporo, Japan; [7]National Taiwan University College of Medicine, Taipei, Taiwan; and [8]National Institute of Environmental Health Sciences, Research Triangle Park, NC.

#90 **Poster Board Number 125**
PBPK Modeling of Human PFOA Exposure Predicts Measured Serum Concentrations from Consumption of Contaminated Drinking Water. *R. R. Worley*[1,2], *D. A. Fowler*[1], C. Welsh[1], and *J. Fisher*[3,2]. [1]Division of Community Health Investigations, Centers for Disease Control/ Agency for Toxic Substances and Disease Registry, Atlanta, GA; [2]Interdisciplinary Toxicology Program, University of Georgia, Athens, GA; and [3]National Center for Toxicological Research, Food and Drug Administration, Jefferson, AR.

#91 **Poster Board Number 126**
Can the Association between Serum Perfluorooctanoic Acid (PFOA) and Delayed Menarche Be Explained on the Basis of Physiology and Pharmacokinetics? *H. Wu*[1], *M. Yoon*[1], *M. P. Longnecker*[2], and *H. J. Clewell*[1]. [1]The Hamner Institutes for Health Sciences, RTP, NC; and [2]National Institutes of Environmental Health Sciences, RTP, NC.

#92 **Poster Board Number 127**
Evaluation of the Observed Association between the Early-Age Exposure to Polybrominated Diphenyl Ethers (PBDEs) and Altered Age at Menarche on the Basis of Kinetics. *M. Yoon*[1], *H. Wu*[1], *M. Luo*[1], *M. P. Longnecker*[2], and *H. J. Clewell*[1]. [1]The Hamner Institutes for Health Sciences, RTP, NC; and [2]National Institutes of Environmental Health Sciences, RTP, NC.

#93 **Poster Board Number 128**
Assessing the Dosimetry of Polybrominated Diphenyl Ethers Using a Harmonized Physiologically-Based Pharmacokinetic Model. *A. Nong*[1], C. M. Tremblay[1,2], and P. Brochu[2]. [1]Environmental Health Sciences and Research Bureau, Health Canada, Ottawa, ON, Canada; and [2]Département de Santé Environnementale et Santé au Travail, Université de Montréal, Montreal, QC, Canada.

#94 **Poster Board Number 129**
A Multiscale Mechanistic Model of TCDD-Induced Toxicity for Assessing Expected Dose-Responses for Adverse Outcome Pathways in Liver. *S. Bhattacharya*, *P. D. McMullen*, S. Pendse, and *M. E. Andersen*. Institute for Chemical Safety Sciences, The Hamner Institutes for Health Sciences, Research Triangle Park, NC.

MONDAY

Education-Career Development Sessions
Exhibitor-Hosted Sessions
Featured Sessions
Historical Highlights Session
Informational Sessions
Platform Sessions

Program Description (Continued)

Abstract #

#95 **Poster Board Number 130**
Dosimetric Analysis of VITROCELL VC10® Smoke Exposure System with Photometer and Quartz Crystal Microbalance. W. Fields[1], K. Fowler[1], V. Hargreaves[2], L. Walker[2], and B. Bombick[1]. [1]Research & Development, R. J. Reynolds Tobacco Co., Winston-Salem, NC; and [2]Genetic & Molecular Toxicology, Covance Laboratories Ltd., Harrogate, United Kingdom. Sponsor: *P. Harp*.

#96 **Poster Board Number 131**
Predicting Tissue:Plasma Partition Coefficients: Interindividual and Interspecies Variability. *C. D. Ruark*[1], C. Hack[1], P. J. Robinson[1], D. A. Mahle[2], and *J. M. Gearhart*[1]. [1]HJF, Molecular Bioeffects Branch, Bioeffects Division; 711 Human Performance Wing, Human Effectiveness Directorate, Air Force Research Laboratory, Wright-Patterson AFB, OH; and [2]Molecular Bioeffects Branch, Bioeffects Division; 711 Human Performance Wing, Human Effectiveness Directorate, Air Force Research Laboratory, Wright-Patterson AFB, OH.

#96a **Poster Board Number 132**
Integrating Biological Variability with QSARs in PBPK Models to Simulate Distributions of Internal Dose in Humans. *K. Krishnan*[1], and T. Peyret[1]. [1]Universite de Montreal, Montreal, QC, Canada.

#96b **Poster Board Number 133**
PBPK Models for Gasoline-Ethanol Biofuels in Adult and Pregnant Rats. *S. A. Martin*[1], W. M. Oshiro[1], P. Evansky[2], J. Ford[3], L. L. Degn[1], *H. A. El-Masri*[4], *E. D. McLanahan*[5], D. MacMillan[3], *W. K. Boyes*[1], and *P. J. Bushnell*[1]. [1]TAD, Durham, NC; [2]EPHD, Durham, NC; [3]RCU, Durham, NC; [4]ISTD, NHEERL, ORD, US EPA, Durham, NC; and [5]NCEA, ORD, US EPA, Durham, NC.

#96c **Poster Board Number 134**
Evaluation of Semi-Generic PBTK Modelling for Emergency Risk Assessment after Acute Inhalation Exposure to Volatile Hazardous Chemicals. J. Olie[1,2], C. C. Hunault[1], *J. Bessems*[3], *H. J. Clewell*[4], and J. Meulenbelt[1,5,6]. [1]National Poison Information Center, University Medical Center Utrecht, Utrecht, Netherlands; [2]University of Nijmegen, Nijmegen, Netherlands; [3]EC JRC, Institute for Health and Consumer Protection, Ispra, Italy; [4]The Hamner Institutes, Research Triangle Park, NC; [5]IRAS, Utrecht University, Utrecht, Netherlands; and [6]Department of Intensive Care Medicine, UMC Utrecht, Utrecht, Netherlands.

#96d **Poster Board Number 135**
Interpreting NHANES Biomonitoring Data: Dioxins *P. Ruiz*[1], *T. Simon*[2], and *M. Mumtaz*[1]. [1]Computational Toxicology Lab, ATSDR/CDC, Atlanta, GA; and [2]Ted Simon LLC, Winston, GA.

#96e **Poster Board Number 136**
Physiologically-Based Pharmacokinetic (PBPK) Models Application to Screen Environmental Hazards Related to Adverse Outcome Pathways (AOPs). L. Adams[1], *S. A. Marchitti*[2], *T. L. Tal*[1], N. C. Baker[3], J. F. Wambaugh[3], C. Mazur[1], *J. F. Kenneke*[2], and *H. A. El-Masri*[1]. [1]NHEERL, USEPA, Research Triangle Park, NC; [2]NERL, USEPA, Athens, GA; and [3]NCCT, USEPA, Durham, NC.

Abstract #

#96f **Poster Board Number 137**
Evaluation of the Pharmacokinetics of Methylphenidate in Juvenile and Adult Humans and Nonhuman Primates Using a Physiological Model. X. Yang[1], *S. Morris*[1], *J. M. Gearhart*[2], *C. D. Ruark*[2], *M. G. Paule*[1], *W. Slikker*[1], *D. R. Mattison*[3], N. C. Twaddle[1], *D. R. Doerge*[1], J. F. Young[1], and *J. Fisher*[1]. [1]U.S. Food and Drug Administration, National Center for Toxicological Research, Jefferson, AR; [2]The Henry M. Jackson Foundation for Military Medicine, Wright-Patterson Air Force Base, OH; and [3]Risk Sciences International, Ottawa, ON, Canada.

#96g **Poster Board Number 138**
Intra- and Interspecies Extrapolation of Dose during the Developmental Period Using PBPK Models. *J. W. Fisher*[1], D. R. Doerge[1], *A. Lumen*[1], A. Fu[1], and *X. Yang*[1]. [1]Biochemical Toxicology, FDA/NCTR, Jefferson, AR.

#96h **Poster Board Number 139**
Assessing Biomonitoring of Bisphenol A in Infants and Pregnant Women Using a Lifestage Physiologically-Based Pharmacokinetic Model. D. Lefebvre[1], C. Lang[1], M. Fisher[1], T. E. Arbuckle[1], and *A. Nong*[1]. [1]Environmental Health Sciences and Research Bureau, Health Canada, Ottawa, ON, Canada.

#96i **Poster Board Number 140**
Investigation of Bias in Epidemiologic Associations Using a PK Model for DEHP. *M. B. Phillips*[1], K. Christensen[2], T. Blessinger[2], M. Lorber[2], *J. Sobus*[3], and *Y. Tan*[3]. [1]NERL ORD, US EPA, Duluth, MN; [2]NCEA ORD, US EPA, Washington, DC; and [3]NERL ORD, US EPA, RTP, NC.

Monday Morning, March 24
9:30 AM to 12:30 PM
Exhibit Hall

PS

Poster Session: Biomarkers I

Advancing Clinical and Translational Toxicology and Application of Biomarkers

Chairperson(s): *Vishal S. Vaidya, Harvard Medical School, Renal Division, Boston, MA.*

Displayed: *9:30 AM–12:30 PM*

Author Attended: *11:00 AM–12:30 PM*

#97 **Poster Board Number 141**
MiR-216a & miR-217 As Potential Biomarkers of Acute Exocrine Pancreatic Toxicity. J. Wang, R. L. Yafawi, *W. Huang*, *W. Hu*, S. Thibault, W. Scott, E. Kindt, H. Gukasyan, R. Ashoor, A. Vitsky, and *A. John-Baptiste*. DSRD, Pfizer Inc, San Diego, CA.

#98 **Poster Board Number 142**
Circulating miRNAs As Potential Biomarkers of Pancreatitis. *C. M. Karbowski*[1], R. Hu[1], D. Andrews-Cleavenger[1], *J. R. Turk*[2], *C. Afshari*[1], *H. Hamadeh*[1], and P. Nioi[1]. [1]Discovery Toxicology, Amgen, Thousand Oaks, CA; and [2]Pathology, Amgen, Thousand Oaks, CA.

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#99 **Poster Board Number 143**
Characterization of Urinary microRNAs As Biomarkers of Acetaminophen Toxicity in Children. *X. Yang*[1], *W. F. Salminen*[2], *Q. Shi*[1], J. Greenhaw[1], P. S. Gill[3,4], S. Bhattacharyya[3,4], *R. D. Beger*[1], *D. L. Mendrick*[1], and *L. P. James*[3,4]. [1]FDA/NCTR, Jefferson, AR; [2]PAREXEL International, Sarasota, FL; [3]Department of Pediatrics, University of Arkansas for Medical Sciences, Little Rock, AR; and [4]Arkansas Children's Hospital Research Institute, Little Rock, AR.

#100 **Poster Board Number 144**
MicroRNA Profiling for Discovery of Early Biomarker(s) of Doxorubicin-Induced Cardiac Tissue Injury in B6C3F1 Mice. *V. Desai*[1], J. C. Kwekel[1], *V. Vijay*[1], C. Moland[1], T. Han[1], T. Lee[2], *E. Herman*[3], S. Lewis[4], and *J. C. Fuscoe*[1]. [1]Division of Systems Biology, NCTR/FDA, Jefferson, AR; [2]Department of Mathematics, Korea University, Sejong, Republic of Korea; [3]Division of Drug Safety Research, CDER/FDA, Silver Spring, MD; and [4]Office of Scientific Coordination, NCTR/FDA, Jefferson, AR.

#101 **Poster Board Number 145**
The Rat miRNA Body Atlas: Species Translatable Biomarkers. A. T. Smith[1], J. Calley[1], S. X. Mathur[1], H. Qian[1], M. Farmen[1], S. Engle[1], F. Caiment[2], *P. R. Bushel*[3], J. Li[3], C. D. Fisher[4], P. Kirby[4], E. Koenig[5], and *D. E. Watson*[1]. [1]Investigative Toxicology, Eli Lilly and Company, Indianapolis, IN; [2]Department of Toxicogenomics, Maastricht University, Universiteitsingel, Netherlands; [3]Biostatistics Branch, National Institute of Environmental Health Sciences, Durham County, NC; [4]Drug Safety Evaluation, Takeda Pharmaceuticals, Cambridge, MA; and [5]Molecular Pathology, Takeda Pharmaceuticals, Cambridge, MA.

#102 **Poster Board Number 146**
Building the Beagle Dog microRNA Atlas: Potential Translatable Biomarkers of Organ Toxicity. *C. D. Fisher*[1], E. Koenig[2], *J. Senn*[1], M. Gallacher[1], S. Tirrell[2], M. Carsillo[1], *V. J. Kadambi*[1], *A. T. Smith*[3], *D. E. Watson*[3], and *P. Kirby*[1]. [1]Drug Safety Evaluation, Takeda Pharmaceuticals International Co., Cambridge, MA; [2]Molecular Pathology, Takeda Pharmaceuticals International Co., Cambridge, MA; and [3]Investigative Toxicology and Translational Sciences, Lilly Research Laboratories, Indianapolis, IN.

#103 **Poster Board Number 147**
Potential Utility of microRNAs As Circulating Biomarkers in Asthma. *H. Lin*[1], C. Carmichael[1], M. Kasaian[2], A. Brennan[2], K. Hammerman[1], and *S. K. Ramaiah*[1]. [1]DSRD, Pfizer Inc., Cambridge, MA; and [2]ImmunoScience, Pfizer Inc., Cambridge, MA.

#104 **Poster Board Number 148**
Characterization of microRNA Expression Profiles in a Rat Model of IL-2-Mediated Vascular Injury. C. Bertinetti-Lapatki[1], N. Keirstead[2], S. Fischer[1], D. M. Knapp[2], M. Albassam[2], A. B. Roth[1], F. Schuler[1], *T. Singer*[1], and I. Mikaelian[2]. [1]Non-Clinical Safety, Hoffmann-La Roche, Inc., Basel, Switzerland; and [2]Non-Clinical Safety, Hoffmann-La Roche, Inc., Nutley, NJ.

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#105 **Poster Board Number 149**
Urinary Expression of microRNA-21 in Response to Toxic Kidney Injury. *O. Nicoara*[1], D. Antoine[3], J. Koyner[4], and *V. S. Vaidya*[2]. [1]Nephrology, Boston Children's Hospital, Boston, MA; [2]Nephrology, Brigham and Women's Hospital, Boston, MA; [3]Molecular and Clinical Pharmacology, University of Liverpool, Liverpool, United Kingdom; and [4]Nephrology, University of Chicago, Chicago, IL.

#106 **Poster Board Number 150**
Doxorubicin-Induced Glomerular Injury Is Associated with Urinary microRNA Alterations in the Rat. *R. J. Church*[1], *J. E. McDuffie*[2], *M. Sonee*[3], *M. Otieno*[3], *P. B. Watkins*[1], and *A. H. Harrill*[4]. [1]Institute for Drug Safety Sciences, The Hamner Institutes for Health Sciences, Research Triangle Park, NC; [2]Drug Safety Sciences, Janssen Research and Development LLC, San Diego, CA; [3]Drug Safety Sciences, Janssen Research and Development LLC, Springhouse, PA; and [4]The University of Arkansas Medical Sciences, Little Rock, AR.

#107 **Poster Board Number 151**
IL-22 mRNA Expression in Blood Samples Is a Useful Biomarker for Assessing the Adverse Health Effects of PCBs in Allergic Children. *M. Tsuji*[1,2], *T. Kawamoto*[2], *C. Vogel*[1], and F. Matsumura[1]. [1]Environmental Toxicology, UC Davis, Davis, CA; and [2]Environmental Health, University of Occupational and Environmental Health, Kitakyusyu, Japan.

#108 **Poster Board Number 152**
Urinary Mitochondrial DNA As a Novel Biomarker of Mitochondrial Dysfunction in Human Acute Kidney Injury. *L. J. Stallons*[1], J. Arthur[2,3], C. Beeson[1], and *R. Schnellmann*[1,3]. [1]Dept of Drug Discovery and Biomedical Sciences, Medical University of South Carolina, Charleston, SC; [2]Dept of Medicine, Division of Nephrology, Medical University of South Carolina, Charleston, SC; and [3]Ralph H. Johnson Veterans Administration Medical Center, Charleston, SC.

#109 **Poster Board Number 153**
Isoproterenol-Induced Cardiotoxicity and Increases in Serum microRNAs in Rats. J. Calvano, *L. T. Rosini-Marthaler*, *M. Tirmenstein*, *R. Mangipudy*, and *W. E. Achanzar*. Drug Safety Evaluation, Bristol-Myers Squibb Company, New Brunswick, NJ.

#110 **Poster Board Number 154**
Potential Biomarkers Detected by Metabolomics Analysis for Isoproterenol-Induced Cardiotoxicity in Rats. K. Hashimoto[1], N. Maeda[2], K. Watanabe[1], K. Ito[1], K. Takasuna[1], T. Yamoto[1], and *W. Takasaki*[1]. [1]Medicinal Safety Research Laboratories, Daiichi Sankyo Co., Ltd., Tokyo, Japan; and [2]Translational Medicine & Clinical Pharmacology Department, Daiichi Sankyo Co., Ltd., Tokyo, Japan.

#111 **Poster Board Number 155**
ATP Synthase Subunit Beta Is a Novel Urinary Biomarker of Renal Mitochondrial Dysfunction. *M. Korrapati*[1], R. M. Whitaker[1], *L. J. Stallons*[1], J. Arthur[2], and *R. Schnellmann*[1,2]. [1]Drug Discovery and Biomedical Sciences, Medical University of South Carolina, Charleston, SC; and [2]Ralph H. Johnson Veterans Administration Medical Center, Charleston, SC.

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Education-Career Development Sessions
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#112 **Poster Board Number 156**
Clinical Performance of Translatable Biomarkers for Drug-Induced Vascular Injury. *K. Bendjama*[2], and *M. Lawton*[1]. [1]Pfizer, Groton, CT; and [2]Firalis, Huningue, France.

#113 **Poster Board Number 157**
Evaluation of Urinary L-FABP As a Nephrotoxicity Biomarker in Rats. *T. Kadota*[1], Y. Suzuki[1], H. Komatsu[1], K. Taguchi[2], and T. Sugaya[2]. [1]CMIC Bioresearch Center Co., Ltd., Yamanashi, Japan; and [2]CMIC Holdings Co., Ltd., Tokyo, Japan.

#114 **Poster Board Number 158**
Preclinical Nephrotoxicity Biomarker Analysis Using Toxicoproteomics Approaches. L. Yu[1], Z. Li[2], Z. Cao[1], Y. Gao[1], and *T. Chen*[2]. [1]Biomarkers and Alternative Models Branch, Division of Systems Biology, National Center for Toxicological Research, FDA, Jefferson, AR; and [2]Division of Genetic and Molecular Toxicology, National Center for Toxicological Research, FDA, Jefferson, AR.

#115 **Poster Board Number 159**
Detailing the Human Exposome: Mass Spectrometry-Based Chemical Profiling of Human Mitochondria. D. I. Walker[1,2], K. D. Pennell[1], and *D. P. Jones*[2]. [1]Civil and Environmental Eng, Tufts University, Medford, MA; and [2]Clinical Biomarkers Laboratory, Emory School of Medicine, Atlanta, GA.

#116 **Poster Board Number 160**
Proteomic Analysis of Dried Blood Spots for Biomonitoring Organophosphorus Exposures. *J. Marsillach Lopez*[1,2], E. J. Hsieh[2], R. J. Richter[1,2], M. J. MacCoss[2], A. N. Hoofnagle[3], and *C. E. Furlong*[1,2]. [1]Medicine (Division of Medical Genetics), University of Washington, Seattle, WA; [2]Genome Sciences, University of Washington, Seattle, WA; and [3]Laboratory Medicine, University of Washington, Seattle, WA.

#117 **Poster Board Number 161**
Toxicometabolomics Approach to Prediction of Hepatotoxicity by Troglitazone/LPS in Rats. *K. Kim*[1], J. Kim[2,1], S. Ryu[1], D. Nam[1], S. Kim[3], and S. Kim[3]. [1]Pharmacy, Dankook University, Cheonan, Chungnam, Republic of Korea; [2]Pharmacology, CKD Research Institute, Yongin, Gyeonggi, Republic of Korea; and [3]Chemistry and Chemistry Institute for Functional Materials, Pusan National University, Busan, Republic of Korea.

#118 **Poster Board Number 162**
Quantification of CD11b Levels on Cynomologus Macaque Eosinophils by Flow Cytometry Provides PK/PD Support for the Development of an Anti-Cytokine Receptor Antibody (ACRA). *D. L. Clark*[1], M. Retter[2], D. E. Wilkins[3], A. Ellingwood[3], and *P. Narayanan*[1]. [1]Discovery Toxicology, Amgen, Seattle, WA; [2]Pharmacokinetics & Drug Metabolism, Amgen, Thousand Oaks, CA; and [3]Laboratory Sciences, Preclinical Services, Charles River Laboratories, Reno, NV.

#119 **Poster Board Number 163**
Performance of the Gyrolab® xP for Custom Development of Biomarker Assays for Safety Testing in Preclinical Drug Development. *D. M. Hamlin*, V. S. Hughes, and *H. W. Smith*. Investigative Toxicology, Eli Lilly and Company, Indianapolis, IN.

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#120 **Poster Board Number 164**
Predictive Performance of a Rat-Based *In Vivo* Metabolomics Database (MetaMap®Tox) As Compared to Classical Toxicological Assessments. G. Montoya-Parra[1], E. Fabian[1], M. Herold[2], G. Krennrich[1], L. Ralf[2], W. Mellert[1], N. Moeller[3], E. Peter[2], V. Strauss[1], T. Walk[2], *B. van Ravenzwaay*[1], and *H. Kamp*[1]. [1]Toxicology, BASF SE, Ludwigshafen/Rhein, Germany; [2]metanomics, Berlin, Germany; and [3]metanomics health, Berlin, Germany.

#121 **Poster Board Number 165**
Comparison of Analytical Methods (ELISPOT, RT-QPCR and Luminex®) for the Detection of IL-17 following *In Vitro* Stimulation of Human PBMCs. C. Dumont[1], O. N. Diallo[1], E. Moisan[1], E. Marcotte[1], A. Keightley[1], J. L. Maisonneuve[2], and M. S. Christin-Piche[1]. [1]Charles River, Montreal, QC, Canada; and [2]PATH, Seattle, WA. Sponsor: *M. Vézina*.

#122 **Poster Board Number 166**
Subchronic Aflatoxin B1 Exposure Produces Expression of Novel Liver Transcripts. J. S. Chang[1], D. P. Phadke[2], *R. R. Shah*[2], *S. S. Auerbach*[1], *R. R. Tice*[1], and *B. A. Merrick*[1]. [1]Biomolecular Screening Branch, NIEHS, Research Triangle Park, NC; and [2]Bioinformatics, Social & Scientific Systems, Durham, NC.

#122a **Poster Board Number 167**
Metalloproteinase-Disintegrin Adam8: A Potential Biomarker for 2-Aminoanthracene Toxicity in the Liver of Fisher-344 Rats. J. A. Rasdall[1], R. D. Ford[1], E. Rasmussen[1], S. Jiang[2], and *W. E. Gato*[1]. [1]Chemistry, Georgia Southern University, Statesboro, GA; and [2]Department of Biomedical Science, Mercer University School of Medicine, Savannah Campus, Savannah, GA.

#122b **Poster Board Number 168**
CD1X on Dendrtic Cells: A Biomarker of Metallic Allergens and Metallic Nonallergens *In Vitro*. *Y. Mu*[1], *A. M. Keene*[2], H. Degheidy[3], Z. Zhang[4], C. Li[5], *C. Ghosh*[6], and *J. L. Weaver*[7]. [1]US FDA, Silver Spring, MD; [2]Afton Chemical, Richmond, VA; [3]US FDA, Silver Spring, MD; [4]US FDA, Silver Spring, MD; [5]US FDA, Silver Spring, MD; [6]US FDA, Silver Spring, MD; and [7]US FDA, Silver Spring, MD.

#122c **Poster Board Number 169**
Serum microRNAs As Potential Biomarkers of Nephrotoxicity in Male Fischer 344 Rats Orally Challenged with Melamine and Cyanuric Acid. *D. Williams*[1], K. Kelly[1], and *G. Gamboa da Costa*[1], *L. Camacho*[1]. [1]NCTR, FDA, Jefferson, AR.

#122d **Poster Board Number 170**
MiRNA Profiles in Liver and Kidney during the Rat Life Cycle Show Age, Sex, and Tissue Differences. J. C. Kwekel[1], *V. G. Desai*[1], *V. Vijay*[1], T. Han[1], C. Moland[1], and *J. C. Fuscoe*[1]. [1]Systems Biology/Personalized Medicine Branch, FDA/National Center for Toxicological Research, Jefferson, AR.

#122e **Poster Board Number 171**
Next-Generation Sequencing of Plasma, Urine, and Tissue microRNA from Sprague-Dawley Rats Treated with Acetaminophen or Cisplatin. F. Wolenski[1], P. Shah[1], S. Wyllie[1], M. Gallacher[1], *C. D. Fisher*[1], T. Sano[1], *V. J. Kadambi*[1], E; Koenig[1], and *P. Kirby*[1]. [1]Drug Safety Research and Evaluation, Takeda Pharmaceuticals International Co., Cambridge, MA.

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Program Description (Continued)

Abstract #

#122f **Poster Board Number 172**
Circulating microRNAs As Potential Non-Invasive Biomarkers in Patients with Crohn's Disease. A. Kalbasi[2], *H. Lin*[1], N. Alsahwi[2], *S. K. Ramaiah*[1], C. Lepsy[3], S. C. Robson[2], and D. Solar[4]. [1]DSRD, Pfizer Inc., Cambridge, MA; [2]BIDMC, Boston, MA; [3]PDM, Pfizer Inc., Boston, MA; and [4]CTI, Pfizer Inc., Boston, MA.

#122g **Poster Board Number 173**
Novel Kidney Injury Biomarker Panels to Detect Nephrotoxicity in Mouse Model. W. Zheng[1], R. Maheshwari[1], and V. Sabbisetti[2,3]. [1]EMD Millipore, St. Charles, MO; [2]Brigham and Women's Hospital, Boston, MA; and [3]Harvard Medical School, Boston, MA. Sponsor: *P. Hewitt*.

#122h **Poster Board Number 174**
Validation of an Immunoassay for Analysis of Oxytocin in Sheep Plasma to Support Progress towards a Novel Drug Delivery Strategy for the Treatment of Postpartum Hemorrhage. E. Weber[1], T. Nett[1], V. Oliver[2], P. Lambert[2], and M. McIntosh[2]. [1]Bioanalytics Group, Endolytics, LLC, Fort Collins, CO; and [2]Drug Delivery Disposition and Dynamics, Monash University, Parkville, VIC, Australia. Sponsor: *W. Hanneman.*

#122i **Poster Board Number 175**
Urinary Marker Expression May Be Gender Specific Predictor of Oxidative Stress and Inflammatory Conditions from Drug Use. *M. M. Bourgeois*[1], and *I. Richards*[1]. [1]EOH, USF COPH, Tampa, FL.

Monday Morning, March 24
9:30 AM to 12:30 PM
Exhibit Hall

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Poster Session: Autoimmunity/Hypersensitivity

Chairperson(s): *Hong Wu, Pfizer Inc, Investigative Toxicology, DSRD, Groton, CT.*

Displayed: *9:30 AM–12:30 PM*

Author Attended: *9:30 AM–11:00 AM*

#123 **Poster Board Number 201**
Characterization of Reactive Species Produced by the Human THP-1 Cell Line in Response to Contact Sensitizers. M. Azoury[1], *M. Pallardy*[1], S. Karaki[1], C. Migdal[1], E. Gimenez-Arnaud[2], *J. Lepoittevin*[2], and *S. Kerdine-Römer*[1]. [1]UniverSud, INSERM UMR 996, Faculté de Pharmacie, Châtenay-Malabry, France; and [2]Université de Strasbourg, CNRS UMR 7177, Laboratoire de Dermatochimie, Châtenay-Malabry, France.

#124 **Poster Board Number 202**
Factors Influencing Adverse Skin Responses in Rats Receiving Repeated Subcutaneous Injections and Impact on Behavior. *S. N. Levoe*[1], L. Brignolo[2], D. M. Imai[3], *D. Bruun*[1], and *P. Lein*[1]. [1]Molecular Biosciences, University of California, Davis, Davis, CA; [2]Campus Veterinary Services, University of California, Davis, Davis, CA; and [3]Comparative Pathology Laboratory of Veterinary Medicine, University of California, Davis, Davis, CA.

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#125 **Poster Board Number 203**
Identification of MHC Haplotypes Associated with Drug-Induced Hypersensitivity Reactions in Cynomolgus Macaques. H. Wu, *K. Adkins*, C. Houle, L. Nelms, K. R. Tartaro, A. Hudson, T. T. Kawabata, and J. Whritenour. Drug Safety Research and Development, Pfizer Inc, Groton, CT.

#126 **Poster Board Number 204**
Defective TGFβ Signaling in Dermal Dendritic Cells Leads to Their Reduced Lymph Node Migration and Contact Hypersensitivity Responses with Ultraviolet B Irradiation. *A. Ravindran*[1], K. Breech[1], J. Mohammed[2,1], and A. Glick[1]. [1]Veterinary and Biomedical Sciences, The Pennsylvania State University, State College, PA; and [2]Dermatology, University of Minnesota, Minneapolis, MN.

#127 **Poster Board Number 205**
Alteration of Cytoskeletal Molecules in a Human T Cell Line Caused by Continuous Exposure to Chrysotile Asbestos. *T. Otsuki*[1], M. Maeda[2], H. Matsuzaki[1], S. Lee[1], N. Kumagai-Takei[1], and *Y. Nishimura*[1]. [1]Hygiene, Kawasaki Medical School, Kurashiki, Japan; and [2]Agricultural and Life Science, Okayama University, Okayama, Japan.

#128 **Poster Board Number 206**
Analysis of Blood DcR3 Concentration and Its Correlation to Clinical Parameter of Autoimmune Diseases in Silicosis Patients. S. Lee[1], Y. Nishimura[1], S. Yamamoto[1], T. Hatayama[1], H. Matsuzaki[1], N. Kumagai-Takei[1], H. Hayashi[2], M. Kusaka[3], W. Fujimoto[2], and *T. Otsuki*[1]. [1]Hygiene, Kawasaki Medical School, Kurashiki, Okayama, Japan; [2]Dermatology, Kawasaki Medical School, Kurashiki, Okayama, Japan; and [3]Kusaka Hospital, Bizen, Okayama, Japan.

#129 **Poster Board Number 207**
FoxO1 Regulates Apoptosis Induced by Asbestos in the Human T Cell Line MT-2. H. Matsuzaki[1], S. Lee[1], M. Maeda[2], N. Kumagai-Takei[1], *Y. Nishimura*[1], and *T. Otsuki*[1]. [1]Kawasaki Medical School, Kurashiki, Okayama, Japan; and [2]Okayama University, Okayama, Japan.

#130 **Poster Board Number 208**
Contribution of Autoantibodies to Fiber-Induced Fibrosis. *K. Serve*, C. N. Zebedeo, C. Davis, K. Ng, and *J. C. Pfau*. Biological Sciences, Idaho State University, Pocatello, ID.

#131 **Poster Board Number 209**
Antinuclear Autoantibodies and IL-17 Are Induced in C57BL/6 Mice following Amphibole, but Not Chrysotile, Exposure. *J. C. Pfau*[1], A. Ferro[2], C. N. Zebedeo[1], C. Davis[1], and K. Ng[1]. [1]Biological Sciences, Idaho State University, Pocatello, ID; and [2]College of Osteopathic Medicine, Pacific Northwest University of Health Sciences, Yakima, WA.

#132 **Poster Board Number 210**
Effect of Perinatal BPA Exposure on Spleen and Serum Pro-Inflammatory Cytokines in Weaned Rats. A. Kelly[1], D. R. Mierke[1], *R. N. Sadowski*[2], L. M. Wise[2], and *S. N. Lavergne*[1]. [1]Comparative Biosciences, University of Illinois, Urbana, IL; and [2]Psychology, University of Illinois, Urbana, IL.

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Education-Career Development Sessions
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#133 **Poster Board Number 211**
Perinatal Exposure to Bisphenol A Alters Immune Cell Differentiation at Systemic and Intestinal Level in Young Offspring Rats. L. Guzylack, S. Ménard, C. Cartier, C. Lencina, M. Gillet, E. Gaultier, and E. Houdeau. Toxalim, Research Centre in Food Toxicology, NeuroGastroenterology & Nutrition, INRA, Toulouse, France. Sponsor: *B. Salles*.

#134 **Poster Board Number 212**
Transmaternal Exposure to Bisphenol A, but Not Phthalates, Accelerates Diabetes Type 1 Development in NOD Mice. J. Bodin[1], A. K. Bølling[2], A. Wendt[3], L. Eliasen[3], F. Kuper[5], R. Becher[2], *M. S. Lovik*[1,4], and *U. C. Nygaard*[1]. [1]Food, Water and Cosmetics, Norwegian Institute of Public Health, Oslo, Norway; [2]Air Pollution and Noise, Norwegian Institute of Public Health, Oslo, Norway; [3]Islet Cell Exocytosis, Clinical Sciences Malmö, Malmö, Sweden; [4]Cancer Research and Molecular Medicine, Norwegian University for Science and Technology, Trondheim, Norway; and [5]Nutrition and Food Research, TNO, Zeist, Netherlands.

#135 **Poster Board Number 213**
Total Blood Mercury, Fish Consumption, Proximity to Alluvial Arsenic Deposits, and Serum Autoantibodies among the Cheyenne River Sioux Tribe Members. E. Erdei[1], J. Ong[1], R. L. Rubin[2], C. Ducheneaux[3], M. O'Leary[4], B. Pacheco[1], *K. M. Pollard*[5], C. Miller[1], and *J. L. Lewis*[1]. [1]Community Environmental Health Program, University of New Mexico, Albuquerque, NM; [2]Molecular Genetics and Microbiology, University of New Mexico, Albuquerque, NM; [3]Environment and Natural Resources, Cheyenne River Sioux Tribe, Eagle Butte, SD; [4]Research Nurses Group, Missouri Breaks Industrial Research, Eagle Butte, SD; and [5]The Scripps Research Institute, La Jolla, CA.

#136 **Poster Board Number 214**
Altered Lyn Phosphorylation May Be a Key Mediator of Autoimmunity Associated with Mercury Intoxication of B Cells. *A. J. Rosenspire*[1], J. Caruso[2], R. Gill[1], *P. M. Stemmer*[2], N. Caruthers[2], and *M. J. McCabe*[3]. [1]Immunology and Microbiology, Wayne State Univ, Detroit, MI; [2]Institute of Environmental Health Science Research, Wayne State University, Detroit, MI; and [3]Environmental Medicine, University of Rochester Medical Center, Rochester, NY.

#137 **Poster Board Number 215**
Modeling Mechanism by Which Trichloroethylene Inhibits Liver Repair in Mouse Model of Autoimmunity. S. Erickson[1], *K. Gilbert*[1], *B. Reisfeld*[2], *T. Zurlinden*[2], M. Kreps[1], and *S. J. Blossom*[1]. [1]University of Arkansas for Medical Sciences/Arkansas Children's Hospital Research Institute, Little Rock, AR; and [2]Colorado State University, Fort Collins, CO.

#138 **Poster Board Number 216**
Activation of Poly(ADP-Ribose)Polymerase-1 in Trichloroethene-Treated MRL+/+ Mice: Potential Role in Autoimmunity. H. Ma, *G. Wang*, and *M. Khan*. Pathology, University of Texas Medical Branch, Galveston, TX.

Abstract #

#139 **Poster Board Number 217**
Evaluation of Nitrosative Stress in the Pathogenesis and Prevention of Autoimmunity Mediated by Trichloroethene. *G. Wang*, J. Wang, and *M. Khan*. Pathology, University of Texas Medical Branch, Galveston, TX.

#140 **Poster Board Number 218**
Docosahexaenoic Acid Consumption Suppresses Silica-Induced Pneumonitis and Glomerulonephritis in Lupus-Prone NZBWF1 Mice. *M. Bates*[1], *C. Brandenberger*[1], *I. Langohr*[1], *L. Bramble*[1], *A. Holian*[2], *J. Harkema*[1], and *J. J. Pestka*[1]. [1]Michigan State University, East Lansing, MI; and [2]University of Montana, Missoula, MT.

#141 **Poster Board Number 219**
Early Immunomodulatory Effects of Dermal Triclosan Exposure in Mice. *N. B. Marshall, S. E. Anderson*, K. L. Anderson, *C. M. Long*, E. Lukomska, and *B. J. Meade*. CDC/NIOSH, Morgantown, WV.

#142 **Poster Board Number 220**
An Immunologic Role of microRNA 210 in a Murine Model of Dermal Toluene-2,4-Diisocyanate Sensitization. *C. M. Long*[1,2], *N. B. Marshall*[1], *P. D. Siegel*[1], *B. J. Meade*[1], E. Lukomska[1], K. L. Anderson[1], D. Beezhold[1], and *S. E. Anderson*[1]. [1]Centers for Disease Control and Prevention-National Institute for Occupational Safety and Health (CDC-NIOSH), Morgantown, WV; and [2]Immunology and Microbial Pathogenesis Graduate Program, West Virginia University, Morgantown, WV.

#143 **Poster Board Number 221**
Differential Susceptibility to Suppression of Human Peripheral Blood T Cells by Sodium Arsenite and Monomethylarsonous Acid. F. T. Lauer[1], D. MacKenzie[1], E. Beswick[2], *A. J. Gandolfi*[3], L. Hudson[1], K. Liu[1], and *S. W. Burchiel*[1]. [1]Pharmaceutical Sciences, University of New Mexico College of Pharmacy, Albuquerque, NM; [2]Molecular Genetics and Microbiology, University of New Mexico School of Medicine, Albuquerque, NM; and [3]Pharmacology and Toxicology, University of Arizona College of Pharmacy, Albuquerque, AZ.

#144 **Poster Board Number 222**
Association of Pro-Inflammatory and Apoptotic-Related Genes Expression with Lymphocyte DNA Telomere Length (LTL) in a Mexican Population Exposed to Arsenic. *C. Escudero-Lourdes*[1], A. S. Perez-Martinez[1], *L. M. Del Razo*[2], J. Alegria-Torres[3], and P. Mandeville[1]. [1]Laboratorio de Inmunotoxicologia, Universidad Autonoma de San Luis Potosi, San Luis Potosi, Mexico; [2]Toxicologia, Centro de Investigación y Estudios Avanzados, México, D.F., Mexico; and [3]Laboratorio de Investigación en Nutrición, Universidad del Centro de México, San Luis Potosi, Mexico.

#145 **Poster Board Number 223**
Inhibition of Early T Cell Cytokine Production by Arsenic Occurs Independently of Nrf2. K. R. VanDenBerg[1], and *C. E. Rockwell*[1,2]. [1]Pharmacology and Toxicology, Michigan State University, East Lansing, MI; and [2]Center for Integrative Toxicology, Michigan State University, East Lansing, MI.

#145a **Poster Board Number 224**
Cross-Reactivity of Halogenated Platinum Salts. *D. M. Lehmann*[1], E. H. Boykin[1], C. Copelnd[1], L. B. Copeland[1], S. J. Quell[2], and W. Williams[1]. [1]NHEERL, U.S. EPA, Research Triangle Park, NC; and [2]Student Contractor, Youngsville, NC.

MONDAY

Program Description (Continued)

Abstract #

#145b **Poster Board Number 225**
Contact Sensitizing Potential of 2-Ethylhexyl p-methoxycinnamate in Female BALB/c Mice. *R. P. Frawley*[1], *D. R. Germolec*[1], *B. McIntyre*[1], *M. J. Smith*[2], *K. L. White*[2], and *T. L. Guo*[2]. [1]National Toxicology Program, NIEHS, Research Triangle Park, NC; and [2]Virginia Commonwealth University, Richmond, VA.

Monday Morning, March 24
9:30 AM to 12:30 PM
Exhibit Hall

PS

Poster Session: Alternatives to Mammalian Models I

Chairperson(s): *Rebecca Alyea, The Hamner Institutes for Health Sciences, Research Triangle Park, NC.*

Displayed: *9:30 AM–12:30 PM*

Author Attended: *11:00 AM–12:30 PM*

#146 **Poster Board Number 231**
Identification of Chemical-Specific Toxicity Transcript Profiles *In Vitro* Using a Comprehensive or a Custom-Made Microarray. *J. M. Naciff*[1], Y. Shan[1], X. Wang[1], *K. N. De Abrew*[1], R. Adams[1], J. P. Tiesman[1], *R. S. Settivari*[3], *E. W. Carney*[3], *B. A. Wetmore*[2], *R. S. Thomas*[2], and *G. Daston*[1]. [1]Procter and Gamble, Cincinnati, OH; [2]The Hamner Institutes for Health Sciences, Research Triangle Park, NC; and [3]The Dow Chemical Company, Midland, MI.

#147 **Poster Board Number 232**
Toxicological Effects of Toluene and Thinner in *Tribolium castaneum* Herbst. *N. Pajaro-Castro*, *K. Caballero-Gallardo*, and *J. Olivero-Verbel*. Environmental and Computational Chemistry Group, University of Cartagena, Cartagena, Colombia.

#148 **Poster Board Number 233**
Screening of Compounds That Alter Sleep-Wake State Alteration in Zebrafish. A. Alzualde, and *A. Muriana*. BBD BioPhenix S.L., San Sebastian, Spain.

#149 **Poster Board Number 234**
Studying Obesogens Using Zebrafish. C. W. McCollum[1], A. Riu[1], C. L. Pinto[1], M. Grimaldi[2], A. Hillenweck[3], E. Perdu[3], *D. Zalko*[3], L. Bernard[4], V. Laudet[4], P. Balaguer[2], M. Bondesson[1], and J. Gustafsson[1]. [1]CNRCS - Biology & Biochemistry, University of Houston, Houston, TX; [2]Universite de Montpellier 1, INSERM U896, IRCM, Montpellier, France; [3]Research Center in Food Toxicology, INRA, UMR 1331, Toxalim, Toulouse, France; and [4]Molecular Zoology Team, Institut de Genomique Fonctionnelle de Lyon, ENS de Lyon, Lyon, France.

#150 **Poster Board Number 235**
Effects of LXR Activation on Lipid Metabolism and Visual Function in Zebrafish. C. L. Pinto, A. Riu, J. Gustafsson, M. Bondesson, and P. Jonsson. Center for Nuclear Receptors & Cell Signaling, University of Houston, Houston, TX. Sponsor: *D. Zalko*.

#151 **Poster Board Number 236**
Comparing the Effects of Bisphenol A and Its Substitute BPS on Reproduction Using *C. elegans*. *Y. Chen*, and *P. Allard*. Department of Molecular Toxicology, UCLA School of Public Health, Los Angeles, CA.

Abstract #

#152 **Poster Board Number 237**
High-Content Screening in Zebrafish Embryos Identifies Butafenacil As a Potent Inducer of Anemia. J. K. Leet, C. Lindberg, L. Bassett, G. Isales, K. Yozzo, T. Raftery, and *D. Volz*. Department of Environmental Health Sciences, University of South Carolina, Columbia, SC.

#153 **Poster Board Number 238**
Effects of Methylmercury on Dopaminergic Neuron Development in Zebrafish Larvae. S. S. Huang, R. Godoy, M. Ekker, and *L. Chan*. Biology, University of Ottawa, Ottawa, ON, Canada.

#154 **Poster Board Number 239**
The Challenge of Studying Exposure in Zebrafish Embryos. A. Wolterbeek[1], V. van der Weijden[1], T. Maarschalkerweerd[1], C. Snel[1], A. Beker[1], E. Hansen[2], F. Van Goethem[2], A. Menke[1], and N. Mesens[2]. [1]TNO, Zeist, Netherlands; and [2]Janssen, Pharmaceutical Companies of Johnson & Johnson, Beerse, Belgium. Sponsor: *R. Woutersen*.

#155 **Poster Board Number 240**
High-Content Screening Assay for Identification of Chemicals Impacting Spontaneous Activity in Zebrafish Embryos. T. Raftery, G. Isales, K. Yozzo, and *D. Volz*. Environmental Health Sciences, Arnold School of Public Health, University of South Carolina, Columbia, SC.

#156 **Poster Board Number 241**
High-Content Screening Assay for Identification of Chemicals Impacting Cardiovascular Function in Zebrafish Embryos. *D. Volz*, K. Yozzo, G. Isales, and T. Raftery. Environmental Health Sciences, University of South Carolina, Columbia, SC.

#157 **Poster Board Number 242**
A Novel Transgenic Zebrafish Model to Predict Organ Toxicities in Mammals. *C. McGinnis*[1], X. Wang[2], H. Wang[2], Z. Zhao[2], N. Kaur[2], S. Mathavan[3], S. Fowler[1], T. Weiser[1], S. Cohen[2], and P. Ingham[2]. [1]Roche, Basel, Switzerland; [2]Institute for Molecular and Cell Biology, Singapore, Singapore; and [3]Genomics Institute, Singapore, Singapore.

#158 **Poster Board Number 243**
Novel System for Express Screening of Organ/Tissue-Specific Toxicity in Live Juvenile and Adult Zebrafish. S. Revskoy. Pharmacology, Toxicology Research Laboratory, UIC, Chicago, IL. Sponsor: *A. Lyubimov*.

#159 **Poster Board Number 244**
Cytotoxicity of Natural Toxins Mediated by the Organic Anion Transporting Polypeptide (OATP1B3). *V. Charoensuk*, *D. Huang*, L. Xie, and D. W. Kinniburgh. Physiology & Pharmacology, Alberta Centre for Toxicology University of Calgary, Calgary, AB, Canada.

#160 **Poster Board Number 245**
Development of an *In Vitro* Assay Measuring Estrogenic Responses for Use in Chemical Safety Assessment. *R. Alyea*, *C. Le Sommer*, *P. Balbuena*, *S. Ross*, *P. D. McMullen*, *M. E. Andersen*, and *R. A. Clewell*. The Hamner Institutes for Health Sciences, Research Triangle Park, NC.

MONDAY

Education-Career Development Sessions
Exhibitor-Hosted Sessions
Featured Sessions
Historical Highlights Session
Informational Sessions
Platform Sessions

Program Description (Continued)

Abstract #

#161 **Poster Board Number 246**
A Robotic MCF-7:WS8 Cell Proliferation Assay to Detect Agonist and Antagonist Estrogenic Activity. *W. Casey*[1], *C. Z. Yang*[2], *M. Stoner*[2], G. J. Kollessery[2], A. Wong[2], and G. D. Bittner[2,3]. [1]NICEATM, National Institute of Health, Research Triangle Park, NC; [2]CertiChem, Inc., Austin, TX; and [3]Neurobiology Section, School of Biology, University of Texas in Austin, Austin, TX.

#162 **Poster Board Number 247**
Evaluation of the p53-Mediated DNA Damage Response Toxicity Pathway Using Chemicals with Distinct Mechanisms of DNA Damage. *R. A. Clewell*[1], *B. Sun*[1], Y. Adeleye[2], *P. L. Carmichael*[2], *P. D. McMullen*[1], S. Pendse[1], and *M. E. Andersen*[1]. [1]Institute for Chemical Safety Science, The Hamner Institutes for Health Sciences, Research Triangle Park, NC; and [2]SEAC, Unilever, PLC, Colworth Science Park, Sharnbrook, Bedfordshire, United Kingdom.

#163 **Poster Board Number 248**
Embryonic Stem Cells Carrying a Transgenic BMP-Reporter Construct: A Useful Tool for the Identification and Analysis of Teratogenic Compounds *In Vitro*. J. Kugler[1], J. Tharmann[1], S. M. Chuva de Sousa Lopes[2], C. L. Mummery[2], R. Kemler[3], A. Luch[1], and M. Oelgeschlaeger[1]. [1]Federal Institute for Risk Assessment, Berlin, Germany; [2]Dept. of Anatomy & Embryology, Leiden University Medical Center, Leiden, Belgium; and [3]Department of Molecular Embryology, Max Planck Institute of Immunobiology and Epigenetic, Freiburg, Germany. Sponsor: *A. Haase*.

#164 **Poster Board Number 249**
Cyclosporin A Pharmacokinetics in *In Vitro* Systems. P. Bellwon[1], T. Schmidt[1], G. Truisi[2], C. Savary[3], C. Parmentier[4], and *W. Dekant*[1]. [1]Department of Toxicology, University of Wuerzburg, Wuerzburg, Germany; [2]Non-Clinical Safety, Merck Serono, Merck KGaA, Darmstadt, Germany; [3]Inserm, University of Rennes, Rennes, France; and [4]KaLy Cell, Plobsheim, France.

#165 **Poster Board Number 250**
Utilizing Human Population-Based *In Vitro* Model to Investigate Pesticide Mixtures and Drug/Metabolite Pairs. *N. Abdo*[1], P. Marlot[2], P. Munir[2], D. Shea[3], *F. A. Wright*[3,1], and *I. Rusyn*[1]. [1]UNC at Chapel Hill, Raleigh, NC; [2]University of Liverpool, Liverpool, United Kingdom; and [3]North Carolina State University, Raleigh, NC.

#166 **Poster Board Number 251**
Toll-Like Receptor 4 Signaling Heterogeneity in Different Cell Models Can Impact Data Interpretation and Toxicity Testing. B. Franz[1], M. Davidson[2], N. Hibbard[1], and *J. M. McKim*[1]. [1]CeeTox, Inc, Kalamazoo, MI; and [2]Kalamazoo College, Kalamazoo, MI.

#167 **Poster Board Number 252**
Assessing Cellular Stress via Hif-1α and Nrf2 Signaling Using Protein Stability and Transcriptional Reporters. *A. Landreman*, M. Robers, M. Bratz, J. Wilkinson, C. A. Zimprich, J. Hartnett, B. Binkowski, and M. Cong. Promega Corporation, Madison, WI.

Abstract #

#168 **Poster Board Number 253**
Characterization of a 3D Scaffold-Free Culture of Human Breast Carcinoma Cells to Understand Estrogenic Endocrine Disruption. *M. M. Vantangoli*, S. Petren, and *K. Boekelheide*. Pathology and Laboratory Medicine, Brown University, Providence, RI.

#169 **Poster Board Number 254**
Effects of Phenylethylamines on Huh-7 Human Hepatoma Cells Studied with Untargeted Global Metabolomics. *T. J. Flynn*[1], *Y. Liu*[1], and S. Pugh Bishop[1,2]. [1]Division of Toxicology, US Food and Drug Administration, Laurel, MD; and [2]Oak Ridge Institute for Science and Education, Oak Ridge, TN.

#170 **Poster Board Number 255**
An Integrative Approach for the Prediction of Acute Oral Toxicity: Past and Future. R. R. Note[1], H. Noçairi[1], D. Blanchet[2], J. M. McKim[3], V. Michaut[1], G. Ouédraogo[1], S. Martinozzi Teissier[1], F. Leroy[1], and J. Cotovio[1]. [1]Dept for The Development of Predictive Models and Methods, L'Oréal, Aulnay sous Bois, France; [2]Worldwide Safety Evaluation, L'Oréal, Asnières sur Seine, France; and [3]Ceetox, Kalamazoo, MI. Sponsor: *D. Bury*.

#171 **Poster Board Number 256**
DNA Damage and Adduct Formation by Prototype Metabolic Activation-Dependent DNA-Reactive Carcinogens in Chicken Embryo-Fetal Liver. *G. M. Williams*[1], *A. M. Jeffrey*[1], J. Duan[1], K. D. Brunnemann[1], *M. J. Iatropoulos*[1], *E. H. Vock*[2], and *U. Deschl*[2]. [1]Chemical Safety Laboratory, Dept of Pathology, New York Medical College, Valhalla, NY; and [2]Boehringer Ingelheim Pharma GmbH & Co., Biberach an der Riss, Germany.

#172 **Poster Board Number 257**
Genetic Deletions in Mitochondrial Cholesterol Transporters Result in Germline Defects in *C. elegans*. *D. W. Ferreira*, and *P. Allard*. Institute for Society and Genetics, University of California, Los Angeles, Los Angeles, CA.

#173 **Poster Board Number 258**
Validation of the Yeast Androgen Screen for Identification of Endocrine Active Substances That Interact with the Androgen Receptor. T. Ramirez[1], C. Woitkowiak[1], H. Hüner[1], C. Schönlau[2], H. Hollert[2], S. Broschk[3], O. Zierau[3], G. Vollmer[3], M. Jäger[4], A. H. Poth[4], E. Higley[5], M. Hecker[5], *R. Landsiedel*[1], and *B. van Ravenzwaay*[1]. [1]Toxicology, BASF SE, Ludwigshafen/Rhein, Germany; [2]RWTH University, Aachen, Germany; [3]Technical University, Dresden, Germany; [4]Harlan CCR, Rossdorf, Germany; and [5]University of Saskatchewan, Saskatoon, SK, Canada.

#173a **Poster Board Number 259**
Development of an Electrical Impedance-Based Device for Real-Time Assessment of Pulmonary Toxicity. C. M. Randall[1,2,3], S. D. Cole[1,2,3], D. J. Angelini[1,2], T. B. Datta-Chaudhuri[4], R. M. Dorsey[1], E. Smela[4], and *H. Salem*[1,5]. [1]Edgewood Chemical and Biological Center, Edgewood, MD; [2]National Research Council, Washington, DC; [3]Defense Threat Reduction Agency, Fort Belvoir, MD; [4]Department of Mechanical Engineering, University of Maryland, College Park, MD; and [5]Department of Homeland Security, Chemical Security Analysis Center, Edgewood, MD.

MONDAY

Program Description (Continued)

Abstract #

#173b **Poster Board Number 260**
Profiling of the Tox21 10K Compound Library for Agonists and Antagonists of the Estrogen Receptor Alpha Signaling Pathway. R. Huang[1], S. Sakamura[1], M. T. Martin[2], D. Reif[3], *R. Judson*[2], *K. Houck*[2], *W. Casey*[3], J. Hsieh[3], K. Shockley[3], P. Ceger[3], J. Fostel[3], K. L. Witt[3], *W. Tong*[4], D. Rotroff[2], A. Simeonov[1], *D. J. Dix*[2], C. P. Austin[1], *R. Kavlock*[2], *R. R. Tice*[3], and *M. Xia*[1]. [1]NCATS, NIH, Rockville, MD; [2]NCCT, EPA, RTP, NC; [3]NTP, NIH, RTP, NC; and [4]NCTR, FDA, Little Rock, AR.

#173c **Poster Board Number 261**
Developing Osteoblasts As an Endpoint for the Mouse Embryonic Stem Cell Test. *X. Chen*[1], G. Nolen[1], *D. K. Hansen*[1], *J. Fisher*[2], *W. A. Harrouk*[2], *M. Tassinari*[2], and *A. Inselman*[1]. [1]Division of System Biology, NCTR/FDA, Jefferson, AR; and [2]CDER/FDA, Silver Spring, MD.

#173d **Poster Board Number 262**
Analysis of High-Throughput, High-Content Data in a *C. elegans*-Based Toxicity Assay. *R. B. Goldsmith*[1], *J. Pirone*[2], *W. A. Boyd*[1], and *J. H. Freedman*[1]. [1]DNTP, NIEHS/NIH, Research Triangle Park, NC; and [2]Social & Scientific Systems, Inc., Durham, NC.

#173e **Poster Board Number 263**
Quantitative Model of Systemic Toxicity Using ToxCast and ToxRefDB. *L. Truong*[1], *G. Ouédraogo*[2], S. Loisel-Joubert[2], and *M. T. Martin*[1]. [1]EPA-NCCT, Durham, NC; and [2]L'Oreal, Paris, France.

#173f **Poster Board Number 264**
A High-Throughput Microscopy Pathway in Toxicity Reporter Platform for Chemical Safety Assessment. S. Wink[1], *B. van de Water*[1], S. Hiemstra[1]. [1]Division of Toxicology, LACDR, Leiden University, Leiden, Netherlands.

#173g **Poster Board Number 265**
Transcriptomic Characterization of Mouse Embryonic Stem Cell Differentiation and Its Modulation by Thalidomide. *X. Gao*[1], *J. Yourick*[1], V. Topping[1], K. Belgrave[1], and R. Sprando[1]. [1]Division of Toxicology, Office of Applied Research and Safety Assessment, U.S. Food and Drug Administration, Laurel, MD.

#173h **Poster Board Number 266**
Performance of the BG1Luc and ER β-Lactamase Estrogen Receptor Transactivation Assays in Tox21. *L. Rinckel*[2], *W. Casey*[1], *R. Huang*[3], *J. Hsieh*[1], *K. Shockley*[1], *M. Xia*[3], *R. R. Tice*[1], and *P. Ceger*[2]. [1]NIEHS, Durham, NC; [2]ILS Inc, Durham, NC; and [3]NCGC, Rockville, MD.

#173i **Poster Board Number 267**
Functional Assays and Alternative Species: Using Larval Zebrafish in Developmental Neurotoxicity Screening. S. Padilla[1], *M. Culbreth*[1,2], R. C. MacPhail[3,4], D. L. Hunter[1], K. A. Jarema[3], *K. F. Jensen*[3], J. Olin[1], and A. Tennant[1]. [1]ISTD, U.S. EPA, Research Triangle Park, NC; [2]Albert Einstein College of Medicine, Bronx, NY; [3]TAD, U.S. EPA, RTP, NC; and [4]VA Tech, Blacksburg, VA.

#173j **Poster Board Number 268**
Effects of ToxCast Phase I Chemicals on Steroidogenesis in H295R Human Adrenocortical Carcinoma Cells. *M. T. Martin*[1], *A. L. Forgacs*[1], D. L. Filer[1], and *C. Toole*[2]. [1]ORD/NCCT, USEPA, Research Triangle Park, NC; and [2]CeeTox, Inc., Kalamazoo, MI.

Abstract #

#173k **Poster Board Number 269**
***In Vitro* Safety Profile of Personal Care Products—Use of an *In Vitro* Testing Platform Based on a Reconstructed Vaginal Tissue Model.** *C. Moudgal*[1], L. Strazdas[1], D. Sheehan[2], D. Wolfinger[2], N. Wilt[2], *G. Costin*[2], S. Ayehunie[3], and A. Armento[3]. [1]The Clorox Company, Pleasanton, CA; [2]Institute for In Vitro Sciences, Inc. (IIVS), Gaithersburg, MD; and [3]MatTek Corporation, Ashland, MA.

#173l **Poster Board Number 270**
Chemotherapeutic Class-Specific Neurotoxic Effects on Rat DRG Cells Using High-Content Analysis. *H. Behrsing*[1], F. Cutuli[1], J. Hamre[1], *M. A. Davis*[2], and *L. Guo*[1]. [1]Leidos Biomedical Research, Inc., Frederick, MD; and [2]Division of Cancer Treatment and Diagnosis, National Cancer Institute, Bethesda, MD.

#173m **Poster Board Number 271**
Effect of Nicotine on Zebrafish Embryos: High-Content Analysis to Assess Developmental Toxicity. *S. F. Ali*[1], S. Lantz-McPeak[1], E. Cuevas[1], *M. G. Paule*[1], and J. Kanungo[1]. [1]Division of Neurotoxicology, NCTR, Jefferson, AR.

#173n **Poster Board Number 272**
4-Vinylcyclohexene-Induced Changes in Gene Expression and Antioxidant Status Is Mediated via Oxidative Stress in *Drosophila melanogaster*. *A. O. Abolaji*[1,2], J. P. Kamdem[2], T. H. Lugokenskia [2], T. K. Nascimento[2], E. P. Waczuk[2], *E. O. Farombi*[1], and J. B. Rocha[2]. [1]Biochemistry, University of Ibadan, Ibadan, Nigeria; and [2]Departamento de Quimica, Bioquímica Toxicológica, Universidade Federal de Santa Maria, Santa Maria, Rio Grande do Sul, Brazil.

#173o **Poster Board Number 273**
Similar Toxicity of Three Fluoridation Compounds to the Nematode *Caenorhabditis elegans*. *W. A. Boyd*[1], J. R. Rice[1], D. Chandra[2], M. Smith[3], P. K. Den Besten[2], and *J. H. Freedman*[1]. [1]NIEHS, Research Triangle Park, NC; [2]UCSF, San Francisco, CA; and [3]Social & Scientific Systems, Inc., Durham, NC.

#173p **Poster Board Number 274**
Using Acute Toxicity, Transcriptomics, Metabolomics and Lipidomics to Understand Effects of Chemical Flame-Retardants on Eco-Indicator *Daphnia magna*. *L. D. Scanlan*[1], A. Loguinov[1], P. Antczak[2], *Q. Teng*[4], *H. Stapleton*[3], F. Falciani[2], and *C. Vulpe*[1]. [1]U.C. Berkeley, Berkeley, CA; [2]University of Liverpool, Liverpool, United Kingdom; [3]Duke University, Durham, NC; and [4]US EPA, Athens, GA.

MONDAY

Education-Career Development Sessions
Exhibitor-Hosted Sessions
Featured Sessions
Historical Highlights Session
Informational Sessions
Platform Sessions

Program Description (Continued)

Monday Morning, March 24
9:30 AM to 12:30 PM
Exhibit Hall

PS

Poster Session: Developmental Toxicology: Mammalian Models

Chairperson(s): *Susan M. Henwood, Covance Laboratories, Cottage Grove, WI.*

Displayed: *9:30 AM–12:30 PM*

Author Attended: *9:30 AM–11:00 AM*

Abstract #

#174 **Poster Board Number 301**
Exposure to 2,3,7,8-Tetrachlorodibenzo-*p*-Dioxin (TCDD) Induces Expression of Prostaglandin E2 Receptor 4 (EP4) Gene in the Developing Anteroventral Periventricular Nucleus (AVPV). *J. Del Pino Sans*[1,2], and *S. Petersen*[1]. [1]Veterinary and Animal Sciences, University of Massachusetts, Amherst, MA; and [2]Toxicology and Pharmacology, Universidad Complutense de Madrid, Madrid, Spain.

#175 **Poster Board Number 302**
Neonatal Exposure to Pesticides in Mice Alters Neuroprotein Levels Important for the Developing Brain. *I. Lee*, *H. Viberg*, and A. M. Al-Refai. Uppsala University, Uppsala, Sweden.

#176 **Poster Board Number 303**
Arsenic Inhibits Hedgehog Signaling during P19 Cell Differentiation. *J. Liu*[2], and *L. J. Bain*[1,2]. [1]Biological Sciences, Clemson University, Clemson, SC; and [2]Environmental Toxicology, Clemson University, Clemson, SC.

#177 **Poster Board Number 304**
Contribution of DEHP in Malformation of Fetal Brain Development. C. Tseng[1,2,3], Y. Chuang[1], Y. Yang[2], S. Tong[2], Y. Chen[1], Y. Chang[1], C. Lin[1], and *M. Chao*[1,3]. [1]Bioscience Technology, Chung Yuan Christian University, Chung-Li, Taiwan; [2]Biomedical Engineering, Chung Yuan Christian University, Chung-Li, Taiwan; and [3]Center of Nanotechnology, Chung Yuan Christian University, Chung-Li, Taiwan.

#178 **Poster Board Number 305**
Developmental Vulnerability of Rat Hippocampal Neural Stem Cells to the Neurotoxicant Methylmercury (MeHg). M. Obiorah[1], K. B. Sokolowski[2], and E. DiCicco-Bloom[1,2]. [1]Neuroscience and Cell Biology, Rutgers RWJMS, Piscataway, NJ; and [2]Toxicology, Rutgers University, Piscataway, NJ. Sponsor: *J. Richardson*.

#179 **Poster Board Number 306**
Human Embryonic Stem Cells and Their Neuronal Descendants Exhibit Differential Sensitivity to PBDEs. *J. F. Robinson*, N. Larocque, M. McMaster, and S. J. Fisher. Department of Obstetrics, Gynecology, & Reproductive Sciences, University of California, San Francisco (UCSF), San Francisco, CA.

Abstract #

#180 **Poster Board Number 307**
Alterations of Postnatal Development of Feedback Inhibition and Basic Excitability in the Hippocampus of Rats Prenatally Exposed to Valproic Acid. *Y. Fueta*[1], Y. Sekino[2], and S. Ueno[3]. [1]Department of Environmental Management and Control, University of Occupational and Environmental Health, Kitakyushu, Japan; [2]Division of Pharmacology, National Institute of Health Sciences, Tokyo, Japan; and [3]Department of Occupational Toxicology, University of Occupational and Environmental Health, Kitakyushu, Japan.

#181 **Poster Board Number 308**
Neurobehavioral Effects of Developmental Exposure to 2,2',4,4'-Tetrabromodiphenyl Ether (BDE-47) and Mechanistic Exploration Using Whole-Genome Transcriptional Profiling. *D. E. Haggard*, *M. T. Simonich*, *L. Truong*, *S. M. Bugel*, *B. C. Goodale*, and *R. L. Tanguay*. Department of Environmental and Molecular Toxicology, Oregon State University, Corvallis, OR.

#182 **Poster Board Number 309**
An Automated High-Content Screen for Migration of Neural Crest Precursor Cells. A. Essex, *B. Cai*, E. Batchelder, S. Feng, P. McDonough, and *J. Evans*. Vala Sciences, San Diego, CA.

#183 **Poster Board Number 310**
Molecular Analysis of Rat Palatal Development. *J. Wright*[2], L. Vicario-Rodriguez[1], J. Dixon[1], M. Rattray[1], *E. Barnes*[2], and M. J. Dixon[1]. [1]Faculty of Life Sciences, University of Manchester, Manchester, United Kingdom; and [2]Jealott's Hill International Research Centre, Syngenta, Bracknell, United Kingdom.

#184 **Poster Board Number 311**
The Role of the Epicardium in Cardiogenesis: Insights from the *EHC* Mouse. E. Barnes[1], *J. Wright*[1], L. Ridge[2], G. Tenin[2], and K. Hentges[2]. [1]Syngenta, Jealott's Hill International Research Centre, Bracknell, United Kingdom; and [2]Faculty of Life Sciences, University of Manchester, Manchester, United Kingdom.

#185 **Poster Board Number 312**
Intravenous Infusion in the Juvenile Rat. L. Allais, N. Truchot, P. Vignand, S. David, D. Ravelo, and *J. Briffaux*. WIL Research Europe-Lyon, St Germain-Nuelles, France.

#186 **Poster Board Number 313**
Social Housing of Mature Males in a Nonhuman Primate Breeding Program. *S. M. Henwood*, J. Edwards, and F. Gruenig. Toxicology, Covance Laboratories Inc., Madison, WI.

#187 **Poster Board Number 314**
The Non-Obese Diabetic (NOD) Mouse As a Model for Diabetic Pregnancy. *C. Kappen*[1], and J. Salbaum[2]. [1]Developmental Biology, Pennington Biomedical Research Center, Baton Rouge, LA; and [2]Regulation of Gene Expression, Pennington Biomedical Research Center, Baton Rouge, LA.

MONDAY

Program Description (Continued)

Abstract #

#188 **Poster Board Number 315**
Fetal Myocardial Reduction in Hyperglycemic Mouse Pregnancy Is Associated with Dysregulated Expression of the Antiapoptotic Gene BCL-2 in the Developing Heart: Preliminary Results. *S. D. Holladay*[1], J. C. Gutierrez[2], M. R. Prater[2], P. Navarrette[2], and *R. M. Gogal*[1]. [1]Vet Biosciences & Diagnostic Imaging, University of Georgia, Athens, GA; and [2]Biomedical Sciences & Pathobiology, Virginia Tech, Blacksburg, VA.

#189 **Poster Board Number 316**
Human Hepatic CES1 and CES2 Ontogeny. D. McCarver, J. He, P. Simpson, and *R. N. Hines*. Pediatrics, Medical College of Wisconsin, Milwaukee, WI.

#190 **Poster Board Number 317**
Impact of Fatty Acids on Human UDP-Glucuronosyltransferase 1A1 Activity and Its Expression in Neonatal Hyperbilirubinemia. *R. Fujiwara*, A. Shibuya, and T. Itoh. School of Pharmacy, Kitasato University, Tokyo, Japan.

#191 **Poster Board Number 318**
Genistein Reduces Human Placental BCRP/ABCG2 Transporter Expression and Function *In Vitro*: Potential Risk for Fetal Drug Exposure. *K. M. Bircsak*[1,2], Q. Wang[1], Y. Lin[1], and *L. M. Aleksunes*[1]. [1]Department of Pharmacology and Toxicology, Rutgers University, Piscataway, NJ; and [2]Joint Graduate Program in Toxicology, Rutgers University, Piscataway, NJ.

#192 **Poster Board Number 319**
Human Hepatic UGT2B15 Developmental Expression. K. Divakaran, *R. N. Hines*, and D. McCarver. Pediatrics, Medical College of Wisconsin, Milwaukee, WI.

#193 **Poster Board Number 320**
***In Utero* Exposure of C57BL/6J Mice to 2, 3, 7, 8-Tetrachlorodibenzo-*p*-Dioxin (TCDD) Disrupts Epidermal Tight Junctions.** *C. S. Muenyi*, S. Leon Carrion, L. A. Jones, *C. H. Sutter*, and *T. R. Sutter*. Biological Sciences, University of Memphis, Memphis, TN.

#194 **Poster Board Number 321**
Ethanol (EtOH) Alters the Redox Environment, Histiotrophic Nutrition Pathways (HNP), and the Thiol Proteome during Rat Organogenesis. *J. L. Jilek*[1], *K. E. Sant*[1], K. H. Cho[1], M. S. Reed[2], J. Pohl[2], *J. M. Hansen*[3], and C. Harris[1]. [1]Environmental Health Sciences, University of Michigan, Ann Arbor, MI; [2]Biotechnology Core Facility Branch, Centers for Disease Control, Atlanta, GA; and [3]Division of Pulmonary, Allergy/Immunology, Cystic Fibrosis and Sleep, Department of Pediatrics, Emory Medical School, Atlanta, GA.

#195 **Poster Board Number 322**
Two Alleles of Med31 Provide a Model to Study Defects in Cellular Proliferation and Endochondral Ossification. K. Wolton[1], *J. Wright*[2], and K. Hentges[1]. [1]University of Manchester, Manchester, United Kingdom; and [2]Syngenta, Berkshire, United Kingdom.

Abstract #

#196 **Poster Board Number 323**
The Effects of Thalidomide on Fgf8, Bmp4 and Hoxa11 Expression in the Limb Bud in Rabbit Embryos. Y. Kawamura, T. Yamashita, T. Yamauchi, K. Matsumoto, and K. Sato. Drug Safety Research Laboratories, Takeda Pharmaceutical Company Limited, Fujisawa, Kanagawa, Japan. Sponsor: *K. Takami*.

#197 **Poster Board Number 324**
Humoral Immunity and Lymphocyte Immunophenotyping Control Background Data in Mainland and Indonesian Cynomolgus Monkey Infants. *S. Oneda*[1], N. Yee[1], *N. Lalayeva*[1], *R. E. Watson*[1], *N. Makori*[1], S. Graza[1], P. Franklin[1], *T. Beck*[1], K. Fukuzaki[1], and *R. Nagata*[2]. [1]Safety Assessment, SNBL USA, Ltd., Everett, WA; and [2]Shin Nippon Biomedical laboratories, Ltd., Tokyo, Japan.

#198 **Poster Board Number 325**
Development and Validation of an Analytical Method for Monobutylphthalate, a Metabolite of Di-n-Butylphthalate, in Harlan Sprague-Dawley Rat Pup and Fetus by Ultra-Performance Liquid Chromatography-Tandem Mass Spectrometry (UPLC-MS/MS). R. A. Fernando[1], M. A. Silinski[1], T. A. Freed[1], F. K. Thomas[1], V. G. Robinson[2], and S. Waidyanatha[2]. [1]RTI International, Research Triangle Park, NC; and [2]Division of National Toxicology Program, NIEHS, Research Triangle Park, NC. Sponsor: *K. Levine*.

#199 **Poster Board Number 326**
Developmental Toxicity Assessment of Multiwall Carbon Nanotubes in Pregnant Mice after Intratracheal Instillation. N. Kobayashi[1], T. Numano[2,3], R. Kubota[1], Y. Ikarashi[1], and *A. Hirose*[1]. [1]National Institute of Health Sciences, Tokyo, Japan; [2]DIMS Institute of Medical Science Inc., Ichinomiya, Aichi, Japan; and [3]Department of Molecular Toxicology, Nagoya City University Graduate School of Medical Sciences, Nagoya, Aichi, Japan.

#200 **Poster Board Number 327**
Elucidation of a Novel Molecular Mechanism of Dioxin Toxicity. N. Fujisawa, W. Yoshioka, and *C. Tohyama*. Graduate School of Medicine, The University of Tokyo, Tokyo, Japan.

Monday Morning, March 24
9:30 AM to 12:30 PM
Exhibit Hall

PS

Poster Session: Developmental Toxicology: Nonmammalian Models

Chairperson(s): *Sara Wirbisky, Purdue University, West Lafayette, IN.*

Displayed: *9:30 AM–12:30 PM*

Author Attended: *11:00 AM–12:30 PM*

#201 **Poster Board Number 333**
Evaluation of the Sodium Valproate-Induced Developmental Abnormalities and Its Mechanisms in Zebrafish. A. Yamashita[1], H. Inada[1], K. Chihara[1], *T. Yamada*[1], T. Yabe[2], S. Takada[2], J. Deguchi[1], and H. Funabashi[1]. [1]Preclinical Research Laboratories, Dainippon Sumitomo Pharma Co., Ltd., Osaka, Japan; and [2]Division of Molecular and Development Biology, National Institute for Basic Biology, Aichi, Japan.

MONDAY

Education-Career Development Sessions
Exhibitor-Hosted Sessions
Featured Sessions
Historical Highlights Session
Informational Sessions
Platform Sessions

Program Description (Continued)

Abstract #

#202 **Poster Board Number 334**
Evaluation of Teratogenicity of IMiD® Compounds Using the Zebrafish Developmental Toxicity Assay. *J. Y. Hui*[1], P. J. Sherratt[1], *B. D. Jeffy*[1], K. Tang[1], and *D. J. Fort*[2]. [1]Celgene Corporation, Summit, NJ; and [2]Fort Environmental Laboratories, Stillwater, OK.

#203 **Poster Board Number 335**
Expression of Glyoxylase 1 (glo1) throughout Zebrafish Embryonic Development and Alterations following Atrazine Exposure. G. A. Ryan[1], *G. J. Weber*[1], *S. M. Peterson*[1], M. M. Sepulveda[2], and *J. L. Freeman*[1]. [1]Health Sciences, Purdue University, West Lafayette, IN; and [2]Department of Forestry and Natural Resources, Purdue University, West Lafayette, IN.

#204 **Poster Board Number 336**
Deregulation of miRNA-126 Expression in Developing Zebrafish Exposed to the Herbicide Atrazine. K. Schlotman, *S. Wirbisky*, *G. J. Weber*, and *J. L. Freeman*. Health Sciences, Purdue University, West Lafayette, IN.

#205 **Poster Board Number 337**
Exposure to Chemicals Found in Umbilical Cord Blood Alters Kisspeptin/GPR54-GnRH Pathway Expression and Development in the Zebrafish Embryonic Development Model. *J. P. Crago*, and *D. Schlenk*. Environmental Sciences, University-California, Riverside, Riverside, CA.

#206 **Poster Board Number 338**
Induction of Vitellogenin in *Trachemys scripta* Exposed to Atrazine. E. R. Thomas[1], and R. Valverde[2]. [1]Biological Sciences, Southeastern Louisiana University, Hammond, LA; and [2]Biological Sciences, Southeastern Louisiana University, Hammond, LA. Sponsor: *A. Hoberman*.

#207 **Poster Board Number 339**
Developmental Exposure to Benzo[a]pyrene Affects Behavior and Energetics in Larval and Adult Zebrafish. *A. Knecht*, *R. L. Tanguay*, and *L. Truong*. Dept of Environmental and Molecular Toxicology, Oregon State University, Corvallis, OR.

#208 **Poster Board Number 340**
Effects of Benzo[a]pyrene and CYP19B Knockdown on Early Zebrafish Development. *K. M. Alharthy*[1], *F. T. Booc*[1], J. Corrales[1], C. Thornton[1], *W. Dong*[2], and *K. L. Willett*[1]. [1]Department of Pharmacology and ETRP, University of Mississippi, University, MS; and [2]Nicholas School of the Environment, Duke University, Durham, NC.

#209 **Poster Board Number 341**
Chemical-Specific Oxidative Stress Response in Zebrafish Embryos. *M. E. Hahn*[1], *S. I. Karchner*[1], D. G. Franks[1], *A. R. Timme-Laragy*[1,2], and A. G. McArthur[3]. [1]Biology, Woods Hole Oceanographic Inst, Woods Hole, MA; [2]Public Health, Univ of Massachusetts, Amherst, MA; and [3]AGM Consulting, Hamilton, ON, Canada.

#210 **Poster Board Number 342**
Knockdown of the TCDD-Regulated Transcription Factor, Foxq1a, Alters Pathways Involved in Neurological, Skeletal, and Muscular Development. *C. J. Mattingly*, *D. Reif*, and *A. Planchart*. Biology, NC State University, Raleigh, NC.

Abstract #

#211 **Poster Board Number 343**
Estrogen Receptor-Dependent and Independent Developmental Effects of Phytoestrogens in Zebrafish (*Danio rerio*). *S. M. Bugel*, and *R. L. Tanguay*. Dept of Environmental & Molecular Toxicology, Oregon State University, Corvallis, OR.

#212 **Poster Board Number 344**
Monosubstituted Isopropylated Triaryl Phosphate, a Major Component of Flame Retardant Mixture Firemaster 550, Is an AhR Agonist That Exhibits AhR-Independent Cardiac Toxicity. C. V. Gerlach[1], *S. R. Das*[1], *D. Volz*[2], and *R. L. Tanguay*[1]. [1]Department of Environmental and Molecular Toxicology, Oregon State University, Corvallis, OR; and [2]Department of Environmental Health Sciences, University of South Carolina, Columbia, SC.

#213 **Poster Board Number 345**
Combined Effects of Selenomethionine and Osmotic Stress on the Unfolded Protein Response and Apoptosis during Embryonic Development. A. J. Kupsco[1], and *D. Schlenk*[2]. [1]Environmental Toxicology, University of California-Riverside, Riverside, CA; and [2]Environmental Sciences, University of California-Riverside, Riverside, CA.

#214 **Poster Board Number 346**
Ethanol Exposure during Medaka (*Oryzias latipes*) Embryogenesis: Impact on Cannabinoid Receptors. *A. K. Dasmahapatra*[1,2], and I. A. Khan[1,3]. [1]National Center for Natural Product Research, University of Mississippi, University, MS; [2]Department of Pharmacology, University of Mississippi, University, MS; and [3]Department of Pharmcognosy, University of Mississippi, University, MS.

#215 **Poster Board Number 347**
PAH Exposure in Early Xenopus Embryos Alters Cardiac Function and Aryl Hydrocarbon Receptor (AhR) Signaling. J. Pinette, B. Pyram, L. Hebert, and S. L. Whittemore. Biology, Keene State College, Keene, NH. Sponsor: *A. Andrew*.

#216 **Poster Board Number 348**
An Integrative *D. discoideum*, *C. elegans*, and *D. rerio* Strategy to Assess Potential Hazardous Compounds. M. Wildwater[1], and *R. Pieters*[2]. [1]University of Applied Sciences Arnhem and Nijmegen, Nijmegen, Netherlands; and [2]Institute for Risk Assessment Sciences, Utrecht, Netherlands.

#217 **Poster Board Number 349**
Disruption of Collagen Biosynthetic Pathway Is a Key Mechanism in Zearalenone-Induced Reproductive and Developmental Toxic Effects in *Caenorhabditis elegans*. *Z. Yang*[2], *L. Tang*[1], X. Sun[2], and *J. Wang*[1]. [1]University of Georgia, Athens, GA; and [2]Jiangnan University, Wuxi, China.

#218 **Poster Board Number 350**
Knockdown of *Drosophila* MRP (dMRP) Expression in Target Organs Increases Developmental Susceptibility to Methylmercury Toxicity. L. Prince[1], M. Korbas[2], and *M. D. Rand*[1]. [1]Environmental Medicine, University of Rochester, Rochester, NY; and [2]Canadian Light Source, Saskatoon, SK, Canada.

MONDAY

Program Description (Continued)

Abstract #

#219 **Poster Board Number 351**
Exposure to Pyrene and Phenanthrene Alters Normal Pigmentation in *Xenopus laevis* Embryos. E. Masure, K. Rosato, D. Snoke, and S. L. Whittemore. Biology, Keene State College, Keene, NH. Sponsor: *A. Andrew*.

#220 **Poster Board Number 352**
Prediction of Developmental Toxicity—Validation Results of an Integrated *In Silico*/*In Vitro* Testing Strategy. A. Amberg[1], H. Spirkl[1], M. Stolte[1], F. Schmidt[1], D. Mulliner[1], E. Krupp[1], S. Barbellion[2], B. Beyer[3], A. Rogissart[4], N. Roome[2], and A. Czich[1]. [1]Preclinical Safety, Sanofi, Frankfurt, Germany; [2]Preclinical Safety, Sanofi, Paris, France; [3]Preclinical Safety, Sanofi, Bridgewater, NJ; and [4]Preclinical Safety, Sanofi, Montpellier, France. Sponsor: *M. Bonnefoi*.

#221 **Poster Board Number 353**
Transgenerational Effects of the Endocrine-Disrupting Herbicide Atrazine in Zebrafish. *J. L. Freeman*[1], *G. J. Weber*[1], *S. Wirbisky*[1], and M. M. Sepulveda[2]. [1]Health Sciences, Purdue University, West Lafayette, IN; and [2]Forestry and Natural Resources, Purdue University, West Lafayette, IN.

#222 **Poster Board Number 354**
Evaluation of Teratogenic Effect of BMP2-Inducible Kinase Inhibition in Zebrafish by Using Morpholino Antisense Oligonucleotides. *C. Zhang*, *J. Panzica-Kelly*, *R. R. Denton*, and *K. Augustine*. Bristol-Myers Squibb, Pennington, NJ.

#223 **Poster Board Number 355**
Tributyltin (TBT) Exposure Promotes Zebrafish Sexual Differentiation. *C. L. McGinnis*, K. Kosior, J. Kowalski, and T. Lombardi. Quinnipiac University, Hamden, CT.

#223a **Poster Board Number 356**
Mitochondrial Uncoupling Disrupts Neurodevelopment in Zebrafish Embryos. S. Chan[1], J. Bestman[1], J. J. Rahn[1], and K. D. Stackley[1]. [1]Drug Discovery and Biomedical Sciences, Medical University of South Carolina, Charleston, SC. Sponsor: *R. Di Giulio*.

#223b **Poster Board Number 357**
Relative Developmental Toxicity of Pentachlorophenol and Pentachloroanisole in Zebrafish (*Danio rerio*). Y. Cheng[1], and *L. Chan*[1]. [1]University of Ottawa, Ottawa, ON, Canada.

#223c **Poster Board Number 358**
Transcriptional Regulation of the Nuclear Factor Erythroid-2 Related Factor (NRF) Family by the Aryl Hydrocarbon Receptor (AhR). *L. Williams*[1], Y. Chen[1], and J. Meyo[1]. [1]Biology, Bates College, Lewiston, ME.

#223d **Poster Board Number 359**
Toxicity Screening of the ToxCast Phase II Chemical Library Using a Zebrafish Developmental Assay. S. Mosher[1], *K. Houck*[1], S. L. Frady[1], R. Judson[1], J. F. Wambaugh[1], D. Reif[2], and S. Padilla[1]. [1]US EPA, Durham, NC; and [2]Department of Biological Sciences, NCSU, Raleigh, NC.

Abstract #

#223e **Poster Board Number 360**
AhR-Dependent and AhR-Independent Genes Involved in the Synergistic Cardiac Developmental Toxicity of PAHs. *R. Di Giulio*[1], N. Jayasundara[1], L. Garner[2], K. Erwin[3], and *J. N. Meyer*[1]. [1]Nicholas School of the Environment, Duke University, Durham, NC; [2]Cardno ENTRIX, Portland, OR; and [3]Duke University Medical Center, Durham, NC.

Monday Morning, March 24
9:30 AM to 12:30 PM
Exhibit Hall

PS

Poster Session: Epidemiology

New Science and Perspectives Surrounding Environmental and Occupational Exposures

Chairperson(s): *Brent L. Finley, Cardno ChemRisk, Brooklyn, NY.*

Displayed: *9:30 AM–12:30 PM*

Author Attended: *9:30 AM–11:00 AM*

#223f **Poster Board Number 369**
Serum Gamma Glutamyl Transferase Is Associated with Higher Blood Pressure and Lead-Induced High Blood Pressure: A Model Pathway Using NHANES 2007–2010. F. Scinicariello[1], M. C. Buser[1], H. Pohl[1], H. G. Abadin[1], and H. Murray[1]. [1]DTHHS, ATSDR/CDC, Atlanta, GA. Sponsor: *P. Ruiz*.

#223g **Poster Board Number 370**
Association of Urinary Dichlorophenols with Increased Body Weight Measures and Obesity in Children and Adults: Analyses of NHANES 2007–2010. S. Z. Ingber[1], M. C. Buser[1], and F. Scinicariello[1]. [1]DTHHS, ATSDR/CDC, Atlanta, GA. Sponsor: *P. Ruiz*.

#223h **Poster Board Number 371**
Airway Inflammation Markers in Exhaled Breath from Children Are Linked with Exposure to Black Carbon. S. De Prins[1,2], E. Dons[1], M. Van Poppel[1], L. Int Panis[1,3], E. Van de Mieroop[4], V. Nelen[4], B. Cox[3], T. Nawrot[3], G. Schoeters[1,2], and G. Koppen[1]. [1]VITO, Mol, Belgium; [2]University of Antwerp, Antwerp, Belgium; [3]Hasselt University, Diepenbeek, Belgium; and [4]Provincial Institute of Hygiene, Antwerp, Belgium. Sponsor: *P. Hoet*.

#223i **Poster Board Number 372**
Arsenic Level in Drinking Water and Lung Cancer Mortality among 127 United States Counties from 1950 to 1979. S. H. Lamm[1,2], E. K. Dissen[1], M. Feinleib[2], J. Li[1,2], and E. Hatef[1,2]. [1]Center for Epidemiology and Global Health (CEOH), Washington, DC; and [2]JHU Bloomberg School of Public Health, Baltimore, MD. Sponsor: *J. Tsuji*.

#224 **Poster Board Number 401**
Urinary Concentrations of 2,5-Dichlorophenol and Increased Waist Circumference in US Adults. *Y. Wei*[1], and J. Zhu[2]. [1]Department of Community Medicine, Mercer University School of Medicine, Macon, GA; and [2]Department of Mathematics and Computer Science, Fort Valley State University, Fort Valley, GA.

MONDAY

Education-Career Development Sessions
Exhibitor-Hosted Sessions
Featured Sessions
Historical Highlights Session
Informational Sessions
Platform Sessions

Program Description (Continued)

Abstract #

#225 **Poster Board Number 402**
Age-Related Trends in US Pleural Mesothelioma and Soft Tissue Sarcoma Rates: Evidence for a Longevity Effect. *B. D. Kerger*[1], C. J. Ronk[2], M. Glynn[3], B. L. Finley[2], and *D. J. Paustenbach*[2]. [1]Cardno ChemRisk, Aliso Viejo, CA; [2]Cardno ChemRisk, San Francisco, CA; and [3]Cardno ChemRisk, Chicago, IL.

#226 **Poster Board Number 403**
Aflatoxin Exposure Associates with Abnormal Liver Function and Infections with HIV and TB in Uganda. *M. Kang*[1], *L. Tang*[1], P. M. Nkurunziza[2], R. Muwanika[3], A. Nkwata[1], J. Seeley[2], C. C. Whalen[1], and *J. Wang*[1]. [1]University of Georgia, Athens, GA; [2]MRC Uganda Unit, Entebbe, Uganda; and [3]Raikai Health Program, Rakai, Uganda.

#227 **Poster Board Number 404**
A Systematic Review of the Epidemiologic Evidence on Low-Level Arsenic Exposure and Cognitive Function in Children: Applicability for Risk Assessment. V. Perez[1], *J. S. Tsuji*[2], *M. R. Garry*[3], and D. D. Alexander[4]. [1]Exponent, Inc., Chicago, IL; [2]Exponent, Inc., Bellevue, WA; [3]Exponent, Inc., Bellevue, WA; and [4]Exponent, Inc., Boulder, CO.

#228 **Poster Board Number 405**
Clinical and Molecular Features of Myelodysplastic Syndrome following Benzene Exposure. *P. Kerzic*[1], and *D. Pyatt*[2,3]. [1]Pacific Coast Toxicology, Reseda, CA; [2]Summit Toxicology, Superior, CO; and [3]School of Public Health, University of Colorado, Aurora, CO.

#229 **Poster Board Number 406**
The Biomarkers of Exposure to ARsenic (BEAR) Pregnancy Cohort in Mexico: Arsenic Methylation Linked to Poorer Birth Outcomes. *J. E. Laine*[2], *K. Bailey*[1], M. Rubio-Andrade[3], A. F. Olshan[2], *L. Smeester*[1], Z. Drobna[4], A. H. Herring[5], *M. Styblo*[4], G. G. Garcia-Vargas[3], and *R. Fry*[1]. [1]Department of Environmental Sciences and Engineering, UNC, Chapel Hill, NC; [2]Department of Epidemiology, UNC, Chapel Hill, Chapel Hill, NC; [3]Facultad de Medicina, Universidad Juarez del Estado de Durango, Gómez Palacio, Mexico; [4]Department of Nutrition, UNC, Chapel Hill, Chapel Hill, NC; and [5]Department of Biostatistics, Gillings School of Global Public Health, UNC, Chapel Hill, Chapel Hill, NC.

#230 **Poster Board Number 407**
A Cross-Sectional Study of Blood Level Lead and Attention-Deficit/Hyperactivity Disorder by Parental Socioeconomic Status amongst Korea Children. H. Kwon[2], O. Yi[1], and D. Kim[3]. [1]National Health Insurance Services, Health Insurance Policy Research, Seoul, Republic of Korea; [2]Department of Preventive Medicine, Dankook University College of Medicine, Cheonan, Republic of Korea; and [3]Health Promotion Research Division, Korea institute for Health and Social Affairs, Seoul, Republic of Korea. Sponsor: *J. Park*.

#231 **Poster Board Number 408**
Cumulative Risk Assessment of Urban Air Toxics: A Pilot Study in San Antonio, Texas. *D. Proctor*[1], *M. Suh*[1], J. A. Tachovsky[2], L. Abraham[3], G. Hixon[2], *G. Brorby*[4], and *S. Campleman*[5]. [1]ToxStrategies, Mission Viejo, CA; [2]ToxStrategies, Austin, TX; [3]ToxStrategies, Houston, TX; [4]ToxStrategies, Richmond, CA; and [5]Electric Power Research Institute, Palo Alto, CA.

Abstract #

#232 **Poster Board Number 409**
Weight-of-Evidence Evaluation of the Respiratory Effects Associated with Diacetyl. *B. L. Finley*[1], *J. S. Pierce*[2], *K. Neier*[2], and L. J. Roberts[2]. [1]Cardno ChemRisk, Brooklyn, NY; and [2]Cardno ChemRisk, Chicago, IL.

#233 **Poster Board Number 410**
Applying the Bradford Hill Criteria in the 21st Century: How Advances in Molecular Epidemiology Have Changed Causal Inference. *K. Fedak*, *S. A. Gross*, *A. Bernal*, and Z. Capshaw. Cardno ChemRisk, Boulder, CO.

#234 **Poster Board Number 411**
Polychlorinated Biphenyls and Thyroid Antibodies in the Anniston Community Health Survey. N. Dutton[1,2], and M. Pavuk[2]. [1]Oak Ridge Institute for Science and Education (ORISE fellow at ATSDR), Atlanta, GA; and [2]Agency for Toxic Substances and Disease Registry, Atlanta, GA. Sponsor: *M. Cave*.

#235 **Poster Board Number 412**
Measuring Personal Exposure to Heat and Volatile Organic Compounds in Groundskeepers. M. C. Bernhard, *J. M. Gohlke*, S. T. Kent, M. E. Sloan, M. B. Evans, and L. A. McClure. Environmental Health Sciences, University of Alabama at Birmingham (UAB), Birmingham, AL.

#235a **Poster Board Number 413**
Urinary Polycyclic Aromatic Hydrocarbons Are Associated with Childhood Obesity. M. C. Buser[1], and F. Scinicariello[1]. [1]DTHHS, ATSDR/CDC, Atlanta, GA. Sponsor: *P. Ruiz*.

Monday Morning, March 24
9:30 AM to 12:30 PM
Exhibit Hall

PS

Poster Session: Carcinogenesis I

Chairperson(s): *Sidhartha Ray, Manchester University, Fort Wayne, IN.*

Displayed: *9:30 AM–12:30 PM*

Author Attended: *11:00 AM–12:30 PM*

#236 **Poster Board Number 416**
Mechanisms for the Development of Rat Lung Tumors following Inhalation Exposures to MDI. *A. Poole*[2], *A. H. Chappelle*[1], and M. A. Collins[1]. [1]International Isocyanate Institute, Manchester, United Kingdom; and [2]Toxicology Advice & Solutions, Wollerau, Switzerland.

#237 **Poster Board Number 417**
Is There Evidence of an Increased Risk to Human Health from Low-Level Exposure to Benzene? S. A. Fiebelkorn, and *C. Meredith*. Group R&D, British American Tobacco, Southampton, United Kingdom.

#238 **Poster Board Number 418**
Mode of Action and Lack of Human Relevance of Benzovindiflupyr (Solatenol™)-Induced Thyroid Follicular Cell Adenomas in Male Han Wistar Rats. R. Currie[2], R. Green[2], P. P. Parsons[2], *R. C. Peffer*[1], and J. Wright[2]. [1]Product Safety, Syngenta Crop Protection, LLC, Greensboro, NC; and [2]Jeallott's Hill International Research Centre, Syngenta Ltd., Bracknell, Berkshire, United Kingdom.

MONDAY

Program Description (Continued)

Abstract #

#239 **Poster Board Number 419**
Integrated Analysis of Mechanistic Considerations Informative to Cancer Mode of Action in the Upper Respiratory Tract following Formaldehyde Inhalation. *J. M. Fritz*, L. L. Adams, *A. D. Kraft*, B. S. Glenn, D. DeVoney, *S. V. Vulimiri*, and *R. P. Subramaniam*. U.S. EPA, Washington, DC.

#240 **Poster Board Number 420**
Arsenite and Methyl Methanesulfonate Co-Exposures Induce Synergistic Cellular Responses Associated with Carcinogenic Pathways. *P. Balbuena*[1], *B. Sun*[1], S. Ross[1], *L. Recio*[2], *J. Winters*[2], *H. J. Clewell*[1], and *R. A. Clewell*[1]. [1]The Hamner Institutes for Health Sciences, Research Triangle Park, NC; and [2]Integrated Laboratory Systems, Research Triangle Park, NC.

#241 **Poster Board Number 421**
Maternal Arsenic Exposure of C3H Mice Increases Hepatic Tumor with an Activating Mutation in the Oncogene Ha-ras in the F2 Generation. *K. Nohara*[1,2], K. Okamura[1,2], T. Suzuki[1], H. Murai[1], T. Ito[3], K. Shinjo[4], and Y. Kondo[4]. [1]Center for Environmental Health Sciences, National Institute for Environmental Studies, Tsukuba, Japan; [2]Grad. Sch. of Life & Environ. Sci., Univ. of Tsukuba, Tsukuba, Japan; [3]Kumamoto Univ. Grad. Sch. Med. Sci., Kumamoto, Japan; and [4]Aichi Cancer Ctr. Res. Inst., Nagoya, Japan.

#242 **Poster Board Number 422**
Identification of DNA Methylation Changes in the Liver Tumors Induced by Gestational Arsenic Exposure Using Genome-Wide Analysis. T. Suzuki[1], S. Yamashita[2], T. Ushijima[2], S. Takumi[1,3], T. Sano[1], T. Michikawa[1], and *K. Nohara*[1]. [1]National Institute for Environmental Studies, Tsukuba, Japan; [2]National Cancer Center Research Institute, Tokyo, Japan; and [3]The Jikei University School of Medicine, Tokyo, Japan.

#243 **Poster Board Number 423**
Significant Nonlinearity of Lung Cancer Risk in Relation to Arsenic in Drinking Water in Northeastern Taiwan. *K. T. Bogen*[1], C. Chen[3], and *J. S. Tsuji*[2]. [1]Health & Environmental, Exponent, Oakland, CA; [2]Health & Environmental, Exponent, Seattle, WA; and [3]Graduate Institute of Clinical Medicine, College of Medicine, National Taiwan University, Taipei, Taiwan.

#244 **Poster Board Number 424**
Arsenic and Cadmium-Transformed UROtsa Bladder Cells Stably Expressing SPARC Will Reduce SPARC Expression during the Formation of a Tumor Heterotransplant. *J. R. Dunlevy*[1], *A. Slusser*[2], A. R. Klinger[1], *J. L. Larson*[1], *X. Zhou*[2], *S. H. Garrett*[2], *S. Somji*[2], and *D. A. Sens*[2]. [1]Basic Sciences, University of North Dakota, Grand Forks, ND; and [2]Pathology, University of North Dakota, Grand Forks, ND.

#245 **Poster Board Number 425**
Peroxisome Proliferator-Activated Receptor-β/D (PPARβ/D) Inhibits Cell Proliferation and MMP-2-Mediated Tumorigenesis in Human Testicular Embryonal Carcinoma Cells. *P. Yao*[1], L. Chen[1], *B. Zhu*[1], *F. Gonzalez*[2], and *J. M. Peters*[1]. [1]Department of Veterinary and Biomedical Sciences and The Center of Molecular Toxicology and Carcinogenesis, the Pennsylvania State University, University Park, PA; and [2]Laboratory of Metabolism, National Cancer Institute, Bethesda, MD.

Abstract #

#246 **Poster Board Number 426**
Ligand Activation of Peroxisome Proliferator-Activated Receptor-B/D (PPARB/D) Attenuates Liver Tumorigenesis in HBV Transgenic Mice. *G. Balandaram*[1], L. R. Kramer[1], B. Kang[2], *F. Gonzalez*[3], and *J. M. Peters*[1]. [1]Pennsylvania State University, University Park, PA; [2]Non-clinical Research Institute, Chemon Co., South Korea, Democratic People's Republic of Korea; and [3]Laboratory of Metabolism, NCI, Bethesda, MD.

#247 **Poster Board Number 427**
Ligand Activation of Peroxisome Proliferator-Activated Receptor-β/δ (PPARβ/δ) Inhibits TGFβ1-Induced Epithelial-Mesenchymal Transition (EMT) in a Human Lung Cancer Cell Line. *K. C. Pramanik*[1], A. Pidathala[1], *B. Zhu*[1], *F. J. Gonzalez*[2], and *J. M. Peters*[1]. [1]Department of Veterinary and Biomedical Science, Penn State University, State College, PA; and [2]Laboratory of Metabolism, National Cancer Institute, Bethesda, MD.

#248 **Poster Board Number 428**
Evidence the PPAR Beta/Delta and BCL6 Pathway Is Involved in Pancreatic Cancer Development and Progression. R. W. Smith[1], J. D. Coleman[1], J. T. Thompson[1], B. Prokopczyk[2], and *J. P. Vanden Heuvel*[1]. [1]Veterinary and Biomedical Sciences, Penn State University, State College, PA; and [2]Pharmacology, Penn State University, Hershey, PA.

#249 **Poster Board Number 429**
Ligand Activation of PPARB/Δ Inhibits Invasion and Formation of Three-Dimensional Spheroids of the LNCaP Prostate Cancer Cell Line. *P. Krishnan*, and *J. M. Peters*. Penn State University, University Park, PA.

#250 **Poster Board Number 430**
Uncoupling-Induced Metabolic Reprogramming Provides Insights into Skin Cancer Resistance. A. Solmonson[1,2], *S. M. Nowinski*[2], M. Keaton[3], E. Morin-Kensicki[3], J. E. Rundhaug[4], and *E. M. Mills*[1,2]. [1]Institute for Cell and Molecular Biology, University of Texas at Austin, Austin, TX; [2]College of Pharmacology and Toxicology, University of Texas at Austin, Austin, TX; [3]Metabolon Inc., Research Triangle, NC; and [4]The University of Texas MD Anderson Cancer Center Science Park Research Division, Smithville, TX.

#251 **Poster Board Number 431**
Does PCE Cause Non-Hodgkin's Lymphoma? *D. G. Dodge*[1], and *B. D. Beck*[2]. [1]Gradient, Bend, OR; and [2]Gradient, Cambridge, MA.

#252 **Poster Board Number 432**
Bisphenol A Induces Prostate Cancer Progression and Differential Gene Expression. E. Ricke[1], A. B. Theberge[1], M. A. Moses[2], and W. A. Ricke[1]. [1]Urology, University of Wisconsin, Madison, WI; and [2]Environmental Medicine, University of Rochester, Rochester, NY. Sponsor: *R. Peterson*.

MONDAY

Education-Career Development Sessions
Exhibitor-Hosted Sessions
Featured Sessions
Historical Highlights Session
Informational Sessions
Platform Sessions

Program Description (Continued)

Abstract #

#253 **Poster Board Number 433**
hTERT-Immortalized Renal Proximal Tubule Epithelial Cells: Characterizing a Model System for Testing the Role of Cadmium and Benzo[a] pyrene in the Development of Renal Cancer. *B. R. Simon*[2,1], *M. J. Wilson*[1], and *J. K. Wickliffe*[1]. [1]Global Environmental Health Sciences, Tulane University School of Public Health and Tropical Medicine, New Orleans, LA; and [2]Biomedical Sciences, Tulane University School of Medicine, New Orleans, LA.

#254 **Poster Board Number 434**
Chronic Alcohol Intake Promotes Tumor Growth in a Diethylnitrosamine-Induced Hepatocarcinogenesis Mouse Model through Increased Wnt/β-catenin Signaling. K. E. Mercer[1,3], L. Hennings[2], N. Sharma[3], C. Chandler[3], R. Wynne[3], *M. J. Ronis*[1,3], and T. M. Badger[1,3]. [1]Pediatrics, UAMS, Little Rock, AR; [2]Pathology, UAMS, Little Rock, AR; and [3]Arkansas Children's Nutrition Center, Little Rock, AR.

#255 **Poster Board Number 435**
Orally Administered Nicotine Induces Urothelial Hyperplasia in Rats and Mice. *P. R. Dodmane*, *L. L. Arnold*, K. L. Pennington, and *S. M. Cohen*. Pathology and Microbiology, University of Nebraska Medical Center, Omaha, NE.

#256 **Poster Board Number 436**
IL6 Can Induce Epigenetic Change in Colonic Cells Grown As 2D and 3D Cultures Resulting in Increased Activation of Dietary Carcinogens and DNA Damage. *S. Patel*, *R. David*, and *N. J. Gooderham*. Surgery and Cancer, Imperial College London, London, United Kingdom.

#257 **Poster Board Number 437**
Extracellular Signal-Regulated Kinases 1/2-Dependent Stimulation of Mouse Epidermal JB6 Cl 41-5a Cell Proliferation by Triclosan. *Y. Wu*, *F. A. Beland*, and *J. Fang*. Division of Biochemical Toxicology, National Center for Toxicological Research, Food and Drug Administration, Jefferson, AR.

#258 **Poster Board Number 438**
Metformin Blocks Lipogenesis in Pancreatic Cancer Cells by Downregulating Specificity Protein Transcription Factors. *V. Nair*[1], and *S. H. Safe*[1,2]. [1]VTPP, Texas A&M University, College Station, TX; and [2]IBT, TAMUHSC, Houston, TX.

#259 **Poster Board Number 439**
EGCG Elicits Stage-Specific Sensitivity and Affects Hsp90 in a Novel Human Prostate Cancer Progression Model. *M. A. Moses*[1], D. P. Rotella[2], W. A. Ricke[3], and *T. A. Gasiewicz*[1]. [1]Environmental Medicine, University of Rochester, Rochester, NY; [2]Chemistry, Montclair State University, Montclair, NJ; and [3]Urology, University of Wisconsin-Madison, Madison, WI.

#260 **Poster Board Number 440**
Modulation of Human Malignant Melanoma Cell Line Proliferation by PPARβ/δ and PPARγ
M. G. Borland[1,2], E. Ola[1], A. M. Pritzlaff[1], *P. P. Albrecht*[2], *T. S. Lahoti*[2], *F. Gonzalez*[3], and *J. M. Peters*[2]. [1]Chemistry & Biochemistry, Bloomsburg University of PA, Bloomsburg, PA; [2]Veterinary and Biomedical Sciences, Penn State University, University Park, PA; and [3]Laboratory of Metabolism, NCI, Bethesda, MD.

Abstract #

#261 **Poster Board Number 441**
The Trichloroethylene-Associated P81S VHL Hotspot Mutation Alters Tumor Microenvironment: Metabolic Reprogramming, DNA Damage Response, and Radiation Resistance. *M. C. DeSimone*[1], W. Rathmell[2], and *D. W. Threadgill*[1,2]. [1]Biological Sciences, NCSU, Raleigh, NC; and [2]Lineberger Comprehensive Cancer Center, UNC, Chapel Hill, NC.

#262 **Poster Board Number 442**
Hydrolysis of DNA-Protein Crosslinks Forms Formaldehyde-DNA Adducts. Y. Lai, and *J. A. Swenberg*. Department of Environmental Sciences and Engineering, University of North Carolina at Chapel Hill, Chapel Hill, NC.

#263 **Poster Board Number 443**
Differential Gene Expression Analysis of TPA/UVC Co-Treated TK6 Cells Reveals a Novel Gene Signature Important in Carcinogenesis by Combining DNA Damage and Tumor Promoting Pathways. *K. P. Glover*[1], Z. Chen[2], *L. K. Markell*[1], and *X. Han*[1]. [1]Haskell, DuPont, Newark, DE; and [2]I&CT, DuPont, Wilmington, DE.

#264 **Poster Board Number 444**
The Aryl Hydrocarbon Receptor Controls Breast Cancer Stem-Like Cell Development and Function. E. A. Stanford[2,1], A. J. Parks[2], O. Novikov[2,1], and *D. H. Sherr*[1]. [1]Environmental Health, Boston University, Brookline, MA; and [2]Molecular and Translational Medicine, Boston University School of Medicine, Boston, MA.

#265 **Poster Board Number 445**
Vacuum Tower Distillation Temperature for Controlling Carcinogenicity of Residual Aromatic Extracts. *M. H. Kung*[1], *K. Goyak*[1], C. Sircar[2], K. Aldous[3], and *J. J. Freeman*[1]. [1]ExxonMobil Biomedical Sciences, Inc., Annandale, NJ; [2]ExxonMobil Fuels, Lubricants & Specialties Marketing Company, Fairfax, VA; and [3]ExxonMobil Research and Engineering, Fairfax, VA.

#265a **Poster Board Number 446**
Quantification of Somatic Hotspot Oncogene Mutations in Normal Human Breast and Ductal Carcinoma. M. Banda[1], M. B. Myers[1], K. L. McKim[1], Y. Wang[1], and *B. L. Parsons*[1]. [1]National Center for Toxicological Research, Jefferson, AR.

#265b **Poster Board Number 447**
Dysregulation of Cellular Iron Metabolism during Hepatocarcinogenesis Is Associated with Alterations in Iron Uptake/Export. I. Kindrat[1], *T. Kobets*[1], A. Erstenyuk[2], F. A. Beland[1], and *I. Pogribny*[1]. [1]NCTR, Jefferson, AR; and [2]Ivano Frankivsk National Medical University, Ivano Frankivsk, United Arab Emirates.

#265c **Poster Board Number 448**
Human Hepatocytes Support the Hypertrophic but Not the Hyperplastic Response to the Murine Nongenotoxic Hepatocarcinogen Sodium Phenobarbital in *In Vivo* Study Using Chimeric Mouse with Humanized Liver. Y. Okuda[1], *T. Yamada*[1], M. Kushida[1], H. Takeuchi[1], H. Nagahori[1], *B. G. Lake*[2], *S. M. Cohen*[3], and S. Kawamura[1]. [1]Sumitomo Chemical Co., Ltd., Osaka, Japan; [2]Univ. of Surrey, Surrey, United Kingdom; and [3]Univ. of Nebraska Medical Center, Omaha, NE.

MONDAY

Program Description (Continued)

Abstract #

#265d **Poster Board Number 449**
Integrated microRNA, mRNA, and Protein Expression Profiling Reveals Dysregulated Expression of microRNAs and Their Targets in Rat Kidney Treated with a Carcinogenic Dose of Aristolochic Acid. T. Qin[1], *Z. Li*[1], M. Hackenberg[1], J. Yan[1], K. Wang[1], *Y. Gao*[1], *L. Yu*[1], *L. Shi*[1], and *Z. Su*[1], *T. Chen*[1]. [1]National Center for Toxicological Research, Jefferson, AR.

#265e **Poster Board Number 450**
The Role of Cancer Stem-Like Cells in Cr(VI)-Induced Malignant Cell Transformation and Tumorigenicity. J. Dai[1], and *Z. Zhang*[1]. [1]University of Kentucky, Lexington, KY.

Monday Morning, March 24
9:30 AM to 12:30 PM
Exhibit Hall

PS

Poster Session: Safety Assessment: Drug Development I

Chairperson(s): *Evan A. Thackaberry, Genentech, Inc., South San Francisco, CA.*

Displayed: *9:30 AM–12:30 PM*

Author Attended: *9:30 AM–11:00 AM*

#266 **Poster Board Number 451**
Refining the Caco-2 Model to Evaluate the Impact of Intestinal Hydrolysis on Parabens Absorption in the Gut. X. Sun, Y. Zhao, J. Dong, *H. J. Clewell*, and *M. Yoon*. The Hamner Institutes for Health Sciences, RTP, NC.

#267 **Poster Board Number 452**
Toxicological Effects of Antibody-Mediated TGF-beta Antagonism in Cynomolgus Monkeys. *C. Horvath*[1], C. Hendricks[1], P. Finn[2], and *L. Andrews*[1]. [1]DSAR, Sanofi, Waltham, MA; and [2]Genzyme Biologics, Genzyme, a Sanofi Company, Framingham, MA.

#268 **Poster Board Number 453**
Safety Assessment of Flt3 Ligand: 28-Day Toxicity Studies in Rats and Monkeys. *L. J. Thomas*[1], E. M. Forsberg[1], L. E. Gergel[1], L. A. Vitale[2], B. J. Karalius[1], K. M. Borrelli[1], H. C. Marsh[1], and T. Keler[2]. [1]Celldex Therapeutics, Needham, MA; and [2]Celldex Therapeutics, Phillipsburg, NJ.

#269 **Poster Board Number 454**
Immune-Mediated Hepatotoxicity in Monkeys following Administration of a Highly Conserved Biotherapeutic Protein. *C. de Zafra*[1], A. Ashkenazi[2], W. Darbonne[3], M. Cheu[4], *B. Mounho-Zamora*[5], K. Totpal[2], S. A. Ortega[1], B. Lum[6], B. Kabakoff[7], H. Flores[7], *J. L. Bussiere*[8], and *N. Dybdal*[1]. [1]Safety Assessment, Genentech, Inc, So SF, CA; [2]Molecular Oncology, Genentech, Inc, So SF, CA; [3]Oncology Biomarker Development, Genentech, Inc, So SF, CA; [4]BioSample Analysis & Technology, Genentech, Inc, So SF, CA; [5]ToxStrategies, Inc, Bend, OR; [6]Clinical Pharmacology, Genentech, Inc, So SF, CA; [7]Pharmaceutical Development, Genentech, Inc, So SF, CA; and [8]Amgen, Inc, Thousand Oaks, CA.

#270 **Poster Board Number 455**
Comparison of Three Methods for the Evaluation of Cytokine Storm Risk in Early- and Clinical-Stage Biopharmaceutical Development. G. dos Santos, and *E. Clarke*. ReachBio LLC, Seattle, WA.

Abstract #

#271 **Poster Board Number 456**
Aerosol and Ocular Toxicity of AERAS-402 in Nonhuman Primates. *C. S. Godin*[1], D. A. Hokey[2], R. Wachholder[2], P. Darrah[3], D. Bolton[4], M. Douoguih[5], R. Seder[3], M. Roederer[3], and D. Sizemore[6]. [1]Smithers Avanza, Gaithersburg, MD; [2]Aeras, Rockville, MD; [3]Vaccine Research Center, NIAID, Bethesda, MD; [4]US Military HIV Research Program, Silver Spring, MD; [5]Crucell Holland BV, Leiden, Netherlands; and [6]Ke`aki Technologies, Frederick, MD.

#272 **Poster Board Number 457**
Evaluation of Paracetamol Toxicity in the Cynomolgus Monkey. H. Yu[1], *N. C. Barrass*[1,2], *S. Gales*[1,2], *D. Thurman*[1,3], J. Qiao[1], Q. Qin[1], and *J. Ren*[1]. [1]Center for Drug Safety and Evaluation, Shanghai Institute of Materia Medica, Shanghai, China; [2]AstraZeneca Safety Assessment, Alderley Park, United Kingdom; and [3]AstraZeneca R&D, Boston, MA.

#273 **Poster Board Number 458**
Development of a Novel Model of Pseudophakia in Nonhuman Primates to Assess Ocular Particle Movement Risk following Intravitreal Administration of Suspension Formulations. *E. A. Thackaberry*[1], *V. Bantseev*[1], C. Schuetz[1], F. Zhong[1], E. Budzynski[2], M. C. Struck[3], C. Trost[2], C. Farman[1], and E. Bentley[4]. [1]Safety Assessment, Genentech, Inc., South San Francisco, CA; [2]Covance Laboratories, Inc., Madison, WI; [3]Department of Ophthalmology and Vision Sciences, University of Wisconsin-Madison, Madison, WI; and [4]School of Veterinary Medicine, University of Wisconsin-Madison, Madison, WI.

#274 **Poster Board Number 459**
Polysomnography Using Video Electroencephalogram, Electro-Oculogram, and Electromyogram Monitored Continuously by Telemetry in Cynomolgus Monkeys. R. Mikaelian[1], S. Authier[1,2], M. Pouliot[1], E. Troncy[2], *R. Forster*[1], and D. Paquette[1]. [1]CITOxLAB North America, Laval, QC, Canada; and [2]Faculty of Veterinary Medicine, University of Montreal, St-Hyacinthe, QC, Canada.

#275 **Poster Board Number 460**
Video-Electroencephalography in Conscious Rats, Dogs, and Nonhuman Primates Using Telemetry and Computer Analysis: The Gold Standard to Assess Seizure Liability. R. Kubaszky[1], D. Paquette[1], *R. Forster*[1], M. Pouliot[1], E. Troncy[2], and S. Authier[1,2]. [1]CiToxLAB, Laval, QC, Canada; and [2]Faculty of Veterinary Medicine, University of Montreal, St-Hycinthe, QC, Canada.

#276 **Poster Board Number 461**
Comparative Nonclinical Assessments of the Potential Biosimilar PF-06410293 and Adalimumab. M. Derzi[1], S. L. Ripp[2], C. Ng[3], A. M. Shoieb[2], *G. Finch*[2], L. G. Lorello[2], and M. W. Leach[3]. [1]Pfizer Inc, Cambridge, MA; [2]Pfizer Inc, Groton, CT; and [3]Pfizer Inc, Andover, MA.

#277 **Poster Board Number 462**
A Repeat IV Dose Toxicity Study of Gemcitabine Formulations in Male and Female CD-1 Mice. J. Risvanis[1], *C. S. Godin*[2], A. Knill[1], B. Currow[1], and *E. Koo*[1]. [1]Hospira Inc., Lake Forest, IL; and [2]Smithers Avanza, Gaithersburg, MD.

MONDAY

Education-Career Development Sessions
Exhibitor-Hosted Sessions
Featured Sessions
Historical Highlights Session
Informational Sessions
Platform Sessions

Program Description (Continued)

Abstract #

#278 **Poster Board Number 463**
Placental Transfer of Fc-Containing Biopharmaceuticals across Species, an Industry Survey Analysis. *C. J. Bowman*[1], *W. Breslin*[2], *A. Connor*[3], *P. L. Martin*[4], *G. J. Moffat*[5], *L. Sivaraman*[6], *M. Tornesi*[7], and *S. Chivers*[8]. [1]Pfizer Inc, Groton, CT; [2]Lilly Research Laboratories, Indianapolis, IN; [3]Nonclinical Consulting Services, San Francisco, CA; [4]Janssen Research and Development, Spring House, PA; [5]Amgen Inc., Seattle, WA; [6]Bristol-Myers Squibb Company Research and Development, New Brunswick, NJ; [7]AbbVie, North Chicago, IL; and [8]Novartis Institute for Biomedical Research, Basel, CH, Switzerland.

#279 **Poster Board Number 464**
Diversity Outbred Mice As a Model for Pharmaceutical Toxicity Testing. D. M. Gatti[1], N. C. Goodwin[2], and G. A. Churchill[1]. [1]Systems Genetics, The Jackson Laboratory, Bar Harbor, ME; and [2]Cancer In Vivo Pharmacology Services, The Jackson Laboratory, Sacramento, CA. Sponsor: *A. Harrill*.

#280 **Poster Board Number 465**
Tolerability of Multicomponent Intravenous Vehicles Delivered As Bolus Injection or Infusion to Rats. *K. D. Williams*, B. A. Starch, and G. Hoffman. Nonclinical Safety Assessment, Covance Laboratories, Inc., Madison, WI.

#281 **Poster Board Number 466**
Body Composition in Preclinical Studies: DXA and pQCT Precision for Fat and Muscle Analysis. A. Varela, and S. Y. Smith. Bone Research, Charles River, Montreal, QC, Canada. Sponsor: *M. Vézina*.

#282 **Poster Board Number 467**
Fetal Blood Collection via the Axillary Artery—A Novel Method Which Does Not Compromise Visceral or Skeletal Examinations. *M. O'Hara*, *C. Grace*, J. Hardy, and L. Schroeder. Covance Laboratories, Greenfield, IN.

#283 **Poster Board Number 468**
A Novel Approach for Assessing the Safety of Pharmaceuticals. S. Gaukler, J. Ruff, L. Morrison, and W. Potts. University of Utah, Salt Lake City, UT. Sponsor: *G. Lamb*.

#284 **Poster Board Number 469**
Recovery Assessment in Preclinical Drug Safety Testing—A Retrospective Analysis of Value and Timing. *R. Roberts*, *S. Robinson*, R. Callander, D. Lees, and S. Horner. Drug Safety & Metabolism, AstraZeneca, Macclesfield, United Kingdom.

#285 **Poster Board Number 470**
Validation of a CYP1A2 and a CYP3A4 Induction Assay Using Puracyp's 1A2-DRE™, and DPX2™ Cell Lines: Comparison between the Gene-Reporter Assay and Human Hepatocytes Data. A. Watanyar, J. Enoru, *K. Draper*, and W. DeMaio. Ricerca Biosciences, Concord, OH.

#286 **Poster Board Number 471**
Acute Kidney Injury Biomarkers following Low-Dose Gentamicin Treatment of Rats. G. Marceau[1], L. Kolodzieyski[1], G. Diagne[1], J. Tremblay[1], S. Thébaud[1], M. Toneva[1], K. Scribner Doering[2], C. Kostrub[3], and A. Nelson[1]. [1]ITR Laboratories Canada, Inc, Baie d'Urfe, QC, Canada; [2]ALPCO Diagnostics, Salem, NH; and [3]CK Scientific, Belmont, CA. Sponsor: *W. Lee*.

Abstract #

#287 **Poster Board Number 472**
Comparison of Routine Clinical Pathology Parameters in Young Adult SD Rats from Different Geographical Regions. S. McPherson, S. Mason, and *Q. He*. WuXi AppTec, Suzhou, China.

#288 **Poster Board Number 473**
Lower Susceptibility to Histaminergic Reactions in Rodents Using Continuous Infusion: Advantages for Safety Assessment of Parenteral Peptide/Protein Drugs. H. van Wijk[1], P. Baldrick[1], and U. Wirnitzer[2]. [1]Covance Laboratories Ltd, Harrogate, United Kingdom; and [2]Bayer Pharma AG, Wuppertal, Germany. Sponsor: *A. Jackson*.

Monday Morning, March 24
9:30 AM to 12:30 PM
Exhibit Hall

PS

Poster Session: Cell Death/Apoptosis

Chairperson(s): *Neera Tewari-Singh, University of Colorado Denver, Pharmaceutical Sciences, Aurora, CO.*

Displayed: *9:30 AM–12:30 PM*

Author Attended: *11:00 AM–12:30 PM*

#289 **Poster Board Number 501**
Induction of NADPH Oxidase and Apoptosis by CoCr-Alloy Implant Debris: Implications for Metal-on-Metal Hips. P. A. Potnis[1], D. K. Dutta[1], J. Schumacher[2], and S. C. Wood[1]. [1]Division of Biology, Center for Devices and Radiological Health, Food and Drug Administration, Silver Spring, MD; and [2]University of Rochester, Rochester, NY. Sponsor: *P. Goering*.

#290 **Poster Board Number 502**
Methylmercury (MeHg) Induces Caspase-Dependent Apoptosis and Autophagy in Human Neural Stem Cells (NSCs), HB1.F3. S. Chang[1], K. Lee[1], and *M. Cho*[1,2,3]. [1]Laboratory of Toxicology, College of Veterinary Medicine, Seoul National University, Seoul, Republic of Korea; [2]Graduate Group of Tumor Biology, Seoul National University, Seoul, Republic of Korea; and [3]Graduate School of Convergence Science and Technology, Seoul National University, Seoul, Republic of Korea.

#291 **Poster Board Number 503**
Verifying Performance of Cell Viability and Apoptosis Assays Applied to 3D Microtissues. *T. L. Riss*[1], M. P. Valley[2], K. R. Kupcho[2], D. F. Lazar[2], and C. A. Zimprich[2]. [1]Cell Health, Promega Corporation, Madison, WI; and [2]Research, Promega Corporation, Madison, WI.

#292 **Poster Board Number 504**
Activation of the Aryl Hydrocarbon Receptor by Endogenous Agonist Cinnabarinic Acid Induces Stanniocalcin-2 to Elicit Cytoprotection against ER and Oxidative Stress. *D. Carter*, *A. Joshi*, *T. Harper*, and *C. J. Elferink*. Pharmacology and Toxicology, University of Texas Medical Branch, Galveston, TX.

#293 **Poster Board Number 505**
CYP1B1 Inhibits TRAIL-Mediated Apoptotic Pathway followed by Sp1 Induction. *Y. Chun*, *Y. Kwon*, *N. Park*, S. Shin, D. Ye, and M. Hong. College of Pharmacy, Chung-Ang University, Seoul, Republic of Korea.

MONDAY

Program Description (Continued)

Abstract #

#294 **Poster Board Number 506**
Intact 20kDa Extracellular Domain of APO2L/TRAIL Bioanalysis by HRMS: A Potential Cancer Therapeutic Protein. *F. Garofolo*. Bioanalytical Services, Algorithme Pharma Inc., Laval, QC, Canada.

#295 **Poster Board Number 507**
Preventive Effect of Nonmitogenic Acidic Fibroblast Growth Factor on Diabetes-Induced Testicular Cell Death and Atrophy. *M. Skibba*[1], *C. Zhang*[2], *X. Jiang*[2], and *L. Cai*[1,2]. [1]Pharmacology and Toxicology, University of Louisville, Louisville, KY; and [2]KCHRI and Department of Pediatrics, University of Louisville, Louisville, KY.

#296 **Poster Board Number 508**
***Nelumbo nucifera* Leaf Extract-Induced Pancreatic Cancer Apoptosis via JNK/ERK Activation-Regulated Mitochondria-Dependent and ER Stress-Triggered Signaling Pathways.** *Y. Chen*[1], C. Su[2], *T. Lu*[1], C. Yen[5], Y. Chung[5], K. Chen[6], C. Wu[3], S. Liu[7], and *C. Huang*[4]. [1]Department of Physiology and Graduate Institute of Basic Medical Science, China Medical University, Taichung, Taiwan; [2]Department of Otorhinolaryngology, Changhua Christian Hospital, Changhua, Taiwan; [3]Department of Public Health, China Medical University, Taichung, Taiwan; [4]School of Chinese Medicine, China Medical University, Taichung, Taiwan; [5]Department of Occupational Safety and Health, Chung Shan Medical University, Taichung, Taiwan; [6]Department of Urology, China Medical University Hospital, Taichung, Taiwan; and [7]Institute of Toxicology, National Taiwan University, Taipei, Taiwan.

#297 **Poster Board Number 509**
Most Bioactivation-Dependent Nephrotoxins Induce Apoptotic Death along with Unique Patho-Morphological Characteristics in Mouse Kidneys. J. J. Earhart, and *S. D. Ray*. Dept of Pharma. Scs, Manchester Univ. College Pharmacy, Fort Wayne, IN.

#298 **Poster Board Number 510**
Anthracenyl Isoxazole Amides (AIMs) As Mitochondrial Modulators of Apoptosis. A. K. Kearns, M. J. Weaver, P. K. Shaw, N. R. Natale, and *H. D. Beall*. Biomedical and Pharmaceutical Sciences, Univ Montana, Missoula, MT.

#299 **Poster Board Number 511**
Assessment of an *In Vitro* Model for Evaluating the Role of PARP in Ethanol-Mediated Hepatotoxicity. *J. Coyle*[1], *G. T. Johnson*[1], *M. M. Bourgeois*[1], A. Mayo-Perez[1], S. Morris[2], and *R. D. Harbison*[1]. [1]Environmental and Occupational Health, University of South Florida, Tampa, FL; and [2]College of Nursing, University of South Florida, Tampa, FL.

#300 **Poster Board Number 512**
Genotoxicity of DEHP and Its Metabolite. Y. Chang[1], C. Tseng[1,2,3], Y. Chen[1], Y. Chuang[1], and *M. Chao*[1,3]. [1]Bioscience Technology, Chung Yuan Christian University, Chung-Li, Taiwan; [2]Biomedical Engineering, Chung Yuan Christian University, Chung-Li, Taiwan; and [3]Center of Nanotechnology, Chung Yuan Christian University, Chung-Li, Taiwan.

#301 **Poster Board Number 513**
Exposure of V79 Hamster Cells to Cadmium Chloride Results in the Production of Double-Strand Breaks and Cell Cycle Changes. J. Comotto, C. Donald, and *M. Reynolds-Walsh*. Washington College, Chestertown, MD.

Abstract #

#302 **Poster Board Number 514**
Induction of Apoptosis by PQ1, a Gap Junction Enhancer That Upregulates Cx43 and Activates the p38-MAPK Signaling Pathway in Mammary Carcinoma Cells. *T. A. Nguyen*, and S. N. Shishido. Diagnostic Medicine/Pathobiology, Kansas State University, Manhattan, KS.

#303 **Poster Board Number 515**
Zebrafish Assay Format for Determining Compound-Induced Apoptosis Inhibition and Activation. *P. McGrath*. Phylonix, Cambridge, MA.

#304 **Poster Board Number 516**
Non-Tubulin Mitotic Disruptors Induce Apoptosis in Cancer Cells. *J. C. States*, D. J. Saforo, N. A. Klimchak, and J. O. Trent. University of Louisville, Louisville, KY.

#305 **Poster Board Number 517**
Salubrinal Differentially Modulates Mitochondrial Dysfunction-Induced by Halogenated Analogs of 3,3'-diindolylmethane (DIM) in Prostate Cancer Cells. *T. Sanderson*[1], *D. Montes-Grajales*[2], *J. Olivero-Verbel*[2], *S. H. Safe*[3], and *A. Goldberg*[1]. [1]INRS-Institut Armand-Frappier, Laval, QC, Canada; [2]Environmental and Computational Chemistry Group, University of Cartagena, Cartagena, Colombia; and [3]Veterinary Physiology and Pharmacology, Texas A&M University, College Station, TX.

#306 **Poster Board Number 518**
Targeting CamKII in Prostate Cancer Cells: Induction of Mitochondrial Dysfunction and ER Stress by Halogenated Analogs of 3,3'-Diindolylmethane. *A. Goldberg*[1], A. Beach[3], *D. Montes-Grajales*[2], V. Titorenko[3], *J. Olivero-Verbel*[2], *S. H. Safe*[4], and *J. Sanderson*[1]. [1]Toxicology, INRS, Laval, QC, Canada; [2]University of Cartagena, Cartagena, Colombia; [3]Concordia University, Montreal, QC, Canada; and [4]Texas A&M, College Station, TX.

#307 **Poster Board Number 519**
Validation of a Novel Cell Culture System to Perform 3D *In Vitro* Cytotoxicity Analyses Using Primary Hepatocytes. *T. Moeller*[1], B. Larson[2], G. Cameron[3], and P. Banks[2]. [1]BioreclamationIVT, Halethorpe, MD; [2]BioTek, Winooski, VT; and [3]TAP Biosystems, Royston, Hertfordshire, United Kingdom.

#308 **Poster Board Number 520**
Heat Shock Response Antagonism: From Toxicological Liability to Cancer Chemotherapeutic Opportunity. A. L. Davis, C. M. Cabello, *S. Qiao*, S. Azimian, and *G. T. Wondrak*. Pharmacology and Toxicology, College of Pharmacy and Arizona Cancer Center, University of Arizona, Tucson, AZ.

#309 **Poster Board Number 521**
Apoptosis Modulates Hepatotoxic Effects of 2-Aminoanthracene in Fisher 344 Rat. *W. E. Gato*[1], D. B. Hales[2], S. McGee[2], and *J. C. Means*[3]. [1]Department of Chemistry, Georgia Southern University, Statesboro, GA; [2]Department of Physiology, Southern Illinois University, Carbondale, IL; and [3]Environmental Science & Management, University of California Santa Barbara, Santa Barbara, CA.

MONDAY

Education-Career Development Sessions
Exhibitor-Hosted Sessions
Featured Sessions
Historical Highlights Session
Informational Sessions
Platform Sessions

Program Description (Continued)

Abstract #

#310 **Poster Board Number 522**
Glutathione Levels and Susceptibility to Chemically-Induced Injury in Human Prostate Cancer Cell Lines. *L. H. Lash*, D. A. Putt, and A. Jankovich. Pharmacology, Wayne State University School of Medicine, Detroit, MI.

#311 **Poster Board Number 523**
Coupling of PARP-1 and Store-Operated Calcium Entry Is Independent of PARG Activity in TGHQ-Induced Cell Death. *F. M. Ramirez*[1,2], *S. S. Lau*[1,2], and *T. J. Monks*[1,2]. [1]Pharm/Tox College of Pharmacy, U of Arizona, Tucson, AZ; and [2]SWEHSC, U of Arizona, Tucson, AZ.

#312 **Poster Board Number 524**
Flavonoids Kaempferol but Not Morin Showed Toxic Effects to HepG2 Cell Line. M. J. Tasso[1], A. O. Souza[1], L. C. Pereira[2], M. F. Bernardes[2], and *D. J. Dorta*[1]. [1]Faculdade de Filosofia, Ciências e Letras de Ribeirão Preto – FFCLRP/USP, Ribeirão Preto, Brazil; and [2]Faculdade de Ciências Farmacêuticas de Ribeirão Preto – FCFRP/USP, Ribeirão Preto, Brazil.

#312a **Poster Board Number 525**
Diesel Exhaust Particle Exposure Causes Endothelial Cells Apoptosis via Autophagy Pathway. J. Wang[1], C. Tseng[2,3], J. Chang[1], *M. K. Gordon*[4], and *M. Chao*[1,3]. [1]Bioscience Technology, Chung Yuan Christian University, Chung-Li, Taiwan; [2]Biomedical Engineering, Chung Yuan Christian University, Chung-Li, Taiwan; [3]Center for Nanotechnology, Chung Yuan Christian University, Chung-Li, Taiwan; and [4]Joint Program of Toxicology, Rutgers University, Piscataway, NJ.

#312b **Poster Board Number 526**
Presence of EndoG in Apoptotic Nuclei during Cisplatin Kidney Injury: A Sign of What? *A. G. Basnakian*[1,2], D. D. Zhdanov[1], T. Fahmi[1], T. Fite[1], K. Topiwala[1], and S. V. Shah[1,2]. [1]University of Arkansas for Medical Sciences, Little Rock, AR; and [2]Central Arkansas Veterans Healthcare System, Little Rock, AR.

#312c **Poster Board Number 527**
Neuroprotective Effects of Natural Compounds against Dopamine Toxicity. S. Potdar[1], and J. Cavanaugh[1]. [1]Pharmaceutical Sciences, Pharmacology, Duquesne University, Pittsburgh, PA. Sponsor: *P. Pradeep*.

#312d **Poster Board Number 528**
Tert-Butylhydroquinone Antagonizes Arsenic-Induced Oxidative Injury and Apoptosis by Activation of Both NF-E2-Related Factor 2 and B Cell CLL/Lymphoma 2 in Cultured Human Keratinocytes. B. Li[1], X. Duan[1], D. Liu[1], and G. Sun[1]. [1]Department of Occupational and Environmental Health, Key Laboratory of Arsenic-Related Biological Effects and Prevention and Treatment in Liaoning Province, School of Public Health, China Medical University, Shenyang, China. Sponsor: *J. Pi*.

#312e **Poster Board Number 529**
Compound-Induced Bioenergetic Alterations and Cell Loss in Excitable and Nonexcitable Tissues: Relevance to Pathophysiology. *W. A. Irwin*[1], *D. A. Fox*[2], and *J. Liccione*[1]. [1]HED, US EPA, Crystal City, VA; and [2]College of Optometry, University of Houston, Houston, TX.

#312f **Poster Board Number 530**
Frankincense and Myrrh: A Sticky Combination for the Treatment of Lung Cancer. *E. R. Esposito*[1], M. V. Bystrek[2], S. Boyle[2], J. Borders[2], L. Willinger[2], and K. R. Adair[2]. [1]Pharmaceutical Sciences, Sullivan University College of Pharmacy, Louisville, KY; and [2]Pharm D. Candidate, Sullivan University College of Pharmacy, Louisville, KY.

Monday Morning, March 24
9:30 AM to 12:30 PM
Exhibit Hall

PS

Poster Session: Food Toxicology/Nutrition

Chairperson(s): *Edmond E. Creppy, University Bordeaux Segalen, Toxicology, Bordeaux, France, and Tania S. Hicks, Southern University and A&M College, Baton Rouge, LA.*

Displayed: *9:30 AM–12:30 PM*

Author Attended: *9:30 AM–11:00 AM*

#313 **Poster Board Number 533**
A Survey of AflatoxinM1 Levels in White Cheese. R. Ortiz-Martinez, C. De Luna -Lopez, A. G. Valdivia, and T. Quezada-Tristan. Disciplinas Pecuarias, Universidad Autonoma de Aguascalientes, Aguascalientes, Mexico. Sponsor: *G. Pallas-Guzman*.

#314 **Poster Board Number 534**
***In Vivo* Metabolism of Fumonisin B_1 to *N*-Acylated Cermaide-Like Compounds.** *K. A. Voss*[1], H. Harrer[2], *R. T. Riley*[1], and H. Humpf[2]. [1]Toxicology & Mycotoxin Research Unit, USDA, ARS, Athens, GA; and [2]Institute of Food Chemistry, University of Münster, Münster, Germany.

#315 **Poster Board Number 535**
Presence of Aflatoxins and Fumonisins in Nixtamalized Masa from Mills in the Metropolitan Area of Monterrey, México. J. M. Villarreal-Guerra[1], P. Gonzalez-Barranco[2], F. Picon-Rubio[3], H. Bernal-Barragan[4], and *A. G. Marroquin-Cardona*[1]. [1]Department of Physiology, Pharmacology and Toxicology, Faculty of Veterinary Medicine, Universidad Autonoma de Nuevo Leon, Escobedo, Nuevo Leon, Mexico; [2]Department of Biopharmacy, Faculty of Chemistry Sciences, Universidad Autonoma de Nuevo Leon, San Nicolas de los Garza, Nuevo Leon, Mexico; [3]Department of Nutrition and Metabolism, Faculty of Veterinary Medicine, Universidad Autonoma de Nuevo Leon, Escobedo, Nuevo Leon, Mexico; and [4]Department of Nutrition, Faculty of Agronomy, Universidad Autonoma de Nuevo Leon, Escobedo, Nuevo Leon, Mexico.

#316 **Poster Board Number 536**
The Effect of Aflatoxin-B1 on Red Drum (*Sciaenops ocellatus*) and Assessment of Dietary Supplementation of NovaSil for the Prevention of Aflatoxicosis. *K. Zychowski*[1], A. Rodrigues Hoffmann[1], H. J. Ly[1], C. Pohlenz[1], A. Buentello[1,2], *A. A. Romoser*[1], D. Gatlin[1], and *T. D. Phillips*[1]. [1]Veterinary Integrative Biosciences, Texas A&M University, College Station, TX; and [2]Schillinger Genetics, West Des Moines, IA.

MONDAY

Program Description (Continued)

Abstract #

#317 **Poster Board Number 537**
Increased Aflatoxin Exposure in Human Populations Residing in West and East Texas, USA. *L. Tang*[1], *M. Kang*[1], *G. Qian*[1], *K. S. Xue*[1], *A. A. Romoser*[2], M. F. Carden[3], H. G. Hayes[4], B. H. Pollock[4], F. A. Guerra[3], *T. D. Phillips*[2], and *J. Wang*[1]. [1]University of Georgia, Athens, GA; [2]Texas A&M University, College Station, TX; [3]San Antonio Metropolitan Health District, San Antonio, TX; and [4]University of Texas Health Science Center, San Antonio, TX.

#318 **Poster Board Number 538**
Elderly Male Mice Display Impaired Clearance of Deoxynivalenol. *E. S. Clark*[1,2], *M. Bates*[1,2], C. J. Doan[1], and *J. J. Pestka*[1,2]. [1]Food Science and Human Nutrition, Michigan State University, East Lansing, MI; and [2]Center for Integrative Toxicology, Michigan State University, East Lansing, MI.

#319 **Poster Board Number 539**
***In Vitro* Mechanism Study of *Ginkgo biloba* Leaf Extract-Induced Genotoxicity.** *N. Mei*, *H. Lin*, *X. Guo*, S. L. Dial, *L. Guo*, *M. G. Manjanatha*, and *M. M. Moore*. NCTR/FDA, Jefferson, AR.

#320 **Poster Board Number 540**
***In Vitro* Safety Assessment of Pet Food Ingredients on Canine Renal Proximal Tubule Cells.** J. Koci[1], B. Jeffery[2], *J. E. Riviere*[1], and *N. A. Monteiro-Riviere*[1]. [1]Department of Anatomy and Physiology, College of Veterinary Medicine, Kansas State University, Manhattan, KS; and [2]Global Quality and Food Safety, Mars, Inc., McLean, VA.

#321 **Poster Board Number 541**
Levels of Benzoic Acid, Sulphur (IV) Oxide, and Sorbic Acid in Commonly Consumed Fruit Drinks and Juices Sold in Lagos Metropolis, Nigeria. C. T. Onwordi[1], A. I. Olanrewaju[1], *A. D. Wusu*[2], B. Oguntade[3], and *O. Ademuyiwa*[4]. [1]Chemistry, Lagos State University, Lagos, Nigeria; [2]Biochemistry, Lagos State University, Lagos, Nigeria; [3]Science Laboratory Technology, Federal Polytechnic Ilaro, Ilaro, Ogun, Nigeria; and [4]Biochemistry, Federal University of Agriculture, Abeokuta, Ogun, Nigeria.

#322 **Poster Board Number 542**
Association between Advanced Glycation End Products (AGE) and the Receptor for AGE in Colon Carcinogenesis of Azoxymethane-Injected Fischer 344 Rats Fed with a High-Linoleic Acid and High-Glucose Diet. T. Shimomoto, and H. Kuniyasu. Department of Molecular Pathology, Nara Medical University, Kashihara, Nara, Japan. Sponsor: *Y. Satomi*.

#323 **Poster Board Number 543**
Xenoestrogens in Your Diet? I. M. Omoruyi, G. Kabiersch, and R. Pohjanvirta. Food Hygiene and Environmental Health, University of Helsinki, Helsinki, Finland. Sponsor: *M. Viluksela*.

#324 **Poster Board Number 544**
Genotoxicity Testing of Genipin, a Precursor in the Derivation of the Natural Food Colorant Gardenia Blue. C. A. Hobbs[1], C. Swartz[1], J. Davis[2], *R. R. Maronpot*[3], K. Shepard[1], J. Winters[1], A. Green[1], P. Garibaldi[1], P. Allen[4], E. Phillips[2], M. Nixon[2], *L. Recio*[1], and S. Hayashi[5]. [1]Genetic and Molecular Toxicology Division, ILS, Inc., Research Triangle Park, NC; [2]Investigative Toxicology Division, ILS, Inc., Research Triangle Park, NC; [3]Maronpot Consulting LLC, Raleigh, NC; [4]Consultant, Cary, NC; and [5]San-Ei Gen F.F.I., Inc., Osaka, Japan.

Abstract #

#325 **Poster Board Number 545**
Predicting Public Health Consequences of Toxic Chemical Contamination of Food. *J. Moser*[1,2], and R. Jablonski[1]. [1]Chemical Security Analysis Center, Department of Homeland Security, Gunpowder (APG-EA), MD; and [2]Battelle Memorial Institute, Columbus, OH.

#326 **Poster Board Number 546**
Inactivation of Pathogens on the Surfaces of Sterile Swabs, Fruits, and Vegetables Using Sanitizing Substances Produced by Radiant Catalytic Ionization. *W. J. Mackay*[1], C. H. Sommers[2], D. Fulford[1], C. Steele[1], J. T. Mannozzi[1], J. Wallace[1], and V. Filbert[1]. [1]Biology & Health Services, Edinboro University of PA, Edinboro, PA; and [2]Food Safety Group, USDA, Wyndmoor, PA.

#327 **Poster Board Number 547**
Toxicological Evaluation of Oleic-Rich Algal Oil. *M. R. Bauter*[1], *S. McQuaid*[2], *T. Chan*[2], *P. Licari*[2], *S. Franklin*[2], *J. Carney*[2], *R. Green*[2], *H. Hofman-Hüther*[3], *N. J. Szabo*[4], *R. A. Matulka*[4], and *P. Marone*[1]. [1]Toxicology, Product Safety Labs, Dayton, NJ; [2]Solazyme, South San Francisco, CA; [3]BioService Scientific Laboratories, Behringstrasse, Planegg, Germany; and [4]Burdock Group, Orlando, FL.

#328 **Poster Board Number 548**
Safety Evaluation of TCT Catalase from *T. reesei* for Use in Dietary Supplements. *S. MacKenzie*[1], E. M. Donner[1], D. Hoban[1], J. Caverly Rae[1], *L. A. Belcher*[2], and *Q. Bui*[3]. [1]DuPont Haskell Global Centers for Health and Environmental Sciences, Newark, DE; [2]DuPont Industrial Biosciences, Wilmington, DE; and [3]DuPont Industrial Biosciences, Palo Alto, CA.

#329 **Poster Board Number 549**
Toxicological Safety Assessment of a *Sceletium tortuosum* Extract. T. Murbach, *A. Clewell*, and *J. R. Endres*. AIBMR Life Sciences, Inc., Puyallup, WA.

#330 **Poster Board Number 550**
Oral Toxicity Assessment of siRNAs and Long Double-Stranded RNAs. *J. S. Petrick*, *J. H. Sherman*, *W. F. Heydens*, and *S. L. Lemke*. Toxicology, Monsanto Company, Saint Louis, MO.

#331 **Poster Board Number 551**
A 3-Week Dietary Toxicity Study of Octenyl Succnic Anhydride (OSA)—Modified Starch in Preweaning Farm Piglets. *B. Mahadevan*[1], *B. A. Thorsrud*[2], and *H. Ferguson*[3]. [1]Regulatory Affairs, Abbott Nutrition, Abbott Laboratories, Columbus, OH; [2]MPI Research, Inc., Mattawan, MI; and [3]Abbott Nutrition, Abbott Laboratories, Columbus, OH.

#332 **Poster Board Number 552**
Nanostructured Synthetic Amorphous Silica—Absence of Disintegration in Intestinal Environment. M. Maier[1], P. Albers[2], R. Retamal Marin[3], F. Babick[3], and M. Stintz[3]. [1]Inorganic Materials, Evonik Industries AG, Hanau, Germany; [2]Aqura GmbH, Hanau, Germany; and [3]Technical University, Dresden, Germany. Sponsor: *D. Warheit*.

#333 **Poster Board Number 553**
Toxicological Evaluation of High Purity Genistein from an Alternative Synthetic Route. J. A. Edwards, P. Beilstein, and M. Hugentobler. Product Safety, DSM Nutritional Products, Kaiseraugst, Switzerland. Sponsor: *A. Davidovich*.

MONDAY

Education-Career Development Sessions
Exhibitor-Hosted Sessions
Featured Sessions
Historical Highlights Session
Informational Sessions
Platform Sessions

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Abstract #

#334 **Poster Board Number 554**
USDA Survey of Dioxins and Dioxin-Like Compounds in the US Domestic Meat and Poultry Supply. P. Basu[1], S. Lupton[2], and M. O'Keefe[1]. [1]US Department of Agriculture, Food Safety & Inspection Service, Washington, DC; and [2]US Department of Agriculture, Agricultural Research Service, Fargo, ND. Sponsor: *K. Dearfield*.

#335 **Poster Board Number 555**
The Supplement Quercetin Synergistically Augments Tamsulosin-Induced Vasorelaxation. *M. Vrolijk*, G. Haenen, *A. Opperhuizen*, and A. Bast. Department of Toxicology, Maastricht University, Maastricht, Netherlands.

#336 **Poster Board Number 556**
Physiological Effects of Endophyte-Infected Perennial Ryegrass Straw on Female Camels in the Middle East. *J. M. Duringer*[1], L. L. Blythe[2], K. Alabdouli[3], A. Elkhouly[3], A. Al Juboori[3], and *A. M. Craig*[2]. [1]Environmental and Molecular Toxicology, Oregon State University, Corvallis, OR; [2]College of Veterinary Medicine, Oregon State University, Corvallis, OR; and [3]Al Ain Veterinary Laboratory, Abu Dhabi Food Control Authority, Al Ain, United Arab Emirates.

#337 **Poster Board Number 557**
Do Highly Purified Steviol Glycoside Sweeteners Cause Food Allergies? *J. D. Urban*[1], C. L. Doepker[2], N. Cuellar-Kingston[3], J. van de Ligt[3], and *M. Carakostas*[4]. [1]ToxStrategies, Austin, TX; [2]ToxStrategies, Fort Thomas, KY; [3]Cargill Incorporated, Wayzata, MN; and [4]ToxStrategies, St. Helena Island, SC.

#338 **Poster Board Number 558**
A 28-Day Gavage Toxicity Study in Fischer 344 Rats with 3-Methylfuran. S. S. Gill[1], M. Kavanagh[1], W. Cherry[1], M. Barker[1], M. Weld[2], and G. Cooke[1]. [1]Toxicology Research Division, Health Canada, Ottawa, ON, Canada; and [2]Chemical Health Hazard Assessment Division, Health Canada, Ottawa, ON, Canada. Sponsor: *R. Mehta*.

#339 **Poster Board Number 559**
Safety, Efficacy, and Toxicological Evaluation of a Novel, Patented Antidiabetic Extract of *Trigonella foenum-graecum* Seed Extract (CR0010810). *M. Bagchi*[1], A. Swaroop[2], *D. Bagchi*[2], and P. Kumar[2]. [1]Dr. Herbs LLC, Concord, CA; and [2]R&D, Cepham Inc, Piscataway, NJ.

#340 **Poster Board Number 560**
Effect of Omega-3 Fatty Acid Oxidation Products on the Cellular and Mitochondrial Toxicity of BDE 47. A. Yeh[1], S. E. Kruse[2], D. J. Marcinek[2], and *E. P. Gallagher*[1]. [1]Department of Environmental and Occupational Health Sciences, University of Washington, Seattle, WA; and [2]Department of Radiology, University of Washington, Seattle, WA.

#341 **Poster Board Number 561**
Safety of Carrageenan in Infant Formula: A 4-Week Toxicity Study in Preweaning Piglets. *M. L. Weiner*[1], *H. Ferguson*[4], *B. A. Thorsrud*[2], K. G. Nelson[3], W. Blakemore[5], and B. Frantz[2]. [1]TOXpertise, LLC, Princeton, NJ; [2]Developmental & Reproductive Toxicology, MPI Research, Mattawan, MI; [3]Pathology, MPI Research, Mattawan, MI; [4]Abbott Nutrition, Columbus, OH; and [5]Celtic Colloids, Topsham, ME.

Abstract #

#342 **Poster Board Number 562**
Safety of Carrageenan in Infant Formula: A 4-Week Study of the Potential Immune System Effects in Preweaning Piglets. B. Zeigler[2], M. J. Cameron[2], K. G. Nelson[3], *B. A. Thorsrud*[4], *M. L. Weiner*[1], *H. Ferguson*[5], B. Frantz[4], and W. Blakemore[6]. [1]TOXpertise, LLC, Princeton, NJ; [2]Immunology, MPI Research, Mattawan, MI; [3]Pathology, MPI Research, Mattawan, MI; [4]Developmental & Reproductive Toxicology, MPI Research, Mattawan, MI; [5]Abbott Nutrition, Columbus, OH; and [6]Celtic Colloids, Topsham, ME.

#343 **Poster Board Number 563**
Safety of Carrageenan in Infant Formula: A 4-Week Toxicokinetic Evaluation in Preweaning Piglets. W. Blakemore[4], A. Brant[2], L. Cochrane[2], M. Pellerin[2], *B. A. Thorsrud*[3], *M. L. Weiner*[1], *H. Ferguson*[5], and B. Frantz[3]. [1]TOXpertise, LLC, Princeton, NJ; [2]BioAnalytical, MPI, Mattawan, MI; [3]Developmental & Reproductive Toxicology, MPI, Mattawan, MI; [4]Celtic Colloids, Topsham, ME; and [5]Abbott Nutrition, Columbus, OH.

#343a **Poster Board Number 564**
Evaluation of Concentrations of Nickel, Lead, Cadmium, and Vanadium in Marine Species of the Market 'La Nueva Viga,' Using ICP-MS. L. V. Saldívar, L. G. Hernández, G. B. Torres, T. Rodríguez Salazar, and M. Espejel. Analytical Chemistry, UNAM, Mexico City, Mexico. Sponsor: *D. Acosta*.

#343b **Poster Board Number 565**
Evidence for Fumonisin Inhibition of Ceramide Synthase in Humans: Validation in Follow-Up Studies in Guatemala. *R. T. Riley*[1], J. L. Showker[1], *K. A. Voss*[1], *J. B. Gelineau-van Waes*[2], J. R. Maddox[2], A. E. Ashley-Koch[3], S. G. Gregory[3], J. Matute[4], and O. Torres[4]. [1]Toxicology and Mycotoxin Research Unit, USDA-ARS, Athens, GA; [2]Pharmacology, Creighton University School of Medicine, Omaha, NE; [3]Medicine, Duke University Medical Center, Durham, NC; and [4]Centro de Investigaciones en Nutrición y Salud, Guatemala City, Guatemala.

#343c **Poster Board Number 566**
Evaluation of Food-Relevant Chemicals in ToxCast Phase II. *A. L. Forgacs*[1,3], *J. Hsieh*[2], and *K. Houck*[3]. [1]Technical Committee on Food and Chemical Safety Summer Fellow, ILSI North America, Washington, DC; [2]NTP, NIEHS, RTP, NC; and [3]NCCT, EPA, RTP, NC.

#343d **Poster Board Number 567**
β-Alanine: Absorption, Distribution, and Elimination following Single or Repeated Administration to Rats. A. Augustine[1], *R. Slauter*[1], C. Rosenfeld[1], J. Mielke[1], B. Frantz[1], A. Miedema[1], B. Fuller[1], J. Librizzi[1], B. Molitor[1], S. Smith[1], T. Dubnicka[1], and H. Ferguson[2]. [1]Drug Metabolism and Pharmacokinetics, MPI Research, Inc., Mattawan, MI; and [2]Abbott Nutrition, Inc., Columbus, OH.

MONDAY

Program Description (Continued)

Abstract #

#343e **Poster Board Number 568**
Oral Repeated 28-Day Study of Moniliformin in Sprague-Dawley According to OECD 407 Rats. *K. Peltonen*[1], M. Jonsson[1], M. Jestoi[1], A. Nathanail[1], J. Atosuo[2], U. Kokkonen[1], M. Anttila[1], P. Koivisto[1], and E. Lilius[2]. [1]Finnish Food Safety Authority, Helsinki, Finland; and [2]Biochemistry and Food Chemistry, University of Turku, Turku, Finland.

#343f **Poster Board Number 569**
Carrageenan Is Not a Ligand for Toll-Like Receptor 4 (TLR4) in a Human Embryonic Kidney (HEK) Cell Model. *J. M. McKim*[1], *P. C. Wilga*[1], J. Pregenzer[1], and W. Blakemore[2]. [1]CeeTox, Inc., Kalamazoo, MI; and [2]Celtic Colloids, Inc., Topsham, ME.

#343g **Poster Board Number 570**
Maximum Concentration of Oils Tested in 13-Week Dietary Studies in Rats: Is Five Percent Optimal? *L. Dolan*[1], R. Green[2], and *G. A. Burdock*[1]. [1]Burdock Group, Orlando, FL; and [2]Solazyme, Inc., San Francisco, CA.

#343h **Poster Board Number 571**
Safety Evaluation Methods for Supplemental Nutrients. *A. W. Wong*[1], and J. N. Hathcock[2]. [1]Council for Responsible Nutrition, Washington, DC; and [2]John Hathcock Consulting, Alexandria, VA.

#343i **Poster Board Number 572**
Assessing Potential Interactions of "Active" Ingredients in Food. *B. S. Lynch*[1], and *A. Roberts*[1]. [1]Cantox Health Sciences International, Mississauga, ON, Canada.

#343j **Poster Board Number 573**
Assessment of Human Exposures to Fumonisin B1 in Ghana Using LC MS/MS. *K. Rychlik*[1], *N. J. Mitchell*[1], *S. Elmore*[1], *A. A. Romoser*[1], *P. Jolly*[2], and *T. D. Phillips*[1]. [1]Veterinary Integrative Biosciences, College of Veterinary Medicine and Biomedical Sciences, Texas A&M University, College Station, TX; and [2]School of Public Health, University of Alabama at Birmingham, Birmingham, AL.

Monday Morning, March 24
9:30 AM to 12:30 PM
Exhibit Hall

PS

Poster Session: Neurotoxicity: General

Chairperson(s): *Daniel R. Dietrich, University of Konstanz, Human and Environmental Toxicology, Konstanz, Germany, and Kimberly Kelly, CDC-NIOSH, Morgantown, WV.*

Displayed: *9:30 AM–12:30 PM*

Author Attended: *11:00 AM–12:30 PM*

#344 **Poster Board Number 601**
Chronic Intrathecal Infusion/Sampling via a Surgically Implanted Access Port with Functional Observation Battery Evaluation in Cynomolgus Monkeys. R. Tavcar[1], S. Authier[1], M. Meghazzi[1], S. Groom[1], and *R. Forster*[2]. [1]CiToxLAB North America, Laval, QC, Canada; and [2]CiToxLAB France, Evreux, France.

Abstract #

#345 **Poster Board Number 602**
Successful Conduct of Continuous Intravenous Infusion Combined with Intrathecal Implantation and Administration in the Juvenile Monkey. J. Douville, T. Robillard, and L. Bernier. Charles River, Monteal, QC, Canada. Sponsor: *M. Vezina.*

#346 **Poster Board Number 603**
A Validation Safety Pharmacology Study of the Central Nervous System, Employing a Functional Observational Battery (FOB) in Female Cynomolgus Monkey. L. Hu[1], W. Zheng[1], *B. Platzack*[1,2], *R. A. Bialecki*[1,2], *Y. Chen*[1,3], H. Yu[1], and *J. Ren*[1]. [1]Center for Drug Safety and Evaluation Research of the Shanghai Institute of Material Medica, Shanghai, China; [2]Global Safety Assessment, AstraZeneca, Alderley park, United Kingdom; and [3]AstraZeneca R&D, Boston, MA.

#347 **Poster Board Number 604**
Comparative Neurotoxicity and Sex Sensitivity of Neurotoxicants in Wistar Rats. S. Jadhav[1], D. Gohel[1], M. V. Patel[1], *V. J. Piccirillo*[2], P. Mehta[1], K. Shah[1], and M. Pandya[1]. [1]Toxicology, Jai Research Foundation, Valvada, Gujarat, India; and [2]VJP Consulting, Inc, Ashburn, VA.

#348 **Poster Board Number 605**
Side Effects of MK-801 As a Positive Control for a Rat Neurotoxicity Study. W. F. Roosen, E. J. De Waal, D. Abbott, A. Vynckier, Y. Van Bekkum, A. Lampo, and *W. Coussement*. Drug Safety Sciences, Janssen Research & Development, a Division of Janssen Pharmaceutica N.V., Beerse, Antwerp, Belgium.

#349 **Poster Board Number 606**
Potential Mechanisms Leading to Neurotoxicity following N-Butanol Exposure. *A. S. Bale.* National Center for Environmental Assessment, US EPA, Washington, DC.

#350 **Poster Board Number 607**
1,3-Dinitrobenzene Induces Age-, Region-, and Pathway-Specific Oxidative Modification of Mitochondria-Related Proteins. *L. Kubik*[1], R. W. Landis[1], H. A. Remmer[2], M. Ford[3], and *M. A. Philbert*[1]. [1]Toxicology Program, University of Michigan, Ann Arbor, MI; [2]Department of Biological Chemistry, Medical School, University of Michigan, Ann Arbor, MI; and [3]MS BioWorks, LLC, Ann Arbor, MI.

#351 **Poster Board Number 608**
Dioxin-Like and Non-Dioxin-Like Polychlorinated Biphenyls (PCBs) Modulate Basal and Activity-Dependent Dendritic Arborization in Primary Neuronal Cell Cultures. *C. Barnhart*, W. Feng, Y. Dong, *I. N. Pessah*, and *P. Lein*. Molecular Biosciences, University of California, Davis, Davis, CA.

#352 **Poster Board Number 609**
Perfluorobutyrate (PFBA) Produces Dose-, Time-, and Sex-Dependent Pupillary Light Reflex (PLR) Deficits and Retinal Degeneration. *D. A. Fox*[1], J. A. Hart[2], T. N. John[3], *D. J. Ehresman*[2], S. Chaney[1], *R. Hamilton*[1], *S. Chang*[2], and J. L. Butenhoff[2]. [1]Univ Houston, Houston, TX; [2]3M, St. Paul, MN; and [3]Pace Analytical, Minneapolis, MN.

MONDAY

Education-Career Development Sessions
Exhibitor-Hosted Sessions
Featured Sessions
Historical Highlights Session
Informational Sessions
Platform Sessions

Program Description (Continued)

Abstract #

#353 **Poster Board Number 610**
The Toxicity of Low Doses of Ultrafine Diesel Exhaust Particles on Bovine Brain Microvessel Endothelial Cells. *Y. Kim*[1], Y. Choi[1], S. Eom[1], *S. F. Ali*[2], *S. Lantz*[2], *W. Trickler*[2], *M. T. Kleinman*[3], and H. Kim[1]. [1]Dept. of Preventive Medicine, College of Medicine, Chungbuk National University, Cheongju, Republic of Korea; [2]Neurochemistry Laboratory, National Center of Toxicological Research/Food and Drug Administration, Jefferson, AR; and [3]Department of Medicine, University of California at Irvine, Irvine, CA.

#354 **Poster Board Number 611**
Role of Oxidative Potential versus Nicotine in Tobacco Smoke-Induced BBB Toxicity: Genomic and Proteomic Assessment of BBB Endothelial Dysfunction. P. Naik[1], *N. M. Fofaria*[2], and L. Cucullo[1]. [1]Pharmaceutical Sciences, Texas Tech University Health Sciences Center, Amarillo, TX; and [2]Biomedical Sciences, Texas Tech University Health Sciences Center, Amarillo, TX.

#355 **Poster Board Number 612**
Neurotoxic Effects of the Global Smokeless Tobacco Product, Gutkha. *D. E. Lauterstein*[1], C. Hoffman[1], A. Hawkins[1], C. Klein[1], M. Rice[2], and *J. T. Zelikoff*[1]. [1]Environmental Medicine, NYU, Tuxedo, NY; and [2]Neurosurgery, NYU, New York City, NY.

#356 **Poster Board Number 613**
Assessment of the Neurotoxic Potential of 50 Hz Extremely Low-Frequency Electromagnetic Fields in Naïve and Chemically-Stressed PC12 Cells. *M. de Groot*, M. Kock, and *R. H. Westerink*. Toxicology Division, Institute for Risk Assessment Sciences, Utrecht, Netherlands.

#357 **Poster Board Number 614**
Bisphenol A and 4-Methyl-2,4-bis(4-hydroxyphenyl)pent-1-ene Induces Neuronal Cell Apoptosis via Akt/Endoplasmic Reticulum Stress-Regulated Signaling Pathway. *C. Huang*[1], C. Su[2], *T. Lu*[3], Y. Chung[4], C. Wu[5], C. Yen[4], S. Liu[6], and *Y. Chen*[3]. [1]School of Chinese Medicine, China Medical University, Taichung, Taiwan; [2]Department of Otorhinolaryngology, Changhua Christian Hospital, Changhua City, Taiwan; [3]Department of Physiology and Graduate Institute of Basic Medical Science, China Medical University, Taichung, Taiwan; [4]Department of Occupational Safety and Health, Chung Shan Medical University, Taichung, Taiwan; [5]Department of Public Health, China Medical University, Taichung, Taiwan; and [6]Institute of Toxicology, National Taiwan University, Taipei, Taiwan.

#358 **Poster Board Number 615**
Quinone-Induced Protein Handling Changes: Implications for Major Protein Handling Systems in Quinone-Mediated Toxicity. *R. Xiong*, D. Siegel, and *D. Ross*. Department of Pharmaceutical Sciences, Skaggs School of Pharmacy and Pharmaceutical Sciences, Anschutz Medical Campus, University of Colorado, Aurora, CO.

#359 **Poster Board Number 616**
Scavenging Seizure-Induced Reactive Oxygen Species with a Catalytic Antioxidant Attenuates Oxidative Stress and Neuroinflammation in the Pilocarpine Model of Nerve Agent Toxicity. *P. Bhuyan*[1], L. Liang[1], S. D. Rowley[2], J. N. Pearson[2], A. White[3], *B. J. Day*[4,1], and *M. N. Patel*[1,2]. [1]Department of Pharmaceutical Sciences, University of Colorado Denver, Aurora, CO; [2]Neuroscience Training Program, University of Colorado Denver, Aurora, CO; [3]Department of Pediatrics, University of Colorado Denver, Aurora, CO; and [4]Department of Medicine, National Jewish Health, Denver, CO.

#360 **Poster Board Number 617**
Combined Therapy with Allopregnanolone and Diazepam Mitigates TETS-Triggered Hyperexcitability of Neuronal Networks *In Vitro* and Rescues Mice from TETS-Induced Seizures and Death. *D. Bruun*[1], *Z. Cao*[1], S. Hulsizer[1], B. Inceoglu[2], S. Vito[2], *I. N. Pessah*[1], and *P. Lein*[1]. [1]VM Molecular Bioscience, UC-Davis, Davis, CA; and [2]Entomology, UC-Davis, Davis, CA.

#361 **Poster Board Number 618**
Effect of Q-VD-OPh on Neurodegeneration and Neuroinflammation of Sarin-Exposed Mice. *E. J. Shah*, W. Grunwald, T. L. Garrett, *J. B. Lucot*, T. L. Brown, and D. R. Cool. Wright State University, Boonshoft School of Medicine, Dayton, OH.

#362 **Poster Board Number 619**
Investigations on Neurotoxicity of Carbonyl Sulfide in Mice. *P. V. Anantharam*[1], E. Whitley[3], *V. Anantharam*[2], *A. G. Kanthasamy*[2], *A. Kanthasamy*[2], P. Imerman[1], S. Ensley[1], J. Koziel[4], and *W. K. Rumbeiha*[1]. [1]VDPAM, Iowa State University, Ames, IA; [2]BMS, Iowa State University, Ames, IA; [3]VPTH, Iowa State University, Ames, IA; and [4]AgBio, Iowa State University, Ames, IA.

#363 **Poster Board Number 620**
***Toxoplasma gondii* Impairs Memory in Infected Seniors.** P. D. Gajewski, M. Falkenstein, J. G. Hengstler, and *K. Golka*. Leibniz Research Centre for Working Environment and Human Factors, Dortmund, Germany.

#364 **Poster Board Number 621**
Microcystins Alter Behavior by Uniquely Targeting the AWA Sensory Neuron in *Caenorhabditis elegans*. *C. Moore*, and *B. Puschner*. Molecular Biosciences, UC Davis, Davis, CA.

#365 **Poster Board Number 622**
Effects of Microcystin Exposure on the Phosphorylation State of GSK-3 Beta in Human Neuronal Cells. *D. R. Dietrich*, M. Helmer, J. Behr, and F. Polzer. Human & Environmental Toxicology, University of Konstanz, Konstanz, Germany.

#366 **Poster Board Number 623**
Transcriptional Regulation of Brain ABC Transporters during Acute Acetaminophen (APAP) Intoxication in Mice and the Possible Role of the Nuclear Factor-Erythroid 2-Related Factor 2 (Nrf2). C. I. Ghanem[1], *S. Rudraiah*[2], and *J. E. Manautou*[2]. [1]Pharmacological Research Institute, Pharmacy School, CONICET-University of Buenos Aires, Buenos Aires, Argentina; and [2]Department of Pharmaceutical Sciences, University of Connecticut, Storrs, CT.

MONDAY

Program Description (Continued)

Abstract #

#367 **Poster Board Number 624**
Effect of Different Durations of Morphine Exposure on Mesencephalic Dopaminergic Neurons in Morphine-Dependent Rats. Y. Li[1], W. Shi[1], *F. Liu*[2], Q. Qi[1], J. Wang[1], J. Liu[1], and B. Cong[1]. [1]Hebei Medical University, Shi Jiazhuang, He Bei, China; and [2]National Center for Toxicological Research, Jefferson, AR.

#368 **Poster Board Number 625**
Morphine Sulfate Concomitantly Alters Mouse Stem Cell Differentiation and Opioid Receptor Gene Expression. *S. L. Dholakiya*, and *F. A. Barile*. Pharmaceutical Sciences, St. John's University College of Pharmacy, Queens, NY.

#369 **Poster Board Number 626**
Effect of Prenatal Methadone on Reinstated Behavioral Sensitization Induced by Methamphetamine in Adolescent Rats. *L. Tien*[1], C. Wong[1,2], Y. Lee[1], Y. Chiang[3,4], *L. Fan*[5], and *I. Ho*[3,4,6]. [1]School of Medicine, Fu Jen Catholic University, New Taipei City, Taiwan; [2]Department of Anesthesiology, Cathay General Hospital, Taipei, Taiwan; [3]Center for Drug Abuse and Addiction, China Medical University Hospital, Taichung, Taiwan; [4]Graduate Institute of Clinical Medical Science, China Medical University Hospital, Taichung, Taiwan; [5]Pediatrics Newborn Medicine, University of Mississippi, Jackson, MS; and [6]Neuropsychiatric Research Center, National Health Research Institutes, Zhunan, Taiwan.

#370 **Poster Board Number 627**
Inhibition of the Vesicular Monoamine Transporter 2 Alters the Acute and Long-Term Effects of 3,4-(±)-Methylenedioxymethamphetamine. *L. E. Lizarraga*, A. M. Phan, *S. S. Lau*, and *T. J. Monks*. Pharmacology/Toxicology, University of Arizona-College of Pharmacy, Tucson, AZ.

#371 **Poster Board Number 628**
Enhanced Vesicular Function and Reduced Neurotoxicity in Mice Overexpressing the Vesicular Monoamine Transporter. *G. W. Miller*, *K. Lohr*, *A. I. Bernstein*, *K. Stout*, A. R. Dunn, and A. Salahpour. Environmental Health, Emory University, Atlanta, GA.

#372 **Poster Board Number 629**
Diverse Models of Neurotoxicity Link Induction of Astrogliosis to Activation of STAT3. K. A. Kelly, *D. B. Miller*, and *J. P. O'Callaghan*. CDC-NIOSH, Morgantown, WV.

#373 **Poster Board Number 630**
BAC-TRAP Technology in Neurotoxicology: The ALDH1L1 BAC-TRAP Mouse As a Tool to Assess Astrocyte Specific Responses to Neural Injury. *J. P. O'Callaghan*, K. A. Kelly, and *D. B. Miller*. CDC-NIOSH, Morgantown, WV.

#374 **Poster Board Number 631**
BAC-TRAP Technology in Neurotoxicology: Assessing the Astrocyte Response to MPTP-Induced Damage in the ALDH1L1 BAC-TRAP Mouse. *D. B. Miller*, K. A. Kelly, and *J. P. O'Callaghan*. CDC-NIOSH, Morgantown, WV.

#375 **Poster Board Number 632**
Human iPSC Neurons: *In Vitro* Models to Predict Clinical CNS Toxicity. *C. A. Snyder*, *K. Staflin*, and *D. L. Misner*. Safety Assessment, Genentech, South San Francisco, CA.

Abstract #

#376 **Poster Board Number 633**
Live Cell-Based Assay Using GFP+ Human Stem Cell-Derived Neurons. J. N. Le. ArunA Biomedical Inc, Athens, GA. Sponsor: *S. Stice*.

#377 **Poster Board Number 634**
A Functional Phenotypic Screen for Synapse Formation in Human iPS-Derived Neurons. *B. Cai*, A. Essex, E. Batchelder, S. Feng, P. McDonough, and *J. Evans*. Vala Sciences, San Diego, CA.

#378 **Poster Board Number 635**
eCiphrNeuro: A High-Throughput Assay to Detect Neurotoxic Compounds in Early Drug Discovery. J. Bradley, *C. Strock*, *H. Luithardt*, and J. Gilbert. Cyprotex, Watertown, MA.

#378a **Poster Board Number 636**
Low Frequency Activity of Cortical Networks Is Differentially Altered by Bicuculline and Carbaryl. D. Hall[1], C. M. Mack[2], *D. W. Herr*[2], and *T. J. Shafer*[1]. [1]ISTD, US EPA, RTP, NC; and [2]TAD, US EPA, RTP, NC.

#378b **Poster Board Number 637**
Evaluation of the Neuroactivity of ToxCast Compounds Using Multiwell Microelectrode Array Recordings in Primary Cortical Neurons. P. A. Valdivia[1], *M. T. Martin*[2], *W. LeFew*[3], D. Hall[3], *J. Ross*[1], *K. Houck*[2], and *T. J. Shafer*[3]. [1]Axion Biosystems, Atlanta, GA; [2]NCCT, US EPA, RTP, NC; and [3]ISTD, US EPA, RTP, NC.

#378c **Poster Board Number 638**
Effects of Organophosphorus Flame Retardants on Spontaneous Activity in Neuronal Networks Grown on Microelectrode Arrays. *T. J. Shafer*[1], K. A. Wallace[1], *W. Mundy*[1], and *M. Behl*[2]. [1]Integrated Systems Toxicology, U.S. Environmental Protection Agency, Research Triangle Park, NC; and [2]NIEHS, Research Triangle Park, NC.

#378d **Poster Board Number 639**
Neurotoxic Effects of Tri-Ortho-Cresyl Phosphate *In Vitro*. V. Hausherr[1], N. Schöbel[1,2], and *C. van Thriel*[1]. [1]Neurotoxicology and Chemosensation, IfADo - Leibniz Research Centre for Working Environment and Human Factors, Dortmund, NRW, Germany; and [2]Animal Physiology, Ruhr-University Bochum, Bochum, NRW, Germany.

#378e **Poster Board Number 640**
Rat Brain Neurolemma Microtransplanted into Xenopus Oocytes Is a Useful Tool to Examine the Effects of Environmental Toxicants on Endogenous Voltage-Sensitive Ion Channels. *S. B. Symington*[1], E. Murenzi[2], *T. G. Osimitz*[3], *L. P. Sheets*[4], *D. Minnema*[5], *M. Brooks*[6], *D. W. Gammon*[7], and *J. M. Clark*[8,3]. [1]Biology and Biomedical Science, Salve Regina University, Newport, RI; [2]Molecular and Cellular Biology, University of Massachusetts, Amherst, MA; [3]Science Strategies LLC, Charlottesville, VA; 4; Bayer CropScience, Research Triangle Park, NC; [5]Syngenta Crop Protection, Greensboro, NC; [6]Ag-chem Consulting, Clifton, VA; [7]FMC, Ewing, NJ; and [8]Vet and Animal Science, University of Massachusetts, Amherst, MA.

MONDAY

Education-Career Development Sessions
Exhibitor-Hosted Sessions
Featured Sessions
Historical Highlights Session
Informational Sessions
Platform Sessions

Program Description (Continued)

Abstract #

#378f **Poster Board Number 641**
Noninvasive Magnetic Resonance Imaging Marker of White Matter Neurotoxicity Caused by Hexachlorophene in the Rat Brain. *S. Liachenko*[1], J. Ramu[1], *S. Sarkar*[1], *M. G. Paule*[1], L. Schmued[1], and *J. P. Hanig*[2]. [1]Division of Neurotoxicology, NCTR/FDA, Jefferson, AR; and [2]Office of Testing and Research, CDER/FDA, White Oak, MD.

#378g **Poster Board Number 642**
Mitochondrial Bioenergetics in Young, Adult, Middle-Age, and Senescent Brown Norway Rats. J. D. Pandya[2], A. Sebastian[2], *J. E. Royland*[3], *R. C. MacPhail*[1], P. G. Sullivan[2], and *P. S. Kodavanti*[1]. [1]Neurotoxicology Branch, US EPA, Research Triangle Park, NC; [2]Dept of Anatomy and Neurobiology, University of Kentucky, Lexington, KY; and [3]Genetic and Cellular Toxicology Branch, US EPA, Research Triangle Park, NC.

#378h **Poster Board Number 643**
Optineurin Expression in Dopaminergic Neurons and Response to Parkinson's Disease Relevant Insults. *J. Wise*[1], *Z. S. Agim*[1], M. A. Tambe[2], J. Rochet[2], and *J. R. Cannon*[1]. [1]Health Sciences, Purdue University, Lafayette, IN; and [2]Medicinal Chemistry and Molecular Pharmacology, Purdue University, Lafayette, IN.

#378i **Poster Board Number 644**
Methamphetamine Induces Neurotoxicity in Blood-Brain Barrier Endothelial Cells: Protective Role of Prolactin. *H. Rosas-Hernandez*[1,2], *E. Cuevas*[1], S. Lantz-McPeak[1], *M. G. Paule*[1], *Q. Gu*[1], S. Z. Imam[1], J. Kanungo[1], *S. F. Ali*[1], C. Gonzalez[2]. [1]Division of Neurotoxicology, NCTR, Jefferson, AR; and [2]Laboratorio de Fisiologia Celular, Universidad Autonoma de San Luis Potosi, San Luis Potosi, SLP, Mexico.

Monday Morning, March 24
10:00 AM to 11:00 AM
Room 103A West
(Ticket Required; SOT Student and Postdoctoral members only, limited seating)

Trainee Discussion with Plenary Lecturer: Dr. Gurdon

Chairperson(s): *Ebany Martinez-Finlay, The MIND Research Network, Albuquerque, NM.*

Lecturer: *Sir John B. Gurdon, Wellcome Trust/Cancer Research UK, Gurdon Institute, University of Cambridge, Cambridge, United Kingdom.*

Dr. Gurdon will meet informally for discussion with graduate students and postdoctoral scholars after his Plenary Opening Lecture (*see page 130*). Room occupancy is limited, and participants register for a ticket with their Annual Meeting registration.

Monday Morning, March 24
10:30 AM to 11:30 AM
Room 106A West

Exhibitor-Hosted Session: Dietary Ingredient Safety Determinations—Third-Party Organization and Regulatory Perspectives

Presented by:
NSF International Applied Research Center

Determining safety of dietary ingredients depends on fundamental toxicology principles. Still, the "no objection" letter from US FDA concluding that the ingredient is reasonably expected to be safe can be elusive. This seminar introduces the NDI notification process and illustrates how appropriate analytical characterization and toxicology data review facilitate a successful submission.

Monday Morning, March 24
10:30 AM to 11:30 AM
Room 101A West

Exhibitor-Hosted Session: The National Toxicology Program Nonneoplastic Lesion Atlas

Presented by:
National Toxicology Program

The National Toxicology Program's Nonneoplastic Lesion Atlas is a searchable, online pathology tool for use by anyone doing *in vivo* rodent studies. It provides guidelines for diagnosing background and treatment related, nonneoplastic lesions in rodents and includes thousands of high-quality images.

Monday Morning, March 24
10:30 AM to 11:30 AM
Room 101C West

Exhibitor-Hosted Session: The Use of Integrated *In Silico* Solutions under the Proposed ICH M7 Guidelines

Presented by:
Lhasa Limited

Lhasa Limited, the world leader for knowledge and data sharing in chemistry and the life sciences, will present their views on the benefits of utilizing an integrated *in silico* solution to comply with the proposed ICH M7 guidelines.

Monday Morning, March 24
10:30 AM to 11:30 AM
Room 106C West

Exhibitor-Hosted Session: Recent Research for Airborne Materials on Biological Systems at KIT

Presented by:
Korea Institute of Toxicology

Korea Institute of Toxicology (KIT), the future global leader in inhalation toxicology, has performed the "creative research" that integrates various research fields. Dr. Kyuhong Lee and colleagues will present their recent studies with keywords of inhalation, pulmonary, neuro, nano, metal ion, etc. The session also includes recently developed technologies, such as *in vitro* exposure, mouse video instillator, etc., being used in inhalation toxicology study.

Program Description (Continued)

Monday Morning, March 24
11:45 AM to 12:15 PM
Exhibit Hall *(Across from SOT Pavilion, Booth 1623)*

Global Gallery of Toxicology Poster Session—Representative Attended

Representatives from toxicology-related scientific societies from around the world will be present to display a poster showcasing their history, key accomplishments, strategic initiatives, current and future activities, and more. The goal of SOT and of all these societies is to increase the reliance of international decision makers on the science of toxicology to advance human health and disease prevention.

2014 Global Gallery of Toxicology Participants *(as of February 4, 2014)*

- Academy of Toxicological Sciences (ATS)
- African Society for Toxicological Sciences (ASTS)
- American Academy of Clinical Toxicology (AACT)
- American College of Toxicology (ACT)
- Asian Society of Toxicology (ASIATOX)
- Association of Government Toxicologists (AGT)
- Australasian College of Toxicology and Risk Assessment (ACTRA)
- British Toxicology Society (BTS)
- Croatian Toxicological Society (CTS)
- Environmental Mutagenesis and Genomics Society (EMGS)
- European Association of Poison Centres and Clinical Toxicologists (EAPCCT)
- Federation of European Toxicologists and European Society of Toxicology (EUROTOX)
- German Society of Toxicology (GT)
- INHAND Nomenclature Project
- International Neurotoxicology Association (INA)
- International Society of Regulatory Toxicology and Pharmacology (ISRTP)
- Irish Society of Toxicology (IST)
- International Union of Toxicology (IUTOX)
- Japanese Society of Toxicology (JSOT)
- Mexican Society of Toxicology (SOMTOX)
- Russian Society of Toxicology
- Safety Pharmacology Society (SPS)
- Society of Toxicologic Pathology (STP)
- Society of Toxicology (SOT)
- Society of Toxicology of Canada (STC)
- Swiss Society of Toxicology
- Teratology Society (TS)
- Toxicologists Without Borders (TWB)
- The Toxicology Society of South Africa (TOXSA)
- The Turkish Society of Toxicology (TST)

Monday Morning, March 24
11:45 AM to 12:45 PM
Room 106C West

E

Exhibitor-Hosted Session: Alternative Testing for Human Health—Endpoints from a CRO's Perspective

Presented by:
Harlan Contract Research Services

European regulatory drivers for hazard identification and safety assessment (e.g. REACH, EU Cosmetics Directive) place emphasis on minimization or even complete replacement of living animals. This session will describe approaches taken to minimize animal testing in hazard and risk assessment, with provision of examples for several human health endpoints.

Monday Morning, March 24
11:45 AM to 12:45 PM
Room 106A West

E

Exhibitor-Hosted Session: Databases—A Powerful Tool in Regulatory Toxicology

Presented by:
Fraunhofer ITEM

The session will focus on different databases targeting tumor data (RITA: Registry of Industrial Toxicology Animal data), data from repeated-dose toxicity (FeDTex: database on reproductive and developmental toxicity, RepDose: database on repeated-dose toxicity studies, and PaFtox: particle and fiber toxicity database), as well as teratology studies (DevTox).

Monday Morning, March 24
11:45 AM to 12:45 PM
Room 101A West

E

Exhibitor-Hosted Session: *In Silico* Assessment of Genotoxic Impurities According to the ICH M7 Guideline: Recommendations and Case Studies

Presented by:
MultiCASE Inc

Use of *in silico* tools is one of the central points of the ICH M7 guideline. However, computational assessment of genotoxic impurities in real life is still challenging. Discussion will include the scientific background of MultiCASE's CASE Ultra platform, the proper usage techniques and ICH M7-relevant case studies.

Monday Morning, March 24
11:45 AM to 12:45 PM
Room 101C West

E

Exhibitor-Hosted Session: *In Vivo* Small-Animal Imaging: Latest Developments in Cardiovascular and Cancer Research

Presented by:
VisualSonics

In the past decade, high-frequency ultrasound and photoacoustic imaging have emerged as key imaging technologies for small-animal *in vivo* research. These techniques are proven to address the key scientific needs that researchers are looking to quantify today in translational research.

Program Description (Continued)

MONDAY AFTERNOON

Monday Afternoon, March 24
12:00 Noon to 1:30 PM
Room 230

Carcinogenesis Specialty Section Officers Meeting

Monday Afternoon, March 24
12:00 Noon to 1:20 PM
Room 301C West
(Ticket Required)

In Vitro Toxicology Lecture and Luncheon for Students: Searching for Reliable Replacement Models in Topical Toxicology—Focus on Skin and Eye Toxicity

Chairperson(s): *Teresa Leavens, Education Committee Chair, Cary, NC, and Emily G. Notch, Dartmouth Medical School, Hanover, NH.*



Lecturer: *Helena Kandarova, MatTek Corp. and MatTek In Vitro Life Science Laboratories, Bratislava, Slovakia.*

Supported by an Educational Grant from the Colgate-Palmolive Company

Host:
Education Committee

The goal of the *In Vitro* Toxicology Lecture series is to feature important research using *in vitro* and alternative techniques to study basic mechanisms and to illustrate how these test methods benefit animal welfare by refining, reducing, and replacing animal use whenever it is feasible. Undergraduates, graduate students, postdoctoral scholars, and recipients of Colgate-Palmolive awards are among the guests at the *In Vitro* Toxicology Lecture and Luncheon. Students and postdoctoral scholars register for $10 (nonrefundable) via the Annual Meeting registration. Dr. Kandarova will present an introduction to the topic and then participants will discuss related questions and report responses.

Remember to bring your mobile devices to the event. Dr. Kandarova will present an introduction to the topic and then challenge discussion among participants. This year's format will include electronic audience polling and activities based on the review of data related to the development and validation of *in vitro* models. More information can be found on page 95.

Monday Afternoon, March 24
12:00 Noon to 2:00 PM
Majerle's Sports Grill

Mid-Atlantic Regional Chapter Luncheon

Monday Afternoon, March 24
12:00 Noon to 1:30 PM
Room 222

Occupational and Public Health Specialty Section Meeting/Luncheon

Abstract #

Monday Afternoon, March 24
12:00 Noon to 1:30 PM
Room 226A

Special Interest Group Collaboration Group Meeting

Monday Afternoon, March 24
12:00 Noon to 1:30 PM
Room 227

Toxicologic and Exploratory Pathology Specialty Section Meeting/Luncheon

Monday Afternoon, March 24
12:10 PM to 1:30 PM
Room 125

R

Roundtable Session: Environmental Factors in Dysregulation of Puberty Timing and Progression

Advancing Clinical and Translational Toxicology and Application of Biomarkers

Chairperson(s): *Wilma D. Kempinas, State University of São Paulo, Morphology, Botucatu, Brazil, and Xiaoqin Ye, University of Georgia, Physiology & Pharmacology, Athens, GA.*

Sponsor(s):
Reproductive and Developmental Toxicology Specialty Section

Puberty is a time of dramatic developmental changes, characterized by the transition from childhood to adulthood. The initiation of puberty is triggered by re-activation of a pulsatile pattern of hypothalamic gonadotropin-releasing hormone (GnRH) secretion, which in turn drives the pituitary-gonadal axis. Pubertal timing greatly varies among individuals, and recent studies have demonstrated a progressive decrease in age of onset of puberty in children around the world. This is generally accepted to be due to a complex interaction between genetic, neuroendocrine, and environmental factors, acting in concert with one another in each individual, determining pubertal timing. It has been demonstrated in animal and human studies that a highly heterogeneous group of exogenous substances interfering with the endocrine and neuroendocrine systems, imitating or antagonizing the action of endogenous hormones, have effects on the onset of puberty. Moreover, links between dietary factors, obesity, and dysregulation in puberty onset have been reported. The aim of this roundtable is to present the state of this important issue and discuss future directions of research, prioritizing a multidisciplinary approach.

#379	12:10	**Environmental Factors in Dysregulation of Puberty Timing and Progression.** *X. Ye*[4], E. Eugster[2], T. M. Plant[3], and *W. D. Kempinas*[1]. [1]Morphology, Institute of Biosciences, State University of São Paulo, Botucatu, São Paulo, Brazil; [2]Pediatrics, Riley Hospital for Children, Indiana University School of Medicine, Indianapolis, IN; [3]Obstetrics, University of Pittsburgh School of Medicine, Pittsburgh, PA; and [4]Physiology and Pharmacology, College of Veterinary Medicine, University of Georgia, Athens, GA.
	12:10	**Introduction.** W. D. Kempinas. State University of São Paulo, São Paulo, Brazil.
	12:15	**Child's Environment and Pubertal Timing.** E. Eugster. Indiana University, Indianapolis, IN.
	12:35	**Timing and Progression of Puberty: Fundamental Neuroendocrine Mechanisms.** T. Plant. University of Pittsburgh, Pittsburgh, PA.

MONDAY

Poster Sessions
Regional Interest Session
Roundtable Sessions
Symposium Sessions
Thematic Sessions
Workshop Sessions

Program Description (Continued)

Abstract #

12:55 **Pubertal Timing Dysregulation: Animal Studies.** W. D. Kempinas. State University of São Paulo, São Paulo, Brazil.

1:15 **Panel Discussion/Q&A.** X. Ye. University of Georgia, Athens, GA.

Monday Afternoon, March 24
12:10 PM to 1:30 PM
Room 124

IS

Informational Session: Nonrodents Can Be Monitored, Too… Characterization of Novel Biomarkers of Drug-Induced Kidney Injury (DIKI) in Rats, Canines, Nonhuman Primates, and Humans

Chairperson(s): *James E. McDuffie, Janssen Pharmaceutical R&D, LLC, San Diego, CA, and Scott Adler, AstraZeneca, Wilmington, DE.*

Sponsor(s):
Regulatory and Safety Evaluation Specialty Section

The purpose of this informational session is to broaden the dialog around the necessities for translatable DIKI biomarkers for use in drug discovery and development, as well as highlight ongoing research relative to the discovery and qualification of DIKI biomarkers across species. Traditional parameters used to detect DIKI include serum creatinine (sCr) and blood urea nitrogen (BUN). In all species, sCr and BUN lack sensitivity and/or specificity in detecting early stages of renal tissue injury identified by routine histopathology. The Critical Path Institute's Predictive Safety Testing Consortium, the Foundation for the National Institutes of Health, the International Life Sciences Institute-Health and Environmental Sciences Institute (ILSI-HESI), and the European Union Innovative Medicines Initiative (IMI) Safer and Faster Evidence-Based Translation program are in the process of identifying and qualifying novel biomarkers of kidney injury and dysfunction. Eight novel urinary protein kidney biomarkers have already been qualified for specific "context of use" in rat preclinical safety studies. Ongoing qualification of additional biomarkers in rats will be discussed. The potential utilities for the qualified rat renal biomarkers in canine and nonhuman primate preclinical toxicology studies will be reviewed. Paramount is the need for qualified renal biomarkers that allow for the monitoring of DIKI in the clinical setting. Efforts have been focused on bridging the gap between biomarkers being qualified in rats to nonrodent species and humans. During this informational session, selected data and other relevant information will be presented that underpins our overall translational strategy for the validation of biomarkers in rodents leading to the qualification of safety biomarkers for use in the clinical trials.

#380 12:10 **Nonrodents Can Be Monitored, Too… Characterization of Novel Biomarkers of Drug-Induced Kidney Injury (DIKI) in Rats, Canines, Nonhuman Primates, and Humans.** *J. E. McDuffie*[1], S. Adler[2], *J. Phillips*[3], *M. Sonee*[4], *K. Lynch*[6], *J. Gautier*[5], and D. Burt[7]. [1]Janssen Research & Development, LLC, San Diego, CA; [2]AstraZeneca, Wilmington, DE; [3]Boehringer Ingelheim Pharmaceuticals, Inc., Ridgefield, CT; [4]Janssen Research & Development, LLC, Spring House, PA; [5]Sanofi, Paris, France; [6]GlaxsoSmithKline, King of Prussia, PA; and [7]Pfizer, Inc., Groton, CT.

12:10 **Introduction.** J. E. McDuffie. Janssen Pharmaceutical R&D, LLC, San Diego, CA.

12:15 **Next Generation Regulatory Qualification of Nonclinical and Clinical Nephrotoxicity Biomarkers.** J.C.L. Schuh. JCL Schuh, PLLC, Bainbridge Island, WA..

12:30 **Canine Renal Biomarkers of DIKI: Current Understandings and Translational Potentials for Drug Development.** M. Sonee. Janssen Pharmaceutical R&D, LLC, Spring House, PA.

Abstract #

12:45 **Nonhuman Primate Renal Biomarkers of DIKI: Current Understandings and Translational Potentials for Drug Development.** J. Gautier. Sanofi Research & Development, Alfortville, France.

1:00 **Renal Biomarker Assays for Application for Drug Development.** K. Lynch. GlaxoSmithKline, King of Prussia, PA.

1:15 **Translational Renal Biomarkers: Case Examples in Drug Development.** D. Burt. Pfizer Inc., Groton, CT.

Monday Afternoon, March 24
12:10 PM to 1:30 PM
Room 126

EC

Education-Career Development Session: The Role of Consultants in the Science and Practice of Safety Assessment

Chairperson(s): *Mark S. Miller, Wake Forest School of Medicine, Winston-Salem, NC, and William B. Mattes, PharmPoint Consulting, Toxicology, Poolesville, MD.*

Sponsor(s):
Regulatory and Safety Evaluation Specialty Section
Women in Toxicology Special Interest Group

During the past decade, a significant number of industrial and academic scientists have pursued full or part-time careers in toxicology consulting. Resources describing the nuts and bolts of how to set up a consulting business are often very general and do not address specific issues related to toxicology. The best safety assessment and product development efforts take a village, namely a team with a wide variety of detailed scientific knowledge, regulatory skills, and practical experience in product development, occupational toxicology, genetic toxicology and carcinogenesis, public health, etc. In many cases such knowledge, skill, and experience lie outside the internal resources of a firm. Toxicology consultants are a diverse external resource with varied specialties who can quickly and effectively address serious issues in safety assessment and/or product development. They can also perform more standard tasks when firms are constrained by the availability of internal toxicologists. In addition, toxicology consultants play a critical role in the interface between the scientific and lay communities when legal issues arise. This career development session will provide practical advice for those considering entering the field of toxicology consulting on a part-time or full-time basis, provide a comprehensive discussion of how toxicology consultants can satisfy critical needs of various types of clients, and provide guidance on leveraging their expertise in advancing the science and practice of toxicology. The talks will cover the full spectrum of consulting environments, including independent consultants, consulting in an academic environment, and consulting as part of a large firm, as well as examples of the client-consultant relationship.

#381 12:10 **The Role of Consultants in the Science and Practice of Safety Assessment.** *M. S. Miller*. Cancer Biology, Wake Forest School of Medicine, Winston-Salem, NC.

12:10 **Introduction.** W. B. Mattes. PharmPoint Consulting, Poolesville, MD.

12:15 **Toxicology Consulting Demystified: How One Starts and Survives.** J.C.L. Schuh. JCL Schuh, PLLC, Bainbridge Island, WA.

12:30 **Consulting in an Academic Environment.** M. S. Miller. Wake Forest University, Winston-Salem, NC.

12:45 **The Consulting Toxicologist—Helping Industry Comply with Regulations and Evaluate Their Environmental Policies.** L. J. Bradley. AECOM Environment, Chelmsford, MA.

MONDAY

Education-Career Development Sessions
Exhibitor-Hosted Sessions
Featured Sessions
Historical Highlights Session
Informational Sessions
Platform Sessions

Program Description (Continued)

Abstract #

1:00 **Case Study: How Consultants Help Impact the Science of Nanomaterial Safety Assessment.** D. W. Hobson. LoneStar PharmTox LLC, Boerne, TX.

Monday Afternoon, March 24
12:30 PM to 1:20 PM
North Ballroom 120B

FS

Merit Award Lecture: Toxicology Is Part of the Solution



Lecturer: *Jay I. Goodman, Michigan State University, East Lansing, MI.*

What excites me about research in toxicology is that it combines the theoretical with the practical. While pursuing research aimed at discerning the mechanism(s) of action of the chemical of interest, we learn more about fundamental aspects of biology. On the practical side, the new knowledge gleaned facilitates the enhancement of science-based safety assessment of chemicals. In particular, this permits a rational approach toward resolving key issues, e.g., a mechanistic basis for the shape of the dose-response curve and appropriate extrapolation from test species to humans. Thus, toxicological research plays a crucial role in enabling the use of chemicals (e.g., medicines, consumer products and agricultural chemicals) to enhance the quality of people's lives and the environment. In this lecture I will present the salient aspects of my research in the area of "epigenetics meets toxicology." In particular, my focus is on understanding the roles that epigenetic alterations play in chemical carcinogenesis, and testing the hypothesis that susceptibility to carcinogenesis is related inversely to the capacity to maintain the normal epigenetic status. This journey takes place within the context of the theme that is the integral component of my research and teaching, "toxicology is part of the solution."

Monday Afternoon, March 24
1:00 PM to 4:30 PM
Exhibit Hall

PS

Poster Session: Inflammation: Methods and Mechanisms

Safety Assessment: Mechanisms and Novel Methods

Chairperson(s): *Bhupendra S. Kaphalia, University of Texas Medical Branch, Department of Pathology, Galveston, TX.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *1:00 PM–2:45 PM*

Abstract #

#382 **Poster Board Number 101**
Mechanisms of Triclosan Effects on Mast Cell Function. *L. Weatherly*[1,2], *J. Shim*[2], *R. Kennedy*[1,2], L. Hutchinson[2], H. Hashmi[2], K. Blais[2], J. Pelletier[2], B. Burpee[2], B. Evans[2], Z. Kormendy[2], S. McGillicudy[2], E. Rice[2], Z. Tranchemontagne[2], and *J. A. Gosse*[1,2]. [1]Graduate School of Biomedical Science and Engineering, University of Maine, Orono, ME; and [2]Department of Molecular and Biomedical Sciences, University of Maine, Orono, ME.

Abstract #

#383 **Poster Board Number 102**
Effects of Nitrated Fatty Acids on Phthalate-Induced Inflammation in Neonatal Neutrophils. M. Mohammed[1], F. E. Archer[1], S. Gowda[1], J. Abukharmah[1], I. Malik[1], *D. L. Laskin*[2], B. Weinberger[1], and *A. M. Vetrano*[1]. [1]Pediatrics, Rutgers University-Robert Wood Johnson Medical School, New Brunswick, NJ; and [2]Pharmacology and Toxicology, Rutgers University, Piscataway, NJ.

#384 **Poster Board Number 103**
Lipidomic Changes in the Pancreas and Plasma of Hepatic Alcohol Dehydrogenase-Deficient Deer Mice after Long-Term Ethanol Feeding. H. Fernando, K. K. Bhopale, *G. A. Ansari*, and *B. S. Kaphalia*. Pathology, University of Texas Medical Branch, Galveston, TX.

#385 **Poster Board Number 104**
3,3-Diindolylmethane (DIM) Ameliorates SEB-Induced Acute Lung Injury: A Role for microRNA. *D. M. Elliott*, *P. S. Nagarkatti*, and *M. Nagarkatti*. Pathology, Microbiology and Immunology, University of South Carolina School of Medicine, Columbia, SC.

#386 **Poster Board Number 105**
Regulation of Nod2-Linked Proinflammatory Signals by Epithelial Ribosomal Insults. S. Park[1], D. Kim[2], and *Y. Moon*[1]. [1]Department of Biomedical Sciences, Pusan National University School of Medicine and Immunoregulatory Therapeutics Group in Brain Busan 21 Project, Yangsan, Republic of Korea; and [2]National Institute of Animal Science, RDA, Suwon, Republic of Korea.

#387 **Poster Board Number 106**
Role of TRIF and MAP Kinases in TLR3 & 4-Mediated Regulation of Drug Metabolizing Enzymes and Transporters. *P. Shah*, *R. Ghose*, T. Guo, and O. Omoluabi. Pharmaceutical and Pharmacological Sciences, University of Houston, Houston, TX.

#388 **Poster Board Number 107**
Coculture of Hepatocytes and Kupffer Cells As an *In Vitro* Model of Inflammation and Liver Hepatotoxicity. K. Rose, *N. S. Holman*, *M. E. Anderson*, and *E. LeCluyse*. The Hamner Institutes for Health Sciences, Research Triangle Park, NC.

#389 **Poster Board Number 108**
Adoptive Transfer to Study Cell Populations in Bleomycin-Mediated Lung Injury. *T. Golden*, *M. Mandal*, *D. L. Laskin*, and A. Gow. Pharmacolgy and Toxicology, Rutgers University, Piscataway, NJ.

#390 **Poster Board Number 109**
Inhalation Exposure to the Tobacco Smoke Component Acrolein Enhances Allergic Responses to Ovalbumin. *E. O'Brien*[1], P. Spiess[1], A. Habibovic[1], M. Hristova[1], R. A. Bauer[1], M. J. Randall[1], M. E. Poynter[2], and A. van der Vliet[1]. [1]Pathology, University of Vermont, Burlington, VT; and [2]Medicine, University of Vermont, Burlington, VT.

MONDAY

Program Description (Continued)

Abstract #

#391 **Poster Board Number 110**
Effects of Current Tobacco Exposure on T Cell Immune Responses. *U. C. Nygaard*[1,2], K. M. Hew[1], S. Mackey[3], L. Jack[4], G. E. Swan[4], R. Krasnow[4], S. Runyon[1], H. T. Maecker[3], C. L. Dekker[3], and K. Nadeau[1]. [1]Dept of Pediatric Allergy and Immunology, Stanford University, Stanford, CA; [2]Div. of Environmental Medicine, Norwegian Institute of Public Health, Oslo, Norway; [3]Stanford University, Stanford, CA; and [4]Center for Health Sciences, SRI International, Menlo Park, CA.

#392 **Poster Board Number 111**
Exposure to Sidestream Tobacco Smoke Induces Airway Hyperresponsiveness and Inflammation in Early Postnatal Mice. Z. Wu, D. D. Hunter, T. P. Batchelor, and R. D. Dey. Neurobiology and Anatomy, West Virginia University, Morgantown, WV. Sponsor: *T. Nurkiewicz*.

#393 **Poster Board Number 112**
Comparison of Proinflammatory Cytokine (IL-6 and IL-8) Release from Two Types of Cells Exposed to Mainstream Cigarette Smoke Total Particulate Matter. X. Li, P. Shang, F. Xie, H. Liu, and J. Xie. Key Laboratory of Tobacco Chemistry, Zhengzhou Tobacco Research Institute of CNTC, Zhengzhou, Henan, China. Sponsor: *R. Meng*.

#394 **Poster Board Number 113**
The Effects of Ozone Exposure on Inflammasome Activation and Heart Failure during CVB3 Myocarditis. M. M. Aladdin, A. Bucek, and *D. Fairweather*. Environmental Health Science, Johns Hopkins University Bloomberg School of Public Health, Baltimore, MD.

#395 **Poster Board Number 114**
Role of Spleen Monocytes (Mo) in Ozone-Induced Lung Inflammation and Injury. *M. Francis, M. Mandal, H. Choi, J. D. Laskin*, and *D. L. Laskin*. Rutgers University, Piscataway, NJ.

#396 **Poster Board Number 115**
Subsequent Ozone Exposures *In Vitro* Result in Attenuation of Inflammatory Response. *E. C. Bowers*[1,2], *S. D. McCullough*[2], L. A. Dailey[2], and *D. Diaz-Sanchez*[2]. [1]UNC Chapel Hill, Chapel Hill, NC; and [2]United States Environmental Protection Agency, Clinical Research Branch, Chapel Hill, NC.

#397 **Poster Board Number 116**
Development of an *In Vitro* Functional Assay for Human Macrophages. A. Hudson, C. Bono, *J. Whritenour*, and *S. Casinghino*. Pfizer, Inc., Groton, CT.

#398 **Poster Board Number 117**
Evaluation of Sex Sensitivity in Local Lymph Node Assay Using Butachlor and α-Hexylcinnamaldehyde. V. R. Dalal[2], *V. J. Piccirillo*[1], M. V. Patel[2], R. Chhimwal[2], N. Patel[2], S. Jaiswal[2], B. Prajapati[2], D. R. Boverhof[3], and M. R. Woolhiser[3]. [1]VJP Consulting, Inc., Ashburn, VA; [2]Toxicology, Jai Research Foundation, Valvada, Gujarat, India; and [3]TERC, The Dow Chemical Company, Midland, MI.

Abstract #

#399 **Poster Board Number 118**
Evaluation of Sex Sensitivity in Local Lymph Node Assay Using Acephate and α-Hexylcinnamaldehyde. V. R. Dalal[2], *V. J. Piccirillo*[1], M. V. Patel[2], R. Chhimwal[2], N. Patel[2], S. Jaiswal[2], B. Prajapati[2], D. R. Boverhof[3], M. R. Woolhiser[3], and S. Balakrishnan[4]. [1]VJP Consulting, Inc, Ashburn, VA; [2]Toxicology, Jai Research Foundation, Valvada, Gujarat, India; [3]TERC, The Dow Chemical Company, Midland, MI; and [4]Department of Zoology, Faculty of Science, The M.S. University of Baroda, Vadodara, Gujarat, India.

#400 **Poster Board Number 119**
Impact of Collection Site and Method on Blood Lymphocyte Subsets in Sprague-Dawley Rats. *F. G. Burleson*, R. Mikkelsen, and *G. Burleson*. BRT-Burleson Research Technologies, Inc., Morrisville, NC.

#401 **Poster Board Number 120**
The Guinea Pig Systemic Anaphylaxis Model Revisited. *J. Descotes*[1], M. Duclos[2], V. Haag[2], and *R. Forster*[2]. [1]Poison Center, Lyon, France; and [2]CiToxLab, Evreux, France.

#402 **Poster Board Number 121**
Transferability and Reproducibility of the Myeloid U937 Skin Sensitization (MUSST) Test for Skin Sensitization Testing. C. Piroird, L. Nardelli, J. Cotovio, and N. Alépée. L'Oréal, Aulnay sous Bois, France. Sponsor: *D. Bury*.

#403 **Poster Board Number 122**
Time Course Difference in Severity and Sensitivity of Immunotoxicity of Cyclophosphamide in Female Swiss Albino Mice. P. Mehta[1], D. Gohel[1], *V. J. Piccirillo*[2], M. V. Patel[1], S. Jadhav[1], K. Shah[1], and M. Pandya[1]. [1]Toxicology, Jai Research Foundation, Valvada, Gujarat, India; and [2]VJP Consulting, Inc, Ashburn, VA.

#404 **Poster Board Number 123**
Quantitation of Leukocyte Subsets and Leukocyte Activation in Canine Blood Using a 7-Colour Flow Cytometry Assay. A. J. Beavis, M. S. Perpetua, S. Harvey, and *G. Bannish*. Biomarkers, Bioanalysis, and Clinical Sciences, Huntingdon Life Sciences, East Millstone, NJ.

#405 **Poster Board Number 124**
Comparison of the Lymphocyte Subpopulations from Peripheral Blood of CD1, CBA/J and Swiss Albino Female Mice following Administration of Cyclophosphamide Monohydrate. D. Ujawane[1], M. V. Patel[1], *V. J. Piccirillo*[2], K. Hadiya[1], M. Shinde[1], M. Poshiya[1], D. Gohel[1], and J. Mistry[1]. [1]Department of Toxicology, Jai Research Foundation, Valvada, Gujarat, India; and [2]VJP Consulting, Inc., Ashburn, VA.

#406 **Poster Board Number 125**
A Comparison of Mauritius and Chinese Cynomolgus Monkeys in the Natural Killer Cell Cytotoxicity Assay. *J. E. Arrington*[1], G. Ferency[3], A. Guerrero[2], *M. Fort*[2], and P. Narayanan[2]. [1]Toxicology Study Direction, Covance, Madison, WI; [2]Amgen, Inc., Seattle, WA; and [3]Clinical Pathology Services, Covance, Inc., Madison, WI.

MONDAY

Education-Career Development Sessions
Exhibitor-Hosted Sessions
Featured Sessions
Historical Highlights Session
Informational Sessions
Platform Sessions

Program Description (Continued)

Abstract #

#407 **Poster Board Number 126**
Validation of a Functional Assay to Detect Nonhuman Primate Natural Killer Cell Activity. *V. J. Johnson*[1], R. Mikkelsen[1], *N. Makori*[2], *F. G. Burleson*[1], and *G. Burleson*[1]. [1]BRT-Burleson Research Technologies, Morrisville, NC; and [2]SNBL USA, Everett, WA.

#408 **Poster Board Number 127**
Quantitative Immunophenotypic Analysis of Rat Thymocytes. *H. Hu*, J. Puchalski, F. Cheung, J. Olsen, G. Ferency, T. Klein, P. Brewer, and *J. E. Arrington*. Covance Laboratories Inc., Madison, WI.

#408a **Poster Board Number 128**
Application of the KeratinoSens™ Assay for Assessing the Skin Sensitization Potential of Crop Protection Active Ingredients and Formulations. *R. S. Settivari*[1], *S. C. Gehen*[2], R. Acosta Amado[2], N. Visconti[1], *A. Natsch*[3], *E. W. Carney*[1], and *D. R. Boverhof*[1]. [1]The Dow Chemical Company, Midland, MI; [2]Dow AgroSciences LLC, Indianapolis, IN; and [3]Givaudan Schweiz AG, Dübendorf, Switzerland.

#408b **Poster Board Number 129**
Assessment of the Usefulness of the Murine Thymoma Cell Line EL-4 for Immunotoxicity Screening by Transcriptomics. P. Hendriksen[1], P. C. Schmeits[1], *H. Van Loveren*[2], and A. Peijnenburg[1]. [1]Toxicology, RIKILT Institute of Food Safety, WUR, Wageningen, Netherlands; and [2]National Institute for Public Health and the Environment (RIVM), Bilthoven, Netherlands.

Monday Afternoon, March 24
1:00 PM to 4:30 PM
Exhibit Hall

PS

Poster Session: Systems Biology and Toxicology

Chairperson(s): *Michael J. Carvan III, University of Wisconsin-Milwaukee, Milwaukee, WI, and Marja Talikka, Philip Morris International R&D, Neuchatel, Switzerland.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *2:45 PM–4:30 PM*

#409 **Poster Board Number 131**
Dynamic Changes in Ribosome-Associated Proteome and Phosphoproteome during Deoxynivalenol-Induced Translation Inhibition and Ribotoxic Stress. *X. Pan*[1,2], D. A. Whitten[1], C. G. Wilkerson[1], and *J. J. Pestka*[2]. [1]Biochemistry and Molecular Biology, Michigan State University, East Lansing, MI; and [2]Food Science and Human Nutrition, Michigan State University, East Lansing, MI.

#410 **Poster Board Number 132**
System-Biological Screening of Polybrominated Diphenyl Ethers (PBDEs). E. Demchuk[1], J. J. Irwin[2], C. V. Smith[1], and H. G. Abadin[1]. [1]Dept.Tox. Hum.Health Sci, ATSDR, Atlanta, GA; and [2]Dept. Pharm.Chem., UCSF, San Francisco, CA. Sponsor: *M. Mumtaz*.

#411 **Poster Board Number 133**
The Comparative Toxicogenomics Database. *A. P. Davis*[1], *C. J. Mattingly*[1], *C. G. Murphy*[1], J. M. Lay[1], K. Lennon-Hopkins[1], D. Sciaky[1], C. Saraceni-Richards[1], B. L. King[2], M. C. Rosenstein[2], and T. C. Wiegers[1]. [1]Biological Sciences, NC State University, Raleigh, NC; and [2]MDIBL, Salisbury Cove, ME.

Abstract #

#412 **Poster Board Number 134**
DILIsym® Provides a Potential Insight into the Mechanism of Hepatotoxicity for Carbon Tetrachloride. L. Shoda, S. Q. Siler, *P. Watkins*, and B. A. Howell. Hamner Institutes for Health Sciences, Research Triangle Park, NC.

#413 **Poster Board Number 135**
Organotypic Tissue Cultures As Models to Study the Impact of Cigarette Smoke on Human Upper and Lower Respiratory Tract. M. Talikka[1], R. M. Kostadinova-Angelova[1], Y. Xiang[1], D. Kuehn[1], S. Majeed[1], C. Mathis[1], S. Frentzel[1], N. Ivanov[1], F. Martin[1], *A. Hayes*[2], J. Hoeng[1], and M. Peitsch[1]. [1]Biological Systems Research, PMI, Neuchatel, Switzerland; and [2]Spherix Consulting, Rockville, MD.

#414 **Poster Board Number 136**
Integration of the Hepatic and Urinary Metabolome with Hepatic Differential Gene Expression in C57BL/6 Mice following Repeated TCDD Dosing. *T. R. Zacharewski*[1], S. Y. Lunt[2], L. Newhouse[2], and *R. Nault*[1]. [1]Biochemistry & Molecular Biology, Center for Integrative Toxicology, Michigan State University, East Lansing, MI; and [2]Department of Physiology, Michigan State University, East Lansing, MI.

#415 **Poster Board Number 137**
Cigarette Smoke-Induced Perturbations of Molecular Pathways in Human Organotypic Cultures of Buccal and Gingival Mucosa. M. Cabanski[1], C. Mathis[1], R. M. Kostadinova-Angelova[1], S. Wagner[1], S. Frentzel[1], D. Kuehn[1], S. Majeed[1], M. Geertz[1], F. Talamo[1], E. Guedj[1], Y. Xiang[1], F. Martin[1], W. K. Schlage[1], *A. Hayes*[2], M. Peitsch[1], and J. Hoeng[1]. [1]Philip Morris International, Neuchatel, Switzerland; and [2]Spherix Consulting, Rockville, MD.

#416 **Poster Board Number 138**
Tobacco-Specific Gene Profiles in Korean Male Smokers. H. Na, and *M. Yang*. Research Center for Cell Fate Control, College of Pharmacy, Sookmyung Women's University, Seoul, Republic of Korea.

#417 **Poster Board Number 139**
Systems Biology to Identify Stage-Specific Biomarkers of Acute Liver Injury. *K. C. Wu*, R. Degonkar, A. Sarma, S. Phat, E. Grund, L. Rodrigues, *V. Vishnudas*, N. Narain, and *R. Sarangarajan*. Berg, LLC, Framingham, MA.

#418 **Poster Board Number 140**
Use of Mummichog to Map the Exposome: Associating Environmental Chemicals with Perturbed Metabolic Pathways. S. Li[1], *J. Roede*[2], K. Uppal[1], and *D. P. Jones*[1]. [1]Dept Medicine, Emory University, Atlanta, GA; and [2]Skaggs School of Pharmacy and Pharmaceutical Sciences, University of Colorado, Aurora, CO.

MONDAY

Program Description (Continued)

Abstract #

#418a **Poster Board Number 141**
Computational Embryology and Predictive Toxicology of Hypospadias. *M. C. Leung*[1], *N. S. Sipes*[1], N. C. Baker[2], B. Ahir[1], *C. J. Wolf*[3], A. W. Seifert[4], M. Hutson[5], *S. P. Darney*[3], R. M. Spencer[2], and *T. B. Knudsen*[1]. [1]National Center for Computational Toxicology, U.S. Environmental Protection Agency, Research Triangle Park, NC; [2]Lockheed Martin, Research Triangle Park, NC; [3]National Health and Environmental Effects Research Laboratory, U.S. Environmental Protection Agency, Research Triangle Park, NC; [4]Department of Biology, University of Kentucky, Lexington, KY; and [5]Departments of Physics and Biological Sciences, Vanderbilt University, Nashville, TN.

#418b **Poster Board Number 142**
Using High-Content Screening Data from ToxCast to Analyze Cell State Dynamics. *I. Shah*[1], *W. Setzer*[1], J. John[2], *K. Houck*[1], *T. B. Knudsen*[1], *M. T. Martin*[1], D. M. Reif[2], *A. M. Richard*[1], *D. J. Dix*[1], and *R. J. Kavlock*[1]. [1]National Center for Computational Toxicology, US EPA, Durham, NC; and [2]NCSU, Raleigh, NC.

#418c **Poster Board Number 143**
Using Targeted Proteomics and Next-Generation Sequencing Approaches to Identify New Plasma Biomarkers and Assess Systematic Drug-Induced Adverse Effects. K. Wang[1], S. Qin[1], Y. Zhou[1], and L. Hood[1]. [1]Institute for Systems Biology, Seattle, WA. Sponsor: *S. Tilton*.

#418d **Poster Board Number 144**
Functional Profiling to Reveal Adverse Outcome Pathways. *C. Vulpe*[1], W. Varsally[2], *B. Gaytan*[1], *V. De La Rosa*[1], *D. Faulkner*[1], P. Antczak[2], and *F. Falciani*[2]. [1]Nutritional Science and Toxicology, University of California, Berkeley, Berkeley, CA; and [2]Institute of Integrative Biology, University of Liverpool, Liverpool, United Kingdom.

#418e **Poster Board Number 145**
Potential Use of ToxCast Assays for Assessing Drug-Induced Liver Injury in Humans. M. Lee[1], J. Zhang[1], Y. An[2], C. Chang[1], and *W. Tong*[1]. [1]National Center for Toxicological Research, Jefferson, AR; and [2]Hanyang University, Gyeonggi-Do, Republic of Korea.

Monday Afternoon, March 24
1:00 PM to 4:30 PM
Exhibit Hall

PS

Poster Session: Computational Toxicology and Data Integration I

Chairperson(s): *Sneha Bhatia, RIFM, Woodcliff Lake, NJ.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *1:00 PM–2:45 PM*

#419 **Poster Board Number 146**
Development of a Novel Method for Deriving Thresholds of Toxicological Concern (TTCs) for Vaccine Constituents. *J. White*[1,2], C. Wrzesinski[1], *M. Green*[1], *G. T. Johnson*[2], *J. D. McCluskey*[2], and *R. D. Harbison*[2]. [1]Division of Vaccine and Related Products Applications, Food and Drug Administration, Rockville, MD; and [2]Environmental and Occupational Health, University of South Florida, Tampa, FL.

Abstract #

#420 **Poster Board Number 147**
Comparison of Cramer Class Prediction between Toxtree, OECD QSAR Toolbox, and Expert Judgment—Strategies for Refinement. *S. Bhatia*[1], *J. Shen*[1], *L. Kromidas*[1], T. W. Schultz[2], R. Ford[1], D. Roberts[3], and *A. Api*[1]. [1]RIFM, Woodcliff Lake, NJ; [2]University of Tennessee, Knoxville, TN; and [3]Liverpool John Moores, Liverpool, United Kingdom.

#421 **Poster Board Number 148**
xMSanalyzer and xMSannotator: R Packages for Systematic Study of the Exposome. K. Uppal[1,2], and *D. P. Jones*[1]. [1]Emory University, Atlanta, GA; and [2]Georgia Institute of Technology, Atlanta, GA.

#422 **Poster Board Number 149**
Standard Operating Procedures for Cumulative Exposome Research with Liquid Chromatography High-Resolution Mass Spectrometry. V. Tran[1], K. Uppal[1], D. I. Walker[3], T. Yu[2], and *D. P. Jones*[1]. [1]Pulmonary, Emory University, Atlanta, GA; [2]Biostatistics & Bioinformatics, Emory University, Rollins School of Public Health, Atlanta, GA; and [3]Department of Civil and Engineering, Tufts University, Medford, MA.

#423 **Poster Board Number 150**
Exposure Data and the Comparative Toxicogenomics Database (CTD). *C. J. Grondin*, *A. P. Davis*, and *C. J. Mattingly*. Biology, North Carolina State University, Raleigh, NC.

#424 **Poster Board Number 151**
LocaTox: An Interactive Tool Linking Known Environmental Contaminants, Associated Chemical-Human Gene Interactions, and Birth Defect Statistics in Specific Locales. K. Aquino, K. Hald, M. Reyna, M. Zamora, and *D. Johnson*. Nutritional Sciences & Toxicology, UC Berkeley, Berkeley, CA.

#425 **Poster Board Number 152**
iLINCS—A Web-Based Portal for Integrative Analysis of Multidimensional Data. *J. F. Reichard*[1], M. Medvedovic[2], S. Sivagas[2], J. Chen[2], M. Phatak[2], and W. Niu[2]. [1]Toxicology Excellence for Risk Assessment, Cincinnati, OH; and [2]Environmental Health, University of Cincinnati, Cincinnati, OH.

#426 **Poster Board Number 153**
Harnessing the Wealth of Pharmaceutical Preclinical Toxicity Data—The eTOX Database (eTOX Part I). T. Steger-Hartmann[1], *F. Pognan*[2], and K. Briggs[3]. [1]Investigational Toxicology, Bayer HealthCare, Berlin, Germany; [2]Discovery Investigative Safety, Novartis, Basel, Switzerland; and [3]Lhasa Ltd., Leeds, United Kingdom.

#427 **Poster Board Number 154**
eTOX Ontologies: Enhancing Standards for Better Knowledge Management of Animal Study Data (eTOX–Part II). P. Marc[1], P. J. Clements[2], A. Piaia[1], A. M. Ryan[3], M. Stolte[4], C. Ravagli[1], F. Sanz[5], T. Steger-Hartmann[6], and *F. Pognan*[1]. [1]Preclinical Safety, Novartis, Basel, Switzerland; [2]GlaxoSmithKline, Ware, United Kingdom; [3]Pfizer, Groton, CT; [4]Sanofi, Frankfurt, Germany; [5]GRIB (IMIM-UPF), Barcelona, Spain; and [6]Bayer Schering Pharma, Berlin, Germany.

MONDAY

Education-Career Development Sessions
Exhibitor-Hosted Sessions
Featured Sessions
Historical Highlights Session
Informational Sessions
Platform Sessions

Program Description (Continued)

Abstract #

#428 **Poster Board Number 155**
New Frontiers in the *In Silico* Prediction of *In Vivo* Drug Toxicity: The IMI eTOX Project (eTOX Part III). M. Pastor, and F. Sanz. Research Programme on Biomedical Informatics (GRIB), IMIM - Universitat Pompeu Fabra, Barcelona, Spain. Sponsor: *F. Pognan*.

#429 **Poster Board Number 156**
An Ensemble Model of *In Silico* Tools to Improve Toxicity Prediction. *P. Pradeep*[1], R. J. Povinelli[1], *R. Brown*[2], S. White[2], A. Korolev[2], and S. J. Merrill[1,2]. [1]Department of Math, Statistics and Computer Science, Marquette University, Milwaukee, WI; and [2]Center for Devices and Radiological Health, US FDA, Silver Spring, MD.

#430 **Poster Board Number 157**
DIAMONDS: Data Infrastructure for Applying Models ON Design and Safety. E. Kroese, E. van Someren, J. Venhorst, H. E. Buist, S. Bosgra, J. T. Vogels, M. M. van Lipzig, and R. H. Stierum. TNO, Zeist, Netherlands. Sponsor: *R. Woutersen*.

#431 **Poster Board Number 158**
Collaborative Interoperability between Public Projects to Support Replacement of *In Vivo* Repeated Dose Toxicity Testing. D. Hristozov[1], N. Jeliazkova[2], T. Kleinoeder[3], S. Miller[4], D. Neagu[5], Y. Lan[5], A. N. Richarz[6], B. Hardy[7], M. T. Cronin[6], and *C. Yang*[1]. [1]Altamira LLC, Columbus, OH; [2]Ideaconsult, Sofia, Bulgaria; [3]Molecular Networks, Elrangen, Germany; [4]Leadscope, Columbus, OH; [5]University of Bradford, Bradford, United Kingdom; [6]Liverpool John Moores University, Liverpool, United Kingdom; and [7]Douglas Connect, Zeiningen, Switzerland.

#432 **Poster Board Number 159**
Hazard Evaluation Support System Database (HESS DB) for Repeated-Dose Toxicity of Chemical Substances: A Multifunctional Tool for Hazard Assessment and Predictive Toxicology. T. Yamada[1], T. Abe[1], R. Hasegawa[1], Y. Sakuratani[1], J. Yamada[1], T. Yamashita[2], K. Yoshinari[3], *Y. Yamazoe*[3], *A. Hirose*[4], and *M. Hayashi*[5]. [1]National Institute of Technology and Evaluation, Tokyo, Japan; [2]Fujitsu Limited, Chiba, Japan; [3]Tohoku University, Sendai, Japan; [4]National Institute of Health Sciences, Tokyo, Japan; and [5]BioSafety Research Center, Iwata, Japan.

#433 **Poster Board Number 160**
A Web Application for Estimating Provisional Health Guidance Values of Diverse Environmental Chemicals Using Reliable QSAR Models. A. Prussia, N. M. Khalil, and E. Demchuk. Division of Toxicology and Human Health Sciences, Agency for Toxic Substances and Disease Registry, Chamblee, GA. Sponsor: *A. Prussia*.

#434 **Poster Board Number 161**
Toxicophores: Identification, Validation, and Application. B. M. Paisley, *C. M. Zwickl*, and *T. K. Baker*. Investigative Toxicology, Eli Lilly, Indianapolis, IN.

#435 **Poster Board Number 162**
Mechanistic Modeling of Acute Oral Toxicity for Rat. S. Ringeissen[1], A. Detroyer[1], R. R. Note[1], D. Nedelcheva[2], N. Dimitrova[2], S. Dimitrov[2], and O. Mekenyan[2]. [1]Advanced Research, L'Oreal R&I, Aulnay-sous-Bois, France; and [2]LMC-OASIS, Bourgas, Bulgaria. Sponsor: *D. Bury*.

Abstract #

#436 **Poster Board Number 163**
Computational Analysis of the Combined Therapeutic Effects of Traditional Chinese Medicines and Western Therapeutics in Breast Cancer. A. Chu, M. Lin, D. Loomba, J. Ma, and *D. Johnson*. Nutritional Sciences & Toxicology, UC Berkeley, Berkeley, CA.

#437 **Poster Board Number 164**
Computational Analysis of Potential Interactions from the Combined Use of Western Therapeutics and Traditional Chinese Medicines in Postmenopausal Osteoporosis. R. Chang, and *D. Johnson*. Nutritional Sciences & Toxicology, UC Berkeley, Berkeley, CA.

#438 **Poster Board Number 165**
Network Motif Basis of Threshold Responses. *Q. Zhang*[1], *S. Bhattacharya*[1], *R. B. Conolly*[2], *H. J. Clewell*[1], *N. E. Kaminski*[3], and *M. E. Andersen*[1]. [1]Institute for Chemical Safety Sciences, The Hamner Institutes for Health Sciences, Durham, NC; [2]Integrated Systems Toxicology Division, NHEERL, USEPA, Durham, NC; and [3]Department of Pharmacology & Toxicology, Michigan State University, East Lansing, MI.

#439 **Poster Board Number 166**
Post-Translational Control of Adaptive Cellular Stress Responses and Its Implications in Toxicity Testing and Risk Assessment. *M. E. Andersen, Q. Zhang, S. Bhattacharya*, and *J. Pi*. Institute for Chemical Safety Sciences, The Hamner Institutes for Health Sciences, Durham, NC.

#440 **Poster Board Number 167**
Computational High-Throughput Quantitative Analysis of Dose-Dependent Histological Features. *R. Naulť*[1,3], D. Colbry[4], *J. Harkema*[2,3], and *T. R. Zacharewski*[1,3]. [1]Department of Biochemistry & Molecular Biology, Michigan State University, East Lansing, MI; [2]Department of Pathobiology & Diagnostic Investigation, MSU, East Lansing, MI; [3]Center for Integrative Toxicology, MSU, East Lansing, MI; and [4]Institute for Cyber-Enabled Research, MSU, East Lansing, MI.

#440a **Poster Board Number 168**
Deriving Points of Departure and Performance Baselines for Predictive Modeling of Systemic Toxicity Using ToxRefDB. K. W. McLaurin[1], *L. Truong*[1], *G. Ouédraogo*[2], S. Loisel-Joubert[2], and *M. T. Martin*[1]. [1]NCCT/ORD, US EPA, Raleigh, NC; and [2]L'Oréal, Paris, France.

#440b **Poster Board Number 169**
Dynamic Interaction between Human Serum Albumin and PFOS: A Theoretical Study. A. Zhang[1], H. Cao[1], and J. Fu[1]. [1]Research Center for Eco-Environmental Sciences, CAS, Beijing, China. Sponsor: *B. Zhao*.

#440c **Poster Board Number 170**
Utilization of Gene Expression Marker Data to Computationally Generate Nested Networks Underlying Embryonic Stem Cell Differentiation. W. LeFew[1], J. Crooks[1], *S. Hunter*[1], M. B. Rosen[1], and *K. J. Chandler*[1]. [1]US EPA, Durham, NC.

#440d **Poster Board Number 171**
Development of Quantitative Adverse Outcome Pathways Using Health-Protective Assumptions to Fill Data Gaps. *R. B. Conolly*[1], *W. Cheng*[1], D. L. Villeneuve[2], and G. T. Ankley[2]. [1]US EPA, Research Triangle Park, NC; and [2]US EPA, Duluth, MN.

MONDAY

Program Description (Continued)

Abstract #

#440e **Poster Board Number 172**
Evaluation of Alternative Hypotheses for the Linkage of Aromatase Inhibition with Vitellogenin Levels in Fathead Minnows. *W. Cheng*[1], A. Schroeder[2], D. L. Villeneuve[2], G. T. Ankley[2], and *R. B. Conolly*[1]. [1]US EPA, Research Triangle Park, NC; and [2]US EPA, Duluth, MN.

#440f **Poster Board Number 173**
Development of Population-Based BBDR-HPT Axis Model for Near-Term Pregnancy. *A. Lumen*[1], *C. Hack*[2], N. George[3], K. McNally[4], *G. D. Loizou*[4], *D. R. Mattie*[5], and *J. Fisher*[1]. [1]Biochemical Toxicology, FDA/NCTR, Jefferson, AR; [2]Henry M. Jackson Foundation for the Advancement of Military Medicine, WPAFB, OH; [3]Bioinformatics and Biostatistics, FDA/NCTR, Jefferson, AR; [4]Health & Safety Laboratory, Buxton, United Kingdom; and [5]Bioeffects Division, 711 Human Performance Wing, Human Effectiveness Directorate, Air Force Research Laboratory, WPAFB, OH.

#440g **Poster Board Number 174**
A Preliminary Model for the Protective Role of the Endocannabinoid 2-Arachydonylglycerol in Neuroinflammation. E. A. Merrill[1], R. R. Chapleau[1], J. Schlager[2], *J. M. Gearhart*[1], and P. J. Robinson[1]. [1]Henry M. Jackson Foundation, 711 HPW/RHDJ, AFRL, Wright-Patterson AFB, OH; and [2]Molecular Bioeffects Branch, 711 HPW/RHDJ, AFRL, Wright Patterson AFB, OH.

#440h **Poster Board Number 175**
Use of the Zebrafish Developmental Screen and Estimation of Internal Concentration to Assess Toxicity. *J. T. Hamm*[1], *N. Kleinstreuer*[1], *S. Padilla*[2], and *W. Casey*[3]. [1]ILS, Inc., Research Triangle Park, NC; [2]NHEERL/ORD, EPA, Research Triangle Park, NC; and [3]DHHS/NIH, NIEHS/NTP/NICEATM, Research Triangle Park, NC.

#440i **Poster Board Number 176**
Developing QSAR Models of Major Human Membrane Transporters for the Application in Drug Design and Drug Safety Evaluations. *A. Sedykh*[1], S. Chakravarti[1], and R. D. Saiakhov[1]. [1]MultiCASE Inc, Beachwood, OH.

#440j **Poster Board Number 177**
Computational Modeling of OATP1B1 Inhibitors. M. Lawless[1], R. D. Clark[1], M. Bolger[1], and W. Woltosz[1]. [1]Simulations Plus, Lancaster, CA. Sponsor: *S. Ferguson*.

#440k **Poster Board Number 178**
Interpretable QSAR of Skin Sensitization for Screening Cosmetics and Environmental Chemicals. R. D. Saiakhov[1], S. Chakravarti[1], and *A. Sedykh*[1]. [1]MultiCASE Inc, Beachwood, OH.

#440l **Poster Board Number 179**
Global Phosphoproteome Dynamics of Zebrafish (*Danio rerio*) Embryos. O. Kwon[1], S. Kim[1], J. Sim[1], M. Song[1], K. Yun[2], J. Kim[2], *T. Jeong*[3], and S. Lee[1]. [1]College of Pharmacy, Kyungpook National University, Daegu, Republic of Korea; [2]Mass Spectrometry Research Center, Korea Basic Science Institute, Ochang, Republic of Korea; and [3]College of Pharmacy, Yeungnam University, Gyeongsan, Republic of Korea.

Abstract #

Monday Afternoon, March 24
1:00 PM to 4:30 PM
Exhibit Hall

PS

Poster Session: Genetic Toxicity Testing

Chairperson(s): *Gopala Krishna, Supernus Pharmaceuticals, Inc., Rockville, MD.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *2:45 PM–4:30 PM*

#441 **Poster Board Number 201**
Genotoxic Compound Profiling Using MILLIPLEX® MAP DNA Damage/Genotoxicity 7 Plex Panel. J. Hwang[1], N. Scott[1,2], T. Warmke[1], R. Maheshwari[1], and *R. Wiese*[1]. [1]R&D Immunoassays, EMD Millipore Corp., St. Charles, MO; and [2]Biomedical Engineering, Washington University, St. Louis, MO.

#442 **Poster Board Number 202**
Ochratoxin A Induces DNA Double-Strand Breaks and Large Deletion Mutations in the Carcinogenic Target Site of *Gpt* Delta Rats. K. Kuroda[1], D. Hibi[1], Y. Ishii[1], S. Takasu[1], A. Kijima[1], K. Matsushita[1], K. Masumura[2], M. Watanabe[3], Y. Sugita-Konishi[4], T. Nohmi[5], K. Ogawa[1], *A. Nishikawa*[5], and T. Umemura[1]. [1]Division of Pathology, National Institute of Health Sciences, Tokyo, Japan; [2]Division of Genetics and Mutagenesis, National Institute of Health Sciences, Tokyo, Japan; [3]Division of Microbiology, National Institute of Health Sciences, Tokyo, Japan; [4]Department of Food Life Science, Azabu University, Kanagawa, Japan; and [5]Biological Safety Research Center, National Institute of Health Sciences, Tokyo, Japan.

#443 **Poster Board Number 203**
A 6-Week Inhalation Protocol to Measure Cigarette Smoke-Induced Damage in the Rat Lung by *Ex Vivo* Comet and Histopathological Analysis. A. Dalrymple[1], D. Thorne[1], P. Ordoñez[2], D. Walker[1], O. Camacho[1], D. Dillon[1], and *C. Meredith*[1]. [1]Group R&D, British American Tobacco, Southampton, United Kingdom; and [2]Parque Científico de Madrid, VIVOTECNIA Research S.L, Tres Cantos, Madrid, Spain.

#444 **Poster Board Number 204**
Identification of Genotoxic Compounds Using Isogenic DNA Repair Deficient DT40 Cell Lines in a Quantitative High-Throughput Screening (qHTS) Platform. K. Nishihara[1], J. Zhao[2], R. Huang[2], K. L. Witt[3], *R. R. Tice*[3], S. Takeda[1], and *M. Xia*[2]. [1]Radiation Genetics, Graduate School of Medicine, Kyoto University, Kyoto, Japan; [2]National Center for Advancing Translational Sciences, Bethesda, MD; and [3]National Institute of Environmental Health Sciences, Research Triangle Park, NC.

#445 **Poster Board Number 205**
Integration of Pig-a Mutation and Micronucleated Reticulocyte Frequencies in a 28-Day Repeat Dose Study. R. Naravaneni, S. Sharma, and *R. D. Mehta*. Genetic Toxicology, PBR Laboratories Inc., Edmonton, AB, Canada.

MONDAY

Program Description (Continued)

Abstract #

#446 **Poster Board Number 206**
***In Vivo* Genotoxicity of 1,4-Dioxane in Rats.** C. Hattori, M. Nagata, S. Itoh, and *W. Takasaki*. Medicinal Safety Research Laboratories, Daiichi Sankyo Co., Ltd., Tokyo, Japan.

#447 **Poster Board Number 207**
Combination of Multitissue Micronucleus Assay and Gene Mutation Assay: Simultaneous Detection of Multitissue Micronucleus Inducibility and Gene Mutation in Gpt Delta Transgenic Rats. J. Tanaka, M. Natsume, S. Kasamoto, K. Suzuki, M. Nagai, F. Uno, M. Fukumuro, S. Masumori, and *M. Hayashi*. Biosafety Research Center (BSRC), Iwata, Shizuoka, Japan.

#448 **Poster Board Number 208**
Toxicity of Chemical Dispersants, Oil, and Chemically Dispersed Oil in Sperm Whale Skin Cells. C. Wise[1,2], *J. Wise*[1,2], *S. S. Wise*[1,2,3], and *J. P. Wise*[1,2,3]. [1]Wise Laboratory of Environmental and Genetic Toxicology, Portland, ME; [2]Maine Center for Toxicology and Environmental Health, Portland, ME; and [3]Department of Applied Medical Science, University of Southern Maine, Portland, ME.

#449 **Poster Board Number 209**
***In Vitro* Cytotoxicity and Genotoxicity Testing Using upcyte® Hepatocytes.** A. Nörenberg. Medicyte GmbH, Heidelberg, Germany. Sponsor: *P. Hewitt*.

#450 **Poster Board Number 210**
The Liver Micronucleus Test Integrated into 5-Day Repeated-Dose Toxicity Study in Mice Would Be Useful to Detect the Genotoxicity of Hepatocarcinogens. A. Maeda, K. Takahashi, H. Tsuchiyama, Y. Asaoka, M. Mutsuga, *K. Oshida*, and *Y. Miyamoto*. Pharmaceutical Research Laboratories, Toray Industries, Inc., Kamakura, Kanagawa, Japan.

#451 **Poster Board Number 211**
Evaluation of Reactive Textile Dyes with Organs-Specific Genotoxicity Using *In Vitro* Flow Cytometry-Based Micronucleus Assay. D. M. Leme[1], A. Sehr[2], T. Grummt[2], and *D. P. Oliveira*[1]. [1]FCFRP-USP, Ribeirão Preto, São Paulo, Brazil; and [2]Umweltbundesamt, Bad Elster, Germany.

#452 **Poster Board Number 212**
Kinetics and Dose-Response Assessments of Cisplatin-Induced Genotoxicity in Sprague-Dawley Rats. *S. Dertinger*[1], S. Phonethespwath[1], S. Avlasevich[1], *D. K. Torous*[1], C. Labash[1], J. Cottom[1], J. Mereness[1], S. Bryce[1], J. Bemis[1], and *J. T. MacGregor*[2]. [1]Litron Laboratories, Rochester, NY; and [2]Toxicology Consulting Services, Arnold, MD.

#453 **Poster Board Number 213**
Development of a Flow Cytometric Assay for Measuring *In Vivo* Mutation in an Autosomal Gene. *J. A. Bhalli*[1,2], *V. N. Dobrovolsky*[1], and R. H. Heflich[1]. [1]Division of Genetic and Molecular Toxicology, National Center for Toxicological Research, Jefferson, AR; and [2]Genetic Toxicology, Covance Laboratories Inc, Greenfield, IN.

#454 **Poster Board Number 214**
Evaluation of Thioacetamide Genotoxicity in Rat Liver and Stomach As Measured by the *In Vivo* Alkaline Comet Assay. R. Neft[2], and C. Beevers[1]. [1]Covance Laboratories Ltd, Harrogate, North Yorkshire, United Kingdom; and [2]Covance Laboratories Inc, Greenfield, IN. Sponsor: *J. Bhalli*.

Abstract #

#455 **Poster Board Number 215**
Evaluation of the DNA Adductome Approach to Assess the DNA Reactivity of Chemicals in Rat Liver. S. Muto, K. Yamada, K. Kato, E. Yamamura, Y. Iwase, and Y. Uno. Safety Research Laboratories, Mitsubishi Tanabe Pharma Corporation, Kisarazu, Japan. Sponsor: *J. Shinouka*.

#456 **Poster Board Number 216**
Detection of Germ Cell Mutagens in the MutaMouse Transgenic Mutation Assay. C. Beevers. Covance Laboratories Ltd, Harrogate, North Yorkshire, United Kingdom. Sponsor: *J. Bhalli*.

#457 **Poster Board Number 217**
Genotoxic Effects on HepG2 Cells Induced by Brominated Flame Retardant (BDE-47). A. O. Souza[1], M. Tasso[1], L. C. Pereira[2], *D. P. Oliveira*[2], and *D. J. Dorta*[1,2]. [1]Química, FFCLRP-USP, Ribeirão Preto, SP, Brazil; and [2]Análises Clínicas, Toxicológicas e Bromatológicas, FCFRP, Ribeirao Preto, SP, Brazil.

#458 **Poster Board Number 218**
BDE-153 is Genotoxic to HepG2 Cells and Lead to Apoptotic Cell Death. L. C. Pereira[1], A. O. Souza[2], M. F. Bernardes[1], M. J. Tasso[2], *D. P. Oliveira*[1], and *D. J. Dorta*[2]. [1]FCFRP, Universidade de São Paulo, Ribeirão Preto, Brazil; and [2]Química, FFCLRP, Ribeirão Preto, São Paulo, Brazil.

#459 **Poster Board Number 219**
Validation of an Expert Rule-Based System to Support the ICH M7 Guideline on Drug Impurities. G. J. Myatt, K. P. Cross, and D. Bower. R&D, Leadscope, Columbus, OH. Sponsor: *R. Benz*.

#460 **Poster Board Number 220**
An *In Vivo* Mutagenicity Test of Hydroquinone Using the *lacZ* Transgenic Mice. A. Ono[1], M. Honma[2], S. Masumori[3], M. Matsumoto[1], M. Hirata-Koizumi[1], and *A. Hirose*[1]. [1]Division of Risk Assessment, National Institute of Health Sciences, Tokyo, Japan; [2]Division of Genetics and Mutagenesis, National Institute of Health Sciences, Tokyo, Japan; and [3]Genotoxicology Laboratory, Biosafety Research Center, Shizuoka, Japan.

#461 **Poster Board Number 221**
Oligoquat M Does Not Induce Mutagenesis and Chromosome Aberration in the V79 and CHL Cell Lines. Z. Lu[1,2], J. Liang[1], and M. Wang[1]. [1]The Institute of Toxicological and Functional Evaluation, Jiangsu Provincial Center for Disease Control and Prevention, Nanjing, China; and [2]Basic Medical Sciences, University of Arizona Medical College-Phoenix, Phoenix, AZ. Sponsor: *S. Qiu*.

#462 **Poster Board Number 222**
Assessment of Genotoxicity and Antigenotoxicity of Ethanolic Extract of *Spondias mombin* L. (Anacardiaceae) Leaves in *In Vitro* and *In Vivo* Models. *O. E. Ola-Davies*[1], J. E. Mata[2], *A. O. Adeogun*[3], and O. S. Olawuwo[1]. [1]Department of Veterinary Physiology, Biochemistry and Pharmacology, University of Ibadan, Ibadan, Oyo, Nigeria; [2]Department of Basic Medical Sciences, College of Osteopathic Medicine of the Pacific, Western University of Health Science, Lebanon, OR; and [3]Department of Zoology, University of Ibadan, Ibadan, Oyo, Nigeria.

MONDAY

Program Description (Continued)

Abstract #

#463 **Poster Board Number 223**
Detection of Sulfur Mustard-Induced DNA Adducts in Human Skin Cells with Laser Scanning Microscopy. K. Kehe[1], S. Müller[2], D. Steinritz[2], and *H. Thiermann*[2]. [1]E - Research and Development, Bundeswehr Medical Academy, München, Germany; and [2]Bundeswehr Institute of Pharmacology and Toxicology, Munich, Germany.

#464 **Poster Board Number 224**
Response of Human Peripheral Blood Lymphocytes to Model Clastogens and Aneugens in an *In Vitro* Micronucleus Test. N. N. Patel[1], R. M. Nagane[1], J. R. Rana[1], K. R. Nikam[1], S. S. Gaikwad[1], and *V. J. Piccirillo*[2]. [1]Toxicology, Jai Research Foundation, Vapi, Gujrat, India; and [2]VJP Consulting, Inc., Ashburn, VA.

#465 **Poster Board Number 225**
Strategies and Endpoints in the Detection of Weak Genotoxins: Opportunities and Challenges. *G. Jena*. Department of Pharmacology & Toxicology, National Institute of Pharmaceutical Education and Research (NIPER), Mohali, Punjab, India.

#466 **Poster Board Number 226**
Investigation of the Genotoxic and Cytotoxic Activities of the LLL-3, a STAT3 Inhibitor, Using Micronucleus and WST Assays. E. A. Ferraz, A. S. Fernandes, I. Felzenszwalb, and A. Mencalha. Department of Biophysics and Biometry, State University of Rio de Janeiro, Rio de Janeiro, Brazil. Sponsor: *D. Oliveira*.

#467 **Poster Board Number 227**
Genotoxicity Assessment of Sandalwood (*Santalum album*) Essential Oil on Human Breast Adenocarcinoma Cells (MCF-7). *C. M. Ortiz-Sanchez*[1], L. Morales[1], M. Sastre[2], A. Castro[3], and *J. L. Matta*[1]. [1]Physiology, Pharmacology and Toxicology, Ponce School of Medicine and Health Sciences, Guayama, Puerto Rico; [2]Biology, University of Puerto Rico, Humacao, Puerto Rico; and [3]Microbiology, University of Puerto Rico, Humacao, Puerto Rico.

#467a **Poster Board Number 228**
***In Vivo* Genotoxicity Study of Estragole and Safrole.** *W. Ding*[1], *D. D. Levy*[2], M. E. Bishop[1], M. G. Pearce[1], K. J. Davis[3], *A. M. Jeffrey*[4], *J. Duan*[4], *G. M. Williams*[4], G. A. White[3], L. E. Lyn-Cook[1], and *M. G. Manjanatha*[1]. [1]Division of Genetic and Molecular Toxicology, FDA/NCTR, Jefferson, AR; [2]FDA/CFSAN, College Park, MD; [3]Toxicologic Pathology Associates, FDA/NCTR, Jefferson, AR; and [4]New York Medical College, Valhalla, NY.

Abstract #

#467b **Poster Board Number 229**
Evaluation of Mutagenicity of Vinyl Acetate and Acetaldehyde in *Gpt* Delta Mouse Lung Fibroblast Cell Line, GDL-1. *M. G. Manjanatha*[1], S. D. Shelton[1], Y. Chen[1], R. A. Mittelstaedt[1], *R. Budinsky*[2], *R. J. Fensterheim*[3], *B. Gollapudi*[4], *L. T. Haber*[5], *R. Valentine*[7], *M. S. Stavanja*[6], *E. Rushton*[8], *J. Piper*[6], *T. S. Lardie*[2], R. J. Albertini[9], and *M. M. Moore*[10]. [1]Genetic and Molecular Toxicology, FDA/NCTR, Jefferson, AR; [2]The Dow Chemical Co, Midland, MI; [3]RegNet Environmental Services, Washington, DC; [4]Center of Toxicology and Mechanistic Biology, Exponent, Midland, MI; [5]Toxicology Excellence for Risk Assessment, Cincinnati, OH; [6]Celanese International Corporation, Dallas, TX; [7]Health and Environmental Sciences, DuPont Haskell Global Centers, Newark, DE; [8]LyondellBasell Co, Houston, TX; [9]The University of Vermont, Burlington, VT; and [10]ENVIRON International Corporation, Little Rock, AR.

#467c **Poster Board Number 230**
Effects of Ethyl Methanesulfonate on DNA Damage of Uterine Mucosa in Rats. *R. Tanaka*[1], S. Masumori[1], M. Ueda[1], M. Fukumuro[1], S. Tanaka[1], A. Shiga[1], F. Mizuhashi[1], and *M. Hayashi*[1]. [1]Biosafety Research Center (BSRC), Iwata, Shizuoka, Japan.

#467d **Poster Board Number 231**
***In Vitro* Toxicity Testing of 2,4,6-Trinitrotoluene (TNT) Contaminated Soil.** *L. K. Markell*[1], M. P. Mawn[2], C. E. Pooler[3], A. Myhre[1], P. Bloxham[2], A. Faranda[1], E. M. Donner[1], and *X. Han*[1], *T. S. Bingman*[4]. [1]DuPont Haskell Laboratories, Newark, DE; [2]DuPont Corporate Center for Analytical Sciences, Newark, DE; [3]URS Corporation, Louisville, KY; and [4]DuPont Corporate Remediation Group, Wilmington, DE.

#467e **Poster Board Number 232**
Evaluation of Genotoxicity of 6-Diazo-5-Oxo-L-Norleucine (DON). *R. Kulkarni*[1], *E. W. Dakoulas*[1], K. E. Miller[2], and *P. S. Terse*[3]. [1]BioReliance, Rockville, MD; [2]Kemmx Corporation, Sapulpa, OK; and [3]National Center for Advancing Translational Sciences, NIH, Bethesda, MD.

#467f **Poster Board Number 233**
Ames Bacterial Mutation Test—Comparative Sensitivity of Standard and Micro Formats. R. Proudlock[1], K. Evans[1], and *J. Rundell*[1]. [1]Moltox, (Molecular Toxicology Inc.), Boone, NC.

#467g **Poster Board Number 234**
Development of a High-Throughput Homogenous Assay to Detect DNA Double-Strand Breaks. B. Goodwin[1], T. Khuc[1], R. Huang[1], K. L. Witt[2], *R. R. Tice*[2], and *M. Xia*[1]. [1]Division of Preclinical Innovation, NCATS, Rockville, MD; and [2]Division of the National Toxicology Program, NIEHS, Research Triangle Park, NC.

#467h **Poster Board Number 235**
Cytotoxicity and Genotoxicity Assays for Assessing the Toxicity of the Reactive Black 5 Dye. G. A. Oliveira[1], E. S. Paula[2], D. M. Leme[2], A. Sehr[3], T. Grummt[3], and *D. P. Oliveira*[2]. [1]Faculdade de Farmácia, Universidade Federal de Goiás - FF/UFG, Goiânia, Goiás, Brazil; [2]Departamento de Análises Clínicas, Toxicológicas e Bromatolóicas, Universidade de São Paulo - FCFRP/USP, Ribeirão Preto, São Paulo, Brazil; and [3]Umweltbundesamt, Bad Elster, Germany.

MONDAY

Education-Career Development Sessions
Exhibitor-Hosted Sessions
Featured Sessions
Historical Highlights Session
Informational Sessions
Platform Sessions

Program Description (Continued)

Monday Afternoon, March 24
1:00 PM to 4:30 PM
Exhibit Hall

PS

Poster Session: Cardiovascular Toxicity and Hemodynamics

Chairperson(s): *Christopher Wingard, East Carolina University, Greenville, NC.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *1:00 PM–2:45 PM*

Abstract #

#468 **Poster Board Number 236**
Continuous, Telemetric Blood Pressure Measurement in Conscious, Freely Moving Cynomolgus Monkeys following Oral Etilefrine Administration Using Different Technologies (JET-BP and Physiotel Digital). M. Niehoff[1], D. Staub[1], B. Niggemann[1], M. Foley[2], J. Saul[3], and M. Holbrook[3]. [1]Covance Laboratories GmbH, Muenster, Germany; [2]Covance Laboratories Inc., Madison, WI; and [3]Covance Laboratories Ltd., Harrogate, United Kingdom. Sponsor: *G. Weinbauer*.

#469 **Poster Board Number 237**
Tethered Subcutaneous Infusion in Telemetry-Instrumented Nonhuman Primates for Cardiovascular Assessment of Short-Half-Life Compounds. K. Rasmussen, N. West, C. Douglas, H. Drey, R. Haas, J. Nelson, and *A. N. Alexander*. Nonclinical Safety Assessment, Covance Laboratories Inc, Madison, WI.

#470 **Poster Board Number 238**
Utilisation of JET-BP (Jacketed External Telemetry with Blood Pressure) for Collection of Cardiovascular Data in the Minipig: Administration of a Positive Control. P. J. Priestley, and B. Marshall. Pharmacology, Covance Laboratories Ltd., Harrogate, North Yorkshire, United Kingdom. Sponsor: *A. Jackson*.

#471 **Poster Board Number 239**
Noninvasive (Jacketed) ECG Monitoring with Telemetry in Beagle Dogs, Göttingen Minipigs, and Cynomolgus Monkeys: Benefits from Multiple Derivations. F. Duguay[1], *R. Forster*[1], A. Ascah[1], M. Pouliot[1], E. Troncy[2], and S. Authier[1,2]. [1]CiToxLAB, Laval, QC, Canada; and [2]Faculty of Veterinary Medicine, University of Montreal, St-Hyacinthe, QC, Canada.

#472 **Poster Board Number 240**
Evaluations for Variance in Jacketed External Telemetry Electrocardiography (JET ECG) Data in Conscious Beagle Dogs and Cynomolgus Monkeys and for Predicting QT Interval Prolongation Using Individual Reference Intervals. T. Yoshikawa, D. Matsushita, T. Hirayama, N. Terashita, K. Hashiguchi, T. Koga, Y. Deguchi, T. Yamamoto, H. Sameshima, and *R. Nagata*. Shin Nippon Biomedical Laboratories (SNBL), Ltd., Kagoshima, Japan.

#473 **Poster Board Number 241**
A Comparison of Cardiovascular Parameters in Beagle Dogs Sourced from Two Different Geographic Regions. L. Qu, S. Mason, S. McPherson, and *Q. He*. WuXi AppTec, Suzhou, China.

Abstract #

#474 **Poster Board Number 242**
Assessment of ECG and Hemodynamic Changes in Nonhuman Primates Given Four Reference Compounds in Pen or Individual Housing. *L. Kreckler*, J. Grosh, J. Schneider, and M. Foley. Nonclinical Safety Assessment, Covance Inc, Madison, WI.

#475 **Poster Board Number 243**
Potential Advantages for Combining Gender for the Assessment of Cardiovascular Effects: A Case Study with Three Positive Control Articles. *J. J. Kremer*[1], H. Chen[2], A. J. Bills[1], N. Hanke[1], M. Foley[1], and M. Osinski[1]. [1]Covance Laboratories Inc., Madison, WI; and [2]Covance Laboratories Inc., Chantilly, VA.

#476 **Poster Board Number 244**
Safety Pharmacology Time Interval Considerations in Repeated Measures Statistical Analysis. W. Miner, R. Collins, T. Vidmar, and *L. L. Freshwater*. BioSTAT Consultants, Portage, MI.

#477 **Poster Board Number 245**
An Improved ECG Processing Algorithm for Interval Measurement and Arrhythmia Detection. *M. Brockway*[1,2], M. Miyamoto[3], B. Brockway[2], and *R. Hamlin*[4,5]. [1]University of Minnesota, St Paul, MN; [2]VivaQuant, St Paul, MN; [3]Huntingdon Life Sciences, E. Millstone, NJ; [4]QTest Labs, LLC, Columbus, OH; and [5]The Ohio State University, Columbus, OH.

#478 **Poster Board Number 246**
Multielectrode Array and xCELLigence: Synergistic Platforms for Cardiovascular Risk Assessment. G. C. Luerman, J. A. Denker, *C. A. Obejero-Paz*, *J. W. Kramer*, *A. M. Brown*, and *A. Bruening-Wright*. Chantest Corporation, Cleveland, OH.

#479 **Poster Board Number 247**
Use of Bayesian Tolerance Intervals to Interpret Absolute and Relative Heart Weights. *A. Stokes*[1], P. Torres-Saavedra[2], and C. Kimbrough[3]. [1]Safety Assessment, GlaxoSmithKline, Research Triangle Park, NC; [2]Mathematical Sciences, University of Puerto Rico at Mayaguez, Mayaguez, Puerto Rico; and [3]Statistical Sciences, GlaxoSmithKline, Research Triangle Park, NC.

#480 **Poster Board Number 248**
Metallothionein As a Compensatory Component Prevents Intermittent Hypoxia-Induced Cardiomyopathy in Mice. S. Zhou, X. Yin, *Y. Tan*, *W. Feng*, P. Epstein, J. Cai, and *L. Cai*. University of Louisville, Louisville, KY.

#481 **Poster Board Number 249**
Lack of Recovery from Lead-Acetate-Induced Cardiotoxicity in Wistar Rats. T. O. Omobowale[1], *A. S. Akinrinde*[2], *A. A. Oyagbemi*[2], *A. B. Saba*[2], B. S. Ogunpolu[1], and O. T. Daramola[1]. [1]Department of Veterinary Medicine, University of Ibadan, Ibadan, Oyo State, Nigeria; and [2]Departments of Veterinary Physiology, Biochemistry and Pharmacology, University of Ibadan, Ibadan, Oyo State, Nigeria.

MONDAY

Program Description (Continued)

Abstract #

#482 **Poster Board Number 250**
Methyl Honokiol Prevention of High-Fat Diet-Induced Cardiac Hypertrophy and Dysfunction Is Associated with Attenuating Lipid Accumulation and Insulin Resistance. Z. Zhang[1,2], S. Zhou[1,2], X. Yan[1], *Y. Tan*[1], K. Kim[3], K. Kim[3], Y. Zheng[2], *L. Cai*[1], and Y. Kim[3]. [1]KCHRI at the Department of Pediatrics, University of Louisville, Louisville, KY; [2]The First Hospital of Jilin University, Changchun, Jilin, China; and [3]Bioland Nature, Science & Life, Shanghai, China.

#483 **Poster Board Number 251**
Metallothionein Preservation of Cardiac Akt2 Function and Insulin Signaling by Down-Regulating TRB3 Prevents Diabetic Cardiomyopathy. *Y. Tan*[1,2], X. Yan[1,2], *S. Zhou*[1,2], *C. Zhang*[1,2], Y. Li[1], Y. Li[1], and *L. Cai*[1,2]. [1]KCHRI, Departments of Pediatrics, Biochemistry and Surgery Oncology, University of Louisville, Louisville, KY; and [2]Chinese-American Research Institute for Diabetic Complications, Wenzhou Medical University, Wenzhou, Zhejiang, China.

#484 **Poster Board Number 252**
Intratracheal Exposure to PVP-Coated Nanosilver Expands Cardiac I/R Injury in Male Sprague-Dawley Rats Seven Days after Exposure. *N. A. Holland*[1], D. P. Becak[1], R. M. Lust[1], *S. C. Sumner*[2], *T. Fennell*[2], and *C. J. Wingard*[1]. [1]Physiology, East Carolina University, Greenville, NC; and [2]RTI International, Research Triangle Park, NC.

#485 **Poster Board Number 253**
Intratracheal Instillation of Multiwalled Carbon Nanotubes Increases Vasoconstrictor Responses in Pregnant Sprague-Dawley Rats. *C. J. Wingard*[1], *A. K. Vidanapathirana*[1], *L. C. Thompson*[1], J. Dawkins[1], *N. A. Holland*[1], *S. C. Sumner*[3], *T. Fennell*[3], and *J. M. Brown*[2]. [1]Physiology, East Carolina University, Greenville, NC; [2]Pharmaceutical Sciences, University of Colorado Denver, Aurora, CO; and [3]Discovery Sciences, RTI International, Research Triangle Park, NC.

#486 **Poster Board Number 254**
Spatially-Distinct Cardiac Mitochondrial Dysfunction following Pulmonary Exposure to Various Carbon-Based Nanomaterials. C. E. Nichols[1], *A. Erdely*[2], D. L. Shepherd[1], D. Thapa[1], R. Salmen[2], C. E. McLoughlin[2], T. M. Sager[2], *J. R. Roberts*[2], and J. M. Hollander[1]. [1]Exercise Physiology, West Virginia University, Morgantown, WV; and [2]NIOSH, Morgantown, WV.

#487 **Poster Board Number 255**
Radical-Containing Ultrafine Particulate Matter Exacerbates Cardiac Functional Decline Induced by Ischemia-Reperfusion Injury. *B. R. Burn*, and *K. J. Varner*. Dept. of Pharmacology, Louisiana State University Health Sciences Center, New Orleans, LA.

#488 **Poster Board Number 256**
Nano-Cerium Dioxide Exposure and Arteriolar Dysfunction: What Is the Mechanism? *V. C. Minarchick*[1], *P. G. Stapleton*[1], N. R. Fix[3], S. S. Leonard[3], E. M. Sabolsky[2], and *T. R. Nurkiewicz*[1]. [1]Center for Cardiovascular and Respiratory Sciences, West Virginia University, Morgantown, WV; [2]Department of Mechanical Engineering, WVU, Morgantown, WV; and [3]NIOSH, Morgantown, WV.

Abstract #

#489 **Poster Board Number 257**
Effects of Estrogenic Compounds on Cardiac Development in Zebrafish. *G. Diamante*, and *D. Schlenk*. University of California, Riverside, Riverside, CA.

#490 **Poster Board Number 258**
Investigating Proepicardial, Epicardial, and Myocardial Cells As Targets of TCDD Cardiotoxicity in Zebrafish Embryos. M. S. Yue[1], *J. S. Plavicki*[2], *M. Kim*[2], *P. J. Hofsteen*[2], *R. E. Peterson*[1,2], and *W. Heideman*[1,2]. [1]Molecular and Environmental Toxicology, University of Wisconsin Madison, Madison, WI; and [2]School of Pharmacy, University of Wisconsin Madison, Madison, WI.

#491 **Poster Board Number 259**
Comparison of Exposure Route on Cardiorespiratory Effects following Acute Benzo[a]pyrene in Adult Zebrafish (*Danio rerio*). *L. P. Weber*[1,2], and C. J. Gerger[2]. [1]Veterinary Biomedical Sciences, University of Saskatchewan, Saskatoon, SK, Canada; and [2]Toxicology Graduate Program, University of Saskatchewan, Saskatoon, SK, Canada.

#492 **Poster Board Number 260**
Diesel Exhaust Causes Stress-Induced Cardiac Conduction Instability in Hypertensive Rats As Demonstrated by a Novel Measure of Refractoriness. *M. S. Hazari*[1], J. Lancaster[2], J. Starobin[2], *A. K. Farraj*[1], and *W. Cascio*[1]. [1]Environmental Public Health Division, Environmental Protection Agency, Research Triangle Park, NC; and [2]University of North Carolina at Greensboro, Greensboro, NC.

#493 **Poster Board Number 261**
Prevention of Angiotensin II-Induced Cardiomyopathy by Sulforaphane-Activated Nrf2 Partially via AKT/GSK-3β/Fyn Pathway. *Y. Xin*[1], X. Jiang[2], Y. Bai[2], and *L. Cai*[1]. [1]University of Louisville, Louisville, KY; and [2]The First Hospital of Jilin University, Changchun, Jilin Province, China.

#494 **Poster Board Number 262**
(+)-Usnic Acid-Induced Myocardial Toxicity in Rats. Y. Yokouchi, M. Imaoka, N. Niino, N. Kiyosawa, A. Sayama, T. Jindo, and *W. Takasaki*. Medicinal Safety Research Laboratories, Daiichi Sankyo Co., Ltd., Tokyo, Japan.

#495 **Poster Board Number 263**
Water Fluoridation at WHO-Recommended Concentration Accelerates Medial Vascular Calcification in Uremic Rats. V. Sorribas[1], A. Martín-Pardillos[1], C. Sosa[1], and A. Millan[2]. [1]Laboratory of Molecular Toxicology, University of Zaragoza, Zaragoza, Spain; and [2]Institute of Materials Science of Aragon, CSIC-University of Zaragoza, Zaragoza, Spain. Sponsor: *A. Anadon*.

#496 **Poster Board Number 264**
Mechanisms of How Arsenicals Impact TGF-beta2 Signaling in Cardiac EMT. T. Huang[1], and T. Camenisch[1,2,3]. [1]Pharmacology & Toxicology, The University of Arizona, Tucson, AZ; [2]Southwest Environmental Health Sciences Center, The University of Arizona, Tucson, AZ; and [3]Bio5 Institute, The University of Arizona, Tucson, AZ. Sponsor: *N. Cherrington*.

Program Description (Continued)

Abstract #

#497 **Poster Board Number 265**
Arsenite Exposure Decreases eNOS Protein Levels and Activity. *T. D. Camenisch, P. Sanchez Soria*, P. Allison, D. Espiritu, and D. Broka. Pharmacology and Toxicology, University of Arizona, Tucson, AZ.

#498 **Poster Board Number 266**
1,1-Difluoroethane Abuse and Possible Routes for Mechanistic Studies. K. P. Joshi, J. Wurpel, and M. Barletta. Pharmaceutical Sciences, St. John's University, Queens, NY. Sponsor: *D. Hardej*.

#499 **Poster Board Number 267**
Effects of Methanolic Extract of *Clerodendrum violaceum* Leaf on Selected Indices of Cardiovascular Diseases in Rat. *E. A. Balogun*, H. I. Zailani, and *J. O. Adebayo*. Biochemistry, University of Ilorin, Ilorin, Kwara, Nigeria.

#500 **Poster Board Number 268**
Species Difference in Isoproterenol-Induced Cardiotoxicity between Sprague-Dawley Rats and Duncan Hartley Guinea Pigs. *M. Pannirselvam*, J. Wan, J. Ooi, S. Bolts, M. Sanders, and *D. W. Brewster*. Drug Safety Evaluation, Vertex Pharmaceuticals, Cambridge, MA.

#501 **Poster Board Number 269**
DAPM-Induced Alterations in Serotonergic Signaling May Be Aryl Hydrocarbon Receptor-Mediated in a Novel Model for Female-Specific Pulmonary Arterial Hypertension. *M. A. Carroll Turpin, V. Y. Hebert*, T. Chotibut, and *T. R. Dugas*. Pharmacology, Toxicology and Neuroscience, LSUHSC-Shreveport, Shreveport, LA.

#502 **Poster Board Number 270**
Fenofibrate Reduces Cardiac Fibrosis Due to the Reduction of the DNA Binding Activity of the Hypoxia-Inducible Factor-1/Aryl Hydrocarbon Receptor Nuclear Translocator Complex. S. Ichihara[1], Y. Suzuki[1], S. Tada-Oikawa[1], and *G. Ichihara*[2]. [1]Mie University, Tsu, Japan; and [2]Nagoya University Graduate School of Medicine, Nagoya, Japan.

#503 **Poster Board Number 271**
Acute Oral Cardiopulmonary Safety Pharmacology Study of CBL0137 in Cynomolgus Monkeys. K. Kearney[1], *P. Atterson*[1], A. Purmal[2], and *C. Chow*[2]. [1]WIL Research, Ashland, OH; and [2]Cleveland BioLabs, Buffalo, NY.

#504 **Poster Board Number 272**
Inhibition of Gene Expression of Carnitine Palmitoyltransferase I and Heart Fatty Acid Binding Protein in Cyclophosphamide and Ifosfamide-Induced Acute Cardiomyopathic Rat Models. M. Sayed-Ahmed, M. L. Aldelemy, O. A. Al-Shabanah, and M. M. Hafez. Pharmacology and Toxicology, King Saud University, Riyadh, Saudi Arabia. Sponsor: *S. Albakheet*.

#504a **Poster Board Number 273**
Effects of Isoproterenol HCl and Moxifloxacin HCl on Cardiovascular, ECG, and Blood Pressure Parameters Assessed via Jacketed External Telemetry (JET) in the Freely Moving Minipig. *L. Diehl*[1], W. Nungester[1], and D. Regalia[2]. [1]Charles River, Spencerville, OH; and [2]Charles River, Reno, NV.

Abstract #

#504b **Poster Board Number 274**
Cardiac Myocyte-Specific AhR Activation Phenocopies Embryonic Dioxin Exposure in Zebrafish. K. A. Lanham[1], *J. S. Plavicki*[1], and *R. E. Peterson*[1], *W. Heideman*[1]. [1]School of Pharmacy, UW Madison, Madison, WI.

#504c **Poster Board Number 275**
Cardiovascular Effects of Diesel Exhaust Exposure. *M. Berg*[1], *J. Harrill*[2], *D. R. Cawthon*[2], *K. C. Scribner*[2], *P. T. Goad*[2], and *T. Hesterberg*[3]. [1]Toxicology, Center for Toxicology and Environmental Health, LLC, Kemah, TX; [2]Toxicology, Center for Toxicology and Environmental Health, LLC, Little Rock, TX; and [3]Toxicology, Center for Toxicology and Environmental Health, LLC, Denver, CO.

Monday Afternoon, March 24
1:00 PM to 4:30 PM
Exhibit Hall

PS

Poster Session: Biotransformation/Cytochrome P450

Chairperson(s): *Bhagavatula Moorthy, Baylor College of Medicine, Pediatrics, Houston, TX.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *2:45 PM–4:30 PM*

#505 **Poster Board Number 301**
Identification of Inhibitors of Cytochrome P450 (CYP) 1B1. *L. H. Kennedy*[1], M. P. Connor[1], J. E. Powers[1], D. Tran[2], A. Parrill-Baker[2], *C. H. Sutter*[3], and *T. R. Sutter*[3,2]. [1]Chemistry, United States Naval Academy, Annapolis, MD; [2]Chemistry, The University of Memphis, Memphis, TN; and [3]Biological Sciences and the W. Harry Feinstone Center for Genomic Research, The University of Memphis, Memphis, TN.

#506 **Poster Board Number 302**
CYP1B1 Expression Is Induced by Leptin through Ligand-Independent Activation of ERα Pathway in MCF-7 Cells. T. Khanal, H. Kim, J. Choi, and *H. Jeong*. Pharmacy, Chungnam National University, Daejeon, Republic of Korea.

#507 **Poster Board Number 303**
Metformin Inhibits Aryl Hydrocarbon Receptor-Mediated Induction of CYP1A1 and CYP1B1 in Breast Cancer Cells. M. Do, T. Tran, H. Kim, and *H. Jeong*. Pharmacy, Chungnam National University, Daejeon, Republic of Korea.

#508 **Poster Board Number 304**
Suppression of NADPH-Cytochrome P450 Reductase Causes Vacuolization in Renal Proximal Tubules in Mice. S. Liu[1,2], K. Dickman[3], S. Sell[1], *X. Ding*[1], C. Mei[2], and *J. Gu*[1]. [1]Wadsworth Center, Albany, NY; [2]Changzheng Hospital, Shanghai, China; and [3]Stony Brook University, Stony Brook, NY.

#509 **Poster Board Number 305**
First Report of Possible Biotransformation of Tetracycline to Doxycycline in *Brassica chinensis* L. H. Chen[1], P. Chen[1], R. Lee[2], C. Wei[1], and *C. Chou*[1]. [1]Veterinary Medicine, National Chung-Hsing University, Taichung, Taiwan; and [2]Chemistry, National Chung-Hsing University, Taichung, Taiwan.

MONDAY

Program Description (Continued)

Abstract #

#510 **Poster Board Number 306**
Disposition of 2,2',3,3',6,6'-Hexachlorobiphenyl (PCB 136) in Mice with Liver-Specific Deletion of the Cytochrome P450 Reductase Gene. *X. Wu*, A. Kammerer, and *H. Lehmler*. Univ. of Iowa, Coralville, IA.

#511 **Poster Board Number 307**
Influence of Human Cytochrome P450 2A13 in Tobacco-Specific Nitrosamine-Induced Carcinogenesis with a Transgenic Zebrafish Model. H. Chiang[1], T. Liu[1], M. You[2,3], Y. Shen[4], J. Wu[5], and T. Tsou[1]. [1]Division of Environmental Health and Occupational Medicine, National Health Research Insititutes, Zhunan, Taiwan; [2]Institute of Molecular and Genomic Medicine, National Health Research Institutes, Zhunan, Taiwan; [3]Taiwan Zebrafish Core Facility at ZeTH, National Health Research Institutes, Zhunan, Taiwan; [4]Pathology Core Laboratory, National Health Research Institutes, Zhunan, Taiwan; and [5]Institute of Cellular and Organismic Biology, Academia Sinica, Taipei, Taiwan. Sponsor: *P. Lin*.

#512 **Poster Board Number 308**
Cytochrome P450 Monooxygenases Expression in Human Bronchial Epithelial Calu-3 Cells under Different Culture Conditions. T. Hansen, M. Niehof, and J. Knebel. In Vitro and Mechanistic Toxicology, Fraunhofer Institute of Toxicology and Experimental Medicine, Hannover, Germany. Sponsor: *C. Dasenbrock*.

#513 **Poster Board Number 309**
Analysis of DNA-Adducts in Lymphatic Tissues of Mice Treated with the Polycyclic Aromatic Hydrocarbon Dibenzo[def,p]chrysene. *T. Harper*[1,2], F. T. Lauer[3], L. K. Siddens[2], J. Morre[4], *S. W. Burchiel*[3], and *D. E. Williams*[1,2,4]. [1]Linus Pauling Institute, Oregon State University, Corvallis, OR; [2]Superfund Research Program, Oregon State University, Corvallis, OR; [3]Pharmaceutical Sciences, University of New Mexico College of Pharmacy, Albuquerque, NM; and [4]Environmental Health Sciences Center, Oregon State University, Corvallis, OR.

#514 **Poster Board Number 310**
Evaluating the FAD-Reduction and Transfer Reaction in a Engineered Styrene Monooxygenase System. N. Okonkwo, B. Aseffa, J. Briones, and G. Gassner. Chemistry and Biochemistry, San Francisco State University, San Francisco, CA. Sponsor: *F. Bayliss*.

#515 **Poster Board Number 311**
Elimination Kinetics of 4-Chlorobiphenyl (PCB3) after Acute Inhalation Exposure. *K. Dhakal*[1,2], *A. Adamcakova-Dodd*[2], *H. Lehmler*[1,2], *P. S. Thorne*[1,2], and *L. W. Robertson*[1,2]. [1]Interdisciplinary Graduate Program in Human Toxicology, The University of Iowa, Iowa City, IA; and [2]Occupational and Environmental Health, The University of Iowa, Iowa City, IA.

#516 **Poster Board Number 312**
2-DE and MALDI-TOF/TOF As a Tool to Monitor CYP2 Family Isoforms in the Phenobarbital-Treated Mouse Liver Microsomes. M. Lauan[1], K. Suzuki[2], *T. Agusa*[1], and *H. Iwata*[1]. [1]Center for Marine Environmental Studies(CMES), Ehime University, Matsuyama, Japan; and [2]Graduate School of Science, Hiroshima University, Hiroshima, Japan.

Abstract #

#517 **Poster Board Number 313**
Biotransformation of Organohalogen Compounds in the Liver Microsomes of Cats and Dogs. H. Mizukawa[1], K. Nomiyama[2], S. Nakatsu[3], *A. Kubota*[4], *H. Iwata*[2], Y. Ikenaka[1], S. Tanabe[2], and *M. Ishizuka*[1]. [1]Hokkaido University, Sapporo, Japan; [2]Ehime University, Matsuyama, Ehime, Japan; [3]Nakatsu Veterinary Surgery, Sakai, Osaka, Japan; and [4]Woods Hole Oceanographic Institution, Woods Hole, MA.

#518 **Poster Board Number 314**
Polymorphic Human Flavin-Containing Monooxygenase 3 (FMO3)-Mediated Drug Interactions. *M. Shimizu*, and *H. Yamazaki*. Showa Pharmaceutical University, Machida, Tokyo, Japan.

#519 **Poster Board Number 315**
Assessment of Metabolic Potential of PCB Congeners in the Baikal Seal (*Pusa sibirica*) Using the Liver Microsome. *J. Yoo*[1], *H. Mizukawa*[1,2], *K. Nomiyama*[1], C. Kanbara[1], *A. Kubota*[3], *T. Agusa*[1], *E. Kim*[4], S. Tanabe[1], and *H. Iwata*[1]. [1]Center for Marine Environmental Studies, Ehime University, Matsuyama, Japan; [2]Graduate School of Veterinary Medicine, Hokkaido University, Sapporo, Japan; [3]Woods Hole Oceanographic Institution, Woods Hole, MA; and [4]Department of Life and Nanopharmaceutical Science and Department of Biology, Kyung Hee University, Seoul, Republic of Korea.

#520 **Poster Board Number 316**
Selective Effects of a Therapeutic Protein-Targeting Tumor Necrosis Factor-Alpha on Cytochrome P450 Regulation during Infectious Colitis: Implications for Disease-Dependent Drug-Drug Interactions. *M. D. Merrell*[1], B. A. Nyagode[1], R. Jahangardi[1], M. G. Tansey[2], and E. T. Morgan[1]. [1]Pharmacology, Emory University, Atlanta, GA; and [2]Physiology, Emory University, Atlanta, GA.

#521 **Poster Board Number 317**
Identification of Interspecies Differences in Phase II Reaction in Nonexperimental Mammalian Species. Y. Ikenaka, A. Saengtienchai, and *M. Ishizuka*. Hokkaido University, Sapporo, Japan.

#522 **Poster Board Number 318**
Metabolism of Unsaturated Fatty Acids by CYP2B6. *W. S. Baldwin*, E. J. Litoff, and R. Kumar. Biological Sciences, Clemson University, Clemson, SC.

#523 **Poster Board Number 319**
Contribution of Six Human CYP Enzymes to the Metabolism of the Food Constituents Methyleugenol, Methylisoeugenol, Alpha-, Beta-, and Gamma-Asarone. A. T. Cartus, and *D. Schrenk*. Food Chemistry and Toxicology, University of Kaiserslautern, Kaiserslautern, Rhineland-Palatinate, Germany.

#524 **Poster Board Number 320**
Toxicity Profiling of Breast Cancer-Associated Compounds and ToxCast Chemicals in "Humanized" Budding Yeast Expressing P450 Genes. B. Gaytan[2], D. Faulkner[2], M. Proctor[2], R. Rudel[3], *C. Vulpe*[2], and *M. Fasullo*[1]. [1]Nanobiosciences, College of Nanoscale Sciences and Engineering, Albany, NY; [2]Toxicology, University of California Berkeley, Berkeley, CA; and [3]Silent Spring Institute, Newton, MA.

MONDAY

Education-Career Development Sessions
Exhibitor-Hosted Sessions
Featured Sessions
Historical Highlights Session
Informational Sessions
Platform Sessions

Program Description (Continued)

Abstract #

#525 **Poster Board Number 321**
A Cocrystal of m-Chlorobenzoic Acid with Furosemide: Prospective Applications. *B. London*[1], M. O. Claville[2], F. R. Fronczek[3], and *R. M. Uppu*[1]. [1]Environmental Toxicology, Southern University and A&M College, Baton Rouge, LA; [2]School of Science, Hampton University, Hampton, VA; and [3]Department of Chemistry, Louisiana State University, Baton Rouge, LA.

#526 **Poster Board Number 322**
Genome Profiling of Saccharomyces Cerevisiae Resistance to Aflatoxin B1 (AFB1), a Potent Liver Carcinogen. *M. Fasullo*[1,2], J. Bard[3], C. Cera[2], P. Egner[4], and *T. J. Begley*[1,2]. [1]Nanobiosciences, College of Nanoscale Sciences and Engineering, Albany, NY; [2]Biomedical Sciences, State University of New York at Albany, Albany, NY; [3]Center of Excellence in Bioinformatics, State University of New York at Buffalo, Buffalo, NY; and [4]Bloomberg School of Public Health, John Hopkins University, Baltimore, MD.

#527 **Poster Board Number 323**
Development of a Selective CYP2B6 and Cell Viability Duplex Assay. M. Curtin, J. J. Cali, D. Ma, H. Wang, and P. Meisenheimer. Promega Corporation, Madison, WI. Sponsor: *T. Riss*.

#528 **Poster Board Number 324**
Role of CYP2ABFGS in NNK Bioactivation and Lung Tumorigenesis: Insights from a Novel *Cyp2abfgs*-null Mouse. *L. Li, V. Megaraj*, Y. Wei, and *X. Ding*. Health Research Inc., Albany, NY.

#529 **Poster Board Number 325**
Identification of P450 Activity As a Risk Factor for Metabolism-Dependent Drug-Induced Hepatotoxicity. *U. Doshi*, and *A. P. Li*. In Vitro Toxicology, In Vitro ADMET Laboratories LLC, Columbia, MD.

#530 **Poster Board Number 326**
Effect of Vinclozolin on Liver Cytochrome P450 Expression and Testosterone and Estradiol Serum Levels during Pregnancy. *F. G. Garcia-Montes de Oca*[1], M. L. Lopez-Gonzalez[1], R. Chavira-Ramirez[2], and *A. Sierra-Santoyo*[1]. [1]Toxicology, CINVESTAV-IPN, Mexico City, D.F., Mexico; and [2]Instituto Nacional de Ciencias Medicas y Nutricion "Salvador Zubiran," Mexico City, D.F., Mexico.

#531 **Poster Board Number 327**
Role of P450 Enzymes in Cigarette Smoke-Induced Acute Lung Injury. M. A. Hartog[1,2], and *X. Ding*[1,2]. [1]Wadsworth Center, New York State Department of Health, Albany, NY; and [2]School of Public Health, State University of New York at Albany, Albany, NY.

#532 **Poster Board Number 328**
Role of Human CYP2A13 and CYP2F1 in Naphthalene Bioactivation and Toxicity in the Lung and Nasal Mucosa of a CYP2A13/2F1-Humanized Mouse. *X. Ding*[1], *L. Li*[1], K. Jia[1], *M. Hartog*[1], Y. Wang[1], and *L. S. Van Winkle*[2]. [1]Health Research Inc., Albany, NY; and [2]UC Davis, Davis, CA.

Abstract #

#533 **Poster Board Number 329**
Essential Role of the Cytochrome P450 Enzyme CYP2A5 in Olfactory Mucosal Toxicity of Naphthalene. J. Hu[2], L. Sheng[2], *L. Li*[1], *X. Zhou*[1], *F. Xie*[1], J. D'Agostino[1], Y. Li[2], and *X. Ding*[1]. [1]Health Research Inc., Albany, NY; and [2]Institute of Materia Medica, Chinese Academy of Medical Sciences & Perking Union Medical College, Beijing, China.

#534 **Poster Board Number 330**
High-Throughput Screening to Identify Substrates of Zebrafish Cytochrome P450 1A. *J. Y. Wilson*, and D. H. Alsop. Biology, McMaster University, Hamilton, ON, Canada.

#535 **Poster Board Number 331**
Mechanistic Role of Cytochrome P450 (CYP)1A2 in the Persistent Induction of CYP1A1 by the Polycyclic Aromatic Hydrocarbon 3-Methylcholanthrene (MC) in Mouse Heptoma Cells (hepa-1). *S. R. Kondraganti*, C. Chu, W. Jiang, L. Wang, and *B. Moorthy*. Pediatrics, Baylor College of Medicine, Houston, TX.

#536 **Poster Board Number 332**
Role of Intestinal Cytochrome P450 Enzymes in Protection against Colon Inflammation in a Mouse Model of Dextran Sulfate Sodium-Induced Colitis. Q. Zhang[1,2], *Y. Zhu*[2], F. Xie[1], and X. Fan[2]. [1]Wadsworth Center, NYSDOH, Albany, NY; and [2]School of Public Health, SUNY at Albany, Albany, NY.

#537 **Poster Board Number 333**
Identification of a P450-Mediated Hepatotoxicity-Associated Glutathione-Conjugate of Phenytoin in Phenytoin-Induced Liver Injury in Mice. *T. Yokoi*[1,2], E. Sasaki[1], A. Iwamura[3], T. Fukami[1], M. Nakajima[1], and T. Kume[3]. [1]Graduate School of Medical Science, Kanazawa University, Kanazawa, Ishikawa, Japan; [2]Department of Drug Safety Sciences, Nagoya University Graduate School of Medicine, Nagoya, Aichi, Japan; and [3]DMPK Research Laboratory, Mitsubishi Tanabe Pharma Corporation, Toda, Saitama, Japan.

#538 **Poster Board Number 334**
Increased Susceptibility to Hyperoxic Lung Injury and Alveolar Simplification in Newborn Rats by Prenatal Administration of Benzo[a]pyrene. *X. Couroucli*, V. S. Thakur, Y. W. Liang, W. Jiang, L. Wang, and *B. Moorthy*. Pediatrics, Baylor College of Medicine, Houston, TX.

#539 **Poster Board Number 335**
Increased Susceptibility of Mice Lacking the Gene for Cytochrome P450 (CYP)1A1 to Hyperoxic Lung Injury *In Vivo*. *B. Moorthy*, K. Lingappan, L. Wang, *X. I. Couroucli*, and W. Jiang. Pediatrics, Baylor College of Medicine, Houston, TX.

#539a **Poster Board Number 336**
Biochemical Characterization of Cytochromes P450 2B from the Desert Woodrat. R. Wilderman[1], H. Jang[1], J. R. Malenke[2], M. Salib[1], E. Angermeier[1], S. Lamime[1], D. Dearing[2], and J. R. Halpert[1]. [1]SSPPS, University of California, San Diego, La Jolla, CA; and [2]Department of Biology, University of Utah, Salt Lake City, UT. Sponsor: *R. Tukey*.

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Program Description (Continued)

Abstract #

#539b **Poster Board Number 337**
Estimation of Bisphenol A Toxicity with the Datachip/Metachip Technology. *S. Park*[1], *S. Yi*[2], and *M. Yang*[1]. [1]Research Center for Cell Fate Control, Sookmyung Women, Seoul, Republic of Korea; and [2]Central R & D Institute, Samsung Electro-Mechanics Co, Suwon, Republic of Korea.

#539c **Poster Board Number 338**
Comparative Characterization of Feline Cytochrome P450 3A by Fluorescent Inhibition Assay. *H. Teraoka*[1], G. Okamatsu[1], T. Komatsu[1], and T. Kitazawa[1]. [1]School of Veterinary Medicine, Rakuno Gakuen University, Ebetsu, Hokkaido, Japan.

#539d **Poster Board Number 339**
PAH Dibenzo[def,p] Chrysene-Induced Adult On-Set Lung Tumors and T Cell Acute Lymphoblastic Leukemia Utilizing a CYP1B1 Humanized Mouse Model: A Transplacental Model. H. You[1], *E. Madeen*[1], *T. Harper*[1], *D. E. Williams*[1], *W. M. Baird*[1], and C. V. Löhr[1]. [1]Environmental & Molecular Toxicology, Oregon State University, Lake Oswego, OR.

#539e **Poster Board Number 340**
Metabolism of 4-Methylimidazole in the Rat and Mouse. *T. Fennell*[1], R. Snyder[1], S. Watson[1], and S. Dhungana[1]. [1]RTI International, Research Triangle Park, NC.

Monday Afternoon, March 24
1:00 PM to 4:30 PM
Exhibit Hall

PS

Poster Session: Pharmacogenomics and Genetic Polymorphisms

Chairperson(s): *David Ross, University of Colorado, Aurora, CO.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *1:00 PM–2:45 PM*

#540 **Poster Board Number 341**
PON 1 Enzyme Activities in a Mississippi Population Vary with Substrate, Genotype, and Race. *M. Dail*[1], C. McDaniel[1], R. Wills[1], *H. W. Chambers*[2], and *J. E. Chambers*[1]. [1]Center for Environmental Health Sciences, Mississippi State University, MS State, MS; and [2]Biochem., Mol. Biol., Entom., Plant Path., Mississippi State University, MS State, MS.

#541 **Poster Board Number 342**
Contribution of CYP2B6 Alleles in Sudden Death of Methadone Users: A CYP2B6 Genetic Polymorphism Study. T. Ahmad[1], L. Richards-Waugh[2], S. Sabet[1], and *G. O. Rankin*[1]. [1]Pharmacology, Physiology & Toxicology, Marshall University, Huntington, WV; and [2]Forensic Science Graduate Program, Marshall University, Huntington, WV.

Abstract #

#542 **Poster Board Number 343**
Proteomic Insight of Isoniazid Immunomodulatory Activity: Considerations for Tuberculosis Therapy. *S. R. Khan*[1], A. Baghdasarian[2], R. Fahlman[3], and *A. G. Siraki*[4]. [1]Pharmacy and Pharmaceutical Sciences, University of Alberta, Edmonton, AB, Canada; [2]Pharmacy and Pharmaceutical Sciences, University of Alberta, Edmonton, AB, Canada; [3]Department of Biochemistry, University of Alberta, Edmonton, AB, Canada; and [4]Pharmacy and Pharmaceutical Sciences, University of Alberta, Edmonton, AB, Canada.

#543 **Poster Board Number 344**
Prdm2 Is Identified As a Potential Risk Factor for Zileuton-Induced Liver Injury Using a Mouse Genetic Diversity Panel. *M. Mosedale*[1], *K. Adkins*[2], *H. Wu*[2], and *A. H. Harrill*[1,3]. [1]The Hamner Institutes for Health Sciences, Research Triangle Park, NC; [2]Pfizer Inc., Groton, CT; and [3]UAMS, Little Rock, AR.

#544 **Poster Board Number 345**
Next-Generation Sequencing Reveals Baseline Gender and Species Differences in Renal Transcript Expression in the CD1 Mouse and Wistar Han Rat. *J. Yuan*[1], P. Pande[1], J. Hill[2], and *W. W. Ku*[1]. [1]Integrative Toxicology, Nonclinical Drug Safety, Boehringer Ingelheim Pharmaceuticals, Inc., Ridgefield, CT; and [2]Computational Biology, Scientific Knowledge Discovery, Boehringer Ingelheim Pharmaceuticals, Inc., Ridgefield, CT.

#545 **Poster Board Number 346**
Refinement of N-Acetyltransferase 2 Phenotype Prediction for Activity and Urinary Bladder Cancer Risk Prediction. *K. Golka*[1], M. Blaszkewicz[1], K. Ickstadt[2], J. G. Hengstler[1], and S. Selinski[1]. [1]Leibniz Research Centre for Working Environment and Human Factors, Dortmund, Germany; and [2]Faculty of Statistics, TU Dortmund University, Dortmund, Germany.

#546 **Poster Board Number 347**
Potential Role of Carbonyl Reductase 3 in Doxorubicin-Induced Cardiotoxicity. *C. M. Schaupp*[1], *C. C. White*[1], G. F. Merrill[2], and *T. J. Kavanagh*[1]. [1]Department of Environmental and Occupational Health Sciences, University of Washington, Seattle, WA; and [2]Department of Biochemistry and Biophysics, Oregon State University, Corvallis, OR.

#547 **Poster Board Number 348**
Synergistic Interaction between Genetics and Disease on Pravastatin Disposition. *J. Clarke*[1], *R. N. Hardwick*[1], *A. D. Lake*[1], *A. J. Lickteig*[2], *C. Klaassen*[2], and *N. J. Cherrington*[1]. [1]Pharm/Tox, University of Arizona, Tucson, AZ; and [2]University of Kansas Medical Center, Kansas City, KS.

#548 **Poster Board Number 349**
The Role of the Folate Pathway in Pancreatic Cancer Risk. *S. Chittiboyina*, *L. M. Kamendulis*, and *B. A. Hocevar*. Environmental Health, Indiana University School of Public Health, Bloomington, IN.

#549 **Poster Board Number 350**
Functional Effect of Polymorphic Variations of Human Cytochrome P450 2D6 (P34S, E418K, S486T, and R296C). D. Kim, J. Kim, Y. Lim, S. Han, and H. Park. Konkuk University, Seoul, Republic of Korea. Sponsor: *T. Jeong.*

MONDAY

Program Description (Continued)

Abstract #

#550 **Poster Board Number 351**
Polymorphism of RGS9: Association with Obesity. *M. Sharma*[1], C. Shen[2], D. Reid[3], J. Celver[5], J. Chen[5], N. Seman[6,7], S. K. Vasan[6], H. Wang[2], T. Gu[6], Y. Liu[4], W. W. Mohamud[7], K. Brismar[6], W. G. Fairbrother[3], A. Kovoor[5], and G. Harvest[6]. [1]Dr BR Ambedkar Center for Biomedical Research, University of Delhi, Delhi, India; [2]Epidemiology and Biostatistics, Nanjing Medical University, Nanjing, China; [3]Molecular Biology, Cell Biology and Biochemistry, Brown, Providence, RI; [4]National Laboratory of Medical Molecular Biology, Basic Medical Sciences, Beijing, China; [5]Biomedical and Pharmaceutical Sciences, University of Rhode Island, Kingston, RI; [6]Research Center for Diabetes and Endocrinology, Karolinska, Stockholm, Sweden; and [7]Cardiovascular Diabetes and Nutrition Research Centre, Medical Research, Kuala Lumpur, Malaysia.

#551 **Poster Board Number 352**
Gene Environment Interaction in Urinary Bladder Cancer. B. D. Banerjee[1], T. Sharma[1], A. Verma[2], and S. Gupta[2]. [1]Biochemistry, University College of Medical Sciences and GTB Hospital, Delhi, Delhi, India; and [2]Surgery, University College of Medical Sciences and GTB Hospital, Delhi, India. Sponsor: *S. Goel*.

#552 **Poster Board Number 353**
Human ALDH1B1 Polymorphisms May Affect the Metabolism of Acetaldehyde and All-Trans Retinaldehyde—*In Vitro* Studies and Computational Modeling. *B. C. Jackson*[1], P. Reigan[1], D. Thompson[2], and *V. Vasiliou*[1]. [1]Department of Pharmacetuical Sciences, University of Colorado Anschutz Medical Campus, Aurora, CO; and [2]Department of Clinical Pharmacy, University of Colorado Anschutz Medical Campus, Aurora, CO.

#552a **Poster Board Number 354**
SLC19A1, SLC46A1 and SLCO1B1 Polymorphisms Are Associated with Methotrexate-Related Overall Toxicity in Portuguese Rheumatoid Arthritis Patients. A. Lima[1,2,3], R. Azevedo[2], H. Sousa[2], M. Bernardes[4], R. Medeiros[2,3], and *V. M. Seabra*[1]. [1]IINFACTS/CESPU, ISCS-Norte, Gandra, PRD, Portugal; [2]Molecular Oncology Group, IPO, Porto, Portugal; [3]ICBAS, University of Porto, Porto, Portugal; and [4]Rheumatology Department, São João Hospital Center, Porto, Portugal.

#552b **Poster Board Number 355**
Role of CYP3A5 in the Metabolic Activation of Lapatinib. K. D. Hardy[1,2], M. Wahlin[2], and A. E. Rettie[2]. [1]Department of Pharmaceutical Sciences, Lipscomb University College of Pharmacy, Nashville, TN; and [2]Department of Medicinal Chemistry, University of Washington School of Pharmacy, Seattle, WA. Sponsor: *R. Totah*.

#552c **Poster Board Number 356**
A Genetic Variant Associated with Clopidogrel Responses: Exome Sequencing and Validation. *B. Ning*[1], L. M. Yerges[2], C. Chang[1], D. Yu[1], A. Fisch[2], D. Thierry-Mieg[3], J. Thierry-Mieg[3], B. Green[1], Z. Su[1], J. R. O'Connell[2], M. A. Pacanowski[4], *W. Tong*[1], *L. Shi*[1], and A. R. Shuldiner[2]. [1]National Center for Toxicological Research, FDA, Jefferson, AR; [2]University of Maryland School of Medicine, Baltimore, MD; [3]National Center for Biotechnology Information, Bethesda, MD; and [4]Center for Drug Evaluation and Research, FDA, Silver Spring, MD.

Abstract #

Monday Afternoon, March 24
1:00 PM to 4:30 PM
Exhibit Hall

PS

Poster Session: Chemical and Biological Weapons

Safety Assessment: Mechanisms and Novel Methods

Chairperson(s): *Rashi Iyer, Los Alamos National Lab, Defense Systems and Analysis, Los Alamos, NM, and Neera Tewari-Singh, University of Colorado Denver, Pharmaceutical Sciences, Aurora, CO.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *2:45 PM–4:30 PM*

#552d **Poster Board Number 369**
Genistein Nanoparticles Protect Against Radiation-Induced Injury by Multiple Mechanisms. *M. R. Landauer*[1]. [1]Armed Forces Radiobiology Research Institute, Bethesda, MD.

#552e **Poster Board Number 370**
Arsenicals, Lewisite- and Phenylarsine Oxide-Induced Cutaneous Inflammation Response and Cell Death Are Regulated by UPR Signaling Pathway. R. K. Srivastava[1], C. Li[1], S. C. Chaudhary[1], Z. Weng[1], F. Afaq[1], and M. Athar[1]. [1]Dermatology, University of Alabama at Birmingham, Birmingham, AL. Sponsor: *S. Beedanagari*.

#552f **Poster Board Number 371**
Arg-1 Is Associated with the Development of Late Pulmonary Fibrosis following Irradiation. *C. J. Johnston*[1], *A. M. Groves*[1], J. P. Williams[1], T. Beach[1], and *J. N. Finkelstein*[1]. [1]Pediatrics, University of Rochester, Rochester, NY.

#552g **Poster Board Number 372**
Soman-Induced Convulsions Change the Phosphorylation State of the Potassium-Chloride Cotransporter (KCC2). C. Smith[1], S. M. Miller[1], T. Z. Deeb[2], L. Silayeva[2], S. J. Moss[2], and *J. H. McDonough*[1]. [1]US Army Medical Research Institute of Chemical Defense, Aberdeen Proving Ground, MD; and [2]Tufts Medical School, Boston, MA.

#553 **Poster Board Number 401**
Flavanone Silibinin As Potential Therapeutic against Skin Injuries by Vesicating Agents. *N. Tewari-Singh*[1], *A. K. Jain*[1], *S. Inturi*[1], *D. Kumar*[1], D. Orlicky[2], C. Agarwal[1], and C. White[3]. [1]Department of Pharmaceutical Sciences, University of Colorado Denver, Aurora, CO; [2]Department of Pathology, University of Colorado Denver, Aurora, CO; and [3]Department of Pediatrics, University of Colorado Denver, Aurora, CO.

#554 **Poster Board Number 402**
Topical Nitrogen Mustard Exposure Causes Systemic Toxic Effects in Mice. *R. Agarwal*[1], *D. Kumar*[1], D. G. Goswami[1], *N. Tewari-Singh*[1], *S. Inturi*[1], D. Orlicky[2], *A. K. Jain*[1], R. C. Rancourt[3], C. White[2], and C. Agarwal[1]. [1]Department of Pharmaceutical Sciences, University of Colorado Denver, Aurora, CO; [2]Department of Pathology, University of Colorado Denver, Aurora, CO; and [3]Department of Pediatrics, University of Colorado Denver, Aurora, CO.

MONDAY

Program Description (Continued)

Abstract #

#555 **Poster Board Number 403**
Nitrogen Mustard-Induced Corneal Injury Involves DNA Damage and Induction of Pathways Related to Inflammation, Vesication, and Neovascularization. D. G. Goswami[1], *N. Tewari-Singh*[1], D. Dhar[1], *D. Kumar*[1], C. Agarwal[1], D. A. Ammar[2], R. Kant[1], J. Petrash[2], and *R. Agarwal*[1]. [1]Department of Pharmaceutical Sciences, University of Colorado Denver, Aurora, CO; and [2]Department of Ophthalmology, University of Colorado Denver, Aurora, CO.

#556 **Poster Board Number 404**
Neural Protection Demonstrated in the Central Nervous System by Novel Pyridinium Oxime Reactivators of Organophosphate-Inhibited Acetylcholinesterase. *R. Pringle*[1], *E. C. Meek*[1], H. W. Chambers[2], *J. M. Gearhart*[3], and *J. E. Chambers*[1]. [1]CEHS, Mississippi State Univ., Mississippi State, MS; [2]Biochem., Mol. Bio., Ent. and Plant Path., Mississippi State Univ., Mississippi State, MS; and [3]AFRL, WPAFB, OH.

#557 **Poster Board Number 405**
Behavioral Assessments in NIH Swiss Mice Acutely Intoxicated with Tetramethylenedisulfotetramine (TETS). *B. Flannery*[1], J. L. Silverman[2], *D. Bruun*[1], J. N. Crawley[2], and *P. Lein*[1]. [1]Molecular Biosciences, University of California Davis School of Veterinary Medicine, Davis, CA; and [2]MIND Institute and Psychiatry and Behavioral Sciences, University of California Davis School of Medicine, Sacramento, CA.

#558 **Poster Board Number 406**
Atropine Therapy Alone in Guinea Pigs Does Not Improve Survivability against Most G Agents, VX, Paraoxon, and Chlorpyrifos Oxon. *T. H. Snider*[1], *C. Wilhelm*[2], *M. C. Babin*[1], D. Jett[3], G. Platoff[2], and D. T. Yeung[1]. [1]Biomedical Research Center, Battelle, Columbus, OH; [2]National Institute of Neurological Disorders and Stroke, National Institutes of Health, Bethesda, MD; and [3]National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, MD.

#559 **Poster Board Number 407**
Identification of Glutaredoxin As a Molecular Target for the Sulfur Mustard Analog Bis(2-chloroethyl)methylamine. *Y. Jan*[1], *D. E. Heck*[2], *R. P. Casillas*[3], *D. L. Laskin*[4], and *J. D. Laskin*[1]. [1]Environmental & Occupational Medicine, Rutgers University-Robert Wood Johnson Medical School, Piscataway, NJ; [2]Environmental Health Science, New York Medical College, Valhalla, NY; [3]MRI-Global, Kansas City, MO; and [4]Pharmacology & Toxicology, Rutgers University, Piscataway, NJ.

#560 **Poster Board Number 408**
Functional Properties of Bispyridinium Non-Oxime Compounds on Muscle-Type Nicotinic Acetylcholine Receptors Using a Bilayer-Based Method. *H. Thiermann*, T. Seeger, L. Florian, F. Worek, and K. V. Niessen. Bundeswehr Institute of Pharmacology and Toxicology, Munich, Germany.

Abstract #

#561 **Poster Board Number 409**
Attenuation of Nitrogen Mustard (NM)-Induced Pulmonary Injury and Inflammation by Antitumor Necrosis Factor (TNF)alpha Antibody and the Inducible Nitric Oxide Synthase (iNOS) Inhibitor, N-(3-(Aminomethyl)benzyl) acetamidine (1400W). R. Malaviya[1], V. Sunil[1], *A. Venosa*[1], K. Vayas[1], P. Sinko[1], J. Shen[1], L. Hall[2], D. Shealy[2], N. Heindel[3], C. J. Lacey[3], *J. D. Laskin*[1], and *D. L. Laskin*[1]. [1]Pharmacology and Toxicology, Rutgers University, Piscataway, NJ; [2]Johnson & Johnson, Raritan, NJ; and [3]Lehigh University, Bethlehem, PA.

#562 **Poster Board Number 410**
Inhibition of Multidrug Resistance-Associated Protein (MRP) Efflux Transporters Increases the Sensitivity to Vesicant-Induced Growth Inhibition in Lung Epithelial Cells. *R. G. Udasin*[1,2], *K. M. Bircsak*[1,2], V. Mishin[2], *D. E. Heck*[3], *L. M. Aleksunes*[1,2], *D. L. Laskin*[1,2], and *J. D. Laskin*[1,4]. [1]Joint Graduate Program in Toxicology, Rutgers University, Piscataway, NJ; [2]Pharmacology & Toxicology, Rutgers University, Piscataway, NJ; [3]Environmental Health Science, New York Medical College, Valhalla, NY; and [4]Environmental & Occupational Medicine, Robert Wood Johnson Medical School, Rutgers University, Piscataway, NJ.

#563 **Poster Board Number 411**
Sulfur Mustard Alters Sebocyte Differentiation in Hairless Mouse Skin. *D. E. Heck*[1], *L. B. Joseph*[2], J. A. Cervelli[2], G. M. Composto[2], *R. P. Casillas*[3], *D. R. Gerecke*[2], *P. J. Sinko*[2], *D. L. Laskin*[2], and *J. D. Laskin*[4]. [1]New York Medical College, Valhalla, NY; [2]Rutgers University, Piscataway, NJ; [3]MRIGlobal, Kansas City, MO; and [4]Rutgers University-Robert Wood Johnson Medical School, Piscatway, NJ.

#564 **Poster Board Number 412**
Comparative Efficacy Assessments of Oxime Therapies against Subcutaneous Organophosphate Challenges in the Hartley Guinea Pig. *C. Wilhelm*[1], *T. H. Snider*[1], *M. C. Babin*[1], G. Platoff[2], D. Jett[3], and D. T. Yeung[3]. [1]Battelle, Columbus, OH; [2]National Institutes of Health/ National Institute of Allergy and Infectious Diseases, Bethesda, MD; and [3]National Institutes of Health/ National Institute of Neurological Disorders and Stroke, Bethesda, MD.

#565 **Poster Board Number 413**
The Sulfur Mustard Analog Bis(2-chloroethyl) Methylamine Induces Oxidative Damage in Mouse Skin. *L. B. Joseph*[1], G. M. Composto[1], J. A. Cervelli[1], *D. R. Gerecke*[1], *R. P. Casillas*[2], *D. L. Laskin*[1], *J. D. Laskin*[3], and *D. E. Heck*[4]. [1]Rutgers University, Piscataway, NJ; [2]MRIGlobal, Kansas City, MO; [3]Rutgers University-Robert Wood Johnson Medical School, Piscatway, NJ; and [4]New York Medical College, Valhalla, NY.

#566 **Poster Board Number 414**
New Approach for Neuroprotection: Novel Peptides Ameliorate Neuroinflammation. *U. Wormser*[1], B. Brodsky[1], *M. Aschner*[2], Y. Finkelstein[3], and E. Proscura[1]. [1]Institute of Drug Research, The Hebrew University, Jerusalem, Israel; [2]Department of Molecular Pharmacology, Albert Einstein College of Medicine, New York; and [3]Neurology and Toxicology Service and Unit, Shaare Zedek Medical Center, Jerusalem, Israel.

Program Description (Continued)

Abstract #

#567 **Poster Board Number 415**
Are Current Antidotes for Organophosphorus Nerve Agent Effective against the Toxic Effects of Carbamate Poisoning in the Hartley Guinea Pig? *M. K. Brittain*[1], *J. A. Harvilchuck*[1], *M. C. Babin*[1], *D. Jett*[2], *G. Platoff*[3], and *D. T. Yeung*[2]. [1]Biomedical Research Center, Battelle Memorial Institute, Columbus, OH; [2]National Institute of Neurological Disorders and Stroke, NIH, Bethesda, MD; and [3]National Institute of Allergy and Infectious Diseases, NIH, Bethesda, MD.

#568 **Poster Board Number 416**
Paraoxonase 1 (PON1) Enhancers Accelerate the Detoxication of Organophosphates (OP) Including Nerve Agent Surrogates. *J. E. Chambers, E. C. Meek, R. B. Pringle,* and H. W. Chambers. Coll Vet Medicine, Mississippi State Univ, Mississippi State, MS.

#569 **Poster Board Number 417**
Δ^9 Tetrahydrocannabinol Prevents Mice from Staphylococcal Enterotoxin B-Induced Toxic Death by the Modulation of the miR-17-92 Cluster and *De Novo* Induction of T-Regulatory Cells. *R. Rao, P. S. Nagarkatti,* and *M. Nagarkatti.* University of South Carolina, Columbia, SC.

#570 **Poster Board Number 418**
Store-Operated Calcium Entry As a Mechanism of Phosgene Toxicity. D. K. Andres[1], B. Keyser[1], B. J. Benton[1], A. Appell[1], D. Olivera[2], W. Holmes[2], D. Paradiso[2], D. Anderson[2], and R. Ray[1]. [1]Research Division, US Army Medical Research Institute of Chemical Defense, Aberdeen Proving Ground, MD; and [2]Analytical Toxicology Division, US Army Medical Research Institute of Chemical Defense, Aberdeen Proving Ground, MD. Sponsor: *J. Yourick.*

#571 **Poster Board Number 419**
Accumulation of Distinct Macrophage (MP) Subpopulations in the Lung following Nitrogen Mustard (NM) Exposure; Contribution of Splenic Monocytes. *A. Venosa, R. Malaviya, J. D. Laskin,* and *D. L. Laskin.* Joint Graduate Program in Toxicology, Rutgers University/Robert Wood Johnson Medical School, Piscataway, NJ, Piscataway, NJ.

#572 **Poster Board Number 420**
Mechlorethamine Dermatotoxicity Is Potentiated by the Absence of Nrf2 in the Mouse Ear Vesicant Model. *O. Sparavalo,* H. Tumu, K. Giusto, S. Nicholson, M. Guralnik, L. Nogueira, *S. E. Reznik, L. D. Trombetta,* and *B. Billack.* Department of Pharmaceutical Sciences, St. John's University, College of Pharmacy and Health Sciences, Jamaica, NY.

#573 **Poster Board Number 421**
Quantitative Proteomic Analysis of the Guinea Pig Brainstem following Exposure to Sarin. M. L. Meade[1], M. K. Makley[1], *J. J. Schlager*[2], *T. H. Snider*[3], and *J. M. Gearhart*[1]. [1]Henry M Jackson Foundation, Wright Patterson AFB, OH; [2]Air Force Research Lab 711 HPW/RHDJ, Wright Patterson AFB, OH; and [3]Battelle Biomaedical Research Center, West Jefferson, OH.

Abstract #

#574 **Poster Board Number 422**
Solubility and Efficacy Studies with Three Poorly Water Soluble Sulfur Donors As Potential Cyanide Antidotes. *I. Petrikovics,* A. Duke, S. A. Lee, S. Racheed, J. Olvera, S. Angalakurthi, S. De Jesus, J. Aleman, E. Miller, C. Chou, and K. Kovacs. Chemistry, SHSU, Huntsville, TX.

#575 **Poster Board Number 423**
Targeting Connexin 43: Cutaneous Wound Repair Using the Sulfur Mustard Analog, Nitrogen Mustard, Hairless Mouse Skin Model. *Y. Chang*[1], *J. D. Wang*[1], *R. A. Hahn*[1], H. Chang[1], *R. P. Casillas*[2], *M. K. Gordon*[1], and *D. R. Gerecke*[1]. [1]Dept of Pharm and Tox, Ernest Mario School of Pharmacy, Rutgers University, Pisacataway, NJ; and [2]MRI Global, Kansas City, MO.

#576 **Poster Board Number 424**
Inhibitors of Poly (ADP-Ribose) Polymerase 1 (PARP-1) As Protective Agents against HN2 Toxicity in a Skin Cell Model. *M. A. Pino*[1,2], M. Patel[1], T. Talele[1], and *B. Billack*[1]. [1]College of Pharmacy and Health Sciences, St John's University, Jamaica, NY; and [2]Department of Basic Biomedical Science, Touro College of Osteopathic Medicine, New York.

#577 **Poster Board Number 425**
AEOL 10150 Improves Morbidity and Mortality after Lethal Lung-Sulfur Mustard Exposures. *C. McElroy*[1,2], E. Min[2], J. Huang[2], J. Loader[1], T. Hendry-Hofer[1], R. Garlick[1], J. Rioux[1], L. Veress[1], R. Smith[1], C. Osborne[1], D. Anderson[3], W. Holmes[3], D. Paradiso[3], C. White[1], and *B. J. Day*[2,1]. [1]University of Colorado, Aurora, CO; [2]National Jewish Health, Denver, CO; and [3]USAMRICD, Aberdeen, MD.

#578 **Poster Board Number 426**
Assessment of Corneal Wound Healing Seven Days after Mustard Exposure. *A. DeSantis Rodrigues*[1], I. Po[1], R. A. Hahn[1], *D. R. Gerecke*[1], K. K. Svoboda[2], and *M. K. Gordon*[1]. [1]Ernest Mario School of Pharmacy, Rutgers Univ, Piscataway, NJ; and [2]Biomedical Sciences, Baylor College of Dentistry, Texas A&M, Dallas, TX.

#579 **Poster Board Number 427**
High-Resolution 7T Magnetic Resonance Imaging (MRI) of Brain Damage in a Rat Model of Acute Organophosphate Intoxication. B. A. Hobson[1], S. Siso[2], D. Rowland[3], *D. A. Bruun*[1], J. Garbow[4], and *P. Lein*[1]. [1]Molecular Biosciences, University of California Davis, Davis, CA; [2]Pathology, Microbiology & Immunology, University of California Davis, Davis, CA; [3]Center for Molecular and Genomic Imaging, University of California Davis, Davis, CA; and [4]Department of Radiology, Washington University, St. Louis, MO.

#580 **Poster Board Number 428**
A New Purpose for Ebselen As a Prophylactic to Chemical Threats? A. Lulla, S. E. Reznik, *L. D. Trombetta,* and *B. Billack.* Department of Pharmaceutical Sciences, College of Pharmacy and Allied Health Professions St. John's University, Jamaica, NY.

#581 **Poster Board Number 429**
Exposure-Response Modeling and Simulation to Support Human Dosing for Botulism Antitoxin Heptavalent (A, B, C, D, E, F, G)–(Equine) or H-BAT. A. L. Menard[1], D. Douglas[2], K. Atnikov[2], J. F. Marier[1], and *M. Beliveau*[1]. [1]Pharsight Consulting Services, Certara, Montreal, QC, Canada; and [2]Cangene Corporation, Winnipeg, MB, Canada.

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Program Description (Continued)

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#581a **Poster Board Number 430**
Corneal Endothelial Toxicity following Corneal Exposure to Sulfur Mustard Vapor: Is Endothelial Loss the Pathophysiology Responsible for Long-Term Ocular Injury? K. M. Tuznik[1], *P. McNutt*[1], M. R. Nelson[1], A. L. Adkins[1], M. E. Lyman[1], and T. Hamilton[1]. [1]USAMRICD, Aberdeen Proving Ground, MD.

#581b **Poster Board Number 431**
Deterministic Models of Inhalational Anthrax in New Zealand White Rabbits. *B. Gutting*[1]. [1]NSWCDD, Dahlgren, VA.

#581c **Poster Board Number 432**
Evaluation of the Antihistamine Promethazine against Acute Soman Intoxication. R. K. Kan[1], J. A. Leuschner[1], S. W. Kaski[1], A. N. Sbarra[1], L. J. Shumway[1], C. R. Braue[1], and T. L. Dao[1]. [1]Pharmacology, USAMRICD, Aberdeen Proving Ground, MD. Sponsor: *T. Shih*.

#581d **Poster Board Number 433**
Pharmacokinetics of Nitrocobinamide (NCbi), a Novel Cyanide Antidote. K. O'Loughlin[1], R. Swezey[1], W. Shinn[1], G. R. Boss[2], and *C. E. Green*[1]. [1]Toxicology & Pharmacokinetics, SRI International, Menlo Park, CA; and [2]University of California, San Diego, CA.

#581e **Poster Board Number 434**
Zebrafish As a Novel Animal Model for Chemical Warfare Nerve Agent (CWNA) Biomedical Research. T. Dao[1], *T. A. Shih*[1], R. Kim[1], C. R. Braue[1], J. Koenig[1], J. A. Leuschner[1], and R. K. Kan[1]. [1]USAMRICD, Aberdeen Proving Ground, MD.

#581f **Poster Board Number 435**
Melatonin Treatment Reduces Corneal Injury after Nitrogen Mustard Exposure. *A. L. Miller*[1], H. Yaren[2], H. Yaman[3], R. A. Hahn[1], P. Zhou[1], and *M. K. Gordon*[1]. [1]Pharmacology and Toxicology, EMSOP, Rutgers University, Piscataway, NJ; [2]Department of CBRN Defense, Gulhane Military Medical Academy, Ankara, Turkey; and [3]Biochemistry, Gulhane Military Medical Academy, Ankara, Turkey.

#581g **Poster Board Number 436**
Government Toxicologist: A Veteran's View of Professionalism and Ethical Expectations in the Context of Veterans' Exposure Claims and the Society of Toxicology Code of Ethics. W. T. Carter[1]. [1]C-123 Veterans Association, Fort Collins, CO. Sponsor: *L. Birnbaum*.

#581h **Poster Board Number 437**
Blood Pressure, Heart Rate, Temperature, and Central Nervous System Evaluation of Cyanide Intoxication in Juvenile and Adult Mice. M. Hawk[1], G. Ritchie[1], T. Vinci[1], K. A. Henderson[1], S. Behringer[1], K. Knostman[1], B. Roche[1], *C. L. Sabourin*[1], and *P. Sabourin*[1]. [1]Battelle, Columbus, OH.

#581i **Poster Board Number 438**
Younger Rats Are More Susceptible to the Lethal Effects of Sarin Than Adult Rats: 24 h LC50 for Whole-Body (60 Min) Exposure. *L. K. Wright*[1], D. B. Miller[2], W. T. Muse[2], E. J. Emm[2], R. B. Lee[1], C. E. Whalley[2], and L. A. Lumley[1]. [1]US Army Medical Research Institute of Chemical Defense, Aberdeen Proving Ground, MD; and [2]Edgewood Chemical Biological Center, Aberdeen Proving Ground, MD.

Abstract #

#581j **Poster Board Number 439**
Natural History Study of Cyanide Intoxication in Adult and Juvenile Mice. *P. Sabourin*[1], C. Kobs[1], B. Horne[2], E. Psurny[1], C. Matthews[1], K. M. Patton[1], S. Gibbs[1], and *C. L. Sabourin*[1]. [1]Battelle, Columbus, OH; and [2]Best Center, Battelle, Aberdeen, MD.

#581k **Poster Board Number 440**
Treatment of Lung Injury from Phosgene Chemical Inhalation with NOS-2 Inhibition. P. Filipczak[1,2], *J. D. McDonald*[1], L. Fredenburgh[1,2], and R. Baron[1,2]. [1]Lovelace Respiratory Research Institute, Albuquerque, NM; and [2]Division of Pulmonary and Critical Care Medicine, Brigham and Women's Hospital, Harvard Medical School, Boston, MA.

Monday Afternoon, March 24
1:00 PM to 4:30 PM
Exhibit Hall

PS

Poster Session: Nanotoxicology: General and Carbon-Based

Chairperson(s): *Todd A. Stueckle, CDC-NIOSH, Health Effects Laboratory Division, Pathology and Physiology Research Branch, Morgantown, WV, and Yongbin Zhang, NCTR, US FDA, Office of Scientific Coordination, Jefferson, AR.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *1:00 PM–2:45 PM*

#582 **Poster Board Number 441**
Modulation of Inflammasome Activation by Carbon Nanotubes in Asthma. *K. A. Shipkowski*, A. J. Taylor, *E. Thompson*, and *J. C. Bonner*. North Carolina State University, Raleigh, NC.

#583 **Poster Board Number 442**
Atomic Layer Deposition Coating of Multiwalled Carbon Nanotubes with Aluminum Oxide Alters Innate Immune Responses *In Vitro* and *In Vivo*. A. Taylor[1], *K. A. Shipkowski*[1], E. E. Thompson[1], C. Devine[2], G. Parsons[2], S. Garantziotis[3], *S. Hussain*[3], and *J. C. Bonner*[1]. [1]Biological Sciences: Toxicology Program, North Carolina State University, Raleigh, NC; [2]Chemical & Biomolecular Engineering, North Carolina State University, Raleigh, NC; and [3]Laboratory of Respiratory Biology, National Institute of Environmental Health Sciences, Research Triangle Park, NC.

#584 **Poster Board Number 443**
Activation and Interplay of the Tumor Suppressor Genes p53 and STAT-1 in Response to Multiwalled Carbon Nanotubes. *E. Thompson*, *K. A. Shipkowski*, *A. J. Taylor*, and *J. C. Bonner*. Department of Biological Sciences, Environmental and Molecular Toxicology Program, North Carolina State University, Raleigh, NC.

#585 **Poster Board Number 444**
Different Functionalizations of MWCNT Influence Transformation Potential in Primary Human Lung Epithelial Cells. *T. A. Stueckle*[1], R. Derk[1], M. Chen[2], *V. Castranova*[1,2], Y. Rojanasakul[2], and L. Wang[1,2]. [1]NIOSH, Morgantown, WV; and [2]West Virginia University, Morgantown, WV.

MONDAY

Education-Career Development Sessions
Exhibitor-Hosted Sessions
Featured Sessions
Historical Highlights Session
Informational Sessions
Platform Sessions

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#586 **Poster Board Number 445**
Lactoperoxidase-Mediated Degradation of Oxidized Single-Walled Carbon Nanotubes and Its Modulatory Effects on Airway Antibacterial Activity. K. Bhattacharya[1], R. El-Sayed[1], F. T. Andón[1], A. Fornara[2], H. Li[3], J. Gregory[1], K. Leifer[3], S. Dahlén[1], *A. Star*[4], and *B. Fadeel*[1]. [1]Institute of Environmental Medicine, Karolinska Institutet, Stockholm, Sweden; [2]Unit for Chemistry, Materials and Surfaces, SP Technical Research Institute of Sweden, Royal Institute of Technology, Stockholm, Sweden; [3]Department of Engineering Sciences, Ångström Laboratory, Uppsala, Sweden; and [4]Department of Chemistry, University of Pittsburgh, Pittsburgh, PA.

#587 **Poster Board Number 446**
Effects of MWCNT and Nitrogen-Doped MWCNT in Lung Epithelial Cells. A. Mihalchik[1,2], *D. W. Porter*[2], *V. Castranova*[2], *S. Tsuruoka*[3], M. Endo[3], and *Y. Qian*[2]. [1]Pharmaceutical and Pharmacological Sciences, West Virginia University, Morgantown, WV; [2]Health Effects Laboratory Division, National Institute for Occupational Safety and Health, Morgantown, WV; and [3]Research Center for Exotic Nanocarbons, Shinshu University, Nagano, Japan.

#588 **Poster Board Number 447**
Autophagy and Extracellular HMGB1 Are Mediators of Inflammasome Activity in Response to MWCNT Exposure. *F. Jessop*, *R. Biswas*, and *A. Holian*. Center for Environmental Health Sciences, University of Montana, Missoula, MT.

#589 **Poster Board Number 448**
Effects of SWCNT Fiber Length and Functionalization on ROS and Collagen Production. A. Manke[1], *T. A. Stueckle*[2], L. Wang[2], C. A. Dinu[3], and Y. Rojanasakul[1]. [1]Pharmaceutical Sciences, West Virginia University, Morgantown, WV; [2]NIOSH, Morgantown, WV; and [3]Chemical Engineering, West Virginia University, Morgantown, WV.

#590 **Poster Board Number 449**
Differential Gene Expression in SAEC and HMVEC Grown in Monoculture or Coculture and Exposed to MWCNT: Correlation with *In Vivo* Studies. *B. Talkington*[1], C. Dong[2], X. Zhao[2], J. Dymacek[2,3], *V. Castranova*[1], *Y. Qian*[1], and N. L. Guo[2]. [1]National Institute for Occupational Safety and Health, Morgantown, WV; [2]West Virginia University Mary Babb Randolph Cancer Center, Morgantown, WV; and [3]West Virginia University Lane Department of Computer Science and Electrical Engineering, Morgantown, WV.

#591 **Poster Board Number 450**
Determination of Stoichiometric ROS Degeneration and Relationship between Redox Potential and Bioavailability to Design Safe CNTs. *S. Tsuruoka*[1], H. Matsumoto[2], K. Takeuchi[3], K. Koyama[1], N. Saito[5], Y. Usui[1], S. Kobayashi[5], E. Akiba[4], *D. W. Porter*[6], *V. Castranova*[6], *F. R. Cassee*[7], and M. Endo[1,3]. [1]Research Center for Exotic Nanocarbons, Shinshu University, Nagano, Japan; [2]Tokyo Institute of Technology, Meguro, Tokyo, Japan; [3]Institute for Carbon Science & Technology, Shinshu University, Nagano, Japan; [4]Kuraray Living Co., Ltd., Osaka, Japan; [5]School of Health Science, Shinshu University, Matsumoto, Nagano, Japan; [6]NIOSH, Morgantown, WV; and [7]RIVM, Bilthoven, Netherlands.

Abstract #

#592 **Poster Board Number 451**
Development of Determination Method of Single-Walled Carbon Nanotubes in the Lung of Intratracheal-Instilled Rat. N. Shinohara[1,2], K. Uchino[2], *K. Fujita*[1,2], S. Endoh[2], J. Maru[2], and H. Kato[1,2]. [1]National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Ibaraki, Japan; and [2]Technology Research Association for Single Wall Carbon Nanotubes (TASC), Tsukuba, Ibaraki, Japan.

#593 **Poster Board Number 452**
Acute Inhalation Toxicity of Graphene Oxide and 5-Day Repeated Inhalation Toxicity of Graphene. J. Kim[1], J. Shin[2], J. Hwang[2], J. Lee[2], T. Kim[1], *J. Lee*[1], Y. Kim[6], H. Lee[3], N. Song[4], K. Ahn[5], and *I. Yu*[1]. [1]Institute of Nanoproduct Safety Research, Hoseo University, Asan, Republic of Korea; [2]Occupational Lung Diseases Institute, KCOMWEL, Ansan, Republic of Korea; [3]Donga University, Busan, Republic of Korea; [4]KRISS, Daejeon, Republic of Korea; [5]Hanyang University, Ansan, Republic of Korea; and [6]Korea Ginseng Corporation, Daejeon, Republic of Korea.

#594 **Poster Board Number 453**
Modulation of Toll-Like Receptor Activity by Pristine Single-Walled Carbon Nanotubes with Distinct Chiral Enrichment. *X. Zheng*[1], N. Afrooz[2], *N. B. Saleh*[2], J. Bisesi[1], and *T. Sabo-Attwood*[1]. [1]University of Florida, Gainesville, FL; and [2]University of South Carolina, Columbia, SC.

#595 **Poster Board Number 454**
Carbon Nanotubes Effects on Primary Human Umbilical Vein Endothelial Cells (HUVEC) Cultures Morpholgogy and Expression of Endothelial Genes and Proteins Implicated in Fibrinolysis. Y. Rodríguez-Yáñez[1], B. Chavez-Munguia[2], B. Cisneros[3], R. López-Marure[4], S. K. González[5], and *A. Albores*[1]. [1]Toxicology, Cinvestav, Mexico City, Mexico; [2]Infectomics, Cinvestav, Mexico City, Mexico; [3]Genetics, Cinvestav, Mexico City, Mexico; [4]Cell Biology, Instituto Nacional de Cardiología Ignacio Chávez, Mexico City, Mexico; and [5]HG Ticomán, Mexico City, Mexico.

#596 **Poster Board Number 455**
Pulmonary Instillation of Multiwalled Carbon Nanotubes Increases Lung Permeability and Decreases Glycoprotein 130 Expression in the Lungs. *L. C. Thompson*[1], *R. J. Snyder*[3], B. S. Harrison[4], *J. M. Brown*[2], and *C. J. Wingard*[1]. [1]Physiology, East Carolina University, Greenville, NC; [2]Pharmacology & Toxicology, East Carolina University, Greenville, NC; [3]NanoHealth Program, National Institute of Environmental Health Sciences, NIH, Research Triangle Park, NC; and [4]Institute of Regenerative Medicine, Wake Forest University, Winston-Salem, NC.

#597 **Poster Board Number 456**
Correlation of Toxicity and Material Properties: Oral and Inhalation Exposure of 16 Surface-Functionalized Nanomaterials. R. Büsen[1], L. Ma-Hock[1], W. Wohlleben[3], S. Gröters[1], D. Geiger[2], *B. van Ravenzwaay*[1], and *R. Landsiedel*[1]. [1]Toxicology, BASF SE, Ludwigshafen/Rhein, Germany; [2]Product Safety, BASF SE, Ludwigshafen, Germany; and [3]Material physics, BASF SE, Ludwigshafen, Germany.

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Program Description (Continued)

Abstract #

#598 **Poster Board Number 457**
Determination of Nanomaterial Single Nanoparticle and Nanoparticle Aggregation in Complex Biological Environments. *Y. Zhang*[1], S. V. Jenkins[2], T. Ingle[1], R. Wang[1], J. Chen[2], and *P. C. Howard*[1]. [1]NCTR/ORA Nanotechnology Core Facility, Office of Scientific Coordination, NCTR/FDA, Jefferson, AR; and [2]Department of Chemistry and Biochemistry, University of Arkansas, Fayetteville, AR.

#599 **Poster Board Number 458**
CEFIC-LRI N1 Project: Oral Toxicity of a Synthetic Amorphous Silica (SAS) in Rats. J. Buschmann, G. Lewin, and O. H. Creutzenberg. Fraunhofer ITEM, Hannover, Germany. Sponsor: *C. Dasenbrock*.

#600 **Poster Board Number 459**
CEFIC-LRI N1 Project: Inhalation Toxicity of a Synthetic Amorphous Silica (SAS) in Rats. O. H. Creutzenberg, G. Pohlmann, T. Hansen, S. Schuchardt, H. Ernst, T. Tillmann, and D. Schaudien. Inhalation Toxicology, Fraunhofer Institute of Toxicology and Experimental Medicine, Hannover, Lower Saxony, Germany. Sponsor: *C. Dasenbrock*.

#601 **Poster Board Number 460**
CEFIC-LRI N1 Project: Genotoxicity of a Synthetic Amorphous Silica (SAS) in Rats. J. Knebel, C. Ziemann, and O. H. Creutzenberg. Inhalation Toxicology, Fraunhofer Institute for Toxicology and Experimental Medicine, Hannover, Germany. Sponsor: *C. Dasenbrock*.

#602 **Poster Board Number 461**
Modulation of Macrophage Phenotype and Function by Engineered Nanoparticles. *V. K. Kodali*[1], M. H. Littke[1], *S. C. Tilton*[1], H. D. Jolley[1], *J. G. Teeguarden*[1], *C. F. Frevert*[2], *S. J. Skerrett*[2], *J. G. Pounds*[1], and *B. Thrall*[1]. [1]Systems Toxicology, Pacific Northwest National Laboratory, Richland, WA; and [2]Department of Comparative Medicine, University of Washington, Seattle, WA.

#603 **Poster Board Number 462**
Amphiphilic Polymer-Coated CdSe/ZnS Quantum Dot-Induced Hemolysis and Glutathione Depletion Are Enhanced in Gclm Null Mouse Erythrocytes. *C. Carosino*[1], H. Wang[1], *C. C. White*[1], J. Shang[2], X. Gao[2], and *T. Kavanagh*[1]. [1]Department of Environmental and Occupational Health Sciences, University of Washington, Seattle, WA; and [2]Bioengineering, University of Washington, Seattle, WA.

#603a **Poster Board Number 463**
Assessment of the *In Vitro* Irritant Contact Dermatitis Potential of Metal-Containing Nanoparticles Using Human-Derived Epidermal Keratinocytes. *M. F. Hughes*[1], and V. Miyani[2]. [1]ORD/NHEERL, US EPA, Research Triangle Park, NC; and [2]Student Services Contractor, Morrisville, NC.

#603b **Poster Board Number 464**
A Simple Approach for the Determination of Nanoparticle-Induced Cytotoxicity *In Vitro*. *Q. Gu*[1], S. Lantz-McPeak[1], *E. Cuevas*[1], *H. Rosas-Hernandez*[1], *S. F. Ali*[1], S. Sarkar[1], *M. G. Paule*[1], and *Y. Zhang*[2]. [1]Division of Neurotoxicology, FDA/NCTR, Jefferson, AR; and [2]Nanotechnology Core Facility, FDA/NCTR, Jefferson, AR.

Abstract #

#603c **Poster Board Number 465**
Influence of Nanoparticles on Cell Death and Cell Cycle in A549 Cells. *Y. Huang*[1], L. M. Tolliver[1], F. S. Hou[2], R. S. Aronstam[1], and H. Lee[3]. [1]Biological Sciences, Missouri U. of Science and Technology, Rolla, MO; [2]Department of Clinical Laboratory Science, Marquette University, Milwaukee, WI; and [3]Department of Natural Resources and Environmental Studies, National Dong Hwa University, Hualien, Taiwan.

#603d **Poster Board Number 466**
Molecular Responses to MWCNT Pulmonary Exposure at Relevant Workplace Exposure Levels. *P. C. Zeidler-Erdely*[1], S. Shah[2], S. Tugendreich[2], S. Bilgesu[1], T. Hulderman[1], J. Cumpston[1], D. G. Frazer[1], W. McKinney[1], B. T. Chen[1], *V. Castranova*[1], and *A. Erdely*[1]. [1]HELD, NIOSH, Morgantown, WV; and [2]Ingenuity Systems, Inc., Redwood City, CA.

#603e **Poster Board Number 467**
Panel Biomarker Study in Workers Exposed to Multiwalled Carbon Nanotube Aerosol. L. M. Fatkhutdinova[1], *T. Khaliullin*[1], E. K. Kisin[2], I. Mustafin[3], E. M. Birch[4], *V. E. Kagan*[5], and *A. A. Shvedova*[2]. [1]Hygiene and Occupational Medicine, Kazan Medical University, Kazan, Russian Federation; [2]HELD/PPRB, National Institute for Occupational Safety and Health, Morgantown, WV; [3]Biochemistry, Kazan Medical University, Kazan, Russian Federation; [4]DART, National Institute for Occupational Safety and Health, Cincinnati, OH; and [5]Department of Environmental and Occupational Health, University of Pittsburgh, Pittsburgh, PA.

#603f **Poster Board Number 468**
MWCNT Exposure Assessment in Occupational Settings. *T. Khaliullin*[1], R. Zalyalov[1], E. M. Birch[2], *V. E. Kagan*[3], *A. A. Shvedova*[4], and L. M. Fatkhutdinova[1]. [1]Hygiene, Kazan State Medical University, Kazan, Russian Federation; [2]DART, National Institute for Occupational Safety and Health, Cincinnati, OH; [3]Department of Environmental and Occupational Health, University of Pittsburgh, Pittsburgh, PA; and [4]HELD/PPRB, National Institute for Occupational Safety and Health, Morgantown, WV.

#603g **Poster Board Number 469**
Multiwalled Carbon Nanotubes Induce NLRP3 Inflammasome-Dependent Expression of Pro-Fibrotic Markers in Primary Human Bronchial Epithelial Cells. *S. Hussain*[1], S. Sangtian[1], R. J. Snyder[1], J. D. Marshburn[1], A. Rice[1], *J. C. Bonner*[2], and S. Garantziotis[1]. [1]Clinical Research Unit, National Institute of Environmental Health Sciences (NIH), Research Triangle Park, NC; and [2]Environmental and Molecular Toxicology, North Carolina State University, Raleigh, NC.

#603h **Poster Board Number 470**
Mucociliary Differentiation May Protect Human Bronchial Epithelia from Multiwalled Carbon Nanotube-Induced Toxicity. R. J. Snyder[1], *S. Hussain*[1], S. Sangtian[1], A. Rice[1], S. Randell[2], and *S. Garantziotis*[1,2]. [1]National Institute of Environmental Health Sciences, Durham, NC; and [2]University of North Carolina Chapel Hill, Chapel Hill, NC.

MONDAY

Education-Career Development Sessions
Exhibitor-Hosted Sessions
Featured Sessions
Historical Highlights Session
Informational Sessions
Platform Sessions

Program Description (Continued)

Abstract #

#603i **Poster Board Number 471**
Preparation and Antimicrobial Activity of Nanocapsules Containing Extracts of *Catharanthus roseus* and *Matricaria chamomilla*. E. G. Sanchez-Rueda[1], A. Alvarado[1], J. Soriano[1], F. Mercado[1], L. Flores[1], M. Dominguez[1], C. F. Espinoza[1], M. A. Mendez[2], L. Hernandez[2], R. E. Cachau[3], M. C. Miranda[1], Z. N. Juarez[1,2], and *T. D. Palacios-Hernandez*[1,2]. [1]Biological Sciences, UPAEP, Puebla, Puebla, Mexico; [2]Chemical and Biological Sciences, UDLAP, Cholula, Puebla, Mexico; and [3]Frederick National Laboratory for Cancer Research, Frederick, MD.

#603j **Poster Board Number 472**
Nanoparticles from the Wear of Cobalt-Chromium Alloy Metal-on-Metal Hip Implants: Physicochemical and Dose Analysis of Patient and Toxicology Studies. *M. Liong*[1], *M. Kovochich*[3], *B. L. Finley*[2], *D. J. Paustenbach*[1], *A. Madl*[3]. [1]Cardno ChemRisk, San Francisco, CA; [2]Cardno ChemRisk, Brooklyn, NY; and [3]Cardno ChemRisk, Aliso Viejo, CA.

#603k **Poster Board Number 473**
Metabolomic Profiles Delineate Potential Role for Glycine in Membrane and Secretion Factors Disruption Caused by Gold Nanorods in Male Germ Cells. *Y. Xia*[1], B. Xu[1], M. Chen[1], X. Ji[1], Z. Mao[1], X. Chen[1], and *X. Wang*[1]. [1]Institute of Toxicology, Nanjing Medical University, Nanjing, China.

#603l **Poster Board Number 474**
3-Dimensional Microtissues in the Assessment of Pulmonary Toxicity Induced by Engineered Nanoparticles. *P. K. Kabadi*[1], and *A. Kane*[1]. [1]Pathology and Laboratory Medicine, Brown University, Providence, RI.

Monday Afternoon, March 24
1:00 PM to 4:30 PM
Exhibit Hall

PS

Poster Session: Risk Assessment I

Enhancing Strategies for Risk Assessment

Chairperson(s): *Laurie C. Haws, ToxStrategies, Inc., Austin, TX.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *2:45 PM–4:30 PM*

#604 **Poster Board Number 501**
Benchmark Dose Analysis of NTP Data on Tumors Induced in Rodents Chronically Exposed to Dietary Anthraquinone. A. Singhal, and *K. T. Bogen*. Exponent, Inc., Oakland, CA.

#605 **Poster Board Number 502**
Estimating an Acceptable Daily Intake of Anthraquinone (AQ) in Paper-Packaged Food. P. Sheehan, *K. T. Bogen*, and A. Singhal. Exponent, Oakland, CA.

#606 **Poster Board Number 503**
Updated Dose-Response Assessment and Derivation of Acceptable Drinking Water Levels for O-Phenylphenol. A. Gadoth, *V. S. Bhat*, *C. J. McLellan*, and *A. D. Phelka*. Toxicology Services Dept., NSF International, Ann Arbor, MI.

Abstract #

#607 **Poster Board Number 504**
Mode-of-Action Evaluation and Oral Risk Assessment of Hydroquinone. *K. Cox*, *J. C. English*, *G. L. Ball*, and *C. J. McLellan*. Toxicology Services Dept., NSF International, Ann Arbor, MI.

#608 **Poster Board Number 505**
Derivation of Acceptable Drinking Water Levels for *N*-Nitrosomorpholine That Accommodate Susceptibility during Early Life Stages. *J. C. English*, *V. S. Bhat*, and *C. J. McLellan*. Toxicology Services Dept., NSF International, Ann Arbor, MI.

#609 **Poster Board Number 506**
Evaluation of Human Health Benchmarks of Four "Possibly" Essential Elements: Arsenic, Boron, Nickel, and Vanadium. *S. Goldhaber*[1], and *A. Gebhart*[2]. [1]SBG Consulting, Inc., Raleigh, NC; and [2]ToxServices, LLC, Washington, DC.

#610 **Poster Board Number 507**
24-Hour Air Monitoring Comparison Value for Hexavalent Chromium. *N. K. Erraguntla*, and *J. T. Haney*. Toxicology, Texas Commission on Environmental Quality, Austin, TX.

#611 **Poster Board Number 508**
Health-Protective Manganese Guideline for Welding and Other Occupations. *L. A. Bailey*[1], *L. E. Kerper*[2], and *B. D. Beck*[2]. [1]Gradient, Middlebury, VT; and [2]Gradient, Cambridge, MA.

#612 **Poster Board Number 509**
Comparison of Inhalation Occupational Exposure Limits (OELs) and European Worker's Inhalation Derived No Effect Levels (DNELs) for Inorganic and Insoluble Metals. *M. Jackson*[1], *C. J. Inhof*[1], L. Fell[1], and *R. Lemus*[2]. [1]ARCADIS US Inc., Brighton, MI; and [2]ATL, Cincinnati, OH.

#613 **Poster Board Number 510**
Principles and Practices of the Workplace Environmental Exposure Level (WEEL) Development for Chemicals: An Initiative of the Occupational Alliance for Risk Science (OARS). *T. A. Kimmel*[1], *T. A. Lewandowski*[2], S. Barnett Bucherl[3], A. Havics[3], and *A. Maier*[4]. [1]SafeBridge Consultants, Inc., New York; [2]Gradient Corporation, Seattle, WA; [3]pH2, LLC, Avon, IN; and [4]College of Medicine, University of Cincinnati, Cincinnati, OH.

#614 **Poster Board Number 511**
Derivation of a Human Equivalent Concentration for Diacetyl for Hyperplasia of the Bronchiolar Epithelium. *R. Adams*[1], M. Glynn[1], *J. S. Pierce*[1], and *B. L. Finley*[2]. [1]Cardno ChemRisk, Chicago, IL; and [2]Cardno ChemRisk, Brooklyn, NY.

#615 **Poster Board Number 512**
Critical Evaluation of EPA's Toxicological Assessment of Benzo(a)pyrene. *B. Magee*. ESAP, ARCADIS, Chelmsford, MA.

#616 **Poster Board Number 513**
Benzo(a)pyrene Cancer Toxicity Criteria Updates: Implications for Human Health Risk. *T. Behrsing*, *K. Gettmann*, *E. Sciullo*, and *M. Wade*. Dept. Toxic Substances Control, CalEPA, Sacramento, CA.

MONDAY

Program Description (Continued)

Abstract #

#617 **Poster Board Number 514**
Assessment of the Developmental Effects of N-Methylpyrrolidone (NMP) in Rats Using PBPK-Derived Internal Dose Measures and Benchmark Dose Methods. *R. J. Parod*[1], D. E. Rodwell[2], and *C. R. Kirman*[3]. [1]BASF Corporation, Wyandotte, MI; [2]Rodwell & Associates, El Paso, TX; and [3]Summit Toxicology LLP, Orange, OH.

#618 **Poster Board Number 515**
Derivation of a No-Significant-Risk-Level (NSRL) for Cocamide Diethanolamine (DEA). *Z. Guerrette*[1], *B. Wang*[2], *J. Fleischer*[2], and *M. H. Whittaker*[2]. [1]ToxServices LLC, Ann Arbor, MI; and [2]ToxServices LLC, Washington, DC.

#619 **Poster Board Number 516**
Derivation and Application of a No-Significant-Risk-Level (NSRL) for Diethanolamine (DEA). *B. Wang*, *D. E. Amacher*, and *M. H. Whittaker*. ToxServices LLC, Washington, DC.

#620 **Poster Board Number 517**
Derivation of No Significant Risk Levels for Titanium Dioxide. *J. Fleischer*, *B. Wang*, and *M. H. Whittaker*. ToxServices LLC, Washington, DC.

#621 **Poster Board Number 518**
Derivation of an Intravenous Permitted Daily Exposure Value for Bisphenol A. *J. W. Card*, H. Fikree, and *L. Haighton*. Intertek Cantox, Mississauga, ON, Canada.

#622 **Poster Board Number 519**
Development of an Oral Cancer Slope Factor and Lifetime Average Daily Dose Estimates for TBBPA. *D. Wikoff*[1], *C. M. Thompson*[2], *C. S. Perry*[1], *M. White*[1], L. M. Fitzgerald[1], *S. Borghoff*[3], and *L. C. Haws*[1]. [1]ToxStrategies, Austin, TX; [2]ToxStrategies, Houston, TX; and [3]ToxStrategies, Cary, NC.

#623 **Poster Board Number 520**
Development of Noncancer-Based Toxicity Factors and Daily Dose Estimates for TBBPA. *L. C. Haws*[1], *C. M. Thompson*[2], *C. S. Perry*[1], *M. White*[1], L. M. Fitzgerald[1], *S. Borghoff*[3], and *D. Wikoff*[1]. [1]ToxStrategies, Austin, TX; [2]ToxStrategies, Houston, TX; and [3]ToxStrategies, Cary, NC.

#624 **Poster Board Number 521**
Provisional Advisory Level (PAL) Development for Ricin. *C. S. Wood*[1], *D. R. Mattie*[2], C. Baird[3], *G. M. Henningsen*[4], and *F. Adeshina*[5]. [1]Oak Ridge National Lab, Oak Ridge, TN; [2]711 HPW/RHDJ, Air Force Research Laboratory, WPAFB, OH; [3]USA Public Health Command, US Army, Aberdeen Proving Ground, MD; [4]Front Range Environmental Toxicology Services, Monument, CO; and [5]US EPA, Washington, DC.

#625 **Poster Board Number 522**
Provisional Advisory Level (PAL) Development for 4-Aminopyridine. *C. Bast*[1], *P. M. McGinnis*[2], M. McClanahan[3], and *F. Adeshina*[4]. [1]Oak Ridge National Laboratory, Oak Ridge, TN; [2]RG York & Associates, Syracuse, NY; [3]U.S. Centers for Disease Control and Prevention, Retired, Lilburn, GA; and [4]U.S. EPA, Washington, DC.

Abstract #

#626 **Poster Board Number 523**
Provisional Advisory Level (PAL) Development for Chlorine Gas. *S. Milanez*[1], *L. D. Koller*[2], *D. C. Dorman*[3], *C. Baird*[4], and *F. Adeshina*[5]. [1]Oak Ridge National Laboratory, Oak Ridge, TN; [2]Environmental Health and Toxicology, Corvallis, OR; [3]North Carolina State University College of Veterinary Medicine, Raleigh, NC; [4]US Army, Aberdeen Proving Ground, MD; and [5]US EPA, Washington, DC.

#627 **Poster Board Number 524**
Development of Exposure Guidelines for Chronic Health Effects following Acute Exposures to TICs. D. Winkel[1], B. Hawkins[1], J. Jackson[1], and *L. E. Roszell*[2]. [1]Battelle Memorial Institute, Columbus, OH; and [2]US Army Public Health Command, APG, MD.

#628 **Poster Board Number 525**
Smoothing Regression Splines As the Basis for Dose-Response Modeling. G. Hixon[2], *C. M. Thompson*[1], L. Abraham[1], and A. Bichteler[2]. [1]ToxStrategies, Katy, TX; and [2]ToxStrategies, Austin, TX.

#629 **Poster Board Number 526**
Is Nonparametric Method Suitable for Benchmark Dose Analysis Using Typically Available Toxicity Study Data? *K. Shao*. NCEA, U.S. Environmental Protection Agency, Research Triangle Park, NC.

#630 **Poster Board Number 527**
Standardized Benchmark Dose Calculation: Opportunities to Inform Science-Based Decisions in Human Health Assessments. *J. Wignall*[1], *A. J. Shapiro*[1], *F. A. Wright*[1], *T. J. Woodruff*[2], W. A. Chiu[3], K. Z. Guyton[3], and *I. Rusyn*[1]. [1]University of North Carolina, Chapel Hill, NC; [2]University of California, School of Medicine, San Francisco, CA; and [3]US EPA, NCEA, ORD, Washington, DC.

#631 **Poster Board Number 528**
TTC: A New Concept for Inhalation Exposure. S. Escher[1], I. Tluczkiewicz[1], M. Batke[1], R. Kühne[2], R. Ebert[2], G. Schüürmann[2], and I. Mangelsdorf[1]. [1]Chemical Risk Assessment, Fraunhofer Institute for Toxicology and Experimental Medicine - ITEM, Hannover, Germany; and [2]Ecological Chemistry, The Helmholtz Centre for Environmental Research, Leipzig, Germany. Sponsor: *C. Dasenbrock*.

#632 **Poster Board Number 529**
Threshold of Toxicological Concern (TTC); A Strategy to Support Application of TTC to Dermally Applied Cosmetic Ingredients. *F. M. Williams*[1], M. Ambrosio[2], *G. Barrett*[3], M. T. Cronin[4], R. H. Guy[5], *J. R. Plautz*[6], *N. A. Monteiro-Riviere*[7], C. Roper[8], H. Rothe[9], D. Rua[10], M. Verwei[11], and *C. Yang*[12]. [1]Newcastle University, Newcastle, United Kingdom; [2]ILSI Europe, Brussels, Belgium; [3]Health Canada, Ottawa, ON, Canada; [4]Liverpool John Moores University, Liverpool, United Kingdom; [5]University of Bath, Bath, United Kingdom; [6]DSM Nutritional Products, Basel, Switzerland; [7]Kansas State University, Manhattan, KS; [8]Charles River Laboratories, Edinburgh, United Kingdom; [9]Proctor & Gamble, Darmstadt, Germany; [10]US FDA, College Park, MD; [11]TNO, Zeist, Netherlands, and [12]Altamira LLC, Columbus, OH.

MONDAY

Education-Career Development Sessions
Exhibitor-Hosted Sessions
Featured Sessions
Historical Highlights Session
Informational Sessions
Platform Sessions

Program Description (Continued)

Abstract #

#632a **Poster Board Number 530**
By How Much Do Shapes of Toxicological Dose-Response Relationships Vary? W. Slob[2], and W. Setzer[1]. [1]National Center for Computational Toxicology, US EPA, Research Triangle Park, NC; and [2]National Institute for Public Health and the Environment - RIVM, Bilthoven, Netherlands. Sponsor: *J. Wambaugh*.

#632b **Poster Board Number 531**
Variation in Scaling Factors Used for *In Vitro* to *In Vivo* Extrapolation (IVIVE) and Its Impact on Internal Dose in Rats: A Case Study with Bromodichloromethane (BDCM). *E. Kenyon*[1], C. R. Eklund[1], *J. C. Lipscomb*[2], and *R. A. Pegram*[1]. [1]ORD/NHEERL/ISTD, U.S. EPA, Durham, NC; and [2]ORD/NCEA, U.S. EPA, Cincinnati, OH.

#632c **Poster Board Number 532**
Toluene PBPK Models to Extrapolate Neurological Effects between Rats and Humans, across Acute Durations and Severity Categories. *G. M. Woodall*[1], *E. Kenyon*[2], *V. Benignus*[3], *C. R. Eklund*[2], *P. J. Bushnell*[2], and *W. K. Boyes*[2]. [1]NCEA, US EPA, Research Triangle Park, NC; [2]NHEERL, US EPA, Research Triangle Park, NC; and [3]Retired, US EPA, Research Triangle Park, NC.

#632d **Poster Board Number 533**
Modeling of Blood Lead Levels in Astronauts Exposed to Lead from Microgravity-Accelerated Bone Loss. *H. D. Garcia*[1], *J. S. Tsuji*[2], and *J. T. James*[3]. [1]Wyle Laboratories, Houston, TX; [2]Exponent Corp., Bellevue, WA; and [3]NASA (Retired), Houston, TX.

#632e **Poster Board Number 534**
Using Pharmacokinetic Modeling to Derive Infant: Mother Internal Exposure Ratios for the Prediction of Infant Exposure to POPs throughout Breastfeeding. *S. Haddad*[1], and *M. Verner*[2]. [1]Environmental and Occupational Health, IRSPUM, Université de Montréal, Montréal, QC, Canada; and [2]Channing Division of Network Medicine, Brigham and Women's Hospital, Harvard Medical School, Boston, MA.

#632f **Poster Board Number 535**
The Toxic Potency of 2,3-Pentanedione Relative to Diacetyl. *D. A. Dankovic*[1], and R. J. Smith[1]. [1]Risk Evaluation Branch, CDC/NIOSH, Cincinnati, OH.

#632g **Poster Board Number 536**
Dose-Response Assessment of the Nephrotoxicity of Melamine and Cyanuric Acid in Rodents—A Summary of Studies Conducted at the US FDA. *G. Gamboa da Costa*[1], L. Loukotková[1], L. VonTungeln[1], C. C. Jacob[2], G. Olson[3], R. Sprando[4], D. Hattan[4], C. Stine[5], R. Reimschuessel[5], and F. A. Beland[1]. [1]US FDA National Center for Toxicological Research, Jefferson, AR; [2]BIOASTER, Lyon, France; [3]Toxicologic Pathology Associates, Jefferson, AR; [4]US FDA Center for Food Safety and Applied Nutrition, College Park, MD; and [5]US FDA Center for Veterinary Medicine, Laurel, MD.

#632h **Poster Board Number 537**
Proposed Novel Method for Assessing Risks of Inhaled Titanium Dioxide from Cosmetics. *T. Jonaitis*[1], and *L. A. Haighton*[1]. [1]Intertek Scientific & Regulatory Consultancy, Mississauga, ON, Canada.

Abstract #

#632i **Poster Board Number 538**
Systematic Review of the Association between Lung Cancer Risk and Low Levels of Arsenic in Drinking Water. E. K. Dissen[1], M. Feinleib[2], and S. H. Lamm[1,2]. [1]Center for Epidemiology and Global Health, Consultants in Epidemiology and Occupational Health, Washington, DC; and [2]JHU Bloomberg School of Public Health, Baltimore, MD. Sponsor: *J. Tsuji*.

#632j **Poster Board Number 539**
Guidance for Contaminated Sites: Trichloroethylene Case Study. *B. K. Gadagbui*[1], *M. L. Dourson*[1,2], R. Thompson[4], J. Lowe[3], and E. Pfau[5]. [1]TERA, Cincinnati, OH; [2]Alliance for Risk Assessment, Cincinnati, OH; [3]CH2M Hill, Spokane, WA; [4]Alliance for Site Closure, Indianapolis, IN; and [5]Hull and Associates, Inc, Columbus, OH.

Monday Afternoon, March 24
1:00 PM to 4:30 PM
Exhibit Hall

PS

Poster Session: Regulation and Policy

Chairperson(s): *Gunnar Johanson, Karolinska Institute, Work Environment Toxicology, Stockholm, Sweden.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *1:00 PM–2:45 PM*

#633 **Poster Board Number 541**
Pen Housing of Nonhuman Primates on Toxicology Studies. J. Setser, E. Lambert, and G. Maginnis. WIL Research, Ashland, OH. Sponsor: *T. O'Neill*.

#634 **Poster Board Number 542**
Implementing the 3R Methods and Hurdles for Their Application—A Perspective from the Chemical Industry. R. Büsen, T. Ramirez, S. S. Schneider, S. Kolle, W. Mellert, *R. Landsiedel*, and *B. van Ravenzwaay*. Toxicology, BASF SE, Ludwigshafen, Germany.

#635 **Poster Board Number 543**
SLIM As a Smart Way to Translate 3R Innovations to Acceptance for Use in Human Risk Assessment. C. Krul[1,2], M. Teunis[1], R. Vandebriel[3], R. A. Woutersen[2,8], D. Kegler[4], J. Raaijmakers[5], J. Van der Valk[6], and *R. Pieters*[1,7]. [1]Department of Innovative Testing, University of Applied Sciences, Utrecht, Netherlands; [2]TNO, Zeist, Netherlands; [3]RIVM, Bilthoven, Netherlands; [4]Nutricia Research, Utrecht, Netherlands; [5]GSK, Zeist, Netherlands; [6]NKCA, Utrecht, Netherlands; [7]Institute for Risk Assessment Sciences, Utrecht University, Utrecht, Netherlands; and [8]Wageningen University and Research Centre, Wageningen, Netherlands.

#636 **Poster Board Number 544**
The Use of Weight of Evidence (WoE) for Fulfilling the 2nd Species Information Requirement for Developmental Toxicity within the REACH Framework. *J. E. Foreman*, *M. H. Kung*, and *G. D. Minsavage*. ExxonMobil Biomedical Sciences, Inc., Annandale, NJ.

MONDAY

Program Description (Continued)

Abstract #

#637 **Poster Board Number 545**
Evaluation of a Tiered Toxicity Testing Decision Trigger for Assessing Reproductive Hazards of Commodity Chemicals. *L. M. Plunkett*[1], *A. Kaplan*[2], and *R. Becker*[3]. [1]Integrative Biostrategies LLC, Houston, TX; [2]A. Michael Kaplan & Associates, Landenberg, PA; and [3]American Chemistry Council, Washington, DC.

#638 **Poster Board Number 546**
Association between Health Outcomes and Environmental Factors in Illinois. *M. P. Chan*. Southern Illinois University Edwardsville, Edwardsville, IL.

#639 **Poster Board Number 547**
A Novel Approach to Toxicological Hazard Assessment of CAS Number-Specific Compounds with Variable Composition. *J. Zhang*, and *A. Lewis*. Gradient Corp, Cambridge, MA.

#640 **Poster Board Number 548**
A Sustainable Product Risk Assessment. E. A. Choudhury, K. Enters, and *M. S. Stavanja*. EHS/ Product Stewardship, Celanese International Corporation, Irving, TX.

#641 **Poster Board Number 549**
A Life-Cycle Approach for Prototypical Consumer Products Containing Nanomaterials. *C. M. Sayes*, G. Rothrock, S. Cho, J. Child, C. Norton, and P. Durham. Center for Aerosols & Nanomaterials Engineering, RTI International, Research Triangle Park, NC.

#642 **Poster Board Number 550**
Towards a Harmonized Evaluation of Chemical Emissions from Building Products in the EU. *G. Johanson*[1], C. Däumling[2], and P. Harrison[3]. [1]Institute of Environmental Medicine, Karolinska Institute, Stockholm, Sweden; [2]German Federal Environment Agency, Berlin, Germany; and [3]PTCH Consultancy, Leicester, United Kingdom.

#643 **Poster Board Number 551**
Does Industry Take the Sensitive Subpopulation of Asthmatics into Account when Setting Derived No-Effect Levels under REACH? *M. Johansson*[1], *G. Johanson*[1], *M. Öberg*[1], and *L. Schenk*[1,2]. [1]Work Environment Toxicology, Institute of Environmental Medicine, Karolinska Institutet, Stockholm, Sweden; and [2]Department of Philosophy and History, Royal Institute of Technology, Stockholm, Sweden.

#644 **Poster Board Number 552**
A Novel Approach to Encourage Data Sharing in Chemical Registration Systems. *Z. Yin*. Haskell Global Centers for Health and Environmental Sciences, DuPont, Shanghai, China.

#645 **Poster Board Number 553**
Electronic and Conventional Cigarette Topography Differ. M. Hua, *R. Z. Behar*, and *P. Talbot*. Cell Biology and Neuroscience, University of California, Riverside, Riverside, CA.

#646 **Poster Board Number 554**
A Simulation Environment for Population Dynamics Models of Tobacco Products. B. Poland[1], *R. Gunawan*[1], and *K. Lee*[2]. [1]Consulting Services, Pharsight, A Certara Company, Sunnyvale, CA; and [2]JT International SA, Geneva, Switzerland.

Abstract #

#647 **Poster Board Number 555**
A Chemical Risk Prioritization Scoring Process for the Oil and Gas Exploration and Production Industry. *E. Freeman*[1], K. Koblis[3], J. Staveley[2], and M. Kierski[2]. [1]Center for Chemical Regulations and Food Safety, Exponent, Moon Township, PA; [2]EcoSciences, Exponent, Alexandria, VA; and [3]EHS Strategic Planning, Noble Energy Inc., Houston, TX.

#648 **Poster Board Number 556**
Toxicological Evaluations of Dermal Exposure to Chemicals: A Comparison of Evaluations under the European Legislations for Industrial Chemicals and Cosmetics. *L. Schenk*[1,2], and E. Westerholm[2]. [1]Institute of Environmental Medicine, Karolinska Institutet, Stockholm, Sweden; and [2]Department of Philosophy and History, Royal Institute of Technology, Stockholm, Sweden.

#649 **Poster Board Number 557**
The Relationship between Chemical-Induced Kidney Weight Changes and Kidney Histopathology in Rats. E. Craig, and *J. Zhao*. USEPA, Cincinnati, OH.

#649a **Poster Board Number 558**
Assessing Drug Substances to Identify 'Highly Hazardous' Compounds for Quality Risk Management Programs. *R. Sussman*[1], *A. R. Schatz*[4], *T. A. Kimmel*[1], A. G. Ader[2], and *B. D. Naumann*[3]. [1]SafeBridge Consultants, Inc., New York, NY; [2]SafeBridge Consultants, Inc., Mountain View, CA; [3]Merck & Co., Inc., Whitehouse Station, NJ; and [4]Ashland, Inc., Bridgewater, NJ.

#649b **Poster Board Number 559**
Cleaning Product Ingredient Safety Initiative: Development of the Hazard Database. *E. Williams*[1], M. Ciarlo[3], P. DeLeo[2], C. Horne[3], *K. Connors*[1], B. Greggs[4], and *B. W. Brooks*[1]. [1]Baylor University, Waco, TX; [2]American Cleaning Institute, Washington, DC; [3]EA Engineering, Science, & Technology, Sparks, MD; and [4]Soleil Consulting, Sanibel, FL.

#649c **Poster Board Number 560**
Results of the American Board of Toxicology Standard of Knowledge Survey Instrument. *J. E. Hulla*[4], and *D. Petersen*[1,2,3]. [1]American Board of Toxicology, Raleigh, NC; [2]University of Cincinnati, Cincinnati, OH; [3]EPA, Cincinnati, OH; and [4]US Army Corps of Engineers, Sacramento, CA.

#649d **Poster Board Number 561**
Mercury Exposure: Risk Assessment, and Risk Management. *S. G. Gilbert*[1], and E. Groth[2]. [1]INND, Seattle, WA; and [2]Groth Consulting Services, Pelham, NY.

MONDAY

Education-Career Development Sessions
Exhibitor-Hosted Sessions
Featured Sessions
Historical Highlights Session
Informational Sessions
Platform Sessions

Program Description (Continued)

Abstract #

Monday Afternoon, March 24
1:00 PM to 4:30 PM
Exhibit Hall

PS

Poster Session: Ecotoxicology

Chairperson(s): *Daniel Schlenk, University of California Riverside, Riverside, CA.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *2:45 PM–4:30 PM*

#650 **Poster Board Number 601**
Industrial Effluent-Induced Chromosomal Aberration in Catfish from Ogun River, Lagos, Nigeria. *O. T. Iji*[1,3], and A. A. Adeogun[2]. [1]Department of Paraclinical Sciences, Faculty of Veterinary Sciences, University of Pretoria, Ondersteepoort, Guateng, South Africa; [2]Department of Zoology, University of Ibadan, Ibadan, Oyo, Nigeria; and [3]Federal College of Animal Health & Production Technology, Ibadan, Oyo, Nigeria.

#651 **Poster Board Number 602**
Enzymatic Biomarker in Blackjaw Tilapia (*Sarotherodon melanotheron*) and Bagrid Catfish (*Chrysichthys nigrodigitatus*) in the Lagos Lagoon. *S. O. Ayoola*, and *A. A. Idowu*. Marine Sciences, University of Lagos, Lagos, Nigeria.

#652 **Poster Board Number 603**
Coral Allelochemical Toxicity and the Role of Cytochrome P450 Detoxification in Butterflyfish (*Chaetodon spp.*) of Differing Feeding Strategies. *A. Maldonado*[1], *D. Schlenk*[1], R. Lavado[1], G. Ostrander[2], S. Knutson[4], M. Slattery[3], and S. Ankisetty[3]. [1]Environmental Science, University of California, Riverside, Riverside, CA; [2]Florida State University, Tallahassee, FL; [3]University of Mississppi, University, MS; and [4]University of Hawaii at Manoa, Honolulu, HI.

#653 **Poster Board Number 604**
Transcriptome Analysis of Red Seabream (*Pagrus major*) Embryos Treated with 2,3,7,8-Tetrachlorodibenzo-*p*-Dioxin (TCDD). M. Iida[1], S. Fujii[1], M. Uchida[2], H. Nakamura[2], Y. Kagami[2], S. Bak[3], E. Kim[3], Y. Shima[4], and *H. Iwata*[5]. [1]Computer Science and Systems Engineering, Kyushu Institute of Technology, Iizuka, Japan; [2]Ecogenomics, Inc., Kurume, Japan; [3]Department of Life and Nanopharmaceutical Science and Department of Biology, Kyung Hee University, Seoul, Republic of Korea; [4]Hakatajima Station, National Center for Stock Enhancement, Fisheries Research Agency, Imabari, Japan; and [5]Center for Marine Environmental Studies (CMES), Ehime University, Matsuyama, Japan.

#654 **Poster Board Number 605**
Impacts of Hypersaline Acclimation on the Sublethal Toxicity of Chlorpyrifos to Salmonid Olfaction. *L. A. Maryoung*[1], R. Lavado[1], G. Hardiman[2], R. Sasik[2], N. Agarwal[2], K. Tierney[3], and *D. Schlenk*[1]. [1]Department of Environmental Sciences, University of California, Riverside, Riverside, CA; [2]Department of Medicine, University of California, San Diego, San Diego, CA; and [3]Department of Biological Sciences, University of Alberta, Edmonton, AB, Canada.

Abstract #

#655 **Poster Board Number 606**
Subthreshold Toxic Effects of Atrazine and Three Degradates on Learning and Behavior in *Procambarus clarkii*. C. B. Starkey, A. C. Lefevre, and B. L. Antonsen. Biology, Marshall University, Huntington, WV. Sponsor: *J. Lipscomb*.

#656 **Poster Board Number 607**
Concentrations of Metals Associated with Crude Oil from the BP Macondo Spill in Fish Collected from the Northeastern Gulf of Mexico across a Four-Year Period. *A. C. Nichols*, D. A. Steffy, J. Morgan, and S. T. Gardner. Physical and Earth Sciences, Jacksonville State Univ, Jacksonville, AL.

#657 **Poster Board Number 608**
An Evaluation of Mancozeb Toxicity on Adult Zebrafish Gills. *A. Shohatee*, and *L. D. Trombetta*. Pharmaceutical Sciences, St. John's University, Queens, NY.

#658 **Poster Board Number 609**
Environmental Testing Strategy for Pharmaceuticals with Endocrine Disrupting Properties. *Z. Dang*[1], and C. Bodar[2]. [1]RIVM, Bilthoven, Netherlands; and [2]RIVM, Bilthoven, Netherlands.

#659 **Poster Board Number 610**
Short-Term Effects of Dechlorane Plus on Earthworm *Eisenia fetida* Determined by System Biology Approach. L. Zhang, F. Ji, *M. Li*, *Y. Cui*, and B. Wu. School of the Environment, Nanjing University, Nanjing, China.

#660 **Poster Board Number 611**
Comparison of Aquatic Toxicity between Silver Nanoparticles and Silver Nanowires. E. Sohn[1], S. Johari[2], T. Kim[1], J. Kim[1], J. Lee[1], and *I. Yu*[1]. [1]Institute of Nanoproduct Safety Research, Hoseo University, Asan, Republic of Korea; and [2]Aquaculture Department, University of Kurdistan, Sanandaj, Islamic Republic of Iran.

#661 **Poster Board Number 612**
Effect of Triclosan Challenges on Chlorine Tolerance in Bacteria Found in Waste Water Effluent. C. E. Woodward, C. G. Dean, and *J. A. Roling*. Bridgewater State University, Bridgewater, MA.

#662 **Poster Board Number 613**
Biomonitoring and Risk Assessment of Nonpoint Source Pollution in Jingchuan Wetlands of Northeast China Using Nematodes. *Y. Wang*[1,3], C. He[2], L. Sheng[2], X. Wang[1], and *T. Guo*[3]. [1]Northeast Institute of Geography and Agroecology, Chinese Academy of Sciences, Changchun, China; [2]School of Environment, Northeast Normal University, Changchun, China; and [3]University of Georgia, Athens, GA.

#663 **Poster Board Number 614**
Toxicity, Bioaccumulation, and Human Health Risk Assessment of Lead and Cadmium in *Tilapia guineensis*. O. K. Yemitan[1], O. O. Adeyemi[2], and *P. F. Wright*[3]. [1]Pharmacology & Toxicology, Lagos State University College of Medicine, Ikeja, Lagos, Nigeria; [2]Pharmacology, College of Medicine of the University of Lagos, Lagos, Nigeria; and [3]Toxicology, School of Medical Sciences, RMIT-University, Bundoora Campus, Victoria, Australia.

MONDAY

Program Description (Continued)

Abstract #

#664 **Poster Board Number 615**
Textile Dye Reactive Blue 15 Reduces the Reproduction in *Ceriodaphnia dubia*. *D. P. Oliveira*, and G. Meireles. University of São Paulo, Ribeirão Preto, Brazil.

#665 **Poster Board Number 616**
Assessment of the Expression Levels of Genes Involved in Metal Detoxification in Killifish Inhabiting a Closed Copper Mine Superfund Site. *D. Jung*, A. Cravero, R. Lehman, E. Cutting, B. Jackson, and *B. Stanton*. Geisel School of Medicine at Dartmouth, Hanover, NH.

#666 **Poster Board Number 617**
Evaluating the Relationship between Land Use and Water Quality in Non-PRASA Systems. *W. Morales-Soto*, and J. Arce-Nazario. Biology, University of Puerto Rico Cayey, Cayey, Puerto Rico.

#667 **Poster Board Number 618**
Metals, PAHs, and Toxicity of Sediments from Santa Marta, a Coal Port in Colombia. *K. Caballero-Gallardo*[1], J. De la Rosa[2], B. Johnson-Restrepo[3], A. Garcia-Cantillo[3], *A. Guerrero-Castilla*[1], and *J. Olivero-Verbel*[1]. [1]Environmental and Computational Chemistry Group, University of Cartagena, Cartagena, Colombia; [2]Associate Unit CSIC-CIQSO, University of Huelva, Huelva, Spain; and [3]Environmental Chemistry Research Group, University of Cartagena, Cartagena, Colombia.

#668 **Poster Board Number 619**
The Toxicity of Particle-Based Dispersants for Marine Oil Spills and Their Impact on Benzene Toxicity Using the Model Organism *Artemia franciscana*. A. L. Rodd[1], M. Creighton[2], R. Hurt[2], and *A. Kane*[1]. [1]Pathology & Laboratory Medicine, Brown University, Providence, RI; and [2]School of Engineering, Brown University, Providence, RI.

#669 **Poster Board Number 620**
Pesticide Distribution Pattern in Surface Water of a Mountainous Region River from Rio de Janeiro, Brazil. G. F. Veríssimo[1], J. Moreira[2], and A. Meyer[1]. [1]IESC, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil; and [2]CESTH, Fundação Oswaldo Cruz (FioCruz), Rio de Janeiro, Brazil. Sponsor: *G. Veríssimo*.

#669a **Poster Board Number 621**
Degradation of Tumor Promoter Activity of *Jatropha curcas* Phorbol Esters Derived from Jatropha Oil Cake in Soil. M. Nakao[1], Y. Shimizu[1], *Y. Ishihara*[1], and T. Yasuhara[2]. [1]Public Health, Kurume University, Kurume, Japan; and [2]Kitasato University, Tokyo, Japan.

#669b **Poster Board Number 622**
Degradation of the Major Toxic Component of *Jatropha curcas* Phorbol Esters by Enzymes and Sterilized Water. K. Yamauchi[1], M. Nakao[1], Y. Shimizu[1], and *Y. Ishihara*[1]. [1]Kurume University, Kurume, Japan.

#669c **Poster Board Number 623**
Preliminary Study on the Effect of Weathered Oil and Oil Dispersants on *Menidia beryllina* Embryo. *O. K. Adeyemo*[1], *K. J. Kroll*[1], *G. Natalia*[2], and *N. D. Denslow*[1]. [1]Department of Physiological Sciences, Center for Human and Environmental Toxicology, University of Florida, Gainesville, FL; and [2]Institute for Genomics, Biocomputing and Biotechnology, Mississippi State University, Starkville, MS.

Abstract #

#669d **Poster Board Number 624**
Contaminant Burden Analysis in Wild Shovelnose Sturgeon (*Scaphirhynchus platorynchus*) in the Lower Mississippi River. *D. R. Johnson*[1,2], C. Godard-Codding[3], T. Anderson[3], C. Ang[4], G. Cobb[5], J. Canas[3], J. Clarke[2], A. Roberts[6], K. Boysen[2], J. Killgore[2], and J. Hoover[2]. [1]Conestoga-Rovers and Associates, Dallas, TX; [2]US Army Engineer Research and Development Center, Vicksburg, MS; [3]Texas Tech University, Lubbock, TX; [4]Badger Technical Services, Vicksburg, MS; [5]Baylor University, Waco, TX; and [6]University of North Texas, Denton, TX.

#669e **Poster Board Number 625**
Comparison of Cyropreserved Trout Hepatocytes and Liver S9 Fractions As *In Vitro* Models for Predicting Hepatic Clearance in Fish. *K. Fay*[1], P. N. Fitzsimmons[1], A. D. Hoffman[1], and *J. W. Nichols*[1]. [1]U.S. EPA, Duluth, MN.

Monday Afternoon, March 24
1:00 PM to 4:30 PM
Exhibit Hall

PS

Poster Session: Pesticide Exposure, Toxicology, and Risk Assessment

New Science and Perspectives Surrounding Environmental and Occupational Exposures

Chairperson(s): *Brian Pavilonis, Rutgers University, Piscataway, NJ, and Chen Chen, University of Georgia, Athens, GA.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *1:00 PM–2:45 PM*

#670 **Poster Board Number 626**
Hemp Seed Flour Impacts the Development of Tenebrio Larvae and Their Susceptibility to Organophosphorous Insecticides. J. Gaston, L. Edwards, and *S. Chao*. Fayetteville State University, Fayetteville, NC.

#671 **Poster Board Number 627**
Two Insecticidal Neurotoxic Mechanisms of Action of Monoterpenoids. J. R. Coats[1], A. D. Gross[1], F. Tong[1], M. J. Kimber[2], and T. A. Day[2]. [1]Entomology, Iowa State University, Ames, IA; and [2]Biomedical Sciences, Iowa State University, Ames, IA. Sponsor: *A. Keating*.

#672 **Poster Board Number 628**
Evaluation of At-Home Methods to Reduce Pesticide Residue on Apples and Peaches. B. Pavilonis, and *C. Weisel*. Rutgers University, Piscataway, NJ.

#673 **Poster Board Number 629**
Toxicity and Safety Evaluation of Etofenprox, S-Methoprene, and Piperonyl Butoxide in Dogs Topically Exposed to Bio Spot Defense® *R. C. Gupta*, S. D. Bland, M. A. Lasher, and T. D. Canerdy. Toxicology, Murray State University, Hopkinsville, KY.

MONDAY

Education-Career Development Sessions
Exhibitor-Hosted Sessions
Featured Sessions
Historical Highlights Session
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Program Description (Continued)

Abstract #

#674 **Poster Board Number 630**
Development and Validation of a QuEChERS-Based Liquid Chromatography Tandem Mass Spectrometry Method for the Determination of 143 Pesticide Residues in Tobacco. L. Chen, B. Hu, L. Pan, D. Ai, and H. Liu. Zhengzhou Tobacco Research Institute of CNTC, Zhengzhou, China. Sponsor: *R. Krieger*.

#675 **Poster Board Number 631**
Determination of Paraquat (PQ) in Urine Using Reversed-Phase HPLC/DAD. A. Meyer[1], G. F. Veríssimo[1], J. Alves[3], and J. Moreira[2]. [1]IESC, Universidade Federal do Rio de Janeiro (UFRJ), Rio de Janeiro, Brazil; [2]CESTH, Fundação Oswaldo Cruz (FioCruz), Rio de Janeiro, Brazil; and [3]Faculdade de Farmácia, Universidade Federal do Rio de Janeiro (UFRJ), Rio de Janeiro, Brazil. Sponsor: *G. Veríssimo*.

#676 **Poster Board Number 632**
Identification of Pesticides and Other Environmental Chemicals Associated with the Development of Nonalcoholic Fatty Liver Disease in Rodents. M. Cave[1,3], L. Al-Eryani[1], B. Wahlang[1], H. Clair[1], K. C. Falkner[1], and *R. A. Prough*[2]. [1]Department of Medicine/GI, University of Louisville, Louisville, KY; [2]Biochemistry, University of Louisville, Louisville, KY; and [3]Robley Rex VAMC, Louisville, KY.

#677 **Poster Board Number 633**
Trifluralin and Tebuthiuron, Two Widely Used Herbicides in Brazil, Showed Different Cytotoxic Potentials to HepG2 Cells. M. F. Bernardes[1], L. C. Pereira[1], M. Tasso[2], and *D. J. Dorta*[2]. [1]Universidade de São Paulo (USP), Faculdade de Ciências Farmacêuticas de Ribeirão Preto (FCFRP), Ribeirão Preto, São Paulo, Brazil; and [2]Departamento de Química, Universidade de São Paulo (USP), Faculdade de Filosofia, Ciências e Letras de Ribeirão Preto (FFCLRP), Ribeirão Preto, São Paulo, Brazil.

#678 **Poster Board Number 634**
Effect of Organochlorine Compound Exposure on Apolipoprotein B Secretion by Rat Hepatoma Cells. A. Ward, *M. Dail*, and *J. E. Chambers*. College of Veterinary Medicine, Mississippi State University, Mississippi State, MS.

#679 **Poster Board Number 635**
p,p'-DDE Enhances Adipogenesis in 3T3-L1 Adipocytes and Alters Cyclooxygenase-2 (COX-2) Activity in J774a.1 and THP-1 Macrophage Cells. *L. Mangum*, *G. E. Howell*, *S. B. Pruett*, *M. K. Ross*, and *J. E. Chambers*. College of Veterinary Medicine, Mississippi State University, Mississippi State, MS.

#680 **Poster Board Number 636**
The Toxicity of Maneb in Human Colon Cells May Be Related to the Transchelation of the Metal Moiety and the Organic Backbone. *L. M. Hoffman*, *L. D. Trombetta*, and *D. Hardej*. Pharmaceutical Sciences, St. John's University, Queens, NY.

#681 **Poster Board Number 637**
Mechanism of the Toxic Effect of Carbendazim on the Pubertal Seminiferous Epithelium: An *Ex Vivo* Study. M. Perrard[1], D. Carette[2], G. Martin[3], E. Christin[3], G. Pointis[2], and P. H. Durand[3]. [1]CNRS, Lyon, France; [2]U895, INSERM, Nice, France; and [3]Kallistem, Lyon, France. Sponsor: *R. Witorsch*.

Abstract #

#682 **Poster Board Number 638**
Rynaxypyr Is Active but Significantly Less Potent toward Ryanodine Receptor Type 1 from Wild Type and Malignant Hyperthermia Susceptible Mammalian Skeletal Muscle. K. M. Truong[1], *M. La Merrill*[2], and *I. N. Pessah*[1]. [1]Molecular Biosciences, UC Davis, Davis, CA; and [2]Environmental Toxicology, UC Davis, Davis, CA.

#683 **Poster Board Number 639**
Quantitation of the Pyrethroid Deltamethrin (DLM) in Rat Liver and Muscle Using Gas Chromatography Negative Chemical Ionization Mass Spectrometry (GC-NCI-MS). *J. V. Bruckner*[1], *C. White*[1], D. Gullick[1], A. Popovici[1], *M. Krolski*[2], *D. W. Gammon*[3], *B. S. Cummings*[1], and M. Bartlett[1]. [1]UGA, Athens, GA; [2]Bayer Crop Science, RTP, NC; and [3]FMC Corp., Ewing, NJ.

#684 **Poster Board Number 640**
Maturation Effects on Plasma Protein Binding of Deltamethrin (DLM), Cis- (CIS), and Trans-Permethrin (TRANS) in Human and Rat Plasma. *P. Sethi*[1], S. Muralidhara[1], *T. G. Osimitz*[2], *D. Minnema*[3], *P. M. Hinderliter*[3], *B. S. Cummings*[1], *J. V. Bruckner*[1], and *C. White*[1]. [1]Pharmaceutical and Biomedical Sciences, University of Georgia, Athens, GA; [2]Science Strategies, LLC, Charlottesville, VA; and [3]Syngenta, Greensboro, NC.

#685 **Poster Board Number 641**
Toxicokinetics of Deltamethrin (DLM) in Adult Male Sprague-Dawley Rats. C. Chen[1], S. Muralidhara[1], *T. G. Osimitz*[2], *D. W. Gammon*[3], *S. S. Anand*[4], *B. S. Cummings*[1], *J. V. Bruckner*[1], and *C. White*[1]. [1]Pharmaceutical and Biomedical Sciences, University of Georgia, Athens, GA; [2]Science Strategies, LLC, Charlottesville, NC; [3]FMC Co, Ewing, NY; and [4]DuPont Haskell Labs, Newark, NJ.

#686 **Poster Board Number 642**
Engineering PON1 in an *E. coli* System Improves Stability and Activity. S. Suzuki[1], R. C. Stevens[4], Y. Vu[1], J. Bui[3], *T. B. Cole*[2], R. J. Richter[1], S. S. Park[1], and *C. E. Furlong*[1]. [1]Medical Genetics and Genome Sciences, University of Washington, Seattle, WA; [2]Environmental and Occupational Health Sciences, University of Washington, Seattle, WA; [3]Biochemistry, University of Washington, Seattle, WA; and [4]MRL Boston, Boston, MA.

#687 **Poster Board Number 643**
Chlorpyrifos Induces DNA Damage and MLL Translocations through Topoisomerase II Inhibition and Apoptosis in Human Fetal Liver Hematopoietic Stem Cells. C. Lu[1], H. Hu[2], *X. Liu*[1], J. Wang[1], and *J. Shao*[1]. [1]School of Public Health, Dalian Medical University, Dalian, Liaoning, China; and [2]The Second Affiliated Hospital, Dalian Medical University, Dalian, Liaoning, China.

#688 **Poster Board Number 644**
Inhalation of Saturated Vapor Concentrations of Chlorpyrifos or Chlorpyrifos Oxon Does Not Inhibit Cholinesterase Activity in the Lung, Brain, or Blood of Rats. *J. A. Hotchkiss*[1], *S. M. Krieger*[1], K. M. Mahoney[1], K. A. Brzak[1], D. L. Rick[1], *M. Bartels*[1], D. W. Lickfeldt[2], and *D. R. Juberg*[2]. [1]The Dow Chemical Company, Midland, MI; and [2]Dow AgroSciences, Indianapolis, IN.

MONDAY

Program Description (Continued)

Abstract #

#689 **Poster Board Number 645**
Biomarkers of Chlorpyrifos and Profenofos Exposure and Effect in Adult and Adolescent Egyptian Cotton Field Workers. *J. R. Olson*[1], *S. T. Singleton*[1], O. A. Dadson[1], M. R. Bonner[1], T. Farahat[2], F. Farahat[2], G. Abdel-Rasoul[2], A. A. Ismail[2], O. Hendy[2], *W. K. Anger*[3], and *D. Rohlman*[4]. [1]University at Buffalo, Buffalo, NY; [2]Menoufia University, Shebin El-Kom, Egypt; [3]OHSU, Portland, OR; and [4]University of Iowa, Iowa City, IA.

#689a **Poster Board Number 646**
Absence of Adverse Effects on Testes or Male Reproduction in an F1 Extended Two-Generation Reproductive Toxicity Study of Carbendazim in Rats. *B. Neal*[1], K. Hill[2], *P. Limaye*[2], S. Bommegowda[2], L. Elcock[2], and *D. Dandekar*[2]. [1]Toxicology and Mechanistic Biology, Exponent Inc., Alexandria, VA; and [2]Xenometrics LLC, Stilwell, KS.

#689b **Poster Board Number 647**
Metabolism of Deltamethrin (DLM), Cis-Permethrin (CPM) and Transpermethrin (TPM) by Rat and Human Liver Preparations. *B. G. Lake*[1], R. J. Price[1], B. R. Ing[1], M. P. Scott[1], C. Cantrill[3], J. B. Houston[3], *M. Yoon*[2], *H. J. Clewell*[2], *S. Anand*[4], *D. W. Gammon*[5], and *T. G. Osimitz*[6]. [1]LFR Molecular Sciences, Leatherhead, Surrey, United Kingdom; [2]The Hamner Institutes for Health Sciences, RTP, NC; [3]University of Manchester, Manchester, United Kingdom; [4]DuPont Haskell, Newark, DE; [5]FMC, Ewing, NJ; and [6]Science Strategies, LLC, Charlottesville, VA.

Monday Afternoon, March 24
1:00 PM to 2:00 PM
Room 106A West

E

Exhibitor-Hosted Session: ICH S1 Proposal—Reducing the Need for Rat Carcinogenicity Studies

Presented by:
BioReliance

As proposed by ICH S1, the rasH2 Transgenic Mouse Carcinogenicity assay should be a component of the WOE of a Sponsor's CAD requesting waiver of a rat 2-year study. Presentation will include an overview of ICH S1, and historical control data confirming rasH2 mouse as a predictor of carcinogenic risk.

Monday Afternoon, March 24
1:00 PM to 2:00 PM
Room 101C West

E

Exhibitor-Hosted Session: *In Vitro* Genotoxicity Screening—Industry Perspective

Presented by:
Gentronix Limited

Gentronix Limited is hosting an Exhibitor-Hosted Session to provide delegates with updates on industrial and other use of its GreenScreen HC and BlueScreen HC GADD45a reporter based assays. The session will describe strategies for best use of these assays in early compound screening and hazard identification.

Monday Afternoon, March 24
1:00 PM to 2:00 PM
Room 106C West

E

Exhibitor-Hosted Session: New Ways to Optimize Preclinical Workflow

Presented by:
PDS Preclinical Data Systems Inc.

New ways of enhancing workflow will be presented that will increase laboratory efficiency, accuracy, and compliance, such as rapidly incorporating safety pharmacology into nonclinical safety workflow.

Monday Afternoon, March 24
1:00 PM to 2:00 PM
Room 101A West

E

Exhibitor-Hosted Session: Validation of Novel Multispecies Primary Hepatic Tissue Constructs for Use in Extended DMPK/Tox Studies

Presented by:
Hurel Corporation

Accurately predicting pharmacokinetic and toxicological properties of drugs earlier in the development process can reduce the number of clinical failures, and the cost of developing a drug. Data from novel primary hepatocyte cell-based *in vitro* systems that exhibit longer metabolic capacities in multiple species will be reviewed.

Monday Afternoon, March 24
1:30 PM to 2:30 PM
North Ballroom 120D

FS

Special Symposium: A Conversation with the Director of NIEHS: Dr. Linda S. Birnbaum

Chairperson(s): *Norbert E. Kaminski, Michigan State University, East Lansing, MI.*



Lecturer: *Linda S. Birnbaum, NIEHS, Research Triangle Park, NC.*

This important session will provide an informal venue for meeting attendees to have a candid and open discussion with Dr. Linda Birnbaum concerning the direction, funding opportunities, and scientific priorities for the National Institute for Environmental Health Sciences. The entire session will be devoted to a question and answer period featuring Dr. Birnbaum. Dr. Birnbaum has served as the Director of the National Institute for Environmental Health Sciences and the National Toxicology Program since 2009.

Monday Afternoon, March 24
2:00 PM to 3:00 PM
Room 226C

Specialty Section Collaboration and Communication Group Meeting

MONDAY

Education-Career Development Sessions
Exhibitor-Hosted Sessions
Featured Sessions
Historical Highlights Session
Informational Sessions
Platform Sessions

Program Description (Continued)

Abstract #

Monday Afternoon, March 24
2:00 PM to 4:45 PM
North Ballroom 120A

Symposium Session: Adverse Outcome Pathways As an Integrative Framework for Predictive Toxicology: Combining Top-Down and Bottom-Up Thinking

Enhancing Strategies for Risk Assessment

Chairperson(s): *Chris Corton, EPA, Durham, NC, and Imran A. Shah, US EPA, National Center for Computational Toxicology, Durham, NC.*

Sponsor(s):
Mechanisms Specialty Section
Molecular Biology Specialty Section

A number of regulatory agencies have ongoing efforts to identify, describe, and categorize AOPs. Developing libraries of AOPs that can effectively address the practical needs of chemical risk assessment is a major undertaking. There is increasing consensus on the AOP concept and structure: chemical exposure triggers a molecular initiating event that leads to a series of biochemical/cellular alterations culminating in tissue effects including frank toxicity. There is recognition that a reductionist approach may not capture sufficient biological complexity of chemical-induced effects for effectively implementing the AOP framework in risk assessment. In the era of large-scale/high-throughput biology, top-down (hypothesis-driven) and bottom-up (data-driven/systems biology) thinking are both vital for building and using AOPs. This symposium will bring together cutting-edge ideas on AOPs as an integrative framework for predictive toxicology and will focus on 1) building the structure of libraries of AOPs, 2) populating the key events with chemical-induced effects from both a top-down and bottom-up (systems biology) approach, and 3) applying the AOP framework to quantitative risk assessment. The first speaker will give an overview of international efforts to build libraries of AOPs and highlight the requirements for their utility in a regulatory context. The second speaker will discuss some of the techniques and hurdles in combining top-down thinking using large-scale molecular data to characterize molecular and cellular events involved in adverse outcomes in the liver. The third speaker will present a large-scale semantic approach for linking data in relation to AOPs. The fourth speaker will present a computational framework that uses data-driven and knowledge-driven analysis to reconstruct AOPs. The last speaker will present some of the opportunities and challenges in using AOPs for qualitative and quantitative extrapolation from *in vitro* to *in vivo*. This symposium will be of wide interest to SOT members, including scientists working in the regulatory arena as well as those interested in the application of molecular and systems biology to risk assessment.

#690	2:00	**Adverse Outcome Pathways As an Integrative Framework for Predictive Toxicology: Combining Top-Down and Bottom-Up Thinking.** *C. Corton*, and *I. Shah*. US EPA, Research Triangle Park, NC.
	2:00	**Introduction.** C. Corton. US EPA, Research Triangle Park, NC.
#691	2:05	**An International Program for the Development of Adverse Outcome Pathways to Support Chemical Risk Assessment.** M. P. Whelan. The Joint Research Center of the European Commission, Ispra, Italy. Sponsor: *C. Corton*.
#692	2:35	**Integrating Genomics into the AOP Framework.** *C. Corton*. US EPA, Research Triangle Park, NC.
#693	3:05	**Opportunities in Toxicology for Large-Scale Semantic-Linked Data and Prediction.** D. J. Wild. Indiana University, Bloomington, IN. Sponsor: *C. Corton*.
#694	3:35	**Interactive Computational AOP Reconstruction from Data.** *I. Shah*. US EPA, Research Triangle Park, NC.

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#695	4:05	**From AOPs to Quantitative *In Vitro* to *In Vivo* Extrapolation.** *M. E. Andersen*. The Hamner Institutes for Health Sciences, Research Triangle Park, NC.
	4:35	**Panel Discussion/Q&A.**

Monday Afternoon, March 24
2:00 PM to 4:45 PM
Room 122

Symposium Session: Is Neuroimmune Crosstalk Important to Neurotoxicology? Critical Insight from Animal and Human Studies

Advancing Clinical and Translational Toxicology and Application of Biomarkers

Chairperson(s): *Traci A. Brown, University of Montana, Center for Environmental Health Sciences, Missoula, MT, and Colleen E. McLoughlin, NIOSH, Morgantown, WV.*

Sponsor(s):
Graduate Student Leadership Committee
Neurotoxicology Specialty Section
Postdoctoral Assembly

Convincing evidence of bidirectional communication between the immune system and the nervous system has led to a paradigm shift in our understanding of neuroimmune interactions. Emerging evidence establishes a role for immune signaling in key neurodevelopmental events. Additional evidence suggests immune system contribution to neuronal responses in the form of neuroprotection and repair of tissue injury, as well as in the pathogenesis of neurodevelopmental and neurodegenerative disease. Simultaneously, neurons may actively participate in immune responses in the nervous system by signaling to resident and infiltrating immune cells. The net result of the neuroimmune crosstalk depends on the balance between protective and destructive signaling pathways. There is increasing consensus that exposure to neurotoxicants may tip this balance towards a more disruptive outcome and augment the risk and/or severity of disease. How the immune system can act as a mediator/modulator of neurotoxicity remains elusive. Understanding gained by investigation into neuroimmune interactions will guide improvement of disease diagnosis, prevention, and treatment. This session will present evidence of neuroimmune perturbations in human studies and animal models of neurotoxicant exposure. Evidence from human studies will focus on immune alterations following developmental neurotoxicant exposure in children with documented neurological deficits and in a pediatric population with autism spectrum disorders. Supporting data from animal models will focus on peripheral immune alterations and neuroinflammation following developmental or adult nervous system insult.

#696	2:00	**Is Neuroimmune Crosstalk Important to Neurotoxicology? Critical Insight from Animal and Human Studies.** *T. Brown*[1], and *C. E. McLoughlin*[2]. [1]University of Montana, Missoula, MT; and [2]NIOSH, Morgantown, WV.
	2:00	**Introduction.** T. Brown. University of Montana, Missoula, MT.
#697	2:05	**Neuroimmune Interactions in CNS Development, Repair, and Damage: An Overview.** *M. Stamou*, and *P. Lein*. Molecular Biosciences, School of Veterinary Medicine, University of California Davis, Davis, CA.
#698	2:30	**Effect of Polybrominated Diphenyl Ethers (PBDEs) on Immune Function and Cellular Signaling in Children with Autism.** *M. Eloi Atkintunde*, P. Krakowiak, R. Boyce, P. Ashwood, I. Hertz-Picciotto, *I. N. Pessah*, and J. Van de Water. University of California Davis, Davis, CA.

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Program Description (Continued)

Abstract #		
#699	3:00	**The Immune and Neurological Impacts of Developmental BPA Exposure.** *J. N. Franklin*, Q. Hu, B. Rushing, M. Biller, and *J. DeWitt*. Brody School of Medicine, East Carolina University, Greenville, NC.
#700	3:30	**Exploring the Relationship between Neuroinflammation and Neurotoxicity.** *K. A. Kelly*, *D. B. Miller*, and *J. P. O'Callaghan*. CDC-NIOSH, Morgantown, WV.
#701	4:00	**Neuroautoantibodies: Biomarkers and Potential Pathogenicity.** *L. A. Shaiba*. Department of Pediatrics, University of British Columbia, Vancouver, BC, Canada.
	4:30	**Panel Discussion/Q&A.**

Monday Afternoon, March 24
2:00 PM to 4:45 PM
Room 121

Symposium Session: Perinatal Exposures and Children's Health Outcomes

Advancing Clinical and Translational Toxicology and Application of Biomarkers

Chairperson(s): *Miriam C. Poirier, National Cancer Institute, CDI Section, LCBG, Bethesda, MD, and Nina Holland, University of California Berkeley, School of Public Health, Berkeley, CA.*

Sponsor(s):
Biotechnology Specialty Section
Reproductive and Developmental Toxicology Specialty Section

The developing fetus is more susceptible to xenobiotic toxicant exposures than are individuals in adulthood. This may be largely due to the rapid growth rate, the inability of the placenta to protect completely, and the undeveloped/immature fetal immune and metabolic systems. *In utero* and perinatal xenobiotic exposures may contribute to chronic diseases of adolescence and adulthood, including cancer, asthma, and obesity. Molecular epidemiology of children's environmental health, which attempts to link exposure and disease, is a fast-growing area of research, both nationally and internationally. Clinical end points examined include growth parameters, metabolism, and cognitive capacity. Biomarker studies have concentrated on revealing genotoxic and epigenetic events, as well as mitochondrial toxicity, alterations in DNA repair, estrogenic effects, prediabetic metabolic syndromes, and other changes. Epigenetic effects related to prenatal exposures, are considered to play a role in the fetal origin of adult human diseases, but the importance of this area for public health is only beginning to be understood. The relevant exposures may range from metals, polycyclic aromatic hydrocarbons associated with air pollution, and pesticides, to hormone disruptors and widely-used chemotherapeutic drugs. Fetal adverse outcome may appear early (mitochondrial toxicity, metabolic syndrome, asthma, cognitive disorder), or years later (leukemia, obesity, and diabetes). This symposium is designed to highlight the significance of adverse health outcomes induced in infants and young children by a broad range of xenobiotic exposures occurring *in utero* and/or shortly after birth. If we can elucidate underlying genetic and epigenetic mechanisms, it may be possible to devise strategies that will better protect the health of all infants and children.

Abstract #		
#702	2:00	**Perinatal Exposures and Children's Health Outcomes.** *N. Holland*[2], and *M. C. Poirier*[1]. [1]CDI Section, LCBG, National Cancer Institute, Bethesda, MD; and [2]School of Public Health, University of California Berkeley, Berkeley, CA.
	2:00	**Introduction.** N. Holland. School of Public Health, University of California Berkeley, Berkeley, CA.
#703	2:05	**Perinatal Exposures to Environmental Pollutants and Children's Health.** *J. J. Heindel*, T. Schug, and K. Gray. NIEHS, Research Triangle Park, NC.
#704	2:35	**Early-Life Metal Exposure and Epigenetics.** *R. O. Wright*. Mount Sinai School of Medicine, New York.
#705	3:05	**Fetal Consequences of *In Utero* Antiretroviral (ARV) Nucleoside Reverse Transcriptase Inhibitor (NRTI) Exposures in Primates.** *M. C. Poirier*[1], *O. Olivero*[1], Y. Liu[1], R. L. Divi[1], and R. A. Woodward[2]. [1]CDI Section, LCBG, National Cancer Institute, Bethesda, MD; and [2]Shared Animal Facility, NICHD, NIH, Dickerson, MD.
#706	3:35	**Air Pollution and Molecular Biomarkers of Children's Health.** R. J. Sram, M. Dostal, H. Libalova, A. Milcova, P. Rossner, A. Rossnerova, J. Schmuczerova, and *J. Topinka*. Department of Genetic Ecotoxicology, Institute of Experimental Medicine, Academy of Sciences of the Czech Republic, Prague, Czech Republic.
#707	4:05	**Genetic and Epigenetic Determinants of Health Outcomes in Children with Prenatal Pesticide Exposure.** N. Holland, P. D. Yousefi, K. Huen, and B. Eskenazi. CERCH, University of California Berkeley, Berkeley, CA. Sponsor: *M. Poirier*.
	4:35	**Panel Discussion/Q&A.**

Monday Afternoon, March 24
2:00 PM to 4:45 PM
Room 124

Symposium Session: The Emerging Role of Mitochondrial Turnover, Biogenesis, and Dynamics in Tissue Injury

Safety Assessment: Mechanisms and Novel Methods

Chairperson(s): *Jae-Sung Kim, University of Florida, Surgery, Gainesville, FL, and John J. Lemasters, Medical University of South Carolina, Pharmacy & Biomedical Sciences, Charleston, SC.*

Sponsor(s):
Korean Toxicologists Association in America Special Interest Group
Mechanisms Specialty Section
Toxicologic and Exploratory Pathology Specialty Section

The mitochondria, the cell's powerhouses, provide cells with adenosine triphosphate (ATP) to drive diverse energy-requiring reactions. Besides energy generation, the mitochondria are also involved in a myriad of essential functions and signaling events in cells. Consequently, disturbances affecting mitochondrial integrity diminish the quality and function of mitochondria, ultimately leading to tissue injury and death. Indeed, mitochondrial dysfunction is a key mechanism underlying ischemia/reperfusion, aging, and drug-induced toxicity in the liver, kidney, and other organs. To maintain normal cell function and survival under the conditions of a variety of stresses, cells possess a powerful surveillance system that selectively eliminates injured or dysfunctional mitochondria in a timely manner, a process called mitophagy. Impaired or insufficient mitophagy is causatively linked to pathology of ischemia/reperfusion, aging, and alcohol- and acetaminophen-mediated hepatotoxicity. The mitochondria are newly formed, and constantly divide and fuse, and continuously change their size and morphology during times of cellular stresses or in response to environmental stimuli. The biogenesis of mitochondria is tightly regulated, and inhibition of mitochondrial biogenesis has been associated with the development of age-related degenerative diseases. Furthermore, mitochondrial dynamics not only determines mitochondrial size, but also regulates mitophagy. Growing evidence is accumulating that mitochondrial biogenesis and dynamics are neatly interconnected with mitophagy. This symposium will emphasize the emerging role of mitochondrial turnover, biogenesis, and dynamics in tissue injury.

Program Description (Continued)

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#708 2:00 **The Emerging Role of Mitochondrial Turnover, Biogenesis, and Dynamics in Tissue Injury.** *J. Kim*[1], *J. J. Lemasters*[2], Y. Yoon[3], *R. Schnellmann*[2], and *H. Jaeschke*[4]. [1]Surgery, University of Florida, Gainesville, FL; [2]Drug Discovery & Biomedical Sciences, Medical University of South Carolina, Charleston, SC; [3]Physiology, Georgia Regents University, Augusta, GA; and [4]Pharmacology, Toxicology and Therapeutics, University of Kansas Medical Center, Kansas City, KS.

2:00 **Introduction.** J. Kim. Department of Surgery, University of Florida, Gainesville, FL.

#709 2:05 **Variants of Mitochondrial Autophagy: Types 1 and 2 Mitophagy.** *J. J. Lemasters*. Drug Discovery & Biomedical Sciences and Biochemistry & Molecular Biology, Medical University of South Carolina, Charleston, SC.

#710 2:37 **Mitochondrial Autophagy in Ischemia-Reperfusion Injury and Age-Mediated Hepatotoxicity.** *J. Kim*. Surgery, University of Florida, Gainesville, FL.

#711 3:09 **Mitochondrial Dynamics and Oxidative Tissue in Diabetes.** Y. Yoon. Department of Physiology, Georgia Regents University, Augusta, GA. Sponsor: *J. Kim*.

#712 3:41 **Mitochondrial Biogenesis or Not Following Toxicant Exposure.** *R. Schnellmann*. Drug Discovery and Biomedical Sciences, Medical University of South Carolina, Charleston, SC.

#713 4:13 **Mitochondria Dynamics in Acetaminophen-Induced Liver Injury.** *H. Jaeschke*. Department of Pharmacology, Toxicology and Therapeutics, University of Kansas Medical Center, Kansas City, KS.

Monday Afternoon, March 24
2:00 PM to 4:45 PM
North Ballroom 120B

Symposium Session: Use of Stem Cells in Toxicity Testing—From Basic Research to Personalized Toxicology

Stem Cell Models for Integrated Biology

Chairperson(s): *Stephane H. Dhalluin, UCB Pharma, Dept of Nonclinical Development, Brussels, Belgium, and Yvonne Will, Pfizer, Inc., Compound Safety Prediction, Groton, CT.*

Sponsor(s):
Drug Discovery Toxicology Specialty Section
Mechanisms Specialty Section
Stem Cells Specialty Section

Drug-induced toxicity remains a major problem for all pharmaceutical companies, and most have deployed *in silico* and *in vitro* testing paradigms throughout the drug discovery process to select safer drugs to be tested in animal models and advance to patients. Despite many advances in understanding mechanisms of toxicity, the majority of *in vitro* assays predict human risks by less than 50%, and it was shown that measuring simple mechanistic toxicity endpoints in organ-relevant cell lines does not predict organ toxicity (Lin and Will, 2012, Lu and Will, SOT 2013).This may be due to the fact that certain basic toxicity mechanisms such as apoptosis or mitochondrial dysfunction can contribute to a variety of organ toxicities and that many cell lines lack features of organ physiology, such as proper metabolism, relevant ion channel pharmacology, genetic diversity or disease background, to name a few. To build a predictive multicell model, it is necessary to begin with improved functional cell models from the relevant tissue, e.g., hepatocytes, cardiomyocytes, etc. Therefore, efforts to generate physiologically-, pharmacologically-, and toxicologically-relevant cells from ES and iPS cells are important. Progress has been made in the production of human/patient-

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derived pluripotent stem cells, which can be continuously expanded in the undifferentiated state and differentiated to form most cell types, potentially allowing recapitulation of genetic variation such as association with known gene variants (e.g., HLA susceptibility alleles). This symposium will contribute to our understanding of the current and future state of stem cell usage in toxicology by: 1) providing an overview of stem cells, their characteristics in comparison to native organs, their ability to represent patient genetics and disease, 2) describing the current state of application to detect liver, heart, and kidney toxicity, 3) discussing how good patient genetic and disease background give rise to personalized toxicity assessment.

#714 2:00 **Use of Stem Cells in Toxicity Testing—From Basic Research to Personalized Toxicology.** *S. H. Dhalluin*[1], and *Y. Will*[2]. [1]New Medicines - Non-Clinical Development, UCB Pharma SA, Brussels, Belgium; and [2]Global Research and Development, Pfizer, Groton, CT.

2:00 **Introduction.** S. H. Dhalluin. New Medicines - Non-Clinical Development, UCB Pharma SA, Brussels, Belgium.

#715 2:05 **Human Pluripotent Stem Cells As Tools for Safety Toxicology.** J. Thomson. Morgridge Institute for Research, Madison, WI. Sponsor: *Y. Will*.

#716 2:45 **The Application of Stem Cell-Derived Hepatocytes in Mechanism-Based Drug Safety Assessment.** C. Goldring. MRC Centre for Drug Safety Science, University of Liverpool, Liverpool, United Kingdom. Sponsor: *S. Dhalluin*.

#717 3:25 **iPSCs for Cardiac Drug Testing.** J. Wu[1,2]. [1]Stanford Cardiovascular Institute, School of Medicine, Stanford University, Stanford, CA; and [2]Department of Medicine/Cardiology, School of Medicine, Stanford University, Stanford, CA. Sponsor: *Y. Will*.

#718 4:05 ***In Vitro* Models for the Prediction of Nephrotoxicity in Humans.** D. Zink. Institute of Bioengineering and Nanotechnology, Agency for Science, Technology and Research, Singapore, Singapore. Sponsor: *S. Dhalluin*.

Monday Afternoon, March 24
2:00 PM to 4:45 PM
Room 129

Workshop Session: Skeptically Re-Examining the Limits of Toxicology Evidence in the Courtroom

Chairperson(s): *George B. Corcoran, Wayne State University, Pharmaceutical Sciences, Detroit, MI, and Sol M. Bobst, Nexeo Solutions LLC, The Woodlands, TX.*

Sponsor(s):
Communications Committee
Ethical, Legal, and Social Issues Specialty Section
Regulatory and Safety Evaluation Specialty Section

This session examines the legal applications and boundaries of toxicology and closes with a panel discussion and audience question and answer. Law and science exist in a time-frame dichotomy. The law needs a just jury verdict today, yet the *modus operandi* of science works over years toward more accurate theories. The adversary system and its use of experts to support a partisan position is explored. Differing models of legal and scientific interaction dictate that goals of science or of the law may suffer while the other is upheld. Toxicology stands front and center in how the law approaches scientific evidence and professional expert testimony. *Galileo's Revenge* did much to expose junk science in expert testimony. The Supreme Court selected cases rooted in toxicology to re-tool the federal approach to scientific expertise in *Daubert v. Merrill Dow* and *Joiner v. General Electric*. The courts followed with the *Federal Reference Manual on Scientific Evidence*, guiding the role of science in complex litigation. Questions about how toxic substances cause injury and how to trace and attribute responsibility remain among the most common in the courtroom. This workshop

Program Description (Continued)

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examines neurological damage and the roles of genetics and genomics. The limits of expertise to explain and predict the causes and effects are central to such cases. Experts are offered from many disciplines, some never seen before depositions. Lawyers and judges are urged by Daubert to view science as scientists do, through the scientific method. Following this skeptical evaluation of toxicology evidence in the courtroom, attendees will be better prepared to assist the higher ends of both toxicology and the law.

#719	2:00	**Skeptically Re-Examining the Limits of Toxicology Evidence in the Courtroom.** *G. B. Corcoran*[1], M. J. Saks[2], *S. M. Bobst*[3], *G. E. Marchant*[2], *T. Simon*[4], and R. T. Kennedy[5]. [1]Pharmaceutical Sciences, Wayne State University, Detroit, MI; [2]Sandra Day O'Connor College of Law, Arizona State University, Tempe, AZ; [3]Nexeo Solutions, LLC, Houston, TX; [4]Ted Simon, LLC, Winston, GA; and [5]New Mexico Court of Appeals, Albuquerque, NM.
	2:00	**Introduction.** G. B. Corcoran. Pharmaceutical Sciences, Wayne State University, Detroit, MI.
#720	2:10	**Trial Factfinders and Expert Evidence.** M. J. Saks. Sandra Day O'Connor College of Law, Arizona State University, Tempe, AZ. Sponsor: *G. Corcoran*.
#721	2:35	**Presentation Approach: The 5-Question Approach to Specific Causation, and Beyond.** *S. M. Bobst*. Nexeo Solutions, LLC, Houston, TX.
#722	3:00	**Evidentiary Challenges with Genomic Data in Toxic Tort Litigation.** *G. E. Marchant*. Sandra Day O'Connor College of Law, Arizona State University, Tempe, AZ.
#723	3:25	**Evidentiary Standards for Neuroactive and Neurotoxic Drug Testing.** *T. Simon*. Ted Simon LLC, Winston, GA.
#724	3:50	**Challenging Toxicologists to Advance the Science of Forensics.** R. T. Kennedy. New Mexico Court of Appeals, Albuquerque, NM. Sponsor: *G. Corcoran*.
	4:15	**Panel Discussion/Q&A.**

Monday Afternoon, March 24
2:00 PM to 4:45 PM
Room 126

EC

Education-Career Development Session: Scientific Ethics in Research and Publications

Chairperson(s): *William J. Brock, Brock Scientific Consulting, Montgomery Village, MD, and Mary Beth Genter, University of Cincinnati, Environmental Health, Cincinnati, OH.*

Sponsor(s):
Career Resource and Development Committee
Education Committee
Ethical, Legal, and Social Issues Specialty Section

For many involved in toxicological research and publishing, it may seem strange or uncomfortable to engage in a discussion of the practicality of ethics. However, with the daily pressures of career advancements and salary increases as well as notoriety and professional recognition, engaging in this discussion will permit continued awareness of the pitfalls of poor ethical behavior that can lead to catastrophic career outcomes. The scientific community has been rocked by unfortunate media reports over the years that call into question the results of studies and fallibility of science. Although these reports may represent a small percentage of individuals, the impact is far-reaching throughout the scientific community. There have been several reports in the past few years that suggest that the number of retracted papers in scientific literature has increased 10-fold over the previous decade, and that a majority of the retracted papers was due to scientific misconduct that included fraud, plagiarism, and outright data falsification. In spite of the increase in retractions, many of those retracted papers continue to be cited in subsequent publications and grant submissions. Plagiarism by far represents

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the more common concern in scientific writing. Whether this occurs from the originating author or the wording is "stolen" by others to improve or even exaggerate a conclusion has led to a change in peer-review processes, development of plagiarism software, and mandatory training in certain academic circles. In addition, "ghost" and "in absentia" authors have raised significant data credibility concerns in a regulatory environment. In this session, the background of the problem is presented with real-world examples from literature and reports, and the impact of this problem on a career. Can the peer-review process reduce the likelihood of scientific misconduct? Discussion will occur on the peer-review process and how that process affects the publishing of duplicative or plagiarized data.

#725	2:00	**Scientific Ethics in Research and Publications.** *W. J. Brock*[1], and *M. Genter*[2]. [1]Brock Scientific Consulting, Montgomery Village, MD; and [2]University of Cincinnati, Cincinnati, OH.
	2:00	**Introduction.** W. J. Brock[1], and M. Genter[2]. [1]Brock Scientific Consulting, Montgomery Village, MD; and [2]University of Cincinnati, Cincinnati, OH.
#726	2:05	**Introduction to Scientific Misconduct: The Problem, the Results, and the Potential Impact of Advancing a Career Path.** *W. J. Brock*. Brock Scientific Consulting, Montgomery Village, MD.
#727	2:30	**Responsible Research: What Is It and Can It Be Done?** *P. Zigas*. East Carolina University, Greenville, NC.
#728	2:55	**Authorship and Scientific Misconduct.** *W. B. Mattes*. PharmPoint Consulting, Poolesville, MD.
#729	3:20	**Seeking, Identifying, and Preventing Plagiarism: Manuscript Submissions and Peer Review.** *M. Genter*. University of Cincinnati, Cincinnati, OH.
	3:45	**Panel Discussion/Q&A.**

Monday Afternoon, March 24
2:15 PM to 3:15 PM
Room 101C West

E

Exhibitor-Hosted Session: Advancing Environmental Health Data Sharing and Analysis

Presented by:
National Institute of Environmental Health Sciences

Environmental health science has undergone a dramatic transformation in recent years, becoming data-intensive, interdisciplinary, computational, and collaborative. Coordinated efforts, with input from the community, are needed to better address data opportunities, and improve data interoperability and data access to advance understanding about chemical effects on human health and the environment.

Monday Afternoon, March 24
2:15 PM to 3:15 PM
Room 106C West

E

Exhibitor-Hosted Session: Microsampling in Adult and Juvenile Rodents: A Little May Go a Long Way!

Presented by:
Charles River

Microsampling has allowed scientists to assess toxicology endpoints using lower blood volumes than ever before. By reducing blood volumes and adapting existing bioanalytical techniques, toxicologists can assay more endpoints in individual animals, gain further insights into "main study" animals and reduce the need for extra animals in satellite groups.

Program Description (Continued)

Monday Afternoon, March 24
2:15 PM to 3:15 PM
Room 106A West

E

Exhibitor-Hosted Session: Phenotypic and Functional Evaluation of Drug-Induced Platelet Alterations in Nonclinical Laboratory Studies

Presented by:
SNBL USA, Ltd.

The prevalence of drug-induced thrombocytopenia warrants platelet evaluation during drug development. This presentation highlights numerous phenotypic and functional assays that are suitable for assessing platelets in nonhuman primate (NHP) samples, and reviews data on the reproducibility of flow cytomic analysis for platelet activation, aggregation, and development.

Monday Afternoon, March 24
2:15 PM to 3:15 PM
Room 101A West

E

Exhibitor-Hosted Session: Regulated Bioanalysis of Oligonucleotide Therapeutics and Biomarkers

Presented by:
Tandem Labs

Oligonucleotide therapeutics and biomarkers are a growing segment of the global drug development and clinical diagnostic business. In addition to traditional hybridization-ELISA, HPLC, or capillary gel electrophoresis-UV/fluorescence methods, more sensitive and/or more specific quantitative PCR, LC–MS/MS, LC-high resolution accurate mass and hybridization-based LC-fluorescence assays are being used.

Monday Afternoon, March 24
3:15 PM to 4:45 PM
Room 127C

Government Liaison Groups Collaboration Meeting

SOT 2013–2014 Officers and Councilors and officials from various federal government agencies will meet jointly to discuss mutual areas of interest.

Monday Afternoon, March 24
3:30 PM to 4:30 PM
Room 106A West

E

Exhibitor-Hosted Session: Advanced 3D Liver Co-Culture Models for Predictive *In Vitro* Testing

Presented by:
InSphero AG

Co-cultures of important hepatic cell types, including Kupffer cells, in scaffold-free 3D microtissues offer novel perspectives to predictive *in vitro* testing. Case studies show the benefits of 3D models for applications in long-term, idiosyncratic toxicity and DMPK/ADME testing. Advanced endpoints, including proteomics and transcriptomics, will be introduced during this session.

Monday Afternoon, March 24
3:30 PM to 4:30 PM
Room 101A West

E

Exhibitor-Hosted Session: Evaluation of Species Differences in Adverse Drug Properties with Plateable Cryopreserved Hepatocytes from Human, Monkey, Dog, Rat, and Mouse

Presented by:
In Vitro ADMET Laboratories LLC

Novel advances in the application of cultured cryopreserved hepatocytes from human and nonhuman animals for species-comparison of xenobiotic toxicity will be discussed, with emphasis on the selection of the most appropriate nonhuman animal species for the prediction of human drug toxicity.

Monday Afternoon, March 24
3:30 PM to 4:30 PM
Room 101C West

E

Exhibitor-Hosted Session: HepaRG Human Hepatic Cells an *In Vitro* Tool for Predicting Cholestasis

Presented by:
Biopredic International

HepaRG cells possess two key characteristics for *in vitro* assessment of *in vivo* cholestatic risk, a robust and comprehensive biotransformation and transport capacity and formation of bile canaliculi which contract when exposed to relevant compounds. This session will explore this use of these novel cells.

Monday Afternoon, March 24
3:30 PM to 4:30 PM
Room 106C West

E

Exhibitor-Hosted Session: Human Pluripotent Stem (hPS) Cells As a Tool for Developmental Toxicity Screening

Presented by:
Stemina Biomarker Discovery

There is an increasing need for low-cost, reliable, rapid throughput, *in vitro* developmental toxicity screens in the pharmaceutical and chemical industries. An hPS cell-based *in vitro* model offers insight into potential human response and may reduce the risk of false-negatives due specifically to interspecies differences in developmental pathways and pharmacokinetics.

Monday Afternoon, March 24
3:45 PM to 4:45 PM
Room 104B West
(Registration Required)

Undergraduate Education Program: Host Mentor and Peer Mentor Meeting

Chairperson(s): *Sudheer Reddy Beedanagari, Bristol-Myers Squibb Company, East Brunswick, NJ.*

Host mentors and peer mentors meet to provide feedback on the Undergraduate Education Program.

MONDAY

Program Description (Continued)

Monday Afternoon, March 24
4:45 PM to 6:00 PM
North Ballroom 120D

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SOT/EUROTOX Debate: Are Nonmonotonic Dose-Responses at Low Dose Levels Toxicologically Relevant?

Chairperson(s): *Peter L. Goering, US FDA, Silver Spring, MD, and Arisitidis Tsatsakis, University of Crete, Heraklion, Greece.*

SOT Debater: *James C. Lamb IV, Exponent, Alexandria, VA.*

EUROTOX Debater: *Dieter Schrenk, Technische Universität Kaiserslautern, Kaiserslautern, Germany.*

Endorsed by:
Society of Toxicology (SOT)
European Societies of Toxicology (EUROTOX)

Each year the SOT Annual Meeting includes a debate that continues a tradition that originated in the early 1990s, in which leading toxicologists advocate opposing sides of an issue of significant toxicological importance. This year, our debaters will address the proposition: Are Nonmonotonic Dose-Responses at Low Dose Levels Toxicologically Relevant?

Dose-response curves are often drawn and considered in the context of the "dose makes the poison." This is described simplistically as increasing dose levels result in increasing adverse effects. This can be the result of a monotonic increase or decrease in a response that is associated with an adverse effect. Nonmonotonic dose-responses (NMDRs) are biological effects with dose-response curves deviating from the usual shape of a continuous increase in effect with dose eventually reaching a saturation level at high doses and showing no measurable response at very low doses. NMDRs are characterized by a change in the slope of the curve at one or more points within the dose range examined. Several controversial claims are associated with NMDRs: 1) that in the low dose range, the curve may run through a minimum but may show significant effects at very low doses; 2) that some of these effects may be adverse, in particular, those which affect or disturb highly sensitive signaling pathways in the organism, such as those triggered by steroid hormones or thyroid hormones; 3) that such effects may be of particular relevance in the developing organism; and 4) that our current testing strategies in toxicology do not or insufficiently detect such effects. The debaters will address the relevance of these reported NMDRs and claims to toxicology and risk assessment.

Regardless of framework differences and personal convictions, each scientific debate delegate will present relevant evidence and compelling scientific arguments to persuade and appeal to the response of the audience in order to obtain the approval or refusal of the motion. In addition to being a featured session at the SOT Annual Meeting in Phoenix, Arizona, this debate will again take place (with the debaters taking the reverse positions) in Edinburgh, Scotland during the 50th Congress of the European Societies of Toxicology (2014 Eurotox Annual Congress), September 7–10.

MONDAY EVENING

Monday Evening, March 24
5:00 PM to 6:30 PM
Hyatt Sundance

Allegheny-Erie and Michigan Regional Chapter Joint Reception

Monday Evening, March 24
5:00 PM to 6:00 PM
Sheraton Phoenix Ballroom A

American Association of Chinese in Toxicology Special Interest Group Distinguished Chinese Toxicologist Lectureship Award Seminar: Career vs. Business—Personal Experience in the US and China, *Lecturer: Dr. Lijie Fu, SNBL USA Ltd.*

Monday Evening, March 24
5:00 PM to 6:30 PM
Room 221A

Special Interest Group: Global Hot Topics Event—Air Pollution around the World: Global Concerns

First annual SIG-Collaboration Group Event: This International panel of speakers will present on the toxicological impacts of air pollution originating from sources common to their region while promoting and encouraging discussion with the audience on this important topic with global impact.

Gene Expression Profiles in Asthmatic Children Living in Localities with Different Extent of the Air Pollution. *Jan Topinka.* Institute of Experimental Medicine AS CR Prague Czech Republic, Prague, Czech Republic.

Sugar-Cane Burning and Adverse Health Effects in the Exposed Population: The Case of Brazil. *Paulo Saldiva.* University of São Paulo, São Paulo, Brazil.

Toxicological Implications of Smoke from Burning Scrap Automobile Tires for Singeing Meat in Africa (Ghana). *Evans Afriyie-Gyawu.* Georgia Southern University, Statesboro, GA.

Monday Evening, March 24
5:00 PM to 6:00 PM
Sheraton Coronado

Toxicologists of African Origin Special Interest Group Executive Board Meeting

Monday Evening, March 24
5:00 PM to 6:00 PM
Sheraton Arcadia

Women in Toxicology Special Interest Group Executive Committee Meeting

Program Description (Continued)

Monday Evening, March 24
5:30 PM to 7:30 PM
Tom's Tavern

Pacific Northwest Regional Chapter Reception

Monday Evening, March 24
6:00 PM to 9:00 PM
Sheraton Phoenix Ballroom A

American Association of Chinese in Toxicology Special Interest Group Meeting/Reception

Monday Evening, March 24
6:00 PM to 8:00 PM
Thai'd Up Restaurant

Korean Toxicologists Association in America Meeting/Reception

Monday Evening, March 24
6:00 PM to 8:00 PM
Canyon Cafe

Southeastern Regional Chapter Reception

Monday Evening, March 24
6:00 PM to 7:30 PM
Sheraton
See room listing below.

Specialty Section Meeting/Receptions: Carcinogenesis (Encanto A); Food Safety (Valley of the Sun D); Inhalation and Respiratory (Valley of the Sun C); Medical Device (Paradise Valley); Metals (Encanto B); Molecular and Systems Biology (Alhambra); Nanotoxicology (Valley of the Sun A)

Monday Evening, March 24
6:30 PM to 8:00 PM
Sheraton Ahwatukee

Toxicologists of African Origin Special Interest Group Reception

Monday Evening, March 24
7:00 PM to 9:00 PM
Sheraton Deer Valley

Association of Scientists of Indian Origin Special Interest Group Meeting/Reception

Program Description (Continued)

TUESDAY MORNING

Tuesday Morning, March 25
6:30 AM
Steele Indian School Park

Past Presidents' 5k Fun Run/Walk

Supporter:
ReproCELL

Join us for the fourth annual Past Presidents' 5k Fun Run/Walk! Open to anyone interested, this event is a great opportunity to meet old friends and make new friends in a casual environment, joining SOT's Past Presidents in showing support for SOT. Whether you're in it for some friendly competition or would rather take a leisurely stroll, this event's emphasis is on camaraderie and will bring together runners and walkers of all levels and paces. Come join us—we look forward to seeing you!

To register, visit the Special Events section of the SOT Annual Meeting website. Registration is only $18, and all proceeds will go toward the SOT Endowment Fund.

Tuesday Morning, March 25
7:30 AM to 9:00 AM
Room 227

American Association of Chinese in Toxicology and Korean Toxicologists Association in America Special Interest Groups' Career Workshop



Tuesday Morning, March 25
8:00 AM to 8:50 AM
North Ballroom 120B

FS

Leading Edge in Basic Science Award Lecture: A Two-Pronged Approach to Modernize Toxicology



Lecturer: *Vishal S. Vaidya, Harvard Medical School, Boston, MA.*

Biomarkers have tremendous transformative potential in translational medicine to not only monitor the efficacy and safety of a therapeutic but also to guide the diagnosis of a disease, determine risk of developing diseases and to inform treatment options. In this presentation I will highlight the success of our laboratory in collaboration with Predictive Safety Testing Consortium that led to the qualification of Kidney Injury Molecule-1 (Kim-1) as a biomarker for kidney toxicity monitoring by regulatory agencies. We were able to characterize the performance of Kim-1 as a biomarker from preclinical and clinical evaluation to regulatory qualification and point-of-care testing. More recently, we have also uncovered the key transcription factor and kinase regulating Kim-1 expression in the kidney. In addition, I will provide an update on identification and evaluation of alternative mechanistic and translational biomarkers for kidney disease such as fibrinogen and urinary microRNAs. The second approach in modernizing toxicology that is aligned with the Tox21 initiative aims toward transforming the traditional *in vivo*, dose-response based safety assessment by developing high throughput cell-based assays. I will describe our ongoing efforts that use primary human proximal tubular epithelial cells in an attempt to develop multi-dimensional toxico-response signatures that represent a biography of the toxic cell.

Tuesday Morning, March 25
8:30 AM to 9:30 AM
Room 106C West

E

Exhibitor-Hosted Session: EMD Millipore's Optimized Assays and Benchtop Single-Cell Analysis Systems Provide Comprehensive Assessment of Cellular Toxicity

Presented by:
EMD Millipore Corporation

An overview of highly-optimized toxicology assays and summary of literature employing these systems will be presented. Muse® Cell Analyzer's optimized pathway-specific assays bring reliable performance, guava easyCyte™ automates flow-based, cell screening, and Amnis® systems combine high-resolution imaging and flow cytometry to solve complex toxicity challenges including micronuclei detection.

Tuesday Morning, March 25
8:30 AM to 9:30 AM
Room 106A West

E

Exhibitor-Hosted Session: The Pros and Cons of Adding Safety Pharmacology End-Points into Toxicology Studies

Presented by:
Covance

Scientific, business, regulatory, financial and 3Rs considerations have been raised to argue for and against adding safety pharmacology end-points into toxicology studies. Case studies will be used to highlight the pros and cons of these designs and provide an opinion on how to design the right strategy for this question.

Program Description (Continued)

Tuesday Morning, March 25
8:30 AM to 9:30 AM
Room 101C West

Exhibitor-Hosted Session: Use of Chemical Analyses and Toxicological Risk Assessments to Support the Biological Evaluation of Medical Devices

Presented by:
WuXi Apptec, Inc.

Biological evaluation of medical devices should be conducted within a risk management process. This includes chemical characterization and risk assessments. Quantitation of leachable chemicals from finished devices is recommended to conduct meaningful risk assessments, and biocompatibility testing completes the biological evaluation.

Tuesday Morning, March 25
8:30 AM to 9:30 AM
Room 101A West

Exhibitor-Hosted Session: Validating Cell-Based Assays for 3D Culture Models

Presented by:
Promega Corporation

Complex 3D cell culture models provide a challenge for assay chemistries originally designed for measuring classical cytotoxicity endpoints from monolayers of cells. We will present factors to consider and guidelines for designing and validating performance of cell-based assays measuring viability, apoptosis, and cell stress events leading to cytotoxicity.

Tuesday Morning, March 25
9:00 AM to 11:45 AM
North Ballroom 120A

Frontiers for Toxicology Session

Symposium Session: Noncoding RNAs in Human Health, Therapeutics, and Environmental Disease

Chairperson(s): *Michael J. Carvan, University of Wisconsin-Milwaukee, Great Lakes WATER Institute, Milwaukee, WI, and James L. Stevens, Eli Lilly & Company, Research Laboratories, Indianapolis, IN.*

Sponsor(s):
Scientific Program Committee

A little over a decade ago, the regulatory role of small non-protein-coding RNAs was first uncovered through experiments involving the deliberate introduction of short double-stranded RNAs (dsRNA) into plant and eukaryotic cells. These exogenous dsRNAs were found to induce post-transcriptional gene silencing, a process termed RNA interference. This seminal observation led to the discovery of novel and complex biological processes of gene regulation involving endogenous noncoding RNAs of which several varieties have been identified, including microRNA, PIWI-interacting RNA, and long noncoding RNA. During the past 10 years, significant advances have been made in gaining an understanding of the role of noncoding RNAs spanning the period from organismal development and continuing throughout all stages of life. Although the biological role of noncoding RNA has yet to be fully understood, it is important to emphasize that only a small fraction of the mammalian genome codes for mRNAs, and yet the majority of the remaining genome is transcribed into noncoding RNAs. It is tempting to speculate that a large proportion of these noncoding RNAs are transcribed for the distinct purpose of carrying out critical regulatory functions. Indeed, there is a growing literature identifying specific processes under the control of noncoding RNAs and, likewise, the pathology that can ensue when noncoding RNA regulatory processes are disrupted. Relatively little is known concerning the influence environmental factors exert on noncoding RNAs, at the level of their expression, function, or contribution to the etiology of disease processes; therefore, this represents an important frontier for toxicological investigation. In light of the importance of this relatively new area of biology and its potential impact on human health, the goal of this session is to feature eminent scientists who have made important contributions and advances to our current knowledge of noncoding RNAs. The broad areas to be addressed include: general concepts surrounding the biology of noncoding RNAs, their role in development and in specific disease processes, and their potential role in novel therapeutic approaches.

Abstract #		
#730	9:00	**Noncoding RNAs in Human Health, Therapeutics, and Environmental Disease.** *N. E. Kaminski.* Michigan State University, East Lansing, MI.
	9:00	**Introduction.** N. E. Kaminski. Michigan State University, East Lansing, MI.
#731	9:05	**RNA at the Epicenter of Human Development.** J. S. Mattick. Garvan Institute of Medical Research, Sydney, NSW, Australia. Sponsor: *N. Kaminski.*
#732	9:45	**Role of microRNA Signaling in the Cancer Microenvironment Communication.** M. Fabbri. Departments of Pediatrics and Molecular Microbiology & Immunology, Keck School of Medicine, University of Southern California, Los Angeles, CA. Sponsor: *N. Kaminski.*
#733	10:25	**MicroRNAs in Hepatocellular Carcinoma.** C. Lee[1,2,3]. [1]Department of Biochemistry, Yong Loo Lin School of Medicine, National University of Singapore, Singapore, Singapore; [2]Duke-NUS Graduate Medical School, Singapore, Singapore; and [3]National Cancer Centre, Singapore, Singapore. Sponsor: *N. Kaminski.*
#734	11:05	**MicroRNA Reprogramming in Cancer: Mechanisms and Therapeutic Opportunities.** J. T. Mendell. Department of Molecular Biology, University of Texas Southwestern Medical Center, Dallas, TX. Sponsor: *N. Kaminski.*

Tuesday Morning, March 25
9:00 AM to 11:45 AM
Room 122

Symposium Session: Does This Chemical Make My Liver Look Fat? (Environmental Exposures and Steatosis)

New Science and Perspectives Surrounding Environmental and Occupational Exposures

Chairperson(s): *Charlene A. McQueen, US EPA, Research Triangle Park, NC, and Nathan J. Cherrington, University of Arizona, Tucson, AZ.*

Sponsor(s):
Drug Discovery Toxicology Specialty Section
Mechanisms Specialty Section
Molecular Biology Specialty Section

Headlines have proclaimed the exponential increase in obesity, type 2 diabetes, and metabolic syndrome in the US and other developed countries. Fatty liver is associated with all of these conditions that adversely affect human health. Initially, fatty liver disease (FLD) is benign, but, unfortunately, the disease may develop into the more serious condition steatohepatitis, characterized by lipid accumulation, inflammation, and fibrosis. Further progression can result in cirrhosis and even cancer. Much research has focused on the cellular and molecular changes in order to develop better diagnostic and treatment options. In contrast, there is only limited knowledge of the causes of fatty liver disease (FLD). Upon diagnosis, FLD is classified as alcoholic fatty liver disease (AFLD), with excessive alcohol consumption identified as the cause, or the broader category of nonalcoholic fatty liver disease (NAFLD). Known causes of NAFLD include a high-fat diet and some drugs, but these only account for a fraction of the estimated 30–40 million cases in the US. A better understanding of the environmental and chemical causes of NAFLD can aid in both prevention and treatment of the disease. This symposium focuses on the role of environmental chemicals

Program Description (Continued)

Abstract #

in the etiology of NAFLD. The presentations will provide a better understanding of how environmental agents, from disinfection byproducts to pesticides, result in steatosis, as well as the multigenerational persistence of the effects of these exposures. Importantly, new insights will be gained on environmental agents that may contribute to the increasing incidence of NAFLD. (This is an abstract or a proposed presentation and does not necessarily reflect US EPA policy.)

#735	9:00	**Does This Chemical Make My Liver Look Fat (Environmental Exposures and Steatosis).** *C. A. McQueen*[1], and *N. J. Cherrington*[2]. [1]US EPA, Research Triangle Park, NC; and [2]University of Arizona, Tucson, AZ.
	9:00	**Introduction.** C. A. McQueen. US EPA, Research Triangle Park, NC.
#736	9:05	**Exposure to Disinfection Byproducts of Drinking Water in Obesity: From Adipokine Imbalance to Epigenetic Alterations leading to Metabolic Syndrome, NASH, and End-Stage Liver Disease.** *S. Chatterjee*. University of South Carolina, Columbia, SC.
#737	9:45	**AhR in Fatty Liver Disease, The Expected and Unexpected.** *W. Xie*. Center for Pharmacogenetics, University of Pittsburgh, Pittsburgh, PA.
#738	10:25	**Chronic Low-Dose Perfluorooctanesulfonic Acid (PFOS) Induces Hepatic Lipid Accumulation and Dampens Caloric Restriction-Induced Lipid Loss in Mice.** *A. L. Slitt*. University of Rhode Island, Kingston, RI.
#739	11:05	**Prenatal Obesogen Exposure Causes Transgenerational Inheritance of Increased Fat Mass, Stem Cell Programming, and Hepatic Steatosis.** B. Blumberg. University of California Irvine, Irvine, CA. Sponsor: *C. McQueen*.

Tuesday Morning, March 25
9:00 AM to 11:45 AM
Room 124

S

Symposium Session: Ocular Immunotoxicology: A Privileged View

Safety Assessment: Mechanisms and Novel Methods

Chairperson(s): *Brian Christian, Covance Inc., Madison, WI, and JoAnn C. Schuh, JCL Schuh, PLLC, Bainbridge Island, WA.*

Sponsor(s):
Immunotoxicology Specialty Section
Ocular Toxicology Specialty Section

Vision is achieved through highly specialized ocular tissue structures and processes which refract and transmit light to the photosensitive cells of the retina. Optimal visual function depends on maintaining the integrity and transparency of cornea, aqueous, lens, and vitreous, which can be compromised by unchecked immune reactions. The eye is considered to be an "immune-privileged" organ because of its capacity to moderate intraocular inflammatory responses and protect tissues of the visual axis through anatomic barriers, as well as through local and systemic immunoregulatory mechanisms, particularly immunosuppression. Breakdown or dysregulation of ocular immune privilege can lead to inflammatory disorders such as uveitis, and progression of intraocular neoplasms, and has been implicated in age-related macular degeneration and glaucoma. In addition, ocular inflammation is a commonly encountered response to intentional breach of immune privilege via intraocular administration of therapeutics. This session will highlight the unique aspects of the immunology of the eye and the associated implications for ocular toxicology and the development of ocular therapeutics. The audience will gain current understanding of structural barriers and active mechanisms of ocular immune privilege. Examples of innate and acquired immune responses to ocular insult, including allergens, microorganisms, and ocular administration of small molecule drugs, biotherapeutics, and viral vector-based gene therapies will be presented. Routine and specialized techniques for evaluating ocular immune responses will also be described. The session will include a presentation describing a current immunomodulatory approach to treat ocular disease involving the complement pathway and possible mechanisms for toxicities in preclinical studies. The final presentation will provide clinical examples and mechanisms of drug-induced immunotoxicity.

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#740	9:00	**Ocular Immunotoxicology: A Privileged View.** *B. Christian*[1], and *J. Schuh*[2]. [1]Nonclinical Safety Assessment, Covance Inc., Madison, WI; and [2]JCL Schuh, PLLC, Bainbridge Island, WA.
	9:00	**Introduction.** B. Christian. Nonclinical Safety Assessment, Covance, Inc, Madison, WI.
#741	9:05	**Ocular Oversight: Immune Privilege, and Immune Regulation and Dysregulation.** *J. C. Schuh*. JCL Schuh, PLLC, Bainbridge Island, WA.
#742	9:34	**Innate and Adaptive Immune Responses to Ocular Insult.** B. Gilger. Department of Clinical Sciences, North Carolina State University, Raleigh, NC. Sponsor: *B. Christian*.
#743	10:03	**Complement As a Target for Ocular Disease.** D. Demady. Preclinical Science, Novartis Institute for Biomedical Research, Cambridge, MA. Sponsor: *B. Christian*.
#744	10:32	**Innate and Acquired Immune Responses to Ocular Viral Gene Delivery Vectors in Primate Eyes.** C. R. Brandt. Ophthalmology and Visual Sciences, University of Wisconsin School of Medicine and Public Health, Madison, WI. Sponsor: *J. Schuh*.
#745	11:01	**Clinical Implications of Ocular Immunotoxicology.** F. W. Fraunfelder. Casey Eye Institute, Oregon Health and Science University, Portland, OR. Sponsor: *J. Schuh*.
	11:30	**Panel Discussion/Q&A.**

Tuesday Morning, March 25
9:00 AM to 11:45 AM
North Ballroom 120D

W

Workshop Session: Application of the Adverse Outcome Pathway (AOP) Concept to Neurotoxicology: A Challenging Approach

Enhancing Strategies for Risk Assessment

Chairperson(s): *Ellen Fritsche, IUF-Leibniz Research Institute for Environmental Medicine, Duesseldorf, Germany, and Anna K. Price, The Joint Research Center of the European Commission, Institute for Health and Consumer Protection Systems Toxicology Unit, Ispra, Italy.*

Sponsor(s):
Neurotoxicology Specialty Section

An adverse outcome pathway (AOP) describes a sequence of key measurable events, starting by a molecular initiating event in which a chemical interacts with a biological target, followed by a sequential series of key cellular events, leading to anatomical and functional changes in biological processes and ultimately resulting in an adverse outcome relevant to the human organism and the human population. Thereby, AOP characterization could provide information on the development of structure-activity relationships, i.e., using effect information from one chemical to predict effects for other structurally similar chemicals. Finally, AOPs provide evidence important for qualitative and quantitative predictive models of the adverse outcome that result from triggering molecular initiating or other key events for which high-throughput testing methods can be developed. There are a large number of cellular and molecular processes known to be critical to proper function of

Program Description (Continued)

Abstract #

the central (CNS) and peripheral nervous systems (PNS). However, comprehensive understanding of pathways leading from chemical exposure to an adverse outcome in the CNS or PNS is sparse. In this session, five AOPs with relevance for human neurotoxicity will be presented, and common key events across these AOPs will be determined, increasing the possibility to identify potential neurotoxicants, even if toxicity is mediated by various pathways. Moreover, vulnerable windows of susceptibility to chemical exposure during brain development and aging will be discussed.

#746	9:00	**Application of the Adverse Outcome Pathway (AOP) Concept to Neurotoxicology: A Challenging Approach.** A. K. Price[1], and *E. Fritsche*[2]. [1]Institute for Health and Consumer Protection, The Joint Research Center of the European Commission, Ispra, Italy; and [2]IUF-Leibniz Research Institute for Environmental Medicine, Düsseldorf, Germany.
#747	9:00	**Introduction to the Session: Application of the Adverse Outcome Pathway (AOP) Concept to Neurotoxicology: A Challenging Approach.** A. K. Price. Institute for Health and Consumer Protection, The Joint Research Center of the European Commission, Ispra, Italy. Sponsor: *E. Fritsche*.
#748	9:10	**Organophosphate-Induced Neurotoxicity.** A. Hargreaves. School of Science and Technology, Nottingham Trent University, Nottingham, United Kingdom. Sponsor: *E. Fritsche*.
#749	9:37	**N-Methyl-D-Aspartate Receptor (NMDA-R) Overactivation As a Pathway for Neurotoxicity.** C. Suñol. IIBB-CSIC-IDIBAPS, Barcelona, Spain. Sponsor: *E. Fritsche*.
#750	10:04	**SH-Group Binding-Induced (Developmental) Neurotoxicity.** *C. van Thriel*. IfADo-Leibniz Research Center for Working Environment and Human Factors, Dortmund, Germany.
#751	10:31	**Adverse Outcome Pathway (AOP) for Neuroinflammation.** F. Tschudi-Monnet[1], and A. K. Price[2]. [1]Department of Physiology, University of Lausanne and Swiss Center for Applied Human Toxicology (SCAHT), Lausanne, Switzerland; and [2]Joint Research Centre, European Commission, Institute for Health and Consumer Protection, Ispra, Italy. Sponsor: *E. Fritsche*.
#752	10:58	**Oxidative Attack of the Neural Progenitor Cell Niche As an AOP for Neurotoxicity of the Elderly.** *E. Fritsche*. IUF-Leibniz Research Institute for Environmental Medicine, Düsseldorf, Germany.
	11:25	**Panel Discussion/Q&A.**

Tuesday Morning, March 25
9:00 AM to 11:45 AM
Room 126

Workshop Session: Idiosyncrasies of Cells in Culture: Lessons from Genetic Toxicology

Safety Assessment: Mechanisms and Novel Methods

Chairperson(s): *Martha M. Moore, ENVIRON International Corporation, Little Rock, AZ, and Julie Clements, Covance, Inc., Harrogate, United Kingdom.*

Sponsor(s):
Regulatory and Safety Evaluation Specialty Section
Women in Toxicology Special Interest Group

Because of a desire to reduce laboratory animal use and a goal to provide information using human cells in culture, rather than rodents, there is an

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international focus on developing *in vitro* predictive toxicology assays for chemical hazard assessment. These factors, coupled with the new molecular 'omics technologies, have provided the major impetus behind the Tox21, ToxCast, and other efforts to move toward an all *in vitro* hazard test battery. The genetic toxicology community began developing *in vitro* assays to predict both cancer and human heritable genetic disease in the early 1970s. Ultimately, a regulatory test battery was established and is used by the majority of international regulatory agencies. Over the decades there has been substantial knowledge gained concerning the strengths and weaknesses as well as the important issues involved in using *in vitro* assays for hazard assessment. In addition, major improvements to the genetic toxicology assays and the interpretation of data have been accomplished over this time period. Currently, there is a multi-sector international effort with a focus on better understanding the issues around cell stewardship, cell line characteristics, and the appropriate strategies for providing/assuring the required metabolic activation for *in vitro* systems. This effort, coupled with other genetic toxicology community experience, including the use of 2D vs. 3D cell cultures, and the selection of endpoints and correlations with apical health outcomes, provide extensive information that should inform the current efforts to establish all *in vitro* approaches for chemical hazard assessment.

#753	9:00	**Idiosyncrasies of Cells in Culture: Lessons from Genetic Toxicology.** *M. M. Moore*[1], J. Clements[2], *M. J. LeBaron*[3], P. White[4], and S. Pfuhler[5]. [1]ENVIRON International Corporation, Little Rock, AR; [2]Covance Laboratories, Harrogate, North Yorkshire, United Kingdom; [3]The Dow Chemical Company, Midland, MI; [4]Health Canada, Ottawa, ON, Canada; and [5]Proctor & Gamble, Mason, OH.
	9:00	**Introduction.** M. M. Moore. ENVIRON International Corporation, Little Rock, AR.
#754	9:05	**Overview and Perspective Based on Lessons Learned from the Evolution of *In Vitro* Genetic Toxicology.** *M. M. Moore*. ENVIRON International Corporation, Little Rock, AR.
#755	9:35	**Know Your Cells: Importance of Cell Line Stewardship in Toxicity Testing.** *M. J. LeBaron*. Toxicology & Environmental Research & Consulting, The Dow Chemical Company, Midland, MI.
#756	10:05	**Impact of Cell Type on Toxicity Testing—Implications for Assay Interpretation.** J. Clements, J. Whitwell, and R. Smith. Genetic Toxicology, Covance Laboratories, Harrogate, North Yorkshire, United Kingdom. Sponsor: *M. Moore*.
#757	10:35	***In Vitro* Simulation of Endogenous Mammalian Metabolism: Lessons From Genetic Toxicology.** P. White[1], J. Cox[2], and M. Fellows[3]. [1]Environmental Health Science & Research, Health Canada, Ottawa, ON, Canada; [2]Environmental Health Science & Research, Health Canada, Ottawa, ON, Canada; and [3]R&D Alderley Park, AstraZeneca, Macclesfield, Cheshire, United Kingdom. Sponsor: *M. Moore*.
#758	11:05	**Utility of Three-Dimensional Tissue Constructs for Toxicity Testing.** S. Pfuhler. Global Product Stewardship, Human Safety, Procter & Gamble, Mason, OH. Sponsor: *M. Moore*.
	11:35	**Panel Discussion/Q&A.**

Program Description (Continued)

Abstract #

Tuesday Morning, March 25
9:00 AM to 11:45 AM
Room 121

Workshop Session: Photosafety Evaluation of Pharmaceuticals without Testing in Animals

Safety Assessment: Mechanisms and Novel Methods

Chairperson(s): *Lewis B. Kinter, AstraZeneca, Global Safety Assessment, Wilmington, DE, and Abigail Jacobs, US FDA, Silver Spring, MD.*

Sponsor(s):
Dermal Toxicology Specialty Section
***In Vitro* and Alternative Methods Specialty Section**
Regulatory and Safety Evaluation Specialty Section

Advances in understanding of photochemistry, photoreactivity, and phototoxicity of pharmaceuticals offer for the first time the opportunity to appropriately evaluate the potential for photosafety risk in humans while minimizing or eliminating testing in animals. Generally, compounds that absorb light in the visible and UV ranges and generate reactive oxygen species (ROS) pose a potential risk for phototoxicity. Photoreactivity tests to detect generation of ROS and *in vitro* bioassays to detect phototoxicity (3T3-NRU and 3D-skin assays) offer high sensitivity (e.g., few false negatives) but lower selectivity (higher numbers of false positives) with which to predict phototoxicity potential in humans. To support an integrated assessment strategy, it is most important these assays show high sensitivity, because negative assay results are usually conclusive and do not warrant further photosafety evaluation. Thus, it is not essential that positive assay results always predict a clinically relevant phototoxic response, and the fact that these assays measure entirely different endpoints lowers the probability of multiple false-positive findings, such that one negative finding with other positives is generally sufficient to indicate negligible photosafety risk. Finally, compounds that absorb in the relevant spectrum and test positive in chemical and/or *in vitro* assays can be evaluated for photosafety in clinical trials with proper precautions, without intermediate *in vitro* or animal testing if the sponsor chooses (ICH M3(R2) 2010). The session will be of broad interest to academic, industry, regulatory, and consultant toxicologists concerned about the current status of photosafety testing and/or advances in nonclinical safety assessment that reduce or replace animal testing (e.g., 3Rs).

#759	9:00	**Photosafety Evaluation of Pharmaceuticals without Testing in Animals.** *L. B. Kinter*[1], and *A. Jacobs*[2]. [1]Global Safety Assessment, AstraZeneca, Wilmington, DE; and [2]US Food & Drug Administration, White Oak, MD.
	9:00	**Introduction.** A. Jacobs. CDER, US FDA, Silver Spring, MD.
#760	9:05	**Chemical Methods for Detection of Photoreactive Pharmaceuticals.** S. Onoue. School of Pharmaceutical Sciences, University of Shizuoka, Shizuoka, Japan. Sponsor: *L. Kinter*.
#761	9:35	**How *In Vitro* Phototoxicity Data May Inform Selection and Later Risk Assessment of Investigational Drugs.** D. Bauer. Preclinical Safety, Novartis Institutes for Biomedical Research, Basel, Switzerland. Sponsor: *L. Kinter*.
#762	10:05	***In Vitro* 3-Dimensional Skin Models for Testing Phototoxic Potential of Dermal Formulations.** *H. Kandarova*. MatTek *In Vitro* Life Science Laboratories, Bratislava, Slovakia.
#763	10:35	**Evaluation of Phototoxicity of Pharmaceuticals in Clinical Trials.** D. R. Bickers. Columbia University Medical Center, New York City, NY. Sponsor: *L. Kinter*.
	11:05	**Panel Discussion/Q&A.** L. B. Kinter. Global Safety Assessment, AstraZeneca, Wilmington, DE.

Abstract #

Tuesday Morning, March 25
9:00 AM to 11:45 AM
North Ballroom 120B

Workshop Session: Stem Cell-Derived Cardiomyocytes: An Alternative Cardiac Toxicity Model for Assessing Drug Safety and Chemical Health Risk

Stem Cell Models for Integrated Biology

Chairperson(s): *Syril D. Pettit, ILSI Health and Environmental Sciences Institute, Washington, DC, and Kevin L. Dreher, US EPA, Environmental Public Health Division, Research Triangle Park, NC.*

Sponsor(s):
Cardiovascular Toxicology Specialty Section
***In Vitro* and Alternative Methods Specialty Section**
Stem Cells Specialty Section

Cardiac safety is a major cause of attrition, withdrawal, and adverse reactions in drug development. It is estimated that adverse cardiac and/or vascular reactions account for greater than 20% of drug attrition over the preclinical, clinical trials, and post-market phases. Effective chemical safety evaluations are also critical for protecting public health. Significant adverse cardiac effects following exposure to a variety of chemicals present in the environment have been reported by the World Health Organization and other researchers. Cardiac safety associated with pharmaceutical drugs and chemical exposures are a mutual focus of keen interest for clinical and public health researchers, academic scientists, government regulators, and industrial scientists worldwide. The development of alternative testing methods predictive of drug and/or chemical toxicity could impact drug discovery and safety evaluations as well as chemical health risk assessment. This workshop brings together a trans-sector and multidisciplinary group of experts to present and discuss the use of stem cell-derived cardiomyocytes as an alternative model to determine alterations in cardiac electrophysiology, contractility, and structural and developmental toxicity following drug or chemical exposure. Presenters and discussions will address the sensitivity, reproducibility, and biological relevance or "fit for purpose" of stem cell-derived cardiomyocytes and how these factors relate to the use of such data in a screening, risk, or safety evaluation for drugs and chemicals.

#764	9:00	**Stem Cell-Derived Cardiomyocytes: An Alternative Cardiac Toxicity Model for Assessing Drug Safety and Chemical Health Risk.** *K. Dreher*[1], and *S. Petitt*[2]. [1]US EPA, Research Triangle Park, NC; and [2]ILSI, Health and Environmental Sciences Institute, Washington, DC.
	9:00	**Introduction.** K. Dreher. US EPA, Research Triangle Park, NC.
#765	9:10	**Transitioning Cardiac Stem Cells from Research Platforms to Predictive Tools.** *S. D. Pettit*. ILSI, Health and Environmental Sciences Institute, Washington, DC.
#766	9:37	**Stem Cell-Derived "Cardiomyocytes" and Their Application to Cardiac Safety Assessment: Ready for Primetime?** H. M. Vargas. Toxicology Sciences, Amgen Inc., Thousand Oaks, CA. Sponsor: *K. Dreher*.
#767	10:04	**Stem Cell-Derived Cardiac Cells in High-Throughput Screens for Modulators of Contractility.** M. Mercola. Department of Bioengineering, University of California San Diego, San Diego, CA. Sponsor: *S. Pettit*.
#768	10:31	**High-Content Screening of Bioenergetic Modulation of Kinase Inhibitor Mitochondrial Toxicity in Human Stem Cell-Derived Cardiomyocytes.** N. Thomas. GE Healthcare, Whitchurch, Cardiff, United Kingdom. Sponsor: *S. Hunter*.

Program Description (Continued)

Abstract #

#769 10:58 **Evaluating Chemical Safety, Molecular Targets, and Toxicity Pathways in Mouse Embryonic Stem Cell Differentiation to Cardiomyocytes.** *E. S. Hunter*. US EPA, Research Triangle Park, NC.

11:25 **Panel Discussion/Q&A.**

Tuesday Morning, March 25
9:00 AM to 11:45 AM
Room 129

W

Workshop Session: The Doorway between Exposure and Response: How Biologically-Based Inhalation Dosimetry Models Enhance Human Health Risk Assessment

Enhancing Strategies for Risk Assessment

Chairperson(s): *Jon A. Hotchkiss, The Dow Chemical Company, Toxicology & Environmental Research & Consulting, Midland, MI, and John B. Morris, University of Connecticut, Pharmaceutical Sciences, Storrs, CT.*

Sponsor(s):
Biological Modeling Specialty Section
Inhalation and Respiratory Specialty Section
Risk Assessment Specialty Section

The respiratory tract is the portal of entry for inhaled gasses, vapors, and particles, providing a route of entry for systemic exposure and a potential target for toxic agents. The inhaled dose is dependent on the physical state, solubility, reactivity and concentration of the material, the structural and functional characteristics of the respiratory tract, and the types and metabolic capability of the surface epithelial cells. It is also contextual and dependent on the dose metric used, whether it is the systemic blood or tissue concentration or the regional dose to specific anatomic sites or target cell populations in the respiratory tract. Human risk assessments are often based on inhalation toxicity studies in rodents, yet a number of vapors, including hydrogen fluoride and diacetyl, have been shown to produce nasal and large airway injury in rodents but small bronchiolar airway injury in humans. Computational modeling has confirmed significant differences in regional vapor absorption patterns between rats and humans that provide a rational framework to explain the observed differences in site-specific injury between species. Multiscale computational models of the respiratory system that incorporate species-specific anatomic details and data derived from *in vivo* measurement of particle deposition/clearance and vapor absorption have been developed to improve estimates of material transport and regional dosimetry. Model accuracy is greatly improved by incorporating regional morphologic characteristics of the mucosa and exposure-response data to validate model predictions of site- and species-specific dosimetry. The goal of this workshop is to provide participants with a working knowledge of the state-of-the-art computational tools available to predict regional deposition, absorption and dose of inhaled materials in laboratory rodents, the essential data needed to validate these predictions, and the use of biologically-based computational modeling in human health risk assessment applications and related research.

#770 9:00 **The Doorway between Exposure and Response: How Biologically-Based Inhalation Dosimetry Models Enhance Human Health Risk Assessment.** *J. A. Hotchkiss*[1], and *J. B. Morris*[2]. [1]The Dow Chemical Company, Midland, MI; and [2]University of Connecticut, Storrs, CT.

9:00 **Introduction.** J. A. Hotchkiss. The Dow Chemical Company, Midland, MI.

#771 9:10 **Site-Specific Airway Pathology and Dosimetry of Inhaled Toxicants.** *J. Harkema*. Department of Pathobiology and Diagnostic Investigation, Michigan State University, East Lansing, MI.

#772 9:38 ***In Vivo* Measurements of Dosimetry: What Do the Data Say?** *J. B. Morris*. Pharmaceutical Sciences Toxicology Program, University of Connecticut, Storrs, CT.

Abstract #

#773 10:06 **Interspecies Differences in Respiratory Dosimetry of Volatile and Aerosol Materials Using Multiscale Computational Models.** *R. A. Corley*. Exposure Science & Systems Toxicology, Pacific Northwest National Laboratory, Richland, WA.

#774 10:34 **Material Transport, Deposition, and Clearance in the Respiratory Tracts of Humans and Animals.** *B. Asgharian*. Health Effects and Medical Response, Applied Research Associates, Inc., Raleigh, NC.

#775 11:02 **The Role of Inhalation Dosimetry Models in Multiscale Support to a Range of Risk Assessment Applications.** *A. M. Jarabek*. National Center for Environmental Assessment, US EPA, Research Triangle Park, NC.

11:30 **Panel Discussion/Q&A.**

Tuesday Morning, March 25
9:00 AM to 11:45 AM
Room 125

PL

Platform Session: Risk Assessment of Metals

Enhancing Strategies for Risk Assessment

Chairperson(s): *Michael R. Garry, Exponent, Bellevue, WA, and Lisa M. Sweeney, Henry M. Jackson Foundation, NAMRU Dayton, Kettering, OH.*

#776 9:00 **Adverse Outcome Pathways As a Method to Characterize Potential Sources of Increased Risk of Health Effects Attributed to Inorganic Arsenic.** *J. Lee*[1], J. Sacks[2], R. Jones[2], L. Joca[2], and J. Cowden[2]. [1]NCEA-IRIS, US EPA, Research Triangle Park, NC; and [2]NCEA-RTP, US EPA, Research Triangle Park, NC.

#777 9:23 **Evaluation of an Arsenic Reference Dose for Potential Neurobehavioral Effects in Children.** *M. R. Garry*[1], *J. S. Tsuji*[1], V. Perez[2], and D. D. Alexander[3]. [1]Exponent, Bellevue, WA; [2]Exponent, Chicago, IL; and [3]Exponent, Boulder, CO.

#778 9:46 **Characterization of Blood Lead Levels for Children in a Community Affected by Historical Mining Activities.** *R. Schoof*[1], D. L. Johnson[1], A. Feldpausch[1], *E. R. McConnell*[1], C. Van Landingham[2], L. Dell[3], M. Das[1], and A. Gallagher[3]. [1]ENVIRON, Seattle, WA; [2]ENVIRON, Monroe, LA; and [3]ENVIRON, Amherst, MA.

#779 10:09 **Variation Analysis of PBPK Model Parameters for Describing the Delivery of Cr(VI) to the Small Intestines of Humans.** C. R. Kirman[1], *D. Proctor*[2], *M. Suh*[2], *C. M. Thompson*[3], *M. A. Harris*[3], *L. C. Haws*[4], and *S. M. Hays*[5]. [1]Summit Toxicology LLP, Orange, OH; [2]ToxStrategies, Rancho Santa Margarita, CA; [3]ToxStrategies, Katy, TX; [4]ToxStrategies, Austin, TX; and [5]Summit Toxicology, Lyons, CO.

#780 10:32 **Development of a Unit Risk Factor for Hexavalent Chromium and Compounds Based on an Updated Carcinogenic Toxicity Assessment.** *J. T. Haney*[1], *N. Erraguntla*[1], *R. L. Sielken*[2], and C. Valdez-Flores[2]. [1]Toxicology Division, Texas Commission on Environmental Quality, Austin, TX; and [2]Sielken & Associates Consulting, Bryan, TX.

#781 10:55 **Chronic Beryllium Disease Risk Assessment for Occupational Beryllium Exposure.** K. S. Crump[2], *M. Suh*[1], *G. Brorby*[4], A. Bichteler[3], G. Hixon[3], and *D. Proctor*[1]. [1]ToxStrategies, Inc., Mission Viejo, CA; [2]Kenny S. Crump, Ruston, LA; [3]ToxStrategies, Inc., Austin, TX; and [4]ToxStrategies, Inc., Richmond, CA.

TUESDAY

Program Description (Continued)

Abstract #

#782 11:18 **Antiperspirants Contribute Considerably to the Total Systemic Exposure to Aluminum in Humans.** *B. Granum*, I. L. Lillegaard, I. Steffensen, A. Ruus, and H. Amlund. Norwegian Institute of Public Health, Oslo, Norway.

Tuesday Morning, March 25
9:00 AM to 12:30 PM
Exhibit Hall

PS

Poster Session: Natural Products: *In Vitro*

Chairperson(s): *Birgit Dietz, University of Illinois-Chicago, Chicago, IL..*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *9:00 AM–11:00 AM*

#783 **Poster Board Number 101**
Virtual Screening for the Discovery of Bioactive Natural Compounds against DNA Methyltransferases, Protein Targets in Skin Cancer. *W. Maldonado-Rojas*, and *J. Olivero-Verbel*. Environmental and Computational Chemistry Group, University of Cartagena, Cartagena, Colombia.

#784 **Poster Board Number 102**
Investigation of the Mutagenic, Genotoxic, and Cytotoxic Acivities of *Sanionia uncinata* Extracts. A. D. Campos[1], J. Mazzei[2], H. Evangelista[1], and I. Felzenszwalb[1]. [1]Department of Biophysics and Biometry, State University of Rio de Janeiro, Rio de Janeiro, Brazil; and [2]Center for Chromatography, Platform of Analytical Instruments, Oswaldo Cruz Foundation, Rio de Janeiro, Brazil. Sponsor: *D. Oliveira*.

#785 **Poster Board Number 103**
Cytotoxicity of Extracts of Three Medicinal Plant Species Used to Treat Inflammation-Related Conditions in South Africa. *S. A. Adebayo*[1,2], J. L. Shai[1], and K. A. Eloff[2]. [1]Biomedical Sciences, Tshwane University of Technology, Pretoria, South Africa; and [2]Phytomedicine Programme, Department of Paraclinical Sciences, University of Pretoria, Pretoria, South Africa.

#786 **Poster Board Number 104**
The Effect of Eukaryotic Initiation Factors on the Activity of Pokeweed Antiviral Protein. *S. Cheng*, A. Domashevskiy, and L. Kobilinsky. Sciences, John Jay College of Criminal Justice, New York.

#787 **Poster Board Number 105**
Effect of Sesamin on Endothelial Nitric Oxide Synthase Activation via Multiple Pathways. S. Jin, H. Kim, J. Choi, S. Won, S. Oh, and *H. Jeong*. Pharmacy, Chungnam National University, Daejeon, Republic of Korea.

#788 **Poster Board Number 106**
Amelioration of Sodium Arsenite and Potassium Chromate Toxicities by Methanolic Extract of *Rauvolfia vomitoria*. K. A. Akinwumi[1,2], O. A. Odunola[1], A. N. Dosunmu[2], O. B. Owolabi[2], A. Songonuga[2], O. A. Aboyewa[2], O. A. Olatunji[2], and O. O. Osifeso[3]. [1]Dept. of Biochemistry, University of Ibadan, Ibadan, Oyo, Nigeria; [2]Dept. of Chemical Sciences, Bells University of Technology, Ota, Ogun, Nigeria; and [3]Dept. of Science Laboratory, Moshood Abiola Polythenic, Abeokuta, Ogun, Nigeria. Sponsor: *J. Landolph*.

Abstract #

#789 **Poster Board Number 107**
Cytotoxic and Genotoxic Assessments of the Natural Dye Erythrostominone. F. R. Abe, and *D. P. Oliveira*. University of São Paulo, Ribeirão Preto, São Paulo, Brazil.

#790 **Poster Board Number 108**
Comparison of the Estrogenic Modulating Activities of Dong Quai with Hops and Red Clover. B. M. Dietz, T. Gödecke, T. S. Tewolde, A. Hajirahimkhan, H. Dong, Y. Choi, S. Chen, D. Nikolic, R. B. van Breemen, G. F. Pauli, and *J. L. Bolton*. Medicinal Chemistry and Pharmacognosy, University of Illinois at Chicago, Chicago, IL.

#791 **Poster Board Number 109**
Extracts of *Protea cynaroides* Are Cytotoxic toward Hormone-Resistant Breast and Prostate Cancer Cells. P. Gwavava, F. Imhoff-White, B. Cridge, S. Taurin, and *R. J. Rosengren*. Pharmacology & Toxicology, University of Otago, Dunedin, New Zealand.

#792 **Poster Board Number 110**
Differential Effects of Biz-2 in Cancer Cells. *O. S. Phillip*[1], K. Harris[2], and *W. G. Gray*[2,1]. [1]Environmental Toxicology, Southern University and A&M College, Baton Rouge, LA; and [2]Department of Chemistry, Southern University and A&M College, Baton Rouge, LA.

#793 **Poster Board Number 111**
Antioxidant Activity of Extracts of Stem Bark of *Enantia chlorantha* (Oliv). *O. E. Adebiyi*, and *O. M. Abatan*. Department of Veterinary Physiology, Biochemistry and Pharmacology, University of Ibadan, Nigeria, Ibadan, Oyo, Nigeria.

#794 **Poster Board Number 112**
Synthesis and Biological Evaluations of Amino Acid Conjugates As Potential Prodrugs of Curcumin. D. You[1], L. Chen[1], S. Tu[2], C. S. Yang[2,3], and L. Hu[1,3]. [1]Medicinal Chemistry, Ernest Mario School of Pharmacy, Rutgers University, Piscataway, NJ; [2]Chemical Biology, Ernest Mario School of Pharmacy, Rutgers University, Piscataway, NJ; and [3]Cancer Institute of New Jersey, New Brunswick, NJ. Sponsor: *L. Aleksunes*.

#795 **Poster Board Number 113**
Suppression of PMA-Induced Tumor Cell Invasion by Kahweol via the Inhibition of Akt/ERK/NF-kB and AP-1-Dependent MMP-9 Expression. H. Kim, J. Choi, and *H. Jeong*. Pharmacy, Chungnam National University, Daejeon, Republic of Korea.

#796 **Poster Board Number 114**
Bioactive Compounds in Hops (*Humulus lupulus L.*) Differentially Modulate Oxidative Estrogen Metabolism: Isoxanthohumol Correlates with Chemopreventive Activity. *S. Wang*, C. Snelten, R. F. Ramos, S. Chen, G. F. Pauli, B. M. Dietz, and *J. L. Bolton*. Medicinal Chemistry and Pharmacognosy, University of Illinois at Chicago, Chicago, IL.

#797 **Poster Board Number 115**
Evaluation of Cell Viability and Mitochondrial Protective Effects of Quercetin in Rat L6 Cells. *V. Kale*, and J. Radhakrishnan. College of Pharmacy, Roseman University of Health Sciences, South Jordan, UT.

TUESDAY

Education-Career Development Sessions
Exhibitor-Hosted Sessions
Featured Sessions
Historical Highlights Session
Informational Sessions
Platform Sessions

Program Description (Continued)

Abstract #

#797a **Poster Board Number 116**
Effect of Caffeic and Phenethyl Ester on Endothelial Nitric-Oxide Synthase Activation. B. Park[1], H. Kim[1], J. Choi[1], S. Jin[1], and *H. Jeong*[1]. [1]Pharmacy, Chungnam National University, Daejeon, Republic of Korea.

#797b **Poster Board Number 117**
Kahweol Induces Apoptosis in HER2-Overexpressing Breast Cancer Cells through a Down-Regulation of HER2/SREBP-1/FAS Pathway. S. Oh[1], M. Do[1], and *H. Jeong*[1]. [1]Pharmacy, Chungnam National University, Daejeon, Republic of Korea.

#797c **Poster Board Number 118**
Antiproliferative and Apoptotic Effect of *Rhus trilobata* Extracts on SKOV-3 Ovarian Cancer Cells. B. E. Sánchez Ramírez[1], E. SaénzPardo-Reyes[1], C. González-Horta[1], R. Infante-Ramírez[1], and P. Talamás-Rohana[2]. [1]Graduate Program in Biotechnology, Universidad Autonoma de Chihuahua, Chihuahua, Chihahua, Mexico; and [2]Infectómica y Patogénesis Molecular, Centro de Investigación y Estudios Avanzados del IPN, México, DF, Mexico. Sponsor: *L. Del Razo*.

Tuesday Morning, March 25
9:00 AM to 12:30 PM
Exhibit Hall

PS

Poster Session: Natural Products: *In Vivo*

Chairperson(s): *Sharon A. Meyer, University of Louisiana-Monroe, Toxicology, Monroe, LA.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *11:00 AM–12:30 PM*

#798 **Poster Board Number 121**
Comparison of Myelostimulation by *Echinacea purpurea* Extracts with Analytical Fingerprints to Identify Active Constituents. *S. A. Meyer*[1], H. F. Hussin[1], and K. A. El Sayed[2]. [1]Toxicology, Univ LA-Monroe, Monroe, LA; and [2]Basic Pharmaceutical Science, Univ LA-Monroe, Monroe, LA.

#799 **Poster Board Number 122**
Inhibitory Effects of *Platycodon grandiflorum* Root-Derived Saponins on DNCB-Induced Atopic Dermatitis-Like Skin Lesions in Mice and the Possible Mechanisms in Cells. J. Choi[1], S. Jin[1], B. Park[1], H. Kim[1], Y. Chung[2], and *H. Jeong*[1]. [1]Pharmacy, Chungnam National University, Daejeon, Republic of Korea; and [2]Department of Food and Medicine, International University of Korea, Jinju, Republic of Korea.

#800 **Poster Board Number 123**
Inhibitory Effects of *Platycodon grandiflorum* Root-Derived Saponins on High-Fat Diet-Induced Nonalcoholic Steatohepatitis in Rat. Y. Chung[2], S. Jin[1], and *H. Jeong*[1]. [1]Pharmacy, Chungnam National University, Daejeon, Republic of Korea; and [2]Department of Food and Medicine, International University of Korea, Jinju, Republic of Korea.

Abstract #

#801 **Poster Board Number 124**
Inhibitory Effects of *Platycodon grandiflorum* Root-Derived Saponins on Ovalbumin-Induced Airway Hyper-Responsiveness in Mice. Y. Lee[2], J. Choi[1], S. Jin[1], H. Kim[1], Y. Chung[3], and *H. Jeong*[1]. [1]Pharmacy, Chungnam National University, Daejeon, Republic of Korea; [2]Jangsaeng Doraji Research Institute of Biotechnology, Jangsaeng Doraji Co., Ltd., Jinju, Republic of Korea; and [3]Department of Food and Medicine, International University of Korea, Jinju, Republic of Korea.

#802 **Poster Board Number 125**
Inhibitory Effects of *Platycodon grandiflorum* Root-Derived Saponins on Estrogen Deficiency-Induced Osteoporosis in Mice. *H. Jeong*[1], J. Choi[1], B. Park[1], K. Lee[2], and Y. Chung[3]. [1]Pharmacy, Chungnam National University, Daejeon, Republic of Korea; [2]College of Pharmacy, Chonnam National University, Gwangju, Republic of Korea; and [3]Department of Food and Medicine, International University of Korea, Jinju, Republic of Korea.

#803 **Poster Board Number 126**
Toxicological Evaluation of Methanol Leaf Extract of *Alchornea cordifolia.* *T. O. Ajibade*, and F. O. Olayemi. Department of Veterinary Physiology, Biochemistry and Pharmacology, University of Ibadan, Nigeria, University of Ibadan, Nigeria, Ibadan, Oyo, Nigeria.

#804 **Poster Board Number 127**
Elucidation of the Mechanisms of Teratogenicity of Some Commonly Used Medicinal Plants. G. O. Afolayan[1], *M. J. Carvan*[1], O. Awodele[2], and E. O. Agbaje[2]. [1]School of Freshwater Sciences, University of Wisconsin-Milwaukee, Milwaukee, WI; and [2]Department of Pharmacology, University of Lagos, Lagos, Nigeria.

#805 **Poster Board Number 128**
Effect of α7 Nicotinic Acetylcholine Receptor Agonists and Antagonists on Motor Function in Mice. *K. Welch*[1], J. A. Pfister[1], F. Lima[2], K. E. Panter[1], B. T. Green[1], and D. R. Gardner[1]. [1]Poisonous Plant Research Laboratory, USDA-ARS, Logan, UT; and [2]Federal University of Goias, School of Veterinary Medicine, Goiania, Goias, Brazil.

#806 **Poster Board Number 129**
Toxic Effects of Root Extract of *Cnestis ferruginea* (de Candolle) on the Blood Profiles of Male Rats. F. O. Olayemi. Veterinary Physiology, Biochemistry and Pharmacology, University of Ibadan, Ibadan, Nigeria. Sponsor: *A. Adedapo*.

#807 **Poster Board Number 130**
Acute and Subchronic Oral Toxicity Studies of Stem Bark Extract of *Syzygium guineense* (Myrtaceae) in Rats. *O. A. Salawu*[1], M. Hafeez[2], and A. Y. Tijani[1]. [1]Pharmacology and Toxicology, National Institute for Pharmaceutical Research and Development (NIPRD), Abuja, Nigeria; and [2]Pharmacology and Therapeutics, Ahmadu Bello University, Zaria, Nigeria.

Program Description (Continued)

Abstract #

#808 **Poster Board Number 131**
Enzymic and Nonenzymic Antioxidant Status in Wistar Rats Administered Aqueous Leaf Extract of *Morinda morindoides*. D. I. Akinloye[1], *E. A. Balogun*[4,1], T. O. Sunmonu[2], and S. O. Omotainse[3]. [1]Biochem., Fed. Univ. of Agric., Abeokuta, Ogun, Nigeria; [2]Biolog. Sci., Al-Hikman Univ., Ilorin, Kwara, Nigeria; [3]Vet. Patholgy, Fed. Univ. of Agric., Abeokuta, Ogun, Nigeria; and [4]Biochem., Univ. of Ilorin, Ilorin, Kwara, Nigeria.

#809 **Poster Board Number 132**
The Antioxidant, Anti-Inflammatory, and Antinociceptive Activities of the Ethanol Leaf Extract of *Andrographis paniculata Nees* (Family *Acanthaceae*). *A. A. Adedapo*[1], B. O. Adeoye[1], *A. A. Oyagbemi*[1], and M. O. Sofidiya[2,1]. [1]Veterinary Physiology, Biochemistry and Pharmacology, University of Ibadan, Ibadan, Oyo, Nigeria; and [2]Pharmacognosy, University of Lagos, Lagos, Nigeria.

#810 **Poster Board Number 133**
Identification of Methylated and Microbial Metabolites of Green Tea Polyphenols in Humans. *Y. Wang, L. Tang, K. S. Xue, M. Kang,* and *J. Wang.* University of Georgia, Athens, GA.

#811 **Poster Board Number 134**
Subchronic Oral Gavage Safety of Beta-Alanine in Rats. D. W. Poage[1], B. Frantz[1], *P. Hanlon*[2], and *H. Ferguson*[2]. [1]MPI Research, Mattawan, MI; and [2]Abbott Nutrition, Columbus, OH.

#812 **Poster Board Number 135**
Acute and Subacute Toxicity Study of *Zanthoxylum armatum* Leaves in Mice. N. Verma[1], and R. Khosa[2]. [1]School of Pharmacy & Emerging Sciences, Baddi University of Emerging Sciences & Technology, Baddi, Himachal Pradesh, India; and [2]School of Pharmacy, Bharat Institute of Technology, Meerut, Uttar Pradesh, India. Sponsor: *D. Mishra*.

#813 **Poster Board Number 136**
Investigation on the Toxicity of *Aconitum brachypodum* Diels *In Vitro* and *In Vivo*. *X. Huang*, H. Zhou, Y. Jiang, and M. Zheng. South-Central University for Nationalities, Wuhan, China.

#813a **Poster Board Number 137**
Toxicity in Mice and Rats Associated with Inhalation of the Flavor and Fragrance Ingredient Alpha-Pinene. *C. V. Rider*[1], *M. D. Stout*[1], and R. A. Herbert[1]. [1]NTP/NIEHS, Research Triangle Park, NC.

#813b **Poster Board Number 138**
Protective Effect of *Andrographis paniculata* against Sodium Arsenite-Induced Clastogenicity and Hepatotoxicity in Wistar Rats. A. M. Adegboyega[1,2], M. A. Gbadegesin[1], and *O. A. Odunola*[1]. [1]Biochemistry, University of Ibadan, Ibadan, Oyo, Nigeria; and [2]Department of Chemistry, The Polythenic of Ibadan, Ibadan, Oyo, Nigeria.

Abstract #

#813c **Poster Board Number 139**
Naringenin Attenuates DMH-Induced NF-κB and COX-2 Expression in Rat Colon: Abrogation of Oxidative Stress, Inflammatory Responses and Proinflammatory Cytokine Production. M. U. Rehman[1,2], A. Farooq[1], A. Arif[2], S. A. Bhat[2], R. Razzaq[2], B. Ahmad[2], M. R. Mir[2], and M. Y. Shah[1]. [1]Department of Pharmaceutical Sciences, University of Kashmir, Srinagar, J&K, India; and [2]Veterinary Biochemistry, Faculty of Veterinary Science & Animal Husbandry, SKUAST-Kashmir, Srinagar, J&K, India. Sponsor: *S. Beedanagari*.

#813d **Poster Board Number 140**
Green Tea Epigallocatechin Gallate Binds to and Inhibits Respiratory Complexes in Swelling but Not Normal Rat Hepatic Mitochondria. Z. Weng[1], P. Zhou[1], *W. F. Salminen*[1,2], X. Yang[1], *A. H. Harrill*[3], *D. L. Mendrick*[1], *W. B. Mattes*[4], and *Q. Shi*[1]. [1]Division of Systems Biology, US FDA, NCTR, Jefferson, AR; [2]PAREXEL International, Sarasota, FL; [3]Department of Occupational and Environmental Health, University of Arkansas for Medical Sciences, Little Rock, AR; and [4]PharmPoint Consulting, Poolesville, MD.

Tuesday Morning, March 25
9:00 AM to 12:30 PM
Exhibit Hall

PS

Poster Session: Nanotoxicology: Metals, Environmental, and *In Silico*

Chairperson(s): *Nancy A. Monteiro-Riviere, Kansas State University, Manhattan, KS, and Justin G. Teeguarden, Pacific Northwest National Laboratory, Richland, WA.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *9:00 AM–11:00 AM*

#814 **Poster Board Number 141**
Computational and Experimental Deconvolution of the Role of Silver Nanoparticles and Ions on Macrophage Cellular Toxicity *In Vitro*. *J. G. Teeguarden*[1,2], P. Munusamy[1], D. Thomas[1], *J. N. Smith*[1], V. K. Kodali[1], H. Shankaran[1], H. D. Jolley[1], P. Demokritou[3], J. Cohen[3], D. R. Baer[1], and *B. Thrall*[1]. [1]Systems Toxicology and Exposure Science, Pacific Northwest National Laboratory, Richland, WA; [2]Environmental and Molecular Toxicology, Oregon State University, Corvallis, OR; and [3]Center for Nanotechnology and Nanotoxicology, Harvard School of Public Health, Cambridge, MA.

#815 **Poster Board Number 142**
Physiologically Based Pharmacokinetic Modeling of Cerium Oxide Nanoparticles by Pulmonary Exposure in Rats. *D. Li*[1], J. Barres[1], *U. Carlander*[2], E. Eagle[3], *C. Emond*[4], *G. Johanson*[2], M. Morishita[1], *J. G. Wagner*[5], M. Wooldridge[3], and O. Jolliet[1]. [1]Environmental Health Science, University of Michigan, Ann Arbor, MI; [2]Environmental Medicine, Karolinska Institutet, Stockholm, Sweden; [3]Mechanical Engineering, University of Michigan, Ann Arbor, MI; [4]BioSimulation Consulting Inc, Newark, DE; and [5]Center for Integrative Toxicology, Michigan State University, East Lansing, MI.

Program Description (Continued)

Abstract #

#816 **Poster Board Number 143**
Comparative Analysis of Predictive Models Used to Identify Drivers of Nanomaterial Toxicity. B. Harper[1], R. Liu[2], Y. Cohen[2], and *S. L. Harper*[1,3]. [1]Environmental and Molecular Toxicology, Oregon State University, Corvallis, OR; [2]Center for Environmental Implications of Nanotechnology, University of California, Los Angeles, Los Angeles, CA; and [3]School of Chemical, Biological and Environmental Engineering, Oregon State University, Corvallis, OR.

#817 **Poster Board Number 144**
Development and Validation of a Dosimetric Platform for *In Vitro* Nanotoxicology. J. Cohen, and P. Demokritou. Harvard School of Public Health, Boston, MA. Sponsor: *J. Brain*.

#818 **Poster Board Number 145**
A Pharmacokinetic Modeling Framework for Interspecies Extrapolations of Nanoparticle Biodistribution Taking into Account Biocorona Dynamics Independent of Species-Specific Disposition Processes. *J. Riviere*[1,2], F. D. Sahneh[1], C. Scoglio[1,2], and *N. A. Monteiro-Riviere*[2]. [1]Institute of Computational Comparative Medicine, Kansas State University, Manhattan, KS; and [2]Nanotechnology Innovation Center of Kansas State, Kansas State University, Manhattan, KS.

#819 **Poster Board Number 146**
Understanding the Dynamic Behavior of the Protein Corona and Its Influence on the Physicochemical Composition of Silver Nanoparticles. *A. Sasidharan*[1], R. Chen[1,2], S. Oldenburg[3], *J. E. Riviere*[1,2], and *N. A. Monteiro-Riviere*[1]. [1]Nanotechnology Innovation Center of Kansas State, Kansas State University, Manhattan, KS; [2]Institute of Computational Comparative Medicine, Kansas State University, Manhattan, KS; and [3]nanoComposix, Inc, San Diego, CA.

#820 **Poster Board Number 147**
Toxicity Assessment of Six Titanium Dioxide Nanoparticles in Human Epidermal Keratinocytes. *N. A. Monteiro-Riviere*[1], *L. W. Zhang*[1], and *B. Veronesi*[2]. [1]Nanotechnology Innovation Center of Kansas State, Kansas State University, Manhattan, KS; and [2]United States Environmental Protection Agency, Research Triangle Park, NC.

#821 **Poster Board Number 148**
Characterization of a Complex Protein Corona on Silver Nanoparticles and Its Influence on Cellular Interactions. *J. Shannahan*[1], *F. A. Witzmann*[2], and *J. M. Brown*[1]. [1]University of Colorado, Aurora, CO; and [2]Indiana University, Indianapolis, IN.

#822 **Poster Board Number 149**
Metabolic Behavior and Effects of Ion and Nanoparticle Forms of Silver in the Mouse Lung and Macrophages. T. Miyayama[1,2], Y. Arai[3], and *S. Hirano*[2,3]. [1]Hygiene and Public Health I, School of Medicine, Tokyo Women's Medical University, Shinjyuku-ku, Tokyo, Japan; [2]Environmental Nanotoxicology Project, National Institute for Environmental Studies, Tsukuba, Ibaraki, Japan; and [3]Graduate School of Pharmaceutical Sciences, Chiba University, Chiba, Japan.

Abstract #

#823 **Poster Board Number 150**
Acute and Subchronic Exposure to Inhaled Silver Nanoparticles Results in Alterations in Gene Expression, Gene-Specific Promoter Methylation, and Mitochondrial Integrity. *M. A. Popovech*, *E. L. Saunders*, K. Galdanes, *J. M. Vaughan*, *L. Chen*, and *T. Gordon*. Environmental Medicine, New York University School of Medicine, Tuxedo, NY.

#824 **Poster Board Number 151**
Gene Expression Alterations in the Brain Elicited by Inhalation of Silver Nanoparticles. *P. B. Tijerina*, *M. A. Popovech*, K. Galdanes, *E. L. Saunders*, *L. Chen*, and *T. Gordon*. Environmental Medicine, NYUMC, Tuxedo, NY.

#825 **Poster Board Number 152**
A Comparative Pulmonary Response: Inflammation, Injury, and Clearance of Silver Nanoparticles in Two Mouse Strains. *E. L. Saunders*[1], *M. A. Popovech*[1], *T. Gordon*[1], *L. Chen*[1], K. Galdanes[1], S. Chillrud[2], and J. Ross[2]. [1]Environmental Medicine, New York University, Brooklyn, NY; and [2]Earth Sciences, Columbia University, Palisades, NY.

#826 **Poster Board Number 153**
Role of Scavenger Receptor B1 in Macrophage Uptake and Activation by Silver Nanoparticles. *A. Aldossari*, *J. Shannahan*, and *J. M. Brown*. University of Colorado, Aurora, CO.

#827 **Poster Board Number 154**
Effects of Repeated Intranasal Administration of Silver Nanoparticles on Learning and Memory in Mice. *L. L. Davenport*[1], *H. Hsieh*[1], M. T. Williams[2,3], C. V. Vorhees[2,3], and *M. Genter*[1]. [1]Department of Environmental Health, University of Cincinnati, Cincinnati, OH; [2]Department of Pediatrics, University of Cincinnati, Cincinnati, OH; and [3]Division of Neurology, Cincinnati Children's Research Foundation, Cincinnati, OH.

#828 **Poster Board Number 155**
Deposition and Retention of Inhaled Silver Nanoparticles in the Rat Lung. D. S. Anderson[1], E. S. Patshin[1], R. Silva[1], D. Uyeminami[1], *T. Gordon*[2], *L. Chen*[2], *K. E. Pinkerton*[1], and *L. S. Van Winkle*[1]. [1]Center for Health and the Environment, University of California, Davis, Davis, CA; and [2]Department of Environmental Medicine, NYU, Tuxedo, NY.

#829 **Poster Board Number 156**
Inhaled Nano-TiO2 Size Distribution along with Mass Concentration Define Lung Responses. *A. Noel*[1,4], Y. Cloutier[2], M. Charbonneau[3], K. Maghni[1], *R. Tardif*[1], and G. Truchon[2]. [1]School of Public Health, University of Montreal, Montréal, QC, Canada; [2]Institut de Recherche en Santé et en Sécurité du Travail, Montréal, QC, Canada; [3]INRS-Université du Québec, Laval, QC, Canada; and [4]SVM, Louisiana State University, Baton Rouge, LA.

#830 **Poster Board Number 157**
Cell Transformation Potential of Nano-Cerium Oxide ($nCeO_2$), Nano-Ferric Oxide (nFe_2O_3) Compared to Multiwalled Carbon Nanotubes (MWCNT). L. Wang[1], *T. A. Stueckle*[1], *P. Demokritou*[2], M. Chen[3], R. Derk[1], S. Luanpitpong[3], *J. Y. Ma*[1], *V. Castranova*[1], and Y. Rojanasakul[3]. [1]NIOSH, Morgantown, WV; [2]Harvard University, Boston, MA; and [3]West Virginia University, Morgantown, WV.

Program Description (Continued)

Abstract #

#831 **Poster Board Number 158**
Evaluation of Pulmonary Response to Tungsten Oxide (WO_3) Nanoparticles in Golden Syrian Hamsters. M. V. Prajapati, and *J. M. Cerreta*. PHS, St. Johns University, Queens, NY.

#832 **Poster Board Number 159**
Evaluating Metallic NP-Induced Stress Using a Neuronal Coculture Model. M. Grogg, *L. K. Braydich-Stolle*, and *S. M. Hussain*. Molecular Bioeffects Branch, Bioeffects Division; 711HPW/AFRL, Wright Patteson AFB, OH.

#833 **Poster Board Number 160**
Unique Mode of Toxicity of Cu Nanoparticles Compared to Their Micron and Ionic Analogs in *E. coli* and *L. brevis*. *C. Kaweeteerawat*[1,2], *A. Ivask*[2], C. Chang[2], P. Holden[2,3], and *H. Godwin*[1,2]. [1]Molecular Toxicology, UCLA, Los Angeles, CA; [2]UC Center for Environmental Implication of Nanotechnology, UCLA, Los Angeles, CA; and [3]Donald Bren School of Environmental Science and Management, UCSB, Santa Barbara, CA.

#834 **Poster Board Number 161**
Physicochemical Characterization and Ecotoxicological Evaluation of TiO_2 Nanoparticles in Earthworm *Eisenia foetida*. *B. Siva Prasad*, S. Ashwini, and P. Sankar Ganesh. Biological Sciences, Birla Institute of Technology and Science Pilani, Hyderabad Campus, Hyderabad, India.

#835 **Poster Board Number 162**
Gene Expression Changes in Secondary Organs of Rats Intratracheally Exposed to Silver Nanoparticles. T. Coccini[1], R. Gornati[3], I. Vanetti[3], E. Signoretto[3], F. Rossi[3], G. Bernardini[3], and *L. Manzo*[1,2]. [1]Toxicology Division, Maugeri Foundation IRCCS, Institute of Pavia, Pavia, Italy; [2]University of Pavia, Pavia, Italy; and [3]Department of Biotechnology and Life Sciences, University of Insubria, Varese, Italy.

#836 **Poster Board Number 163**
The Influence of UV Light on the Genotoxicity of Engineered Nanoparticles. *D. Cupi*, and A. Baun. Environmental Engineering, DTU (Technical University of Denmark), Kongens Lyngby, Denmark.

#837 **Poster Board Number 164**
Monocyte Activation by Particulate Matter and Reactive Oxygen Species Formation. *K. I. Tran*[1], P. Pakbin[2], A. Kim[1], C. Sioutas[2], and *A. Campbell*[1]. [1]Department of Pharmaceutical Sciences, Western University of Health Sciences, Montclair, CA; and [2]Sonny Astani Department of Civil and Environmental Engineering, University of Southern California, Los Angeles, CA.

#838 **Poster Board Number 165**
Semi-Quantitative Analysis for the Uptake of Fluorescently Labeled Carboxylated Nanocrystalline Cellulose in Zebrafish Embryos (*Danio rerio*). *A. N. Clendaniel*[1], *J. A. Bonventre*[1], B. Harper[1], and *S. L. Harper*[1,2]. [1]Environmental and Molecular Toxicology, Oregon State, Corvallis, OR; and [2]Chem, Bio and Envl Engineerin, Oregon State, Corvallis, OR.

Abstract #

#839 **Poster Board Number 166**
Biodisposition Kinetics of Titanium Dioxide Nanoparticles and Induced Oxidative Stress after Intravenous Administration in Rats. D. Dieme, I. Pujalte, *S. Haddad*, and *M. Bouchard*. Environmental and Occupational Health, University of Montreal, Montreal, QC, Canada.

#840 **Poster Board Number 167**
Synthesis and Effects of Functional Gold Nanoparticles As Potential Transfection System for Mammalian Cells. A. M. Mendez[1,2], M. E. Martinez-Leija[1], G. Palestino[2], and *M. Salgado*[1]. [1]Facultad de Medicina-Departamento de Bioquimica, Universidad Autónoma de San Luis Potosi, San Luis Potosi, Mexico; and [2]Facultad de Ciencias Quimicas, Universidad Autonoma de San Luis Potosí, San Luis Potosí, San Luis Potosi, Mexico.

#841 **Poster Board Number 168**
***In Vivo* Study of the Role of Endocytosis and Lysosome Function in Silver Nanoparticle Uptake and Toxicity in *Caenorhabditis elegans*.** *X. Yang*, A. Schindler, R. Taggart, H. Hsu-Kim, D. Sherwood, *D. E. Hinton*, and *J. N. Meyer*. Duke University, Durham, NC.

#841a **Poster Board Number 169**
Silver Nanoparticle-Induced Toxicity to Terrestrial Invertebrates in Different Soil Orders. R. Boyd[1], *D. R. Johnson*[1,2], and *J. A. Steevens*[1]. [1]Environmental Laboratory, U.S. Army Engineer Research & Development Center, Vicksburg, MS; and [2]Conestoga-Rovers and Associates, Dallas, TX.

#841b **Poster Board Number 170**
Transmission Electron Microscopic (TEM) Evaluation of Silver Nanoparticles (AgNP) or Silver Acetate (AgOAc) Deposition in Selected Tissues of Sprague-Dawley (SD) Rats. *M. S. Imam*[1], *M. D. Boudreau*[1], G. Olson[2], and A. Paredes[1]. [1]National Center for Toxicological Research, Jefferson, AR; and [2]Toxicologic Pathology Associates, Jefferson, AR.

#841c **Poster Board Number 171**
Toxicity and Allergy Responses in the Lung following Pulmonary Exposure to Nanoparticle Silver in Mice. *C. E. McLoughlin*[1], *S. Anderson*[1], K. L. Anderson[1], D. Schwegler-Berry[1], *B. T. Chen*[1], and *J. R. Roberts*[1]. [1]NIOSH, Morgantown, WV.

#841d **Poster Board Number 172**
Differential Genomic Effects on Signaling Pathways by Two Different CeO2 Nanoparticles in HepG2 Cells. *K. T. Kitchin*[1], K. A. Wallace[1], C. P. Jones[1], H. Ren[1], B. T. Castellon[1], J. Crooks[1], and S. Thai[1]. [1]US EPA, Durham, NC.

#841e **Poster Board Number 173**
Aggregation of Gold Nanoparticles with Thioether-Containing Amino Acids. *S. Babu*[1], F. Jaetae Seo[1], *R. M. Uppu*[2], and M. O. Claville[1]. [1]School of Science, Hampton University, Hampton, VA; and [2]Department of Environmental Toxicology and the Health Research Center, Southern University and A&M College, Baton Rouge, LA.

TUESDAY

Education-Career Development Sessions
Exhibitor-Hosted Sessions
Featured Sessions
Historical Highlights Session
Informational Sessions
Platform Sessions

Program Description (Continued)

Abstract #

Tuesday Morning, March 25
9:00 AM to 12:30 PM
Exhibit Hall

PS

Poster Session: Children's Health and Juvenile Toxicity

Enhancing Strategies for Risk Assessment

Chairperson(s): *Christopher J. Bowman, Pfizer, Groton, CT.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *11:00 AM–12:30 PM*

#842 **Poster Board Number 201**
Toxicogenomic Analysis of Low-Dose CT Exposure in Neonatal Mouse Lungs. H. Wang, J. E. Moore, M. C. Walb, J. Winslow, M. T. Munley, L. D. Miller, X. Zhou, and *M. S. Miller*. Wake Forest School of Medicine, Winston-Salem, NC.

#843 **Poster Board Number 202**
Lead Pollution in Soil, Domestic Animals, and Children from Townships near a Lead-Zinc Mine in Kabwe, Zambia. S. M. Nakayama[1], J. Yabe[2], Y. Ikenaka[1], Y. B. Yohannes[1], B. Oroszlany[1], N. Bortey-Sam[1], K. Muzandu[2], K. Choongo[2], A. N. Kabalo[3], J. Ntapisha[3], A. Mweene[2], T. Umemura[1], and *M. Ishizuka*[1]. [1]Hokkaido Univ, Sapporo, Japan; [2]University of Zambia, Lusaka, Zambia; and [3]District Health Office, Kabwe, Zambia.

#844 **Poster Board Number 203**
Gene Expression Profiles in Asthmatic Children Living in Localities with Different Extent of the Air Pollution. H. Libalova, *J. Topinka*, M. Dostal, and R. J. Sram. Department of Genetic Ecotoxicology, Institute of Experimental Medicine AS, Prague, Czech Republic.

#845 **Poster Board Number 204**
The Development and Validation of Methods for Evaluating the Immune System in Preweaning Pigs. *B. A. Thorsrud*[7], M. J. Cameron[6], B. Zeigler[6], K. G. Nelson[2], *J. M. McKim*[3], *M. L. Weiner*[1], *H. Ferguson*[4], B. Frantz[7], and W. Blakemore[5]. [1]TOXpertise, LLC, Princeton, NJ; [2]Pathology, MPI, Mattawan, MI; [3]CeeTox, Kalamazoo, MI; [4]Abbott Nutrition, Columbus, OH; [5]Celtic Colloids, Topsham, ME; [6]Immunology, MPI, Mattawan, MI; and [7]Developmental & Reproductive Toxicology, MPI, Mattawan, MI.

#846 **Poster Board Number 205**
Increased Prevalence of Asthma in Children Exposed to Pyrethroids in Housedust. S. L. Shalat[2], M. Ramagopal[1], B. Buckley[2], K. Black[2], and G. Mainelis[2]. [1]Pediatrics, Rutgers-RWJMS, New Brunswick, NJ; and [2]E.O.H.S.I., Piscataway, NJ. Sponsor: *J. Richardson*.

#847 **Poster Board Number 206**
Femoral Growth Plate Dysplasia in Juvenile Rabbits Dosed with a Spleen-Like Kinase (Syk) Inhibitor. *P. Duffy*[1], T. Mitchard[1], *G. R. Clemens*[2], and P. A. Hall[1]. [1]Drug Safety and Metabolism, Astrazeneca, Macclesfield, United Kingdom; and [2]Rigel Pharmaceuticals Inc, South San Francisco, CA.

Abstract #

#848 **Poster Board Number 207**
Persistent Mitochondrial Damage in Offspring of Patas Monkeys Exposed *In Utero* to Antiretroviral Nucleoside Reverse Transcriptase Inhibitors (NRTIs). *Y. Liu*[1], A. T. Gibbons[1], E. Shim[1], P. Nguyen[1], *R. L. Divi*[2], R. A. Woodward[3], M. J. Sowers[3], and *M. C. Poirier*[1]. [1]Carcinogen and DNA Interactions Section, LCBG, CCR, National Cancer Institute, NIH, Bethesda, MD; [2]DCPC, National Cancer Institute, NIH, Bethesda, MD; and [3]Animal Center, NIH, Dickerson, MD.

#848a **Poster Board Number 208**
Isotopic Analyses of Lead in Blood of Children to Identify Sources and Routes of Pollution in a Mexican Mining Site. P. R. Rebeca Yasmin[1], C. L. Javier[1], G. T. Arturo[2], and P. A. Ofelia[2]. [1]Universidad Autonoma de San Luis Potosí, San Luis Potosí, Mexico; and [2]Universidad Autónoma de México, Querétaro, Mexico. Sponsor: *M. Gonsebatt*.

#848b **Poster Board Number 209**
Impulsivity and Attention in Fluoxetine-Treated Juvenile Monkeys. *M. Golub*[1], C. Hogrefe[2], and E. Hackett[2]. [1]Environmental Toxicology, University of California Davis, Davis, CA; and [2]California National Primate Research Center, University of California Davis, Davis, CA.

#848c **Poster Board Number 210**
Perinatal Bisphenol A Exposure Changes Expression of Airway Secretory Products in the Developing Mouse Lung. P. Edwards[1], *L. S. Van Winkle*[1], K. Lee[1], and S. Carratt[1]. [1]Center for Health & Environment, UC Davis, Davis, CA.

Tuesday Morning, March 25
9:00 AM to 12:30 PM
Exhibit Hall

PS

Poster Session: Clinical and Translational Toxicology

Advancing Clinical and Translational Toxicology and Application of Biomarkers

Chairperson(s): *Braulio D. Jimenez-Velez, University of Puerto Rico, Dept of Biochemistry, San Juan.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *9:00 AM–11:00 AM*

#849 **Poster Board Number 211**
BMS-986094: Nonclinical Investigative Studies on a Nucleoside Analog Intended for Treatment of Hepatitis C Virus Infection. *M. Davies*, *M. J. Graziano*, and T. Sanderson. Drug Safety Evaluation, Bristol-Myers Squibb Company, Princeton, NJ.

#850 **Poster Board Number 212**
BMS-986094: Investigation of Potential Biomarkers and Mechanisms of Toxicity in Cynomolgus Monkeys. *K. Horn*[1], T. Sanderson[1], R. White[1], E. Renshaw[1], D. Nelson[1], S. Clark[1], *T. R. Van Vleet*[1], *D. Simic*[1], B. Baumgart[1], B. Wang[3], J. Lute[5], E. Janovitz[4], *M. J. Graziano*[2], and *M. Davies*[2]. [1]Drug Safety Evaluation (DSE), Bristol-Myers Squibb (BMS), Mt. Vernon, IN; [2]DSE, BMS, Lawrenceville, NJ; [3]DSE, BMS, New Brunswick, NJ; [4]Discovery Toxicology, BMS, Hopewell, NJ; and [5]Bioanalytical Sciences, BMS, Lawrenceville, NJ.

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Abstract #

#851 **Poster Board Number 213**
BMS-986094: Repeat-Dose Oral Cardiovascular (CV) Safety Pharmacology Study in Monkeys. *M. W. Gill*[1], J. K. Hennan[1], L. V. Buchanan[1], W. A. Warner[1], L. M. Dillon[1], P. C. Levesque[1], *M. Davies*[2], T. Sanderson[2], and *M. J. Graziano*[2]. [1]Discovery Toxicology, Bristol-Myers Squibb, Princeton, NJ; and [2]Drug Safety Evaluation, Bristol-Myers Squibb, Princeton, NJ.

#852 **Poster Board Number 214**
BMS-986094 and Its Metabolites in Target and Nontarget Monkey Tissues. *K. J. Trouba*[1], J. Wang[2], *A. Liu*[2], *B. Wang*[3], *M. J. Graziano*[2], *T. Sanderson*[1], and *M. Davies*[2]. [1]Drug Safety Evaluation, Bristol-Myers Squibb (BMS), Mt Vernon, IN; [2]BMS, Lawrenceville, NJ; and [3]BMS, New Brunswick, NJ.

#853 **Poster Board Number 215**
BMS-986094: Metabolomic Assessment of Cardiotoxicity in Monkeys and Mice. *D. Robertson*[1], P. Shipkova[1], N. Aranibar[1], P. Virdi[1], M. Reily[1], *T. R. Van Vleet*[2], *K. H. Horn*[2], and *K. J. Trouba*[2]. [1]Applied and Investigative Metabolomics, Bristol-Myers Squibb Co., Princeton, NJ; and [2]Drug Safety Evaluation, Bristol-Myers Squibb Co., Mt. Vernon, IN.

#854 **Poster Board Number 216**
BMS-986094: Transcriptional Profiling in Monkeys and Mice. *T. R. Van Vleet*, *D. Simic*, *K. H. Horn*, R. White, *R. Bunch*, *M. Davies*, *T. Sanderson*, and *M. J. Graziano*. Drug Safety Evaluation, Bristol-Myers Squibb, Mt. Vernon, IN.

#855 **Poster Board Number 217**
BMS-986094: Investigations of *In Vitro* Metabolism, Reactive Metabolite Formation, and Oxidative Stress in Human Liver Microsomes, Hepatocytes, and Cardiomyocytes. W. Li[1], L. Ma[1], W. Zhao[1], J. Kwagh[2], C. Storck[2], Y. Zhu[1], A. Liu[1], *O. Flint*[2], and W. G. Humphreys[1]. [1]Bristol-Myers Squibb, Lawrenceville, NJ; and [2]Bristol-Myers Squibb, Pennington, NJ.

#856 **Poster Board Number 218**
BMS-986094: Potential Cytotoxicity in Differentiated Human Cardiomyocytes. J. Kwagh, C. Storck, H. Shi, M. Huang, P. C. Levesque, and *O. P. Flint*. Discovery Toxicology, Bristol-Myers Squibb, Princeton, NJ.

#857 **Poster Board Number 219**
BMS-986094: *In Vitro* Mitochondrial DNA Replication, Transcription, and Translation. *O. Flint*[1], F. Wang[1], J. Kwagh[1], C. Storck[1], *T. Sanderson*[1], J. Arnold[2], C. Cameron[2], and S. Sharma[2]. [1]Discovery Toxicology and Drug Safety Evaluation, Bristol-Myers Squibb, Princeton, NJ; and [2]Biochemistry and Molecular Biology, The Pennsylvania State University, University Park, PA.

#858 **Poster Board Number 220**
Altered Vascular Nitric Oxide Production in Diabetics and Control Subjects following Acute Traffic Pollution Exposure. *A. Pettit*[1], *H. Kipen*[2,3], R. Laumbach[2,3], Z. Fan[3], P. Ohman-Strickland[4], C. Cepeda[3], and *A. Gow*[3,5]. [1]Graduate School of Biomedical Sciences, Rutgers University, Piscataway, NJ; [2]Robert Wood Johnson Medical School, Rutgers University, Piscataway, NJ; [3]Environmental and Occupational Health Sciences Institute, Rutgers University, Piscataway, NJ; [4]School of Public Health, Rutgers University, Piscataway, NJ; and [5]Ernest Mario School of Pharmacy, Rutgers University, Piscataway, NJ.

Abstract #

#859 **Poster Board Number 221**
Anterior Chamber Model to Evaluate Drug Effects on Corneal Wound Repair. *A. Vickers*[1], J. Herrmann[1], and *R. Fisher*[2]. [1]Allergan Inc, Irvine, CA; and [2]Vitron Inc, Tucson, AZ.

#860 **Poster Board Number 222**
Establishment and Characterization of a New Rat Bronchial Organotypic Model Resembling the *In Vivo* Situation. C. Mathis[1], S. Huang[2], S. Frentzel[1], D. Kuehn[1], F. Talamo[1], M. Guertz[1], E. Guedj[1], Y. Xiang[1], *A. Hayes*[3], S. Constant[2], M. Peitsch[1], and J. Hoeng[1]. [1]Philip Morris International, Neuchâtel, Switzerland; [2]Epithelix Sarl, Plan-les-Ouates, Switzerland; and [3]Spherix Consulting, Rockville, MD.

#861 **Poster Board Number 223**
Application of Reduced Blood Volumes in Rodent Toxicology Designs; Enhancing Translation of Data and Reduce Number of Animals. A. Prefontaine, L. Bernier, and C. Copeman. Toxicology, Charles River, Montreal, QC, Canada. Sponsor: *M. Vézina*.

#862 **Poster Board Number 224**
Exploration for Mitochondrial Toxic Oxidative Stress in Pregnant Women on Iron Supplements in a Population with High Maternal Mortality Rate. *J. I. Anetor*[1], E. I. Diala[1], A. Arowojolu[1], L. B. Amoo[1], and G. O. Anetor[2]. [1]Departments of Chemical Pathology & Obstetrics/Gynaecology, University of Ibadan, Ibadan, Oyo, Nigeria; and [2]Health Education, University of Ibadan, Ibadan, Oyo, Nigeria.

#863 **Poster Board Number 225**
ELISA Detection of Zilpaterol in Retinal Tissue. *C. Wilson*[1,2], M. Mengel[1], and J. Butz[1]. [1]Indiana Animal Disease Diagnostic Laboratory, Purdue University, West Lafayette, IN; and [2]Comparative Pathobiology, Purdue University, West Lafayette, IN.

#864 **Poster Board Number 226**
Monitoring GI Liability of EGFR Inhibitors with a Scratch Wound Assay in Intestinal Epithelial Cells. *J. Harney*[1], M. Hemkens[2], and *G. Yanochko*[2]. [1]Drug Safety Research and Development, Pfizer, Inc., Groton, CT; and [2]Pfizer, La Jolla, CA.

#865 **Poster Board Number 227**
The Protective Effects of Short-Term Fasting against 60Co-γ Ray Radiation. *J. Li*[1,2]. [1]soochow University, Suzhou, China; and [2]RIRBM, Hiroshima University, Hiroshima, Japan.

#866 **Poster Board Number 228**
Effect of GDC-0941 Treatment in Combination with T-DM1 on Formation of Megakaryocytes. *H. Uppal*, *D. L. Misner*, *A. H. Kim*, and P. Dhawan. Safety Assessment, Genentech Inc., South San Francisco, CA.

#867 **Poster Board Number 229**
Serum Biomarkers of Mitochondrial Damage in Survivors and Nonsurvivors of Acetaminophen-Induced Acute Liver Failure: Implications for the Mechanism of Hepatotoxicity in Humans. *M. R. McGill*[1], W. M. Lee[2,3], and *H. Jaeschke*[1]. [1]Pharmacology, Toxicology, and Therapeutics, University of Kansas Medical Center, Kansas City, KS; [2]Digestive and Liver Diseases, University of Texas Southwestern Medical Center, Dallas, TX; and [3]Acute Liver Failure Study Group, Dallas, TX.

Program Description (Continued)

Abstract #

#868 **Poster Board Number 230**
A Labor of HERCULES: Curation of the Environmental Metabolome for Exposome Research. *D. P. Jones*[1], *K. Uppal*[1], *D. I. Walker*[2], *V. Tran*[1], *Y. Liang*[1], *Y. Go*[1], E. Voit[3], *D. B. Barr*[1], P. Tolbert[1], *K. D. Pennell*[2], and *G. W. Miller*[1]. [1]Dept of Medicine, Emory University, Atlanta, GA; [2]Civil and Environmental Engineering, Tufts University, Medford, MA; and [3]Georgia Technology Institute, Atlanta, GA.

#869 **Poster Board Number 231**
Pathogenic Mechanisms in Highly Active Antiretroviral Therapy (HAART)-Induced Hepatotoxicity: Role Phosphodieaterase 4 (PDE4) and ER-Stress. *H. Donde*[1], P. Barve[1], D. Barker[1], *S. Joshi-Barve*[1], L. Gobejishvili[1], C. McClain[1,2], and *S. Barve*[1]. [1]Department of Medicine/GI, University of Louisville, Louisville, KY; and [2]Robley Rex VAMC, Louisville, KY.

#870 **Poster Board Number 232**
Dual Regulation of Calcineurin Activity following Lymphocyte Activation: Contribution to Cyclosporine-Induced Toxicity? S. Sanquer[1], C. Lena[1], L. Herry[1], M. Stern[2], and *R. Barouki*[1]. [1]INSERM UMR-S 747, Paris Descartes University, Paris, France; and [2]Hôpital Foch, Suresnes, France.

#871 **Poster Board Number 233**
Derivation of Induced Pluripotent Stem Cells and Their Potential Application for Cardiac Regeneration in a Porcine Model. B. Kumar[1,2], T. Kim[1], W. Lee[1], Y. Lee[1], R. Jeon[1], S. Jang[1], S. Lee[1], S. J. Peng[3], H. Kim[3], S. L. Park[3], and G. Rho[1]. [1]Department of Theriogenology and Biotechnology, College of Veterinary Medicine, Gyeongsang National University, Jinju, Republic of Korea; [2]Centre for Stem Cell Research & Regenerative Medicine, K.S. Hegde Medical Academy, Nitte University, Deralakatte, Mangalore, India; and [3]PWG Genetics, Singapore, Singapore. Sponsor: *W. Koh*.

#872 **Poster Board Number 234**
Engineered Nanomaterial Exposure and the Metabolic Syndrome. *P. G. Stapleton*, *V. C. Minarchick*, *J. Yi*, J. Frisbee, and *T. Nurkiewicz*. Physiology and Pharmacology, WVU, Morgantown, WV.

#873 **Poster Board Number 235**
Cyclophilin Inhibitor Alisporivir (DEB025) Is Not Toxic to Mitochondria: A Comprehensive *In Vitro* and *In Vivo* Assessment. *F. Pognan*[1], K. K. Balavenkatraman[1], P. Couttet[1], R. Kreutzer[1], S. B. Helliwell[1], D. Brees[1], A. Cordier[1], S. Chibout[1], N. Naoumov[2], *A. Wolf*[1], and M. Uteng[1]. [1]NIBR, Novartis, Basel, Switzerland; and [2]Pharma, Novartis, Basel, Switzerland.

Abstract #

#874 **Poster Board Number 236**
Sulforaphane Protects against Influenza Virus Infection in the Nasal Mucosa of Smokers. *E. Glista-Baker*[1], L. Müller[2], *R. N. Bauer*[3], M. Meyer[4], *S. Z. Jones*[1], H. Zhang[5], H. Zhou[1,5], T. Noah[1,6], and *I. Jaspers*[1,3,6]. [1]Center for Environmental Medicine, Asthma and Lung Biology, University of North Carolina, Chapel Hill, NC; [2]University Children's Hospital Basel, Basel, Switzerland; [3]Curriculum in Toxicology, University of North Carolina, Chapel Hill, NC; [4]Department of Microbiology and Immunology, University of North Carolina, Chapel Hill, NC; [5]Department of Biostatistics, University of North Carolina, Chapel Hill, NC; and [6]Department of Pediatrics, University of North Carolina, Chapel Hill, NC.

#875 **Poster Board Number 237**
Trauma and Drugs of Abuse in Puerto Rico: A Retrospective Study. H. Jirau[1,5], F. Colón[2,5], M. Figueroa[4], G. Rodríguez[3], P. Rodríguez[3,4], and *B. D. Jimenez-Velez*[2,5]. [1]Biology, University of Puerto Rico Rio Piedras Campus, San Juan, Puerto Rico; [2]Biochemistry, University of Puerto Rico School of Medicine Medical Science Campus, San Juan, Puerto Rico; [3]Surgery, University of Puerto Rico School of Medicine Medical Science Campus, San Juan, Puerto Rico; [4]Trauma Center, San Juan, Puerto Rico; and [5]Center for Environmental and Toxicological Research, San Juan, Puerto Rico.

#876 **Poster Board Number 238**
Production of Recombinant Antibody Fragments Targeting Soluble Epoxide Hydrolase. *Z. Majkova*, H. Kim, C. Morisseau, S. Lee, *S. J. Gee*, and B. D. Hammock. University of California, Davis, CA.

#876a **Poster Board Number 239**
Mobile Augmented Reality Displays for Personalized Exposure Informatics. A. J. Larkin[1,2], *D. E. Williams*[1,2,3], and *W. M. Baird*[1,2]. [1]Environmental and Molecular Toxicology, Oregon State University, Corvallis, OR; [2]Superfund Research Center, Oregon State University, Corvallis, OR; and [3]Linus Pauling Institute, Oregon State University, Corvallis, OR.

#876b **Poster Board Number 240**
Clinical Toxicology and Community Health Education: National Poison Prevention Week in the United States. M. Broderick Pritty[1], and *T. Dodd-Butera*[2]. [1]San Diego Division, California Poison Control System, San Diego, CA; and [2]Nursing, CSU San Bernardino, College of Natural Sciences, San Bernardino, CA.

#876c **Poster Board Number 241**
Dermatoxicologic Clinical Solutions: Textile Dye Dermatitis Patch Testing. N. Blickenstaff[1], G. Coman[1], and *H. I. Maibach*[1]. [1]Dermatology, University of California San Francisco, San Francisco, CA.

#876d **Poster Board Number 242**
Cardiovascular Effects of Diesel Exhaust and Ozone in a Multipollutant Context. T. Stevens[1], M. Case[2], A. Rappold[2], J. Pleil[3], D. Diaz-Sanchez[2], W. Cascio[2], and *M. C. Madden*[2]. [1]ORISE/EMAG/NCEA/ORD, EPA, RTP, NC; [2]CRB/EPHD/ORD, EPA, Chapel Hill, NC; and [3]HEASD/NERL/ORD, EPA, RTP, NC.

Program Description (Continued)

Abstract #

Tuesday Morning, March 25
9:00 AM to 12:30 PM
Exhibit Hall

PS

Poster Session: Pharmacokinetics and Disposition

Chairperson(s): *Alan F. Sasso, US EPA, Washington, DC.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *11:00 AM–12:30 PM*

#877 **Poster Board Number 246**
Development and Validation of an Analytical Method to Quantitate 2-Ethylhexyl p-Methoxycinnamate in Rat Plasma: Application to a Preliminary Toxicokinetic Study. *C. R. Croutch*[1], C. Dillon[1], A. Gutierrez[1], F. Hubbard[1], R. Mathias[1], D. Logan[1], B. Sitzmann[1], J. Cobb[1], K. Dunn[1], J. Roseman[1], S. Kerns[1], D. Slade[1], K. Aillon[1], J. Algaier[1], R. Harris[1], *B. Collins*[2], and *S. Waidyanatha*[2]. [1]MRIGlobal, Kansas City, MO; and [2]NIH/NIEHS/DNTP, Research Triangle Park, NC.

#878 **Poster Board Number 247**
Validation of an ELISA for Quantitation of the Lysosomal Protein Saposin C following Protein-Lipid Nanovesicle BXQ350 Delivery to Nonhuman Primates. M. Shelton[1], R. Takigiku[2], R. Wimalasena[3], C. Cruze[2], J. Davis[1], and *K. Draper*[1]. [1]Ricerca Biosciences, Concord, OH; [2]Bexion Pharmaceuticals, Covington, KY; and [3]The Proctor & Gamble Company, Cincinnati, OH.

#879 **Poster Board Number 248**
Intact versus Signature Peptide Approach to Reach Optimal Sensitivity in Large Molecule Quantification by LC-MS: Exenatide Case Study. D. Leroux-Petersen, and *F. Garofolo*. Bioanalytical Services, Algorithme Pharma Inc., Laval, QC, Canada.

#880 **Poster Board Number 249**
Glucagon Bioanalysis by LC-MS: Unprecedented Level of Sensitivity (10pg/mL) for a Novel Formulation. M. Raigneau, and *F. Garofolo*. Bioanalytical Services, Algorithme Pharma Inc., Laval, QC, Canada.

#881 **Poster Board Number 250**
Advanced Use of High-Resolution Mass Spectrometry (HRMS) to Overcome Triple Quadrupole Limitations in Large Molecules Quantification. R. Sabelli, and *F. Garofolo*. Bioanalytical Services, Algorithme Pharma Inc., Laval, QC, Canada.

#882 **Poster Board Number 251**
Human Metabolism Studies of High-Molecular Weight Polycyclic Aromatic Hydrocarbons Utilizing UPLC-Moving Wire Solid Sample Feed-Accelerator Mass Spectrometry. *E. Madeen*[1], R. Corley[2], M. Malfatti[3], T. Ognibene[3], *K. W. Turteltaub*[3], T. McQuistan[1], and *D. E. Williams*[1]. [1]OSU, Corvallis, OR; [2]Pacific Northwest National Laboratories, Richland, WA; and [3]Lawrence Livermore National Laboratory, Livermore, CA.

Abstract #

#883 **Poster Board Number 252**
Development and Characterization of a LC-MS/MS Method for Antifolate Compounds for the Treatment of *Bacillus anthracis* Infections. P. J. Kuehl[1], C. Bourne[2], K. Berlin[3], R. A. Bunce[3], J. Lucak[1], J. Marsters[1], *B. C. Moeller*[1], M. Valderas[1], and W. Barrow[2]. [1]Lovelace Respiratory Research Institute, Albuquerque, NM; [2]Department of Veterinary Pathobiology, Oklahoma State University, Stillwater, OK; and [3]Department of Chemistry, Oklahoma State University, Stillwater, OK.

#884 **Poster Board Number 253**
Differential Pharmacokinetics of Tetracycline and Sulfamethoxazole in *Brassica chinensis* L. Grown Hydroponically. *C. Chou*, Y. Wu, P. Chen, and H. Chen. Veterinary Medicine, National Chung-Hsing University, Taichung, Taiwan.

#885 **Poster Board Number 254**
Comparative Metabolism and Pharmacokinetics of Diisobuyl Ketone and Diisobutyl Carbinol in Male SD Rats. F. Zhang, *M. J. Bartels*, A. J. Clark, J. J. Staley, T. S. Lardie, D. A. Markham, *B. J. Hughes*, and N. N. Ball. TERC, The Dow Chemical Company, Midland, MI.

#886 **Poster Board Number 255**
Short-Acting and Long-Acting Buprenorphine Therapeutic Drug Levels following Single Subcutaneous Administration in Diabetic Yucatan Miniswine. B. C. Hanks[1], S. Schlink[1], L. Brown[1], M. Luna[2], Y. Liu[2], J. Liu[1], A. Stricker-Krongrad[1], and *G. Bouchard*[1]. [1]Sinclair Research, Auxvasse, MO; and [2]KCAS, LLC, Shawnee, KS.

#887 **Poster Board Number 256**
Oxycyte®, a Perfluorocarbon Emulsion Drug Candidate for the Treatment of Ischemic Brain Injury, Has Similar Pharmacokinetic Characteristics across Rodent and Nonrodent Species, Including Humans. *T. B. Grizzle*[2], T. Bradshaw[1], and *S. Anderson*[1]. [1]Oxygen Biotherapeutics Inc, Morrisville, NC; and [2]Toxicology Services Inc, Chapel Hill, NC.

#888 **Poster Board Number 257**
Iron Sucrose Nanoparticles: Effects on Tissue Iron Levels and Hepatic Gene Expression in the Rat. N. J. Pearson[1], *R. Forster*[1], J. Bouchard[1], L. Jaillet[1], A. Rogue[1], and P. Elford[2]. [1]CiToxLAB, Evreux, France; and [2]Azad Pharma AG, Toffen, Switzerland.

#889 **Poster Board Number 258**
Comparative Metabolism and Pharmacokinetics of Pterostilbene in Rhesus Macaques, Cynomolgus Macaques, and Common Marmosets. M. Muzzio, T. G. Ooms, *W. D. Johnson*, and *D. L. McCormick*. Life Sciences, IIT Research Institute, Chicago, IL.

#890 **Poster Board Number 259**
Toxicokinetics of Combined Treatment with Melamine and Cyanuric Acid in Male Sprague-Dawley Rats. *T. Jeong*[1], G. Kim[1], Y. Um[1], C. Seo[1], K. Noh[1], W. Kang[1], H. Kim[2], and M. Kang[1]. [1]College of Pharmacy, Yeungnam University, Gyeongsan, Republic of Korea; and [2]College of Pharmacy, Sungkyunkwan University, Suwon, Republic of Korea.

Program Description (Continued)

Abstract #

#891 **Poster Board Number 260**
An Updated PBPK Model for RDX (Hexahydro-1,3,5-Trinitro-1,3,5-Triazine) and Its Metabolites in Mice. C. J. Brinkerhoff[1,2], and *L. J. D'Amico*[1]. [1]ORD/NCEA-IRIS, US EPA, Washington, DC; and [2]Oak Ridge Institute for Science & Education, Oak Ridge, TN.

#892 **Poster Board Number 261**
Scoping the Need for PBPK Modeling of Child-Adult Metabolism Differences: Case Studies Applying an Enzyme Ontogeny Database. *S. V. Vulimiri*[1], Y. Lin[1], J. Kancherla[1], *G. L. Ginsberg*[2], B. P. Foos[3], and B. Sonawane[1]. [1]U.S.EPA, ORD/NCEA-W, Washington, DC; [2]Connecticut Dept. of Public Health, Hartford, CT; and [3]U.S.EPA, OCHP, Washington, DC.

#893 **Poster Board Number 262**
Distribution of Capecitabine and Its Metabolites 5'-Deoxy-5-Fluorocytidine; 5'- Deoxy-5-Fluorouridine; and 5-Fluorouracil in a Preclinical Mouse Model of Brain Metastases of Breast Cancer. R. Balyan, H. R. Thorsheim, R. Samala, and Q. R. Smith. Department of Pharmaceutical Sciences, Texas Tech University Health Sciences Center, Amarillo, TX. Sponsor: *S. Srivastava*.

#894 **Poster Board Number 263**
Disposition of the Actinide Chelating Agent 3,4,3-LI(1,2-HOPO) in Swiss-Webster Mice Using C-14 As a Radio-Tracer. T. A. Choi, D. An, J. A. Morales-Rivera, J. A. Villalobos, and R. J. Abergel. Chemical Sciences Division, Lawrence Berkeley National Laboratory, Berkeley, CA. Sponsor: *R. Abergel*.

#895 **Poster Board Number 264**
Effect of Altitude on Tissue Distribution of Toluene in S-D Rats. D. A. Mahle[1], *P. R. Eden*[1], P. Shiyanov[1,2], E. Hack[1,2], L. Qi[1,2], *B. A. Wong*[2,4], W. R. Howard[4], and A. James[3,4]. [1]711 HPW/RHDJ, USAF, Wright Patterson AFB, OH; [2]Henry Jackson Foundation, WPAFB, OH; [3]Camris International, WPAFB, OH; and [4]NAMRU-D, WPAFB, OH.

#896 **Poster Board Number 265**
Airborne PCB11 Does Not Bioaccumulate: The Fate of ^{14}C-Labelled PCB11 and Its Metabolites *In Vivo*. *X. Hu*, A. Adamcakova-Dodd, and *P. S. Thorne*. Occupational and Environmental Health, University of Iowa, Iowa City, IA.

#897 **Poster Board Number 266**
Tissue to Blood Partition Coefficients for Deltamethrin (DLM), Cis-Permethrin (CIS), and Trans-Permethrin in Adult Male Sprague-Dawley Rats and 21-Day Old Pups. *M. Amaraneni*[1], *S. Muralidhara*[1], *T. G. Osimitz*[2], *S. Anand*[3], *D. W. Gammon*[4], *C. White*[1], *B. S. Cummings*[1], and *J. V. Bruckner*[1]. [1]PBS, University of Georgia, Athens, GA; [2]Science Strategies, LLC, Charlottesville, VA; [3]DuPont Haskell, Newark, DE; and [4]FMC, Ewing, NJ.

#898 **Poster Board Number 267**
Rapid Clearance of Murine IgG1 and IgG2 Monoclonal Antibodies in Pregnant Mice. *K. Ishida*[1], *A. H. Nguyen*[1], *S. L. Wild*[1], W. Sohn[1], N. Chirmule[1], M. B. Hock[1], *M. J. Horner*[1], *E. M. Lewis*[2], *G. J. Moffat*[3], and *J. L. Bussiere*[1]. [1]Amgen, Thousand Oaks, CA; [2]Charles River Laboratories, Horsham, PA; and [3]Amgen, Seattle, WA.

Abstract #

#899 **Poster Board Number 268**
An Evaluation of the Feasibility and Toxicokinetics of Administering Ultra Low Doses of a Fully Humanized Monoclonal Antibody to Rats for Up to 26 Weeks. *T. A. Henriques*[1], D. Seemann[2], K. Marsh[1], B. Stine[3], *R. Caldwell*[1], and *R. Yeager*[1]. [1]AbbVie Inc., North Chicago, IL; [2]AbbVie Deutschland GmbH & Co. KG, Ludwigshafen, Germany; and [3]AbbVie Bioresearch Center, Worcester, MA.

#900 **Poster Board Number 269**
Oatp Subtypes Expressed in Zebrafish Liver and Kidney Transport Various Microcystin-Congeners. K. Steiner[1], *D. R. Dietrich*[1], L. Zimmermann[1], T. Karner[1], and *B. Hagenbuch*[2]. [1]Human & Environmental Toxicology, University of Konstanz, Konstanz, Germany; and [2]University of Kansas Medical Center, Kansas City, KS.

#901 **Poster Board Number 270**
Biliary Drug Excretion in Sandwich-Cultured Human Hepatocytes: Predicted from Inverted Membrane Vesicles and Targeted Proteomics. J. M. Pedersen[1,2], E. Svedberg[2], Y. Lai[3], A. Noren[2], J. Palm[4], J. Hoogstraate[5], and P. Artursson[2]. [1]The Hamner Institutes of Health Sciences, Durham, NC; [2]Uppsala University, Uppsala, Sweden; [3]Bristol-Myers Squibb, Princeton, NJ; [4]AstraZeneca R&D, Mölndal, Sweden; and [5]Acturum Life Science AB, Södertälje, Sweden. Sponsor: *M. Kansy*.

#901a **Poster Board Number 271**
Toxicokinetics: Role in Improving Guideline Toxicological Studies for Agrochemicals. *S. A. Saghir*[1]. [1]Intrinsik Environmental Sciences Inc., Mississauga, ON, Canada.

#901b **Poster Board Number 272**
Fates of Two Emerging Brominated Flame Retardants, 2-Ethylhexyl Tetrabromobenzoate and Bis(2-ethylhexyl) Tetrabromophthalate, in Female Sprague-Dawley Rats. *G. A. Knudsen*[1], *J. M. Sanders*[1], A. M. Sadik[1], and *L. S. Birnbaum*[1]. [1]Toxicology and Toxicokinetics, NCI at NIEHS, Research Triangle Park, NC.

#901c **Poster Board Number 273**
Durable Pharmacological Responses from the Peptide ShK-186, a Specific Kv1.3 Channel Inhibitor That Suppresses T Cell Mediators of Autoimmune Diseases. E. J. Tarcha[2], E. J. Munoz-Elias[2], D. Bailey[1], G. W. Ruppert[1], *S. E. Boley*[1], *R. Slauter*[1], B. Knapp[1], D. Kentala[1], M. W. Pennington[3], C. Beeton[4], K. Chandy[5], S. P. Iadonato[2], and *S. W. Frantz*[1]. [1]Gen. Toxicology & DMPK, MPI Research Inc., Mattawan, MI; [2]R&D, Kineta Inc., Seattle, WA; [3]R&D, Peptides International, Louisville, KY; [4]Molecular Physiology and Biophysics, Baylor College of Medicine, Houston, TX; and [5]Physiology & Biophysics and Surgery, University of California, Irvine, Irvine, CA.

#901d **Poster Board Number 274**
Comparison of the Disposition and Pharmacokinetics of 14C-Octamethylcyclotetrasiloxane (D4) following a Single Low Dose in Rodent Liquid Diet or a High Dose in Corn Oil via Oral Gavage to Fischer 344 Rats. *J. Domoradzki*[1], C. Sushynski[1], *C. Van Landingham*[2], and *K. P. Plotzke*[1]. [1]Dow Corning Corporation, Auburn, MI; and [2]ENVIRON International Corp., Monroe, LA.

TUESDAY

Program Description (Continued)

Abstract #

#901e **Poster Board Number 275**
Mass Spectrometry Imaging in Toxicology Study: Biodistribution of Unlabeled Bleomycin in Induced Interstitial Pulmonary Fibrosis (IPF) Model. D. Bonnel[1], M. McElroy[2], S. Madden[2], and J. Stauber[1]. [1]Imaging Department, ImaBiotech, Loos, France; and [2]Charles River Discovery Research Services, Edinburgh, United Kingdom. Sponsor: *D. Bonnel*.

#901f **Poster Board Number 276**
A Simplified and Reliable Capillary Microsampling Procedure to Support Preclinical Regulatory Studies in Rodents. R. Mader[1], S. Iqbal[2], J. Bravo[1], J. Burnett[2], P. Kilford[2], and M. Fraschini[1]. [1]Debiopharm International SA, Lausanne, Switzerland; and [2]Covance Laboratories Ltd, Harrogate, United Kingdom. Sponsor: *A. Jackson*.

Tuesday Morning, March 25
9:00 AM to 12:30 PM
Exhibit Hall

PS

Poster Session: Gene Regulation and Signal Transduction I

Chairperson(s): *Bob van de Water, Leiden University, Leiden/Amsterdam Center for Drug Research, Leiden, Netherlands.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *9:00 AM–11:00 AM*

#902 **Poster Board Number 301**
Crosstalk between Aryl Hydrocarbon Receptor and the Inflammatory Response: A Role for NF-κB. *C. Vogel*[1], E. Kahn[1], P. Leung[2], M. Gershwin[2], *T. Haarmann-Stemmann*[4], A. Hoffmann[3], and *M. S. Denison*[1]. [1]Environmental Toxicology, University of California, Davis, CA; [2]Division of Rheumatology, Allergy and Clinical Immunology, University of California, Davis, CA; [3]Department of Microbiology, Immunology and Molecular Genetics, University of California, Los Angeles, CA; and [4]Leibniz Research Institute for Environmental Medicine, Institute for Environmental Research, Düsseldorf, Germany.

#903 **Poster Board Number 302**
Toxicogenomic Evaluation of Dose-Dependent TCDD-Elicited Effects in the Jejunal Epithelium of C57BL/6 Mice. *K. A. Fader*[1], *R. Nault*[2,3], and *T. R. Zacharewski*[2,3]. [1]BioMolecular Sciences, Michigan State University, East Lansing, MI; [2]Department of Biochemistry & Molecular Biology, Michigan State University, East Lansing, MI; and [3]Center for Integrative Toxicology, Michigan State University, East Lansing, MI.

#904 **Poster Board Number 303**
Modulation of TCDD-Mediated Induction of Cytochrome P450 1A1 by Cadmium Ion (Cd^{2+}) in a Zebrafish Liver Cell Line. Y. Chen, and *K. M. Chan*. Biochemistry, School of Life Science, The Chinese University of Hong Kong, Hong Kong, China.

#905 **Poster Board Number 304**
Dioxin Blocks Initiation of β-Catenin Signaling in Developing Mouse Prostate. A. J. Schneider[1], *R. W. Moore*[1], A. Branam[1], V. Mehta[2], L. L. Abler[2], K. P. Keil[2], *C. M. Vezina*[2], and *R. E. Peterson*[1]. [1]School of Pharmacy, University of Wisconsin, Madison, WI; and [2]School of Veterinary Medicine, University of Wisconsin, Madison, WI.

Abstract #

#906 **Poster Board Number 305**
Aryl Hydrocarbon Receptor Regulation of miR-196a Controls Lung Fibroblast Proliferation via the Cell Cycle Inhibitor p27kip1. *M. Zago*[1], E. Hecht[1], J. Sheridan[1], P. Nair[2], *J. B. Matthews*[3], A. Gomez[3], Q. Hamid[1], D. H. Eidelman[1], and *C. J. Baglole*[1]. [1]Medecine, McGill University, Montreal, QC, Canada; [2]McMaster University, Hamilton, ON, Canada; and [3]University of Toronto, Toronto, ON, Canada.

#907 **Poster Board Number 306**
Ligand Promiscuity of Aryl Hydrocarbon Receptor Agonists and Antagonists Revealed by Site-Directed Mutagenesis. *A. Soshilov*, and *M. Denison*. Environmental Toxicology, University of California Davis, Davis, CA.

#908 **Poster Board Number 307**
The Ah Receptor Recruits IKK-alpha to Phosphorylate Ser10 in Histone H3 of the CYP1A1 Promoter Chromatin. *H. Kurita*, and *A. Puga*. Environmental Health, University of Cincinnati, Cincinnati, OH.

#909 **Poster Board Number 308**
RNA-Seq Analysis Reveals Roles for Aryl Hydrocarbon Receptor in Endogenous Lipid Synthesis and TNF Signaling. *T. B. Salisbury*[1], *J. K. Tomblin*[1], D. Primerano[2], G. Boskovic[2], J. Fan[2], A. R. Chaudhry[1], G. Morris[3], and J. Denvir[2]. [1]Pharmacology, Physiology and Toxicology, Joan C Edwards School of Medicine, Marshall University, Huntington, WV; [2]Biochemistry and Microbiology, Joan C Edwards School of Medicine, Marshall University, Huntington, WV; and [3]Department of Science and Mathematics, Glenville Sate College, Glenville, WV.

#910 **Poster Board Number 309**
Dexamethasone Induces Fibroblast Growth Factor (FGF) 21 in Humans and Mice. *S. Vispute*, and *X. Cheng*. Department of Pharmaceutical Sciences, St. John's University, Queens, NY.

#911 **Poster Board Number 310**
Transcriptiome Analysis of PXR-Regulated Gene Expression in HepG2 Cells. G. Wang[1], E. Yang[1], S. Ke[2], J. Cai[1], and *Y. Tian*[2]. [1]Department of Veterinary Integrative Biosciences, College of Veterinary Medicine, Texas A&M University, College Station, TX; and [2]Department of Physiology and Pharmacology, College of Veterinary Medicine, Texas A&M University, College Station, TX.

#912 **Poster Board Number 311**
Using Three-Dimensional Cell Culture to Understand Ethanol Toxicity in Mammary Cells. *R. David*, and *N. J. Gooderham*. Imperial College London, London, United Kingdom.

#913 **Poster Board Number 312**
Low-Dose Transplacental Arsenic Exposure Alters Expression of Cell Cycle Genes in Lung Tissues of C57BL/6 Mice. D. J. Udawatte[1], X. Li[2], P. Carlson[3], and R. J. Van Beneden[1,3,4]. [1]Molecular and Biomedical Sciences, University of Maine, Orono, ME; [2]Center for Molecular Medicine, Central South University, Changsha, Hunan, China; [3]Graduate School of Biomedical Sciences and Engineering, University of Maine, Orono, ME; and [4]School of Marine Sciences, University of Maine, Orono, ME. Sponsor: *J. Gosse*.

Program Description (Continued)

Abstract #

#914 **Poster Board Number 313**
Hormonal Changes and Gene Signaling Pathways in Female Rat Thyroids Exposed to Acrylamide. *R. C. Colli-Dula*[1], *N. D. Denslow*[1], and *M. A. Friedman*[2]. [1]CEHT, Universy of Florida, Gainesville, FL; and [2]Kennesaw State University, Kennesaw, GA.

#915 **Poster Board Number 314**
Development of a Nanoparticle Platform for the Targeted Delivery of siRNA to HER2-Positive Breast Cancers. *D. Castro*[1,2], W. Ngamcherdtrakul[2], J. Morry[2], T. Sangvanich[2], S. Gu[2], S. Goodyear[2], and W. Yantasee[1,2]. [1]PDX Pharmaceuticals, Portland, OR; and [2]Biomedical Engineering, Oregon Health and Science University, Portland, OR.

#916 **Poster Board Number 315**
Pentoxifylline Induces GSK-3β-Independent Proteasomal Degradation of Cyclin D1 and Arrests Renal Cancer Cells in the G1 Phase. W. Cai, N. J. Mastrandrea, K. Y. Tham, *S. S. Lau*, and *T. J. Monks*. Pharmacology and Toxicology, University of Arizona, Tucson, AZ.

#917 **Poster Board Number 316**
Regulation of Intestinal Drug-Processing Genes in Germ-Free Mice. *J. Cui*, F. Selwyn, and *C. Klaassen*. Department of Internal Medicine, University of Kansas Medical Center, Kansas City, KS.

#918 **Poster Board Number 317**
Caudal-Related Homeodomain Protein 2 (Cdx2) and the Hepatocyte Nuclear Factor 4α(HNF4α) Synergize to Regulate UDP-Glucuronosyltransferase (UGT) 1A8 Gene Expression. S. N. Mubarokah[1,2], P. A. Gregory[3], P. I. MacKenzie[1], and R. Meech[1]. [1]Clinical Pharmacology, Flinders University, Adelaide, SA, Australia; [2]University of Islam Malang, Malang, East Java, Indonesia; and [3]Centre for Cancer Biology, Adelaide, SA, Australia. Sponsor: *C. Reilly*.

#919 **Poster Board Number 318**
CYP2S1 Depletion Promotes Cell Growth in Human Lung Cells. *T. Madanayake*, and *A. M. Rowland*. New Mexico State University, Las Cruces, NM.

#920 **Poster Board Number 319**
Functional Genetic Screen in Human Haploid Cells to Identify Genes Involved in Susceptibility to Chemical Exposure. *H. Shen*, *M. T. Smith*, and *L. Zhang*. Environmental Health Sciences, University of California, Berkeley, Berkeley, CA.

#921 **Poster Board Number 320**
Carbon Monoxide Modulation of mRNA in Human Airway Smooth Muscle Cells. *B. A. Rolls*[1], L. Aguilera-Aguirre[1], *L. M. Hallberg*[1], *I. Boldogh*[1], A. J. Halayko[2], and *B. T. Ameredes*[1]. [1]University of Texas Medical Branch, Galveston, TX; and [2]University of Manitoba, Winnipeg, MB, Canada.

#922 **Poster Board Number 321**
Role of microRNA in the Induction of Immunosuppressive MDSC by Δ[9]-THC *In Vivo*: Regulation of Transcription Factor C/EBPα by miR-690. *V. L. Hegde*, S. Tomar, A. R. Jackson, R. Rao, X. Yang, U. Singh, *N. P. Singh*, *P. S. Nagarkatti*, and *M. Nagarkatti*. Pathology, Microbiology & Immunology, University of South Carolina, Columbia, SC.

Abstract #

#922a **Poster Board Number 322**
Profile of Six Hepatic Insulin Signaling Pathway Genes in Response to 2-Aminoanthracene Dietary Ingestion. J. W. Jay[1], G. W. Barnett[1], *J. C. Means*[2], and *W. E. Gato*[1]. [1]Chemistry, Georgia Southern University, Statesboro, GA; and [2]Bren School of Environmental Science & Management, UC Santa Barbara, Santa Barbara, CA.

#922b **Poster Board Number 323**
Effects 2-Aminoanthracene Exposure on Insr, Irs, Akt and Glut4 Expression. N. D. Mattis[1], J. J. Rosaldo[1], *J. C. Means*[2], and *W. E. Gato*[1]. [1]Chemistry, Georgia Southern University, Statesboro, GA; and [2]Bren School of Environmental Science & Management, UC Santa Barbara, Santa Barbara, CA.

#922c **Poster Board Number 324**
Functional Analysis of the Dioxin Response Elements (DREs) of the Murine *Cyp1a1* Gene Promoter: Beyond the Core DRE Sequence. S. Li[1], X. Pei[1], H. Xie[1], and *B. Zhao*[1]. [1]Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, Beijing, China.

#922d **Poster Board Number 325**
The Effects of Five Days of Tetrabromobisphenol A (TBBPA) Treatment in Female Rats. *J. M. Sanders*[1], *G. A. Knudsen*[1], S. J. Coulter[1], *J. K. Dunnick*[2], and *L. S. Birnbaum*[1]. [1]NCI, RTP, NC; and [2]NIEHS, RTP, NC.

Tuesday Morning, March 25
9:00 AM to 12:30 PM
Exhibit Hall

PS

Poster Session: New Science on Neurodegenerative Disease

New Science and Perspectives Surrounding Environmental and Occupational Exposures

Chairperson(s): *Srinivasulu Chigurupati, NCTR, US FDA, Jefferson, AR, and Lisa Ersson, Uppsala University, Uppsala, Sweden.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *11:00 AM–12:30 PM*

#923 **Poster Board Number 326**
2-Amino-1-Methyl-6-Phenylimidazo(4,5-b) Pyridine (PhIP) Neurotoxicity in Primary Midbrain Cultures. *Z. S. Agim*[1], A. M. Griggs[1,2], V. Mishra[2], *K. W. Turteltaub*[3], *A. E. Director-Myska*[4], J. Rochet[2], and *J. R. Cannon*[1]. [1]School of Health Sciences, Purdue University, West Lafayette, IN; [2]Department of Medicinal Chemistry and Molecular Pharmacology, Purdue University, West Lafayette, IN; [3]Biosciences & Biotechnology Division, Lawrence Livermore National Laboratory, Livermore, CA; and [4]Science and Technology, Defense Threat Reduction Agency, Fort Belvoir, VA.

#924 **Poster Board Number 327**
Dopamine-Induced Post-Translational Modifications of α-Synuclein. A. B. Cholanians, *S. S. Lau*, and *T. J. Monks*. College of Pharmacy, University of Arizona, Tucson, AZ.

Program Description (Continued)

Abstract #

#925 **Poster Board Number 328**
Linking Nicotinamide Nucleotide Transhydrogenase (Nnt) Activity and Respiration-Dependent H2O2 Consumption through the Mitochondrial Thioredoxin/ Peroxiredoxin System in Cell-Based Model of Parkinson's Disease. *P. Lopert*[1], L. Liang[2], and *M. N. Patel*[2]. [1]Neuroscience, University of Colorado Anchutz Medical Campus, Aurora, CO; and [2]Pharmaceutical Sciences, University of Colorado Anchutz Medical Campus, Aurora, CO.

#926 **Poster Board Number 329**
Environmental/Mitochondrial Toxicity Induced by Paraquat and MPP+ Is Associated with a Decrease in Ubiquitination- and p62/Autophagy-Mediated Clearance of Oxidized Proteins. *J. Navarro-Yepes*[1,2], A. Anandhan[1], *B. Quintanilla-Vega*[2], and *R. Franco*[1]. [1]School of Veterinary Medicine and Biomedical Sciences, University of Nebraska-Lincoln, Lincoln, NE; and [2]Toxicology, CINVESTAV, IPN, Mexico City, D.F., Mexico.

#927 **Poster Board Number 330**
Evidence for the Involvement of Protein Kinase C Delta (PKCδ)-Mediated Epigenetic Deregulation in the Histone Deacetylase Inhibitor Trichostatin-A-Mediated Neurotoxicity in N27 Dopaminergic Neuronal Cells. *V. J. Lawana*, N. Singh, *V. Anantharam*, *H. Jin*, *A. Kanthasamy*, and *A. Kanthasamy*. Interdepartmental Toxicology, Iowa State University, Ames, IA.

#928 **Poster Board Number 331**
Loss of NF-κB p50 Amplifies Microglia Priming in the Aged Brain. *T. Taetzsch*, *S. Brookins*, S. Levesque, C. McGraw, and *M. L. Block*. Virginia Commonwealth University, Richmond, VA.

#929 **Poster Board Number 332**
Exploring Gene-Environment Interactions Implicated in Parkinson's Disease Using a Paraquat and Maneb Model in *Drosophila*. V. Nunez[1], *C. A. Martin*[3], and D. Krantz[2]. [1]Society and Genetics, University of California, Los Angeles, Los Angeles, CA; [2]Neuroscience, University of California, Los Angeles, Los Angeles, CA; and [3]Molecular Toxicology, University of California, Los Angeles, Los Angeles, CA.

#930 **Poster Board Number 333**
The Parkinson's Disease-Linked Pesticide Ziram Causes Deregulation of the Synapse. *C. A. Martin*[1], and D. Krantz[2]. [1]Molecular Toxicology, University of California, Los Angeles, Los Angeles, CA; and [2]Neuroscience, University of California, Los Angeles, Los Angeles, CA.

#931 **Poster Board Number 334**
Mitochondrial DNA Damage and Dysfunction and Their Effects on Dopaminergic Neurodegeneration after Chemical Insult in *Caenorhabditis elegans*. *C. P. Gonzalez*, I. T. Ryde, and *J. N. Meyer*. Nicholas School of the Environment, Duke University, Durham, NC.

#932 **Poster Board Number 335**
Identification of Novel Genes and Epigenetic Mechanisms in *C. elegans* Models of Idiopathic Parkinson's Disease. *W. Li*[1], *N. M. VanDuyn*[1], J. Trinidad[2], and *R. M. Nass*[1]. [1]Pharmacology and Toxicology, Indiana University School of Medicine, Indianapolis, IN; and [2]Chemistry, Indiana University, Bloomington, IN.

Abstract #

#933 **Poster Board Number 336**
LRRK2 Transgenic Rats Exhibit Heightened Sensitivity in a Colitis Model. *J. Lee*[1], J. Park[2], C. H. Kim[2], and *J. R. Cannon*[1]. [1]School of Health Sciences, Purdue University, West Lafayette, IN; and [2]Comparative Pathobiology, Purdue University, West Lafayette, IN.

#934 **Poster Board Number 337**
Neuroproective Effect of Tauroursodeoxycholic Acid (TUDCA) in Parkinson's Disease Mouse Model. *S. Chigurupati*, J. Reymick, L. Schmued, *M. G. Paule*, *J. F. Bowyer*, and S. Sarkar. Neurotoxicology, NCTR/FDA, Jefferson, AR.

#935 **Poster Board Number 338**
Ceftriaxone Ameliorates L-DOPA-Induced Dyskinesia, a Side Effect of Parkinson's Disease Treatment. *T. Chotibut*, V. Fields, and M. F. Salvatore. Pharm., Tox. & Neuroscience, LSUHSC, Shreveport, LA.

#936 **Poster Board Number 339**
Quercetin Treatment Protects Progressive Nigral Dopaminergic Neuronal Degeneration in Cell Culture and MitoPark Animal Models of Parkinson's Disease by Activating PKD1 Signaling. M. Ay, J. Luo, *A. Kanthasamy*, *V. Anantharam*, *M. R. Langley*, H. Jin, and *A. Kanthasamy*. Biomedical Sciences, Iowa State University, Ames, IA.

#937 **Poster Board Number 340**
Nonmotor Symptoms in MitoPark Mouse Model of Parkinson's Disease. *M. R. Langley*, M. Ay, S. Ghaisas, H. Jin, *V. Anantharam*, *A. Kanthasamy*, and *A. Kanthasamy*. Biomedical Sciences, Iowa State University, Ames, IA.

#938 **Poster Board Number 341**
Prevalence and Titers of Neuroantibodies (NAb) in Hemodialysis Patients (HD): Associations with Vitamin D Receptor (VDR) Polymorphisms (SNP) and Blood Lead (BPb). *H. A. El-Fawal*[1], A. Johnson[1,2], P. Storrs[2], J. Bishop[3], K. Elnagar[4], and D. Mason[2]. [1]Neurotoxicology Laboratory, Albany College of Pharmacy and Health Sciences, Albany, NY; [2]ANephRx Core Laboratory, Albany College of Pharmacy and Health Sciences, Albany, NY; [3]Pharmacogenomics Laboratory, College of Pharmacy, University of Illinois, Chicago, IL; and [4]Neuropsychiatry Services, Albany Medical Center, Albany, NY.

#939 **Poster Board Number 342**
Pb Exposure, Histone Methylation, and the S-Adenosylmethionine (SAM) Pathway: Implications for Alzheimer's Disease. A. Eid[1], H. Huang[3,2], *S. W. Bihaqi*[2], and *N. Zawia*[1,2]. [1]Interdisciplinary Neurosciences Program, University of Rhode Island, Kingston, RI; [2]Biomedical and Pharmaceutical Sciences, University of Rhode Island, Kingston, RI; and [3]School of Public Health, Zhengzhou University, Zhengzhou, Henan, China.

#940 **Poster Board Number 343**
Inhibitory Effect of Curcumin on HMGB1 Release in LPS-Stimulated Microglia Cell. *M. Entezari*[1], M. Javdan[2], and N. Hussain[1]. [1]Natural Science, LaGuardia Community College, Long Island City, NY; and [2]Biological Sciences and Geology, Queensborough Community College, Bayside, NY.

TUESDAY

Education-Career Development Sessions
Exhibitor-Hosted Sessions
Featured Sessions
Historical Highlights Session
Informational Sessions
Platform Sessions

Program Description (Continued)

Abstract #

#941 **Poster Board Number 344**
Cellular Transport of the Nonprotein Amino Acid BMAA in Three Cell Lines: A Comparison of the L- and D-Enantiomer. L. Ersson[1], M. Andersson[2], U. Bergström[2], O. Karlsson[1], and E. B. Brittebo[1]. [1]Pharmaceutical Biosciences, Uppsala University, Uppsala, Sweden; and [2]Environmental Toxicology, Uppsala University, Uppsala, Sweden. Sponsor: *M. Stigson*.

#942 **Poster Board Number 345**
Gene-Microarray Analysis of Brain Tissues in a Multiple Sclerosis Mice Model: 6-Weeks vs. 15-Months Mice. J. Seo[1,2], M. Hasan[1,2], M. Kang[2,3], B. Jung[2,3], S. Nam[4], W. Park[4], H. Kim[4], and *O. Kwon*[1,2]. [1]Toxicology Lab, Doping Control Center, Korea Institute of Science and Technology, Seoul, Republic of Korea; [2]Biological Chemistry, University of Science and Technology, Daejeon, Republic of Korea; [3]Molecular Recognition Research Center, Korea Institute of Science and Technology, Seoul, Republic of Korea; and [4]The Catholic University of Korea, Seoul, Republic of Korea.

#942a **Poster Board Number 346**
Toxicology of Targeted Drug Delivery to the Midbrain for Parkinson's Disease Treatment. R. Grondin[1], Y. Ai[1], P. A. Hardy[1], M. T. Butt[2], G. A. Gerhardt[1], D. M. Gash[1], D. A. Bumcrot[3], and Z. Zhang[1]. [1]Anatomy & Neurobiology, University of Kentucky, Lexington, KY; [2]Tox Path Specialists, LLC, Frederick, MD; and [3]David H. Koch Institute, Cambridge, MA. Sponsor: *M. Vore*.

#942b **Poster Board Number 347**
Studying Aspects of Parkinson's Disease in a Zebrafish Model of Ziram Toxicity. *A. Lulla*[1,2], L. Barnhill[1,2], M. Stahl[2], *A. G. Fitzmaurice*[1,2], S. Li[2], and J. Bronstein[1,2]. [1]Molecular Toxicology, UCLA, Los Angeles, CA; and [2]Neurology, UCLA, Los Angeles, CA.

#942c **Poster Board Number 348**
In-Depth Toxicogenomic Analysis of a Dopamine Transporter Knockout Animal: Transporter-Associated Behavioral and Signaling Changes in a *C. elegans* Parkinson's Disease Model. *R. M. Nass*[1], *N. VanDuyn*[1], J. Duerr[4], J. Trinidad[2], *W. Li*[1], and G. Wong[3]. [1]Pharmacology and Toxicology, Indiana University School of Medicine, Indianapolis, IN; [2]Chemistry, Indiana University, Bloomington, IN; [3]Biosciences, Kuopio University, Kuopio, Finland; and [4]Biological Sciences, Ohio University, Athens, OH.

#942d **Poster Board Number 349**
Alterated Expression of Amyloid Beta (Aβ) Deposit-Related Molecules in the Aging Brain. D. Kim[1], *J. Park*[1], and *B. Choi*[1]. [1]Preventive Medicine, Chung-Ang University, Seoul, Republic of Korea.

#942e **Poster Board Number 350**
Changes of Tight Junctions in the Blood-Brain Barrier Are Mediated by Aβ25-35-RAGE Interaction. *E. Cuevas*[1], *H. Rosas-Hernandez*[1,2], S. Lantz-McPeak[1], *M. G. Paule*[1], *Q. Gu*[1], C. Gonzalez[2], S. Z. Imam[1], J. Kanungo[1], and *S. F. Ali*[1]. [1]Division of Neurotoxicology, NCTR, Jefferson, AR; and [2]Laboratorio de Fisiologia Celular, Universidad Autonoma de San Luis Potosi, San Luis Potosi, SLP, Mexico.

Abstract #

Tuesday Morning, March 25
9:00 AM to 12:30 PM
Exhibit Hall

PS

Poster Session: Medical Devices

Chairperson(s): *Mercedes Salvador-Silva, Abbott Medical Optics, Santa Ana, CA, and Nicole V. Soucy, 3M Company, Medical Department, St. Paul, MN.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *9:00 AM–11:00 AM*

#943 **Poster Board Number 351**
***In Vitro* Skin Irritation Testing: Characterization of Mid-Range Tissue Viability.** B. Lundell[1], C. Dingee[1], Y. Huang[2], J. Li[2], and D. M. Colleluori[2]. [1]WuXi AppTec, St. Paul, MN; and [2]WuXi AppTec, Philadelphia, PA. Sponsor: *R. White*.

#944 **Poster Board Number 352**
Evaluation of an *In Vitro* Assay for the Detection of Skin Irritants in Medical Devices. C. Nycz, and *A. Y. Sawyer*. Corporate Preclinical Development and Toxicology, BD, Research Triangle Park, NC.

#945 **Poster Board Number 353**
Does Leaching of Bisphenol A (BPA) from Dental Composites Contribute to Neuropsychological Deficits in Children? An Evaluation of Plausibility. *J. E. Reynolds*[1], *L. H. Moilanen*[1], *E. Hope*[1], and J. K. Dahms[2]. [1]Medical Department; 3M Company, St. Paul, MN; and [2]3M ESPE; 3M Company, St. Paul, MN.

#946 **Poster Board Number 354**
Potential Confounders of Bisphenol A Analysis in Dental/Orthodontic Materials. *E. Hope*[1], D. R. Reed[2], and *L. H. Moilanen*[1]. [1]Medical Department; 3M, Saint Paul, MN; and [2]Corporate Research and Development Analytical Laboratories; 3M, Saint Paul, MN.

#947 **Poster Board Number 355**
Biocompatibility Assessment of Multipurpose Contact Lens Solution: Points to Consider for *In Vitro* Cytotoxicity Testing. *M. Salvador-Silva*, and L. Huang. Biological Sciences, R&D, Abbott Medical Optics, Santa Ana, CA.

#948 **Poster Board Number 356**
Safety Assessment of Colorants Used in Cardiac Lead Implant Devices—Applying the Threshold of Toxicological Concern Approach. *F. K. Hsia*[1], M. P. Beauchane[1], B. J. Swackhamer[2], and *E. E. Reverdy*[1]. [1]Global Toxicology and Biocompatibility Services, Boston Scientific Corporation, Maple Grove, MN; and [2]CRT Leads Development, Boston Scientific Corporation, St. Paul, MN.

#949 **Poster Board Number 357**
Chemical Safety Risk of Blue Colorant Present in a Limited Contact Device by Exaggerated Extraction Testing and TTC. *A. Hood*, M. P. Beauchane, and *E. E. Reverdy*. Boston Scientific Corporation, Natick, MA.

#950 **Poster Board Number 358**
Safety Evaluation of an Intravascular Catheter Securement Device. *N. V. Soucy*[1], and D. Conrad-Vlasak[2]. [1]Medical Department; 3M Company, St Paul, MN; and [2]C3SD; 3M, St. Paul, MN.

TUESDAY

Program Description (Continued)

Abstract #

#951 **Poster Board Number 359**
Evaluation of Extract Particulates on Biocompatibility Test Results. *A. Hood*, M. P. Beauchane, P. Edelman, A. Larson, and *E. E. Reverdy*. Boston Scientific Corporation, Natick, MA.

#952 **Poster Board Number 360**
High-Density Polyethylene Controls in Toxicological Implant Studies. *I. Trausch*, and *R. D. White*. WuXi Apptec, St. Paul, MN.

#953 **Poster Board Number 361**
Infusion Pump Accuracy Assessment: Weighing Syringes and IV Bags Not Necessary As Secondary Accuracy Check on Infusion Studies. L. Hudgens, *J. K. Herman*, K. Rasmussen, N. West, and *A. N. Alexander*. Nonclinical Safety Assessment, Covance Laboratories Inc, Madison, WI.

#954 **Poster Board Number 362**
Comparison of Optical Coherence Tomographic and Histopathological Retinal Images and Investigation of Age-Related Change in Retinal Thickness in Cynomolgus Monkeys. K. Nishi, T. Araki, T. Okazaki, K. Kabayama, Y. Motomura, H. Sameshima, and *R. Nagata*. Shin Nippon Biomedical Laboratories (SNBL), Ltd., Kagoshima, Japan.

#954a **Poster Board Number 363**
Creating a Holistic Extractables and Leachables (E&L) Program for Biotechnology Products. *K. L. Li*[1], A. Mire-Sluis[1,2], and B. Cherney[1,2]. [1]Corporate Environment, Health and Safety, Amgen Inc., Thousand Oaks, CA; and [2]Corporate Quality, Amgen Inc., Thousand Oaks, CA.

#954b **Poster Board Number 364**
Medical Device Thrombogenicity Testing Using Molecular Indicators of Thrombin Generation: An *In Vitro* Alternative to the NAVI Model. *M. F. Wolf*[1], S. Hoffmann[2], C. E. DeRusha[1,3], A. A. Anderson[1,4], J. Rodriguez[1], and *A. Y. Sawyer*[5]. [1]Core Technologies, Medtronic Inc., Minneapolis, MN; [2]SEH Consulting + Services, Paderborn, Germany; [3]Biochemistry, University of Wisconsin, Stevens Point, WI; [4]Chemistry, University of Minnesota, Minneapolis, MN; and [5]Biological Sciences, Becton Dickinson & Company, Research Triangle Park, NC.

#954c **Poster Board Number 365**
Comparable Results from 2 *In Vitro* Cytotoxicity Tests Used in the Evaluation of Medical Devices. *R. T. Przygoda*[1], and D. E. Malek[2]. [1]Life Cycle Materials, Johnson & Johnson, Cincinnati, OH; and [2]Malek Toxicology Delaware LLC, Greenville, DE.

#954d **Poster Board Number 366**
***In Vitro* Genotoxicity Assays with Co and Cr(III) Ions and Alloy Particles: Implications for Cancer Risks to Hip Implant Patients.** *W. V. Christian*[1], L. D. Oliver[2], *M. Kreider*[1], and B. L. Finley[2]. [1]Cardno ChemRisk, Pittsburgh, PA; and [2]Cardno ChemRisk, Brooklyn, NY.

Abstract #

Tuesday Morning, March 25
9:00 AM to 12:30 PM
Exhibit Hall

PS

Poster Session: Epigenetics

Chairperson(s): *Neel Aluru, Woods Hole Oceanographic Institution, Biology, Woods Hole, MA.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *11:00 AM–12:30 PM*

#954e **Poster Board Number 369**
CYP2C9 Regulation by Epigenetic Modification of Histone H3—Involvement of Med25 As the Key Regulator. N. Englert[1], G. Luo[1], S. Surapureddi[1], and *J. A. Goldstein*[1]. [1]Laboratory of Toxicology and Pharmacology, National Institute of Environmental Health Sciences, Research Triangle Park, NC.

#954f **Poster Board Number 370**
Regulation of Chromatin Assembly by Environmental Toxicant. C. Jin[1], D. Chen[1], L. Fang[1], H. Li[1], and L. Huang[2]. [1]Environmental Medicine, NYU School of Medicine, Tuxedo, NY; and [2]Physiology & Biophysics, UC Irvine, Irvine, CA. Sponsor: *M. Costa*.

#954g **Poster Board Number 371**
Multifocal Defects in the Hematopoietic and Lymphoid Compartments in Mice Dosed with a Broad BET Inhibitor. *D. U. Lee*[1], P. Katavolos[1], C. Sioson[1], A. Katewa[1], J. Pang[1], E. Choo[1], N. Ghilardi[1], *D. Diaz*[1], and D. M. Danilenko[1]. [1]Genentech, South San Francisco, CA.

#954h **Poster Board Number 372**
Sex-Dependent Effects of Lead and Prenatal Stress on Histone Modifications in Frontal Cortex and Hippocampus of the Developing Brain. *J. Schneider*[1], *D. W. Anderson*[1], S. Kidd[1], *M. Sobolewski*[2], and *D. A. Cory-Slechta*[2]. [1]Thomas Jefferson University, Philadelphia, PA; and [2]University of Rochester, Rochester, NY.

#955 **Poster Board Number 401**
Global DNA Methylation Profiling of Hepatocellular Carcinomas from *Ginkgo biloba* Extract-Treated and Vehicle Control B6C3F1 Mice. *S. Bhusari*[1], A. R. Pandiri[1,3], D. Mav[2], R. Shah[2], H. Hong[1], T. Ton[1], D. Malarkey[1], R. Sills[1], and M. Hoenerhoff[1]. [1]CMPB, NTP, NIEHS, RTP, NC; [2]SRA, INTL., RTP, NC; and [3]EPL, Inc., RTP, NC.

#956 **Poster Board Number 402**
Hepatic Epigenome Controls the Severity of Liver Injury in Mice Induced by a Choline- and Folate-Deficient Diet. *V. Tryndyak*[1], T. Han[2], J. C. Fuscoe[2], F. A. Beland[1], and I. Pogribny[1]. [1]Division of Biochemical Toxicology, FDA-NCTR, Jefferson, AR; and [2]Division of Systems Biology, FDA-NCTR, Jefferson, AR.

#957 **Poster Board Number 403**
Epigenetic Alterations in the Livers of Fisher 344 Rats Exposed to Furan. *T. Kobets*, *A. de Conti*, C. Escudero-Lourdes, B. Montgomery, *V. P. Tryndyak*, *F. A. Beland*, *D. R. Doerge*, and *I. Pogribny*. Division of Biochemical Toxicology, National Center for Toxicological Research, Jefferson, AR.

Program Description (Continued)

Abstract #

#958 **Poster Board Number 404**
Genome-Wide DNA Methylation Changes Influence Gene Expression in Arsenic-Transformed Human Prostate Cells. *B. A. Merrick*[1], *E. J. Tokar*[1], D. P. Phadke[2], *R. R. Shah*[2], X. Wang[3], M. A. Bostrom[3], O. Gordon[3], G. M. Wright[3], M. Burke[3], K. E. Pelch[1], *S. S. Auerbach*[1], *R. R. Tice*[1], and *M. P. Waalkes*[1]. [1]DNTP, NIEHS, NIH, Research Triangle Park, NC; [2]Social & Scientific Systems, Durham, NC; and [3]DHMRI, Kannapolis, NC.

#959 **Poster Board Number 405**
Environmental Health Disparities in the Age of Epigenetics. *K. Olden*, Y. Lin, and B. R. Sonawane. ORD, EPA, Washington, DC.

#960 **Poster Board Number 406**
Cadmium Alters Histone Modifications in Mouse Embryonic Stem Cells. *S. R. Gadhia*, and *F. A. Barile*. Pharmaceutical Sciences, St. John's University College of Pharmacy, Queens, NY.

#961 **Poster Board Number 407**
Comprehensive DNA Methylation and Gene Expression Study on Livers Using 2-Stage Hepatocarcinogenesis Model in Rats. K. Omura[1,2], T. Uehara[2,3], Y. Morikawa[2,3], H. Hayashi[4,5], K. Mitsumori[4], K. Minami[2,6], M. Kanki[1,2], H. Yamada[2], A. Ono[2,7], Y. Ohno[7], and T. Urushidani[2,8]. [1]Astellas Pharma Inc., Osaka, Japan; [2]Toxicogenomics Informatics Project, Osaka, Japan; [3]Shionogi & Co., Ltd., Osaka, Japan; [4]Tokyo University of Agriculture and Technology, Tokyo, Japan; [5]Gifu University, Gifu, Japan; [6]Ono Pharmaceutical Co., Ltd., Ibaraki, Japan; [7]National Institute of Health Sciences, Tokyo, Japan; and [8]Doshisha Women's College of Liberal Arts, Kyoto, Japan. Sponsor: *Y. Miyamae*.

#962 **Poster Board Number 408**
Effect of THC on Genome-Wide Histone Methylation in Immune Cells. X. Yang, V. L. Hegde, J. Zhang, *P. S. Nagarkatti*, and *M. Nagarkatti*. PMI-SOM, University of South Carolina, Columbia, SC.

#963 **Poster Board Number 409**
Prenatal Exposure to TCDD Triggers Epigenetic Modifications Including DNA Methylation and microRNA Induction That Target Genes Which Regulate Immune Functions. *N. P. Singh*[1], X. Yang[1], U. Singh[1], J. Zhang[2], I. K. Abbas[1], *M. Nagarkatti*[1], and *P. S. Nagarkatti*[1]. [1]Pathology, Microbiology, and Immunology, University of South Carolina School of Medicine, Columbia, SC; and [2]Epidemiology and Biostatistics, University of South Carolina, Columbia, SC.

#964 **Poster Board Number 410**
Physiological Effects of Developmental Lead (Pb) Exposure on Weight, Food Intake, Body Fat, and Insulin in Mice. *C. Faulk*, A. K. Barks, B. N. Sánchez, Z. Zhang, *O. S. Anderson*, K. E. Peterson, and *D. Dolinoy*. Environmental Health Sciences, University of Michigan, Ann Arbor, MI.

#965 **Poster Board Number 411**
Effect of 2,3,7,8-Tetrachlorodibenzo-*p*-Dioxin (TCDD) Exposure on the Expression of DNMT Genes during Development in Zebrafish (*Danio rerio*). E. Kuo[1,2], Z. Yu[3], S. I. Karchner[1], and *N. Aluru*[1]. [1]Biology, Woods Hole Oceanographic Institution, Woods Hole, MA; [2]Stanford University, Stanford, CA; and [3]New England Biolabs, Ipswich, MA.

Abstract #

#966 **Poster Board Number 412**
Time-Dependent, CpG Specific Changes in DNA Methylation Found in CD4$^+$ T Cells from Trichloroethylene-Treated Mice. *K. Gilbert*[1], S. Erickson[1], *S. J. Blossom*[1], B. Broadfoot[1], K. West[1], G. Chandler[1], and C. Cooney[2]. [1]University of Arkansas for Medical Sciences/Arkansas Children's Hospital Research Institute, Little Rock, AR; and [2]Central Arkansas Veterans Healthcare System, Little Rock, AR.

#967 **Poster Board Number 413**
Nickel Exposure Causes Epigenetic Dysregulation on a Genome-Wide Scale. C. C. Jose[1], B. Xu[2], R. K. Mallela[1], D. E. Schones[2], and S. Cuddapah[1]. [1]Department of Environmental Medicine, New York University School of Medicine, Tuxedo, NY; and [2]Department of Cancer Biology, Beckman Research Institute, City of Hope, Duarte, CA. Sponsor: *M. Costa*.

#968 **Poster Board Number 414**
Differences in Methylation of Immune Response Genes in Germ-Free and Control Mice. Z. I. Cordero Badillo[1], D. Shubitowski[2], and S. Ewart[2]. [1]University of Puerto Rico, Rio Piedras, San Juan, Puerto Rico; and [2]Michigan State University, East Lansing, MI. Sponsor: *W. Atchison*.

#969 **Poster Board Number 415**
DNA Hypermethylation of Tumor Suppressor Genes in Chromate Workers. H. Sun, T. Kluz, Q. Qu, and *M. Costa*. Environmental Medicine, NYU School of Medicine, Tuxedo, NY.

#970 **Poster Board Number 416**
Epigenetic Promoter Histone Modifications Play a Key Role in Regulating FasL Gene Expression and Alcohol-Induced Immunotoxicity in CD4+ T Lymphocytes. *S. Ghare*[1], *S. Joshi-Barve*[1], A. Moghe[1], M. Patil[1], D. Barker[1], L. Gobejishvili[1], M. Cave[1,2], C. McClain[1,2], and *S. Barve*[1]. [1]Department of Medicine/GI, University of Louisville, Louisville, KY; and [2]Robley Rex VAMC, Louisville, KY.

#971 **Poster Board Number 417**
Chemical Allergen-Induced Perturbation of the Mouse Lymph Node DNA Methylome. V. Chapman[1,2], T. Zollinger[2], R. Terranova[2], *J. Moggs*[2], *I. Kimber*[1], and *R. J. Dearman*[1]. [1]Manchester University, Manchester, United Kingdom; and [2]Discovery and Investigative Safety, Novartis Institutes for Biomedical Research, Basle, Switzerland.

#972 **Poster Board Number 418**
Assessment of Dose-Response Relationship between Epigenetic and Apical Endpoints following Short-Term Exposure to Nongenotoxic Rodent Hepatocarcinogens. M. R. Schisler[1], *L. A. Murphy*[1], I. Racine miousse[2], *M. J. LeBaron*[1], *I. Koturbash*[2], and *R. J. Rasoulpour*[1]. [1]The Dow Chemical Company, Midland, MI; and [2]University of Arkansas for Medical Sciences, Little Rock, AR.

#973 **Poster Board Number 419**
Epigenetic Regulation of Dopamine Transporter Expression. A. L. Green[1,3], L. Zhan[2], *H. Zarbl*[2], *G. L. Guo*[2], and *J. R. Richardson*[1]. [1]Department of Environmental and Occupational Medicine, Robert Wood Johnson Medical School, Rutgers University, Piscataway, NJ; [2]Department of Pharmacology and Toxicology, Ernest Mario School of Pharmacy, Rutgers University, Piscataway, NJ; and [3]Joint Graduate Program in Toxicology, Rutgers University, Piscataway, NJ.

Program Description (Continued)

Abstract #

#974 **Poster Board Number 420**
Epigenetic Changes TNF-α Related in Human Mononuclear Cells Due to Polycyclic Aromatic Hydrocarbons Expose *In Vitro*. J. A. varela Silva, and *M. Salgado*. Bioquímica, Universidad Autonom de San Luis Potosí, San Luis Potosí, Mexico.

#975 **Poster Board Number 421**
Epigenetic Regulation Is a Crucial Factor for the Tissue-Specific Expression of Human UGT1A10. S. Oda[1,2], T. Fukami[2], *T. Yokoi*[1,2], and M. Nakajima[2]. [1]Graduate School of Medicine, Nagoya University, Nagoya, Aichi Prefecture, Japan; and [2]Faculty of Pharmaceutical Sciences, Kanazawa University, Kanazawa, Ishikawa Prefecture, Japan.

#976 **Poster Board Number 422**
Circulating microRNA Profiles Altered in Mice after 28 Days Exposure to Perfluorooctanoic Acid. *J. Dai*, Y. Shengmin, W. Jianshe, and W. Zhang. Institute of Zoology, Beijing, China.

#977 **Poster Board Number 423**
Correlation between Whole Genome DNA Methylation and Biomarkers of Arsenic Toxicity in Arsenic-Exposed Populations of West Bengal, India. *M. Majumder*[1], U. B. Dasgupta[2], D. N. GuhaMazumder[3], and N. Das[1]. [1]Dept. of Molecular Biology, Surendranath College, Kolkata, West Bengal, India; [2]Dept. of Life Science and Biotechnology, Jadavpur University, Kolkata, West Bengal, India; and [3]DNGM Foundation, Kolkata, West Bengal, India.

#978 **Poster Board Number 424**
Genotoxic and Epigenotoxic Effects of 1,3-Butadiene: Putative Mechanisms of Tissue Specificity in Adverse Health Outcomes. G. Chappell[1], B. O'Brien[1], T. Kobets[2], N. Tretyakova[3], D. Sangaraju[3], O. Kosyk[1], *K. G. Sexton*[1], W. Bodnar[1], *I. Rusyn*[1], and *I. Pogribny*[2]. [1]Environmental Sciences and Engineering, UNC Chapel Hill, Chapel Hill, NC; [2]National Center for Toxicological Research, US Food and Drug Administration, Jefferson, AR; and [3]Department of Medicinal Chemistry, University of Minnesota, Minneapolis, MN.

#978a **Poster Board Number 425**
DNA Methylation Profiling in the Liver during the Life Cycle of Rats. T. Han[1], C. Moland[1], V. Vijay[1], K. Wang[1], J. C. Kwekel[1], *V. G. Desai*[1], and *J. C. Fuscoe*[1]. [1]Personalized Medicine Branch, Division of Systems Biology, National Center for Toxicological Research/FDA, Jefferson, AR.

#978b **Poster Board Number 426**
Establishment of a Unique Profiling Method for DNA Methylation Frequency and Its Application to Toxicology. T. Aiba[1], T. Saito[2], A. Hayashi[2], S. Sato[3], H. Yunokawa[3], *H. Kurita*[1], T. Maruyama[4], W. Fujibuchi[4], *C. Tohyama*[1], and S. Ohsako[1]. [1]Grad. Sch. Med., The Univ. of Tokyo, Tokyo, Japan; [2]Nat'l Inst. Radiol. Sci., Chiba, Japan; [3]Maze Inc., Tokyo, Japan; and [4]Ctr. iPS Cell Res. Appl., Kyoto Univ., Kyoto, Japan.

#978c **Poster Board Number 427**
Epigenetic Study of Dioxin Response Elements in Tregs and Th17 Cells. M. E. Martinez-Leija[1], and *M. Salgado*[1]. [1]Bioquímica, Universidad Autonoma de San Luis Potosí, San Luis Potosí, San Luis Potosí, Mexico.

Abstract #

#978d **Poster Board Number 428**
Protective Effect of CAPE against ROS-Induced Proapoptotic miRNA Expression and Apoptosis Pathway Activation. *C. E. Cross*[1], M. F. Tolba[2], *C. M. Rondelli*[1], *M. Xu*[1], and *S. Abdel-Rahman*[1]. [1]Obstetrics & Gynecology, UTMB, Galveston, TX; and [2]Pharmacology and Toxicology, Ain Shams University, Cairo, Egypt.

#978e **Poster Board Number 429**
Evaluation of Epigenetic Properties of Dioscin and Diosgenin Isolated from Wild Yam (*Dioscorea villosa*) Root Extract. *P. Aumsuwan*[1,2], S. I. Khan[1,3], I. A. Khan[1,3], L. A. Walker[1,2], Z. Ali[1], and *A. K. Dasmahapatra*[1,2]. [1]National Center for Natural Product Research, University of Mississippi, University, MS; [2]Department of Pharmacology, University of Mississippi, University, MS; and [3]Department of Pharmacognosy, University of Mississippi, University, MS.

Tuesday Morning, March 25
9:00 AM to 12:30 PM
Exhibit Hall

PS

Poster Session: Inflammation in Disease

Advancing Clinical and Translational Toxicology and Application of Biomarkers

Chairperson(s): *Emanuela Corsini, Università degli Studi di Milano, DiSFeB, Milan, Italy, and Alejandro M. Mayer, Midwestern University, Pharmacology, Downers Grove, IL.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *9:00 AM–11:00 AM*

#979 **Poster Board Number 431**
Weathered Marine Crude Oil Exposure Induces Skin Inflammation in Mice. J. M. Kemp, *L. R. Luckett-Chastain*, W. M. McShan, and *R. Gallucci*. Pharmaceutical Sciences, OU Health Sciences Center, Oklahoma City, OK.

#980 **Poster Board Number 432**
Comparative *In Vivo* and *Ex Vivo* Toxicity Studies of Wildfire Particulate Matter. Y. Kim[1], M. Daniels[2], E. H. Boykin[2], T. Krantz[2], J. McGee[2], M. Hays[3], J. A. Dye[2], and *I. Gilmour*[2]. [1]Curriculum in Toxicology, University of North Carolina, Chapel Hill, NC; [2]NHEERL, U.S. Environmental Protection Agency, Research Triangle Park, NC; and [3]NRMRL, U.S. Environmental Protection Agency, Research Triangle Park, NC.

#981 **Poster Board Number 433**
The Impact of Endotoxins in African Dust: Cause for Inflammatory Response. *M. G. Ortiz-Martínez*, and *B. D. Jimenez-Velez*. Biochemistry and Center for Environmental and Toxicological Research, University of Puerto Rico-Medical Sciences Campus, San Juan, Puerto Rico.

Program Description (Continued)

Abstract #

#982 **Poster Board Number 434**
Addition of a Methoxymethyl Side Chain into p-Phenylenediamine Yields 2-Methoxy-Methyl-*p*-Phenylenediamine, a Hair Dye with Reduced Skin Sensitizing Properties. C. Goebel[1], J. Troutman[2], *J. Hennen*[3], H. Rothe[1], H. Schlatter[1], *G. Gerberick*[2], and *B. M. Blomeke*[3]. [1]Central Product Safety, Procter & Gamble, Darmstadt, Germany; [2]Central Product Safety, Procter & Gamble, Cincinnati, OH; and [3]Environmental Toxicology, Trier University, Trier, Germany.

#983 **Poster Board Number 435**
Comparison of Different Sampling Methods for Assessment of Biological Activity of Dust from Moisture Damaged Buildings. J. Tirkkonen[1], K. Huttunen[1], M. Täubel[1,2], H. Leppänen[1,2], A. Hyvärinen[2], and M. Hirvonen[1]. [1]Department of Environmental Sciences, University of Eastern Finland, Kuopio, Finland; and [2]Department of Environmental Health, National Institute for Health and Welfare, Kuopio, Finland. Sponsor: *M. Viluksela*.

#984 **Poster Board Number 436**
Role of ROS and HMGB1 in Chemical Allergen-Induced IL-18 Production in Human Keratinocytes. *E. Corsini*, V. Galbiati, *C. L. Galli*, and M. Marinovich. DiSFeB, Università degli Studi di Milano, Milan, Italy.

#985 **Poster Board Number 437**
Human Skin Explants: An Alternative Method to Assess Allergenic Potential of Chemicals. *L. Mathieu*[2], P. Grascha[1], *F. Burgher*[2], E. Lati[3], J. Blomet[2], and *H. I. Maibach*[4]. [1]DEB Group, Denby, United Kingdom; [2]PREVOR Laboratory, Valmondois, France; [3]Bio-Ec Laboratory, Longjumeau, France; and [4]Department of Dermatology, UCSF Medical School, San Francisco, CA.

#986 **Poster Board Number 438**
Comparing Lymphocyte Subsets in the Mouse Allergy Model and Local Lymph Node Assay by Multiparameter Flow Cytometry. *X. Zhu*, S. H. Cole, *T. T. Kawabata*, and *J. Whritenour*. Immunotoxicology CoE, Drug Safety Research and Development, Pfizer Inc., Groton, CT.

#987 **Poster Board Number 439**
Identification and Frequency of Naïve T Lymphocytes Specific for Penicillin: Implication in Drug-Allergy. *M. Pallardy*[1], M. Azoury[1], N. Scornet[2], C. Nhim[1], D. Joseph[2], S. Delarue-Cochin[2], S. Delluc[3], B. Maillere[4], R. Weaver[5], and N. D. Claude[5]. [1]UMR996, UniverSud, Châtenay-Malabry, France; [2]UMR CNRS8076, UniverSud, Châtenay-Malabry, France; [3]Platine Pharma Service, Lyon, France; [4]SIMOPRO, IbiTec, CEA, Saclay, France; and [5]Intitut de Recherches Internationales Servier, Suresnes, France.

#988 **Poster Board Number 440**
Molecular Profile Analysis of Allergenic Acid Hydrolyzed Wheat Protein. S. Sakai[1], R. Adachi[1], R. Nakamaura[1], Y. Kimura[1], R. Nakamura[1], K. Sasaki[2], K. Nishijima[2], H. Ataku[2], Y. Fukutomi[3], T. Nishimaki-Mogami[1], and *R. Teshima*[1]. [1]National Institute of Health Sciences, Tokyo, Japan; [2]National Institute of Technology and Evaluation, Tokyo, Japan; and [3]Sagamihara National Hospital, Sagamihara, Japan.

Abstract #

#989 **Poster Board Number 441**
Impact of Aggregation on Immunogenicity: Relevance for Biopharmaceuticals. K. Ratjani[1], J. Derrick[1], R. Thorpe[2], M. Wadhwa[2], *I. Kimber*[1], and *R. J. Dearman*[1]. [1]Faculty of Life Sciences, Manchester University, Manchester, Greater Manchester, United Kingdom; and [2]Institute for Biological Standards and Control, Potter Bar, United Kingdom.

#990 **Poster Board Number 442**
Allergen-Induced Langerhans' Cell (LC) Migration: Role of Interleukin (IL)-1β L. Eaton[1], O. Metryka[1], *R. Roberts*[2], *I. Kimber*[1], and *R. J. Dearman*[1]. [1]Manchester University, Manchester, United Kingdom; and [2]Safety Assessment, AstraZeneca, Alderley Park, United Kingdom.

#991 **Poster Board Number 443**
Cytokine Fingerprinting for Chemical Respiratory Allergens: Use of a Nonstandard Vehicle. *R. J. Dearman*, and *I. Kimber*. Manchester University, Manchester, United Kingdom.

#992 **Poster Board Number 444**
Interleukin (IL)-1 Expression by Dendritic Cells (DC): Evidence for Intracellular Degradation. *I. Kimber*[1], J. Ainscough[1], *G. Gerberick*[2], and *R. J. Dearman*[1]. [1]Manchester University, Manchester, United Kingdom; and [2]Procter & Gamble, Cincinnati, OH.

#993 **Poster Board Number 445**
Enteropathogenic *Escherichia coli* As a Mucosa-Associated Exposome Extends Epithelial NF-κB Activation via Macrophage Inhibitory Cytokine 1. H. Choi, and *Y. Moon*. Department of Biomedical Sciences, Pusan National University School of Medicine and Immunoregulatory Therapeutics Group in Brain Busan 21 Project, Yangsan, Republic of Korea.

#994 **Poster Board Number 446**
The Role of Endothelin-1 in Endotoxin-Triggered Release of Placental Proinflammatory Cytokines. P. R. Mahajan[1], R. Donepudi[3], F. Einstein[3], and S. E. Reznik[1,2,3]. [1]Pharmaceutical Sciences, St. John's University, Jamaica, NY; [2]Pathology, Albert Einstein College of Medicine, Bronx, NY; and [3]Obstetrics and Gynecology and Women's Health, Albert Einstein College of Medicine, Bronx, NY. Sponsor: *L. Trombetta*.

#995 **Poster Board Number 447**
Classical and Alternative Activation of Cyanobacterium *Anabaena* sp. Lipopolysaccharide (LPS)-Treated Rat Brain Microglia. C. Osterbauer[1], D. MacAdam[1], M. L. Hall[1], D. Feher[2], P. Williams[2], and *A. M. Mayer*[1]. [1]Pharmacology, Midwestern University, Downers Grove, IL; and [2]Chemistry and Biochemistry, University of Hawaii at Manoa, Honolulu, HI.

#996 **Poster Board Number 448**
Behavioral and Neurochemical Alterations in Adult Mice with Low-Grade Chronic Inflammation Caused by Repeated Peripheral Lipopolysaccharide Exposure. S. Krishna[1], *C. A. Dodd*[1,2], and *N. M. Filipov*[1]. [1]Physiology and Pharmacology, Univ. of Georgia, Athens, GA; and [2]Biology, Fort Valley State University, Fort Valley, GA.

Program Description (Continued)

Abstract #

#997 **Poster Board Number 449**
Sex Differences in Gene Expression Profiles in Individuals with Idiopathic Pulmonary Fibrosis; Potential Targets of Xenoestrogens? *L. C. Smith*[1], S. P. McGee[2], W. Karmaus[3], H. Zhang[3], and *T. Sabo-Attwood*[4]. [1]Physiological Sciences, University of Florida, Gainesville, FL; [2]Bayer CropScience LP, Research Triangle Park, NC; [3]Epidemiology, Biostatistics, and Environmental Health, University of Memphis, Memphis, TN; and [4]Environmental and Global Health, University of Florida, Gainesville, FL.

#998 **Poster Board Number 450**
S-Nitrosoglutathione Reductase (GSNOR) Activity Is Differentially Regulated within Macrophage Phenotypes. C. Guo, J. Gow, M. Govindraj, and *A. Gow*. Rutgers University, Piscataway, NJ.

#999 **Poster Board Number 451**
***Salvia plebeia* Extract Alleviates Inflammatory Response in Murine Arthritis Model and Human Rheumatoid Synovial Fibroblasts.** *J. Choi*, M. Jin, I. Je, and *S. Kim*. Pharmacology, School of Medicine, Kyungpook National University, Daegu, Republic of Korea.

#1000 **Poster Board Number 452**
Optimization and Evaluation of Metabolite Extraction Methods for Untargeted Metabolomic Study by LC-QTOF/MS for the Evaluation of Effects of 12-Diindolymethane on RAW 264.7 Murine Macrophages. *J. Berkbigler*. Center For Environmental Medicine, Colorado State University, Fort Collins, CO.

#1001 **Poster Board Number 453**
Nebulized Thiocyanate Attenuates Inflammation and Oxidative Stress in the Airway and Liver of ENaC Mice. *J. D. Chandler*[1,2], E. Min[1], J. Huang[1], D. P. Nichols[1], and *B. J. Day*[1,2]. [1]DEOHS, National Jewish Health, Denver, CO; and [2]Pharmaceutical Sciences, University of Colorado, Denver, CO.

#1002 **Poster Board Number 454**
Redox Cross-Talk between Myeloid-Derived Suppressor Cells and Dendritic Cells in Cancer: Accumulation of Oxygenated Lipid Droplets and Suppression of Antigen Cross-Presentation. V. A. Tyurin[1,2], W. Cao[3], A. A. Amoscato[1,2], J. Loomen[3], D. Gabrilovich[3], and *V. E. Kagan*[1,2]. [1]EOH, University of Pittsburgh, Pittsburgh, PA; [2]Center for Free Radic Antioxidant Health, University of Pittsburgh, Pittsburgh, PA; and [3]The Wistar Institute Cancer Center, Philadelphia, PA.

#1003 **Poster Board Number 455**
Signaling Role of Cardiolipin Externalization in Elimination of Damaged Mitochondria in Lung Epithelial Cells. *V. E. Kagan*[1], *J. Jiang*[1], Z. Huang[1], V. A. Tyurin[1], *Y. Tyurina*[1], D. Stolz[3], S. Watkins[3], and R. Mallampalli[2]. [1]EOH, University of Pittsburgh, Pittsburgh, PA; [2]Medicine, University of Pittsburgh, Pittsburgh, PA; and [3]Cell Biology, University of Pittsburgh, Pittsburgh, PA.

#1004 **Poster Board Number 456**
Resveratrol Protects against a Mouse Model of Multiple Sclerosis via Regulation of T Cell miRNA Expression. K. Orr Gandy, *P. S. Nagarkatti*, and *M. Nagarkatti*. Pathology, Microbiology and Immunology, University South Carolina School of Medicine, Columbia, SC.

Abstract #

#1005 **Poster Board Number 457**
CCR2 Regulates Proinflammatory Macrophage Migration into the Liver during Acetaminophen (APAP)-Induced Hepatotoxicity. *M. Mandal*[1], *R. Sun*[1], S. Lad[1], H. Choi[1], *J. D. Laskin*[2], and *D. L. Laskin*[1]. [1]Pharmacology & Toxicology, Rutgers University, Piscataway, NJ; and [2]Robert Wood Johnson Medical School, Rutgers University, Piscataway, NJ.

#1006 **Poster Board Number 458**
Collagen Synthesis and Degradation Are Enhanced in Chronic Bacterial-Induced Prostatic Inflammation. *L. Wong*, P. Hutson, and W. Bushman. University of Wisconsin-Madison, Madison, WI.

#1006a **Poster Board Number 459**
Screening for Allergic Antibody Responses to 2nd Generation Biofuel Sources. *M. D. Ward*[1], L. B. Copeland[1], M. A. Bollman[2], L. Watrud[2], and D. Olszyk[2]. [1]NHEERL/EPHD, US EPA, Research Triangle Park, NC; and [2]NHEERL/WED, US EPA, Corvallis, OR.

#1006b **Poster Board Number 460**
Oxidized Lipid Macromolecules by Lipopolysaccharide (LPS) May Identify a Biomarker of Inflammatory Oxidative Insult. *M. B. Kadiiska*[1]. [1]National Institutes of Health/National Institute of Environmental Health Sciences, Research Triangle Park, NC.

Tuesday Morning, March 25
9:00 AM to 12:30 PM
Exhibit Hall

PS

Poster Session: Toxicity of Chemical Mixtures

Chairperson(s): *Laya Bhavaraju, University of North Carolina, Toxicology, Chapel Hill, NC, and Eugenia H. Theophilus, RJ Reynolds, Winston-Salem, NC.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *11:00 AM–12:30 PM*

#1007 **Poster Board Number 461**
Concentration-Dependent Changes of Anti-BPDE-DNA-Adduct Rates in Human Lung Cells in Binary PAH Mixtures. S. Plöttner, B. Marczynski, P. Welge, *H. U. Käfferlein*, and *T. Brüning*. Institute for Prevention and Occupational Medicine of the German Social Accident Insurance - Institute of the Ruhr-Universität Bochum (IPA), Bochum, Germany.

#1008 **Poster Board Number 462**
Toxicological Evaluation and Risk Assessment for Effects of Fusarium Toxin Mixtures on Intestinal Immunity Using a Fractional Factorial Design. L. Wan[1], P. Turner[2], K. Allen[3], and *H. El-Nezami*[1]. [1]The University of Hong Kong, Hong Kong, Hong Kong; [2]University of Maryland, College Park, MD; and [3]University of British Columbia, Vancouver, BC, Canada.

Program Description (Continued)

Abstract #

#1009 **Poster Board Number 463**
Multiple Exposures to Indoor Pollutants: Derivation of Benchmark Doses Based on Reprotoxic Effects. K. Fournier[1,2], P. Glorennec[1,2], D. Zmirou-Navier[1,2,3], and N. Bonvallot[1,2]. [1]EHESP School of Public Health, Sorbonne Paris Cité, Rennes, France; [2]INSERM UMR 1085 IRSET, Rennes, France; and [3]Lorraine University Medical School, Nancy, France. Sponsor: *C. Emond*.

#1010 **Poster Board Number 464**
Human Health Hazard Assessment of Hydroprocessed Esters and Fatty Acids (HEFA) Bio-Based Jet Fuels. *D. R. Mattie*[1], *L. M. Sweeney*[2,3], *K. L. Mumy*[2], *B. A. Wong*[2,3], and *T. R. Sterner*[1,3]. [1]711 HPW/RHDJ, WPAFB, OH; [2]NAMRU-D, WPAFB, OH; and [3]HJF, WPAFB, OH.

#1011 **Poster Board Number 465**
Xenobiotic Mixtures Decrease Human Hepatic Gluconeogenesis and Glucose Oxidation. A. Leblanc[1], E. Blanc[1], A. Ambolet-Camoit[2], C. Benelli[1], S. Bortoli[1], *R. Barouki*[1], and M. Aggerbeck[1]. [1]UMR-S 747, INSERM, Paris, France; and [2]845, INSERM, Paris, France.

#1012 **Poster Board Number 466**
Studying the Impact of Volatile Organic Chemical Coexposures on the Urinary Excretion of Their Metabolites in Human Volunteers. A. Marchand[1], R. Aranda-Rodriguez[2], *A. Nong*[2], and *S. Haddad*[1]. [1]Environmental and Occupational Health, IRSPUM, Université de Montreal, Montréal, QC, Canada; and [2]Environmental Health Sciences and Research Bureau, Health Canada, Ottawa, ON, Canada.

#1013 **Poster Board Number 467**
Pharmaceutical, Metal, and Ammonia Mixtures: Widespread Additive Toxicity in Zebrafish Larvae. D. H. Alsop, and *J. Y. Wilson*. Biology, McMaster University, Hamilton, ON, Canada.

#1014 **Poster Board Number 468**
Assessing Neurological Risks from Oral Exposure to Mixtures of Organophosphorus (OP), Carbamate, and Pyrethroid Insecticides. *P. McClure*[1], and H. Pohl[2]. [1]SRC, Inc., East Syracuse, NY; and [2]US Public Health Service ATSDR, Atlanta, GA.

#1015 **Poster Board Number 469**
Potential Toxicity of Electronic Cigarette Liquids and Aerosols As Measured by Four *In Vitro* Assays. *R. Leverette*, *M. Misra*, B. T. Cooper, and M. B. Bennett. Technology Development/Life Sciences, Lorillard Tobacco Company, Greensboro, NC.

#1016 **Poster Board Number 470**
Concentration Addition and Toxic Equivalent Factors: When Do They Apply? *T. Webster*. Dept Environmental Health, Boston University School of Public Health, Boston, MA.

#1017 **Poster Board Number 471**
Toxicology and Risk Assessment of Chemical Mixtures. *M. Krishan*, and *A. Kretser*. ILSI, North America, Washington, DC.

#1018 **Poster Board Number 472**
The Modulation of Antioxidant Enzyme Activities and Glutathione Levels in the Livers of Mice after Subchronic Exposure to Mixtures of Dichloroacetate and Trichloroacetate. *E. Hassoun*, and *J. Cearfoss*. Pharmacology, University of Toledo, Toledo, OH.

Abstract #

#1018a **Poster Board Number 473**
Cumulative Toxicity of an Environmentally Relevant Mixture of Nine Regulated Disinfection By-Products in a Multigenerational Rat Reproductive Bioassay. *J. Simmons*[1], M. G. Narotsky[1], G. Klinefelter[1], *J. M. Goldman*[1], *A. B. DeAngelo*[1], D. S. Best[1], A. McDonald[1], L. F. Strader[1], A. S. Murr[1], J. S. Suarez[1], M. H. George[1], and *S. Hunter*[1]. [1]NHEERL/ORD, U.S. EPA, RTP, NC.

#1018b **Poster Board Number 474**
Toxicity Testing of Water, Air, and Soil near Mountaintop Removal Mining Sites in the Southern Coalfields of West Virginia Using *In Vitro* Methods—What the Data Can Tell Us. *L. M. Crosby*[1], W. Orem[1], C. DeVera[1], K. Charles[3], M. Varonka[1], A. Bates[1], T. Westphal[1], A. Kolker[1], C. Tatu[1,2], and N. Geboy[1]. [1]Eastern Energy Resources Science Ctr, US Geological Survey, Reston, VA; [2]University of Medicine and Pharmacy, Timisoara, Romania; and [3]J. Craig Venter Institute, Rockville, MD.

#1018c **Poster Board Number 475**
Assessment of *In Vivo* Toxicological Interactions from Criteria Air Pollutant Mixtures. L. Datko-Williams[1], B. Young[1], A. Wilkie[1], M. Madden[1], J. Dubois[1], *L. W. Stanek*[2], D. Johns[3], and *E. Oesterling Owens*[1]. [1]NCEA, US EPA, RTP, NC; [2]NERL, US EPA, RTP, NC; and [3]NIOSH, US CDC, Morgantown, WV.

#1018d **Poster Board Number 476**
Mixture Effects at Human Relevant Exposure Levels? *A. Vinggaard*[1], N. Hadrup[1], M. Pedersen[2], K. Skov[2], L. O. Bertelsen[1], H. Frandsen[2], *K. G. Kongsbak*[1], J. Boberg[1], and U. Hass[1]. [1]Div. Toxicology & Risk Assessment, Technical University of Denmark, Søborg, Denmark; and [2]Division of Food Chemistry, Technical University of Denmark, Søborg, Denmark.

#1018e **Poster Board Number 477**
Chemical and Toxicological Assessment of Vapor from a Novel Tobacco-Heating Device. *J. C. Miller Holt*[1], M. Meger[1], T. Bonk[1], J. Pani[2], E. Weber[2], and I. W. Jones[1]. [1]JT International SA, Geneva, Switzerland; and [2]Ökolab Gesellschaft für Umweltanalytik Ges.m.b.H, Vienna, Austria.

#1018f **Poster Board Number 478**
Respiratory Dose Analysis for Components of Ambient Particulate Matter. C. S. Kim[1,2]. [1]USEPA, Research Triangle Park, NC; and [2]North Carolina State University, Raleigh, NC. Sponsor: *M. Madden*.

TUESDAY

Program Description (Continued)

Abstract #

Tuesday Morning, March 25
9:00 AM to 12:30 PM
Exhibit Hall

PS

Poster Session: Alternatives to Mammalian Models II

Chairperson(s): *Andreas G. Schepky, Beiersdorf AG, 4228-Toxicology In Vitro, Hamburg, Germany.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *9:00 AM–11:00 AM*

#1019 **Poster Board Number 501**
Application of the Neutral Red Release and EpiOcularTM Assays in a Tiered Approach for Evaluating the Eye Irritation Potential of Agrochemical Formulations. *E. W. Carney*[1], *R. S. Settivari*[1], *S. C. Gehen*[2], R. Acosta Amado[2], *M. Corvaro*[2], L. Kan[1], *D. Wilson*[1], and *D. R. Boverhof*[1]. [1]TERC, The Dow Chemical Company, Midland, MI; and [2]Dow AgroSciences LLC, Indianapolis, IN.

#1020 **Poster Board Number 502**
Testing Framework for Prediction of Ocular Irritation Using the Bovine Corneal Opacity and Permeability (BCOP) Assay and Chorioallantoic Membrane Vascular Assay (CAMVA). A. Carrao[1], K. Norman[2], D. Cameron[1], G. Mun[2], N. Wilt[2], A. Hilberer[2], *J. Avalos*[1], and F. Simion[1]. [1]Kao USA Inc., Cincinnati, OH; and [2]Institute for In Vitro Sciences Inc., Gaithersburg, MD.

#1021 **Poster Board Number 503**
Investigations on Reducing Ocular Irritation Associated with Harsh Ingredients by Altering Physicochemical Properties of the Formulation. K. N. Boyd[1], E. A. Sly[2], and K. Norman[2]. [1]SC Johnson and Son Inc., Racine, WI; and [2]Institute for In Vitro Sciences, Inc., Gaithersburg, MD. Sponsor: *H. Raabe*.

#1022 **Poster Board Number 504**
Assessing Default GHS Classifications for Eye Toxicity with Alternative Ocular Assays. *N. Pechacek*[1], J. Caudill[2], and *T. O'Brien*[1]. [1]Ecolab, St. Paul, MN; and [2]Ecolab, Naperville, IL.

#1023 **Poster Board Number 505**
Exploration of New Transcriptomic Biomarkers for Eye Irritation Test Using a New 3D Reconstructed Human Corneal Epithelial Model, MCTT HCE™ *K. Lim*[1], S. Choi[1,2], M. Lee[1], and *Y. Chun*[2]. [1]College of Pharmacy, Ewha Womans University, Seoul, Republic of Korea; and [2]College of Pharmacy, Chung-Ang University, Seoul, Republic of Korea.

#1024 **Poster Board Number 506**
Development of an *In Vitro* Microelectric Cell Sensing Technique to Assess Cytotoxicity of Ocular Irritants. *K. Berezowski*[1], *D. Y. Huang*[1], *S. Gabos*[2], and D. W. Kinniburgh[1]. [1]Physiology & Pharmacology, Alberta Centre For Toxicology, University of Calgary, Calgary, AB, Canada; and [2]Department of Laboratory Medicine & Pathology, University of Alberta, Edmonton, AB, Canada.

#1025 **Poster Board Number 507**
Cultured Porcine Cornea Assay Using Confocal Microscopy for High Resolution Detection and Quantification of Sub-Mild Ocular Irritation. M. Piehl, M. R. Carathers, E. Ryan, W. R. Hahn, D. R. Cerven, and *G. L. DeGeorge*. MB Research Laboratories, Spinnerstown, PA.

Abstract #

#1026 **Poster Board Number 508**
Using Benzalkonium Chloride and POLYQUAD® to Test the *In Vitro* Reconstituted Human Corneal Epithelium Model As a Replacement for *In Vivo* Ocular Screening. *F. Zhang*[1], *L. Walker*[1], *R. Rice*[2], and *D. P. Rodeheaver*[1]. [1]Preclinical Safety, Alcon, Fort Worth, TX; and [2]Preclinical Development, Alcon, Fort Worth, TX.

#1027 **Poster Board Number 509**
The Importance of Understanding Drivers of Irritation *In Vivo* for Selection of Chemicals Used in the Development and Evaluation of *In Vitro* Eye Irritation Assays: Cosmetics Europe Analysis. J. Barroso[1], N. Alépée[2], A. De Smedt[3], *B. De Wever*[4,10], J. Hibatallah[5], P. McNamee[6], K. Mewes[4], M. Millet[7], U. Pfannenbecker[8], M. Tailhardat[9], and M. Templier[7]. [1]Cosmetics Europe, Brussels, Belgium; [2]L'Oréal, Aulnay, France; [3]Janssen Research & Development, Beerse, Belgium; [4]Henkel AG & Co. KGaAelopment, Düsseldorf, Germany; [5]Chanel Parfums Beauté, Neuilly sur Seine, France; [6]The Procter & Gamble Company, Egham, United Kingdom; [7]Pierre Fabre, Castres, France; [8]Beiersdorf AG, Hamburg, Germany; [9]LVMH Recherche, St. Jean de Braye, France; and [10]ALTEXA Development, Monte Carlo, Monaco.

#1028 **Poster Board Number 510**
Tiered Testing Strategy Using Validated *In Vitro* Assays for the Assessment of Skin and Eye Corrosion/Irritation of Pharmaceutical Intermediates. S. Calufetti[1], C. Callis[1], K. Nelson[1], M. Krcha[2], N. Wilt[2], and *G. Costin*[2]. [1]Eli Lilly and Company, Indianapolis, IN; and [2]Institute for In Vitro Sciences, Inc. (IIVS), Gaithersburg, MD.

#1029 **Poster Board Number 511**
Study of Cosmetics Europe for Skin Sensitization Hazard Characterization and Risk Assessment without Animal Testing. *A. G. Schepky*[1], K. Reisinger[2], N. Alépée[3], S. Martinozzi Teissier[3], G. Maxwell[4], P. Kern[5], H. Sakaguchi[6], J. Barroso[7], T. Ashikaga[8], and M. Tailhardat[9]. [1]Beiersdorf AG, Hamburg, Germany; [2]Henkel AG & Co. KGaA, Duesseldorf, Germany; [3]L'Oréal, Paris, France; [4]Unilever, Colworth, United Kingdom; [5]The Procter and Gamble Company, Cincinnati, OH; [6]Kao Corporation, Tokyo, Japan; [7]Cosmetics Europe, Brussels, Belgium; [8]Shiseido Corporation, Tokyo, Japan; and [9]LVMH, Paris, France.

#1030 **Poster Board Number 512**
Predictability of *In Vitro* Dermal Assays When Evaluating Fatty Amine Derivatives. *P. J. Rugen*, S. Grundén, D. Hart, and E. Houthoff. Product Safety & Regulatory Affairs, AkzoNobel, Chicago, IL.

#1031 **Poster Board Number 513**
Prediction of Systemic Bioavailability Using *In Vitro* Skin Absorption and Epidermal and Hepatic Metabolism of Aromatic Amine Hair Dyes. J. Manwaring[1], H. Rothe[3], C. Obringer[1], D. Foltz[2], T. Baker[2], and C. Goebel[3]. [1]Global Product Safety, Procter & Gamble, Mason, OH; [2]Global Analytical, Procter & Gamble, Mason, OH; and [3]Global Product Safety, Procter & Gamble, Darmstadt, Germany. Sponsor: *G. Daston*.

#1032 **Poster Board Number 514**
The Use of Human Skin Equivalents for Identification of Contact Sensitizers. *A. H. Poth*, C. Behle-Wagner, and L. Theis. Alternative and Genetic Toxicology, Harlan Cytotest Cell Research GmbH, Rossdorf, Germany.

TUESDAY

Education-Career Development Sessions
Exhibitor-Hosted Sessions
Featured Sessions
Historical Highlights Session
Informational Sessions
Platform Sessions

Program Description (Continued)

Abstract #

#1033 **Poster Board Number 515**
A Highly Differentiated 3D Epidermal Skin Model to Characterize Skin Sensitizers in Mixtures. L. F. Pratt, M. Troese, and *G. L. DeGeorge*. MB Research Laboratories, Spinnerstown, PA.

#1034 **Poster Board Number 516**
A Dermal Sensitization Assay Using SkinEthic™ RHE. M. Troese, and *G. L. DeGeorge*. MB Research Laboratories, Spinnerstown, PA.

#1035 **Poster Board Number 517**
Coculture Assay for the Identification and Investigation of Dermal Sensitizers (Epi-DC). *G. L. DeGeorge*[1], M. Troese[1], L. F. Pratt[1], M. Piehl[1], *P. J. Hayden*[2], and S. Ayehunie[2]. [1]MB Research Laboratories, Spinnerstown, PA; and [2]MatTek Corporation, Ashland, MA.

#1036 **Poster Board Number 518**
Human Skin Assays (SkimuneTM) for the Detection of Adverse Reactions, Potency, and Efficacy. *M. Matevia*[1], *C. Willett*[1], S. Ahmed[2], A. M. Dickinson[2], X. nong Wang[3], and R. Stebbings[4]. [1]Regulatory Toxicology, The Humane Society of the United States, Washington DC, WA; [2]Alcyomics Ltd, Newcastle University, Newcastle upon Tyne, Tyne and Wear, United Kingdom; [3]Haematological Sciences, Newcastle University, Newcastle upon Tyne, Tyne and Wear, United Kingdom; and [4]Biotherapeutics Group, National Institute for Biological Standards and Control, London, Hertfordshire, United Kingdom.

#1037 **Poster Board Number 519**
Inter-Laboratory Validation of an *In Vitro* Method to Classify Skin Sensitizers. *A. J. Clippinger*[1], *J. M. McKim*[2], *D. Keller*[2], *P. C. Wilga*[2], A. R. Van Rompay[3], and H. Witters[3]. [1]PETA, Norfolk, VA; [2]CeeTox Inc., Kalamazoo, MI; and [3]Flemish Institute for Technological Research, Mol, Belgium.

#1038 **Poster Board Number 520**
New Sloughing and Oral Irritation Assays Using Organotypic Human Tissue Models. *P. J. Hayden*, M. A. Bachelor, B. Breyfogle, and M. Klausner. MatTek Corporation, Ashland, MA.

#1039 **Poster Board Number 521**
Identifying Interspecies Variations in Uro-Epithelial Cell Culture Models. E. Bowen[1], S. Baker[1], P. Rawlinson[2], P. Mistry[2], *J. Wright*[2], and J. Southgate[1]. [1]Jack Birch Unit for Molecular Carcinogenesis, University of York, York, United Kingdom; and [2]Syngenta, Bracknell, United Kingdom.

#1040 **Poster Board Number 522**
A Novel Organotypic 3-D Human Small Intestinal Tissue to Assess Drug Safety and Inflammation. S. Ayehunie[1], Z. Stevens[1], T. Landry[1], M. Taimi[2], A. Armento[1], M. Klausner[1], and *P. J. Hayden*[1]. [1]MatTek Corporation, Ashland, MA; and [2]Apredica, Watertown, MA.

#1041 **Poster Board Number 523**
Comparison of Three Different *In Vitro* Intestinal Barrier Models for Assessing the Oral Fraction Absorbed of Pharmaceutical and Nutritional Products. H. Wortelboer[3], J. Westerhout[3], S. Vaessen[2], M. Bol-Schoenmakers[1], *B. J. Blaauboer*[1], J. Schrickx[1], M. Verwei[3], and *R. Pieters*[1,2]. [1]Institute for Risk Assessment Sciences, Utrecht University, Utrecht, Netherlands; [2]Dept Innovative Testing, University of Applied Sciences, Utrecht, Netherlands; and [3]TNO, Zeist, Netherlands.

Abstract #

#1042 **Poster Board Number 524**
Evaluation of the Toxicity Profiles of Selected Bioactivated Compounds in Primary Rat Hepatocytes Cultured in Micropatterned Cocultures. *O. Ukairo*[1], M. McVay[1], S. Krzyzewski[1], K. Rose[2], *M. E. Anderson*[2], S. Khetani[1], and *E. LeCluyse*[2]. [1]Hepregen Corporation, Medford, MA; and [2]The Hamner Institutes for Health Sciences, Research Triangle Park, NC.

#1043 **Poster Board Number 525**
Upregulation of CYP3A4 and CYP1A1/2 Activities in Huh-7 Human Hepatoma Cells with DMSO and Use of These Induced Cells to Evaluate CYP Inhibition by Botanical Extracts and Their Components. *Y. Liu*[1], S. Pugh Bishop[1,2], and *T. J. Flynn*[1]. [1]Food and Drug Administration, Laurel, MD; and [2]Oak Ridge Institute for Science and Education, Oak Ridge, TN.

#1044 **Poster Board Number 526**
Evaluation of Hepatotoxic Effects of Acetaminophen and Arsanilic Acid on the Human Adipose Tissue-Derived Hepatocytes. H. Yi, M. Kwon, Y. Park, B. So, and *H. Kang*. Veterinary Drugs and Biologics Division, Animal and Plant Quarantine Agency, Anyang City, Gyeonggi-do, Republic of Korea.

#1045 **Poster Board Number 527**
Human Induced Pluripotent Stem Cell-Derived Hepatocytes As a Model to Investigate Mechanisms of Isoniazid IDILI. *J. Lu*[1], *I. G. Metushi*[2], *J. Uetrecht*[2], *S. Einhorn*[3], *D. A. Mann*[3], *R. P. Hanzlik*[4], *P. Watkins*[1], and *E. LeCluyse*[1]. [1]The Hamner Institutes for Health Sciences, Durham, NC; [2]Department of Pharmacology and Toxicology, University of Toronto, Toronto, ON, Canada; [3]Cellular Dynamics International, Madison, WI; and [4]Department of Medicinal Chemistry, The University of Kansas, Lawrence, KS.

#1046 **Poster Board Number 528**
Hepatotoxicants-Induced Cytokine Imbalance between Pro- and Anti-Inflammatory Cytokines: A Possible Role in Innate-Immune Mediated Drug-Induced Liver Injury. S. Goto, J. Deguchi, N. Nishio, *T. Yamada*, N. Nomura, and H. Funabashi. Dainippon Sumitomo Pharma Co., Ltd., Osaka, Japan.

#1047 **Poster Board Number 529**
Long-Term *In Vitro* Three-Dimensional Cocultured Human Liver Microtissues: Characterization and Implication for Drug-Induced Hepatotoxicity Studies. *P. Gunness*[1], S. Messner[1], L. Fredriksson[2], J. M. Kelm[1], W. Moritz[1], and M. Ingelman-Sundberg[2]. [1]InSphero AG, Schlieren, ZH, Switzerland; and [2]Department of Physiology and Pharmacology, Karolinska Institutet, Stockholm, Sweden.

#1048 **Poster Board Number 530**
Studying the Anti-Inflammatory Role of Alkaline Phosphatase in the Liver *In Vitro*. *B. J. Blaauboer*[1], A. F. Pike[1], N. Kramer[1], W. Seinen[1,2], and R. Brands[1,2]. [1]Institute for Risk Assessment Sciences, Utrecht University, Utrecht, Netherlands; and [2]Alloksys Life Sciences BV, Bunnik, Netherlands.

Program Description (Continued)

Abstract #

#1049 **Poster Board Number 531**
Abstract Withdrawn

#1050 **Poster Board Number 532**
Improvements of the ALI *In Vitro* testing Method for Inhalable Compounds. D. Ritter[1], J. Knebel[1], and C. Brodbeck[2]. [1]Fraunhofer ITEM, Hannover, Germany; and [2]Fraunhofer SCAI, Sankt Augustin, Germany. Sponsor: *C. Dasenbrock*.

#1051 **Poster Board Number 533**
Use of Rat Precision-Cut Lung Slices for Long-Term Functional Evaluation. V. Neuhaus[1,2], A. Braun[1,2], and K. Sewald[1,2]. [1]Fraunhofer ITEM, Hannover, Germany; and [2]Biomedical Research in Endstage and Obstructive Lung Disease Hannover (BREATH), Member of the German Centre for Lung Research (DZL), Hannover, Germany. Sponsor: *C. Dasenbrock*.

#1052 **Poster Board Number 534**
Characterization of Aerosolized Zinc Oxide Exposures to Lung Epithelial-Macrophage Cocultures at the Air-Liquid Interface (ALI) Using the NACIVT System. *S. P. Ng*, and *D. B. Warheit*. DuPont Haskell Global Centers for Health and Environmental Sciences, Newark, DE.

#1053 **Poster Board Number 535**
A Coculture Model of the Air-Blood Barrier Reconstructed from Primary Human Cells. *P. J. Hayden*, G. Jackson, C. Mankus, J. Oldach, M. Child, M. Spratt, and S. Ayehunie. MatTek Corp., Ashland, MA.

#1054 **Poster Board Number 536**
Systems Toxicology Approach for the Biological Impact Assessment of Conventional Cigarette Smoke Fractions and Aerosol Fractions from a Prototypic Modified Risk Tobacco Product on Normal Human Bronchial Epithelial Cells. U. Kogel[1], Y. Xiang[1], E. Dossin[1], P. Guy[1], C. Mathis[1], I. Gonzalez Suarez[1], G. Vuillaume[1], *A. Hayes*[2], J. Hoeng[1], and M. Peitsch[1]. [1]Philip Morris International R&D, Neuchatel, Switzerland; and [2]Spherix Consulting, Rockville, MD.

#1055 **Poster Board Number 537**
Multiplexed High-Content Screening Analysis Reveals Reduced Toxicity of a Prototypic Modified Risk Tobacco Product (pMRTP) As Compared to a Conventional Cigarette. I. Gonzalez Suarez[1], D. Marescotti[1], S. Acali[1], D. Goerdetier[1], S. Frentzel[1], C. Mathis[1], *A. Hayes*[2], J. Hoeng[1], and M. Peitsch[1]. [1]Philip Morris International R&D, Philip Morris Products S.A., Neuchatel, Switzerland; and [2]Spherix Consulting, Rockville, MD.

#1056 **Poster Board Number 538**
Identification of Cytotoxic Chemicals in Thirdhand Smoke. *V. Bahl*[1], S. Schick[2], M. Sleiman[3], and *P. Talbot*[1]. [1]Cell Biology and Neuroscience, University of California Riverside, Riverside, CA; [2]Department of Medicine, University of California San Fransisco, San Fransisco, CA; and [3]Indoor Environment Group, Lawrence Berkeley National Laboratory, Berkeley, CA.

Abstract #

#1057 **Poster Board Number 539**
Prevalidation of the *Ex Vivo* Model PCLS for the Prediction of Acute Inhalation Toxicity. K. Sewald[1], A. Hess[2], L. Lauenstein[1], X. Schneider[3], S. Vogel[2], M. Steinfath[4], R. Pirow[4], M. Liebsch[4], S. Kolle[2], L. Ma-Hock[2], *R. Landsiedel*[2], C. Martin[3], and A. Braun[1]. [1]Fraunhofer ITEM, Hannover, Germany; [2]BASF SE, Ludwigshafen, Germany; [3]RWTH Aachen, Aachen, Germany; and [4]BfR ZEBET, Berlin, Germany.

#1058 **Poster Board Number 540**
Quantification of Neuron Maturation and Neurite Outgrowth *In Vitro* Using Human Neural Progenitor Cells. X. Wu[1,2], E. Jordan[2], J. Donnell[4], J. Chilton[3], and *S. Stice*[2,1,3]. [1]UGA ITP, Athens, GA; [2]Animal and Dairy Science, The University of Georgia, Athens, GA; [3]ArunA Biomedical, Inc, Athens, GA; and [4]Infectious Disease, The University of Georgia, Athens, GA.

#1059 **Poster Board Number 541**
An Analysis of the Toxicity of Ximelagatran Using a Combination of *In Vitro* and *In Silico* Methods. A. Khanna, S. Das, R. Kumar, D. Srivastava, S. Louha, K. Rajendran, B. Thota, D. Raman, N. Mandyam, N. Rajeswara, S. Raghavan, and *K. Subramanian*. Strand Life Sciences, Bangalore, India.

#1060 **Poster Board Number 542**
Evaluation of *In Vitro* Cardiac Electrophysiological Assessments on the ACEA xCELLigence and Axion Maestro Platforms. M. A. Kauss, *H. Uppal*, and *D. L. Misner*. Safety Assessment, Genentech, South San Francisco, CA.

#1061 **Poster Board Number 543**
Preclinical Profiling and Comparison to a Human Response Database of an *In Vitro* Cynomolgus Macaque Vascular System As a Nonhuman Primate Surrogate. M. Simmers[1], R. Feaver[1], B. Cole[1], A. W. Pryor[1], J. R. Turk[2], D. Manka[1], B. R. Wamhoff[1], C. W. Qualls[2], and B. Blackman[1]. [1]HemoShear LLC, Charlottesville, VA; and [2]Amgen Inc., Thousand Oaks, CA. Sponsor: *A. Dash*.

#1062 **Poster Board Number 544**
The Use of the SHE Cell Transformation Assay for the Safety and Risk Assessment of Compounds under the EU REACH Regulation. A. Heppenheimer, and *A. H. Poth*. Alternative and Genetic Toxicology, Harlan Cytotest Cell Research GmbH, Rossdorf, Germany.

#1062a **Poster Board Number 545**
Adverse Outcome Pathway for Embryonic Vascular Disruption and Alternative Methods to Identify Chemical Vascular Disruptors during Development. *T. L. Tal*[1], *N. Kleinstreuer*[2], P. Harris[3], J. Olin[1], A. Palekar[1], *T. Toimela*[4], *R. Sarkanen*[4], *T. Heinonen*[4], *T. B. Knudsen*[5], and S. Padilla[1]. [1]ISTD, U.S. EPA, RTP, NC; [2]ILS, Inc./NICETUM, RTP, NC; [3]GED, U.S. EPA, Gulf Breeze, FL; and [4]FICAM, University of Tampere, Tampere, Finland; and [5]NCCT, U.S. EPA, RTP, NC.

#1062b **Poster Board Number 546**
Mechanism of Cadmium-Induced Tight Junction Disruption in an *In Vitro* Human Airway Air-Liquid Interface Tissue Model. X. Cao[1], *H. Lin*[1], L. Muskhelishvili[2], J. R. Latendresse[2], P. Richter[3], and R. H. Heflich[1]. [1]DGMT, FDA/NCTR, Jefferson, AR; [2]TPA, Jefferson, AR; and [3]FDA/CTP, Silver Spring, MD.

TUESDAY

Education-Career Development Sessions
Exhibitor-Hosted Sessions
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Abstract #

#1062c **Poster Board Number 547**
Predicting Skin Sensitization Using 21st-Century Toxicology. *N. Kleinstreuer*[1], *J. A. Strickland*[1], and *W. Casey*[2]. [1]ILS, Inc., Research Triangle Park, NC; and [2]NIEHS/DNTP, DHHS/NIH, Research Triangle Park, NC.

#1062d **Poster Board Number 548**
A Cellular Impedance-Based Human iPSC-Cardiomyocyte Model to Screen for Cardiotoxicity. *L. Guo*[1], M. Furniss[1], J. Mussio[1], *S. Eldridge*[2], R. Parchment[1], and *M. A. Davis*[2]. [1]Laboratory of Investigative Toxicology, Applied/Developmental Directorate, Leidos Biomedical Research, Inc. Frederick National Laboratory for Cancer Research, Frederick, MD; and [2]DCTD, National Cancer Institute, Bethesda, MD.

#1062e **Poster Board Number 549**
Data Integration of Nonanimal Tests for the Development of a Test Battery to Predict Human Skin Sensitizing Potential. M. Miyazawa[1], O. Takenouchi[1], T. Nishijou[1], K. Saito[1], Y. Nukada[1], and H. Sakaguchi[1]. [1]Kao Corporation, Tochigi, Japan. Sponsor: *J. Avalos*.

#1062f **Poster Board Number 550**
Using the *Drosophila melanogaster* Genetics Reference Panel (DGRP) to Identify Toxicity Pathways for Airborne Chemicals. *K. R. Tatum-Gibbs*[1], *P. Bushnell*[2], J. M. McKee[2], *P. Evansky*[2], *M. A. Higuchi*[2], *S. D. Hester*[2], *R. Judson*[3], *W. K. Boyes*[2], and *D. Reif*[4]. [1]ORISE, Research Triangle Park, NC; [2]NHEERL, US EPA, Research Triangle Park, NC; [3]NCCT, US EPA, Research Triangle Park, NC; and [4]NC State University, Raleigh, NC.

#1062g **Poster Board Number 551**
In-House Validation and Technology Transfer of the GARD Assay for Prediction of Sensitizing Compounds. *E. L. Roggen*[1], A. Forreryd[2], H. Johansson[2], F. Rydnert[2], A. Albrekt[2], C. A. Borrebaeck[2], and M. Lindstedt[2]. [1]3Rs Management and Consulting, Lyngby, Denmark; and [2]Immunotechnology, University of Lund, Lund, Sweden.

#1062h **Poster Board Number 552**
Risk Assessment of Paracetamol-Induced Liver Toxicity Based on Human *In Vitro* Data. G. M. Groothuis[1], N. Mafirakureva[1], J. Proost[1], M. Jetten[2], *J. Kleinjans*[2], A. Lommen[3], *A. Peijnenburg*[3], G. Vredenburg[4], N. Vermeulen[4], and F. Russel[5]. [1]Pharmacy, Division Pharmacokinetics, Toxicology & Targeting, University of Groningen, Groningen, Netherlands; [2]Toxicogenomics, Maastricht University, Maastricht, Netherlands; [3]Institute of Food Safety, Toxicology and Effect Analysis, Wageningen University, Wageningen, Netherlands; [4]Chemistry & Pharmaceutical Science, Free University Amsterdam, Amsterdam, Netherlands; and [5]Pharmacology and Toxicology, Radboud University Medical Center, Nijmegen, Netherlands.

#1062i **Poster Board Number 553**
Human Brain Endothelial Cells Exposed to PCB Congener 126 Show Increased Angiogenic Response in the 3D Cell Model. *J. K. Das*[1], and *Q. H. Felty*[1]. [1]Environmental & Occupational Health, Florida International University, Miami, FL.

Abstract #

Tuesday Morning, March 25
9:00 AM to 12:30 PM
Exhibit Hall

PS

Poster Session: Endocrine Toxicology

Chairperson(s): *Katie B. Paul, US EPA, Integrated Systems Toxicology Division, Durham, NC.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *11:00 AM–12:30 PM*

#1063 **Poster Board Number 601**
Profiling of Compound-Induced Modulation of ERalpha-Coregulator Interaction As a Means to Compare Bisphenol A Analogs. R. Houtman[1], R. van Beuningen[1], N. Bastiaensen[1], T. Khuc[2], B. Goodwin[2], C. T. Teng[3], and *R. R. Tice*[3]. [1]PamGene International BV, Den Bosch, Netherlands; [2]NCAT, NIH, Rockville, MD; and [3]DNTP, NIEHS, Research Triangle Park, NC.

#1064 **Poster Board Number 602**
Nonestrogenic Bisphenols: Black Swans or Pink Unicorns? M. S. Maier, and *E. Weaver*. The Valspar Corporation, Pittsburgh, PA.

#1065 **Poster Board Number 603**
Interpreting Estrogen Screening Assays in the Context of Potency and Human Exposure Relative to Natural Exposures to Phytoestrogens. *K. Wise*[1], *L. Aylward*[2], *S. M. Hays*[3], C. R. Kirman[4], and *R. Becker*[5]. [1]American Chemistry Council, Washington, DC; [2]Summit Toxicology LLP, Falls Church, VA; [3]Summit Toxicology LLP, Lyons, CO; [4]Summit Toxicology LLP, Orange Village, OH; and [5]American Chemistry Council, Washington, DC.

#1066 **Poster Board Number 604**
Adaptation of T47D-KBluc and MDA-kb2 to Screening and Comparison to Other Receptor Reporter Platforms. *K. B. Paul*[1,2], *D. L. Filer*[1,4], *R. Judson*[4], *V. S. Wilson*[3], *K. Crofton*[4], *S. O. Simmons*[2], and *M. T. Martin*[4]. [1]Oak Ridge Institute for Science Education, Oak Ridge, TN; [2]Integrated Systems Toxicology Division, US EPA, Durham, NC; [3]Toxicity Assessment Division, US EPA, Durham, NC; and [4]National Center for Computational Toxicology, US Environmental Protection Agency, Durham, NC.

#1067 **Poster Board Number 605**
Estrogenic Activity of Aromatic Substances from Mineral Oil Used in Printing Inks. P. Tarnow[1], C. Hutzler[1], K. Schoen[1], T. Bovee[2], T. Tralau[1], and A. Luch[1]. [1]Product Safety, German Federal Institute for Risk Assessment, Berlin, Germany; and [2]RIKILT, Wageningen, Netherlands. Sponsor: *A. Haase*.

#1068 **Poster Board Number 606**
Estrogenicity and Androgenicity Screening of 8 Individual PCB Sulfate Monoesters in Human Breast Cancer MCF-7 Cells. *S. Flor*, *H. Lehmler*, and *G. Ludewig*. Univ of Iowa, Iowa City, IA.

#1069 **Poster Board Number 607**
Pharmacophore Model of Natural Phytoestrogens Which Induce Estrogen Receptor Alpha/Beta Heterodimerization. C. Coriano[1,2], C. Sievers[3], J. Kolesar[4], J. Shull[1,2], and *W. Xu*[1,2]. [1]Oncology, University of Wisconsin, Madison, WI; [2]Molecular & Environmental Toxicology, University of Wisconsin, Madison, WI; [3]Cellular & Molecular Pathology, University of Wisconsin, Madison, WI; and [4]Pharmacy, University of Wisconsin, Madison, WI.

Program Description (Continued)

Abstract #

#1070 **Poster Board Number 608**
Disruption in the Hypothalamus Neonatally Exposed to P-Tert Octylphenol Is Essential for Induction of Early Occurrence of Persistent Estrus, a Feature of Delayed Effect in Rats. *M. Yoshida*[1], R. Ichimura[1,2], K. Inoue[1], G. Watanabe[2], and M. Takahashi[1]. [1]Department of Pathology, National Institute of Health Sciences, Tokyo, Japan; and [2]Veterinary Physiology, Tokyo University of Agriculture and Technology, Tokyo, Japan.

#1071 **Poster Board Number 609**
Pituitary Proliferation Is Affected by Bisphenol A Exposure, but Recovers upon Its Removal. *K. Eckstrum*[1], K. Brannick[1], *W. Wang*[2], *J. A. Flaws*[2], and L. Raetzman[1]. [1]Molecular and Integrative Physiology, University of Illinois Urbana Champaign, Urbana, IL; and [2]Comparative Biosciences, University of Illinois Urbana Champaign, Urbana, IL.

#1072 **Poster Board Number 610**
New Sites for Old Suspects: Endocrine Disrupting Chemicals Targeting Human Estrogen Receptor Nonligand Binding Sites. C. G. Katche[2], B. Asare[1], and R. V. Rajnarayanan[1]. [1]Pharmacology and Toxicology, SUNY University at Buffalo, Buffalo, NY; and [2]Phamaceutical Sciences, SUNY University at Buffalo, Buffalo, NY. Sponsor: *R. Rajnarayanan*.

#1073 **Poster Board Number 611**
Vitellogenin Gene Expression and Gonadal Alterations in Cichlids from a Man-Made Lake in Nigeria. *A. O. Adeogun*[1], S. D. Adeduntan[1], *O. E. Ola-Davies*[2], and O. A. Fagbohun[3]. [1]Department of Zoology, University of Ibadan, Ibadan, Nigeria; [2]Department of Veterinary Physiology, Biochemistry and Pharmacology, University of Ibadan, Ibadan, Nigeria; and [3]Department of Veterinary Microbiology and Parasitology, University of Ibadan, Ibadan, Nigeria.

#1074 **Poster Board Number 612**
Vitellogenin Expression and Steroid Hormone Levels As Biomarkers of Endocrine Disruption in Tilapias from Ogun River, Nigeria. *O. R. Ibor*[1], *A. O. Adeogun*[1], A. V. Chukwuka[1], and O. A. Fagbohun[2]. [1]Department of Zoology, University of Ibadan, Ibadan, Nigeria; and [2]Department of Veterinary Microbiology and Parasitology, University of Ibadan, Ibadan, Nigeria.

#1075 **Poster Board Number 613**
Naringenin and 8-Prenylnaringenin Arrest Oocyte Maturation and *In Vitro* Embryo Development by Affecting the Cumulus-Oocyte Complex. K. Solak[1], R. R. Santos[1], B. A. Roelen[2], *B. J. Blaauboer*[1], *M. Van den Berg*[1], and *M. B. van Duursen*[1]. [1]IRAS, Utrecht University, Utrecht, Netherlands; and [2]Department of Farm Animal Health, Utrecht University, Utrecht, Netherlands.

#1076 **Poster Board Number 614**
Effects of Resveratrol and Resveratrol Analogs on Steroidogenesis in Human Adrenocortical H295R Cells. *A. Oskarsson*[1], Å. Ohlsson Andersson[1], C. Spatafora[2], and C. Tringali[2]. [1]Department of Biomedical Sciences and Veterinary Public Health, Swedish University of Agricultural Sciences, Uppsala, Sweden; and [2]Dipartimento di Scienze Chimiche, University of Catania, Catania, Italy.

Abstract #

#1077 **Poster Board Number 615**
Orally Subchronic Exposure to Benzo[a]pyrene Alters Reproductive Hormone Profile. *A. Jeng*[1], and Y. Chen[2]. [1]Old Dominion University, Norfolk, VA; and [2]Department of Nuclear Medicine, Kaohsiung Medical University Chung-Ho Memorial Hospital, Kaohsiung, Taiwan.

#1078 **Poster Board Number 616**
Testing Mixtures of Antiandrogens *In Vivo* at Human-Relevant Exposure Levels. K. Fussell[1], S. S. Schneider[1], S. Melching-Kollmuss[1], S. Gröters[1], V. Strauss[1], B. Siddeek[2], M. Benahmed[2], M. Frericks[1], and *B. van Ravenzwaay*[1]. [1]Toxicology, BASF SE, Ludwigshafen/Rhein, Germany; and [2]INSERM, Nice, France.

#1079 **Poster Board Number 617**
Conazole Fungicides Inhibit Leydig Cell Testosterone Secretion and Androgen Receptor Activation *In Vitro.* M. Roelofs[1], R. Temming[1], *A. H. Piersma*[2,1], *M. Van den Berg*[1], and *M. B. van Duursen*[1]. [1]IRAS, Utrecht University, Utrecht, Netherlands; and [2]Center for Health Protection, National Institute for Public Health and the Environment (RIVM), Bilthoven, Netherlands.

#1080 **Poster Board Number 618**
Mechanistic Investigation of Testicular Tumor Formation in Rats Treated with the SGLT2 Inhibitor Canagliflozin. P. Vinken[1], S. De Jonghe[1], T. Nett[3], L. Lammens[1], M. Srinivas[2], and *M. D. Johnson*[2]. [1]Janssen Research & Development, a division of Janssen Pharmaceutica NV, Beerse, Belgium; [2]Janssen Research & Development LLC, Raritan, NJ; and [3]Colorado State University, Fort Collins, CO.

#1081 **Poster Board Number 619**
The Fungicide Prochloraz Induces Transporter Breast Cancer Resistance Protein BCRP (ABCG2) in Human Mammary and Adrenocortical Cells. J. Lundqvist, Å. Ohlsson Andersson, J. Tallkvist, and *A. Oskarsson*. Dept of Biomedical Sciences and Veterinary Public Health, Uppsala, Sweden.

#1082 **Poster Board Number 620**
Polybrominated Diphenyl Ether Congener 47 Increases Aldosterone Secretion in a Human Adrenocortical Cell Line. *P. G. Kopf*, and B. Dungar. Department of Pharmacology, Midwestern University, Downers Grove, IL.

#1083 **Poster Board Number 621**
NQO1, a Component of the Plasma Membrane Electron Transport System, Regulates Redox Status in Clonal Pancreatic Beta Cells and Primary Islets. E. A. Heart[1], C. E. McCue[2], N. E. Corbett[2], *A. K. Jaiswal*[3], and *J. P. Gray*[2,1]. [1]Cellular Dynamics, Marine Biological Laboratory, Woods Hole, MA; [2]Science, United States Coast Guard Academy, New London, CT; and [3]Pharmacology, University of Maryland School of Medicine, Baltimore, MD.

#1084 **Poster Board Number 622**
***In Utero* Exposure to Perfluorooctanoic Acid (PFOA) or Perfluorooctane Sulfonate (PFOS) Did Not Increase Body Weight, Blood Glucose, or Small Intestinal Tumorigenesis in Min Mice.** I. Steffensen, H. Ngo, and R. B. Hetland. Department of Food, Water and Cosmetics, Norwegian Institute of Public Health, Oslo, Norway. Sponsor: *B. Granum*.

Program Description (Continued)

Abstract #

#1085 **Poster Board Number 623**
Emerging Toxicants Induce Adipogenesis and Suppress Osteogenesis in Mouse Mesenchymal Stromal Cells. *J. Watt*, *T. F. Webster*, and *J. J. Schlezinger*. Boston University School of Public Health, Boston, MA.

#1086 **Poster Board Number 624**
Influence of Halogenated Phenolic Compounds on Thyroid Hormone System via Inhibition of Iodotyrosine Deiodinase Activity. R. Shimizu[1], M. Yamaguchi[1], N. Uramaru[2], H. Kuroki[3], S. Ohta[4], S. Kitamura[2], and K. Sugihara[1]. [1]Faculty of Pharmaceutical Sciences, Hiroshima International University, Hiroshima, Japan; [2]Nihon Pharmaceutical University, Saitama, Japan; [3]Daiichi University of Pharmacy, Fukuoka, Japan; and [4]Graduate School of Biomedical and Health Sciences, Hiroshima University, Hiroshima, Japan. Sponsor: *M. Takiguchi*.

#1087 **Poster Board Number 625**
Effects of Exposure to 1-Bromopropane on the Level of Thyroid Hormone in Cerebrospinal Fluid of Rats. L. Zhang[1], C. Zong[1], *N. Koibuchi*[2], S. Ichihara[3], H. Fujita[4], J. Chang[1], J. Huang[1], H. Naito[1], M. Kato[1], and *G. Ichihara*[1]. [1]Occupational and Environmental Health, Nagoya University Graduate School of Medicine, Nagoya, Japan; [2]Gunma University Graduate School of Medicine, Mebashi, Japan; [3]Mie University Graduate School of Rennovation Studies, Tsu, Japan; and [4]Hoddaido University School of Medicine, Sapporo, Japan.

#1087a **Poster Board Number 626**
Enhancement of the Endocrine Disruptor Knowledge Base for Assessing Endocrine Activity of Untested Chemicals. H. Hong[1], H. Ng[1], H. Fang[2], R. Perkins[1], and *W. Tong*[1]. [1]Division of Bioinformatics and Biostatistics, National Center for Toxicological Research, Jefferson, AR; and [2]Office of Scientific Coordination, National Center for Toxicological Research, Jefferson, AR.

#1087b **Poster Board Number 627**
Effects of Triclosan on Iodide Uptake and the Expression of Genes Related to Thyroid Hormone Synthesis in Rat and Human Thyroid Follicular Cells. *J. Fang*[1], *Y. Wu*[1], and F. A. Beland[1]. [1]Division of Biochemical Toxicology, National Center for Toxicological Research, Food and Drug Administration, Jefferson, AR.

#1087c **Poster Board Number 628**
International Validation of Two Human Recombinant Estrogen Receptor (ER alpha) Binding Assays. *V. S. Wilson*[1], *S. C. Laws*[1], A. Freyberger[3], Y. Akahori[4], M. Takeyoshi[4], M. Jacobs[5], *D. R. Dietrich*[6], *K. L. Hamernik*[2], and *M. K. Manibusan*[2]. [1]ORD, NHEERL, USEPA, RTP, NC; [2]OSCP, USEPA, Washington, DC; [3]Bayer HealthCare, Elberfeld, Germany; [4]CERI, Saitama, Japan; [5]Public Health England, Chilton, United Kingdom; and [6]U. Konstanz, Konstanz, Germany.

#1087d **Poster Board Number 629**
Comparison of *In Vitro* and *Ex Vivo* Thyroid Hormone Synthesis Inhibition Results and *In Vivo* Outcomes for a Series of Benzothiazoles. *M. W. Hornung*[1], J. T. Haselman[1], J. Korte[1], P. Kosian[1], K. Challis[1], S. Hall[1], and S. Degitz[1]. [1]ORD, NHEERL, Mid-Continent Ecology Division, US EPA, Duluth, MN.

Abstract #

#1087e **Poster Board Number 630**
Triclosan-Induced Cell Growth Was Reversed by a Phytoestrogen, Kaempferol, via Regulating Cell-Cycle Related and Apoptosis-Related Genes in MCF-7 Breast Cancer Cells. S. Kim[1], and *K. Choi*[1]. [1]Laboratory of Biochemistry and Immunology, College of Veterinary Medicine, Chungbuk National University, Cheongju, Republic of Korea.

#1087f **Poster Board Number 631**
***In Vitro* Metabolism of Tamoxifen in Human, Rat, and Fish Microsomes.** *S. C. Laws*[1], W. M. Henderson[2], M. G. Hotchkiss[1], and *L. J. Mills*[3]. [1]TAD, NHEERL, ORD, U.S. EPA, Research Triangle Park, NC; [2]ERD, NERL, ORD, U.S. EPA, Athens, GA; and [3]AED, NHEERL, ORD, U.S. EPA, Narragansett, RI.

#1087g **Poster Board Number 632**
Fenhexamid Regulated the Transcripts of Aryl Hydrocarbon Receptor, Aryl Hydrocarbon Receptor Nuclear Translocator and Cell Cycle Related Genes in Human BG-1 Ovarian Cancer Cells Expressing Estrogen Receptors. R. Go[1], and K. Choi[1]. [1]Laboratory of Biochemistry and Immunology, College of Veterinary Medicine, Chungbuk National University, Cheongju, Republic of Korea. Sponsor: *M. Cho*.

#1087h **Poster Board Number 633**
Effects of *In Vivo* Exposure to Tamoxifen on a Nontarget Species, the Marine Fish Cunner (*Tautogolabrus adspersus*). *L. J. Mills*[1], S. Jayaraman[1], R. Gutjahr-Gobell[1], D. Borsay Horowitz[1], G. Zaroogian[1], and *S. C. Laws*[2]. [1]ORD, NHEERL, AED, U.S. Environmental Protection Agency, Narragansett, RI; and [2]ORD, NHEERL, TAD, U.S. Environmental Protection Agency, Research Triangle Park, NC.

#1087i **Poster Board Number 634**
Subchronic Toxicology of Tetrabromobisphenol A (TBBPA) in CD® Rats. *T. Osimitz*[1], W. Droege[1], and *A. Hayes*[2]. [1]Science Strategies, Charlottesville, VA; and [2]Vision and Strategy, Harvard University, Boston, MA.

#1087j **Poster Board Number 635**
Adverse Human Reproductive Outcomes and Body Burdens of Endocrine Disrupting Compound—Polychlorinated Biphenyls. *D. Roy*[1], M. Morgan[1], and C. Yoo[1]. [1]Florida International University, Miami, FL.

#1087k **Poster Board Number 636**
Developmental Exposure of Zebrafish to Dieldrin Alters Gene Expression Associated with Energy Homeostasis. *M. H. O'Brien*[1], and I. P. Callard[1]. [1]Department of Biology, Boston University, Boston, MA.

TUESDAY

Program Description (Continued)

Abstract #

Tuesday Morning, March 25
9:00 AM to 12:30 PM
Exhibit Hall

PS

Poster Session: Developmental Toxicology: Mammalian Models II

Chairperson(s): *Stephen B. Harris, Stephen B. Harris Group, San Diego, CA.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *9:00 AM–11:00 AM*

#1087l **Poster Board Number 638**
The Role of Mn in Skeletal Development. C. J. Richardson[1], *D. Smith*[1], S. Fendorf[2], J. Lezama Pacheco[2], R. Ritchie[3], and N. Dave[3]. [1]Microbiology and Environmental Toxicology, University of California Santa Cruz, Santa Cruz, CA; [2]Environmental Earth System Science, Stanford University, Stanford, CA; and [3]Materials Sciences Division, Lawrence Berkeley National Laboratory, Berkeley, CA.

#1087m **Poster Board Number 639**
Interaction of Manganese, Iron, and Stress on Spatial Learning and Memory after Developmental Exposure. *R. M. Amos-Kroohs*[1], *L. L. Davenport*[2], N. Atanasova[3], C. V. Vorhees[1], and M. T. Williams[1]. [1]Neurology, Cincinnati Children's Hospital, Cincinnati, OH; [2]Environmental Health, University of Cincinnati, Cincinnati, OH; and [3]Philsophy, University of Cincinnati, Cincinnati, OH.

#1087n **Poster Board Number 640**
Characterization of the Neuropathological Consequences of Plac1 Ablation in the Developing Mouse Embryo. J. Bourgeois[1], X. Kong[2], J. Fuentes[2], *R. D. Harbison*[1], *G. T. Johnson*[1,2], and M. Fant[2]. [1]Environmental and Occupational Health, College of Public Health, University of South Florida, Tampa, FL; and [2]Pediatrics, College of Medicine, University of South Florida, Tampa, FL.

#1087o **Poster Board Number 641**
Evaluation of Environmental Chemicals Computationally Predicted to Disrupt Angiogenesis. T. Heinonen[1], T. Toimela[1], *T. B. Knudsen*[2], *N. Kleinstreuer*[3], and R. Sarkanen[1]. [1]FICAM, University of Tampere, Tampere, Finland; [2]National Center for Computational Toxicology, US EPA, RTP, NC; and [3]ILSI, Inc./NICEATM/NIEHS, RTP, NC.

#1087p **Poster Board Number 642**
Computational Modeling of Limb Development Using ToxCast High-Throughput Screening Data for Predictive Toxicology. *B. K. Ahir*[1], *N. S. Sipes*[1], *N. C. Baker*[2], *R. M. Spencer*[2], *M. C. Leung*[1], *R. DeWoskin*[3], *R. Judson*[1], *M. T. Martin*[1], and T. B. Knudsen[1]. [1]U.S. EPA-ORD, NCCT, RTP, NC; [2]U.S. EPA-ORD, NCCT-Lockheed Martin, RTP, NC; and [3]U.S. EPA-ORD, NCEA, RTP, NC.

#1087q **Poster Board Number 643**
Evaluation of the Mechanism of Misoprostol-Induced Limb Defects Using a Late Organogenesis Rat Embryo Culture. M. Cavieres[1,2], and O. Madrid[1]. [1]Facultad de Farmacia, Universidad de Valparaíso, Valparaíso, Chile; and [2]Centro Regional de Estudios de Alimentos Saludables, Valparaíso, Chile. Sponsor: *E. Faustman*.

Abstract #

#1087r **Poster Board Number 644**
Peripheral Blood Changes in Rats Developmentally Exposed to Volatile Organic Compounds: Shifts in Leukocyte Distribution. *E. Quist*[1,2], *A. J. Filgo*[1,3], D. H. King[1], G. Travlos[1], C. D. Bortner[1], M. I. Sifre[1], G. Kissling[1], and *S. E. Fenton*[1]. [1]NIEHS, Research Triangle Park, NC; [2]Comparative Biomedical Sciences, North Carolina State University, Raleigh, NC; and [3]Curriculum in Toxicology, University of North Carolina, Chapel Hill, NC.

#1087s **Poster Board Number 645**
DNA Methylation Is Required for Mouse Prostate Development. K. P. Keil[1], L. L. Abler[1], *V. Mehta*[1], H. M. Altmann[1], J. Laporta[2], L. L. Hernandez[2], and *C. M. Vezina*[1]. [1]Comparative Biosciences, University of Wisconsin Madison, Madison, WI; and [2]Dairy Science, University of Wisconsin Madison, Madison, WI.

#1087t **Poster Board Number 646**
Pregestational Ethinylestradiol Exposure Postpones Pubertal Onset and Decreases Body Weight in Both Male and Female Offspring in Rats. D. Wu[1], W. Zhang[1], K. Xu[1], D. Chen[1], and *X. Wang*[1]. [1]Department of Toxicology, Nanjing Medical University, Nanjing, Jiangsu, China.

#1087u **Poster Board Number 647**
Characterization of Developmental Aryl Hydrocarbon Receptor Signaling in the Mouse. *B. P. Johnson*[1], E. Stevens[1], and *C. A. Bradfield*[1]. [1]Oncology, UW-Madison, Madison, WI.

#1087v **Poster Board Number 648**
Influence of Maternal Stress on Gestational Parameters and Prenatal Development in Himalayan Rabbits. S. S. Schneider[1], I. Fegert[2], C. Werner[2], and *B. van Ravenzwaay*[1]. [1]Toxicology, BASF SE, Ludwigshafen/Rhein, Germany; and [2]Regulatory Toxicology Crop Protection, BASF SE, Ludwigshafen, Germany.

#1087w **Poster Board Number 649**
An Oral Prenatal Developmental Toxicity Study with Tetrabromobisphenol A (TBBPA) in CD Rats. *M. L. Dourson*[1], R. Cope[1], and S. Kacew[2]. [1]Toxicology Excellence in Risk Assessment, Cincinnati, OH; and [2]Cellular and Molecular Medicine, Faculty of Medicine, University of Ottawa, Ottawa, ON, Canada.

#1087x **Poster Board Number 650**
An Oral Two Generation Reproductive, Fertility and Developmental Neurobehavioral Study of Tetrabromobisphenol A (TBBPA) in CD Sprague-Dawley Rats. R. Cope[1], *M. L. Dourson*[1], and S. Kacew[2]. [1]Toxicology Excellence in Risk Assessment, Cincinnati, OH; and [2]Institute of Population Health, University of Ottawa, Ottawa, ON, Canada.

Program Description (Continued)

Tuesday Morning, March 25
9:30 AM to 4:00 PM
Room 127A

FS

Research Funding Session: Research Funding Information Room

Chairperson(s): *David Dorman, North Carolina State University, Raleigh, NC.*

Sponsor(s):
Research Funding Committee

Program and review staff from agencies that fund research, including NIH, US FDA, NIEHS, CDC, and US EPA will be available in the Research Funding Information Room (Room 127A) for individual conversations. Check the posted schedule at the NIEHS booth 1129 for specific times staff members will be available all week to answer your questions about the scientific review or grant opportunities. The schedule also will be available in the Registration area and in Room 127A, and during the "Strategies for Funding Opportunities: Brown Bag Luncheon." On Wednesday, the Research Funding Information Room will host webinars with review staff who are unable to attend the Annual Meeting.

Tuesday Morning, March 25
9:45 AM to 10:45 AM
Room 101A West

E

Exhibitor-Hosted Session: Beyond the Basics: Specialized Ocular Evaluations in Systemic Toxicology Studies

Presented by:
Charles River

Many of the pathways targeted in novel therapeutics development also exist in the eye. Inhibiting these pathways may induce unwanted ocular side effects. This session highlights compound classes of concern, specialized techniques and endpoints to assess ocular structure and function in preclinical studies, translatability to the clinic and case examples.

Tuesday Morning, March 25
9:45 AM to 10:45 AM
Room 101C West

E

Exhibitor-Hosted Session: Dried Blood Spots (DBS) in Toxicology: Can Science Overcome the Regulatory Challenge?

Presented by:
Algorithme Pharma

This session will focus on methods to overcome limitations of dried blood spot analysis and highlight the precut technique for use in analyzing new molecular entities and biomarkers. It will include the recent IQ recommendations on refining DBS to meet regulatory requirements.

Tuesday Morning, March 25
9:45 AM to 10:45 AM
Room 106C West

E

Exhibitor-Hosted Session: Nanomaterial Characterization Techniques in Regard to Current EU Regulations

Presented by:
Malvern Instruments

Nanomaterials legislation increasingly impacts biocides, cosmetics, and food labeling sectors. The recent implementation of the European Cosmetics Regulation 1223/2009 requires cosmetics containing nanomaterials to be thoroughly assessed for safety. Aside from reporting toxicological profiles of nanomaterials, characterization is to include size distribution, as well as physical and chemical properties.

Tuesday Morning, March 25
9:45 AM to 10:45 AM
Room 106A West

E

Exhibitor-Hosted Session: Nonclinical Juvenile Toxicity Testing: Lessons Learned

Presented by:
MPI Research

Approval of drugs currently used in pediatric patients requires a special risk/benefit assessment. In February 2006 the US FDA issued the first guideline in the industry, titled "Guidance for Industry of Nonclinical Safety Evaluation of Pediatric Drug Products." Since then the industry has gained enormous experience.

Tuesday Morning and Afternoon, March 25
10:30 AM to 2:30 PM
Exhibit Hall *(Across from SOT Pavilion, Booth 1623)*

High School Poster Exposition

Chairperson(s): *Daniel E. Arrieta, Chevron Phillips Chemical Company LP, The Woodlands, TX.*

Sponsor(s):
Education Committee
K–12 Subcommittee

High school student research related to toxicology is featured in an area across from SOT Pavilion. This display recognizes student effort and provides the high school students who have engaged in research with scientific meeting experience. Meeting attendees are invited to drop by to visit with these outstanding potential future toxicologists. More information is available on the SOT Annual Meeting website.

Tuesday Morning, March 25
11:00 AM to 12:00 Noon
Room 101C West

E

Exhibitor-Hosted Session: Developing LC-MS/MS Methods for Common Lipids Used in Lipid Formulations Employed in Drug Delivery

Presented by:
Tandem Labs

Liposomal formulations for plasmid DNA and oligonucleotides have introduced a new way of increasing bioavailability of these active therapeutic agents. With lipid micelles used as dosing vehicles for new drug development, the interest in quantifying lipids has grown. This presentation will discuss developing a formulation lipid assay for cationic/pegylated lipids.

Program Description (Continued)

Tuesday Morning, March 25
11:00 AM to 12:00 Noon
Room 101A West

E

Exhibitor-Hosted Session: Pathology Working Groups (PWGs): Definition, Application in Toxicity and Carcinogenicity Studies, and Case Presentations

Presented by:
EPL, Inc.

A Pathology Working Group (PWG) is a specialized type of panel review composed of a group of expert pathologists convened to answer specific questions regarding study results to provide an independent, unbiased opinion. PWGs are often convened to address equivocal study findings and questions from regulatory agencies.

Tuesday Morning, March 25
11:00 AM to 12:00 Noon
Room 106A West

E

Exhibitor-Hosted Session: Practicalities of Juvenile, Inhalation, and Safety Pharmacology Studies in the Minipig

Presented by:
Ellegaard Göttingen Minipigs

Increasingly the minipig is being used for more diverse and increasingly complicated study designs. This complexity presents unique challenges and considerations that require overcoming to ensure study integrity and easier data interpretation.

Tuesday Morning, March 25
11:00 AM to 12:00 Noon
Room 106C West

E

Exhibitor-Hosted Session: Big Blue® Transgenic Rodent Mutation Assay and Novel Renal Proximal Tubule Epithelial Cell Line (RPTECs)—Fulfillment of an Unmet Need in Genetic Toxicology and Nephrotoxicity

Presented by:
Sigma-Aldrich

With high false-positive rates in mammalian *in vitro* genetox assays, the Big Blue® Assay fulfills an unmet need to investigate specific MOA and help resolve positive *in vitro* genetox studies. ZFN engineered primary Renal Proximal Tubule Epithelial Cells provide a robust, predictive cell line for nephrotoxicity and transporter assays.

TUESDAY AFTERNOON

Tuesday Afternoon, March 25
12:00 Noon to 1:30 PM
Room 221

FS

Research Funding Session: Strategies for Funding Opportunities: Brown Bag Luncheon

Chairperson(s): *David Dorman, North Carolina State University, Raleigh, NC.*

Sponsor(s):
Research Funding Committee

Investigators from various federal agencies will be on hand for this luncheon meeting to talk about the art of preparing successful grant packages. Panelists will talk about the grant submission process and offer advice about how to submit a potentially successful grant and offer tips about how to make their submission distinct.

Tuesday Afternoon, March 25
12:00 Noon to 1:30 PM
Sheraton Camelback

Association of Scientists of Indian Origin Special Interest Group Lunch and Learn

Tuesday Afternoon, March 25
12:00 Noon to 1:30 PM
Room 231A

Ethical, Legal, and Social Issues Specialty Section Meeting/ Luncheon

Tuesday Afternoon, March 25
12:00 Noon to 1:30 PM

Networking Time

You are encouraged to connect and engage with your colleagues today between sessions as only networking events and Exhibit Hall activities are scheduled during this time.

Tuesday Afternoon, March 25
12:00 Noon to 1:30 PM
Room 222A

Northeast Regional Chapter Student Luncheon

Program Description (Continued)

Tuesday Afternoon, March 25
12:00 Noon to 1:15 PM
Room 105B West
(Ticket Required)

Postdoctoral Assembly Luncheon

Chairperson(s): *Ebany Martinez-Finley, The MIND Research Network, Albuquerque, NM.*

Sponsor(s):
Postdoctoral Assembly

Amidst the hubbub of Annual Meeting events, the Postdoctoral Assembly (PDA) Luncheon is time for postdocs to relax, celebrate achievements, and have fun! All postdocs are invited to this casual luncheon organized by the PDA Executive Board. The Best Postdoctoral Publication Award will be given to three postdoctoral scholars, and postdoc award recipients from SOT Regional Chapters, Special Interest Groups, and Specialty Sections will be recognized. The PDA Board will review the year's accomplishments and share their vision for the future. Newly elected Executive Board members for 2014–2015 will be introduced. Door prizes are always a big hit and add to the fun of the event. Postdocs should reserve a ticket for $10 when they register for the Annual Meeting. Guests should plan to arrive by 12:30 pm in order to be served.

Tuesday Afternoon, March 25
12:15 PM to 1:15 PM
Room 101C West

Exhibitor-Hosted Session: Analysis of Failed Pharmaceutical Compounds in the BioMAP Platform of Primary Human Cell Systems

Presented by:
DiscoveRx Corporation, BioSeek Division

This session will bring together various stakeholders (academic, government, and industry) to discuss the analysis of a recently released dataset generated on failed pharmaceutical compounds that have been profiled in the BioMAP platform of primary human cell and co-culture assays as a part of the US EPA's ToxCast program.

Tuesday Afternoon, March 25
12:15 PM to 1:15 PM
Room 106A West

Exhibitor-Hosted Session: Comparative Placental Transfer of Biologicals: Preclinical Alternatives to the Nonhuman Primate?

Presented by:
WIL Research

This session will provide the latest information about Mab transfer, including human IgG1 in the mouse and to compare with other laboratory species, such as the rat and minipig. Discussion will attempt to put in perspective the relevance of the use of these preclinical species for drug candidate development.

Abstract #

Tuesday Afternoon, March 25
12:15 PM to 1:15 PM
Room 101A West

Exhibitor-Hosted Session: From Systematic Review to Assessment Development: Managing Big (and Small) Datasets with DRAGON

Presented by:
ICF International

Systematic literature review of toxicology, epidemiology, and exposure data for risk assessment purposes can require assessment of thousands of references. To inform decisions, data must be collected and evaluated and all decisions transparently documented. This session will describe the DRAGON suite of tools developed by ICF to streamline this process.

Tuesday Afternoon, March 25
12:15 PM to 1:15 PM
Room 106C West

Exhibitor-Hosted Session: Using the xCELLigence® RTCA Cardio System for Assessment of Preclinical Cardiac Safety

Presented by:
ACEA Biosciences, Inc.

Cardiac toxicity is a major concern in drug development. It's imperative that clinical candidates are thoroughly tested for adverse effects earlier in the drug discovery process. This presentation covers the utility of ACEA Biosciences xCELLigence RTCA Cardio System in conjunction with stem cell-derived cardiomyocytes for assessment of compound risk.

Tuesday Afternoon, March 25
1:00 PM to 4:30 PM
Exhibit Hall

Poster Session: Carcinogenesis II

Chairperson(s): *Gayathri Chadalapaka, Texas A&M University, VTPP, College Station, TX.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *1:00 PM–2:45 PM*

#1088 **Poster Board Number 101**
Effect of a Nutrient Mixture on Matrix Metalloproteinase-9 Dimers in Various Cancer Cell Lines. *M. Roomi*, M. Rath, and A. Niedzwiecki. Dr. Rath Research Institute, Santa Clara, CA.

#1089 **Poster Board Number 102**
Increased Susceptibility of Rats versus Mice to N-Butyl-N-(4-hydroxybutyl) Nitrosamine (BBN)-Induced Urinary Bladder Tumors. *M. Tirmenstein*[1], E. Janovitz[2], Y. Song[3], S. Chen[3], K. Phillips[3], T. Dorr[1], *M. J. Graziano*[3], and *T. P. Reilly*[3]. [1]Bristol-Myers Squibb, New Brunswick, NJ; [2]Bristol-Myers Squibb, Hopewell, NJ; and [3]Bristol-Myers Squibb, Princeton, NJ.

Program Description (Continued)

Abstract #

#1090 **Poster Board Number 103**
Reduced Body Weight Gain Prolongs Early-Life Levels of Tyrosine Hydroxylase Expression in Hypothalamic Tuberoinfundibular (TIDA) Neurons in Wistar Rats. *S. Plummer*[1], M. Beltran[1], N. Kuan[1], M. Millar[2], R. Weigand[3], *R. Currie*[4], *R. Green*[4], and *J. Wright*[4]. [1]MicroMatrices Associates Ltd, Dundee, United Kingdom; [2]MRC Centre for Reproductive Health, Edinburgh, United Kingdom; [3]MRC Centre for Inflammation Research, Edinburgh, United Kingdom; and [4]Syngenta Ltd, Bracknell, United Kingdom.

#1091 **Poster Board Number 104**
The Effects of Testosterone on NNK-Induced Lung Tumorigenesis in Female and Male A/J Mice. Y. Nakano[1], *M. Yokohira*[1], F. Ninomiya[1], S. Kishi[1], K. Yamakawa[1], S. Kanie[1], K. Saoo[1,2], and K. Imaida[1]. [1]Onco-Pathology, Kagawa University, Faculty of Medicine, Kita-gun, Kagawa, Japan; and [2]Tomakomai City Hospital, Tomakomai, Hokkaido, Japan.

#1092 **Poster Board Number 105**
Activation of ERK1/2 on NNK-Induced Lung Carcinogenesis in A/J Mice. K. Yamakawa[1], S. Kishi[1], *M. Yokohira*[1], Y. Nakano[1], F. Ninomiya[1], S. Kanie[1], K. Saoo[2], and K. Imaida[1]. [1]Onco-Pathology, Kagawa University, Faculty of Medicine, Kita-gun, Kagawa, Japan; and [2]Tomakomai City Hospital, Tomakomai, Hokkaido, Japan.

#1093 **Poster Board Number 106**
Effects of Gonadectomy on Lung Carcinogenesis Induced by 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanone (NNK) in Both Sexes of A/J Mice. F. Ninomiya, *M. Yokohira*, S. Kishi, Y. Nakano, K. Yamakawa, T. Inoue, T. Kuno, and K. Imaida. Onco-Pathology, Kagawa University, Faculty of Medicine, Kita-gun, Kagawa, Japan.

#1094 **Poster Board Number 107**
7-GSH-Pyrrole Adducts Is a Potential Active Metabolite Leading to Pyrrolizidine Alkaloid-Induced Cytotoxicity and Tumorigenicity. Q. Xia[1], L. Ma[1], L. Cai[2], and P. Fu[1]. [1]NCTR, FDA, Jefferson, AR; and [2]Biotranex LLC, Monmouth Junction, NJ. Sponsor: *L. Guo*.

#1095 **Poster Board Number 108**
ALDH1B1 Is Required for Colon Tumorigenesis by Modulating WNT-Signaling and Metabolizing Retinaldehyde. *S. Singh*[1], J. Arcaroli[3], *Y. Chen*[1], *B. C. Jackson*[1], W. Messersmith[3], D. Orlicky[4], D. Thompson[2], and *V. Vasiliou*[1]. [1]Department of Pharmaceutical Sciences, University of Colorado Anschutz Medical Campus, Aurora, CO; [2]Department of Clinical Pharmacy, University of Colorado Anschutz Medical Campus, Aurora, CO; [3]Division of Medical Oncology, University of Colorado School of Medicine, Aurora, CO; and [4]Department of Pathology, University of Colorado School of Medicine, Aurora, CO.

#1096 **Poster Board Number 109**
Increased Growth and Tumorigenicity of MCF-7 Breast Cancer Cells by Chronic Exposure to Oxidative Stress. *P. S. Mahalingaiah*, *K. P. Singh*, and L. Ponnusamy. Environmental Toxicology, The Institute of Environmental and Human Health (TIEHH), Texas Tech University, Lubbock, TX.

Abstract #

#1097 **Poster Board Number 110**
Effect of Melatonin on Colitis-Associated Colon Carcinogenesis in Mice: Role of Autophagy and Nrf2 Signaling Pathways. *P. P. Trivedi*, and *G. Jena*. Pharmacology and Toxicology, National Institute of Pharmaceutical Education and Research, Mohali, Punjab, India.

#1098 **Poster Board Number 111**
Novel Role of STAT 3 in Anoikis Resistance and Tumor Cell Metastasis. *N. M. Fofaria*, and *S. K. Srivastava*. Biomedical Sciences and Cancer Biology Center, Texas Tech University Health Sciences Center, Amarillo, TX.

#1099 **Poster Board Number 112**
Toxicokinetic Mode-of-Action (MOA) Investigation of Liver Tumors Induced by Chronic Oral Exposure to Biphenyl in Female BDF1 Mice. *J. Klapacz*, F. Zhang, A. J. Clark, K. A. Brzak, and *M. J. Bartels*. TERC, The Dow Chemical Company, Midland, MI.

#1100 **Poster Board Number 113**
Mice with a Heterozygous Deletion of S-Nitrosoglutathione Reductase (GSNOR/ADH5) Display Normal O6-alkylguanine-DNA Alkyltransferase Levels and Are Protected from DEN-Induced Hepatocarcinogenesis. *D. B. Colagiovanni*, S. Mutka, L. Green, W. Schauer, and *G. J. Rosenthal*. Life Sciences, N30 Pharma, Boulder, CO.

#1101 **Poster Board Number 114**
Histone Acetylation Alterations and Monomethylarsonous Acid (MMAIII)-Induced Cell Malignant Transformation. *X. Ren*[1,2], *Y. Ge*[1], Z. Gong[1], H. Zhang[1], and *J. R. Olson*[2,1]. [1]University at Buffalo, Buffalo, NY; and [2]Pharmacology and Toxicology, University at Buffalo, Buffalo, NY.

#1102 **Poster Board Number 115**
The Biology of Srx-Prx1 Interaction: Structure to Molecular Insights. *M. Mishra*, H. Chawsheen, L. Wu, H. Jiang, and Q. Wei. Graduate Center for Toxicology, University of Kentucky, Lexington, KY.

#1103 **Poster Board Number 116**
Differential Tumor Promoting Properties of Low-Molecular-Weight Polycyclic Aromatic Hydrocarbons. R. S. Osgood[1], K. Velmurugan[2], C. Alexander[2], K. Xiong[2], *P. Babica*[4], *B. L. Upham*[3], and A. K. Bauer[2]. [1]Pharmaceutical Sciences, University of Colorado Denver, Aurora, CO; [2]Environmental and Occupational Health, University of Colorado Denver, Aurora, CO; [3]Pediatrics and Human Development, Michigan State University, East Lansing, MI; and [4]RECETOX, Masaryk University, Brno, Czech Republic.

#1104 **Poster Board Number 117**
Transcriptomics to Elucidate Oxidative Stress Mechanisms Involved in Genotoxic and Nongenotoxic Liver Carcinogenesis. L. Deferme, J. Wolters, J. Kleinjans, and J. Briede. Toxicogenomics, Maastricht University, Maastricht, Limburg, Netherlands. Sponsor: *H. van Loveren*.

#1105 **Poster Board Number 118**
Functional Role of Long-Noncoding RNAs in Rhabdomyosarcoma Cells and Tumors. *G. Chadalapaka*[1], *I. D. Jutooru*[1], and *S. H. Safe*[1,2]. [1]VTPP, Texas A&M University, College Station, TX; and [2]Institute of Biosciences and Technology, Texas A&M Health Science Centre, Houston, TX.

Program Description (Continued)

Abstract #

#1106 **Poster Board Number 119**
HOXA Transcript at the Distal Tip (HOTTIP) is a Pro-Oncogenic Long-Noncoding RNA in Pancreatic Cancer. Y. Cheng[1], *I. D. Jutooru*[2], *G. Chadalapaka*[2], and *S. H. Safe*[1,2]. [1]Institute of Biosciences and Technology, Texas A&M Health Science Centre, Houston, TX; and [2]VTPP, Texas A&M University, College Station, TX.

#1107 **Poster Board Number 120**
Determination of Artifacts, the Steady State, and Half-Life of N2-Hydroxymethyl-dG Adducts *In Vitro*, and in a 28-Day 13CD2-Formaldehyde Inhalation Exposure Study. *R. Yu*[1], *B. C. Moeller*[2], *M. L. Doyle-Eisele*[2], *D. Kracko*[2], W. Bodnar[1], *T. B. Starr*[3], and *J. A. Swenberg*[1]. [1]ESE, University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]LRRI, Albuquerque, NM; and [3]TBS Associates, Raleigh, NC.

#1108 **Poster Board Number 121**
Ablation of the bZIP Transcription Factor, CCAAT Enhancer Binding Protein-β (C/EBPβ), in Skin Protects Mice from Skin Cancer Induced by Ultraviolet B Radiation. H. W. Tam, S. Zhu, and *R. C. Smart*. Department of Biological Sciences, Toxicology Program, NC State University, Raleigh, NC.

#1109 **Poster Board Number 122**
Western Diet Accelerates Benzo(a)pyrene [B(a)P]-Induced Colon Tumorigenesis in the PIRC Rat Model. *K. Harris*[1], S. R. Pulliam[1], M. S. Niaz[1], M. K. Washington[2], S. E. Adunyah[1], and *A. Ramesh*[1]. [1]Biochemistry & Cancer Biology, Meharry Medical College, Nashville, TN; and [2]Pathology, Vanderbilt University Medical Center, Nashville, TN.

#1110 **Poster Board Number 123**
Nuclear Receptor-Mediated Effects of the Mammary Carcinogens Benzo[a]pyrene and PhIP in MCF-7 and MDA-MB-231 Cancer Cell Lines. *D. S. Malik*, *R. David*, and *N. J. Gooderham*. Imperial College, London, United Kingdom.

#1110a **Poster Board Number 124**
Estrogen Receptor Alpha Modulation and Differential Cytotoxicity of Caffeic Acid Phenethyl Ester in Prostate Cancer Cells. *M. F. Tolba*[1,2], S. S. Azab[1], A. E. Khalifa[1], *S. Abdel-Rahman*[2], and A. B. Abdel-Naim[1]. [1]Department of Pharmacology and Toxicology, Faculty of Pharmacy, Ain Shams University, Cairo, Egypt; and [2]University of Texas Medical Branch, Galveston, TX.

#1110b **Poster Board Number 125**
Cholorogenic Acid Rich Plum Juice Inhibited AOM Treated Colorectal Aberrant Crypt Foci (Acf): Potential Role of miR143/MTOR Pathway. *N. Banerjee*[1,2], H. Kim[1,2], M. Nemec[1], and S. Talcott[1,2]. [1]Toxicology, Texas A&M University, College Station, TX; and [2]Nutrition and Food Science, Texas A&M University, College Station, TX.

#1110c **Poster Board Number 126**
ARNT Isoforms Differentially Regulate Cancer Cell Growth through a p53-Dependent Mechanism. K. Gardella[1,2,3], I. Muro[2,3], G. Fang[2,3], K. Sarkar[1,2,3], and *C. Wright*[1,2,3]. [1]The Institute for Cellular and Molecular Biology, The University of Texas at Austin, Austin, TX; [2]Division of Pharmacology and Toxicology, College of Pharmacy, The University of Texas at Austin, Austin, TX; and [3]Center for Molecular and Cellular Toxicology, The University of Texas at Austin, Austin, TX.

Abstract #

#1110d **Poster Board Number 127**
Ligand-Dependent Activation of EGFR Mediates Malignant Cell Transformation Induced by Chronic Exposure to Hexavalent Chromium. D. Kim[1]. [1]University of Kentucky, Lexington, KY. Sponsor: *Y. Son*.

#1110e **Poster Board Number 128**
The Effects of Quercetin on the Placental Transport of the Dietary Carcinogen 2-Amino-1-methyl-6-phenylimidazo(4,5-b)pyridine. M. McNerney[1], *M. A. Malfatti*[1], *K. W. Turteltaub*[1], G. Bench[1], and K. Kulp[1]. [1]BBTD, Lawrence Livermore National Labs, Livermore, CA.

#1110f **Poster Board Number 129**
Evaluation of a Potential Mechanism for Formaldehyde-Induced Leukemia in C3B6.129F1-Trp53tm1Brd Mice. *D. L. Morgan*[1], *D. Dixon*[1], M. P. Jokinen[2], D. H. King[1], H. Price[3], G. Travlos[1], R. A. Herbert[1], *J. E. French*[1], and *M. P. Waalkes*[1]. [1]NTP, Research Triangle Park, NC; [2]ILS, Research Triangle Park, NC; and [3]Alion Sci Tech, Research Triangle Park, NC.

#1110g **Poster Board Number 130**
Detection of Endogenous and Exogenous DNA Adducts of Acetaldehyde. *E. Mutlu*[1], W. Bodnar[1], L. Collins[1], *L. Recio*[2], A. Green[2], and *J. A. Swenberg*[1]. [1]Environmental Sciences and Engineering, University of North Carolina, Chapel Hill, NC; and [2]Integrated Laboratory Systems, Research Triangle Park, NC.

Tuesday Afternoon, March 25
1:00 PM to 4:30 PM
Exhibit Hall

PS

Poster Session: Cardiovascular Toxicity and Hemodynamics: An *In Vitro* Approach

Stem Cell Models for Integrated Biology

Chairperson(s): *Timothy O'Toole, University of Louisville, Diabetes and Obesity Center, Louisville, KY.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *2:45 PM–4:30 PM*

#1111 **Poster Board Number 141**
Human Stem Cell-Derived Cardiomyocyte—Bringing Cardiovascular Toxicity Screening to the Front Line. *M. Peters*, *S. D. Lamore*, *J. Sasaki*, and *C. W. Scott*. AstraZeneca, Waltham, MA.

#1112 **Poster Board Number 142**
Utilizing Structural and Functional Endpoints to Evaluate Drug-Induced Cardiotoxicity in Human-Induced Pluripotent Stem Cells. *K. Doherty*, D. Talbert, P. B. Trusk, *R. Wappel*, S. Shell, and *S. Bacus*. Quintiles, Westmont, IL.

#1113 **Poster Board Number 143**
Real-Time Monitoring of iPSC Cardiomyocyte Contractility Assay Using a 96-Well Multielectrode Array System: A Potential Screen for Cardiotoxicity. E. Poulton, J. Morelli, and *Z. Jayyosi*. Predictive and Investigative Tox, DSAR, Sanofi, Framingham, MA.

TUESDAY

Program Description (Continued)

Abstract #

#1114 **Poster Board Number 144**
A Novel Model for Proarrhythmia Assessment in iCell Cardiomyocyte Using a Multielectrode Extracellular Recording System. T. Taniguchi, M. Uesugi, A. Ojima, N. Miyamoto, and K. Sawada. Eisai, Tsukuba-shi, Japan. Sponsor: *A. Suganuma*.

#1115 **Poster Board Number 145**
Identification of Pro-Arrhythmic Potential with Human iPS-Derived Cardiomyocytes Using a Multiwell Microelectrode Array (MEA). *C. Strock*, S. Qin, J. Gilbert, and *H. Luithardt*. Cyprotex, Watertown, MA.

#1116 **Poster Board Number 146**
Advanced Cardiotoxicity Screening Using Human Stem Cell-Derived Cardiomyocytes and a Low-Impedance Microelectrode Array System for Proarrhythmic Risk Prediction. E. Navarrete[1], T. Thomas[2], B. Patlolla[4], H. Jiko[1], D. M. Bers[3], and R. Beygui[4]. [1]AlphaMED Scientific, Ibaraki, Osaka, Japan; [2]Neural ID, Redwood City, CA; [3]UC Davis, Davis, CA; and [4]Cardiothoracic Surgery, Stanford University, Stanford, CA. Sponsor: *M. Taylor*.

#1117 **Poster Board Number 147**
Regulation of Superoxide and Mitochondrial Biogenesis by PGC-1α Protects against Doxorubicin-Induced Toxicity in Cardiomyocytes. *S. Peng*[1], H. Yuan[1], J. Guo[1], T. Zhang[1], M. Hou[1], H. Peng[1], J. Li[2], and *P. L. Carmichael*[2]. [1]Academy of Military Medical Sciences, Institute of Disease Control and Prevention, Beijing, China; and [2]Unilever Safety and Environmental Assurance Center, Sharnbrook, Bedfordshire, United Kingdom.

#1118 **Poster Board Number 148**
Automated Patch Clamp and New Impedance of Stem Cell-Derived Cardiomyocytes for Safety Screening and Drug Discovery. C. Bot, G. Okeyo, J. Oestreich, and *R. Haedo*. Nanion Technologies Inc., North Brunswick, NJ.

#1119 **Poster Board Number 149**
Examining the Use of Human Induced Pluripotent Stem Cell-Derived Cardiomyocytes for Exploring Multiple Arrhythmogenic Endpoints in a Single High-Throughput Assay. *R. Whittaker*, R. Vega, F. Cerignoli, and J. Price. Vala Sciences Inc., San Diego, CA.

#1120 **Poster Board Number 150**
Development of a Spontaneously Beating Human Cardiac Microtissue Model for the Study of Drug-Induced Cardiotoxicity. S. Ravenscroft[1,2], A. Pointon[2], M. Cross[1], and *J. Sidaway*[1,2]. [1]MRC Centre for Drug Safety Science, Molecular & Clinical Pharmacology, Institute of Translation Medicine, University of Liverpool, Liverpool, United Kingdom; and [2]Innovative Medicines and Early Development, Drug Safety and Metabolism, Translational Safety, AstraZeneca, Macclesfield, Cheshire, United Kingdom.

#1121 **Poster Board Number 151**
Acrolein and Endothelial Cell Dysfunction: Role of the miRNA let-7a. *W. T. Abplanalp*[1], X. Li[2], N. Cooper[2], *P. Haberzettl*[1], *D. J. Conklin*[1], A. Bhatnagar[1], and *T. O'Toole*[1]. [1]Diabetes and Obesity Center, University of Louisville, Louisville, KY; and [2]Department of Anatomy and Neurobiology, University of Louisville, Louisville, KY.

Abstract #

#1122 **Poster Board Number 152**
Dysfunction of Vascular Smooth Muscle and Vascular Remodeling by Simvastatin. K. Kim[1], S. Kang[1], H. Woo[1], K. Lim[2], M. Lee[3], O. Bae[4], and *J. Chung*[1]. [1]College of Pharmacy, Seoul National University, Seoul, Republic of Korea; [2]College of Pharmacy, Ewha Womans University, Seoul, Republic of Korea; [3]College of Pharmacy, Dongguk University, Goyang, Republic of Korea; and [4]College of Pharmacy, Hanyang University, Ansan, Republic of Korea.

#1123 **Poster Board Number 153**
Mitochondrial Dysfunction and Autophagy in Endothelial Progenitor Cells by High Glucose. K. Kim[1], Y. Shin[1], E. Kim[1], M. Akram[1], M. Noh[2], and *O. Bae*[1]. [1]College of Pharmacy Institute of Pharmaceutical Science and Technology, Hanyang University, Ansan, Republic of Korea; and [2]College of Pharmacy, Seoul National University, Seoul, Republic of Korea.

#1124 **Poster Board Number 154**
Loss of Caveolin-1 Protects against PCB-Induced Vascular Dysfunction by Upregulating Nrf2 and the Antioxidant Response. *M. C. Petriello*[1,2], and *B. Hennig*[2]. [1]Toxicology, University of Kentucky, Lexington, KY; and [2]Superfund Research Program, University of Kentucky, Lexington, KY.

#1125 **Poster Board Number 155**
Uric Acid Induces Endothelial Dysfunction by Vascular Insulin Resistance Associated with the Impairment of Nitric Oxide Synthesis. Y. Choi[1], Y. Yoon[1], K. Lee[1], T. Hien[1], K. Kang[1], K. Kim[1], J. Lee[1], M. Lee[2], S. Lee[3], D. Kang[4], and *B. Lee*[1]. [1]College of Pharmacy, Seoul National University, Seoul, Republic of Korea; [2]Dongguk University, Goyang, Republic of Korea; [3]College of Medicine, Seoul National University, Seoul, Republic of Korea; and [4]Ewha Womans University, Seoul, Republic of Korea.

#1126 **Poster Board Number 156**
Cellular Impedance Assays for Deconvoluting Kinase Inhibitor-Induced Cardiotoxicity. *S. D. Lamore*[1], *C. W. Scott*[1], M. Lamb[2], C. Chuaqui[2], *C. S. Boyer*[1], J. Sagemark[1], L. Carlsson[1], *E. Ahlberg*[1], and *M. Peters*[1]. [1]Drug Safety and Metabolism, AstraZeneca, Waltham, MA; and [2]Oncology Innovative Medicines, AstraZeneca, Waltham, MA.

#1127 **Poster Board Number 157**
TCDD and Omeprazole Up-Regulate Human Platelet Activation via the Aryl Hydrocarbon Receptor (AhR) Nongenomic Pathway. M. Pombo, M. Lame, and F. Tablin. VM Anatomy, Physiology and Cell Biology, University of California Davis, Davis, CA. Sponsor: *L. Van Winkle*.

#1128 **Poster Board Number 158**
IL-33 Cardiovascular Safety Profile Redefined: Lessons Learned from Rat and NHP Cardiomyocytes, KO Mice, and Human GWAS Studies. *T. Brabham*[1], *W. Hu*[1], T. Swanson[2], L. Gauthier[1], J. Heyen[1], T. Wisialowski[1], *T. LaBranche*[1], M. Hemkens[1], J. Jamieson[1], K. Reibling[2], *B. Hollingshead*[1], L. Collis[5], N. Bing[3], L. Bloom[4], K. Nocka[5], M. Kasaian[5], and *M. Vogel*[1]. [1]Drug Safety Research & Devlopment, Pfizer, Andover, MA; [2]Comparative Medicine, Pfizer, Groton, CT; [3]Biotherapeutics Clinical Research, Pfizer, Cambridge, MA; [4]Biotherapeutics Technologies, Pfizer, Cambridge, MA; and [5]Immunoscience Research Unit, Pfizer, Cambridge, MA.

TUESDAY

Education-Career Development Sessions
Exhibitor-Hosted Sessions
Featured Sessions
Historical Highlights Session
Informational Sessions
Platform Sessions

Program Description (Continued)

Abstract #

#1129 **Poster Board Number 159**
Utilization of Reverse Phase Protein Array (RPPA) Technology to Evaluate Multikinase Pathway Inhibition in Cell Lysates. *D. Puppala*, S. Dann, and *K. Leach*. Pfizer Inc., Groton, CT.

#1129a **Poster Board Number 160**
Altered Hemodynamics Play a Critical Role in Fenoldopam-Induced Mesenteric Vasculitis in the Rat. B. R. Wamhoff[1], M. Simmers[1], B. Cole[1], A. Mackey[1], D. Manka[1], and B. Blackman[1]. [1]HemoShear LLC, Charlottesville, VA. Sponsor: *A. Dash*.

#1129b **Poster Board Number 161**
***De Novo* Cyclin D2 Induces Cardiomyocyte Proliferation in Adult Mouse Hearts.** *L. Zhan*[1], M. Soonpaa[1], S. Reuter[1], and L. Field[1]. [1]Riley Heart Research Center, Division of Pediatric Cardiology, Indiana University School of Medicine, Indianapolis, IN.

#1129c **Poster Board Number 162**
The Effect of Endocrine-Disrupting Chemicals on Human Stem Cell-Derived Cardiomyocytes. *N. Posnack*[1], H. Ding[2], G. Stybayeva[3], Z. Karabekian[1], M. Laflamme[2], and N. Sarvazyan[1]. [1]The George Washington University, Washington, DC; [2]University of Washington, Seattle, WA; and [3]University of California, Davis, CA.

#1129d **Poster Board Number 163**
Smoke Extracts from Tobacco Cigarettes, but Not E-Cigarettes, Delay Cardiac Maturation *In Vitro* and *In Vivo*. P. J. Hofsteen[1], N. Palpant[1], L. Pabon[1], H. Reineke[1], and C. Murry[1]. [1]University of Washington, Seattle, WA. Sponsor: *R. Peterson*.

#1129e **Poster Board Number 164**
Engineered Heart Tissues for Cardiotoxicity Testing. T. Wakatsuki[1], and M. Conway[1]. [1]InvivoSciences, Inc., Madison, WI. Sponsor: *K. Dreher*.

#1129f **Poster Board Number 165**
CYP2J2 Inhibition in Cardiac Tissue Could Lead to Drug-Induced Cardiotoxicity. *R. Totah*[1], E. Evangelista[1], and L. Santana[2]. [1]Medicinal Chemistry, University of Washington, Seattle, WA; and [2]Physiology and Biophysics, University of Washington, Seattle, WA.

Abstract #

Tuesday Afternoon, March 25
1:00 PM to 4:30 PM
Exhibit Hall

PS

Poster Session: Receptors

Chairperson(s): *Lauren M. Aleksunes, Rutgers University, Piscataway, NJ.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *1:00 PM–2:45 PM*

#1130 **Poster Board Number 201**
Microbiome-Derived Tryptophan Metabolites and Their Aryl Hydrocarbon Receptor-Dependent Agonist and Antagonist Activities. U. Jin[1], S. Lee[1], G. Sridharan[2], K. Lee[2], A. Jayaraman[3,4], R. Chapkin[5], R. Alaniz[4], and *S. H. Safe*[1,6]. [1]Institute of Biosciences & Technology, Texas A&M Health Science Center, Houston, TX; [2]Chemical & Biological Engineering, Tufts University, Medord, MA; [3]Chemical Engineering, Texas A&M University, College Station, TX; [4]Microbial & Molecular Pathogenesis, Texas A&M Health Science Center, College Station, TX; [5]Nutrition & Food Science, Texas A&M University, College Station, TX; and [6]Veterinary Physiology & Pharmacology, Texas A&M University, College Station, TX.

#1131 **Poster Board Number 202**
NR4A1 Antagonists Inhibit Breast Cancer Cell Growth, Survival, and Migration. E. Hedrick[1], *U. Jin*[2], *S. H. Safe*[1,2], and S. Lee[2]. [1]Veterinary Physiology & Pharmacology, Texas A&M University, College Station, TX; and [2]Institute of Biosciences & Technology, Texas A&M Health Science Center, Houston, TX.

#1132 **Poster Board Number 203**
AhR Knockout Rats Are Insensitive to Changes in Tissue Pathology and Serum Chemistry Markers following 4-Week Repeated-Dose Exposure to TCDD. *R. Budinsky*[1], R. Hukkanen[1], M. Lawson[1], *A. Nyska*[2], R. Manno[3], A. Grassetti[3], D. Layko[4], *J. Rowlands*[1], *J. A. Harrill*[4], and *R. S. Thomas*[4]. [1]The Dow Chemical Company, Midland, NC; [2]Sackler School of Medicine, Tel Aviv University, Tel Aviv, Israel; [3]Research Toxicology Centre S.p.A., Pomezia, Rome, Italy; and [4]The Hamner Institutes for Health Sciences, Research Triangle Park, NC.

#1133 **Poster Board Number 204**
Epithelial Aryl Hydrocarbon Receptor Contributes to Intestinal Host-Microbe Homeostasis. I. A. Murray, *K. J. Smith*, *A. Patterson*, and *G. H. Perdew*. Center for Molecular Toxicology and Carcinogenesis, The Pennsylvania State University, University Park, PA.

#1134 **Poster Board Number 205**
Characterisation of the Hepatic Effects of Phenobarbital in Constitutive Androstane Receptor (CAR, NR1I3) Knockout Rats. M. Chamberlain, C. Haines, and *C. R. Elcombe*. CXR Biosciences, Dundee, United Kingdom.

#1135 **Poster Board Number 206**
Effects of Perfluoroalkyls on the Activations of Human CAR3, PXR, and TR Receptors *In Vitro*. *D. J. Ehresman*[1], P. Webb[2], S. D. Ayers[2], *J. Vanden Heuvel*[3,4], *G. Olsen*[1], *S. Chang*[1], and *J. L. Butenhoff*[1]. [1]3M Company, St. Paul, MN; [2]The Methodist Hospital Research Institute, Houston, TX; [3]Pennsylvania State University, State College, PA; and [4]INDIGO Biosciences, State College, PA.

TUESDAY

Poster Sessions
Regional Interest Session
Roundtable Sessions
Symposium Sessions
Thematic Sessions
Workshop Sessions

Program Description (Continued)

Abstract #

#1136 **Poster Board Number 207**
Activation of Aryl Hydrocarbon Receptor (AhR) Synergistically Induces Lipopolysaccharide (LPS)-Mediated Transcription of Proinflammatory Chemokine (c-c motif) Ligand 20 (Ccl20). *T. S. Lahoti*, J. A. Boyer, J. M. Hughes, *I. A. Murray*, and *G. H. Perdew*. Vet. & Biomed. Sci., The Pennsylvania State University, University Park, PA.

#1137 **Poster Board Number 208**
Aryl Hydrocarbon Receptor: Insights into Its Role in Metabolic Homeostasis. N. Girer, *I. A. Murray*, and *G. H. Perdew*. Dept. of Vet. and Biomed. Sci., Penn State University, State College, PA.

#1138 **Poster Board Number 209**
Selective Aryl Hydrocarbon Receptor Modulator (SAhRM) SGA360 Attenuates Lipopolysaccharide (LPS)-Mediated Septic Shock. *G. H. Perdew*[1], *T. S. Lahoti*[1], J. M. Hughes[1], *I. A. Murray*[1], K. Gowda[2], and S. Amin[2]. [1]Vet. and Biomed. Sci., The Pennsylvania State University, University Park, PA; and [2]Penn State College of Medicine, Hershey, PA.

#1139 **Poster Board Number 210**
Adaptation of the Human Ah Receptor to Bind Simple Indoles. T. D. Hubbard[1], D. Desai[3], W. Bisson[2], S. Amin[3], and *G. H. Perdew*[1]. [1]Vet. and Biomed. Sci., Pennsylvania State University, State College, PA; [2]Env. & Mol. Tox., Oregon State University, Corvallis, OR; and [3]Penn State College of Medicine, Hershey, PA.

#1140 **Poster Board Number 211**
Species-Specific Response to Peroxisome Proliferators in Primary Hepatocytes. *P. D. McMullen*, *M. E. Andersen*, *R. A. Clewell*, *S. Bhattacharya*, *E. LeCluyse*, *C. G. Woods*, *B. Sun*, and *S. Pendse*. The Hamner Institutes for Health Sciences, Research Triangle Park, NC.

#1141 **Poster Board Number 212**
Dietary TCDF Impacts the Host-Microbiome Metabolic Axis. L. Zhang[1], J. Correll[1], R. Nichols[1], *R. Hao*[1,3], P. Smith[1], E. Hatzakis[2], *G. H. Perdew*[1], and *A. Patterson*[1]. [1]Veterinary and Biomedical Sciences, Pennsylvania State University, University Park, PA; [2]Department of Chemistry, Pennsylvania State University, University Park, PA; and [3]DuPont Haskell Global Centers for Health and Environmental Sciences, Newark, DE.

#1142 **Poster Board Number 213**
An Aryl Hydrocarbon Receptor from the Salamander *Ambystoma mexicanum* Exhibits Low Responsiveness to 2,3,7,8-Tetrachlorodibenzo-*p*-Dioxin. J. Shoots, and *W. H. Powell*. Biology Department, Kenyon College, Gambier, OH.

#1143 **Poster Board Number 214**
1,1-Bis(3'-indolyl)-1-(aromatic)methanes Are NR4A1 Antagonists That Inhibit Rhabdomyosarcoma Cell Growth and Survival. A. Reeder[1], *G. Chadalapaka*[1], S. Lee[2], and *S. H. Safe*[1,2]. [1]Veterinary Physiology & Pharmacology, Texas A&M University, College Station, TX; and [2]Institute of Biosciences & Technology, Texas A&M Health Sciences Center, Houston, TX.

Abstract #

#1144 **Poster Board Number 215**
Tocopherylquinone As an Activator of the Aryl Hydrocarbon Receptor. S. Olguin[1], Y. Liu[2], *A. M. Fajardo*[2], D. MacKenzie[2], and *T. A. Thompson*[2]. [1]University of New Mexico, Albuquerque, NM; and [2]Pharmaceutical Sciences, UNM Health Sciences Center, Albuquerque, NM.

#1145 **Poster Board Number 216**
Pharmacological and Electrophysiological Characterization of *Ascaris suum* Homopentameric Nicotinic Acetylcholine Receptors in *Xenopus laevis* Oocytes. *M. Abongwa*, *S. Buxton*, S. Verma, A. P. Robertson, and R. J. Martin. Department of Biomedical Sciences, Iowa State University, Ames, IA.

#1146 **Poster Board Number 217**
FICZ Is Not Responsible for the Structural Diversity of Ah Receptor Ligands/Agonists. *M. Denison*, *D. E. DeGroot*, G. He, J. Zhao, and A. Soshilov. Environmental Toxicology, University of California, Davis, CA.

#1147 **Poster Board Number 218**
Characterization of a Full-Length Pregnane X Receptor, *In Vivo* Expression, and Identification of PXR Alleles in Zebrafish. *J. J. Stegeman*[1], A. Kubota[1], *J. V. Goldstone*[1], B. Lemaire[1], A. Bainy[2], R. Lille-Langøy[3], S. I. Karchner[1], M. E. Hahn[1], *M. Celander*[4], and A. Goksøyr[3]. [1]Woods Hole Oceanographic Institution, Woods Hole, MA; [2]Universidade Federal de Santa Catarina, Florianópolis, Brazil; [3]University of Bergen, Bergen, Norway; and [4]University of Gothenburg, Göteborg, Sweden.

#1148 **Poster Board Number 219**
Modes of Interaction between the Chaperone Calreticulin (CRT) and Protein Substrates. *S. J. Wijeyesakere*, S. M. Rizvi, and M. Raghavan. Microbiology and Immunology, University of Michigan Medical School, Ann Arbor, MI.

#1149 **Poster Board Number 220**
Quantitative Profiling of Environmental Chemicals and Drugs for Farnesoid X Receptor Activity. *C. Hsu*[1], J. Zhao[1], *R. Huang*[1], *J. Hsieh*[2], *J. T. Hamm*[2], *X. Chang*[2], *K. A. Houck*[3], and *M. Xia*[1]. [1]NCATS/NIH, Rockville, MD; [2]DNTP/NIEHS/NIH, RTP, NC; and [3]U.S. EPA, RTP, NC.

#1150 **Poster Board Number 221**
Thalidomide Increases Cytochrome P450 Activity and Drug Metabolism in Liver through Direct Activation of Nuclear Receptor CAR and PXR. R. van Beuningen[1], N. Murayama[2], D. Melchers[1], H. Suemizu[3], C. Guillouzo[4], N. Shibata[5], K. Yajima[2], M. Utoh[2], *M. Shimizu*[2], C. Chesne[4], M. Nakamura[3], R. Houtman[1], and *H. Yamazaki*[2]. [1]PamGene International BV, Den Bosch, Netherlands; [2]Showa Pharmaceutical University, Machida, Japan; [3]Central Institute for Experimental Animals, Kawasaki, Japan; [4]Biopredic International, Rennes, France; and [5]Nagoya Institute of Technology, Nagoya, Japan.

#1151 **Poster Board Number 222**
Novel Interaction between PXR and CAR1 in Cytochrome P450 Induction. B. C. Ho[1], L. Huang[2], J. Johnson[2], *P. C. Wilga*[3], and M. I. Morano[1]. [1]Originus Inc, Ann Arbor, MI; [2]Cayman Chemical, Ann Arbor, MI; and [3]CeeTox Inc, Kalamazoo, MI.

TUESDAY

Education-Career Development Sessions
Exhibitor-Hosted Sessions
Featured Sessions
Historical Highlights Session
Informational Sessions
Platform Sessions

Program Description (Continued)

Abstract #

#1152 **Poster Board Number 223**
Effects of PPAR-Alpha Activation on Liver Toxicity in Mice Exposed to Trichloroethylene. *H. Yoo*, *V. Soldatow*, O. Kosyk, W. Bodnar, and *I. Rusyn*. Dept. of Environmental Sciences and Engineering, University of North Carolina at Chapel Hill, Chapel Hill, NC.

#1153 **Poster Board Number 224**
A Central Role of Aryl Hydrocarbon Receptor in High-Fat Diet-Induced Hepatic Steatosis. *C. Xu*[1], *C. Wang*[1], K. Bottum[2], S. Krager[2], C. Jaeger[1], and S. Tischkau[1]. [1]Pharmacology, SIU School of Medicine, Springfield, IL; and [2]Internal Medicine, SIU School of Medicine, Springfield, IL.

#1154 **Poster Board Number 225**
Profiling of Compound-Induced Modulation of CAR-Coregulator Interactions As a Means to Differentiate between Direct and Indirect CAR Activation. J. P. Groten[1], D. Melchers[1], R. van Beuningen[1], *B. Chorley*[2], J. Corton[2], and R. Houtman[1]. [1]PamGene International BV, Den Bosch, Netherlands; and [2]EPA, Research Triangle Park, NC.

#1155 **Poster Board Number 226**
Ethanol-Induced Hepatic Expression of Cytochrome P450 (Cyp) 2b10 Is Dependent on PPARB/D. *T. Koga*[1], *G. Balandaram*[1], M. Goudarzi[2], A. Fornace[2], *F. Gonzalez*[3], and *J. M. Peters*[1]. [1]Pennsylvania State University, University Park, PA; [2]Georgetown University, Washington, DC; and [3]National Cancer Institute, Bethesda, MD.

#1156 **Poster Board Number 227**
Compromised Adaptive Upregulation of Mitochondrial Metabolism and Accumulation of Hepatic Lipids Associate with Alcoholic Liver Damage in Pparα-/- Mice. A. Fornace[1], H. Li[1], J. B. Tyburski[1], T. Mak[1], and *J. M. Peters*[2]. [1]Department of Biochemistry, Georgetown University, Washington, DC; and [2]Department of Veterinary and Biomedical Sciences, Pennsylvania State University, University Park, PA.

#1157 **Poster Board Number 228**
A Novel Pregnane-X-Receptor (PXR) Knockout Rat Model: Characterization and Evaluation of the Role of PXR in Hepatic Lipidosis. E. Trueblood, *P. Nioi*, N. Everds, A. Guerrero, S. Clark, *R. T. Dunn*, J. Chen, J. Schroeder, and *M. Fielden*. Amgen, Thousand Oaks, CA.

#1158 **Poster Board Number 229**
Aryl Hydrocarbon Receptor-Dependent Induction of Liver Fibrosis by Dioxin. X. D. Coumoul[1,2], S. Pierre[1,2], A. Chevallier[1,2], F. Texiera-Clerc[3], L. Bui[1,2], A. Bats[1,2,5], P. Fernandez-Salguero[4], M. Aggerbeck[1,2], S. Lotersztajn[3], and *R. Barouki*[1,2]. [1]INSERM UMR-S 747, Paris, France; [2]University Paris Descartes, Paris, France; [3]IRMB, INSERM U955, Créteil, France; [4]Departamento de Bioquimica y Biologia Molecular, Facultad de Ciencias, Universidad de Extremadura, Badajoz, Spain; and [5]AP-HP, Hôpital Européen Georges Pompidou, Service de Chirurgie Gynécologique Cancérologique, Paris, France.

Abstract #

#1159 **Poster Board Number 230**
Identification of Environmental Chemicals Which Could Contribute to Nonalcoholic Fatty Liver Disease by Nuclear Receptor Activation. L. Al-Eryani[1], B. Wahlang[1], K. C. Falkner[1], H. Clair[1], *R. A. Prough*[2], *J. States*[3], and M. Cave[1,4]. [1]Department of Medicine/GI, University of Louisville, Louisville, KY; [2]Biochemistry, University of Louisville, Louisville, KY; [3]Pharmacology & Toxicology, University of Louisville, Louisville, KY; and [4]Robley Rex VAMC, Louisville, KY.

#1160 **Poster Board Number 231**
Involvement of Constitutive Androstane Receptor (CAR) in the Liver Hypertrophy and Hepatocarcinogenesis Induced by Three Fibrates in Mice. K. Inoue[1], D. Suzuki[1], Y. Ogawa[2], J. Maeda[1], T. Morikawa[1], R. Ichimura[1], M. Takahashi[1], Y. Kodama[3], and *M. Yoshida*[1]. [1]Division of Pathology, National Institute of Health Sciences, Tokyo, Japan; [2]Laboratory of Comparative Toxicology, Azabu University, Sagamihara, Kanagawa, Japan; and [3]Division of Toxicology, National Institute of Health Sciences, Tokyo, Japan.

#1161 **Poster Board Number 232**
***Ginkgo biloba* Extract Is Nongenotoxic *In Vivo* and Constitutive Androstane Receptor Is Involved in Its Hepatocarcinogenesis.** J. Maeda[1], K. Inoue[1], R. Ichimura[1], T. Morikawa[1], Y. Ogawa[2], Y. Kodama[3], and *M. Yoshida*[1]. [1]Division of Pathology, National Institute of Health Sciences, Tokyo, Japan; [2]Laboratory of Comparative Toxicology, Azabu University, Sagamihara, Kanagawa, Japan; and [3]Division of Toxicology, National Institute of Health Sciences, Tokyo, Japan.

#1162 **Poster Board Number 233**
Activation of the Farnesoid X Receptor Restores Hepatic and Intestinal Bile Acid Synthetic Enzyme and Transporter Expression in Pregnant Mice. *J. E. Moscovitz*[1], B. Kong[1], *G. L. Guo*[1,2], and *L. M. Aleksunes*[1,2]. [1]Department of Pharmacology and Toxicology, Rutgers University, Piscataway, NJ; and [2]Environmental and Occupational Health Sciences Institute, Rutgers University, Piscataway, NJ.

#1163 **Poster Board Number 234**
An Animal Model of Intrahepatic Cholestasis of Pregnancy. *Y. Zhang*[1], F. Li[2], K. Krausz[2], P. Vogel[3], *F. Gonzalez*[2], and J. Schuetz[1]. [1]Pharmaceutical Sciences, St. Jude Children's Research Hospital, Memphis, TN; [2]Laboratory of Metabolism, NCI, National Institutes of Health, Bethesda, MD; and [3]Pathology, St. Jude Children's Research Hospital, Memphis, TN.

#1163a **Poster Board Number 235**
Exposure to Aryl Hydrocarbon Receptor Antagonist Alpha-Napthaflavone Blocks Diet-Induced Obesity and Nonalcoholic Fatty Liver Disease. *B. Moyer*[1], I. Rojas[1], and C. Tomlinson[1]. [1]Medicine, Dartmouth College, Hanover, NH.

#1163b **Poster Board Number 236**
Amphiregulin (AREG) and Transforming Growth Factor-alpha (TGF-α) Play Opposing Roles in 2,3,7,8-Tetrachlorodibenzo-*p*-dioxin (TCDD)-Induced Proliferation and EGFR Signaling in Skin. C. Campion[1], C. H. Sutter[1], *T. R. Sutter*[1,2], and J. A. Cole[1]. [1]Biological Sciences, University of Memphis, Memphis, TN; and [2]W. Harry Feinstone Center for Genomic Research, Memphis, TN.

TUESDAY

Program Description (Continued)

Abstract #

Tuesday Afternoon, March 25
1:00 PM to 4:30 PM
Exhibit Hall

PS

Poster Session: Liver

Chairperson(s): *Nathan J. Cherrington, University of Arizona, Tucson, AZ.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *2:45 PM–4:30 PM*

#1164 **Poster Board Number 241**
Hepatic Overexpression of Annexin A1 in Thioacetamide-Primed Mice Protects Them from Liver Failure and Death Induced by a Lethal Dose of Acetaminophen. *V. P. Dadhania*[1], *J. R. Latendresse*[2], and *H. M. Mehendale*[1]. [1]Toxicology, University of Louisiana at Monroe, Monroe, LA; and [2]Toxicologic Pathology Associates, National Centre for Toxicological Research, Jefferson, AR.

#1165 **Poster Board Number 242**
Inhibition of Secreted Phospholipase A2 (sPLA2) Enzyme Leads to Survival of Lethally Acetaminophen-Overdosed Mice. *H. M. Mehendale*[1], *V. P. Dadhania*[1], and *J. R. Latendresse*[2]. [1]Toxicology, University of Louisiana at Monroe, Monroe, LA; and [2]Toxicologic Pathology Associates, National Centre for Toxicological Research, Jefferson, AR.

#1166 **Poster Board Number 243**
Antidiabetic and Antilipidemic Effects of *Artemisia annua* L. Extract Are Mediated by AMPK Activation. J. Lee[1], B. Lee[1], H. Yang[1], Y. Yu[1], S. Park[1], C. Choi[2], H. Kim[1], *H. Jeong*[3], and *Y. Hwang*[1]. [1]Pharmaceutical Engineering, International University of Korea, Jinju, Republic of Korea; [2]Jeollanamdo Institute of Natural Resources Research, Jeollanamdo, Republic of Korea; and [3]College of Pharmacy, Chungnam National University, Daejeon, Republic of Korea.

#1167 **Poster Board Number 244**
***Poria cocos* Alleviates Nonalcoholic Fatty Liver by Inhibiting SREBP-1 Activity via the AMPK-SREBP Signaling Pathway.** B. Lee[1], J. Lee[1], H. Yang[1], Y. Yu[1], S. Park[1], C. Choi[2], H. Kim[1], T. Sung[1], *H. Jeong*[3], and *Y. Hwang*[1]. [1]International University of Korea, Jinju, Gyeongnam, Republic of Korea; [2]Jeollanamdo Institute of Natural Resources Research, Jeollanamdo, Janmheung, Republic of Korea; and [3]College of Pharmacy, Chungnam National University, Daejeon, Republic of Korea.

#1168 **Poster Board Number 245**
Translation Initiation Factor EIF4A1 Mediates TNF-Mediated Apoptosis in Drug-Induced Liver Injury through the ATF4/CHOP Pathway. *B. van de Water*, L. Fredriksson, B. Herpers, and S. Wink. Leiden/Amsterdam Center for Drug Research, Leiden University, Leiden, Netherlands.

#1169 **Poster Board Number 246**
Let's Talk About Sex: Is Nrf2 Responsible for Sex Differences in Susceptibility to Acetaminophen-Induced Hepatotoxicity in Mice? *P. Rohrer*, and *J. E. Manautou*. Department of Pharmaceutical Sciences, University of Connecticut, Storrs, CT.

Abstract #

#1170 **Poster Board Number 247**
1,3-Dicarbonyl Enol Compounds Modify Acetaminophen Hepatotoxicity and Liver Ischemia/Reperfusion Injury. *R. LoPachin*[1], T. Gavin[2], B. Kosharskyy[1], A. Vydynathan[1], and L. Zhang[1]. [1]Anesthesiology, Albert Einstein College of Medicine, Bronx, NY; and [2]Chemistry, Iona College, New Rochelle, NY.

#1171 **Poster Board Number 248**
Proinflammatory Oligonucleotides Do Not Potentiate Drug-Induced Hepatotoxicity in Mice. *H. S. Younis*, B. Adhikari, J. Hsaio, *L. Shen*, G. Hung, and *S. Henry*. Isis Pharmaceuticals, Inc., Carlsbad, CA.

#1172 **Poster Board Number 249**
Lower Susceptibility of Female Mice to APAP Hepatotoxicity: Role of Mitochondrial Glutathione and c-Jun-N-Terminal Kinase. K. Du, *C. D. Williams*, *M. R. McGill*, and *H. Jaeschke*. Pharmacology, Toxicology & Therapeuticals, University of Kansas Medical Center, Kansas City, KS.

#1173 **Poster Board Number 250**
Dissecting the Mechanisms of Liver Regeneration after Acetaminophen Toxicity: From Incremental Dose Model to Role of Wnt/Beta-Catenin Signaling. *B. Bhushan*, *C. Walesky*, P. Borude, G. Edwards, and *U. Apte*. Department of Pharmacology, Toxicology, and Therapeutics, University of Kansas Medical Center, Kansas City, KS.

#1174 **Poster Board Number 251**
Strain Difference in Carbamazepine-Induced Hepatotoxicity. T. Fukushima, M. Nagata, K. Matsuyama, K. Masuno, S. Matsushima, M. Ueno, and M. Torii. Shionogi Co & Ltd, Toyonaka, Osaka, Japan. Sponsor: *K. Nakamura*.

#1175 **Poster Board Number 252**
Assessment of the Effects of Perfluorononanoic Acid on Hepatic Homeostasis. *K. G. Kongsbak*[1,2], K. Skov[1], N. Hadrup[1], and *A. Vinggaard*[1]. [1]National Food Institute, Technical University of Denmark, Søborg, Denmark; and [2]Department of Systems Biology, Technical University of Denmark, Kgs. Lyngby, Denmark.

#1176 **Poster Board Number 253**
Tolerance to Acetaminophen (APAP) Hepatotoxicity in a Mouse Model of Autoprotection Is Associated with Induction of Flavin-Containing Monooxygenase-3 (Fmo3). *S. Rudraiah*, *P. Rohrer*, *I. Gurevich*, *T. P. Rasmussen*, and *J. E. Manautou*. Uni. of Connecticut, Storrs, CT.

#1177 **Poster Board Number 254**
Altered Expression of Hepatic Xenobiotic Metabolism Systems in Transport Deficient (TR-) Rats. L. LeCureux, V. Bhaskaran, and *L. D. Lehman-McKeeman*. Discovery Toxicology, Bristol-Myers Squibb, Lawrenceville, NJ.

#1178 **Poster Board Number 255**
Allopurinol Protects against Acetaminophen-Induced Liver Injury by Aldehyde Oxidase-Mediated Preconditioning. *C. D. Williams*, *M. R. McGill*, and *H. Jaeschke*. KUMC, Kansas City, KS.

Program Description (Continued)

Abstract #

#1179 **Poster Board Number 256**
Hepatoprotective Effects of Olive Leaves Extract (*Olea europaea*) against Acetaminophen-Induced Hepatotoxicity in Isolated Rat Hepatocytes. *O. S. El-Tawil*, S. M. Saleh, E. M. El-Saied, A. F. Tohamy, and *O. S. El-Tawil*. Toxicology Department, Faculty of Veterinary Medicine Cairo University, Giza, Cairo, Egypt.

#1180 **Poster Board Number 257**
The Role of TLR-4 in APAP-Induced Organ Damage. M. Ellithi[1], D. Magdy[1], L. Ali[1], *M. M. Salama*[2,1], M. Elgamal[2,1], A. Abdelaziz[4], H. Sheashaa[3], and M. Sobh[3,1]. [1]Medical Experimental Research Center, Faculty of Medicine, Mansoura University, Mansoura, Dakahleya, Egypt; [2]Department of Toxicology, Faculty of Medicine, Mansoura University, Mansoura, Dakahleya, Egypt; [3]Department of Nephrology, Urology & Nephrology Center, Mansoura, Mansoura, Dakahleya, Egypt; and [4]Pathology, Faculty of Medicine, Mansoura University, Mansoura, Dakahleya, Egypt.

#1181 **Poster Board Number 258**
Mechanisms of Acetaminophen-Induced Cell Death in Primary Human Hepatocytes. *Y. Xie*[1], *M. R. McGill*[1], K. Dorko[1], S. Kumer[2], T. Schmitt[2], J. Forster[2], and *H. Jaeschke*[1]. [1]Department of Pharmacology, Toxicology & Therapeutics, University of Kansas Medical Center, Kansas City, KS; and [2]Department of Surgery, University of Kansas Medical Center, Kansas City, KS.

#1182 **Poster Board Number 259**
Acrolein, a Lipid-Derived Aldehyde Metabolite, Is a Critical Mediator of Alcohol-Induced Endoplasmic Reticulum Stress and Liver Injury. W. Chen[1], J. Zhang[1], C. McClain[1,2], *S. Barve*[1], and *S. Joshi-Barve*[1]. [1]Department of Medicine/GI, University of Louisville, Louisville, KY; and [2]Robley Rex VAMC, Louisville, KY.

#1183 **Poster Board Number 260**
Mechanism of Altered Metformin Distribution in Diabetic Nonalcoholic Steatohepatitis. *A. L. Dzierlenga*, *J. Clarke*, N. Nelson, S. Werts, and *N. J. Cherrington*. Pharmacology & Toxicology, University of Arizona, Tucson, AZ.

#1184 **Poster Board Number 261**
Altered Transcription Initiation and Exonization of the First Intron of the Human Liver ABCC4 Gene in Tissue Specimens from Cases of Acetaminophen Overdose. *X. Gu*, and *J. E. Manautou*. University of Connecticut, Storrs, CT.

#1185 **Poster Board Number 262**
Nrf2 Protects against Furosemide-Induced Hepatotoxicity. Q. Qu[1,2], *J. Liu*[1], H. Zhou[2], and *C. D. Klaassen*[1]. [1]Department of Internal Medicine, University of Kansas Medical Center, Kansas City, KS; and [2]Institute of Clinical Pharmacology, Xiangya Medical School, Central South University, Changsha, Hunan, China.

#1186 **Poster Board Number 263**
Acetaminophen (APAP)-Induced Hepatic Protein Modifications in Liver and Mitochondria of C57/Bl6 Mice Are Reduced by S-Adenosylmethionine (SAMe). A. Schnelle[2], M. S. Wright[1], H. Hedrick[1], J. Brown[1], J. G. Ball[1], and *M. Valentovic*[1]. [1]Pharmacology, Physiology and Toxicology, Marshall University School of Medicine, Huntington, WV; and [2]Wheeling Jesuit University, Wheeling, WV.

Abstract #

#1187 **Poster Board Number 264**
Hepatic Vascular Endothelial Dysfunction in Environmental Toxin-Induced Nonalcoholic Steatohepatitis Is Regulated by TLR4-miR21-GRHL3 Axis. *S. Das*, R. K. Seth, and *S. Chatterjee*. University of South Carolina, Columbia, SC.

#1188 **Poster Board Number 265**
Serum and Hepatic Fibroblast Growth Factor 21 Levels Are Increased in Subjects with Alcoholic Liver Diseases and in Mice Exposed to Alcohol by Decreased Transcriptional Suppression. C. Zhao[1], Y. Liu[1], K. Falkner[2], M. Cave[1,2], *C. McClain*[1,2], and W. Feng[1,2]. [1]Hepatology and Nutrition, University of Louisville, Louisville, KY; and [2]Pharmacology & Toxicology, University of Louisville, Louisville, KY.

#1189 **Poster Board Number 266**
FGF21 Deficiency Exacerbates Chronic Alcohol-Induced Fatty Liver Disease. Y. Liu, C. Zhao, M. Zhang, *C. McClain*, and W. Feng. University of Louisville, Louisville, KY.

#1190 **Poster Board Number 267**
Uric Acid Inhibits Lipid Metabolism through Suppression of Autophagy. K. Lee[1], Y. Choi[1], S. Oh[2], and *B. Lee*[1]. [1]College of Pharmacy, Seoul National University, Seoul, Republic of Korea; and [2]Research Center for Oral Disease, Regulation of the Aged, College of Dentistry, Chousn University, Gwangju, Republic of Korea.

#1191 **Poster Board Number 268**
Platelet Function Inhibits Liver Injury and Fibrosis Induced by a Bile Duct Toxicant. *N. Joshi*[1], *A. K. Kopec*[2], K. L. Towery[2], H. Cline[2], K. Williams[2], M. J. Flick[3], and *J. Luyendyk*[2]. [1]Phm & Tox, Michigan State University, East Lansing, MI; [2]Pathobiology & Diag Inv, Michigan State University, East Lansing, MI; and [3]Division of Experimental Hematology and Cancer Biology, Cincinnati Children's Hospital Medical Center, Cincinnati, OH.

#1192 **Poster Board Number 269**
The RHO-Kinase Pathway Plays a Major Role in the Bile Canalicular Lumen Contraction Observed in Chlorpromazine-Induced Cholestasis. C. Guguen-Guillouzo[1,2], A. Sharanek[2], P. Bachour El Azziz[2], R. Le Guevel[3], and A. Guillouzo[2]. [1]Research and Development, Biopredic International, St Gregoire, Brittany, France; [2]INSERM 991, Rennes University, Rennes, France; and [3]ImPACcell BIOSIT, Rennes University, Rennes, France. Sponsor: *M. Robin*.

#1193 **Poster Board Number 270**
Mechanisms of Cholestasis Induced by Cyclosporin A in Human HepaRG® Cells. A. Guillouzo[1], A. Sharanek[1], P. Bachour El Azziz[1], and C. Guillouzo[2]. [1]Inserm U991, University of Rennes, Rennes, France; and [2]Research & Development, Biopredic International, Sant-Gregoire, France. Sponsor: *M. Robin*.

#1194 **Poster Board Number 271**
***Lactobacillus rhamnosus* GG Culture Supernatant Treatment Attenuates Alcohol-Induced Fat Accumulation in the Liver by Enhancing AMPK-Mediated Fatty Acid Oxidation.** *M. Zhang*, C. Wang, C. Wang, Y. Wang, Y. Liu, *C. McClain*, and *W. Feng*. University of Louisville, Louisville, KY.

TUESDAY

Program Description (Continued)

Abstract #

#1195 **Poster Board Number 272**
Leflunomide Cytotoxicity in Hepatic Cells Involves Mitogen-Activated Protein Kinase Activation, Endoplasmic Reticulum Stress, and Mitochondrial Dysfunction. *J. Xuan*[1], T. Qing[2], *S. Chen*[1], A. Iyer[3], *L. Couch*[1], *L. Shi*[2,1], and *L. Guo*[1]. [1]Division of Biochemical Toxicology, National Center for Toxicological Research/U.S. Food and Drug Administration, Jefferson, AR; [2]School of Pharmacy, Fudan University, Shanghai, China; and [3]University of Maryland, Baltimore, Baltimore, MD.

#1196 **Poster Board Number 273**
Intracellular Signaling and Inflammation in the Mechanism of Furosemide Hepatotoxicity. *H. Jaeschke*, *M. R. McGill*, *C. D. Williams*, and M. Bajt. Pharmacology, Toxicology, and Therapeutics, University of Kansas Medical Center, Kansas City, KS.

#1197 **Poster Board Number 274**
Contribution of PAR-4 and Thrombin to Acetaminophen Hepatotoxicity in Mice. *K. Miyakawa*[1,2], *B. P. Sullivan*[1], R. P. Albee[3], *R. Singhal*[2,3], M. A. Scott[1], *J. P. Luyendyk*[1,2], *P. E. Ganey*[2,3], and *R. A. Roth*[2,3]. [1]Pathobiology and Diagnostic Investigation, Michigan State University, East Lansing, MI; [2]Center for Integrative Toxicology, Michigan State University, East Lansing, MI; and [3]Pharmacology and Toxicology, Michigan State University, East Lansing, MI.

#1198 **Poster Board Number 275**
Hepatic Toxicological and Lipid Peroxidation Assessments of Pioglitazone on Albino Wistar Rats. *O. O. Olubanke*[1], *O. E. Ogunlana*[2], U. K. Stanley[1], J. A. Olagunju[3], and A. A. Akindahunsi[4]. [1]Department of Biological Sciences, Covenant University, Ota, Ogun, Nigeria; [2]Department of Biological Sciences, Crawford University, Igbesa, Ogun, Nigeria; [3]Department of Medical Biochemistry, Lagos State University, Ikeja, Lagos, Nigeria; and [4]Department of Biochemistry, Federal University of Technology, Akure, Ondo, Nigeria.

#1199 **Poster Board Number 276**
NSAIDs Synergize with Inflammatory Cytokines to Kill Hepatocytes: Implications in Idiosyncratic Reactions. *A. Maiuri*[1,2], L. Gora[1], R. Parkins[3], *P. E. Ganey*[1,2], and *R. A. Roth*[1,2]. [1]Pharmacology and Toxicology, Michigan State University, East Lansing, MI; [2]Center for Integrative Toxicology, Michigan State University, East Lansing, MI; and [3]College of Veterinary Medicine, Michigan State University, East Lansing, MI.

#1200 **Poster Board Number 277**
Elevation of Serum Transaminases Due to CSF1-R Inhibition. *K. Ghoreishi*, *J. Piccotti*, *M. Breider*, *R. Magpantay*, *B. D. Jeffy*, *K. Tang*, and Z. Tong. Celgene, San Diego, CA.

#1200a **Poster Board Number 278**
Regorafenib at Clinically Relevant Concentrations Impairs Mitochondrial Functions Causing Necrosis in Primary Rat Hepatocytes. *Q. Shi*[1], Z. Weng[1], and Y. Luo[1]. [1]Division of Systems Biology, National Center for Toxicological Research, US FDA, Jefferson, AR.

Abstract #

#1200b **Poster Board Number 279**
Targeted Serum Bile Acid Profile of Naïve Rats and Dogs over a 24h Time Course. *R. Morgan*[1], *J. Maher*[2], S. Cepa[2], C. Sensenhauser[3], D. Potter[4], L. Webster[5], K. Olson[5], M. Ameri[1], K. Stocking[1], *M. Higgins*[1], N. King[6], and *J. Lawrence*[1]. [1]Toxicology, Amgen, Newbury Park, CA; [2]Toxicology, AbbVie, Chicago, IL; [3]DMPK, JNJ, Spring House, PA; [4]Statistics, Pfizer, Groton, CT; [5]GSK, DMPK, RTP, NC; and [6]PSTC, Critical Path Institute, Tucson, AZ.

#1200c **Poster Board Number 280**
Hepatic Effects of Aqueous Extract of *Chromolaena odorata* in Male Wistar Albino Rats. R. N. Asomugha[1], *O. E. Orisakwe*[2], P. N. Okafor[3], I. I. Ijeh[3], and A. L. Asomugha[4]. [1]Pure and Indusrial Chemistry, Nnamdi Azikiwe University, Awka, Anambra State, Nigeria; [2]Clincal Pharmacy, University of Port Harcourt, Port Harcourt, Rivers State, Nigeria; [3]Biochemistry, Federal University of Agriculture, Umudike Umuahia, Abia State, Nigeria; and [4]Anatomy, Nnamdi Azikiwe University, Nnewi Campus, Anambra, Nigeria.

#1200d **Poster Board Number 281**
CYP2A5 Contributes to Cadmium-Induced Liver Injury but Protects against Alcoholic Liver Disease. *Y. Lu*[1], and *A. Cederbaum*[1]. [1]Mount Sinai School of Medicine, New York City, NY.

#1200e **Poster Board Number 282**
Effects of Red Ginseng Extracts on the Ethanol-Induced Hepatosteatosis *In Vivo* and *In Vitro*. S. Kim[1], J. Sim[1], O. Kwon[1], M. Song[1], H. Kim[1], S. Ki[2], *T. Jeong*[3], and S. Lee[1]. [1]College of Pharmacy, Kyungpook National University, Daegu, Republic of Korea; [2]College of Pharmacy, Chosun University, Gwangju, Republic of Korea; and [3]College of Pharmacy, Yeungnam University, Gyeongsan, Republic of Korea.

#1200f **Poster Board Number 283**
Potential Cytotoxicity of Thiazolidinedione-, Oxazolidinedione- and Succinimide-Ring Containing Compounds in HepG2 Cells. D. Almazrou[1], A. M. Keil[1], T. H. Rushmore[1], R. Tchao[1], and *P. J. Harvison*[1]. [1]Dept. of Pharmaceutical Sciences, University of the Sciences in Philadelphia, Philadelphia, PA.

#1200g **Poster Board Number 284**
Cellular and Genetic Liver Toxicity from Exposure to Polybrominated Diphenyl Ethers (PBDE) in Hepatic Cells *In Vitro*. *J. Gomes*[1], S. Ramoju[2], and D. Krewski[2]. [1]Health Sciences, University of Ottawa, Ottawa, ON, Canada; and [2]Toxicology, Risk Science International, Ottawa, ON, Canada.

#1200h **Poster Board Number 285**
***In Vivo* Optical Imaging of Acetaminophen-Induced Liver Toxicity.** J. D. Peterson[1], K. O. Vasquez[1], and X. Li[1]. [1]Applied Biology, PerkinElmer Inc, Hopkinton, MA. Sponsor: *D. Frazier*.

#1200i **Poster Board Number 286**
Leelamine Is As a Potent Novel Inducer of Hepatic CYP2B. J. Sim[1], W. Nam[1], H. Oh[1], S. Lee[1], D. Lee[1], T. Lee[1], S. Ki[2], *T. Jeong*[3], and S. Lee[1]. [1]College of Pharmacy, Kyungpook National University, Daegu, Republic of Korea; [2]College of Pharmacy, Chosun University, Gwangju, Republic of Korea; and [3]College of Pharmacy, Yeungnam University, Gyeongsan, Republic of Korea.

Program Description (Continued)

Abstract #

Tuesday Afternoon, March 25
1:00 PM to 4:30 PM
Exhibit Hall

PS

Poster Session: Inhalants and Cardiopulmonary: Agents and Methods

New Science and Perspectives Surrounding Environmental and Occupational Exposures

Chairperson(s): *Urmila P. Kodavanti, Robert S. Kerr Environmental Research Center, EPHD/NHEERL, Research Triangle Park, NC, and Anne H. Chappelle, International Isocyanate Institute, Manchester, United Kingdom.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *1:00 PM–2:45 PM*

#1201 **Poster Board Number 301**
Acetaminophen Produces Oxidative Stress in the Airways and Modulates Respiratory Responses to Oxidant Challenge. *G. J. Smith, J. A. Cichocki, J. E. Manautou*, and *J. B. Morris*. School of Pharmacy, University of Connecticut, Storrs, CT.

#1202 **Poster Board Number 302**
Characterization of the Blu E-Cigarette to Define the Composition of Inhaled Material. T. Holmes, *J. D. McDonald*, P. J. Kuehl, and D. Kracko. LRRI, Albuquerque, NM.

#1203 **Poster Board Number 303**
A Mechanistic Study of Cigarette Smoke-Induced COPD in C57BL/6 Mice: The Impact of Switching to a pMRTP. E. Veljkovic[1], B. Phillips[2], M. Peck[1], A. Buettner[3], J. Hoeng[1], G. Vuillaume[1], *A. Hayes*[4], and M. Peitsch[1]. [1]Philip Morris International, Neuchatel, Switzerland; [2]Philip Morris International, Singapore, Singapore; [3]Histovia, GmbH, Overath, Germany; and [4]Spherix Consulting, Rockville, MD.

#1204 **Poster Board Number 304**
Examination of Acute Pulmonary Responses to Various Cookstove Exhaust Emissions. *E. Gibbs-Flournoy*[1], J. Jetter[2], T. Krantz[3], C. King[3], J. Richards[3], M. Daniels[3], E. H. Boykin[3], R. Jaskot[3], R. Harrison[3], J. Griffioen[3], *I. Gilmour*[3], and J. A. Dye[3]. [1]Toxicology, UNC, Chapel Hill, NC; [2]NRMRL, US EPA, RTP, NC; and [3]NHEERL, US EPA, RTP, NC.

#1205 **Poster Board Number 305**
Effect of Near-Road Particulate Matter on Respiratory Responses and Inflammation in Healthy and Ovalbumin-Allergic Mice. *M. A. McGee*[1], J. McGee[2], E. H. Boykin[2], M. Daniels[2], L. B. Copeland[2], D. Andrews[3], J. Richards[2], *I. Gilmour*[2], and *S. H. Gavett*[2]. [1]Curriculum in Toxicology, UNC, Chapel Hill, NC; [2]EPHD, NHEERL, EPA, RTP, NC; and [3]Research Cores Unit, Proteomic Research Core, EPA, RTP, NC.

#1206 **Poster Board Number 306**
Diurnal Variation in Toxicological Effects of Size-Segregated Particulate Samples Collected from High-Air Pollution Situation in China. P. I. Jalava[1], O. Uski[1], S. Kasurinen[1], K. Kuuspalo[1], J. Ruusunen[1], H. Liqing[1], O. Sippula[1], M. Happo[1], H. Koponen[1], J. Nurmela[1], Q. Wang[2], C. Gu[2], J. Jokiniemi[1], and M. Hirvonen[1]. [1]University of Eastern Finland, Kuopio, Finland; and [2]University of Nanjing, Nanjing, China. Sponsor: *M. Viluksela*.

Abstract #

#1207 **Poster Board Number 307**
Particulate Matter from Saudi Arabia Induces Genes Involved in Cholesterol and Lipid Metabolism. *J. A. Brocato*[1], M. Shamy[2], *M. Costa*[1], M. Khoder[2], A. Mansour[2], H. Sun[1], *L. Chen*[1], and T. Kluz[1]. [1]Environmental Medicine, NYU School of Medicine, Tuxedo, NY; and [2]Faculty of Meteorology, Environment, and Arid Land Agriculture, King Abdulaziz University, Jeddah, Saudi Arabia.

#1208 **Poster Board Number 308**
Compounds Collected from Indium-Tin Oxide Production Induce Inflammatory Responses from Cultured Macrophages and Bronchial Epithelial Cells. *M. A. Badding*[1], D. Schwegler-Berry[1], K. J. Cummings[2], and S. S. Leonard[1]. [1]Health Effects Laboratory Division, NIOSH, Morgantown, WV; and [2]Division of Respiratory Disease Studies, NIOSH, Morgantown, WV.

#1209 **Poster Board Number 309**
Differential Diagnosis of Airways Diseases Using the Ratio of FEV1/FVC in Subjects Occupationally Exposed to Powder Particles in a Pharmaceutical Industry in Nigeria. *I. O. Omotosho*[1,2]. [1]Chemical Pathology, University of Ibadan, Ibadan, Nigeria; and [2]University of Ibadan, Ibadan, Nigeria.

#1210 **Poster Board Number 310**
Black Carbon Exposure Levels in New York City's Subway Stations. M. Vilcassim, G. D. Thurston, and *T. Gordon*. Environmental Medicine, New York University, Tuxedo, NY.

#1211 **Poster Board Number 311**
Polyhexamethyleneguanidine Phosphate-Induced Pulmonary Fibrosis Model: Comparison with Bleomycin-Induced Model. J. Song[1], D. Saputra[1], C. Song[2], and K. Lee[1]. [1]Inhalation Center, Korea Institute of Toxicology, Jeongeup, Republic of Korea; and [2]Toxicogenomics Center, Korea Institute of Toxicology, Daejeon, Republic of Korea. Sponsor: *S. Park*.

#1212 **Poster Board Number 312**
Phosgene-Induced Lethal Lung Edema: Novel Mechanism-Based Biomarker of Injury and Treatment. W. Li[1], C. Hai[1], F. Liu[2], and *J. Pauluhn*[3]. [1]Department of Toxicology, Fourth Military Medical University, Xi'an, Shaanxi, China; [2]Beijing Institute of Respiratory Medicine, Capital Medical University, Beijing, China; and [3]Experimental Toxicology, Bayer Pharma, Wuppertal, Germany.

#1213 **Poster Board Number 313**
The Long-Term Toxicity and Mesothelial Cell Reactions Induced by Potassium Octatitanate Fibers (TISMO) in the Left Thoracic Cavity in A/J Female Mice. *M. Yokohira*, S. Kishi, Y. Nakano, K. Yamakawa, F. Ninomiya, S. Kanie, and K. Imaida. Onco-pathology, Kagawa University, Faculty of Medicine, Kita-gun, Kagawa, Japan.

#1214 **Poster Board Number 314**
The Role of HIF1 alpha in Regulating Cobalt-Induced Cytokine Expression in Alveolar Type II Cells. R. Rivera-Soto[1], *S. P. Proper*[2,3], and *J. J. LaPres*[2,3]. [1]Biology, University of Puerto Rico at Arecibo, Arecibo, Puerto Rico; [2]Biochemistry and Molecular Biology, Michigan State University, East Lansing, MI; and [3]Center for Integrative Toxicology, Michigan State University, East Lansing, MI.

Program Description (Continued)

Abstract #

#1215 **Poster Board Number 315**
The Evaluation of the Biopersistence, Pathological Response, and Pleural Translocation of Chrysotile Containing Brake Dust in Comparison to Crocidolite Asbestos following Short-Term Inhalation Exposure. *D. M. Bernstein*[1], R. A. Rogers[2], H. Ernst[3], and J. I. Phillips[4]. [1]Consultant in Toxicology, Geneva, Ge, Switzerland; [2]Rogers Imaging Corporation, Needham, MA; [3]Fraunhofer Institute for Toxicology and Experimental Medicine, Hannover, Germany; and [4]Department of Biomedical Technology, Faculty of Health Sciences, University of Johannesburg, National Institute for Occupational Health, National Health Laboratory Service, Johannesburg, South Africa.

#1216 **Poster Board Number 316**
Klotho Overexpression in Human Lung Epithelial Cells Decrease Sensitivity to Cigarette Smoke-Induced Cell Death. *D. J. Blake*. Biology, Fort Lewis College, Durango, CO.

#1217 **Poster Board Number 317**
Subchronic Inhalation Exposure of Rats to Libby Amphibole and Amosite Asbestos: Effects at 18 Months Post Exposure. *D. E. Dodd*[1], G. A. Willson[2], K. C. Roberts[1], H. G. Wall[2], *A. M. Jarabek*[3], and *S. H. Gavett*[3]. [1]The Hamner Institutes for Health Sciences, RTP, NC; [2]Experimental Pathology Laboratories, Inc., RTP, NC; and [3]U.S. EPA, RTP, NC.

#1218 **Poster Board Number 318**
Sex Differences in Glutathione Levels and Cytotoxicity following Naphthalene or Acrolein Exposure in Nasal Epithelium. *L. S. Van Winkle*[1], *J. Cichocki*[2], R. Mendoza[1], P. Edwards[1], and *J. B. Morris*[2]. [1]Center for Health & Environment, UC Davis, Davis, CA; and [2]School of Pharmacy, Univ of Connecticut, Storrs, CT.

#1219 **Poster Board Number 319**
Sex Differences in Acute Nasal Antioxidant Responses to Inhaled Naphthalene. *J. Cichocki*[1], *L. S. Van Winkle*[2], *G. J. Smith*[1], *A. R. Buckpitt*[2], and *J. B. Morris*[1]. [1]Pharmaceutical Sciences, University of Connecticut, Storrs, CT; and [2]Veterinary Medicine, University of California, Davis, CA.

#1220 **Poster Board Number 320**
Pulmonary Effects and Biokinetics of Nanoparticles: Whole-Body Inhalation Exposure to CeO2 in 5-Day; 28-Day; and 90-Day Rat Studies. J. Keller[1], K. Küttler[1], L. Ma-Hock[1], V. Strauss[1], S. Gröters[1], *K. Wiench*[2], *B. van Ravenzwaay*[1], and *R. Landsiedel*[1]. [1]Toxicology, BASF SE, Ludwigshafen/Rhein, Germany; and [2]Product Safety, BASF SE, Ludwigshafen/Rhein, Germany.

#1221 **Poster Board Number 321**
Inhalation Toxicity of Three Different Types of Nano-Size Organic Pigments. K. Wiench[3], P. Simmendinger[2], L. Ma-Hock[1], S. Gröters[1], *B. van Ravenzwaay*[1], and *R. Landsiedel*[1]. [1]Toxicology, BASF SE, Ludwigshafen/Rhein, Germany; [2]BASF Schweiz, Basel, Switzerland; and [3]Product Safety, BASF SE, Ludwigshafen, Germany.

Abstract #

#1222 **Poster Board Number 322**
Secondary Organic Aerosols Generated from α-Pinene-Amine Mixtures: Effects on the Cardiovascular System. *M. Doyle-Eisele*[1], *A. C. Rohr*[2], E. Knipping[2], *A. K. Lund*[3], J. Brower[1], and *J. D. McDonald*[1]. [1]LRRI, Albuquerque, NM; [2]EPRI, Palo Alto, CA; and [3]University of North Texas, Denton, TX.

#1223 **Poster Board Number 323**
Pulmonary Toxicity Screening of 1,2-Benzisothiazol-3(2H)-One by Intratracheal Instillation. J. Kwon, H. Kim, I. Shim, P. Kim, and K. Choi. National Institute of Environmental Research, Incheon, Republic of Korea. Sponsor: *J. Kwon*.

#1224 **Poster Board Number 324**
Acute Effects of White Spirit with Different Aromatic Content. *L. Ernstgård*[1], A. Iregren[2], S. A. Juran[1], B. Sjögren[1], and *G. Johanson*[1]. [1]Institute of Environmental Medicine, Karolinska Institutet, Stockholm, Sweden; and [2]Swedish Work Environment Authority, Stockholm, Sweden.

#1225 **Poster Board Number 325**
Repeated Intratracheal Powder Aerosol Delivery in Sprague-Dawley Rats. A. Dumais[1], M. Stoute[1], S. Groom[1], R. Tavcar[1], and *R. Forster*[2]. [1]CiToxLAB North America, Laval, QC, Canada; and [2]CiTox LAB France, Evreux, France.

#1226 **Poster Board Number 326**
Refinement of Acute Inhalation Toxicity Studies: The Isolated Perfused Rat Lung As a Screening Tool for Surface-Active Substances. *C. Dasenbrock*, M. Fischer, H. Windt, and W. Koch. Fraunhofer ITEM, Hannover, Germany.

#1227 **Poster Board Number 327**
Quantitative Evaluation of the Relationship between Vapor Characteristics and Upper Respiratory Tract Uptake Efficiencies in Rodents. *K. Neier*[1], M. Glynn[1], *H. A. Fritz*[1], *J. S. Pierce*[1], *A. Urban*[2], S. H. Gaffney[2], and *B. L. Finley*[3]. [1]Cardno ChemRisk, Chicago, IL; [2]Cardno ChemRisk, San Francisco, CA; and [3]Cardno ChemRisk, New York.

#1228 **Poster Board Number 328**
Comparison of the Upper Respiratory Tract Uptake Efficiencies of Vapors in Rats and Mice. *H. A. Fritz*[1], M. Glynn[1], *K. Neier*[1], *J. S. Pierce*[1], *A. Urban*[2], S. H. Gaffney[2], and *B. L. Finley*[3]. [1]Cardno ChemRisk, Chicago, IL; [2]Cardno ChemRisk, San Francisco, CA; and [3]Cardno ChemRisk, Brooklyn, NY.

#1229 **Poster Board Number 329**
A Spray Dryer Method for the Micronization of Small Amounts of Substance in High Yield for Aerosol Generation. F. Acevedo[1], and *P. Gerde*[1,2]. [1]Inhalation Sciences Sweden AB, Novum, Sweden; and [2]IMM, Karolinska Institutet, Stockholm, Sweden.

#1229a **Poster Board Number 330**
Pulmonary Responses after the Inhalation of Fumes from Resistance Spot Welding of Galvanized Zinc-Coated Steel. *J. M. Antonini*[1], A. Afshari[1], W. McKinney[1], T. G. Meighan[1], M. Jackson[1], *B. T. Chen*[1], D. Schwegler-Berry[1], *N. B. Marshall*[1], *S. E. Anderson*[1], A. Cumpston[1], J. Cumpston[1], H. D. Leonard[1], D. G. Frazer[1], and *P. C. Zeidler-Erdely*[1]. [1]NIOSH, Morgantown, WV.

TUESDAY

Education-Career Development Sessions
Exhibitor-Hosted Sessions
Featured Sessions
Historical Highlights Session
Informational Sessions
Platform Sessions

Program Description (Continued)

Abstract #

#1229b **Poster Board Number 331**
90-days Inhalation Toxicity Study of Manufactured Zinc Oxide Nano Particle. *Y. Heo*[1], Y. Kim[1], H. Yang[1], S. Bae[1], *K. Lee*[1], E. Jo[2], I. Eom[2], and B. Lee[2]. [1]Inhalation Toxicology Center, Korea Institute of Toxicology, Jeongeup-Si, Republic of Korea; and [2]Risk Assessment Division, National Institute of Environmental Research, Incheon, Republic of Korea.

#1229c **Poster Board Number 332**
Use of Lung Weight As Biomarker for Assessment of Lung Toxicity in Rat Inhalation Studies. H. Zhang[1], E. Wahlström[1,2], L. Sundius[1,3], and A. Ollerstam[1,4]. [1]AstraZeneca, Mölndal, Sweden; [2]Karolinska Institute, Stockholm, Sweden; [3]Lund University, Lund, Sweden; and [4]LEO Pharma A/S, Copenhagen, Denmark. Sponsor: *S. Platz*.

#1229d **Poster Board Number 333**
Macrophage Solubilization of Indium-Containing Particles As an *In Vitro* Correlate to Pulmonary Toxicity *In Vivo*. *W. M. Gwinn*[1], *W. Qu*[1], R. W. Bousquet[2], H. Price[2], C. Shines[2], G. Taylor[2], *M. P. Waalkes*[1], and *D. L. Morgan*[1]. [1]NTP Laboratory, NIEHS, RTP, NC; and [2]Alion Science and Technology Corp, RTP, NC.

#1229e **Poster Board Number 334**
Acrolein Toxicity in Endothelial Cells Involves Lipid Peroxidation, Protein Damage, and Reduced Cellular GSH and Augmented Monocyte Adhesion. *R. Chitrakar*[1], *Z. Jia*[1], *H. Shah*[1], *A. Speen*[1], J. McCormick[1], P. Nallasamy[1], P; Joubert[1], *H. Zhu*[2], and *Y. Li*[2]. [1]University of North Carolina at Greensboro, Greensboro, NC; and [2]Campbell University School of Osteopathic Medicine, Buies Creek, NC.

#1229f **Poster Board Number 335**
Carbon Capture and Sequestration: An Exploratory Inhalation Toxicity Assessment of Amine Trapping Solvents and Their Degradation Products. D. Kracko[1], *A. C. Rohr*[2], *J. D. McDonald*[1], *M. Doyle-Eisele*[1], *J. Seagrave*[1], E. Knipping[2], and S. Shaw[2]. [1]LRRI, Albuquerque, NM; and [2]Electric Power Research Institute, Palo Alto, CA.

#1229g **Poster Board Number 336**
Potential Exposure Threshold of Chrysotile Asbestos. *T. Hesterberg*[1], *P. A. Nony*[2], P. Watson[4], *M. Berg*[3], and *K. C. Scribner*[2]. [1]Center for Toxicology and Environmental Health, L.L.C., Denver, CO; [2]CTEH, L.L.C., North Little Rock, AR; [3]CTEH, L.L.C., Kemah, TX; and [4]CTEH, L.L.C., Albany, NY.

Abstract #

Tuesday Afternoon, March 25
1:00 PM to 4:30 PM
Exhibit Hall

PS

Poster Session: Inhalants and Cardiopulmonary: PM, Ozone, and Diesel Exhaust

Chairperson(s): *David B. Warheit, DuPont Haskell Laboratories, Newark, DE.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *2:45 PM–4:30 PM*

#1230 **Poster Board Number 337**
Increases in the Serum Acute Phase Proteins after Ozone Exposure Are Associated with Induction of Genes in the Lung but Not Liver. A. R. Henriquez[1], D. Johnson[1], M. Schladweiler[2], J. Richards[2], and *U. P. Kodavanti*[2]. [1]Curriculum in Toxicology, University of North Carolina at Chapel Hill, Chapel Hill, NC; and [2]EPHD/NHEERL/ORD, US EPA, Research Triangle Park, NC.

#1231 **Poster Board Number 338**
Effects of Nitrogen Dioxide and Ozone on the Expression of Proinflammatory and Oxidative Stress Mediators in Primary Human Bronchial Epithelial Cells at the Air-Liquid Interface. *J. E. Mirowsky*[1], K. E. Duncan[1], *S. D. McCullough*[2], L. A. Dailey[2], and *R. B. Devlin*[2]. [1]Center for Environmental Medicine, Asthma, and Lung Biology, University of North Carolina, Chapel Hill, Chapel Hill, NC; and [2]National Health and Environmental Effects Laboratory, US Environmental Protection Agency, Chapel Hill, NC.

#1232 **Poster Board Number 339**
Health Effects Associated with Inhalation Exposure to Diesel Emission Generated with and without CeO2 Nano Fuel Additive. *S. J. Snow*[1,2], *M. Schladweiler*[2], J. McGee[2], *V. L. Bass*[1], D. Nash[3], J. Weinstein[3], R. Willis[3], W. Linak[3], *C. E. Wood*[3], S. Elmore[4], *R. F. Thomas*[2], *D. B. Miller*[1], T. Krantz[2], C. King[2], C. Johnson[5], J. Morrison[5], J. Richards[2], A. Ledbetter[2], *I. Gilmour*[2], and *U. P. Kodavanti*[2]. [1]UNC, Chapel Hill, NC; [2]NHEERL, EPA, RTP, NC; [3]NERL, EPA, RTP, NC; [4]NIEHS, RTP, NC; and [5]Pathology Associates Inc., Durham, NC.

#1233 **Poster Board Number 340**
Histopathological Effects of Inhaled Diesel Exhaust from Diesel Engine in SD Rats. *I. Shim*, H. Kim, J. Kwon, P. Kim, and K. Choi. National Institute of Environmental Research, Incheon, Republic of Korea.

#1234 **Poster Board Number 341**
The Effects on Endothelial Cell Eicosanoid Release with Biodiesel Exhaust Soluble Fraction. *L. Bhavaraju*[1], R. McCormick[2], and *M. C. Madden*[3]. [1]Toxicology, University of North Carolina, Chapel Hill, NC; [2]NREL, Golden, CO; and [3]U.S. EPA, Chapel Hill, NC.

#1235 **Poster Board Number 342**
Effects of Diesel Exhaust on Markers of Genetic and Cardiovascular Toxicity in Rats: Results from the ACES Study. *J. Bemis*[1], *L. M. Hallberg*[2], *D. J. Conklin*[3], M. Kong[3], B. T. Ameredes[2], *J. B. Ward*[2], C. Hernandez[2], S. Zaas[4], C. Norton[4], and *J. K. Wickliffe*[4]. [1]Litron Laboratories, Rochester, NY; [2]University of Texas Medical Branch, Galveston, TX; [3]University of Louisville, Louisville, KY; and [4]Tulane University, New Orleans, LA.

TUESDAY

Program Description (Continued)

Abstract #

#1236 **Poster Board Number 343**
ACES Phase 3: Results from the Chronic Bioassay of Rats Exposed to 2007 Compliant Diesel Emissions. *J. D. McDonald*, *M. L. Doyle-Eisele*, *J. Seagrave*, R. Miller, and A. Gigliotti. LRRI, Albuquerque, NM.

#1237 **Poster Board Number 344**
Involvement of TLR2 and TLR4 and Th1/Th2 Shift in Lung Inflammatory Responses Induced by Fine Ambient Particulate Matter. *X. R. Xia.* Peking University First Hospital, Beijing, China.

#1238 **Poster Board Number 345**
Effect of SNPs and Glycosolyation Site Mutations on TRPA1 Activation by Particulate Material. *C. Deering-Rice*, D. Shapiro, E. G. Romero, and *C. A. Reilly*. Pharm/Tox, University of Utah, Salt Lake City, UT.

#1239 **Poster Board Number 346**
Concentrated Ambient Fine Particulate Matter (CAP, PM2.5)-Induced Vascular Insulin Resistance: Role of Oxidative Stress. *P. Haberzettl*, R. Folz, I. Zelko, A. Bhatnagar, and *D. J. Conklin*. Medicine, University of Louisville, Louisville, KY.

#1240 **Poster Board Number 347**
PM2.5-Induced Tachycardia and Hypertension in Rats Are Linked to Elemental Carbon and Specific Temperature-Resolved Carbon Subfractions. *J. G. Wagner*[1], A. Kamal[2], M. Morishita[3], T. Dvonch[3], *J. R. Harkema*[1], and *A. C. Rohr*[4]. [1]Michigan State University, East Lansing, MI; [2]USEPA, Research Triangle Park, NC; [3]University of Michigan, Ann Arbor, MI; and [4]Electric Power Research Institute, Palo Alto, CA.

#1241 **Poster Board Number 348**
Differential Activation of Transient Receptor Potential Ankyrin-1 by Diesel Exhaust Particulate Materials. V. K. Mitchell, *C. Deering-Rice*, *D. Shapiro*, *E. G. Romero*, and *C. A. Reilly*. Pharmacology and Toxicology, University of Utah, Salt Lake City, UT.

#1242 **Poster Board Number 349**
Ambient PM Exposure and RAGE: Insight into an Emerging Risk for Diabetes and Cardiovascular Disease. *J. M. Vaughan*, B. Narayanan, A. Schmidt, and *L. Chen*. Environmental Health Science, New York University, Tuxedo, NY.

#1242a **Poster Board Number 350**
Intratracheal Coexposure to Diesel Exhaust Particulate and Crystalline Silica in Rats Potentiates the Inflammatory Effects of Silica in the Lungs. *B. M. Yingling*[1,2], *C. E. McLoughlin*[2], J. S. Fedan[1,2], *B. T. Chen*[2], D. Schwegler-Berry[2], *J. M. Antonini*[1,2], and *J. R. Roberts*[1,2]. [1]WVU, Morgantown, WV; and [2]NIOSH, Morgantown, WV.

Abstract #

#1242b **Poster Board Number 351**
Inhalation of Traffic-Derived Particulates and Exposure to Social Stress Differentially Alter Cardiovascular Function in Rats. *A. P. Carll*[1], T. Jaeger[1,2], D. Lamoureux[1,3], R. Sato[1,2], J. E. Clougherty[1,4], V. Papapostolou[1], J. Lawrence[1], E. Diaz[1], and J. J. Godleski[1]. [1]Environmental Health, Harvard School of Public Health, Boston, MA; [2]Faculdade de Medicina da Universidade de Sao Paulo, Sao Paulo, Brazil; [3]Laboratory of Personalized Medicine, Harvard Medical School, Boston, MA; and [4]Environmental & Occupational Health, University of Pittsburgh Graduate School of Public Health, Pittsburgh, PA.

#1242c **Poster Board Number 352**
Potent Protection against Diesel Exhaust Particle-Caused Cytotoxicity and Vasculature Permeable through Regulation of Adherens Junction Distribution by *Ganoderma lucidum*. J. Chang[1], M. Chung[1], J. Wang[1], C. Tseng[2,3], *M. K. Gordon*[4], and *M. Chao*[1,3]. [1]Bioscience Technology, Chung Yuan Christian University, Chung-Li, Taiwan; [2]Biomedical Engineering, Chung Yuan Christian University, Chung-Li, Taiwan; [3]Center for Nanotechnology, Chung Yuan Christian University, Chung-Li, Taiwan; and [4]Joint Program of Toxicology, Rutgers University, Piscataway, NJ.

#1242d **Poster Board Number 353**
Subchronic Effects of Inhaled Ambient Particulate Matter on Glucose Homeostasis and Target Organ Damage in Type 1 Diabetic Rat Model. T. Cheng[1], Y. Yan[1], C. Chou[2], and J. Wang[3]. [1]National Taiwan University, Taipei, Taiwan; [2]Academia Sinica, Taipei, Taiwan; and [3]Kaohsiung Veteran General Hospital, Kaohsiung, Taiwan. Sponsor: *L. Chen*.

#1242e **Poster Board Number 354**
Acute Inhalation Exposure to Mixed Vehicle Emissions Induces Serum Metabolite Changes Related to Oxidative Stress, Lipid Peroxidation, and Energy Metabolism. J. Brower[1], *B. C. Moeller*[1], *M. Doyle-Eisele*[1], S. Stirdivant[3], *J. D. McDonald*[1], and *M. Campen*[2]. [1]Lovelace Respiratory Research Institute, Albuquerque, NM; [2]Pharmaceutical Sciences, University of New Mexico, Albuquerque, NM; and [3]Metabolon Inc., Durham, NC.

#1242f **Poster Board Number 355**
Electrocardiographic Changes in ApoE -/- Mice following Exposure to the Semi-Volatile Fraction of Ultrafine Concentrated Ambient Particulate Matter. A. J. Keebaugh[1], D. Herman[1], P. Pakbin[2], C. Sioutas[2], and *M. T. Kleinman*[1]. [1]UC Irvine, Irvine, CA; and [2]University of Southern California, Los Angeles, CA.

#1242g **Poster Board Number 356**
Replacing Diesel Fuel with Biodiesel: For Better or for Worse? *M. Farcas*[1], *N. Yanamala*[1], D. Schwegler-Berry[1], J. Hummer[3], M. Shurin[5], *E. M. Birch*[4], D. W. Gutkin[5], E. Kisin[1], *V. E. Kagan*[6], A. D. Bugarski[3], and *A. A. Shvedova*[1,2]. [1]HELD/PPRB, CDC/NIOSH, Morgantown, WV; [2]Dept. of Physiology and Pharmacology, WVU, Morgantown, WV; [3]OMSHR, NIOSH/CDC, Pittsburgh, PA; [4]NIOSH/CDC, Cincinnati, OH; [5]Dept. of Pathology, UPMC, Pittsburgh, PA; and [6]Dept. of Environmental and Occupational Health, University of Pittsburgh, Pittsburgh, PA.

Program Description (Continued)

Abstract #

#1242h **Poster Board Number 357**
Mutagenic Potential of Biodiesel Exhaust Particles and Effect of Engine Operating Conditions. E. K. Kisin[1], X. C. Shi[2], M. J. Keane[2], A. D. Bugarski[3], and *A. A. Shvedova*[1]. [1]HELD/PPRB, CDC/NIOSH, Morgantown, WV; [2]HELD/EAB, CDC/NIOSH, Morgantown, WV; and [3]OMSHR, CDC/NIOSH, Pittsburgh, PA.

#1242i **Poster Board Number 358**
Reactive Oxygen Species and Inflammatory Response of Monocytes to Ambient Particles Varies by Highway Proximity. R. E. Muller[1,4], W. Wu[2,4], K. Berhane[3], S. Fruin[3], F. Liu[3], *I. Jaspers*[1,4], *D. Diaz-Sanchez*[5], D. B. Peden[4], and R. McConnell[3]. [1]Curriculum in Toxicology, University of North Carolina at Chapel Hill, School of Medicine, Chapel Hill, NC; [2]School of Public Health, Xinxiang Medical University, Henan Province, China; [3]Preventive Medicine, USC Keck School of Medicine, Los Angeles, CA; [4]Center for Environmental Medicine, Asthma & Lung Biology, University of North Carolina at Chapel Hill, School of Medicine, Chapel Hill, NC; and [5]Office of Research and Development, US Environmental Protection Agency, Durham, NC.

Tuesday Afternoon, March 25
1:00 PM to 4:30 PM
Exhibit Hall

PS

Poster Session: Metals I: Zn, Cd, Hg

Chairperson(s): *Niladri Basu, McGill University, Montreal, QC, Canada.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *1:00 PM–2:45 PM*

#1243 **Poster Board Number 401**
The Role of Zinc in Altering the Detrimental Effects of World Trade Center Particulate Matter on Human Pulmonary Fibroblasts. *A. DiLorenzo*, S. Choi, P. Rivera, F. DaileySterling, and N. Pattnaik. Biology & Molecular Biology, Montclair State University, Montclair, NJ.

#1244 **Poster Board Number 402**
Evaluation of Zinc and Metallothioneins in the Skin Injured after an Experimental Surgery. *E. Brambila*[1], T. Moreno Lopez Malo[1], N. Fernández Tamayo[2], P. Aguilar Alonso[1], and B. Leòn Chàvez[1]. [1]Clinical Sciences, Benemérita Universidad Autónoma de Puebla, Puebla, Mexico; and [2]Pathology, ISSSTEP, Puebla, Mexico.

#1245 **Poster Board Number 403**
Gene Expression and Pathway Analysis of Cadmium Exposure in Human Hepatocarcinoma Cells. L. Cartularo[1], F. Laulicht[1], *H. Sun*[1], *T. Kluz*[1], *J. H. Freedman*[2], and *M. Costa*[1]. [1]Environmental Medicine, New York University, Tuxedo, NY; and [2]NIEHS, Research Triangle Park, NC.

#1246 **Poster Board Number 404**
Zinc Supplementation Abates Cadmium-Induced Upregulation of Glutathione Synthesis and Oxidative Stress. *S. D. Francis Stuart*, R. K. Young, and *A. R. Villalobos*. Texas A&M University, College Station, TX.

Abstract #

#1247 **Poster Board Number 405**
Kidney Specificity in Cd-Induced Accumulation of p53 Dependent on the Inhibition of UBE2D Family Gene Expressions. *M. Satoh*[1], *J. Lee*[1], *M. Tokumoto*[1,2], and Y. Fujiwara[1]. [1]Laboratory of Pharmaceutical Health Sciences, School of Pharmacy, Aichi Gakuin University, Nagoya, Japan; and [2]Laboratory of Chemical Toxicology and Environmental Health, Showa Pharmaceutical University, Tokyo, Japan.

#1248 **Poster Board Number 406**
Cadmium-Induced Apoptosis Is Mediated by p53 Accumulation through the Suppression of Gene Expression of Ube2d Family in Proximal Tubular Cells. *J. Lee*[1], *M. Tokumoto*[1,2], Y. Fujiwara[1], and *M. Satoh*[1]. [1]School of Pharmacy, Aichi Gakuin University, Nagoya, Aichi, Japan; and [2]Showa Pharmaceutical University, Tokyo, Japan.

#1249 **Poster Board Number 407**
Paraoxonase Activity in Subchronic Low-Level Cadmium Exposure. *O. O. Ogunrinola*[1,2], *A. D. Wusu*[1,2], O. K. Afolabi[2,4], *E. A. Balogun*[2,5], *E. O. Abam*[2], *D. O. Babayemi*[2], *O. A. Dosumu*[2], *O. B. Onunkwor*[2], *O. O. Odukoya*[3], and *O. Ademuyiwa*[2]. [1]Biochemistry, Lagos State University, Ojo, Lagos, Nigeria; [2]Biochemistry, Federal University of Agriculture, Abeokuta, Nigeria; [3]Chemistry, Federal University of Agriculture, Abeokuta, Nigeria; [4]Biochemistry, Ladoke Akintola University, Ogbomoso, Nigeria; and [5]Biochemistry, University of Ilorin, Ilorin, Nigeria.

#1250 **Poster Board Number 408**
Cadmium-Induced Lung Emphysema and Carcinogenesis Coupled with Defect in Lysyl Oxidase in the Rat Animal Model. Y. Zhao[1], P. Toselli[1], G. Cheng[2], M. Zheng[2], J. Li[2], and *W. Li*[1]. [1]Biochemistry, Boston University School of Medicine, Boston, MA; and [2]Central Lab, Hebei United University Affinity Hospital, Tangshan, Hebei, China.

#1251 **Poster Board Number 409**
Acute and Chronic Cadmium Exposure Induces Transcriptional Activation of BMP-2 Signaling Cascades in a Human Renal Epithelial Cell Culture Model. *A. Slusser*, A. Holmquist, *S. Somji*, *D. A. Sens*, and *S. H. Garrett*. Pathology, University of North Dakota, Grand Forks, ND.

#1252 **Poster Board Number 410**
Diabetogenic and Obesogenic Effects of Cadmium in Rats and db/db Mice at Clinically Relevant Levels of Exposure. *J. Edwards*[1], J. Nguyen[1], and C. Ackerman[2]. [1]Department of Pharmacology, Midwestern University, Downers Grove, IL; and [2]Edward Via College of Osteopathic Medicine, Spartanburg, SC.

#1253 **Poster Board Number 411**
Analysis of Molecular Mechanisms Involved in Induction of Endoplasmic Reticulum Stress by Cadmium. G. Hwang, K. Du, and *A. Naganuma*. Graduate School of Pharmaceutical Sciences, Tohoku Univ, Sendai, Miyagi, Japan.

#1254 **Poster Board Number 412**
Environmental Metabolome of Mouse Liver Mitochondria and Cell Nuclei. *Y. Go*, M. Orr, Y. Liang, and *D. P. Jones*. Medicine, Emory University, Atlanta, GA.

TUESDAY

Program Description (Continued)

Abstract #

#1255 **Poster Board Number 413**
Gastrointestinal Solubilization and Uptake of Mercury and Selenium from Wild-Harvested Inuit Foods. *B. D. Laird*[1], S. Palaniyandi[1], P. J. Vanié[2], M. Lemire[3], M. Kwan[4], *L. Chan*[2], E. Dewailly[3], and *P. Ayotte*[5]. [1]School of Public Health and Health Systems, University of Waterloo, Waterloo, ON, Canada; [2]Department of Biology, University of Ottawa, Ottawa, ON, Canada; [3]CR-CHUQ, Université Laval, Québec City, QC, Canada; [4]Nunavik Research Centre, Makivik Corporation, Kuujjuaq, QC, Canada; and [5]Institut National de Santé Publique du Québec, Québec City, QC, Canada.

#1256 **Poster Board Number 414**
Semichronic Methylmercury Exposure Alters KCl-Induced Calcium Influx in SH-SY5Y Cells. I. Cruz-Torres, K. L. Long-Roldán, *S. M. Ciotti*, and *W. D. Atchison*. Mich State Univ, E Lansing, MI.

#1257 **Poster Board Number 415**
Brain-Specific Induction of Expression of Ccl4 and Scgb3a1 by Methylmercury in Mice. M. Kim[1], T. Takahashi[1], J. Lee[1,2], G. Hwang[1], and *A. Naganuma*[1]. [1]Laboratory of Molecular and Biochemical Toxicology, Tohoku University, Sendai, Miyagi, Japan; and [2]Laboratory of Pharmaceutical Health Sciences, School of Pharmacy, Aichi Gakuin University, Nagoya, Aichi, Japan.

#1258 **Poster Board Number 416**
Role of Reactive Sulfur Species in Reduction of Methylmercury Toxicity *In Vitro* and *In Vivo*. E. Yoshida[1], T. Toyama[3], and *Y. Kumagai*[2]. [1]Graduate School of Comprehensive Human Sciences, University of Tsukuba, Tsukuba, Japan; [2]Faculty of Medicine, University of Tsukuba, Tsukuba, Japan; and [3]JSPS Research Fellow, Tsukuba, Japan.

#1259 **Poster Board Number 417**
Characterization of Mercury Binding Proteins in the Liver of Northern Fur Seals (*Callorhinus ursinus*). T. Agusa[1], S. Yasugi[1], T. Ikemoto[2], T. Kunito[3], N. Baba[4], S. Tanabe[1], and *H. Iwata*[1]. [1]Ehime University, Center for Marine Environmental Studies (CMES), Matsuyama, Japan; [2]Thermo Fisher Scientific, Yokohama, Japan; [3]Shinshu University, Matsumoto, Japan; and [4]National Research Institute of Fisheries Science, Yokohama, Japan.

#1260 **Poster Board Number 418**
Effects of Single Nucleotide Polymorphisms on Blood Mercury Level of Korean Population. J. Lim[1], H. Kwon[1], H. Kim[3], Y. Kim[3], S. Eom[3], M. Hwang[4], and *J. Park*[2]. [1]Dankook University, Cheonan, Republic of Korea; [2]Chung-Ang University, Seoul, Republic of Korea; [3]Chungbuk University, Chengju, Republic of Korea; and [4]National Institute of Food and Drug Safety Evaluation, Cheongwon, Republic of Korea.

#1261 **Poster Board Number 419**
Ras Sindoor: Ayurveda's Attempt at Detoxifying Mercury. N. Sadekar, and *L. D. Trombetta*. Pharmaceutical Sciences, St. John's University, Queens, NY.

Abstract #

#1262 **Poster Board Number 420**
Involvement of Decreased Activities of Thioredoxin Reductase and Glutathione Peroxidase in the Neuronal Degeneration by Methylmercury in the Developing Rat Cerebrum. *M. Yamamoto*[1], M. Sakamoto[2], and K. Sakai[3]. [1]Department of Basic Medical Science, National Institute for Minamata Disease, Minamata, Kumamoto, Japan; [2]Department of Environmental Science and Epidemiology, National Institute for Minamata Disease, Minamata, Kumamoto, Japan; and [3]Japan Institute for the Control of Aging, Nikken Seil, Fukuroi, Shizuoka, Japan.

#1263 **Poster Board Number 421**
Interaction between Early-Life Methylmercury Exposure and Iron Deficiency in *Daphnia pulex*. S. L. Hudson, *D. Doke*, and *J. M. Gohlke*. Environmental Health Sciences, University of Alabama at Birmingham, Birmingham, AL.

#1264 **Poster Board Number 422**
Sex Differences in the Lipidomics of Subchronic Low-Level Inorganic Mercury Exposure in the Rat. *A. D. Wusu*[1], *O. Ademuyiwa*[2], *O. O. Ogunrinola*[1], *O. K. Afolabi*[2], *E. O. Abam*[2], D. O. Babayemi[2], *E. A. Balogun*[2], and *O. O. Odukoya*[3]. [1]Biochemistry, Lagos State University, Lagos, Nigeria; [2]Biochemistry, Federal University of Agriculture, Abeokuta, Abeokuta, Nigeria; and [3]Chemistry, Federal University of Agriculture, Abeokuta, Abeokuta, Nigeria.

#1264a **Poster Board Number 423**
Cut-Off Values and Benchmark Doses (BMDs) for Cadmium Compared across Human Exposure Settings: Evidence for Protective Pathways? *M. Bhattacharyya*[1]. [1]Georgia Regents University, Augusta, GA.

#1264b **Poster Board Number 424**
MTF-1 Regulates Fra-1 mRNA Expression after Cadmium Exposure. *E. Braithwaite*[1], and *J. H. Freedman*[1]. [1]National Institute of Environmental Health Sciences, Research Triangle Park, NC.

#1264c **Poster Board Number 425**
Immuno-Modulatory Role of N-Acetylcysteine in Cadmium Treated Human Lung Cells. C. Odewumi[1], M. Ruden[1], V. Badisa[1], S. Fils-Aime[1], and L. Latinwo[1]. [1]Department of Biological Sciences, Florida A&M University, Tallahassee, FL. Sponsor: *A. Becker*.

Program Description (Continued)

Tuesday Afternoon, March 25
1:00 PM to 4:30 PM
Exhibit Hall

PS

Poster Session: Metals II

Chairperson(s): *John P. Wise, University of Southern Maine, Maine Center for Toxicology & Environmental Health, Portland, ME.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *2:45 PM–4:30 PM*

Abstract #

#1265 **Poster Board Number 436**
Exposure to Cobalt, Nickel, Cadmium, and Chromium Causes Changes in Gene Expression and Protein Abundance in a Human Liver-Derived Cell Line. M. Permenter[1], D. Kumsher[1], W. E. Dennis[2], J. A. Lewis[2], and J. D. Stallings[2]. [1]Excet, Inc., Fort Detrick, MD; and [2]USACEHR, Fort Detrick, MD. Sponsor: *D. Jackson*.

#1266 **Poster Board Number 437**
Time Course of Lead-Induced Dyslipidemia in Male Albino Rats. *O. Ademuyiwa*[1], E. O. Abam[1], *O. O. Ogunrinola*[1], *A. D. Wusu*[1], O. K. Afolabi[3], O. A. Dosumu[1], O. B. Onunkwor[1], *E. A. Balogun*[1], and O. O. Odukoya[2]. [1]Biochemistry, Federal University of Agriculture, Abeokuta, Ogun, Nigeria; [2]Chemistry, Federal University of Agriculture, Abeokuta, Ogun, Nigeria; and [3]Biochemistry, Ladoke Akintola University of Technology, Ogbomosho, Oyo, Nigeria.

#1267 **Poster Board Number 438**
Failure of Recovery from Lead Acetate-Induced Erythrocyte Oxidative Stress and Alteration of Antioxidant Defense System in Wistar Rats. *A. A. Oyagbemi*[1], T. O. Omobowale[2,1], *A. S. Akinrinde*[1], *A. B. Saba*[1], O. T. Daramola[2], and B. S. Ogunpolu[2,1]. [1]Dept of Vet. Physiology, Biochemistry and Pharmacology, University of Ibadan, Nigeria, Ibadan, Oyo, Nigeria; and [2]Veterinary Medicine, University of Ibadan, Nigeria, Ibadan, Oyo, Nigeria.

#1268 **Poster Board Number 439**
Co(II) and Ni(II) Responses in Human Lung Cells: Uptake, p53 Activation, and Cytotoxic Mechanisms. *A. Zhitkovich*, S. Green, M. Luczak, J. Morse, and Z. DeLoughery. Brown University, Providence, RI.

#1269 **Poster Board Number 440**
Non-Antioxidant Role of N-Acetylcysteine in Chemoprotection against Chromate, Cadmium, and Cobalt. M. W. Luczak, and *A. Zhitkovich*. Pathology and Laboratory Medicine, Brown University, Providence, RI.

#1270 **Poster Board Number 441**
Lack of Reversal from Lead Acetate-Induced Hepatotoxicity and Oxidative Stress in Wistar Rats. *A. B. Saba*[1], *A. A. Oyagbemi*[1], T. O. Omobowale[1,2], *A. S. Akinrinde*[1], O. T. Daramola[1,2], and B. S. Ogunpolu[1,2]. [1]Dept of Vet. Physiology, Biochemistry and Pharmacology, University of Ibadan, Nigeria, Ibadan, Oyo, Nigeria; and [2]Veterinary Medicine, University of Ibadan, Nigeria, Ibadan, Oyo, Nigeria.

Abstract #

#1271 **Poster Board Number 442**
Long-Term Exposure of Mice to Cr(IV) in Drinking Water Disrupts the Oxidative Stress Response Induced by Benzo[a]pyrene in the Proximal Gastrointestinal Tract. *F. J. Sanchez-Martin*, Y. Fan, *J. L. Ovesen*, V. S. Carreira, and *A. Puga*. Department of Environmental Health, University of Cincinnati, Cincinnati, OH.

#1272 **Poster Board Number 443**
Effects of Particulate Hexavalent Chromium on Centrosome Separation and the Centrosomal Kinase Nek2A. *J. Martino*[1,2], *A. L. Holmes*[1,2,3], *H. Xie*[1,2,3], E. Nigg[4], and *J. P. Wise*[1,2,3]. [1]Wise Laboratory of Environmental and Genetic Toxicology, University of Southern Maine, Portland, ME; [2]Maine Center for Toxicology and Environmental Health, University of Southern Maine, Portland, ME; [3]Department of Applied Medical Sciences, University of Southern Maine, Portland, ME; and [4]Biozentrum, University of Basel, Basel, Switzerland.

#1273 **Poster Board Number 444**
Time Course of Lead-Induced Alterations in Paraoxonase Activity in Male Albino Rats. *E. O. Abam*[1,4], *O. O. Ogunrinola*[1], *A. D. Wusu*[1], *O. K. Afolabi*[1], *O. A. Dosumu*[1], *O. B. Onunkwor*[1], *E. A. Balogun*[1,3], *O. O. Odukoya*[2], and *O. Ademuyiwa*[1]. [1]Department of Biochemistry, Federal University of Agriculture, Abeokuta, Ogun State, Nigeria; [2]Department of Chemistry, Federal University of Agriculture, Abeokuta, Ogun State, Nigeria; [3]Department of Biochemistry, University of Ilorin, Ilorin, Kwara State, Nigeria; and [4]Chemical Sciences Department, Biochemistry option, Bells University of Technology, Ota, Ogun State, Nigeria.

#1274 **Poster Board Number 445**
The Unique N and C-Terminal Domains of Metallothionein-3 Influence the Growth and Differentiation of MCF-7 Breast Cancer Cells. *B. Voels*, *S. H. Garrett*, *D. A. Sens*, and *S. Somji*. Pathology, University of North Dakota, Grand Forks, ND.

#1275 **Poster Board Number 446**
Characterization of OH Radicals Induced by Particulate Matter and Associated Species with a High-Throughput Approach. Y. Son[1], *V. Mishin*[2], *W. Welsh*[3], *J. D. Laskin*[3], and Q. Meng[1]. [1]School of Public Health, Rutgers University, Piscataway, NJ; [2]Ernest Mario School of Pharmacy, Rutgers University, Piscataway, NJ; and [3]Robert Wood Johnson Medical School, Rutgers University, Piscataway, NJ.

#1276 **Poster Board Number 447**
The Cytotoxicity and Genotoxicity of Soluble and Particulate Cobalt in Human Lung Fibroblasts. *A. Holmes*[1], L. J. Smith[1], *S. S. Wise*[1], M. Mason[2], T. Zheng[3], and *J. P. Wise*[1]. [1]Wise Laboratory of Environmental and Genetic Toxicology, University of Southern Maine, Portland, ME; [2]Department of Chemical and Biological Engineering, University of Maine, Orono, ME; and [3]Department of Environmental Health Sciences, Yale School of Public Health, New Haven, CT.

Program Description (Continued)

Abstract #

#1277 **Poster Board Number 448**
Spatial Localization and Altered Quantitative Expression of Genes Associated with Alzheimer's Disease in Zebrafish Brains during Normal Senescence and with a Developmental Lead Exposure. *J. Lee*, *S. M. Peterson*, and *J. L. Freeman*. School of Health Sciences, Purdue University, West Lafayette, IN.

#1278 **Poster Board Number 449**
Treatment of Rat Hippocampal Astrocytes with Selenium Compounds Results in Metalloid Accumulation and Release of Cytochrome C. *S. Roy*, and *D. Hardej*. Pharmaceutical Sciences, St. John's University, Jamaica, NY.

#1279 **Poster Board Number 450**
Comparative Toxicity of Hexavalent Chromium (Cr(VI)) in Human and Alligator Cells. *S. Wise*[1], *H. Xie*[1], J. P. Wise[1], C. F. Wise[1], L. Guillette[2], and *J. P. Wise*[1]. [1]University of Southern Maine, Portland, ME; and [2]Medical University of South Carolina, Charleston, SC.

#1280 **Poster Board Number 451**
Interlaboratory Validation of Bioaccessibility Test for Metals. *R. Henderson*[1], V. Verougstraete[2], K. Anderson[3], J. Arbildua[4], *T. O. Brock*[5], T. Brouwers[6], D. Cappellini[7], K. Delbeke[8], G. Herting[9], G. Hixon[1], I. Odnevall Wallinder[9], P. Rodriquez[4], F. Van Assche[10], P. Wilrich[11], and *A. R. Oller*[12]. [1]ToxStrategies, Inc., Durham, NC; [2]Eurometaux, Brussels, Belgium; [3]Oregon State University, Corvallis, OR; [4]Adolfo Ibañez University, Santiago, Chile; [5]Duke University, Durham, NC; [6]ECTX-Consult, Hasselt, Belgium; [7]Kirby Memorial Health Center, Wilkes-Barre, PA; [8]European Copper Institute, Brussels, Belgium; [9]KTH Royal Institute of Technology, Stockholm, Sweden; [10]International Zinc Association, Brussels, Belgium; [11]Freie Universität Berlin, Berlin, Germany, and [12]NiPERA, Inc., Durham, NC.

#1281 **Poster Board Number 452**
Genetic Variation of Iron Metabolism in Mice. H. Irimagawa[1], Y. He[1], D. W. Killilea[2], B. Parks[3], S. T. Hui[3], E. Eskin[4,5], A. J. Lusis[3,4], *C. Vulpe*[1], and *K. E. Page*[1]. [1]Department of Nutritional Science and Toxicology, University of California, Berkeley, Berkeley, CA; [2]Children's Hospital Oakland Research Institute, Oakland, CA; [3]Department of Medicine/ Division of Cardiology, University of California, Los Angeles, Los Angeles, CA; [4]Department of Human Genetics, University of California, Los Angeles, Los Angeles, CA; and [5]Department of Computer Science, University of California, Los Angeles, Los Angeles, CA.

#1282 **Poster Board Number 453**
Cytotoxicity and Epigenetic Effects of Post-Hydraulic Fracturing Flowback Waters in the Marcellus Shale from Pennsylvania. Y. Yao[1], M. Zhong[1], *L. Chen*[1], *J. T. Zelikoff*[1], T. Chen[2], Z. Wu[2], and *M. Costa*[1]. [1]New York University School of Medicine, Tuxedo, NY; and [2]School of Material Science and Engineering, Nanjing University of Science and Technology, Nanjing, Jiangsu, China.

Abstract #

#1283 **Poster Board Number 454**
Tungsten Alters Bone Homeostasis by Decreasing Osteogenesis and Increasing Adipogenesis. *A. M. Bolt*[1,2], M. Flores Molina[1,2], *A. D. Kelly*[1,3], and *K. K. Mann*[1,2,3]. [1]Lady Davis Institute for Medical Research, McGill University, Montreal, QC, Canada; [2]Department of Oncology, McGill University, Montreal, QC, Canada; and [3]Division of Experimental Medicine, McGill University, Montreal, QC, Canada.

#1284 **Poster Board Number 455**
Lead Enhances Antibiotic Resistance in Chicken Enteric Bacterial Flora. *R. M. Gogal*[1], *S. D. Holladay*[1], M. Nisanian[1], R. P. Kerr[1], S. Williams[2], L. Stabler[1], V. McArthur[3], and C. Tuckfield[3]. [1]Vet Biosciences & Diagnostic Imaging, University of Georgia, Athens, GA; [2]Poultry Diagnostic & Research Center, University of Georgia, Athens, GA; and [3]Savannah River Ecology Laboratory, University of Georgia, Athens, GA.

#1285 **Poster Board Number 456**
Neurotoxic Insults Upregulate a Novel Secreted Protein to Promote Cell Survival in Dopaminergic Neuronal Cells During Early Stages of Toxicity. J. Luo, *A. Kanthasamy*, M. Neal, *V. Anantharam*, H. Jin, and *A. Kanthasamy*. Biomedical Sciences, Iowa State University, Ames, IA.

#1286 **Poster Board Number 457**
Acute High-Dose Manganese Inhalation Alters Systemic Iron Metabolism and Impairs Motor Coordination in Rats. J. Chang[1], D. Saputra[2,3], K. Lee[2,3], and *J. Kim*[1]. [1]Pharmaceutical Sciences, Northeastern University, Boston, MA; [2]Inhalation Toxicology Center, Korea Institute of Toxicology, Jeongeup, Republic of Korea; and [3]University of Science and Technology, Daejeon, Republic of Korea.

#1287 **Poster Board Number 458**
A Novel Associated Particle Neutron Elemental Imaging (APNEI) Technology for 3-D Noninvasive *In Vivo* Quantification of Trace Elements in Animal and Human Tissue. *L. H. Nie*[1], and D. Koltick[2]. [1]School of Health Sciences, Purdue University, West Lafayette, IN; and [2]Physics Department, Purdue University, West Lafayette, IN.

#1288 **Poster Board Number 459**
Early-Life Lead Exposure and Drug Abuse: A Novel Pathway to Addiction. *B. Soares*, *K. Stansfield*, *J. L. McGlothan*, and *T. R. Guilarte*. Environmental Health Sciences, Columbia University, New York City, NY.

#1289 **Poster Board Number 460**
Lead Inhibits Presynaptic Neurotransmitter Release in Schaffer Collateral-CA1 Synapses in the Rat Hippocampus: Understanding Mechanism(s). P. K. Stanton[1], X. L. Zhang[1], *J. L. McGlothan*[2], *K. Stansfield*[2], and *T. R. Guilarte*[2]. [1]Dept of Cell Biol & Anat, New York Medical College, New York City, NY; and [2]Environmental Health Sciences, Columbia University, New York City, NY.

#1290 **Poster Board Number 461**
X-Ray Fluorescence Microspectroscopic Analysis of Duodenal Mucosae following Cr(VI) Exposure in Drinking Water. *C. M. Thompson*[1], *D. Proctor*[2], *M. Suh*[2], J. Wolf[3], *L. C. Haws*[4], and M. A. Harris[1]. [1]ToxStrategies, Katy, TX; [2]ToxStrategies, Mission Viejo, CA; [3]Experimental Pathology Laboratories, Sterling, VA; and [4]ToxStrategies, Austin, TX.

TUESDAY

Education-Career Development Sessions
Exhibitor-Hosted Sessions
Featured Sessions
Historical Highlights Session
Informational Sessions
Platform Sessions

Program Description (Continued)

Abstract #

#1291 **Poster Board Number 462**
A Novel Transportable Neutron Activation Analysis System to Quantify Manganese in Bone *In Vivo*: System Setup and Validation. *Y. Liu*, D. Koltick, *W. Zheng*, and *H. L. Nie*. Purdue University, West Lafayette, IN.

#1292 **Poster Board Number 463**
Induction of Heme Oxygenase-1 (HO-1) and Accumulation of Tellurium upon Exposure to Diphenyl Ditelluride and Tellurium Tetrachloride in HT-29 Human Colon Cells. *P. Vij*, and *D. Hardej*. Pharmaceutical Sciences, St. John's University, Queens, NY.

#1293 **Poster Board Number 464**
Translesion Synthesis Defends against Telomere Dysfunction Induced by Hexavalent Chromium. *H. C. Pope-Varsalona*, *F. Liu*, and P. L. Opresko. Environmental and Occupational Health, University of Pittsburgh, Pittsburgh, PA.

#1294 **Poster Board Number 465**
Fish As Models for Investigating Metabolic Disruption Arising from Dietary Selenium Oversupplementation. *D. Janz*, and J. Thomas. Toxicology Centre, University of Saskatchewan, Saskatoon, SK, Canada.

#1295 **Poster Board Number 466**
Effects of Uranyl Acetate on Etoposide-Induced DNA Damage and Repair in Human Bronchial Epithelial Cells (16HBE14o-). *M. Yellowhair*[1], and *R. Lantz*[2]. [1]Cancer Center, The University of Arizona, Tucson, AZ; and [2]Cellular and Molecular Medicine, The University of Arizona, Tucson, AZ.

#1296 **Poster Board Number 467**
Gastric Reduction of Hexavalent Chromium in Fed and Fasted Human Stomach Samples. *S. M. Hays*[1], *C. R. Kirman*[1], *M. Suh*[2], and *D. Proctor*[2]. [1]Summit Toxicology, Lyons, CO; and [2]ToxStrategies, Mission Viejo, CA.

#1297 **Poster Board Number 468**
Temporal Changes in Rat Liver Gene Expression after Cadmium and Chromium Exposure. *M. S. Madejczyk*[1], C. E. Baer[4], W. E. Dennis[3], *V. C. Minarchick*[2], *S. S. Leonard*[2], *D. A. Jackson*[3], J. A. Lewis[3], and J. D. Stallings[3]. [1]ORISE Postdoctoral Fellow at USACEHR, Fort Detrick, MD; [2]National Institute for Occupational Safety and Health, Morgantown, WV; [3]US Army Center for Environmental Health Research, Fort Detrick, MD; and [4]Excet, Inc., Fort Detrick, MD.

#1297a **Poster Board Number 469**
Toxicogenomic Study in Rat Thymus of F1 Generation Offspring following Maternal Exposure to Silver Ion. *J. Yourick*[1], *X. Gao*[1], V. Topping[1], T. Black[1], N. Olejnik[1], Z. Keltner[1], M. Scott[1], and R. Sprando[1]. [1]Division of Toxicology, Office of Applied Research and Safety Assessment, U.S. Food and Drug Administration, Laurel, MD.

Abstract #

#1297b **Poster Board Number 470**
Assessing Toxicity of FeMn Dust Particles from a South African Ferromanganese Smelter Works: *In Vitro* Studies on Primary Rat Astrocytes and BEAS-2B Cells. L. Koekemoer[1], and *M. Gulumian*[1,2]. [1]Toxicology and Biochemistry, National Institute for Occupational Health, Johannesburg, Gauteng, South Africa; and [2]Haematology and Molecular Medicine, University of the Witwatersrand, Johannesburg, Gauteng, South Africa.

#1297c **Poster Board Number 471**
Interference Study of Conventional Assays, Caused by Gold Nanoparticles (AuNPs) Exhibiting Surface Plasmon Resonance (SPR). *M. Gulumian*[1,2], N. Sanabria[1], and C. Andraos[1,2]. [1]Toxicology, NIOH, Johannesburg, Gauteng, South Africa; and [2]Haematology & Molecular Medicine, Wits, Johannesburg, Gauteng, South Africa.

#1297d **Poster Board Number 472**
The Effects of Tellurium Compounds on the Viability of Rat Hippocampal Astrocytes Are Attenuated with Calcium Blocker. *A. Forino*[1], and *D. Hardej*[1]. [1]Pharmaceutical Sciences, St. John's University, Queens, NY.

#1297e **Poster Board Number 473**
Investigating the Potential Carcinogenic Effects of Chronic Tungsten (VI) Oxide Exposure to Immortalize Human Lung Cells. *F. Laulicht*[1], *L. Cartularo*[1], S. Medici[2], M. F. Peana[2], M. A. Zoroddu[2], and *M. Costa*[1]. [1]Environmental Medicine, NYU Langone Medical Center, Tuxedo, NY; and [2]Department of Chemistry and Pharmacy, University of Sassari, Sassari, Sassari, Italy.

#1297f **Poster Board Number 474**
Quercetin Inhibits Cr(VI)-Induced Lung Carcinogenesis by Targeting miR-21-Pdcd4 Signaling Pathway. P. Poyil[1,2], D. Sasidharan Padmaja[1,2], *Y. Son*[1,2], J. Hitron[1,2], *Z. Zhang*[1], and *X. Shi*[1,2]. [1]Graduate Centre for Toxicology, University of Kentucky, Lexington, KY; and [2]Center for Research on Environmental Disease, University of Kentucky, Lexington, KY.

#1297g **Poster Board Number 475**
Application of Lead Isotope Ratios to Lead Poisoning Investigations On-Farm. *J. P. Buchweitz*[1,2], J. Zyskowski[3], L. Stensen[2], and A. Lehner[2]. [1]Pathobiology and Diagnostic Investigation, Michigan State University, East Lansing, MI; [2]Toxicology Section, Michigan State University Diagnostic Center for Population and Animal Health, Lansing, MI; and [3]Nutrition Section, Michigan State University Diagnostic Center for Population and Animal Health, Lansing, MI.

Program Description (Continued)

Abstract #

Tuesday Afternoon, March 25
1:00 PM to 4:30 PM
Exhibit Hall

PS

Poster Session: Arsenic

Chairperson(s): *Xixi Zhou, University of New Mexico, College of Pharmacy, Albuquerque, NM.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *1:00 PM–2:45 PM*

#1297h **Poster Board Number 476**
Chronic Arsenic Exposure *In Vitro* Causes Acquisition of Multiple Tumor Cell Characteristic in Human Pancreatic Epithelial Cells. *W. Qu*[1], and *M. P. Waalkes*[1]. [1]NTP, NIEHS, NIH, Research Triangle Park, NC.

#1297i **Poster Board Number 477**
Chronic Arsenic Exposure Induces Cancer Cell Characteristics in Human Peripheral Lung Epithelial Cells. *R. J. Person*[1], *E. J. Tokar*[1], and *M. P. Waalkes*[1]. [1]NTP, NIEHS, NIH, Research Triangle Park, NC.

#1297j **Poster Board Number 478**
Silencing KRAS Overexpression in Arsenic-Transformed Prostate Stem Cells Results in Signs of Malignant Phenotype Reversal. *N. N. Ngalame*[1], *E. J. Tokar*[1], and *M. P. Waalkes*[1]. [1]NTP, NIEHS, NIH, Research Triangle Park, NC.

#1297k **Poster Board Number 479**
Differential DNA Methylation in Arsenic- or Cadmium-Transformed Malignant Prostate Epithelial Cells. *K. E. Pelch*[1], *E. J. Tokar*[1], *B. Merrick*[1], and *M. P. Waalkes*[1]. [1]NTP, NIEHS, NIH, Research Triangle Park, NC.

#1297l **Poster Board Number 480**
Arsenic Induces an Oncogenic Phenotype in Human Breast Epithelia through an Estrogen Receptor-Independent Pathway by Aromatase Activation. *Y. Xu*[1], *E. J. Tokar*[1], and *M. P. Waalkes*[1]. [1]NTP, NIEHS, NIH, RTP, NC.

#1298 **Poster Board Number 501**
Variable Cytotoxicity and Reactive Oxygen Species Generation in Pulmonary and Aortic Cells Exposed to Inorganic Arsenic and Monomethylarsonous Acid. *R. Khalili*, *B. Welch*, *C. Pace*, J. Kuzhippala, and *J. E. Angermann*. School of Community Health Sciences Environmental Physiology and Toxicology Laboratory, University of Nevada, Reno, Reno, NV.

#1299 **Poster Board Number 502**
Differential Toxicity of Sodium Arsenite (AsIII) and Monomethylarsonous Acid (MMAIII) to Vascular Smooth Muscle and Endothelial Cells. *B. Welch*[1], *R. Khalili*[1], C. Martino[2], and *J. E. Angermann*[1]. [1]School of Community Health Sciences Environmental Physiology and Toxicology Laboratory, University of Nevada, Reno, NV; and [2]Department of Mechanical Engineering, University of Nevada, Reno, NV.

#1300 **Poster Board Number 503**
Arsenic-Induced Glycolysis during Malignant Transformation. *F. Zhao*, H. Li, C. Beeks, *P. Severson*, *B. Futscher*, and *W. T. Klimecki*. Pharmacology and Toxicology, University of Arizona, Tucson, AZ.

Abstract #

#1301 **Poster Board Number 504**
Arsenic Contaminated Drinking Water Deregulates Human Gene Expression Patterns in a Gender-Specific Manner in Bangladeshi Adults. *A. B. Munoz*[1], *Y. Chervona*[1], T. Kluz[1], M. Hall[2], M. Gamble[3], and *M. Costa*[1]. [1]Environmental Medicine, New York University School of Medicine, Tuxedo, NY; [2]Department of Epidemiology, Mailman School of Public Health, Columbia University, New York City, NY; and [3]Department of Environmental Health Sciences, Mailman School of Public Health, Columbia University, New York City, NY.

#1302 **Poster Board Number 505**
Maladaptive Signaling from Arsenic Exposure Impairs Cardiac Bioenergetics and Enhances Autophagy. *K. Beezhold*, L. R. Klei, R. T. Cattley, and *A. Barchowsky*. EOH, University of Pittsburgh, Pittsburgh, PA.

#1303 **Poster Board Number 506**
Global Assessment of Arsenic Pollution Using Sperm Whales (*Physeter macrocephalus*) As an Indicator Species. *L. C. Savery*[1,2,3], *J. Wise*[1], *S. S. Wise*[1,2,3], *C. Falank*[1,2,3], C. Gianios[1,2,3], W. D. Thompson[2,3], C. Perkins[4], T. Zheng[5], C. Zhu[5], and *J. P. Wise*[1,2,3]. [1]Wise Laboratory of Environmental & Genetic Toxicology, University of Southern Maine, Portland, ME; [2]Maine Center for Toxicology and Environmental Health, University of Southern Maine, Portland, ME; [3]Department of Applied Medical Sciences, University of Southern Maine, Portland, ME; [4]Center for Environmental Sciences and Engineering, University of Connecticut, Storrs, CT; and [5]Yale School of Public Health, Yale University, New Haven, CT.

#1304 **Poster Board Number 507**
Evaluation of Arsenic (+3 Oxidation State) Methyltransferase Activity to Tellurite. *M. Tokumoto*, N. Kutsukake, E. Yamanishi, Y. Anan, and Y. Ogra. Laboratory of Chemical Toxicology and Environmental Health, Showa Pharmaceutical University, Machida, Tokyo, Japan.

#1305 **Poster Board Number 508**
Ogg1 Genetic Background Determines the Genotoxic Potential of Environmentally Relevant Arsenic Exposures. A. Hernandez[1,2], J. Bach[1], A. Sampayo-Reyes[3], and R. Marcos[1,2]. [1]Genetics and Microbiology, Autonomous University of Barcelona, Bellaterra, Barcelona, Spain; [2]CIBERESP, Barcelona, Spain; and [3]Centro de Investigaciones Biomédicas del Noreste (CIBIN)-Instituto Mexicano del Seguro Social (IMSS), Monterrey, Nuevo León, Mexico. Sponsor: *A. Sampayo-Reyes*.

#1306 **Poster Board Number 509**
Arsenic, Obesity, and Inflammation Cytokines in Mexican Adolescents. M. Rubio-Andrade[1], G. G. Garcia-Vargas[1], S. J. Rothenberg[3], A. J. Steuerwald[4], P. J. Parsons[4], R. D. Zamoiski[2], V. M. Weaver[2], C. Resnick[2], *E. Silbergeld*[2], *A. Navas-Acien*[2], and E. Guallar[2]. [1]Universidad Juarez Estado de Durango, Gómez Palacio, Durango, Mexico; [2]BSPH, Johns Hopkins University, Baltimore, MD; [3]Instituto Nacional de Salud Pública, Cuernavaca, Morelos, Mexico; and [4]Wadsworth Center, NYSDOH, New York City, NY.

TUESDAY

Program Description (Continued)

Abstract #

#1307 **Poster Board Number 510**
***In Utero* and Chronic Low-Dose As (III) Exacerbation of NAFLD and Alteration of Energy Metabolism.** E. J. Ditzel[1], H. Nyugen[1], P. Parker[1], and *T. Camenisch*[1,2,3]. [1]Pharmacology and Toxicology, University of Arizona, Tucson, AZ; [2]Steele Children's Research Center, Tucson, AZ; and [3]Southwest Environmental Health Sciences Center, Tucson, AZ.

#1308 **Poster Board Number 511**
Prenatal Arsenic Exposure and Proteomic Shifts in the Newborn. K. Bailey[1], J. Laine[2], *J. E. Rager*[1], E. M. Sebastian[1], *A. F. Olshan*[2], L. Smeester[1], *Z. Drobna*[3], *M. Styblo*[3,1], M. Rubio-Andrade[4], *G. G. Garcia-Vargas*[4], and *R. Fry*[1]. [1]Department of Environmental Sciences and Engineering, University of North Carolina, Chapel Hill, NC; [2]Department of Epidemiology, University of North Carolina, Chapel Hill, NC; [3]Department of Nutrition, University of North Carolina, Chapel Hill, NC; and [4]Facultad de Medicina, Universidad Juárez del Estado de Durango, Gómez Palacio, Durango, Mexico.

#1309 **Poster Board Number 512**
Modification of Arsenic Metabolism by Sex Steroid Hormones in Hepatocytes (HepG2). C. O. Puente-Valenzuela[1], E. Sierra-Campos[1], J. J. Duarte-Sustaita[1], *L. M. Del Razo*[2], and G. G. Garcia-Vargas[1]. [1]Universidad Juarez del Estado de Durango, Gómez Palacio, Durango, Mexico; and [2]Toxicología, CINVESTAV-IPN, Mexico, Distrito Federal, Mexico.

#1310 **Poster Board Number 513**
Postnatal and *In Utero* Exposure to Methylated Arsenicals Enhances Atherosclerosis in the ApoE-/- Mouse Model. *L. Negro Silva*, *M. Lemaire*, C. A. Lemarié, S. Lehoux, and *K. K. Mann*. Lady Davis Institute for Medical Research, McGill, Montreal, QC, Canada.

#1311 **Poster Board Number 514**
Reduction of Dimethylarsinic Acid in Rats and Rat Liver Cytosol—Role of Thioredoxin Reductase. B. F. Nemeti, and *Z. Gregus*. University of Pecs, Pecs, Hungary.

#1312 **Poster Board Number 515**
Dietary Methyl Donors Influence Arsenic Metabolism in Residents of Chihuahua, Mexico. *M. Styblo*[1], C. González-Horta[2], B. E. Sánchez Ramírez[2], L. Ballinas-Casarrubias[2], J. Hernández Ávila[3], R. Santos Luna[3], S. Román-Pérez[3], M. Ishida[2], D. Gutiérrez Torres[2], R. Hernández Cerón[4], D. Viniegra Morales[4], F. Baeza Terrazas[4], *G. G. Garcia Vargas*[5], *Z. Drobna*[1], *R. Fry*[1], J. Buse[1], D. Loomis[6], *L. M. Del Razo*[7], and M. Mendez[1]. [1]Nutrition, Univ North Carolina Chapel Hill, Chapel Hill, NC; [2]Universidad Autónoma de Chihuahua, Chihuahua, Mexico; [3]Instituto Nacional de Salud Pública, Cuernavaca, Mexico; [4]Colegio de Médicos Cirujanos y Homeópatas del Estado de Chihuahua, A.C., Chihuahua, Mexico; [5]Universidad Juárez del Estado de Durango, Gómez Palacio, Mexico; [6]IARC, Lyon, France; and [7]Cinvestav-IPN, Mexico DF, Mexico.

#1313 **Poster Board Number 516**
Reduction of Dimethylarsenate to Dimethylarsenite by Rat Liver Cytosol: Further Characterization. *Z. Gregus*, and B. F. Nemeti. University of Pecs, Pecs, Hungary.

Abstract #

#1314 **Poster Board Number 517**
Chronic Exposure to Arsenic is Associated with an Elevated Cardiometabolic Risk in Chihuahua, Mexico. C. González-Horta[1], M. Mendez[2], B. E. Sánchez Ramírez[1], L. Ballinas-Casarrubias[1], M. Ishida[1], D. Gutiérrez Torres[1], R. Hernández Cerón[3], D. Viniegra Morales[3], F. Baeza Terrazas[3], *G. G. Garcia Vargas*[4], *Z. Drobna*[2], *R. Fry*[2], J. Buse[2], D. Loomis[5], *L. M. Del Razo*[6], and *M. Styblo*[2]. [1]Universidad Autónoma de Chihuahua, Chihuahua, Mexico; [2]University of North Carolina, Chapel Hill, NC; [3]Colegio de Médicos Cirujanos y Homeópatas del Estado de Chihuahua, A.C., Chihuahua, Mexico; [4]Universidad Juárez del Estado de Durango, Gómez Palacio, Mexico; [5]IARC, Lyon, France; and [6]Cinvestav-IPN, Mexico DF, Mexico.

#1315 **Poster Board Number 518**
Inorganic Arsenite Suppresses Mast Cell Degranulation via a Pathway Target Upstream of Calcium Signaling. *J. Shim*[1], *R. Kenndy*[2], *L. Weatherly*[2], L. Hutchinson[1], J. Pelletier[1], B. Evans[1], H. Hashmi[1], K. Blais[1], and *J. A. Gosse*[1]. [1]Molecular and Biomedical Sciences, University of Maine, Orono, ME; and [2]Graduate School of Biomedical Science and Engineering, Orono, ME.

#1316 **Poster Board Number 519**
Arsenite-Induced ROS/RNS Generation Causes Zinc Loss and Inhibits the Activity of Poly(ADP-Ribose) Polymerase-1. X. Zhou[1], F. Wang[2], W. Liu[1], X. Sun[1], C. Chen[1], L. Hudson[1], and *K. Liu*[1]. [1]College of Pharmacy, University of New Mexico, Albuquerque, NM; and [2]Department of Nutrition and Food Hygiene, Fourth Military Medical University, Xi'an, Shaanxi, China.

#1317 **Poster Board Number 520**
Protective Role of Vitamin E Succinate and Selenite in Arsenic-Intoxicated Hamster: Arsenic-Induced Oxidative Stress and Its Reversible Damage. *A. Sampayo-Reyes*[1], R. Dauder[2], and A. Hernandez[2]. [1]Toxicology and Pharmacology, Centro de Investigaciones Biomedicas, Monterrey, Nuevo León, Nuevo León, Mexico; and [2]Genetics, Universitat Autonomas de Barcelona, Barcelona, Bellaterra, Spain.

#1318 **Poster Board Number 521**
Prenatal Arsenic Exposure and the Epigenome: Altered microRNAs Associated with Innate and Adaptive Immune Signaling in Newborn Cord Blood. *J. E. Rager*[1], K. Bailey[1], L. Smeester[1], S. K. Miller[1], J. Laine[2], *Z. Drobna*[3], J. Currier[4], C. Douillet[3], A. F. Olshan[2], M. Rubio-Andrade[5], *M. Styblo*[1,3], G. García-Vargas[5], and *R. Fry*[1,4]. [1]Environmental Sciences and Engineering, University of North Carolina, Chapel Hill, NC; [2]Department of Epidemiology, University of North Carolina, Chapel Hill, NC; [3]Department of Nutrition, University of North Carolina, Chapel Hill, NC; [4]Curriculum in Toxicology, University of North Carolina, Chapel Hill, NC; and [5]Facultad de Medicina, Universidad Juárez del Estado de Durango, Gómez Palacio, Durango, Mexico.

Program Description (Continued)

Abstract #

#1319 **Poster Board Number 522**
Arsenic Exposure Increases Monocytes Adhesion to the Vascular Endothelium, a Pro-Atherogenic Mechanism. *M. Lemaire*[1], R. M. Krohn[2], *L. Negro Silva*[3], C. A. Lemarié[4], M. Flores Molina[1], S. Lehoux[4], J. E. Smits[2], and *K. K. Mann*[1]. [1]Oncology, McGill University, Montreal, QC, Canada; [2]Ecosystem and Public Health, University of Calgary, Calgary, AB, Canada; [3]Experimental Medicine, McGill University, Montreal, QC, Canada; and [4]Medicine, McGill University, Montreal, QC, Canada.

#1320 **Poster Board Number 523**
Synergistic Effect of Arsenic on Hexavalent Chromium Cytotoxicity and Genotoxicity in Human Lung Cells. J. Stewart, N. Nutter, *J. P. Wise*, and *H. Xie*. University of Southern Maine, Portland, ME.

#1321 **Poster Board Number 524**
Tissue Distribution and Excretion of Arsenic and Selenium following Co-Administration of Diphenylarsinic Acid and Selenite in Rats. Y. Kobayashi, and *S. Hirano*. National Institute for Environmental Studies, Tsukuba, Japan.

#1322 **Poster Board Number 525**
Increased Expression of the Proto-Oncogene Anterior Gradient 2 in the MCF-10A Cell Line by Arsenite Exposure. *J. Van Gieson*, *S. H. Garrett*, *D. A. Sens*, and *S. Somji*. Pathology, University of North Dakota, Grand Forks, ND.

#1323 **Poster Board Number 526**
The Prebiotic Oligofructose Protects against Enhanced Liver Injury Caused by Arsenic in a Model of NASH. V. L. Massey, *R. H. Schmidt*, M. Tan, W. H. Watson, and G. E. Arteel. Pharmacology & Toxicology, University of Louisville, Louisville, KY.

#1324 **Poster Board Number 527**
Metabolomics Signature of Inorganic Arsenic-Associated Diabetes: Links to Amino Acid Metabolism. E. M. Sebastian[1], K. Bailey[1], C. González-Horta[2], B. E. Sánchez Ramírez[2], L. Ballinas-Casarrubias[2], M. Ishida[2], D. Gutiérrez-Torres[2], R. Hernández Cerón[3], D. Viniegra Morales[2], F. Baeza Terrazas[3], L. M. Del Razo[4], G. García-Vargas[5], R. Saunders[1], W. Jia[6], B. B. John[7], D. Loomis[8], Z. Drobna[1], *M. Styblo*[1], and *R. Fry*[1]. [1]School of Public Health, University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]Universidad Autónoma de Chihuahua, Chihuahua, Mexico; [3]Colegio de Médicos Cirujanos y Homeópatas del Estado de Chihuahua, Chihuahua, Mexico; [4]Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional, Chihuahua, Mexico; [5]Universidad Juárez del Estado de Durango, Gomez Palacio, Mexico; [6]University of Hawaii Cancer Center, Honolulu, HI; [7]School of Medicine, University of North Carolina at Chapel Hill, Chapel Hill, NC; and [8]International Agency for Research of Cancer, Monographs Section, Lyon Cedex, France.

Abstract #

#1325 **Poster Board Number 528**
Inorganic Arsenic Exposure and Bone Loss in Normal and Hypertensive Rats. C. Wu[1], B. Chen[1], H. Wu[1], C. Chiu[1], R. Yang[2], *Y. Chen*[3], *C. Huang*[4], and S. Liu[1]. [1]Institute of Toxicology, College of Medicine, National Taiwan University, Taipei, Taiwan; [2]Department of Orthopedics, College of Medicine and Hospital, National Taiwan University, Taipei, Taiwan; [3]Department of Physiology and Graduate Institute of Basic Medical Science, College of Medicine, China Medical University, Taichung, Taiwan; and [4]Graduate Institute of Chinese Medical Science, School of Chinese Medicine, College of Chinese Medicine, China Medical University, Taichung, Taiwan.

#1326 **Poster Board Number 529**
***In Vivo* Mutagenicity Assay of Arsenite Using Gpt Delta Transgenic Mice.** S. Takumi[1,2], *Y. Aoki*[1], T. Sano[1], T. Suzuki[1], T. Nohmi[3], and *K. Nohara*[1]. [1]National Institute for Environmental Studies, Tsukuba, Japan; [2]The Jikei University School of Medicine, Tokyo, Japan; and [3]National Institute of Health Sciences, Tokyo, Japan.

#1327 **Poster Board Number 530**
N-Cadherin Up-Regulation in Arsenite and Cadmium-Transformed Urothelial Cells. *E. Sandquist*, *X. Zhou*, *S. Somji*, *D. A. Sens*, and *S. H. Garrett*. Pathology, University of North Dakota, Grand Forks, ND.

#1327a **Poster Board Number 531**
Effects of Inorganic Arsenic on Metabolism-Related Gene Expression in the Zebrafish—Relevance of Exposure Windows and Treatment Doses. S. Kalasekar[1], C. W. McCollum[1], M. Bondesson[1], and J. Gustafsson[1]. [1]University of Houston, Houston, TX. Sponsor: *D. Zalko*.

#1327b **Poster Board Number 532**
Effect of Three-Week Exposure of Manganese Chloride on Motor Activity and Metal Homeostasis in Rats. D. Saputra[1,2], J. Chang[3], *J. Kim*[3], and K. Lee[1,2]. [1]Korea Institute of Toxicology, Jeongeup, Republic of Korea; [2]University of Science and Technology, Daejeon, Republic of Korea; and [3]Pharmaceutical Sciences, Northeastern University, Boston, MA.

#1327c **Poster Board Number 533**
Fetal Arsenic Exposure As a Possible Contributor to Metabolic Syndrome Onset in Mice. *P. Sanchez Soria*[1], D. Broka[1], *R. N. Hardwick*[1], and *N. J. Cherrington*[1], *T. D. Camenisch*[1]. [1]College of Pharmacy, Tucson, AZ.

#1327d **Poster Board Number 534**
Biological and Behavioral Modifiers of Urinary Arsenic Metabolic Profiles in a US Population. *D. J. Thomas*[1], E. E. Hudgens[2], and J. Rogers[3]. [1]ISTD, NHEERL, U.S. EPA, Research Triangle Park, NC; [2]EHPD, NHEERL, U.S. EPA, Research Triangle Park, NC; and [3]Westat, Rockville, MD.

TUESDAY

Education-Career Development Sessions
Exhibitor-Hosted Sessions
Featured Sessions
Historical Highlights Session
Informational Sessions
Platform Sessions

Program Description (Continued)

Abstract #

#1327e **Poster Board Number 535**
Exposure Assessment to Arsenic by Total Arsenic and Speciation Analyses in Urine of Korean Adults. *J. Park*[1], H. Bae[1], D. Kang[1], D. Kim[1], B. Choi[1], K. Park[2], H. Lim[3], S. Eom[4], H. Kim[4], S. Oh[5], and H. Kwon[6]. [1]College of Medicine, Chung-Ang University, Seoul, Republic of Korea; [2]Nano-Photonics Research Center, KIST, Seoul, Republic of Korea; [3]Neodin Medical Institute, Seoul, Republic of Korea; [4]College of Medicine, Chungbuk National University, Cheongju, Republic of Korea; [5]College of Human Ecology, Kyung Hee University, Seoul, Republic of Korea; and [6]College of Medicine, Dankook University, Cheonan, Republic of Korea.

#1327f **Poster Board Number 536**
The Roles of Sirt3/FOXO3a/MnSOD in Arsenic-Inhibited Insulin Stimulated Glucose Uptake in 3T3L1 Adipocytes and C2C12 Myotubes. D. Sasidharan Padmaja[1], P. Poyil[1,2], *X. Shi*[1,2], and *Z. Zhang*[1]. [1]Graduate Center for Toxicology, University of Kentucky, Lexington, KY; and [2]Center for Research on Environmental Disease, University of Kentucky, Lexington, KY.

Tuesday Afternoon, March 25
1:00 PM to 4:30 PM
Exhibit Hall

PS

Poster Session: Developmental Neurotoxicity I: Mechanisms, Metals, and Industrial Chemicals

Safety Assessment: Mechanisms and Novel Methods

Chairperson(s): *Sarah J. Blossom, UAMS College of Medicine, Pediatrics, Little Rock, AR, and Heather N. Lynch, Gradient, Cambridge, MA.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *2:45 PM–4:30 PM*

#1328 **Poster Board Number 537**
Altered miRs Expression in hVM1 Cells Arsenic-Exposed during Differentiation. K. González-Palomo, C. Castillo, M. Jiménez-Capdeville, and *M. Salgado*. Facultad de Medicina-Departamento de Bioquimica, Universidad Autónoma de San Luis Potosi, San Luis Potosi, Mexico.

#1329 **Poster Board Number 538**
Exposure to Manganese during Development Induces Lasting Motor and Cognitive Impairment in Rats. T. V. Peres[1,3], H. Eyng[1], S. C. Lopes[2], D. Colle[1], F. M. Gonçalves[1], D. K. Rieger[1], A. Costa[1], M. W. Lopes[1], M. Farina[1], R. D. Prediger[2], *M. Aschner*[3], and R. B. Leal[1]. [1]Departamento de Bioquímica, Universidade Federal de Santa Catarina, Florianópolis, SC, Brazil; [2]Departamento de Farmacologia, Universidade Federal de Santa Catarina, Florianópolis, SC, Brazil; and [3]Department of Molecular Pharmacology, Albert Einstein College of Medicine, New York City, NY.

#1330 **Poster Board Number 539**
Chronic Developmental Exposure to Environmental Manganese (Mn) Reduces Rat Striatal and Cortical Dopaminergic Activity in Adulthood. *S. M. Lasley*[1], C. A. Fornal[1], S. Mandal[1], B. J. Strupp[2], *S. A. Beaudin*[3], and *D. Smith*[3]. [1]U. Illinois Coll. Med., Peoria, IL; [2]Cornell U., Ithaca, NY; and [3]U. California, Santa Cruz, CA.

Abstract #

#1331 **Poster Board Number 540**
Methylmercury Induces a Muscle-Specific Notch Target Gene and Disrupts Neuromuscular Development in the Embryo. *M. D. Rand*, G. Engel, and A. Delwig. Environmental Medicine, University of Rochester, Rochester, NY.

#1332 **Poster Board Number 541**
Genome-Wide Association Study of Methylmercury Tolerance and Susceptibility: Beneficial Effects of Caffeine. S. L. Montgomery, D. Vorojeikina, and *M. D. Rand*. Environmental Medicine, University of Rochester, Rochester, NY.

#1333 **Poster Board Number 542**
Non-Linearity and Enhancement by Prenatal Stress of Developmental Methylmercury-Induced Neurochemical Changes. *H. Weston*, *J. L. Allen*, D. Weston, K. Conrad, *S. Pelkowski*, M. Sobolewski, and *D. A. Cory-Slechta*. Environmental Medicine, University of Rochester Medical School, Rochester, NY.

#1334 **Poster Board Number 543**
Preliminary Characterization of Neuroantibody (NAb) Associations with Hg and PCB in 7-Year-Old Faroese Children with Prenatal Exposure to Seafood Neurotoxicants. C. Osuna[1], P. Weihe[2], P. Grandjean[1,3], and *H. A. El-Fawal*[4]. [1]Harvard School of Public Health, Boston, MA; [2]Faroese Hospital System, Tórshavn, Faroe Islands; [3]Institute of Public Health, University of Southern Denmark, Odense, Denmark; and [4]Neurotoxicology Laboratory, Albany College of Pharmacy and Health Sciences, Albany, NY.

#1335 **Poster Board Number 544**
Ontogeny of Fc-Gamma Receptors in the Developing Rat Brain. *P. Lein*, and *M. Stamou*. Molecular Biosciences, School of Veterinary Medicine, UC Davis, Davis, CA.

#1336 **Poster Board Number 545**
Developmental Lead Exposure and the Exacerbation of Alzheimer's Pathology: An Immunological Analysis. A. vonderEmbse, D. Johnson, *J. N. Franklin*, *Q. Hu*, and *J. DeWitt*. Physiology and Toxicology, Brody School of Medicine, East Carolina University, Greenville, NC.

#1337 **Poster Board Number 546**
Chronic Lead Exposure during Early Development Alters Synaptogenesis and Synaptic Function through Inhibiting Wnt7a Activity. H. Wang, F. Hu, and L. Xu. School of Biotechnology and Food Engineering, Hefei University of Technology, Hefei, Anhui, China. Sponsor: *D. Fox*.

#1338 **Poster Board Number 547**
Lead-Induced Alterations within the Excitatory GABAergic Pathway during Early Embryonic Zebrafish Development. *S. Wirbisky*, *G. J. Weber*, *J. Lee*, *J. R. Cannon*, and *J. L. Freeman*. Purdue University, West Lafayette, IN.

#1339 **Poster Board Number 548**
Selective Loss of Parvalbumin-Positive GABAergic Interneurons by Pb2+: Examining Early-Life Pb2+ Exposure As a Risk Factor for Schizophrenia. *K. Stansfield*, K. Ruby, and *T. R. Guilarte*. Environmental Health Sciences, Columbia University, New York City, NY.

TUESDAY

Program Description (Continued)

Abstract #

#1340 **Poster Board Number 549**
Cumulative Effects of Maternal Lead Exposure, Prenatal Stress, and Early Behavioral Adversity on Subsequent Learning and Short-Term Memory. *D. A. Cory-Slechta*[1], *H. Weston*[1], *J. L. Allen*[1], D. Weston[1], *S. Pelkowski*[1], K. Conrad[1], M. Sobolewski[1], and *T. R. Guilarte*[2]. [1]Environmental Medicine, University of Rochester Medical School, Rochester, NY; and [2]Environmental Health Sciences, Columbia University Mailman School of Public Health, New York City, NY.

#1341 **Poster Board Number 550**
A Weight-of-Evidence Evaluation of the Association between Lead Exposure and Autism Spectrum Disorders. *H. N. Lynch*, *M. Seeley*, and *B. D. Beck*. Gradient, Cambridge, MA.

#1342 **Poster Board Number 551**
Exposure to Concentrated Ambient Ultrafine Particulate Matter during Postnatal Brain Development and/or Adulthood Elicits Lateral Ventricle Dilation, Sustained Neuroinflammation, and Neurochemical Disruption Preferentially in Male Mice. *J. L. Allen*, *S. Pelkowski*, D. Weston, *H. Weston*, M. Sobolewski, D. Herr, B. Palmer, *G. Oberdoerster*, and *D. A. Cory-Slechta*. Environmental Medicine, University of Rochester Medical School, Rochester, NY.

#1343 **Poster Board Number 552**
Gestation-Only Trichloroethylene Exposure Promotes Neural Oxidative Stress and Adverse Behavior in Association with Peripheral Immune Activation in Male Offspring. *S. J. Blossom*, G. Chandler, and S. B. Melnyk. Pediatrics, UAMS College of Medicine, Little Rock, AR.

#1344 **Poster Board Number 553**
The Effects of Bisphenol A on the Dopamine System in a Developing Rat Brain and a Rat Pituitary Cell Line. B. Nowicki[1], G. Robinson[2], M. Hamada[2], and *D. Jones*[2]. [1]CHS, Midwestern University, Glendale, AZ; and [2]AZCOM, Midwestern University, Glendale, AZ.

#1345 **Poster Board Number 554**
Bisphenol A-Induced Neurotoxicity in the Developing Rat Pup and a Pituitary Cell Model. J. Olson[1], E. Faucheu[1], J. Trinh[2], M. Hamada[2], and D. Jones[2]. [1]CHS, Midwestern University, Glendale, AZ; and [2]AZCOM, Midwestern University, Glendale, AZ. Sponsor: *T. Monks*.

#1346 **Poster Board Number 555**
Abnormal Neuronal Migration and Behavior in Mice Exposed *In Utero* to Bisphenol A. W. Ling[1], T. Endo[1], W. Miyazaki[1], E. Kimura[1], K. Kubo[2], K. Nakajima[2], M. Kakeyama[1], and *C. Tohyama*[1]. [1]Laboratory of Environmental Health Sciences, CDBIM, Graduate School of Medicine, The University of Tokyo, Tokyo, Japan; and [2]Department of Anatomy, School of Medicine, Keio University, Tokyo, Japan.

#1347 **Poster Board Number 556**
Enhanced Behavioral Toxicity Induced by Maternal Exposure to a Mixture of Low-Dose Endocrine Disrupting Chemicals. M. Sobolewski, K. Conrad, K. Martin, *J. L. Allen*, *H. Weston*, *B. Lawrence*, and *D. A. Cory-Slechta*. University of Rochester, Rochester, NY.

Abstract #

#1347a **Poster Board Number 557**
Gestational Exposure to Inhaled Vapors of Ethanol and Gasoline-Ethanol Blends in Rats. *P. J. Bushnell*[1], T. E. Beasley[1], P. Evansky[1], *S. A. Martin*[1], *V. C. Moser*[1], K. L. McDaniel[1], J. Norwood[1], *M. E. Gilbert*[1], *R. W. Luebke*[1], and *J. M. Rogers*[1]. [1]NHEERL/ORD, US EPA, Research Triangle Park, NC.

#1347b **Poster Board Number 558**
Prenatal Inhalation Exposure to Evaporative Condensates of Gasoline with 15% Ethanol and Evaluations of Sensory Function in Adult Rat Offspring. *W. K. Boyes*[1], L. L. Degn[1], D. Lyke[1], T. E. Beasley[1], P. Evansky[1], *S. A. Martin*[1], J. N. Ortenzio[1], L. N. Pantlin[2], *P. J. Bushnell*[1], and *D. W. Herr*[1]. [1]USEPA, Research Triangle Park, NC; and [2]Meredith College, Raleigh, NC.

#1347c **Poster Board Number 559**
Effects of Ethanol-Gasoline Blended Fuels on Learning and Memory. T. E. Beasley[1], W. M. Oshiro[1], *V. C. Moser*[1], *M. E. Gilbert*[1], K. L. McDaniel[1], P. Evansky[2], and *P. J. Bushnell*[1]. [1]TAD, US EPA, RTP, NC; and [2]EPHD, US EPA, RTP, NC.

#1347d **Poster Board Number 560**
Deficits in Response Inhibition in Male Rats Prenatally Exposed to Vapor Condensates Made from Gasoline Containing Ethanol at 0% and 15%, but Not 85%. W. M. Oshiro[1], *S. A. Martin*[1], T. E. Beasley[1], P. Evansky[2], and *P. J. Bushnell*[1]. [1]TAD/NHEERL/ORD, US EPA, RTP, NC; and [2]EPHD/NHEERL/ORD, US EPA, RTP, NC.

#1347e **Poster Board Number 561**
Developmental Ethanol Exposure Alters Synaptic Plasticity in the Visual Cortex of C57/BL6 Mice: Implications for Fetal Alcohol Spectrum Disorders. *E. L. Wong*[1], G. O. Sipe[2], C. E. Lamantia[2], and A. K. Majewska[2]. [1]Environmental Medicine, University of Rochester, Rochester, NY; and [2]Neurobiology and Anatomy, University of Rochester, Rochester, NY.

#1347f **Poster Board Number 562**
Subcortical Band Heterotopia (SBH) in Rat Offspring following Maternal Hypothyroxinemia: Structural and Functional Characteristics. *M. E. Gilbert*[1], R. Ramos[2], D. McCloskey[3], J. Goodman[4], and *A. F. Johnstone*[1]. [1]Toxicity Assessment Division, US EPA, Research Triangle Park, NC; [2]NY Institute Techology, Coll Osteopathic Med, Old Westbury, NY; [3]Psychology, CUNY, Staten Island, NY; and [4]NY Institute Brain Res, Staten Island, NY.

#1347g **Poster Board Number 563**
Developmental Thyroid Hormone (TH) Disruption: In Search of Sensitive Bioindicators of Altered TH-Dependent Signaling in Brain. C. Wood[1], *A. F. Johnstone*[1], and *M. E. Gilbert*[1]. [1]Toxicity Assessment Division, US EPA, Research Triangle Park, NC.

#1347h **Poster Board Number 564**
Embryonic Exposure to Dopamine D1 and D2 Antagonists Disrupts Swimming in Two Zebrafish Strains. *A. N. Oliveri*[1], *J. M. Bailey*[1], and *E. D. Levin*[1]. [1]Psychiatry, Duke University, Durham, NC.

TUESDAY

Education-Career Development Sessions
Exhibitor-Hosted Sessions
Featured Sessions
Historical Highlights Session
Informational Sessions
Platform Sessions

Program Description (Continued)

Abstract #

#1347i **Poster Board Number 565**
DOTC (Di-n-octyltin Dichloride) Affects Brain Development at Weaning and Young Adulthood in Perinatal-Exposed Rats As Demonstrated by Brain MRI and Genome-Wide Gene Expression.
D. M. De Groot[1], R. Kayser[1], L. Linders[1], *M. de Groot*[1,2], A. Wolterbeek[1], M. Radonjic[1], R. H. Stierum[1], and F. Kuper[1]. [1]TNO, Zeist, Netherlands; and [2]IRAS, Utrecht, Netherlands.

#1347j **Poster Board Number 566**
Neuroantibodies (NAB) in African-American Children: Associations with Gender, Gluthathione-S-Transferase (GST) Pi Polymorphisms (SNP) and Heavy Metals. *A. Cichewicz*[1], *E. E. Hudgens*[2], J. E. Gallagher[2], and *H. A. El-Fawal*[1]. [1]Neurotoxicology Laboratory, Albany College of Pharmacy and Health Sciences, Albany, NY; and [2]Environmental Public Health Division, NHEERL, US EPA, Research Triangle Park, NC.

#1347k **Poster Board Number 567**
Human Stem Cell-Derived Neuron and Astrocyte Cocultures in a Developmental Neurotoxicity Screening Assay. A. Majumder[1,2], X. Wu[2], and *S. Stice*[1,2]. [1]ArunA Biomedical Inc., Athens, GA; and [2]University of Georgia, Athens, GA.

#1347l **Poster Board Number 568**
Aluminum Exposure from Developmental to Mature Brain: Long-Term Implications on Neurodegenerative Injury. *Q. Niu*[1], and *Q. Zhang*[1]. [1]School of Public Health, Shanxi Medical University, Taiyuan, Shanxi, China.

Tuesday Afternoon, March 25
1:00 PM to 4:30 PM
Exhibit Hall

PS

Poster Session: Metal Neurotoxicity I: Mn

New Science and Perspectives Surrounding Environmental and Occupational Exposures

Chairperson(s): *Jennifer L. Freeman, Purdue University, Health Sciences, West Lafayette, IN, and Megan Culbreth, Albert Einstein College of Medicine, Bronx, NY.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *1:00 PM–2:45 PM*

#1348 **Poster Board Number 601**
Differential Toxico-Proteomics Study in CSF and CP of Manganese (Mn)-Exposed Rats and the PHB1's Role in Mn-Induced Cell Cycle Arrest.
G. J. Li[1], Y. Dong[1], H. Jing[1], J. Liu[1], J. Ning[1], Y. Li[1], Z. Tan[1], Y. Liu[1], K. Wei[2], T. Zhang[2], C. Zhao[1], and L. Ma[1]. [1]Beijing Municipal Centers for Disease Prevention and Control, Beijing Key Laboratory of Diagnostic and Traceability Technologies for Food Poisoning, Beijing, China; and [2]Beijing Proteome Research Center, Beijing, China.

#1349 **Poster Board Number 602**
Transport of α-Synuclein at the Blood-Cerebrospinal Fluid Barrier and Effects of Heavy Metal Toxicities: Potential Role in Parkinson's Disease Pathoetiology. *C. A. Bates*[1], *X. Fu*[1], D. Ysselstein[2], *J. Rochet*[2], and *W. Zheng*[1]. [1]Health Sciences, Purdue University, West Lafayette, IN; and [2]Medicinal Chemistry and Molecular Pharmacology, Purdue University, West Lafayette, IN.

Abstract #

#1350 **Poster Board Number 603**
The Environmental Neurotoxin Manganese Promotes Cell-to-Cell Transmission of α-Synuclein via Exosomes in Cell Culture and Animal Models of Parkinson's Disease.
D. Harischandra, M. Neal, *A. Kanthasamy*, *N. Panicker*, H. Privitera, H. Jin, *V. Anantharam*, and *A. Kanthasamy*. Biomedical Sciences, Iowa State University, Ames, IA.

#1351 **Poster Board Number 604**
Development of Organotypic Brain Slice Culture Model to Study Environmentally Linked Proteinopathies. N. Kondru, *D. Harischandra*, *V. Anantharam*, *A. Kanthasamy*, and *A. G. Kanthasamy*. Biomedical Sciences, Iowa State University, Ames, IA.

#1352 **Poster Board Number 605**
Manganese Exposure Downregulates Anti-Apoptotic STAT5b Signaling through an Sp1-Dependent Mechanism. *D. Kim*, *A. Kanthasamy*, H. Jin, *V. Anantharam*, and *A. G. Kanthasamy*. Biomedical Science Department, Iowa State University, Ames, IA.

#1353 **Poster Board Number 606**
Mutant Huntingtin Impairs Mn-Dependent p53 Activation in Human iPSC-Derived Neural Progenitors. A. Tidball[1], *K. K. Kumar*[1], M. Uhouse[1], R. Chamberlin[3], *A. A. Aboud*[1], J. X. Sun[1], *T. V. Bichell*[1], M. Odak[1], R. Carson[2], K. C. Ess[2], *M. Neely*[1], *M. Aschner*[4], and *A. B. Bowman*[1,2]. [1]Neurology, Vanderbilt University, Nashville, TN; [2]Pediatrics, Vanderbilt University, Nashville, TN; [3]Genetics Associates, Inc., Nashville, TN; and [4]Molecular Pharmacology, Albert Einstein College of Medicine, Bronx, NY.

#1354 **Poster Board Number 607**
A High-Throughput Screen for Modulators of Neuronal Manganese Status. *K. K. Kumar*[1], *A. A. Aboud*[1], M. V. Odak[1], M. Uhouse[1], J. X. Sun[1], *A. Tidball*[1], M. Neely[1], *M. Aschner*[2], and *A. B. Bowman*[1]. [1]Department of Neurology, Vanderbilt University School of Medicine, Nashville, TN; and [2]Department of Molecular Pharmacology, Albert Einstein College of Medicine, Bronx, NY.

#1355 **Poster Board Number 608**
A Statistical Analysis of Z-Score Stringency in a High-Throughput Screen for Modulators of Neuronal Mn Status. M. Odak[1], *K. K. Kumar*[1], *M. Aschner*[2], and *A. B. Bowman*[1]. [1]Neurology, Vanderbilt University Medical Center, Nashville, TN; and [2]Molecular Pharmacology, Albert Einstein College of Medicine, Bronx, NY.

#1356 **Poster Board Number 609**
Wildtype Alpha-Synuclein-Mediated Protection against Mn Toxicity in PD-Associated *C. elegans* Mutants. *S. Chakraborty*[1], J. Bornhorst[4], S. Meyer[4], H. Lohren[4], T. Schwerdtle[4], *A. B. Bowman*[3], and *M. Aschner*[2]. [1]Neuroscience Graduate Program, Vanderbilt University, Nashville, TN; [2]Pediatrics, Vanderbilt University, Nashville, TN; [3]Neurology, Vanderbilt University, Nashville, TN; and [4]Institute of Food Chemistry, University of Münster, Münster, Germany.

Program Description (Continued)

Abstract #

#1357 **Poster Board Number 610**
The Role of a Novel Genetic Factor (SLC30A10) in Manganese-Induced Toxicity in *C. elegans*. P. Chen[1], *M. Neely*[2], *A. B. Bowman*[2], and *M. Aschner*[1]. [1]Molecular Pharmacology, Albert Einstein College of Medicine, Bronx, NY; and [2]Neurology, Vanderbilt University Medical Center, Nashville, TN.

#1358 **Poster Board Number 611**
Factors Affecting Manganese Accumulations in Gill Mitochondria of *Crassostrea virginica*. A. Nuhar, T. Shoneye, *E. J. Catapane*, and *M. A. Carroll*. Biology, Medgar Evers College, Brooklyn, NY.

#1359 **Poster Board Number 612**
The Toxic Effects of Manganese on Dopamine D2 Receptor Activation Is Not Due to Inactivation of the Phospholipase C Receptor Signal Transduction Component. K. Rogers, I. Beaubrun, *M. A. Carroll*, and *E. J. Catapane*. Biology, Medgar Evers College, Brooklyn, NY.

#1360 **Poster Board Number 613**
p-Aminosalicylic Acid Prevents the Loss of Immunofluorescence Emissions of Post-Synaptic Dopamine D2 Receptors Due to Manganese Treatment. Y. Chekayev, K. Loney-Walsh, *M. A. Carroll*, and *E. J. Catapane*. Biology, Medgar Evers College, Brooklyn, NY.

#1361 **Poster Board Number 614**
Altered Neurotransmitter Levels in Rats Exposed to Manganese: Relevance to Dopaminergic Dysfunction and Neurodegeneration. *S. L. O'Neal*, *J. Lee*, *J. R. Cannon*, and *W. Zheng*. Purdue University, West Lafayette, IN.

#1362 **Poster Board Number 615**
Half-Life of Manganese (Mn) in Murine Bone following Oral Exposure. *W. Zheng*, S. L. O'Neal, L. Hong, and A. Jones. School of Health Sciences, Purdue University, West Lafayette, IN.

#1363 **Poster Board Number 616**
Olfactory Toxicity in Rats following Manganese Chloride Nasal Instillation. *M. L. Foster*[1], T. Francher[1], S. Traver[1], *D. B. Rao*[2], L. Lazarowski[1], and *D. C. Dorman*[1]. [1]College of Veterinary Medicine, North Carolina State University, Raleigh, NC; and [2]Integrated Laboratory Systems, Inc., Durham, NC.

#1364 **Poster Board Number 617**
Effects of Chronic Manganese Exposure on White Matter Tracts in the Nonhuman Primate Brain: A Diffusion Tensor Imaging Study. *J. L. McGlothan*[1], J. Hsu[2], S. Mori[2], *J. S. Schneider*[3], and *T. R. Guilarte*[1,2]. [1]Environmental Health Sciences, Columbia University Mailman School of Public Health, New New York City, NY; [2]Radiology, Johns Hopkins School of Medicine, Baltimore, MD; and [3]Pathology, Anatomy, and Cell Biology, Thomas Jefferson University, Philadelphia, PA.

#1365 **Poster Board Number 618**
Comparison of *In Vivo* Manganese Accumulation in Nonhuman Primate and Human Brains. C. Yeh[1,2], J. L. McGlothan[3], E. J. Ward[1], *S. Dharmadhikari*[1,2], S. Snyder[1], *Z. Long*[1,2], J. S. Schneider[4], *T. R. Guilarte*[3], and *U. Dydak*[1,2]. [1]Health Sciences, Purdue Univ, W Lafayette, IN; [2]Radiology and Imaging Sciences, IUSM, Indianapolis, IN; [3]Env. Health Sciences, MSPH, Columbia Univ, New York; and [4]Pathology Anatomy and Cell Biology, Thomas Jefferson Univ, Philadelphia, PA.

Abstract #

#1366 **Poster Board Number 619**
Manganese Neurotoxicity: *In Vivo* GABA Levels Correlate with Motor Deficits in US Welders. *S. Dharmadhikari*[1,2], R. Ma[1,2], *Z. Long*[1,2], C. Yeh[1,2], S. Snyder[1], E. Zauber[3], R. Garcia[4], M. Moriyasu[4], R. M. Bowler[5], J. B. Murdoch[6], and *U. Dydak*[1,2]. [1]School of Health Sciences, Purdue University, W Lafayette, IN; [2]Radiology and Imaging Sciences, Indiana Univ School of Medicine, Indianapolis, IN; [3]Neurology, Indiana Univ School of Medicine, Indianapolis, IN; [4]Alliant Intl Univ, San Francisco, CA; [5]San Francisco State Univ, San Francisco, CA; and [6]Toshiba Medical Research Institute, Mayfield Village, OH.

#1367 **Poster Board Number 620**
Increased Thalamic GABA in Chronic Manganese-Exposed Metal Workers and Manganism Patients. *U. Dydak*[1,2], Y. Jiang[3], X. Li[4], L. Long[4], J. B. Murdoch[5], *W. Zheng*[1], and *Z. Long*[1,2]. [1]School of Health Sciences, Purdue Univ, West Lafayette, IN; [2]Dept. of Radiology and Imaging Sciences, IUSM, Indianapolis, IN; [3]Health Toxicology, Guangxi Medical University, Nanning, China; [4]Radiology, Guangxi Medical University, Nanning, China; and [5]Toshiba Medical Research Institute, Mayfield Village, OH.

#1368 **Poster Board Number 621**
GABA Levels Correlate with Exposure Levels and Brain Deposition of Manganese in US Welders. R. Ma[1,2], C. Yeh[1,2], E. J. Ward[1], *Z. Long*[1,2], J. B. Murdoch[3], S. Snyder[1], E. Zauber[4], F. Rosenthal[1], and *U. Dydak*[1,2]. [1]School of Health Sciences, Purdue Univ., W Lafayette, IN; [2]Radiology and Imaging Sciences, Indiana Univ. School of Medicine, Indianapolis, IN; [3]Toshiba Medical Research Institute, Mayfield Village, OH; and [4]Neurology, Indiana Univ. School of Medicine, Indianapolis, IN.

#1368a **Poster Board Number 622**
Potential Prevention Strategies to Reduce the Risk of Neurotoxicity Associated with Manganese-Containing Welding Fumes. *K. Sriram*[1], A. M. Jefferson[1], G. X. Lin[1], A. Afshari[1], S. Stone[1], W. McKinney[1], M. Jackson[1], M. J. Keane[1], *B. T. Chen*[1], D. G. Frazer[1], and *J. M. Antonini*[1]. [1]CDC-NIOSH, Morgantown, WV.

#1368b **Poster Board Number 623**
The Role of the Transient Receptor Potential Ankyrin 1 (TRPA1) Channel in Methylmercury (MeHg)-Induced Ca^{2+} Dysregulation. *H. Hannon*[1], and *W. D. Atchison*[1]. [1]Pharmacology/Toxicology, East Lansing, MI.

TUESDAY

Education-Career Development Sessions
Exhibitor-Hosted Sessions
Featured Sessions
Historical Highlights Session
Informational Sessions
Platform Sessions

Program Description (Continued)

Tuesday Afternoon, March 25
1:00 PM to 4:30 PM
Exhibit Hall

PS

Poster Session: Metal Neurotoxicity II: MeHg and Other Metals

New Science and Perspectives Surrounding Environmental and Occupational Exposures

Chairperson(s): *Lu Cai, University of Louisville, Pediatrics, Louisville, KY, and Yukun Yuan, Michigan State University, Pharmacology and Toxicology, East Lansing, MI.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *2:45 PM–4:30 PM*

Abstract #

#1369 **Poster Board Number 626**
Methylmercury Induces Apoptosis in Neuronal Cells through ROS-Mediated Endoplasmic Reticulum Stress-Regulated Signaling Pathway. Y. Chung[1], F. Tang[2], C. Su[3], *T. Lu*[4], C. Wu[5], K. Chen[7], *D. Hung*[8], *Y. Chen*[4], C. Yen[1], and *C. Huang*[6]. [1]Department of Occupational Safety and Health, Chung Shan Medical University, Taichung, Taiwan; [2]Department of Occupational Medicine, Changhua Christian Hospital, Changhua, Taiwan; [3]Department of Otorhinolaryngology, Head and Neck Surgery, Changhua Christian Hospital, Changhua, Taiwan; [4]Department of Physiology and Graduate Institute of Basic Medical Science, China Medical University, Taichung, Taiwan; [5]Department of Public Health, China Medical University, Taichung, Taiwan; [6]School of Chinese Medicine, China Medical University, Taichung, Taiwan; [7]Department of Urology, China Medical University Hospital, Taichung, Taiwan; and [8]Division of Toxicology, Trauma & Emergency Center, China Medical University Hospital, Taichung, Taiwan.

#1370 **Poster Board Number 627**
Effect of Methylmercury (MeHg) on RNA Expression of Voltage-Gated Calcium Channels (VGCCs) in Naïve and Differentiated F11 Cells. K. Z. Perez-Vale, *H. Hannon*, and *W. D. Atchison*. Pharmacol./Toxicol., Mich State Univ, E. Lansing, MI.

#1371 **Poster Board Number 628**
Methylmercury Attenuates A23187-Induced Increase in Dopamine Release of PC12 Cells. M. Khalid[1,2], M. Rios[1,3], and *W. D. Atchison*[1,2,3]. [1]Department of Pharm/Tox, Michigan State University, East Lansing, MI; [2]Center for Integrative Toxicology, Michigan State University, East Lansing, MI; and [3]CMIB, Michigan State University, East Lansing, MI.

#1372 **Poster Board Number 629**
Contribution of Cholinergic Receptors to Methylmercury-Induced Cytotoxicity in PC12 Cells. C. Colón[2], Y. Rodriguez[3], *M. Rios*[1], and *W. D. Atchison*[1]. [1]Michigan State University, East Lansing, MI; [2]University of Puerto Rico, Cayey, Puerto Rico; and [3]St. Mary's University, San Antonio, TX.

#1373 **Poster Board Number 630**
Methylmercury Exposure Inhibits NGF-Triggered TrkA Phosphorylation and Leads to Apoptotic Neuronal Cell Death in Differentiating PC12 Cells. M. Fujimura[1], and F. Usuki[2]. [1]Basic Medical Sciences, National Institute for Minamata Disease, Minamata, Kumamoto, Japan; and [2]Clinical Medicine, National Institute for Minamata Disease, Minamata, Kumamoto, Japan. Sponsor: *A. Naganuma*.

Abstract #

#1374 **Poster Board Number 631**
Inflammatory Response to Methlymercury or Manganese in Astrocytes and Microglia. N. L. Parmalee[1], Y. Yu[2], R. L. Davis[3], and *M. Aschner*[1]. [1]Molecular Pharmacology, Albert Einstein College of Medicine, Bronx, NY; [2]Pediatrics, Vanderbilt University Medical Center, Nashville, TN; and [3]Pharmacology and Physiology, Oklahoma State University Center for Health Sciences, Tulsa, OK.

#1375 **Poster Board Number 632**
Comparative Effects of Methylmercury on Cerebellar and Cortical Astrocytes. R. J. Jaiman[1], and *W. D. Atchison*[1,2]. [1]Neuroscience Program, Michigan State University, East Lansing, MI; and [2]Pharmacology & Toxicology, Michigan State University, East Lansing, MI.

#1376 **Poster Board Number 633**
$GABA_A$ Receptors Are Not a Primary Contributor to Methylmercury-Induced Cell Death in Transiently Transfected HEK293 Cells. *D. Wiwatratana*[1], C. Colon Ortiz[2], N. Delvalle[2], and *W. D. Atchison*[1,2]. [1]College of Vet Med, Michigan State University, East Lansing, MI; and [2]Pharm/Tox, Michigan State University, East Lansing, MI.

#1377 **Poster Board Number 634**
Effects of Methylmercury on *Caenorhabditis elegans* Calcium Ion Channel Mutant Strains. S. M. Spencley[1], K. R. Sherer[2], R. Hajela[1], and *W. D. Atchison*[1,2]. [1]Dept. Pharmacology/Toxicology, Michigan State University, East Lansing, MI; and [2]College of Veterinary Medicine, Michigan State University, East Lansing, MI.

#1378 **Poster Board Number 635**
The Putative Multidrug Resistance Protein MRP-7 Inhibits Methylmercury-Associated Animal Toxicity and Dopaminergic Neurodegeneration in *Caenorhabditis elegans*. *N. M. VanDuyn*[1], *W. Li*[1], J. Trinidad[2], and *R. M. Nass*[1]. [1]Pharmacology and Toxicology, Indiana University School of Medicine, Indianapolis, IN; and [2]Chemistry, Indiana University, Bloomington, IN.

#1379 **Poster Board Number 636**
NAD^+ Supplementation Attenuates Methylmercury Toxicity in *Caenorhabditis elegans*. *S. W. Caito*, and *M. Aschner*. Molecular Pharmacology, Albert Einstein College of Medicine, Bronx, NY.

#1380 **Poster Board Number 637**
Nuclear Factor Erythroid 2-Related Factor 2 (Nrf2) Is a Modulator of Methylmercury-Induced Neurotoxicity. M. Culbreth[1], E. B. Bisen-Hersh[2], and *M. Aschner*[1]. [1]Molecular Pharmacology, Albert Einstein College of Medicine, Bronx, NY; and [2]Anesthesiology, Vanderbilt University, Nashville, TN.

#1381 **Poster Board Number 638**
Disruption of Short-Term Synaptic Plasticity and Neuronal Repetitive Firing in Cerebellar Slices of Mice following Chronic Methylmercury Exposure. *Y. Yuan*, *S. M. Ciotti*, *A. B. Bradford*, D. Autio, *R. Hajela*, and *W. D. Atchison*. Pharmacology/Toxicology, Michigan State University, East Lansing, MI.

TUESDAY

Program Description (Continued)

Abstract #

#1382 **Poster Board Number 639**
Chronic Methylmercury Disrupts Timing, Isradipine Prevents Disruption, and D-Amphetamine Partially Reverses It. D. A. Pope, and *C. Newland*. Auburn Univ, Auburn, AL.

#1383 **Poster Board Number 640**
Rotarod and Wheel-Running Reveal Age-Specific Effects of Methylmercury Toxicity and Neuroprotection by Nimodipine. *C. Newland*, A. N. Shen, D. A. Pope, and C. W. Cummings. Auburn Univ, Auburn, AL.

#1384 **Poster Board Number 641**
Brain Region-Dependent Effects of Methylmercury on Expression of Ligand and Voltage-Gated Calcium Channels in Rat. *A. Colon-Rodriguez*[1,2,3], R. Hajela[1], and *W. D. Atchison*[1,2,3]. [1]Pharm/Tox, Mich State Univ, East Lansing, MI; [2]CMIB, Mich State Univ, East Lansing, MI; and [3]CIT, Mich State Univ, East Lansing, MI.

#1385 **Poster Board Number 642**
Postnatal Methylmercury Exposure Increases Rat Spinal Cord Expression of Glutamate Receptor mRNA. A. L. Perez-Medina[1], *A. Colón-Rodriguez*[1,2,3], and *W. D. Atchison*[1,2,3]. [1]Pharmacology and Toxicology, Mich State Univ, East Lansing, MI; [2]Comparative Medicine and Integrative Biology program, Mich State Univ, East Lansing, MI; and [3]Center for Integrative Toxicology, Mich State Univ, East Lansing, MI.

#1386 **Poster Board Number 643**
Chronic Isradipine Treatment Alters Methylmercury-Induced Effects on Ion Channel Expression in Adult Mice. Z. Santana Rodriguez[1], *A. Colón-Rodriguez*[2,3,4], and *W. D. Atchison*[2,3,4]. [1]Biology, Univ of Puerto Rico, Rio Piedras, San Juan, Puerto Rico; [2]Dept Pharm/Tox, Mich State Univ, East Lansing, MI; [3]CMIB, Mich State Univ, East Lansing, MI; and [4]CIT, Mich State Univ, East Lansing, MI.

#1387 **Poster Board Number 644**
Plasma Thiol Antioxidant Barrier As a Potential Biomarker for Methylmercury Intoxication. F. Usuki, and M. Fujimura. National Institute for Minamata Disease, Minamata, Japan. Sponsor: *A. Naganuma*.

#1388 **Poster Board Number 645**
Arsenic Induces Reactive Oxygen Species-Caused Neuronal Cell Apoptosis through JNK/ERK-Mediated Mitochondria-Dependent and GRP 78/CHOP-Regulated Pathways. *T. Lu*[1], F. Tang[2], C. Su[3], C. Yen[4], C. Wu[5], K. Chen[6], Y. Chung[4], *D. Hung*[7], *C. Huang*[8], and *Y. Chen*[1]. [1]Department of Physiology and Graduate Institute of Basic Medical Science, China Medical University, Taichung, Taiwan; [2]Department of Occupational Medicine, Changhua Christian Hospital, Changhua, Taiwan; [3]Department of Otorhinolaryngology, Head and Neck Surgery, Changhua Christian Hospital, Changhua, Taiwan; [4]Department of Occupational Safety and Health, Chung Shan Medical University, Taichung, Taiwan; [5]Department of Public Health, China Medical University, Taichung, Taiwan; [6]Department of Urology, China Medical University Hospital, Taichung, Taiwan; [7]Division of Toxicology, Trauma & Emergency Center, China Medical University Hospital, Taichung, Taiwan; and [8]School of Chinese Medicine, China Medical University, Taichung, Taiwan.

Abstract #

#1389 **Poster Board Number 646**
Identification of Novel Proteomic Biomarkers for Heavy-Metal-Induced Nephrotoxicity. *Y. Shin*[1], M. Akram[1], K. Kim[1], E. Kim[1], H. Kim[2], and O. Bae[1]. [1]College of Pharmacy Institute of Pharmaceutical Science and Technology, Hanyang University, Ansan, Republic of Korea; and [2]College of Pharmacy, Sungkyunkwan University, Suwon, Republic of Korea.

#1390 **Poster Board Number 647**
Expression of Copper (Cu) Transporting Genes in Subventricular Zone (SVZ) and Choroid Plexus (CP). *X. Fu*, *L. Hong*, W. Jiang, and *W. Zheng*. School of Health Sciences, Purdue University, West Lafayette, IN.

#1391 **Poster Board Number 648**
Effects of Copper in LPS-Treated Microglia. A. Rossi-George[1], C. Guo[2], E. Bini[1], Q. Chang[3], A. Kusnecov[3], and *A. Gow*[2]. [1]Pharmacy Practice and Administration, Rutgers University, Piscataway, NJ; [2]Pharmacology and Toxicology, Rutgers University, Piscataway, NJ; and [3]Psychology, Rutgers University, Piscataway, NJ.

#1392 **Poster Board Number 649**
The Neurotoxic Effects of Tributyltin on Male F1 Tokai High-Avoider (THA) Rats Evaluated by the Sidman Electric Shock Avoidance Test. *M. Tsunoda*[1], T. Hasegawa[1], T. Kido[2], M. Hosokawa[3], C. Sugaya[1], Y. Sugiura[1], H. Endo[4], and T. Watanabe[4]. [1]Preventive Medicine, Kitasato University School of Medicine, Sagamihara, Kanagawa, Japan; [2]Public Health and Environmental Medicine, Jikei University School of Medicine, Tokyo, Japan; [3]Epidemiology and Environmental Health, Faculty of Medicine, Juntendo University, Tokyo, Japan; and [4]Basic Clinical Science and Public Health, Tokai University School of Medicine, Isehara, Kanagawa, Japan.

#1392a **Poster Board Number 650**
Chronic Lead Exposure Reduces Presynaptic Vesicle Availability in Mossy Fiber-CA3 Synapses and Shaffer Collateral-CA1 Synapses in the Rat Hippocampus. S. Guariglia[1], *J. L. McGlothan*[1], *K. H. Stansfield*[1], and *T. R. Guilarte*[1]. [1]Columbia University, New York City, NY.

Tuesday Afternoon, March 25
1:30 PM to 4:15 PM
North Ballroom 120A

Workshop Session: Addressing Uncertainties of the Toxicology of Nanomaterials in Food and Food Contact Products

Safety Assessment: Mechanisms and Novel Methods

Chairperson(s): *Annette B. Santamaria, Exponent Inc., Houston, TX, and Christie M. Sayes, RTI International, Center for Aerosols & Nanomaterials Engineering, Research Triangle Park, NC.*

Sponsor(s):
Food Safety Specialty Section
Nanotoxicology Specialty Section
Regulatory and Safety Evaluation Specialty Section

Nanotechnology has the potential to revolutionize the food industry by improving the delivery of nutrients, providing brighter colors and enhanced flavors, increasing food longevity, imparting antibacterial or biosensor properties, and providing product traceability in food and food contact products. The food industry is incorporating nanoparticles such as nutrients, silver, titanium dioxide, amorphous silica, clay, and carbon nanotubes into a growing number of food and food contact products, so consumers

Program Description (Continued)

Abstract #

are likely being exposed to a variety of nanoparticles through ingestion. At this point, there is little information available on the toxicokinetics (absorption, distribution, metabolism, and excretion) and/or toxicological effects of engineered nanoparticles following ingestion. In addition, few studies have been conducted to evaluate tissue localization of the nanoparticles and/or effects on gut flora (e.g., due to their antimicrobial properties). There is also a need to develop standard methods for evaluating the levels of nanoparticles in foods and/or the migration of nanomaterials from food packaging or products (e.g., cutting boards) into food items. Regulatory agencies such as the US FDA, USDA, US Environmental Protection Agency (EPA), and risk assessment agencies such as the EFSA may request that a company provide extraction and/or toxicological studies to address some of these uncertainties, particularly for novel nanomaterials that may be used in foods and as food contact substances. This SOT session aims to address what is known about the potential exposure levels for nanomaterials in foods and food contact products, toxicokinetics and/or toxicological effects following ingestion, and laboratory methods for measuring tissue localization or effects of nanoparticles on the gastrointestinal tract. An overview of what food and food additive companies may need to do to address current or future regulations and/or guidelines will be presented. The findings and recommendations from the collaborative research projects will also be discussed by the speakers of this workshop who have participated in those projects.

#1393	1:30	**Addressing Uncertainties of the Toxicology of Nanomaterials in Food and Food Contact Products.** *A. Santamaria*. Exponent, Houston, TX.
	1:30	**Introduction.** A. Santamaria. Exponent, Houston, TX.
#1394	1:35	**Safety Considerations for the Use of Nanomaterials in Food and Food-Related Products: A US FDA Regulatory Perspective.** *S. Thurmond*. Center for Food Safety and Applied Nutrition, US FDA, Washington, DC.
#1395	2:11	**NanoRelease Food Additive Project—Developing Methods to Measure Characteristics Relevant to Nanomaterial Uptake from Food.** *R. Canady*. Center for Risk Science Innovation and Application, ILSI Research Foundation, Washington, DC.
#1396	2:47	**Uptake and Distribution of Ingested Nanomaterials.** *S. M. Roberts*. University of Florida, Gainesville, FL.
#1397	3:23	**High-Throughput Testing Using a 3-Cell Gut Model for Hazard Identification of Nanomaterials in Food Products.** *C. M. Sayes*. Center for Aerosols & Nanomaterials Engineering, RTI International, Research Triangle Park, NC.
	3:59	**Panel Discussion/Q&A.**

Tuesday Afternoon, March 25
1:30 PM to 4:15 PM
Room 124

Workshop Session: Adverse Outcome Pathways: A Conceptual Framework for 21st Century Risk Assessment

Enhancing Strategies for Risk Assessment

Chairperson(s): *J. Craig Rowlands, The Dow Chemical Company, Toxicology and Environmental Research & Consulting, Midland, MI, and Kevin M. Crofton, US EPA, NHEERL, Research Triangle Park, NC.*

Sponsor(s):
Mechanisms Specialty Section
Molecular Biology Specialty Section
Risk Assessment Specialty Section

An Adverse Outcome Pathway (AOP) represents existing knowledge concerning the linkage between a molecular initiating event and an adverse outcome at the individual or population levels (Ankley, Bennett, et al. 2009).

Abstract #

As such, it is a conceptual framework that describes known linkages between a chemical-induced initial molecular event that alters biochemical cellular processes that cascade via a series of key events observed as cellular, tissue, and anatomical changes, that ultimately culminates in an adverse outcome of relevance to human or ecological health. This workshop will provide a regulatory rationale for using AOPs, along with the types and amounts of data needed to construct an AOP. Further, the level of confidence in an AOP will be explored for usage in regulatory decision-making, whether priority setting for chemical toxicity testing or hazard prediction. The practical utility of AOPs for risk assessment of chemicals will be illustrated using three case study examples.

#1398	1:30	**Adverse Outcome Pathways: A Conceptual Framework for 21st Century Risk Assessment.** *J. Rowlands*[1], and *K. Crofton*[2]. [1]Toxicology and Environmental Research & Consulting, The Dow Chemical Company, Midland, MI; and [2]National Center for Computational Toxicology, US Environmental Protection Agency, Research Triangle Park, NC.
	1:30	**Introduction.** J. Rowlands. The Dow Chemical Company, Midland, MI.
#1399	1:35	**Creations and Use of AOPs: Progress and Prospects.** *A. R. Boobis*. Centre for Pharmacology & Therapeutics, Imperial College London, London, United Kingdom.
#1400	2:05	**Adverse Outcome Pathway (AOP) for Skin Sensitization.** G. Patlewicz. DuPont Haskell Global Centers for Health & Environmental Sciences, DuPont, Newark, DE. Sponsor: *J. Rowlands*.
#1401	2:35	**Thyroid Hormone Adverse Outcome Pathway-Based Screening Assays for Thyroid-Disrupting Chemicals.** *K. Crofton*. National Center for Computational Toxicology, US EPA, Research Triangle Park, NC.
#1402	3:05	**Reproductive Adverse Outcome Pathways for Chemical Inhibitors of Steroid Synthesis in Fish.** G. T. Ankley, and D. L. Villeneuve. Office of Research and Development, US EPA, Duluth, MN. Sponsor: *K. Crofton*.
#1403	3:35	**The Adverse Outcome Pathway for Hepatic Toxicity and Tumorigenesis in Rodents Initiated by Activation of the Aryl Hydrocarbon Receptor by Dioxin-Like Chemicals.** *J. Rowlands*, and *R. Budinsky*. Toxicology and Environmental Research & Consulting, The Dow Chemical Company, Midland, MI.
	4:05	**Panel Discussion/Q&A.**

Tuesday Afternoon, March 25
1:30 PM to 4:15 PM
Room 122

Workshop Session: Challenges Facing the Next Generation of Risk Assessment

Enhancing Strategies for Risk Assessment

Chairperson(s): *Robinan Gentry, Environ International Corporation, Monroe, LA, and Betty J. Locey, ARCADIS, Ann Arbor, MI.*

Sponsor(s):
Risk Assessment Specialty Section

Risk assessors continue to be faced with significant challenges due to the increase in technology and complexity of endpoints and datasets to be considered in understanding the potential for chemical exposure to result in adverse impacts on humans or the environment. This workshop will bring scientists from multiple disciplines together to discuss these challenges for

TUESDAY

Program Description (Continued)

Abstract #

both human and ecological risk assessment and the potential for innovative solutions. The goal of this workshop is to present the latest thinking on issues significant to the practice of risk assessment today in a forum that allows for expanded thinking and an exchange of ideas. New concepts and older concepts that are being revisited to address new challenges will be presented. Topics will include the critical need for interoperability of data and models for risk assessment, consideration of variability and uncertainty in risk assessment, weight-of-evidence approaches, challenges in dose-response modeling, and the current and future guidance from the National Research Council on risk assessment issues as we move forward in the 21st century. This workshop will be the second collaboration between members of the SOT Risk Assessment Specialty Section and the SETAC Human Health Risk Assessment Advisory Group and builds on the concepts presented in a workshop developed by these two specialty sections in 2012. The 2012 workshop was titled "Concepts Critical to the Next Generation of Human Health and Ecological Risk Assessment" and highlighted some of the challenges facing the next generation of risk assessors. The goal of that workshop was to provide information on new programs and approaches within regulatory agencies, as well as in the private sector, that rely on the integration of human, animal, or ecological data.

#1404	1:30	**Challenges Facing the Next Generation of Risk Assessment.** *R. Gentry*[1], and *B. J. Locey*[2]. [1]ENVIRON International Corporation, Monroe, LA; and [2]ARCADIS, Ann Arbor, MI.
	1:30	**Introduction.** R. Gentry. ENVIRON International Corporation, Monroe, LA.
#1405	1:35	**Risk Assessment in the 21st Century: Interpreting New Guidance.** T. E. McKone. University of California Berkeley, Berkeley, CA. Sponsor: *R. Gentry*.
#1406	2:04	**Dose-Response: Current Challenges and Opportunities for Improvement.** *N. B. Beck*. American Chemistry Council, Washington, DC.
#1407	2:33	**Weight of Evidence: Data Requirements and Approaches for Use in Regulatory Decision-Making.** *C. J. Borgert*. Applied Pharmacology and Toxicology, Inc., Gainesville, FL.
#1408	3:02	**Challenges to Risk Assessment in the 21st Century: Characterizing Variability and Reducing Uncertainty in Risk Assessments.** *P. S. Price*. The Dow Chemical Company, Midland, MI.
#1409	3:31	**Multiscale Modeling: Data Integration and Interoperability.** *A. M. Jarabek*. NCEA, US EPA, Research Triangle Park, NC.
	4:00	**Panel Discussion/Q&A.**

Tuesday Afternoon, March 25
1:30 PM to 4:15 PM
Room 129

Workshop Session: Contribution of Nonimmune Cells to Adverse Immune Responses: Implications for Toxicology

Safety Assessment: Mechanisms and Novel Methods

Chairperson(s): *Peer W. Karmaus, St. Jude Children's Research Hospital, Immunology, Memphis, TN, and Barbara L. Kaplan, Mississippi State University, Department of Basic Sciences, Center for Environmental Health Sciences, Mississippi State, MS.*

Sponsor(s):
Immunotoxicology Specialty Section
Metals Specialty Section

The potential for direct adverse effects of xenobiotics on the immune system is widely recognized. These intrinsic effects are often due to expression of target receptors for xenobiotics on immune cells or alteration of intracellular processes. However, novel evidence supports that cellular changes induced

Abstract #

by xenobiotics in nonimmune cells can alter the competence of the immune system. Organs outside of the immune system are increasingly recognized for their ability to initiate and shape an immune response. These organs include, but are not limited to, the central nervous system, the mucosal areas such as the lung and the gut, the liver, and the cardiovascular system. The role of toxicants and their ability to modulate organ systems, thereby initiating or altering an immune response resulting in immunotoxicity, is poorly understood. Research highlighting how toxicant-induced changes in tissue physiology can result in pertubations of the immune system will be discussed. The focus of presentations will address the considerations for modeling and for assessing toxic responses and explore putative mechanisms.

#1410	1:30	**Contribution of Nonimmune Cells to Adverse Immune Responses: Implications for Toxicology.** *P. W. Karmaus*[1], and *B. L. Kaplan*[2]. [1]Immunology, St. Jude Children's Research Hospital, Memphis, TN; and [2]Department of Basic Sciences, Mississippi State University, Mississippi State, MS.
	1:30	**Introduction.** P. W. Karmaus. St. Jude Children's Research Hospital, Memphis, TN.
#1411	1:35	**Cannabinoid-Induced Suppression of beta2AR+ B Cell Function.** *B. L. Kaplan*. Department of Basic Sciences, Mississippi State University, Mississippi State, MS.
#1412	2:07	**Amodiaquine-Induced Liver Injury: A New Animal Model of Immune-Mediated Toxicity.** *R. Li*. Bristol-Myers Squibb Company, New Brunswick, NJ.
#1413	2:39	**Adverse Effects of Systemic Inflammation and Acute Phase Responses Induced by Toxicants.** *S. B. Pruett*. Department of Basic Sciences, Mississippi State University, Mississippi State, MS.
#1414	3:11	**The Role of Epithelial Cell-Derived Hypoxia Signaling in Establishing the Inflammatory Response to Allergens.** *J. J. LaPres*. Department of Biochemistry and Molecular Biology, Michigan State University, East Lansing, MI.
#1415	3:43	**Indirect Xenobiotic Immune Modulation: Risk Assessment.** *L. P. Myers*. US FDA, Silver Spring, MD.

Tuesday Afternoon, March 25
1:30 PM to 4:15 PM
Room 125

Workshop Session: Developmental Toxicity from Chemical Mixtures: Research to Application in Susceptible Populations

Advancing Clinical and Translational Toxicology and Application of Biomarkers

Chairperson(s): *Danielle J. Carlin, NIEHS, Division of Extramural Research and Training, Research Triangle Park, NC, and Moiz Mumtaz, CDC-ATSDR, Department of Toxicology and Human Health Sciences, Atlanta, GA.*

Sponsor(s):
Mixtures Specialty Section
Reproductive and Developmental Toxicology Specialty Section
Risk Assessment Specialty Section

The study of environmental chemical mixtures is highly complex and requires sophisticated approaches to determine which mixture component(s) contribute to health effects. Consideration of sensitive subpopulations such as pregnant mothers, the developing fetus, infants, and children, significantly increases the complexity due to chemicals exhibiting different effects depending on the timing of exposure. For example, it is well known that

TUESDAY

Education-Career Development Sessions
Exhibitor-Hosted Sessions
Featured Sessions
Historical Highlights Session
Informational Sessions
Platform Sessions

Program Description (Continued)

Abstract #

exposure to mixtures of inorganic metals (e.g., lead, cadmium, mercury, arsenic) and pesticides leads to neurological and other organ-specific health effects in adults, but the suite of health effects associated with these mixtures in the developing fetus and infant could differ from that of adults and is less understood. This workshop will focus on the health effects of chemical mixtures with particular attention to exposure to pregnant mothers, the developing fetus, and children, and will include discussion of toxicological studies, statistical and modeling approaches, and application to human health risk assessment in these susceptible populations. There is an impending need to understand interactions among components of mixture exposures in order to improve human health risk assessments in these susceptible populations.

#1416	1:30	**Developmental Toxicity from Chemical Mixtures: Research to Application in Susceptible Populations.** *D. J. Carlin*[1], and *M. Mumtaz*[2]. [1]NIEHS, Research Triangle Park, NC; and [2]ATSDR, Atlanta, GA.
	1:30	**Introduction.** M. Mumtaz. ATSDR, Atlanta, GA.
#1417	1:35	**Chemical Mixtures, Developmental Windows, and Neurodevelopment.** *R. O. Wright*. Mount Sinai School of Medicine, New York.
#1418	2:05	**En Route to More Relevant Animal Models: Interactions of Chemical and Nonchemical Stressors in Developmental Neurotoxicology.** *D. A. Cory-Slechta*. University of Rochester School of Medicine, Rochester, NY.
#1419	2:35	**Toward the Rational Use of Exposure Information in Mixtures Toxicology.** R. Tornero-Velez. US EPA, Research Triangle Park, NC. Sponsor: *D. Carlin*.
#1420	3:05	**Application of a Weighted Quantile Sum Approach to Identifying Bad Actors in Mixtures of Environmental Chemicals: A Transgenerational Study of Reproductive Hazards.** *C. Gennings*. Virginia Commonwealth University Medical Center, Richmond, VA.
#1421	3:35	**A Risk Assessment and Regulatory Agency Perspective on Mixtures Affecting Susceptible Populations.** *M. L. Dourson*. Toxicology Excellence for Risk Assessment, Cincinnati, OH.
	4:05	**Panel Discussion/Q&A.**

Tuesday Afternoon, March 25
1:30 PM to 4:15 PM
North Ballroom 120B

Workshop Session: Somatic Cell Therapy—Paradigms for Investigational New Drug (IND)-Enabling Programs, Scientific and Regulatory Considerations, and Clinical Translation

Advancing Clinical and Translational Toxicology and Application of Biomarkers

Chairperson(s): *Charles Lindamood, CLIII Consulting, LLC, Hoboken, NJ, and Jason Hamilton, Athersys, Inc., Regenerative Medicine, Cleveland, OH.*

Sponsor(s):
Biotechnology Specialty Section
Clinical and Translational Toxicology Specialty Section
Stem Cells Specialty Section

There is significant interest in somatic cell therapies and their therapeutic potential to stimulate repair in diseased or injured tissue. Development of these therapies has been hindered by lack of knowledge of appropriate methods for assuring patient safety in clinical trials. Standard pharmacological and toxicological methods may not apply in safety evaluation of somatic cell therapies. Animal model selection, and safety concerns to be

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assessed, varies greatly depending upon clinical indication, source and type of cell therapy, and method of cell therapy delivery. The aim of this workshop is to provide insight into successful paradigms for IND-enabling studies supporting clinical evaluation of somatic cell therapies. Speakers with both regulatory and academic/industry development expertise in somatic cell therapy will provide presentations of program experience. The overall goal is to aid current investigators in the somatic cell therapy field, and to facilitate and expedite the development of somatic cell therapies in clinical medicine by sharing lessons learned from previous experiences.

#1422	1:30	**Somatic Cell Therapy—Paradigms for Investigational New Drug (IND)-Enabling Programs, Scientific and Regulatory Considerations, and Clinical Translation.** *C. Lindamood*[1], P. Au[2], *L. E. Black*[3], J. Hamilton[4], *J. Cavagnaro*[5], J. W. Ludlow[6], and *C. Sachs*[7]. [1]CLIII Consulting, LLC, Hoboken, NJ; [2]Food and Drug Administration, Rockville, MD; [3]Charles River Laboratories, Inc., Reno, NV; [4]Athersys, Inc., Cleveland, OH; [5]Access BIO, Boyce, VA; [6]Zen Bio Inc., Research Triangle Park, NC; and [7]Janssen Research and Development, LLC, Spring House, PA.
	1:30	**Introduction.** C. Lindamood. CLIII Consulting, LLC, Hoboken, NJ.
#1423	1:40	**Developing Cell Therapy Products: US FDA Preclinical Regulatory Considerations.** P. Au. Office of Cellular, Tissue and Gene Therapies, Center for Biologics Evaluation and Research, US FDA, Rockville, MD. Sponsor: *C. Lindamood III.*
#1424	2:00	**The Shaky Bridge: Animal Model Translation for Cell Therapies and Impact on Clinical Success.** *L. E. Black*. Charles River Laboratories, Reno, NV.
#1425	2:20	**Considerations in Dose Extrapolation of Stem Cell-Based Therapies: Optimizing First in Human Trial Design.** *J. Cavagnaro*. Access BIO, Boyce, VA.
#1426	2:40	**Intravenous Administration of Human Bone Marrow-Derived MultiStemR Cells after Ischemic Stroke: Preclinical Safety, Efficacy, and Mechanism of Action Studies to Support IND Submission and Clinical Trial Design.** J. Hamilton. Athersys, Inc., Cleveland, OH. Sponsor: *C. Lindamood III.*
#1427	3:00	**Regeneration of Native-Like Neo-Urinary Tissue from Nonbladder Cell Sources—Development of the Neo-Urinary Conduit™** J. W. Ludlow. Zen Bio Inc., Research Triangle Park, NC. Sponsor: *C. Lindamood III.*
#1428	3:20	**Nonclinical Development of Human Umbilical Tissue-Derived Cells (hUTC) for Degenerative Retinal Diseases.** *C. Sachs*. Janssen Research and Development, LLC, Spring House, PA.
	3:40	**Panel Discussion/Q&A.**

Program Description (Continued)

Abstract #

Tuesday Afternoon, March 25
1:30 PM to 4:15 PM
Room 121

Innovations in Applied Toxicology (IAT)

Workshop Session: The Promise of Translational Imaging in Nonclinical Safety Assessment

Safety Assessment: Mechanisms and Novel Methods

Chairperson(s): *Merle G. Paule, NCTR, US FDA, Division of Neurotoxicology, Jefferson, AR, and Connie L. Chen, ILSI Health and Environmental Sciences Institute, Washington, DC.*

Sponsor(s):
Cardiovascular Toxicology Specialty Section
Neurotoxicology Specialty Section
Toxicologic and Exploratory Pathology Specialty Section

This symposium is designed to explore how several clinical to preclinical translational imaging modalities can be efficiently and effectively integrated into contemporary drug development and chemical hazard assessment. Standard clinical imagers, such as Magnetic Resonance Imaging (MRI), Magnetic Resonance Spectroscopy (MRS), Echocardiography (Echo) and Positron Emission Tomography (PET) have demonstrated strong utility in the nonclinical setting by allowing for the ability to perform real-time, non-invasive, longitudinal animal studies that can provide morphological, functional, and molecular data. Additionally, these modalities greatly minimize the need for assumptions in data interpretation and reduce uncertainty during product development or risk assessment; therefore, the preclinical application of these imaging strategies and the integration of these capabilities into modern drug safety assessment and environmental hazard identification is a promising development with the potential to greatly impact the field. This workshop will provide an overview of the challenges facing clinical trials and opportunities for translational imaging to address these gaps. Imaging approaches that address major contributors to pharmaceutical attrition, including cardiovascular safety, drug-induced liver injury, and neurotoxicity, will be presented. Additionally, the panel discussion will explore the hurdles of validating the use of imaging modalities as a biomarker in the field and by regulators. Ultimately, this workshop aims to facilitate dialogue across disciplines for broader acceptance and implementation of translational imaging in improving preclinical safety assessment and basic toxicity studies.

#1429	1:30	**The Promise of Translational Imaging in Nonclinical Safety Assessment.** C. L. Chen[1], B. R. Berridge[5], J. Heyen[6], P. Hockings[4], A. G. Johnson[2], *S. Liachenko*[3], and *M. G. Paule*[3]. [1]ILSI Health and Environmental Sciences Institute, Washington, DC; [2]Center for In Vivo Microscopy, Duke University, Durham, NC; [3]Division of Neurotoxicology, US FDA NCTR, Pine Bluff, AR; [4]Drug Safety and Metabolism, AstraZeneca, Mölndal, Sweden; [5]Safety Assessment, GlaxoSmithKline, Research Triangle Park, NC; and [6]Pfizer, La Jolla, CA.
	1:30	**Introduction.** C. L. Chen. ILSI Health and Environmental Sciences Institute, Washington, DC.
#1430	1:35	**Translational Imaging Advances in Preclinical Assessment and Challenges for Regulatory Acceptance.** B. R. Berridge. Safety Assessment, GlaxoSmithKline, Research Triangle Park, NC. Sponsor: *S. Liachenko*.
#1431	2:00	***In Vivo* Imaging of Hepatobiliary Transporter Function.** P. Hockings. Drug Safety and Metabolism, AstraZeneca, Mölndal, Sweden. Sponsor: *S. Liachenko*.
#1432	2:30	**Characterization of Drug-Induced Changes in the Cardiovascular System.** J. Heyen. Pfizer, La Jolla, CA. Sponsor: *M. Paule*.

Abstract #

#1433	3:00	**Magnetic Resonance Histology—Applications in Toxicology.** A. Badea, A. G. Johnson, E. Calabrese, C. Liu, and L. Xie. Center for In Vivo Microscopy, Duke University, Durham, NC. Sponsor: *M. Paule*.
#1434	3:30	**Preclinical Development of Neurotoxicity Biomarkers Using *In Vivo* MRI.** *S. Liachenko*. Division of Neurotoxicology, NCTR, US FDA, Pine Bluff, AR.
	4:00	**Panel Discussion/Q&A.**

Tuesday Afternoon, March 25
1:30 PM to 4:15 PM
Room 126

Workshop Session: The Role of Toxicology in Undergraduate STEM Education Reform

Chairperson(s): *Richard S. Pollenz, University of South Florida, Cell Biology, Tampa, FL, and Marie M. Bourgeois, University of South Florida, Environmental and Occupational Health, Tampa, FL.*

Sponsor(s):
Career Resource and Development Committee
Education Committee
Postdoctoral Assembly

The attrition of undergraduates who enter STEM degree programs but do not earn a STEM undergraduate degree is an area of national concern. "Vision and Change in Undergraduate Biology Education," the 2011 report from AAAS/NSF, and "Engage to Excel," the 2012 report from the President's Council of Advisors on Science and Technology (PCAST), are two national calls to action on this issue and advocate for significant reform in the way undergraduate STEM education is delivered. A strategic goal of SOT is a commitment to education in toxicology and the recruitment of students and new members into the profession. Although the number of undergraduate toxicology degree programs is limited, toxicology is a STEM discipline and many SOT members currently engaged in teaching undergraduates incorporate toxicology into traditional STEM undergraduate degree programs such as biology, biomedical sciences, chemistry, public health, and nursing. The learning objectives of this interactive workshop are to, 1) provide context to the national call to action on undergraduate STEM education reform, 2) present four case studies of inquiry-based approaches in undergraduate STEM education that inspire students about the multidisciplinary science of toxicology, and 3) engage attendees to develop an "action plan" that incorporates toxicology and inquiry into a current STEM undergraduate degree program. During the workshop attendees will have the opportunity to network with practitioners who can help inform their practice. This session should have widespread benefit to anyone engaged in teaching "toxicology" at any level of academia or industry who has an interest in innovations that help to engage trainees to "work the problem."

#1435	1:30	**The Role of Toxicology in Undergraduate STEM Education Reform.** *R. S. Pollenz*[1], J. Labov[3], *M. Bourgeois*[2], *T. Dodd-Butera*[6], *B. Brooks*[4], and *T. Leavens*[5]. [1]Office for Undergraduate Research, University of South Florida, Tampa, FL; [2]Environmental and Occupational Health, University of South Florida, Tampa, FL; [3]National Academy of Sciences, National Research Council, Washington, DC; [4]Environmental Science, Baylor University, Waco, TX; [5]Pharmacokinetic Consultant, Cary, NC, and [6]Nursing, California State University, San Bernardino, San Bernardino, CA.
	1:30	**Introduction and Session Learning Objectives.** R. S. Pollenz. University of South Florida, Tampa, FL.
#1436	1:35	**The Changing National Landscape of STEM Education: Building Partnerships with Scientists and Educators.** J. Labov. National Academy of Sciences, National Research Council, Washington, DC. Sponsor: *R. Pollenz*.

TUESDAY

Program Description (Continued)

Abstract #

#1437	2:00	**Case Study 1: Creating Research Experiences and Activities for Public Health Undergraduates through Teaching Enhancement (CREATTE).** *M. M. Bourgeois*. Environmental and Occupational Health, University of South Florida, Tampa, FL.
#1438	2:20	**Case Study 2: Integrating Toxicology into the Undergraduate Curriculum.** *T. Dodd-Butera*. Nursing, California State University, San Bernardino, San Bernardino, CA.
#1439	2:40	**Case Study 3: Integrating Toxicology into the Undergraduate Laboratory Curriculum.** *B. W. Brooks*. Environmental Science, Baylor University, Waco, TX.
#1440	3:00	**Case Study 4: Problem-Based Instruction of Pharmacokinetics.** *T. L. Leavens*. Pharmacokinetic Consultant, Cary, NC.
	3:20	**Break-Out Session and Development of Individual Action Plan: Incorporating Inquiry into the Undergraduate Curriculum.** S. M. Ford[1], and J. C. Pfau[2]. [1]College of Pharmacy, St. John's University, Jamaica, NY; and [2]Idaho State University, Pocatello, ID.
	3:50	**Report Outs/Discussion/Closing Remarks.** R. S. Pollenz. University of South Florida, Tampa, FL.

Tuesday Afternoon, March 25
1:30 PM to 2:30 PM
Room 106A West

E

Exhibitor-Hosted Session: Inhalation As a Route for Systemic Drug Delivery

Presented by:
Huntingdon Life Sciences

Inhalation has obvious advantages as the route of administration for pulmonary indications. More recently investigators have begun to recognize and take advantage of the gas exchange region of the lung for systemic delivery of treatments for a variety of nonpulmonary indications.

Tuesday Afternoon, March 25
1:30 PM to 2:30 PM
Room 106C West

E

Exhibitor-Hosted Session: Phenotypic *In Vitro* Assessment of Compound Effects on Cardiomyocyte Physiology Using Human iPSC-Derived Cardiomyocytes

Presented by:
Cellular Dynamics International

Assays to determine if drugs and environmental compounds alter human myocardial performance are critical for classification as cardioactive and/or cardiotoxic. Data will be presented from HTS phenotypic screens using human iPSC-derived cardiomyocytes that can be utilized to prioritize suspected cardiotoxicants for *in vivo* hazard characterization follow-up studies.

Tuesday Afternoon, March 25
1:30 PM to 2:30 PM
Room 101C West

E

Exhibitor-Hosted Session: The Minipig As a Model for Ocular Toxicity Studies

Presented by:
CiToxLAB and Ellegaard Göttingen Minipigs

Minipigs are a commonly used species in biomedical research. The structure and anatomy of the eye resembles that of humans and makes minipigs a suitable model for studies where direct dosing to the ocular structures is required. This session will present detail about the practical aspects of such studies.

Tuesday Afternoon, March 25
1:30 PM to 2:30 PM
Room 101A West

E

Exhibitor-Hosted Session: The Use of Human HepatoPac™, an *In Vitro* Microliver Platform, for Predictive Toxicology

Presented by:
Hepregen Corporation

Current *in vitro* platforms to assess hepatotoxicity have been poor predictors of *in vivo* performance. HepatoPac™ is a highly predictive *in vitro* microliver platform demonstrated to improve sensitivity. It remains functional for several weeks, making it an ideal platform for "extended-horizon" scenarios, including chronic toxicity and DDIs.

Tuesday Afternoon, March 25
2:45 PM to 3:45 PM
Room 101C West

E

Exhibitor-Hosted Session: Alternate Nicotine Delivery Systems (ANDS): An Integrated Approach to Risk Assessment

Presented by:
Battelle Memorial Institute.

Battelle Memorial Institute will present strategies to determine the biological activity of Alternate Nicotine Delivery Systems. The presentations will include aspects on dosimetry, risk assessment, *in vitro* and *in vivo* methodologies. Additionally, expertise and approaches for characterization of the chemical and physical properties of the exposure atmosphere will be discussed.

Tuesday Afternoon, March 25
2:45 PM to 3:45 PM
Room 101A West

E

Exhibitor-Hosted Session: Applying Novel Bioinformatics to Preclinical Data

Presented by:
PDS Preclinical Data Systems Inc.

We are specialized in leveraging biomedical data for pharmaceutical and biotechnology companies. Our know-how complements traditional modeling and data-mining techniques, since it enables the identification, characterization, and targeting of subgroups corresponding to best and worst performances in terms of efficacy and safety.

Program Description (Continued)

Tuesday Afternoon, March 25
2:45 PM to 3:45 PM
Room 106C West

E

Exhibitor-Hosted Session: Biomarkers and Profiling: An Added Value in Pharmaceutical Drug Development

Presented by:
Harlan Contract Research Services

Conducting the right profiling studies before starting the preclinical development increases the reliability of the drug candidate selection process. The importance of including biomarkers for toxicity and efficacy at the early stage of drug development and in the preclinical toxicity studies to follow organ injury will be discussed.

Tuesday Afternoon, March 25
2:45 PM to 3:45 PM
Room 106A West

E

Exhibitor-Hosted Session: Practical Issues Combining Multiple *In Silico* Systems to Support the ICH M7 Guidelines

Presented by:
Leadscope, Inc.

The current International Conference on Harmonization (ICH) M7 impurities guideline outlines the use of two complementary *in silico* methodologies. This session will review practical considerations around using and documenting the results from integrated statistical-based models and expert alert systems, as well as providing supporting expert opinions.

Tuesday Evening, March 25
4:15 PM to 6:30 PM
Copper Blues

Ohio Valley Regional Chapter Reception

Tuesday Afternoon, March 25
4:30 PM to 6:00 PM
North Ballroom 120D
(All SOT Members Invited)

SOT Annual Business Meeting

Members are invited and encouraged to attend the 53rd SOT Annual Business Meeting. The agenda includes discussion of plans for 2014–2015, a financial summary, and a review of the 2013–2014 activities.

TUESDAY EVENING

Tuesday Evening, March 25
5:30 PM to 7:30 PM
Tom's Tavern

Lone Star and South Central Regional Chapter Joint Mixer

Tuesday Evening, March 25
6:00 PM to 7:30 PM
Sheraton
See room listing below.

Specialty Section Meeting/Receptions: Biological Modeling (Valley of the Sun B); Biotechnology (Maryvale); Cardiovascular Toxicology (Valley of the Sun C); Clinical and Translational Toxicology (Laveen B); Dermal Toxicology (Valley of the Sun A); Ocular Toxicology (Ahwatukee); Reproductive and Developmental Toxicology (Valley of the Sun D); Stem Cells (Estrella)

Tuesday Afternoon, March 25
6:00 PM to 8:00 PM
Sheraton Phoenix Ballroom D

Women in Toxicology Special Interest Group Meeting/Reception

Tuesday Evening, March 25
6:30 PM to 9:30 PM
Arizona Latino Arts and Culture Center

Hispanic Organization of Toxicologists Special Interest Group Reception and Awards Ceremony

Tuesday Evening, March 25
7:00 PM to 10:00 PM
The Arrogant Butcher

Northern California Regional Chapter Reception

Tuesday Evening, March 25
7:30 PM to 9:00 PM
Sheraton Hotel, Encanto Room

Tox ShowDown

Chairperson(s): *Sue M. Ford, St. John's University, Jamaica, NY, and Phil Wexler, NIH-NLM, Bethesda, MD.*

Sponsor(s):
Graduate Student Leadership Committee

Join the Graduate Student Leadership Committee (GSLC) and your peers Tuesday night for the *Tox ShowDown*, an engaging quiz game patterned off of the popular long-running show *It's Academic*. Teams of three contestants will compete at answering questions concerning toxicology not only in its historical and scientific context, but as it relates to the arts, and culture. Sponsored by GSLC, this event is sure to be both informative and entertaining and a perfect way to celebrate the halfway point of the SOT Annual Meeting. The game will provide attendees with a break, albeit still toxicologically-oriented, from the more technical business of the meeting.

Program Description (Continued)

WEDNESDAY MORNING

Wednesday Morning, March 26
8:00 AM to 9:00 AM
North Ballroom 120A

FS

Keynote Medical Research Council (MRC) Lecture: Guiding Signals through Anchored Enzyme Complexes: Implications for Disease



Lecturer: *John D. Scott, Howard Hughes Medical Institute, Department of Pharmacology, University of Washington, Seattle, WA.*

Intracellular signal transduction events are precisely regulated in space and time. This is achieved in part by A-Kinase Anchoring Proteins (AKAPs) that tether signaling enzymes such as protein kinases and phosphatases in proximity to selected substrates. AKAP targeting provides an efficient means to reversibly control the phosphorylation status of key substrates and contributes to the dynamic regulation of sophisticated cellular events. Using a variety of genetic, electrophysiological, and live-cell imaging techniques, we show that AKAPs, which enhance the precision of signaling events, are up-regulated under certain pathophysiological states. This leads to aberrant regulation of certain physiological processes and disorders such as diabetes and heart disease. In this talk Dr. Scott will present some recent data on the role of anchored signaling complexes that modulate various extra-pancreatic complications of diabetes, including hypertension and cataract formation.

Wednesday Morning, March 26
8:00 AM to 9:30 AM
Room 230

Inhalation and Respiratory Specialty Section Technical Meeting

Wednesday Morning, March 26
9:00 AM to 11:45 AM
North Ballroom 120D

S

Innovations in Toxicological Sciences (ITS)

Symposium Session: *In Vitro* Microphysiological Systems: Advancing Regulatory Science through Innovation

Safety Assessment: Mechanisms and Novel Methods

Chairperson(s): *Suzanne C. Fitzpatrick, US FDA, Center for Food Safety & Applied Nutrition, College Park, MD, and Anthony Bahinski, Wyss Institute for Biologically Inspired Engineering at Harvard University, Boston, MA.*

Sponsor(s):
Cardiovascular Toxicology Specialty Section
***In Vitro* and Alternative Methods Specialty Section**
Regulatory and Safety Evaluation Specialty Section

Development of safe and effective drugs is currently hampered by the poor predictive power of existing preclinical animal models that often lead to failure of drug compounds late in their development. Given the tremendous cost of drug development and the long timelines involved, major pharmaceutical companies and government funding agencies are now beginning to recognize a crucial need for new technologies that can quickly and reliably predict drug safety and efficacy in humans in preclinical studies. Advances in bioengineering, material sciences, microfabrication, and microfluidics technologies have enabled the development of microphysiological systems that mimic the functional units of an organ. These advances have made it possible to initiate the engineering of cellular microenvironments and/or functional units of lung, heart, blood vessels, muscles, bones, liver, nervous system (including eye), gut, and kidney. In general, these microphysiological systems, or human "organs-on-chips," use microscale engineering technologies combined with cultured living human cells to create microfluidic devices that recapitulate the physiological and mechanical microenvironment of whole living organs. The next challenge is to develop an integrated microsystem platform that can incorporate several different modular organs on a chip. These integrated microsystems would mirror the complex physiology and biology of the human body. An integrated microphysiological platform could further our understanding of disease etiology and fill the critical need for improved model systems to predict efficacy, safety, bioavailability, and toxicology outcomes for candidate compounds. This symposium will examine the building blocks needed to bring this new innovative technology into the regulatory arena, including the need for adequate stem cells, the development of representative organ systems, challenges to building a "human on a chip," and the pathway to qualification for regulatory use.

Abstract #

#1441	9:00	***In Vitro* Microphysiological Systems: Advancing Regulatory Science through Innovation.** *A. Bahinski*[1], and *S. C. Fitzpatrick*[2]. [1]Wyss Institute for Biologically Inspired Engineering at Harvard University, Boston, MA; and [2]Center for Food Safety & Applied Nutrition, US Food and Drug Administration, College Park, MD.
	9:00	**Introduction.** A. Bahinski. Wyss Institute for Biologically Inspired Engineering at Harvard University, Boston, MA.
#1442	9:05	**The Importance of Partnerships for Innovation in Regulatory Science—The NCATS/US FDA/DARPA Partnership for Developing Microphysiological Systems.** D. A. Tagle. National Center for Advancing Translational Sciences (NCATS), NIH, Bethesda, MD. Sponsor: *A. Bahinski*.
#1443	9:37	**Good Cell Culture Practices and Their Application to iPSC for Neurotoxicity.** *T. Hartung*. Department of Environmental Health Sciences, Center for Alternatives to Animal Testing, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD.
#1444	10:09	**Successes and Challenges in Integrating Organ Chips: The Heart-Lung Micromachine.** D. E. Ingber[1,2,3]. [1]Wyss Institute for Biologically Inspired Engineering at Harvard University, Boston, MA; [2]Vascular Biology Program, Children's Hospital Boston and Harvard Medical School, Boston, MA; and [3]School of Engineering and Applied Sciences, Harvard University, Cambridge, MA. Sponsor: *A. Bahinski*.
#1445	10:41	**Challenges of Developing an Integrated "Human on a Chip" System.** J. P. Wikswo. Vanderbilt Institute for Integrative Biosystems Research and Education, Vanderbilt University, Nashville, TN. Sponsor: *A. Bahinski*.
#1446	11:13	**Moving Innovation into Regulatory Reality.** *D. Jacobson Kram*. Center for Drug Evaluation and Research, US FDA, Silver Spring, MD.

Program Description (Continued)

Abstract #

Wednesday Morning, March 26
9:00 AM to 11:45 AM
Room 126

Symposium Session: Mechanisms of Metal-Induced Disruption of DNA Repair

Safety Assessment: Mechanisms and Novel Methods

Chairperson(s): *Hong Xie, University of Southern Maine, Portland, ME, and Ke Jian Liu, University of New Mexico, College of Pharmacy, Albuquerque, NM.*

Sponsor(s):
Carcinogenesis Specialty Section
Mechanisms Specialty Section
Metals Specialty Section

Metal compounds are found throughout the environment from natural sources and human activities. Industrial applications contribute significantly to human metal exposure. Some metals, including arsenic, cadmium, chromium, lead, and nickel have been classified as or considered to be human carcinogens. DNA molecules are continuously damaged by endogenous factors and environmental agents (e.g., UV, chemical toxicants, and biological toxins). Thus, the efficient repair of these lesions is crucial to maintaining DNA integrity. In recent years, mounting evidence has suggested that DNA repair processes are susceptible to carcinogenic metals. Chronic exposure to Cr(VI) was shown to inhibit the error-free DNA double-strand break repair pathway, homologous recombination. Cd(II) interferes with DNA mismatch repair by binding to specific sites on Msh2-Msh6 to block its DNA binding and ATPase activities. Ni(II) was found to compromise activity of xeroderma pigmentosum group A complementing protein (XPA) in nucleotide excision repair (NER) pathway by interfering with zinc finger structure of XPA. As(III), Co(II), Cd(II), Hg(II), and Pb(II) have been found to decrease the incision step or the polymerization step in NER system. Studies reported that low concentrations of As(III) inhibit poly(ADP-ribose) polymerase (PARP)-1, leading to interference with DNA repair process triggered by UV radiation. It has been proposed that interference with DNA repair systems is one of the common modes of action for metal-induced carcinogenicity. It is of great interest and importance to understand the steps affected by metals in the repair pathway and the mechanism of the repair inhibition. The presentations in this symposium will highlight the latest findings on the molecular mechanisms of metal-induced inhibition of DNA repair.

#1447	9:00	**Mechanisms of Metal-Induced Disruption of DNA Repair.** *H. Xie*. Wise Laboratory of Environmental and Genetic Toxicology, University of Southern Maine, Portland, ME.
	9:00	**Introduction.** H. Xie. University of Southern Maine, Portland, ME.
#1448	9:05	**Impact of Cadmium and Copper on the Cellular Response to DNA Damage: Interference with Redox-Regulation.** A. Hartwig, B. Fischer, C. Keil, S. Risnes, and A. Semisch. Karlsruhe Institute of Technology, Karlsruhe, Germany. Sponsor: *H. Xie*.
#1449	9:45	**Inhibition of DNA Repair As a Mechanism of Arsenic Carcinogenesis.** K. Liu, X. Zhou, K. L. Cooper, *S. W. Burchiel*, and L. G. Hudson. University of New Mexico, Albuquerque, NM.
#1450	10:25	**Prolonged Exposure to Particulate Chromate Induces a Switch from Homologous Recombination Repair to Nonhomologous End Joining Repair in Human Lung Cells.** *J. P. Wise, Q. Qin, C. L. Browning, S. S. Wise, H. Xie*, and *A. L. Holmes*. University of Southern Maine, Portland, ME.
#1451	11:05	**Chemistry and Biology of Oxidatively-Induced Tandem Lesions of DNA.** Y. Wang. Department of Chemistry and Environmental Toxicology Graduate Program, University of California Riverside, Riverside, CA. Sponsor: *H. Xie*.

Abstract #

Wednesday Morning, March 26
9:00 AM to 11:45 AM
Room 122

Symposium Session: Molecular Mechanisms Involved in Neuro/Glial Toxicity: From Oxidative Stress to Redox Signal Transduction

Safety Assessment: Mechanisms and Novel Methods

Chairperson(s): *Rodrigo Franco, University of Nebraska Lincoln, School of Veterinary Medicine and Biomedical Sciences, Lincoln, NE, and Michelle L. Block, Virginia Commonwealth University, Anatomy & Neurobiology, Richmond, VA.*

Sponsor(s):
Mechanisms Specialty Section
Molecular Biology Specialty Section
Neurotoxicology Specialty Section

Oxidative stress, defined as the imbalance between the production of reactive oxygen (ROS) or nitrogen (RNS) species and the ability of cells to scavenge these reactive species and repair oxidative damage, has been largely reported to participate in environmental toxicity. Biomarkers of oxidative damage in proteins, lipids, and nucleic acids are inherent to neuronal toxicity associated with pesticides, metals, and particulate matter. Electron-transfer processes called "redox signaling" play key messenger roles in biological systems. Initially, ROS/RNS formation was thought to lead to nonspecific cellular damage. However, recent *in vitro* and *in vivo* findings demonstrate that, in response to environmentally relevant doses toxicants, a specific set of redox signaling events play a major role activating specific signaling transduction cascades, regulating gene expression, enzyme activity, cellular metabolism, and cell fate outcome of neuronal and glial cells. In this session we will examine recent findings on the molecular mechanisms by which redox signaling regulates environmental neuro/glial toxicity. More specifically, the speakers will highlight the novel mechanisms by which mitochondrial redox homeostasis, iron-sulfur cluster oxidation, electrophile-adduct formation, thiols, transcription factor regulation, oxidative post-translational modifications, and oxidative DNA-damage regulate the toxicity of particulate matter, aldehydes, pesticides, and metals. This topic should be of great importance to biochemists, risk assessors, graduate students, postdoctoral trainees, and academics within distinct Specialty Sections.

#1452	9:00	**Molecular Mechanisms Involved in Neuro/Glial Toxicity: From Oxidative Stress to Redox Signal Transduction.** *R. Franco*. School of Veterinary Medicine and Biomedical Sciences, University of Nebraska-Lincoln, Lincoln, NE.
	9:00	**Introduction.** R. Franco. School of Veterinary Medicine and Biomedical Sciences, University of Nebraska-Lincoln, Lincoln, NE.
#1453	9:05	**Mitochondrial Redox Mechanisms of Neurotoxicants Implicated in Parkinson's Disease.** *M. N. Patel*. School of Pharmacy and Pharmaceutical Sciences, University of Colorado, Aurora, CO.
#1454	9:35	**The Electrophile-Responsive Proteome As a Target for Environmental Neurotoxicants.** *R. M. LoPachin*. Montefiore Medical Center, New York City, NY.
#1455	10:05	**Redox Regulation of NF–κB p50 and M1 Polarization in Neurotoxic Microglia.** *M. L. Block*. Anatomy and Neurobiology, Virginia Commonwealth University, Richmond, VA.
#1456	10:35	**Redox Signaling and Methylmercury Toxicity.** *M. Aschner*, and *M. Ni*. Department of Pediatrics, Vanderbilt University Medical Center, Nashville, TN.

Program Description (Continued)

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#1457 11:05 **Repair of Mammalian Genome Damage Induced by Oxidative Stress and Their Linkage to Neurodegenerative Diseases.** S. Mitra. Radiation Oncology, The Methodist Hospital Research Institute, Houston, TX. Sponsor: *R. Franco*.

11:35 **Panel Discussion/Q&A.**

Wednesday Morning, March 26
9:00 AM to 11:45 AM
Room 124

Symposium Session: The Role of the AhR in Stem Cell Development and Lineage Specification

Stem Cell Models for Integrated Biology

Chairperson(s): *David H. Sherr, Boston University School of Public Health, Environmental Health, Boston, MA, and Alvaro Puga, University of Cincinnati, Department of Environmental Health, Cincinnati, OH.*

Sponsor(s):
Carcinogenesis Specialty Section
Molecular Biology Specialty Section
Stem Cells Specialty Section

For decades the aryl hydrocarbon receptor (AhR) has been studied for its mediation of the toxic and carcinogenic effects of ubiquitous environmental chemicals including dioxins, planar PCBs and PAHs. A subtext to this work has always been the nature of the "normal" physiological function of this evolutionarily conserved protein. In the last five years, several breakthrough studies have begun to reveal the significance of the AhR in normal biological processes. Similarly, technological advances developed in the last five years have allowed investigators, for the first time, to map out some of the most basic tenets of pluripotent and multipotent stem cell differentiation. The significance of this work cannot be overstated since control of stem cell differentiation is a key to both organ generation/regeneration and cancer stem cell immortality. Here, we focus on the intersection of AhR and stem cell biology to highlight the importance of the AhR to the regulation of stem cell differentiation and to emphasize the potential for environmental AhR ligands to disrupt essential cell specification programs. We will discuss AhR control of: 1) pluripotent (embryonic stem cell and induced pluripotent stem cell) development into cardiomyocytes, erythroid lineage cells and megakaryocytes, 2) multipotent hematopoietic stem cell senescence and differentiation into lymphocytes, and 3) cancer stem cell development. In so doing, we will identify themes common to multiple developmental systems (e.g., common AhR signaling pathways, the role of the AhR in maintaining "stem-ness," and predicted outcomes after environmental chemical exposure). Symposium speakers will address the significant implications of their work for stem cell and AhR biology under normal physiological conditions and when impacted by exposure to environmental AhR ligands.

#1458 9:00 **The Role of the AhR in Stem Cell Development and Lineage Specification.** *D. H. Sherr*[4], *A. Puga*[1], *T. A. Gasiewicz*[2], *E. Papoutsakis*[3], and *G. Murphy*[4]. [1]University of Cincinnati, Cincinnati, OH; [2]University of Delaware, Newark, DE; [3]University of Rochester Medical Center, Rochester, NY; and [4]Boston University, Boston, MA.

9:00 **Introduction.** D. H. Sherr. Environmental Health, Boston University School of Public Health, Boston, MA.

#1459 9:10 **The AhR Modulate Cardiomyogenesis in Embryonic Stem Cells.** *A. Puga*. Department of Environmental Health, University of Cincinnati, Cincinnati, OH.

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#1460 9:40 **The AhR Is a Key Factor in the Regulation of Hematopoietic Stem Cells and Their Protection from Premature Exhaustion, Stress, and Hematopoietic Disease.** *T. A. Gasiewicz*[1], *K. P. Singh*[1], *J. Bennett*[1], *F. Casado*[2], J. Walrath[1], and S. Welle[1]. [1]Department of Environmental Medicine, University of Rochester, Rochester, NY; and [2]McMaster Stem Cell & Cancer Research Institute, Hamilton, ON, Canada.

#1461 10:10 **A Role for the Aryl Hydrocarbon Receptor (AhR) on Platelet Function.** E. Papoutsakis[1,2], S. Lindsay[1,3], J. Jiang[1], and D. Woulfe[2]. [1]Department of Chemical & Biomolecular Engineering, University of Delaware, Newark, DE; [2]Department of Biological Sciences, University of Delaware, Newark, DE; and [3]Nemours Center for Childhood Cancer Research, A.I. duPont Hospital for Children, Wilmington, DE. Sponsor: *A. Puga*.

#1462 10:40 **The AhR Regulates the Production and Specification of Bipotential Hematopoietic Progenitor Cells.** G. Murphy[1], B. Smith[1], S. Rozelle[1], A. Leung[1], J. Ubellacker[2], A. Parks[2], S. Nah[1], S. Monti[1], and *D. H. Sherr*[2]. [1]Center for Regenerative Medicine (CReM), Section of Hematology and Oncology, Department of Medicine, Boston University School of Medicine, Boston, MA; and [2]Environmental Health, Boston University School of Public Health, Boston, MA.

#1463 11:10 **The AhR Controls Breast Cancer Stem Cell Development and Function.** *D. H. Sherr*[1], A. Parks[1], S. Monti[2], G. Murphy[2], O. Novikov[1], J. Ubellacker[1], and E. Stanford[1]. [1]Environmental Health, Boston University School of Public Health, Boston, MA; and [2]Department of Medicine, Boston University School of Medicine, Boston, MA.

11:40 **Summary.** A. Puga. Department of Environmental Health, University of Cincinnati, Cincinnati, OH.

Wednesday Morning, March 26
9:00 AM to 11:45 AM
Room 121

Symposium Session: Three Dimensions of Nanomaterial Pulmonary Toxicity: Innate Immunity, TLRs, and Inflammasomes

New Science and Perspectives Surrounding Environmental and Occupational Exposures

Chairperson(s): *Srikanth S. Nadadur, NIEHS, Division of Extramural Research & Taining, Research Triangle Park, NC, and Jared M. Brown, University of Colorado, Pharmaceutical Sciences, Aurora, CO.*

Sponsor(s):
Nanotoxicology Specialty Section

Nanotechnology is rapidly developing, resulting in the production of numerous engineered nanoparticles. These materials have many potential uses in engineering, electronics, and medicine owing to their unique size, strength, functionality and surface properties. However, these novel properties also contribute to their potential health risk. A major route of exposure for engineered nanomaterials occurs through inhalation, potentially leading to pulmonary toxicity. Immune activation and inflammation represents a common response observed across many pulmonary studies of nanoparticle inhalation in rodents. However, our mechanistic understanding by which the materials elicit immune activation is limited. Recent accumulating evidence supports the proposal that the initial pulmonary immune response to nanoparticle exposure is mediated via the innate immune system driving inflammation. Presentations in this session are aimed at elucidating the mechanisms of these innate immune responses to engineered nanomaterial exposure in the lung. This will include exploration of macrophage pheno-

Program Description (Continued)

Abstract #

types, inflammasome activation, Toll-like receptors and, lastly, will explore the degradation of nanomaterials by immune cells and their defensive products. The outcome of this session is to gain state-of-the-art information on the mechanisms of the critical innate immune system response in the toxicology of nanoparticles and ultimately the development of safe nanotechnologies.

#1464	9:00	**Three Dimensions of Nanomaterial Pulmonary Toxicity: Innate Immunity, TLRs, and Inflammasomes.** *J. M. Brown*[1], and *S. S. Nadadur*[2]. [1]Pharmaceutical Sciences, University of Colorado, Aurora, CO; and [2]Division of Extramural Research, NIEHS, Research Triangle Park, NC.
	9:00	**Introduction.** J. M. Brown. Pharmaceutical Sciences, University of Colorado, Aurora, CO.
#1465	9:05	**Inflammasome Activation in Nanoparticle-Induced Lung Inflammation.** *A. Holian*[1], R. F. Hamilton[1], N. Wu[2], *D. W. Porter*[3], *S. Tsuruoka*[4], S. Mitra[5], and *T. A. Girtsman*[1]. [1]CEHS, University of Montana, Missoula, MT; [2]Mechanical & Aerospace Engineering, West Virginia University, Morgantown, WV; [3]CDC/NIOSH/HELD, Morgantown, WV; [4]Engineering, Shinshu University, Nagano, Japan; and [5]Chemistry and Environmental Science, New Jersey Institute of Technology, Newark, NJ.
#1466	9:41	**Lung and Pleural Innate Immune Responses to Engineered Nanomaterials.** *J. C. Bonner*. Biological Sciences, North Carolina State University, Raleigh, NC.
#1467	10:17	**Influence of Carbon Nanoparticles on Toll-Like Receptor Activity and Pathogen Susceptibility.** *T. Sabo-Attwood*[1], *P. Sanpui*[1], *X. Zheng*[1], J. Loeb[1], J. Lednicky[1], N. Afrooz[2], and N. B. Saleh[2]. [1]University of Florida, Gainesville, FL; and [2]University of South Carolina, Columbia, SC.
#1468	10:53	**Enzyme-Catalyzed Degradation of Carbon Nanotubes *In Vitro* and *In Vivo*.** A. Star. Department of Chemistry, University of Pittsburgh, Pittsburgh, PA. Sponsor: *J. Brown*.
	11:29	**Panel Discussion/Q&A.**

Wednesday Morning, March 26
9:00 AM to 11:45 AM
Room 125

Workshop Session: Improving the Safety of Dietary Supplements and Natural Health Products by Assessing Effects in Humans

Advancing Clinical and Translational Toxicology and Application of Biomarkers

Chairperson(s): *James C. Griffiths, Council for Responsible Nutrition, International, Washington, DC, and Scott A. Jordan, Health Canada, Ottawa, ON, Canada.*

Sponsor(s):
Clinical and Translational Toxicology Specialty Section
Food Safety Specialty Section
Regulatory and Safety Evaluation Specialty Section

The use of dietary supplements and other natural health products is widespread internationally. Despite large-scale use, the lack of premarket approval in some countries and a general lack of information on the safety of these products is a recognized problem. Animal studies and other translational methods can be used to assess the safety of dietary supplements, but direct premarket information on humans is seldom available. This necessitates the use of postmarket human surveillance data to evaluate the long-term safety of dietary supplements. Sources of such information range from poison control data, adverse event data reported to regulatory authorities, consumer

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AER complaints to the product manufacturer, and controlled trials in volunteers. The assessment of adverse events reported to regulatory authorities can be challenging due to under-reporting, although the reporting of serious adverse events and recordkeeping requirements for dietary supplement manufacturers became law in the US in 2007. Challenges in assessing adverse event reports are greater than for pharmaceutical drugs because of the complexity of dietary supplement products and the lack of standardized terminology. Other novel sources of information include poison control centers, which have been studied as potentially valuable sources of adverse reactions to dietary supplements. Although much less studied, controlled studies in humans have provided direct information that can be used to assess the safety of dietary supplements. This workshop brings together expertise ranging from clinicians to company-responsible care units to discuss, inform, and provide examples of how this information is finding use in regulatory environments, labeling, formulation/re-formulation decisions, and new directions in basic research.

#1469	9:00	**Improving the Safety of Dietary Supplements and Natural Health Products by Assessing Effects in Humans.** *J. C. Griffiths*. International, Council Responsible Nutrition, Washington, DC.
	9:00	**Introduction.** J. C. Griffiths. Council for Responsible Nutrition, Washington, DC.
#1470	9:05	**Introduction: The Use of Human Data in Assessing Dietary Supplement Safety.** *S. A. Jordan*. Marketed Health Products Directorate, Health Canada, Ottawa, ON, Canada.
#1471	9:15	**A Clinician's Perspective on Accurate Adverse Event Knowledge in the Emergency Setting.** *L. Nelson*. Department of Emergency Medicine, NYU Emergency Medicine Associates, New York City, NY.
#1472	9:45	**Natural Product Postmarket Surveillance: A Safety Net Designed to Detect Signals, Generate Hypotheses for Research, and Confirm Safety.** *R. Kingston*. SafetyCall International PLLC, University of Minnesota, Bloomington, MN.
#1473	10:15	**Clinical Utility of Dietary Supplement Case Reports and Adverse Event Reports: A Pharmaceutical Scientist's Perspective.** B. Gurley[2], and *J. C. Griffiths*[1]. [1]International, Council Responsible Nutrition, Washington, DC; and [2]College of Pharmacy, University of Arkansas for Medical Sciences, Little Rock, AR.
#1474	10:45	**Systematic Analyses of Kava's Hepatotoxic Risk—What We Know and What We Do Not Know.** *C. Xing*. College of Pharmacy, University of Minnesota, Bloomington, MN.
#1475	11:15	**Collection, Interpretation, and Utilization of Adverse Event Data within a Global Dietary Supplement Company.** V. Frankos[2], and *J. C. Griffiths*[1]. [1]International, Council Responsible Nutrition, Washington, DC; and [2]Global Science, Safety & Compliance, Herbalife, Torrance, CA.

Program Description (Continued)

Abstract #

Wednesday Morning, March 26
9:00 AM to 11:45 AM
North Ballroom 120B

Workshop Session: Toxicogenomic Technologies Can Improve the Assessment of Xenobiotic-Induced Liver Injury and Inform Human Relevance

Advancing Clinical and Translational Toxicology and Application of Biomarkers

Chairperson(s): *Susan D. Hester, US EPA, Systems Biology Branch, Research Triangle Park, NC, and Virunya S. Bhat, NSF International, Encinitas, CA.*

Sponsor(s):
Molecular Biology Specialty Section
Regulatory and Safety Evaluation Specialty Section

The liver has a central role in normal physiology and is a sentinel organ for sensing chemical exposure. As such, it is one of the most frequent target organs serving as the basis of environmental chemical regulation and clinical drug failures due to concerns for both cancer and noncancer effects. Toxicogenomics has evolved to enable toxicity testing and risk assessment paradigms to be more efficient and less reliant on long-term animal studies. There is also global interest in using 'omic tools to overcome obstacles encountered when interpreting liver injury seen in laboratory test systems. Factors contributing to species-selective hepatotoxicant responses among various mammalian species, particularly as mediated via xenobiotic receptors such as CAR, will be discussed. Case studies will highlight how 'omic technologies provide mechanistic data for hazard identification, dose-response, and quantitative risk assessment with a fraction of the resources compared to traditional assessments. Gene signatures relating molecular initiating events such as transcription factor activation to downstream key events such as cell proliferation have defined adverse outcome pathways and correlated to trans-activation profiles of human transcription factors. These efforts to anchor genomic biomarkers of liver injury to more traditional apical endpoints create precedence for the use of toxicogenomic approaches as the basis of chemical regulation. In drug safety research, genetically-diverse population-based pharmacogenetic approaches have informed idiosyncratic liver toxicity, yielded mechanistic insights, and predicted clinically-relevant drug-induced liver injury where classical safety assessment models failed. Systematic approaches, such as the US FDA's liver toxicity knowledge base (LTKB) that integrate pathways, genes, proteins, and drugs to characterize the risk of liver injury, will advance regulatory science, improve the new drug application review process, and refine targeted strategies for regulatory-oriented research.

#1476	9:00	**Toxicogenomic Technologies Can Improve the Assessment of Xenobiotic-Induced Liver Injury and Inform Human Relevance.** *S. D. Hester*[1], and *V. S. Bhat*[2]. [1]ISTD/NHEERL/ORD, US EPA, Research Triangle Park, NC; and [2]NSF International, Ann Arbor, MI.
	9:00	**Introduction.** S. D. Hester. ISTD/NHEERL/ORD, US EPA, Research Triangle Park, NC.
#1477	9:10	**Interspecies Differences in Response to Hepatotoxicants.** *C. J. Omiecinski*. Center for Molecular Toxicology and Carcinogenesis, Pennsylvania State University, University Park, PA.

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#1478	9:39	**The Utility of Toxicogenomics in the Risk Assessment of Carcinogens: A Report on Two Health Canada Case Studies.** C. L. Yauk[1], I. Moffat[2], N. Chepelev[1], A. Jackson[1], S. Labib[1], J. Bourdon[2], B. Kuo[1], J. Buick[1], F. Lemieux[2], A. Williams[1], S. Halappanavar[1], A. Malik[1], M. Luijten[3], *J. Aubrecht*[4], D. Hyduke[5], A. Fornace[6], C. Swartz[7], *M. D. Waters*[7], I. B. Lambert[8], and *L. Recio*[7]. [1]Environmental Health Science and Research Bureau and Water, Health Canada, Ottawa, ON, Canada; [2]Water and Air Quality Bureau, Health Canada, Ottawa, ON, Canada; [3]National Institute for Public Health and the Environment, Bilthoven, Netherlands; [4]Drug Safety R&D, Pfizer, Groton, CT; [5]Biological Engineering Department, Utah State University, Logan, UT; [6]Biochemistry and Molecular and Cellular Biology, Georgetown University, Washington, DC; [7]Integrated Laboratory Systems, Research Triangle Park, NC; and [8]Department of Biology, Carleton University, Ottawa, ON, Canada.
#1479	10:08	**Using Gene Signatures to Predict Molecular Initiating Events in Liver Adverse Outcome Pathways.** *C. Corton*. NHEERL/ORD, US EPA, Research Triangle Park, NC.
#1480	10:37	**Genetically Diverse Mouse Populations Facilitate Toxicogenetic Analysis of Drug-Induced Hepatotoxicity.** *A. H. Harrill*[1,3], *M. Mosedale*[1], *H. Wu*[2], and *K. Adkins*[2]. [1]Institute for Drug Safety Sciences, The Hamner Institutes for Health Sciences, Research Triangle Park, NC; [2]Investigative Toxicology, DSRD, Pfizer, Groton, CT; and [3]University of Arkansas for Medical Sciences, Little Rock, AR.
#1481	11:06	**Overcoming Obstacles to Study Drug-Induced Liver Injury with Toxicogenomics towards a Regulatory Application.** *W. Tong*. Division of Systems Toxicology, NCTR, US FDA, Jefferson, AR.
	11:35	**Panel Discussion/Q&A.**

Wednesday Morning, March 26
9:00 AM to 11:45 AM
Room 129

Workshop Session: Understanding Weight of Evidence: Exploring Different Approaches to Integrating Evidence from Diverse Data Streams

Enhancing Strategies for Risk Assessment

Chairperson(s): *Nancy B. Beck, American Chemistry Council, Regulatory and Technical Affairs, Washington, DC, and Julie E. Goodman, Gradient, Cambridge, MA.*

Sponsor(s):
Mechanisms Specialty Section
Occupational and Public Health Specialty Section
Risk Assessment Specialty Section

While it can be straightforward to evaluate a single study, or a single evidence stream, evaluating an entire body of literature for hazard assessment or risk assessment, where one needs to integrate data that comes from multiple evidence streams (e.g., human data, toxicological data, and mechanistic information), can be more complicated. The integration of all this information is becoming increasingly complex and is particularly driven by the explosion in biological sciences and technologies that are dramatically reshaping both the volume and utility of mechanistic information. Mechanistic information, when coupled with classical endpoint-oriented toxicity data, offers a growing opportunity to more closely examine the toxicologic plausibility of observational associations obtained from epidemiologic studies. Different organizations have taken different approaches to the integration of evidence from diverse data streams, and no clear

Program Description (Continued)

Abstract #

consensus approach currently exists. This workshop will explore and discuss some current approaches to integrating evidence from several organizations that develop assessments. This is timely and important, as in 2009 the National Academies (NAS) specifically called upon the US EPA to, among other things, improve the way in which evidence is synthesized within the Integrated Risk Information System (IRIS) assessments. The NAS panel acknowledged that there are existing approaches, currently used by other government programs and elsewhere, for each of these steps and encouraged the US EPA to select from and adapt them. The session will describe, using specific examples, current frameworks that use different approaches to integrate epidemiologic, toxicological, mechanistic, and other data. In addition, seen through the lens of a state user, this perspective will describe what elements are necessary in order to apply and use an integrated evaluation. Time will be provided for a robust discussion and questions.

#1482	9:00	**Understanding Weight of Evidence: Exploring Different Approaches to Integrating Evidence from Diverse Data Streams.** *N. B. Beck*[1], and *J. E. Goodman*[3,2]. [1]Regulatory and Technical Affairs, American Chemistry Council, Washington, DC; [2]Harvard School of Public Health, Boston, MA; and [3]Gradient Corp, Boston, MA.
#1483	9:00	**Introduction: Setting the Stage.** *N. B. Beck*. Regulatory and Technical Affairs, American Chemistry Council, Washington, DC.
#1484	9:05	**Understanding Hypothesis-Based Weight of Evidence.** *L. R. Rhomberg*. Gradient, Boston, MA.
#1485	9:30	**The US EPA Causality Framework for Assessment of Air Pollution-Related Effects.** M. Ross. Office of Research and Development, US EPA, Research Triangle Park, NC. Sponsor: *N. Beck*.
#1486	9:55	**The Office of Health Assessment and Translation Approach to Evidence Integration for Assessment of Noncancer Health Effects.** *A. A. Rooney*, A. L. Boyles, M. S. Wolfe, and K. A. Thayer. Division of the National Toxicology Program, NIEHS, Research Triangle Park, NC.
#1487	10:20	**Modernizing Problem Formulation: Classical versus Mode-of-Action Approaches to Weight-of-Evidence Determinations.** *C. J. Borgert*. Applied Pharmacology and Toxicology, Gainesville, FL.
#1488	10:45	**The User Perspective—What Makes an Integrated Evaluation Useable and Most Useful?** *L. Zeise*. Office of Environmental Health Hazard Assessment, California EPA, Oakland, CA.
#1489	11:10	**Discussion.** *J. E. Goodman*[1,2]. [1]Gradient, Boston, MA; and [2]Harvard School of Public Health, Boston, MA.

Wednesday Morning, March 26
9:00 AM to 12:30 PM
Exhibit Hall

PS

Poster Session: Carcinogenesis III

Chairperson(s): *Joanna Klapacz, The Dow Chemical Company, Midland, MI.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *9:00 AM–11:00 AM*

Abstract #

#1490 **Poster Board Number 101**
AML Subtypes Reported in Cigarette Smokers: A Meta-Analysis. *D. Pyatt*[1,3], and D. D. Alexander[2]. [1]Summit Toxicology, Superior, CO; [2]Exponent, Boulder, CO; and [3]School of Public Health, University of Colorado, Denver, CO.

Abstract #

#1491 **Poster Board Number 102**
Evaluation of Pyridyloxobutyl DNA Adduct Formation in the A/J Mouse Model. *A. Urban*, P. Upadhyaya, and L. A. Peterson. University of Minnesota, Minneapolis, MN.

#1492 **Poster Board Number 103**
Modulation of IL-8 Signaling by AhR in Breast Tumor Microenvironment Involves miR-17. *M. B. van Duursen*, S. Nijmeijer, A. D. van den Brand, J. Villevoye, and *M. Van den Berg*. IRAS, Utrecht University, Utrecht, Netherlands.

#1493 **Poster Board Number 104**
Decreased Expression of FRY, a Promoter of Epithelial Cell Differentiation, Is Associated with EMT and Clinical Progression of Breast and Prostate Cancer. *H. Zarbl*[1], N. Takizawa[2,1], *J. C. Graham*[1], B. Estrella[1], *X. Ren*[3], and *M. Fang*[1]. [1]Environmental and Occupational Health Sciences Instituite, Rutgers, The State University of New Jersey, Piscataway, NJ; [2]GeneAssess, Inc, North Brunswick, NJ; and [3]Department of Social and Preventive Medicine, The State University of New York, Buffalo, NY.

#1494 **Poster Board Number 105**
Carcinogenicity Testing of Eliglustat in the Mouse and Rat. *R. Forster*[1], R. Dagher[2], J. K. Marquis[2], and M. Watzinger[1]. [1]CiToxLAB, Evreux, France; and [2]Genzyme Corporation, Waltham, MA.

#1495 **Poster Board Number 106**
Characterization of a Hepatocyte Nuclear Factor 4 alpha Gene Signature in Chemical Carcinogen-Induced Hepatocellular Carcinoma. *C. Walesky*[1], S. Gunewardena[2,3], B. Yoo[4], R. Li[1], G. Edwards[1], and *U. Apte*[1]. [1]Pharmacology, Toxicology, and Therapeutics, University of Kansas Medical Center, Kansas City, KS; [2]Molecular and Integrative Physiology, University of Kansas Medical Center, Kansas City, KS; [3]Biostatistics, University of Kansas Medical Center, Kansas City, KS; and [4]Kansas Intellectual and Developmental Disabilities Research Center, University of Kansas Medical Center, Kansas City, KS.

#1496 **Poster Board Number 107**
HER2 Deregulates Critical Control Blocks to Promote Breast Cancer Metastasis. *P. Gupta*, and *S. K. Srivastava*. Biomedical Sciences, Texas Tech University, Amarillo, TX.

#1497 **Poster Board Number 108**
Expression of the Fry Mammary Carcinoma Susceptibility Gene during Mouse Embryological and Organ Development. B. Estrella[1,2], *L. M. Aleksunes*[4,1], M. Poulnas[4], *M. Fang*[1], *K. R. Reuhl*[1,4,3], and *H. Zarbl*[1,3]. [1]Environmental and Occupational Health Sciences Instituite, Robert Wood Johnson Medical School, Rutgers, The State University of New Jersey, Piscataway, NJ; [2]Joint Graduate Program in Toxicology, Rutgers, The State University of New Jersey, Piscataway, NJ; [3]Rutgers Cancer Institute of New Jersey, Rutgers, The State University of New Jersey, New Brunswick, NJ; and [4]Department of Pharmacology and Toxicology, School of Pharmacy, Rutgers, The State University of New Jersey, Piscataway, NJ.

WEDNESDAY

Program Description (Continued)

Abstract #

#1498 **Poster Board Number 109**
Bile Acids Promote Diethylnitrosamine-Induced Hepatocellular Carcinoma via NF-κB-c-Jun Signaling Axis. L. Sun, G. Edwards, *C. Walesky*, *P. Borude*, *B. Bhushan*, and *U. Apte*. Pharmacology, Toxicology and Therapeutics, University of Kansas Medical Center, Kansas City, KS.

#1499 **Poster Board Number 110**
Repurposing the Antimalarial Amodiaquine for Autophagy-Directed Anti-Melanoma Intervention. *S. Qiao*, S. Tao, M. Rojo de la Vega, S. L. Park, A. A. Vonderfecht, S. L. Jacobs, *D. D. Zhang*, and *G. T. Wondrak*. Pharmacology and Toxicology, College of Pharmacy and Arizona Cancer Center, University of Arizona, Tucson, AZ.

#1500 **Poster Board Number 111**
Epithelial-to-Mesenchymal Transition in Human BEAS and BZR Cells by Benzo(a)pyrene: Involvement of Aryl Hydrocarbon Receptor and Long Interspersed Nuclear Element-1. P. Bojang[1], H. Gao[2], M. T. Haeberle[3], and *K. S. Ramos*[1,4]. [1]Biochemistry and Molecular Biology, University of Louisville, Louisville, KY; [2]Center for Translational Research, University of Louisville, Louisville, KY; [3]Department of Medicine, University of Louisville, Louisville, KY; and [4]Center for Environmental Genomics and Integrative Biology, University of Louisville, Louisville, KY.

#1501 **Poster Board Number 112**
Disruption of Circadian Rhythm Accelerates Lung Metastasis of Breast Cancer in C3(1)/SV40 T-Antigen (TAG) Transgenic Mice. *M. Fang*[1,4], M. Palunas[2,4], *K. R. Reuhl*[2,4], P. Ohman-Strickland[3], and *H. Zarbl*[1,4]. [1]Robert Wood Johnson Medical School, Rutgers University, Piscataway, NJ; [2]School of Pharmacy, Rutgers University, Piscataway, NJ; [3]School of Public Health, Rutgers University, Piscataway, NJ; and [4]Environmental & Occupational Health Sciences Institute, Rutgers University, Piscataway, NJ.

#1502 **Poster Board Number 113**
Ni+2-Induced Global De-Regulation of Gene Expression and Morphological/Neoplastic Transformation of C3H/10T1/2 Mouse Embryo Cells. *J. R. Landolph*[1,2,3], A. T. Pehl-DeSilva[2,3], K. A. Akinwumi[1,2], F. Tseng[1,2], M. Trieu[1,3], and S. Menon[1,3]. [1]Dept. Micro., Univ. South. Cal., L. A., CA; [2]Dept. Path., Univ. South. Cal., L. A., CA; and [3]Cancer Center, Univ. South. Cal., L. A., CA.

#1503 **Poster Board Number 114**
Differential Modulation of p-4EBP1, p-ERK, and Cyclin D1 by Amuvatinib/Erlotinib Treatment in PTEN$^+$ and PTEN$^-$ Prostate Cancer Cells. *R. D. Canatsey*[1], W. Cai[1], N. Mastrandrea[1], J. Gard[2], R. Nagle[2], *T. J. Monks*[1], and *S. S. Lau*[1]. [1]Southwest Environmental Health Science Center, Dept. of Pharm/Tox, College of Pharmacy, University of Arizona, Tucson, AZ; and [2]College of Medicine, University of Arizona, Tucson, AZ.

#1504 **Poster Board Number 115**
(-)-Epigallocatechin-3-Gallate Increases Cell Growth Inhibition Induced by Benzo[a]pyrene in Human Lung Epithelial Cells. *M. Cromie*, *W. Zhu*, and *W. Gao*. The Department of Environmental Toxicology, Texas Tech University, Lubbock, TX.

Abstract #

#1505 **Poster Board Number 116**
Benzo(a)pyrene-Induced Colon Carcinogenesis in the Apc*Min*Mouse Model. J. A. Mantey[1], P. V. Rekhadevi[2], *D. L. Diggs*[2], M. S. Niaz[2], and *A. Ramesh*[2]. [1]Neuroscience & Pharmacology, Meharry Medical College, Nashville, TN; and [2]Biochemistry & Cancer Biology, Meharry Medical College, Nashville, TN.

#1506 **Poster Board Number 117**
Regulation of Gene Expression Profiles in Clear Cell Renal Cell Carcinoma by Cadmium Exposure. *S. Brooks*[1,2], and W. Rathmell[1,2]. [1]UNC-CH, Chapel Hill, NC; and [2]Lineberger Cancer Center, University of North Carolina at Chapel Hill, Chapel Hill, NC.

#1507 **Poster Board Number 118**
Overexpression of CRM1: A Characteristic Feature of the Transformed Phenotype in Lung Carcinogenesis. *C. Lu*[1], *L. Chen*[1], *P. Keohavong*[2], and *W. Gao*[1]. [1]Texas Tech University, Lubbock, TX; and [2]University of Pittsburgh, Pittsburgh, PA.

#1508 **Poster Board Number 119**
GS-19, a Novel GSK Inhibitor Suppresses the Growth of Pancreatic Cancer Cells by Inhibiting EGFR/AKT/STAT-3 Signaling. *A. Ranjan*[1], A. Birkenfield[1], *P. Gupta*[1], J. Lu[2], D. H. Hua[2], and *S. K. Srivastava*[1]. [1]Department of Biomedical Sciences & Cancer Biology Center, Texas Tech University Health Sciences Center, Amarillo, TX; and [2]Department of Chemistry, Kansas State University, Manhattan, KS.

#1509 **Poster Board Number 120**
Olive Oil As a Chemopreventive Agent against Benzo(a)pyrene-Induced Colon Cancer in Apc*Min*Mouse. *L. D. Banks*[1], P. Amaoh[1], M. S. Niaz[1], M. K. Washington[2], S. E. Adunyah[1], and *A. Ramesh*[1]. [1]Biochemistry & Cancer Biology, Meharry Medical College, Nashville, TN; and [2]Pathology, Vanderbilt University Medical Center, Nashville, TN.

#1510 **Poster Board Number 121**
Cannabidiol Inhibits Glioma Cell Proliferation and Downregulates Specificity Protein (Sp) Transcription Factors. *S. Sreevalsan*[1], and *S. H. Safe*[1,2]. [1]VTPP, Texas A & M University, College Station, TX; and [2]Institute of Biosciences and Technology, Texas A&M Health Science Center, Houston, TX.

#1511 **Poster Board Number 122**
Role of ROS in the Anticancer Activity of PEITC in Pancreatic Cancer. *I. D. Jutooru*, A. S. Guthrie, *G. Chadalapaka*, and *S. H. Safe*. Veterinary Physiology and Pharmacology, College Station, TX.

#1512 **Poster Board Number 123**
Diindolylmethane (DIM) Analogs As a New Class of NR4A1 Antagonists. *X. Li*[1], S. Lee[2], and *S. H. Safe*[1,2,3]. [1]College of Medicine, Texas A&M Health Science Center, College Station, TX; [2]Institute of Biosciences & Technology, Texas A&M Health Science Center, Houston, TX; and [3]Veterinary Physiology and Pharmacology, Texas A&M University, College Station, TX.

#1513 **Poster Board Number 124**
Mechanistic Evaluation of the Chemopreventive Effects of Folic Acid and Tributyrin in a Rat Liver Carcinogenesis Model. *A. de Conti*[1], A. H. Guariento[2], K. S. Furtado[2], *V. Tryndyak*[1], *F. A. Beland*[1], *I. Pogribny*[1], and F. S. Moreno[2]. [1]Division of Biochemical Toxicology, NCTR, Jefferson, AR; and [2]Food and Experimental Nutrition, University of Sao Paulo, Sao Paulo, Brazil.

Program Description (Continued)

Abstract #

#1514 **Poster Board Number 125**
Uptake, Internalization, and Quantification of LHRH-Tagged Gold Coated Superparamagnetic Iron Oxide Nanoparticles in Cancerous MCF-7 Cells. *S. Khiste*[1], S. Batra[2], S. Jeyaseelan[2], K. Challa[3], S. N. Murthy[1], and *R. M. Uppu*[1]. [1]Environmental Toxicology PhD Program, Southern University and A&M College, Baton Rouge, LA; [2]Pathobiological Sciences, LSU School of Veterinary Medicine, Baton Rouge, LA; and [3]Center for Advance Microstructure and Devices, Louisiana State University, Baton Rouge, LA.

#1514a **Poster Board Number 126**
The Effect on Endothelial Cell Proliferation of Oligosaccharides of Hyaluronan. J. Lichtenberg[1], B. M. Malle[2], and P. Koolwijk[3]. [1]Toxicology, Novozymes A/S, Bagsvaerd, Denmark; [2]Biopharma Technical Services, Novozymes A/S, Bagsvaerd, Denmark; and [3]Department of Physiology, VU University Medical Center, Amsterdam, Netherlands. Sponsor: *N. Berg.*

#1514b **Poster Board Number 127**
Effects of *Adansonia digitata* Fruit Pulp Extract on Sodium Arsenite-Induced Toxicities in Rats. *O. A. Odunola*[1], *A. M. Adegoke*[1], *M. A. Gbadegesin*[1], and O. P. Akinbobola[1]. [1]Cancer Research and Molecular Biology Laboratories, Department of Biochemistry, University of Ibadan, Ibadan, Oyo State, Nigeria.

Wednesday Morning, March 26
9:00 AM to 12:30 PM
Exhibit Hall

PS

Poster Session: Biomarkers II

Advancing Clinical and Translational Toxicology and Application of Biomarkers

Chairperson(s): *John Clarke, University of Arizona, Tucson, AZ.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *11:00 AM–12:30 PM*

#1515 **Poster Board Number 131**
Association of Serum Levels of the Organochlorine (OC) Compound DDE with Type 2 Diabetes (T2D) in Mississippi. *E. C. Meek*, J. A. Crow, *L. Mangum*, *M. K. Ross*, R. Wills, and *J. E. Chambers*. Center for Environmental Health Sciences, Mississippi State University, Mississippi State, MS.

#1516 **Poster Board Number 132**
Pb and Cd-Contaminated Soil May Cause Metal Accumulation and Epigenetic Alteration in Rat Tissues. Y. B. Yohannes[1], S. M. Nakayama[1], Y. Ikenaka[1], B. Oroszlany[1], N. Bortey-Sam[1], K. Muzandu[2], J. Yabe[2], T. Umemura[1], and *M. Ishizuka*[1]. [1]Hokkaido Univ, Sapporo, Japan; and [2]University of Zambia, Lusaka, Zambia.

Abstract #

#1517 **Poster Board Number 133**
Improving Urine-Based Human Exposure Assessment of Short-Lived Chemicals Using Reverse Dosimetry and NHANES Physiological and Behavior Data: A Value-of-Information Approach for Bisphenol A. H. Shankaran[1,3], and *J. G. Teeguarden*[1,2]. [1]Systems Toxicology and Exposure Science, Pacific Northwest National Laboratory, Richland, WA; [2]Department of Environmental and Molecular Toxicology, Oregon State University, Corvallis, OR; and [3]Currently: Modeling and Simulation, AstraZenaca, Boston, MA.

#1518 **Poster Board Number 134**
Cigarette Smoke-Induced Cytochrome P4501A1—Potential Biomarker of Endothelial Dysfunction. *E. Fourie*[1], J. Anderson[2], A. Warneke[4], K. Zehr[1], M. T. Walsh[1], M. Langsfeld[3], and *M. K. Walker*[1]. [1]Pharmaceutical Sciences, University of New Mexico, Albuquerque, NM; [2]Pharmacy Practice and Administrative Sciences, University of New Mexico, Albuquerque, NM; [3]Surgery, University of New Mexico, Albuquerque, NM; and [4]University of New Mexico Hospital, Albuquerque, NM.

#1519 **Poster Board Number 135**
Rapid Determination of Mercapturic Acids from Acrylamide and Glycidamide in Human Urine. B. Wang, G. Zhao, S. Wang, J. Yu, and F. Xie. Zhengzhou Tobacco Research Institute, Zhengzhou, China. Sponsor: *R. Meng.*

#1520 **Poster Board Number 136**
Oxidized Cardiolipins As a Biomarker of Mitochondrial Dysfunction Triggered by Pesticide, Rotenone. *Y. Tyurina*[1], A. Vikulina[1], V. Kapralova[1], D. Winnica[1], L. Sanders[2], T. Greenamyre[2], V. A. Tyurin[1], and *V. E. Kagan*[1]. [1]EOH, University of Pittsburgh, Pittsburgh, PA; and [2]Neurology, University of Pittsburgh, Pittsburgh, PA.

#1521 **Poster Board Number 137**
N^6-Formyllysine As a Biomarker of Formaldehyde Exposure: Inhalation Studies in Rats Reveal Formation and Accumulation of N^6-Formyllysine Adducts in Nasal Epithelium. *B. Edrissi*[1], K. Taghizadeh[2], *B. Moeller*[3,4], *R. Yu*[3], *D. Kracko*[4], *M. L. Doyle-Eisele*[4], *J. A. Swenberg*[3], and *P. C. Dedon*[1,2]. [1]Department of Biological Engineering, Massachusetts Institute of Technology, Cambridge, MA; [2]Center for Environmental Health Sciences, Massachusetts Institute of Technology, Cambridge, MA; [3]Department of Environmental Sciences and Engineering, University of North Carolina, Chapel Hill, NC; and [4]Lovelace Respiratory Research Institute, Albuquerque, NM.

#1522 **Poster Board Number 138**
Serial Measurements of BPA and BPS in Texas Mother-Infant Pairs from the 3rd Trimester of Pregnancy through the 4th Month of Lactation. *A. Schecter*[1], D. Cherry[2], C. Liao[3], S. Yun[3], K. Kannan[3], J. Moye[4], N. Thiex[5], W. C. Shropshire[1], and *L. S. Birnbaum*[6]. [1]University of Texas School of Public Health, Dallas, TX; [2]University of Washington, Seattle, WA; [3]Wadsworth Laboratory, Albany, NY; [4]NICHD, NIH, Bethesda, MD; [5]South Dakota State University, Brookings, SD; and [6]NCI, NIH, RTP, NC.

Program Description (Continued)

Abstract #

#1523 **Poster Board Number 139**
Measurement of Endogenous and Exogenous 1,N^2-Propano-Deoxyguanosine DNA Adducts by Liquid Chromatography—Tandem Mass Spectrometry. *B. C. Moeller*[1,2], W. Bodnar[2], L. Collins[2], and *J. A. Swenberg*[2]. [1]Lovelace Respiratory Research Institute, Albuquerque, NM; and [2]Environmental Sciences and Engineering, University of North Carolina, Chapel Hill, NC.

#1524 **Poster Board Number 140**
Relationship between Long-Term Exposure to Great Lakes Contaminants and Hematological Parameters in Great Lakes Anglers. *F. D. Stephen*[1], L. Georger[1], M. R. Bonner[3], *P. J. Kostyniak*[2,3], J. R. Olson[2,3], M. S. Bloom[4], and J. E. Vena[5]. [1]Math & Natural Sciences, D'Youville College, Buffalo, NY; [2]Pharmacology & Toxicology, State University of New York at Buffalo, Buffalo, NY; [3]Social & Preventive Medicine, State University of New York at Buffalo, Buffalo, NY; [4]Environmental Health Sciences, State University of New York at Albany, Albany, NY; and [5]Epidemiology and Biostatistics, University of Georgia, Athens, GA.

#1525 **Poster Board Number 141**
Biomarkers of Acute Whole-Body Irradiation in the Göttingen Minipig. *J. N. Smith*, J. Lovaglio, J. Creim, R. K. Piper, E. Baker, K. Burnum-Johnson, P. Piehowski, R. D. Smith, and *K. D. Thrall*. Pacific Northwest National Laboratory (PNNL), Richland, WA.

#1526 **Poster Board Number 142**
Biomarkers of Aflatoxin Exposure in Bexar and Surrounding Counties: Enhanced Incidence in Humans following Severe Drought. *S. Elmore*[1], *L. Tang*[2], M. Rodriguez[3], M. F. Carden[3], H. G. Hayes[3], *A. A. Romoser*[1], *J. Wang*[2], B. H. Pollock[3], and *T. D. Phillips*[1]. [1]Veterinary Integrative Biosciences, Texas A&M University, College Station, TX; [2]College of Public Health, University of Georgia, Athens, GA; and [3]University of Texas Health Science Center-San Antonio, San Antonio, TX.

#1527 **Poster Board Number 143**
Inflammatory Cytokine Profiles in the Plasma and Saliva of Chronic Smokers and Moist-Snuff Consumers. *G. L. Prasad*, and B. A. Jones. R & D, RJ Reynolds Tobacco Co, Winston-Salem, NC.

#1528 **Poster Board Number 144**
An Evaluation of Candidate Biomarkers of Biological Effect in Baseline Samples from Smokers, Never-Smokers, and Ex-Smokers. F. J. Lowe, L. E. Haswell, E. Papadopoulou, C. J. Shepperd, and N. Newland. Biosciences, British American Tobacco, Southampton, Hampshire, United Kingdom. Sponsor: *C. Meredith*.

#1529 **Poster Board Number 145**
Effects of Cadmium on Olfactory-Mediated Behaviors and Molecular Biomarkers in Coho Salmon. C. R. Williams, and *E. P. Gallagher*. Environmental and Occupational Health Sciences, University of Washington, Seattle, WA.

Abstract #

#1530 **Poster Board Number 146**
The Effect of Cigarette Smoke Exposure on the Proteomic Composition of Human Bronchial Epithelial Cell Airway Surface Liquid. G. J. Phillips[1], L. E. Haswell[1], *C. Meredith*[1], W. Fields[2], L. McIntosh[3], D. Chelsky[3], L. Cortes[3], and P. Croteau[3]. [1]Bioassessment, British American Tobacco, Southampton, United Kingdom; [2]Bioassessment, R J Reynolds Co, Winston-Salem, NC; and [3]Caprion Proteomics Inc, Montréal, QC, Canada.

#1531 **Poster Board Number 147**
Metabolomic Analysis of the Effect of Occupational Exposure to Pyrethroid Pesticides. M. Ratelle[1], *M. Bouchard*[1], and C. Lin[2]. [1]Department of Environmental Health and Occupational Health, University of Montreal, Montreal, QC, Canada; and [2]Institute of Environmental Health, National Taiwan University, Taipei, Taiwan.

#1532 **Poster Board Number 148**
Development of Method for Detection of Aflatoxin B1-Lysine Adduct in Dried Blood Spot Samples. *K. S. Xue*, *L. Tang*, *Y. Wang*, *M. Kang*, and *J. Wang*. University of Georgia, Athens, GA.

#1533 **Poster Board Number 149**
Toxic Effects of Low-Level Arsenic Exposure on Erythrocyte and Its Membrane Proteins in Male Rats. Q. Pei[1], J. Zhang[1], Y. Gao[1], F. Tian[1], N. Ma[2], C. Ma[1], Y. Miao[1], and X. Qin[3]. [1]Shanxi Medical University, Taiyuan, Shanxi, China; [2]Suzuka University of Medical Science, Suzuka, Japan; and [3]China Institute for Radiation Protection, Taiyuan, China. Sponsor: *P. Zhou*.

#1534 **Poster Board Number 150**
Determination of Aflatoxin M1 in Breast Milk As a Biomarker of Maternal and Infant Exposure in Colombia. P. Sánchez[2], and *G. Diaz*[1]. [1]Salud Animal-Facultad de Veterinaria, Universidad Nacional de Colombia, Bogota, Colombia; and [2]Toxicología-Facultad de Medicina, Universidad Nacional de Colombia, Bogota, Colombia.

#1535 **Poster Board Number 151**
Association of Neuroantibodies (NAb), Lead (Pb), Vascular, and Inflammatory Biomarkers in Hemodialysis Patients (HD). D. Mason[1], and *H. A. El-Fawal*[2]. [1]ANephRx Core Laboratory, Albany College of Pharmacy and Health Sciences, Albany, NY; and [2]Neurotoxicology Laboratory, Albany College of Pharmacy and Health Sciences, Albany, NY.

#1536 **Poster Board Number 152**
Identification of Marker Components in the Volatile Organic Emissions of Fusarium Fungi. E. Savelieva[1], A. S. Radilov[1], A. I. Ukolov[1], T. Y. Gagkaeva[2], O. P. Gavrilova[2], N. S. Khlebnikova[1], and V. R. Rembovskiy[1]. [1]Research Institute of Hygiene, Occupational Pathology and Human Ecology, Leningrad Region, Russian Federation; and [2]All-Russia Research Institute of Plant Protection, St. Petersburg-Pushkin, Russian Federation. Sponsor: *K. Khamidulina*.

#1537 **Poster Board Number 153**
Smoking, Vitamin E Supplement Use, and Prostate Cancer Survival. K. Zu[1], and E. Giovannucci[2]. [1]Gradient, Cambridge, MA; and [2]Harvard School of Public Health, Boston, MA. Sponsor: *J. Goodman*.

Program Description (Continued)

Abstract #

#1538 **Poster Board Number 154**
Discovery and Validation of Serum Protein Biomarker Candidates for Early Detection of Hepatocellular Carcinoma (HCC). *G. M. Mustafa*[1], J. R. Petersen[2], L. Cicalese[3], N. Snyder[4], L. Denner[5], and *C. J. Elferink*[1]. [1]Pharmacology, University of Texas Medical Branch, Galveston, TX; [2]Pathology, University of Texas Medical Branch, Galveston, TX; [3]surgery, University of Texas Medical Branch, Galveston, TX; [4]Hepatology, Kelsey Seybold Clinic, Houston, TX; and [5]Internal Medicine, University of Texas Medical Branch, Galveston, TX.

#1539 **Poster Board Number 155**
Assessment of Renal Injury from Vancomycin and Puromycin in Rats. *H. Stock*, *H. H. Ng*, N. Chini, D. Fairchild, and *J. C. Mirsalis*. Bioscience, SRI International, Menlo Park, CA.

#1540 **Poster Board Number 156**
Validation of an HbA1c Assay for Selection of Aged Cynomolgus Monkeys for Toxicology Studies. N. Doyle, F. Poitout, M. Zamfir, and S. Y. Smith. Charles River, Montreal, QC, Canada. Sponsor: *M. Vézina*.

#1541 **Poster Board Number 157**
Insulin-Stimulated Urinary Chromium Excretion Is Not a Biomarker for Chromium Nutritional Status. *S. T. Love*[1], *K. R. Di Bona*[2], S. Halder Sinha[1], D. McAdory[1], B. R. Skinner[1], J. F. Rasco[2], and J. B. Vincent[1]. [1]Chemistry, The University of Alabama, Tuscaloosa, AL; and [2]Biological Sciences, The University of Alabama, Tuscaloosa, AL.

#1542 **Poster Board Number 158**
Sensitive Sites of Glycation of the Fibrinolytic System Protein Plasminogen: Implications for T2D Vascular Complications. *O. R. Kinsky*, A. M. Williams, T. L. Hargraves, G. Tsaprailis, *T. J. Monks*, and *S. S. Lau*. Southwest Environmental Health Sciences Center, Department of Pharm/Tox, College of Pharmacy, University of Arizona, Tucson, AZ.

#1543 **Poster Board Number 159**
A Practical and Complementary Approach to De-Risk the Potential Nephrotoxic Liability of a Drug Candidate at an Early Stage of Development. F. Brouta[1], *M. Cornet*[1], *S. H. Dhalluin*[2], and *B. O. Depelchin*[1]. [1]Non-Clinical Development, UCB Pharma, Braine l'Alleud, Belgium; and [2]NPS Portfolio & Alliance Management, UCB Pharma, Anderlecht, Belgium.

#1544 **Poster Board Number 160**
Investigation of Urine Renal Safety Biomarker Collection Methods and Reference Intervals in Healthy Volunteers. *A. F. Baker*, M. J. Topper, R. Mogg, M. Cisneroz, N. King, P. Steven, L. Delgado, S. Sultana, *E. G. Walker*, E. Dennis, *J. Sauer*, S. Adler, and J. Mikl. Critical Path Institute, Tucson, AZ.

#1545 **Poster Board Number 161**
Translational Biomarkers for Oxidative Stress Response: A Validation Study with Flutamide. M. Teppner[1,2], B. Ernst[2], and A. Paehler[1]. [1]Non Clinical Safety, Pharma Research and Early Development, pRED, F. Hoffmann-La Roche Ltd., Basel, Switzerland; and [2]Institute of Molecular Pharmacy, University of Basel, Basel, Switzerland. Sponsor: *F. Boess*.

Abstract #

#1546 **Poster Board Number 162**
Qualification of Novel Urine Biomarkers of Nephrotoxicity in Rodents on MSD Platform. *A. V. Lyubimov*, A. Kuzmis, Y. Chen, A. Zakharov, and *A. Banerjee*. Pharmacology, Toxicology Research Laboratory, UIC, Chicago, IL.

#1547 **Poster Board Number 163**
Validation of an Electrochemiluminescence Multiplexed Immunoassay for Mouse Inflammation: The V-PLEX™ M. J. Cameron[1], D. B. Gemani[1], J. Coash[2], and *A. Aulbach*[2]. [1]Immunology, MPI Research, Mattawan, MI; and [2]Clinical Pathology, MPI Research, Mattawan, MI.

#1548 **Poster Board Number 164**
A Modern Assessment of Clinical Pathology Biomarker Correlation between Nonclinical Species and Humans. A. Lynn, *V. J. Kadambi*, and *J. Senn*. Drug Safety Research and Evaluation, Takeda Pharmaceutical Company Limited, Boston, MA.

#1549 **Poster Board Number 165**
Simultaneous Determination of 15 Heterocyclic Aromatic Amines in Urines of Smoker and Nonsmoker Using HPLC-MS/MS. G. Zhao, Y. Fu, S. Wang, J. Yu, B. Wang, and F. Xie. Zhengzhou Tobacco Research Institute, Zhengzhou, China. Sponsor: *R. Meng*.

#1549a **Poster Board Number 166**
Cross-Site Analytical Validation of the Cardiac Biomarker NT-proANP in Rat. *H. M. Colton*[4], P. Vinken[1], N. Goeminne[1], W. J. Reagan[2], W. Buck[3], J. Lai-Zhang[3], R. Liu[5], and M. Cisneroz[6]. [1]Janssen R&D, Beerse, Belgium; [2]Pfizer Inc., Groton, CT; [3]AbbVie, North Chicago, IL; [4]GSK, Durham, NC; [5]Takeda, Cambridge, MA; and [6]Critical Path Institute, Tucson, AZ.

#1549b **Poster Board Number 167**
Implications of Histopathology Methods in Biomarker Qualification. *R. L. Rouse*[1], M. Min[1], K. Shea[1], S. Stewart[1], and T. Colatsky[1]. [1]CDER, U. S. FDA, Silver Spring, MD.

#1549c **Poster Board Number 168**
Tobacco Smoke Is a Significant Source of 1,3-Butadiene Exposure in the US Population: NHANES 2005–2006. U. Alwis[1], R. DeCastro[1], and B. C. Blount[1]. [1]Tobacco and Volatiles, Centers for Disease Control and Prevention (CDC), Atlanta, GA. Sponsor: *R. Wang*.

#1549d **Poster Board Number 169**
Novel Rat Kidney Injury Biomarker Assays Using a Gyros Nanotechnology Platform. T. L. Wente[1], J. Mistry[1], C. Fry[1], and Q. Xiao[1]. [1]R&D, EMD Millipore, St. Charles, MO. Sponsor: *R. Wiese*.

#1549e **Poster Board Number 170**
Comparison of Two Commercial Immunoassays for Determination of Atrial Natriuretic Peptide in Sprague-Dawley Rat Serum. *J. R. Turk*[1], A. Farhad[1], and M. Ameri[1]. [1]CBSS, Amgen Inc., Thousand Oaks, CA.

#1549f **Poster Board Number 171**
Multiplex Blood Biomarker Approach to Determine Drug-Induced Vascular Injury in Rat. D. Pepin[1], S. Harris[1], R. Maheshwari[1], and W. Zheng[1]. [1]EMD Millipore, St. Charles, MO. Sponsor: *P. Hewitt*.

WEDNESDAY

Education-Career Development Sessions
Exhibitor-Hosted Sessions
Featured Sessions
Historical Highlights Session
Informational Sessions
Platform Sessions

Program Description (Continued)

Abstract #

#1549g **Poster Board Number 172**
Conjugate Formation of 1-Bromopropane with Glutathione *In Vitro*. C. Seo[1], Y. Um[1], H. Kim[2], M. Kang[1], *H. Jeong*[2], and *T. Jeong*[1]. [1]College of Pharmacy, Yeungnam University, Gyeongsan, Republic of Korea; and [2]College of Pharmacy, Chungnam National University, Daejeon, Republic of Korea.

#1549h **Poster Board Number 173**
N-Terminal Pro-Natriuretic Peptides and Heart Rate As Cardiovascular Safety Biomarkers. S. K. Engle[1], and *D. E. Watson*[1]. [1]Toxicology, Eli Lilly and Company, Indianapolis, IN.

Wednesday Morning, March 26
9:00 AM to 12:30 PM
Exhibit Hall

PS

Poster Session: Exposure Assessment and Biomonitoring

New Science and Perspectives Surrounding Environmental and Occupational Exposures

Chairperson(s): *Lesa Aylward, Summit Toxicology, LLP, Falls Church, VA.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *9:00 AM–11:00 AM*

#1550 **Poster Board Number 201**
Manganese Exposure Assessment—The Use of Toenails As a Biomarker of Exposure in US Welders. E. J. Ward[1], J. Bainter[1], S. Snyder[1], *U. Dydak*[1,2], and F. Rosenthal[1]. [1]Health Sciences, Purdue, West Lafayette, IN; and [2]Radiology and Imaging Sciences, IUSM, Indianapolis, IN.

#1551 **Poster Board Number 202**
Elevated Household Dust Mn Levels Are Associated with Children's Hair Mn in Communities Impacted by Ferroalloy Plants in Northern Italy. P. Bertrand[1], E. Lucas[1], F. Donna[2], M. Peli[2], *R. Lucchini*[2,3], and *D. Smith*[1]. [1]University of California, Santa Cruz, CA; [2]University of Brescia, Brescia, Italy; and [3]Mount Sinai School of Medicine, New York City, NY.

#1552 **Poster Board Number 203**
Calibration and Improvements of a Portable XRF Technology to Quantify Lead in Bone *In Vivo*. *A. J. Specht*[1], M. Weisskopf[2], and *L. H. Nie*[1]. [1]Health and Human Sciences, Purdue University, West Lafayette, IN; and [2]Harvard School of Public Health, Harvard University, Boston, MA.

#1553 **Poster Board Number 204**
Health Monitoring of Residents Overexposed to Heavy Metals in Abandoned Metal Mine Areas. D. Kim, J. Ryu, S. Ahn, and S. Yu. Environmental Health Research, National Institute of Environmental Research, Inchon, Republic of Korea. Sponsor: *J. Park*.

#1554 **Poster Board Number 205**
Estimating Exposure to Metals in Smelter Material. *M. Seeley*[1], G. I. Greenberg[1], S. Thakali[2], and *B. D. Beck*[1]. [1]Gradient, Cambridge, MA; and [2]URS Corporation, Fort Washington, PA.

Abstract #

#1555 **Poster Board Number 206**
Research on Potential Exposure of Workers to Metals in Smelter Materials Used As Fill for Roads and Bridges. *L. A. Beyer*, *M. Seeley*, G. I. Greenberg, and *B. D. Beck*. Gradient, Cambridge, MA.

#1556 **Poster Board Number 207**
Arsenic Speciation in the Copper Tailings with the Effects of Magnetite Removal. L. Yunjia, H. Longbin, and L. Zhao. Sustainable Minerals Institute, University of Queensland, Brisbane, QLD, Australia. Sponsor: *H. Longbin*.

#1557 **Poster Board Number 208**
Antioxidant Status and Levels of Some Essential Trace Elements and Heavy Metals in Individuals Occupationally Exposed to Municipal Solid Wastes. A. O. Odewabi[1], and *M. Ekor*[2]. [1]Chemical Pathology and Immunology, Olabisi Onabnjo University Teaching Hospital, Sagamu, Nigeria; and [2]Department of Pharmacology, School of Medical Sciences, University of Cape Coast, Cape Coast, Ghana.

#1558 **Poster Board Number 209**
Deriving Algorithms for Matrix-to-Matrix Relations and Reverse Dosimetry of Selenium from Pooled Biomonitoring Data. *N. Noisel*[1], *M. Bouchard*[1], and G. Carrier[1,2]. [1]Dept de Santé Environnementale et Santé au Travail, Université de Montreal, Montreal, QC, Canada; and [2]Direction de la Santé Environnementale et de la Toxicologie, Institut National de Santé Publique du Québec (INSPQ), Montreal, QC, Canada.

#1559 **Poster Board Number 210**
Semen Uranium Concentrations in Gulf War I Depleted Uranium-Exposed Veterans. *K. S. Squibb*[1,2], D. Hoover[1,2], S. E. Hines[1,2], P. Gucer[1,2], T. I. Todorov[3], J. Centeno[4], M. Oliver[1,2], J. Gaitens[1,2], and *M. McDiarmid*[1,2]. [1]Dept. of Veterans Affairs Medical Center, Baltimore, MD; [2]UM School of Medicine, Baltimore, MD; [3]Food and Drug Administration, College Park, MD; and [4]Joint Pathology Center, Silver Spring, MD.

#1560 **Poster Board Number 211**
On-Site Monitoring of Marcellus Drilling Operations. M. McCawley, and *T. L. Knuckles*. West Virginia University, Morgantown, WV.

#1561 **Poster Board Number 212**
Potential for Exacerbation of Pediatric Asthma Due to Ultrafine Particle Exposure from Marcellus Shale Gas Drilling Operations. E. Eyoita[1], M. McCawley[1], S. Chatterjee[2], W. C. Mercer[2], W. W. Harris[2], *T. L. Knuckles*[1], and H. P. Gamble[2]. [1]West Virginia University, Morgantown, WV; and [2]Ohio County Health Department, Wheeling, WV.

#1562 **Poster Board Number 213**
Comparison of Airborne Exposures from Diesel and Biodiesel Emissions. R. J. Reed, R. Wagoner, E. Lutz, and J. Burgess. Community, Environment, and Policy, University of Arizona, Tucson, AZ. Sponsor: *C. Lantz*.

#1563 **Poster Board Number 214**
Comparison of Acute Human Health Effects from Diesel and Biodiesel Emissions. V. Lee, A. Nielsen, E. Lutz, and J. Burgess. Community, Environment, and Policy, University of Arizona, Tucson, AZ. Sponsor: *C. Lantz*.

Program Description (Continued)

Abstract #

#1564 **Poster Board Number 215**
Airborne Impacts of the Richmond, California, Chevron Refinery Fire: A Case Study Showing the Difficulty of Correlating Real-Time Data, Exposure Assessment, and Public Health Impacts. *S. B. DuTeaux*. Office of Emergency Response, California Air Resources Board, Sacramento, CA.

#1565 **Poster Board Number 216**
Health Surveillance Study on Printed Electronics (PE) Workplace. J. Lee[1], E. Sohn[1], J. Ahn[2], K. Ahn[3], K. Kim[1], T. Lee[4], J. Shin[5], Y. Chung[1], and *I. Yu*[1]. [1]Institute of Nanoproduct Safety Research, Hoseo University, Asan, Republic of Korea; [2]Myungji Safety and Hygiene Laboratory, Nonsan, Republic of Korea; [3]Department of Mechanical Engineering, Hanyang University, Ansan, Republic of Korea; [4]Korea Institute of Machinery and Materials, Daejeon, Republic of Korea; and [5]Occupational Lung Diseases Institute, KCOMWEL, Ansan, Republic of Korea.

#1566 **Poster Board Number 217**
Microcystin Extraction from Human Blood Serum: Pitfalls and Solutions. A. Heussner[1], *D. R. Dietrich*[1], S. Altaner[1], L. Kamp[2], and F. Rubio[2]. [1]Human & Environmental Toxicology, University of Konstanz, Konstanz, Germany; and [2]Abraxis LLC, Warminster, PA.

#1567 **Poster Board Number 218**
Vegetable Uptake and Human Exposure Assessment from a Community Garden with Elevated ∑DDT. *E. N. Liberda*[1], and L. J. Tsuji[2]. [1]School of Occupational and Public Health, Ryerson University, Toronto, ON, Canada; and [2]Environment and Resource Studies/Health Studies, University of Waterloo, Waterloo, ON, Canada.

#1568 **Poster Board Number 219**
Population Variation in Biomonitoring Data for Persistent Analytes: An Examination of Multiple Population-Based Datasets. *L. Aylward*[1,2], and J. Mueller[2]. [1]Summit Toxicology, LLP, Falls Church, VA; and [2]ENTOX, University of Queensland, Brisbane, QLD, Australia.

#1569 **Poster Board Number 220**
Serum Steatohepatitis Biomarker and Proinflammatory Cytokine Elevation in Response to Polychlorinated Biphenyl Exposures in the Anniston Community Health Study (ACHS). H. Clair[1], K. C. Falkner[1], *R. A. Prough*[2], and M. Cave[1,3]. [1]Department of Medicine/GI, University of Louisville, Louisville, KY; [2]Biochemistry, University of Louisville, Louisville, KY; and [3]Robley Rex VAMC, Louisville, KY.

#1570 **Poster Board Number 221**
Quantification of Tissue Bisphenol A and Global Methylation Profiles in Kidney, Liver, and Placenta from 1st and 2nd Trimester Human Clinical Samples. *M. S. Nahar*[1], C. Liao[2], K. Kannan[2], and *D. Dolinoy*[1]. [1]Environmental Health Science, University of Michigan, Ann Arbor, MI; and [2]Wadsworth Center, New York State Department of Health, Albany, NY.

#1571 **Poster Board Number 222**
Biochemical Parameters and Fluoride Levels in Serum and Urine of Livestock Animals Accidentally Exposed to Hydrofluoric Acid. *H. Kang*, Y. Park, D. Kim, and B. So. Veterinary Drugs and Biologics Division, Animal and Plant Quarantine Agency, Anyang, Republic of Korea.

Abstract #

#1572 **Poster Board Number 223**
Comparison of the Kinetics of Various Biomarkers of Benzo[a]pyrene Exposure following Different Routes of Entry in Rats. M. Moreau[1], and *M. Bouchard*[1,2]. [1]Department of Environmental and Occupational Health, University of Montreal, Montreal, QC, Canada; and [2]Chair in Toxicological Risk Assessment and Management, University of Montreal, Montreal, QC, Canada.

#1573 **Poster Board Number 224**
A Cellular Model to Evaluate Salivary Gland Uptake and Clearance of Pesticides: A Novel Non-Invasive Biomonitoring Strategy. *C. Timchalk*, *J. N. Smith*, and *T. J. Weber*. Systems Toxicology, Pacific Northwest National Laboratory, Richland, WA.

#1574 **Poster Board Number 225**
Concentrations of Diacetyl and 2,3-Pentanedione in Mainstream Cigarette Smoke: A Comparison to Workplace Exposures. *J. S. Pierce*[1], A. Abelmann[1], L. J. Spicer[1], *R. Adams*[1], and *B. L. Finley*[2]. [1]Cardno ChemRisk, Chicago, IL; and [2]Cardno ChemRisk, Brooklyn, NY.

#1575 **Poster Board Number 226**
Headspace and Small-Chamber Studies of Airborne Diacetyl Concentrations Associated with Selected Food Flavoring Mixtures. *P. K. Scott*[1], A. Abelmann[2], H. Avens[3], S. Hoyt[4], and *B. D. Kerger*[5]. [1]Cardno ChemRisk, Pittsburgh, PA; [2]Cardno ChemRisk, Chicago, IL; [3]Cardno ChemRisk, Boulder, CO; [4]Environmental Analytical Service, San Luis Obispo, CA; and [5]Cardno ChemRisk, Aliso Viejo, CA.

#1576 **Poster Board Number 227**
Determination of Illicit Drug on the Hands of High-Volume Money Collectors Using LC-MS/MS. *A. I. Hinds*. Toxicology, Colorado State University, Fort Collins, CO.

#1577 **Poster Board Number 228**
Development of a Targeted LC/MS Approach to Screen for 182 Pesticides in Urine Samples. A. Somers[1], T. Senn[2], D. Whittington[3], *M. Vredevoogd*[4], *E. M. Vigoren*[4], *E. M. Faustman*[4], and *Y. Lin*[4]. [1]Life Sciences, Salish Kootenai College, Pablo, MT; [2]Pharmaceutics, University of Washington, Seattle, WA; [3]Medicinal Chemistry, University of Washington, Seattle, WA; and [4]Environmental and Occupational Health Sciences, University of Washington, Seattle, WA.

#1578 **Poster Board Number 229**
NMR Analysis of the Antibiotic "Amoxicillin" in Urine. B. Huang, and E. Champeil. Sciences, John Jay College of Criminal Justice, New York City, NY. Sponsor: *S. Cheng*.

#1579 **Poster Board Number 230**
Silicone Wristbands As Personal Passive Samplers. K. Anderson[1], S. G. O'Connell[1], and L. Kincl[2]. [1]Department of Environmental & Molecular Toxicology, Oregon State University, Corvallis, OR; and [2]College of Public Health & Human Services, Oregon State University, Corvallis, OR. Sponsor: *G. Sower*.

Education-Career Development Sessions
Exhibitor-Hosted Sessions
Featured Sessions
Historical Highlights Session
Informational Sessions
Platform Sessions

Program Description (Continued)

Abstract #

#1580 **Poster Board Number 231**
Probabilistic Modeling of Baby Wipe Lotion Exposure. S. Dey[1], G. Carr[2], and S. Zhou[1]. [1]Global Product Stewardship/Central Product Safety, The Procter and Gamble Company, Cincinnati, OH; and [2]Quantitative Sciences, The Procter & Gamble Company, Cincinnati, OH. Sponsor: *S. Felter*.

#1581 **Poster Board Number 232**
Air Pollution Exposure Model for Individuals (EMI) in Health Studies: Predicting Spatiotemporal Variability of Residential Air Exchange Rates. M. Breen[1], J. Burke[1], S. Batterman[2], A. Vette[1], G. Norris[1], C. Godwin[2], M. Landis[1], C. Croghan[1], B. Schultz[1], and *M. Breen*[3]. [1]US Environmental Protection Agency, Research Triangle Park, NC; [2]University of Michigan, Ann Arbor, MI; and [3]North Carolina State University, Raleigh, NC.

Wednesday Morning, March 26
9:00 AM to 12:30 PM
Exhibit Hall

PS

Poster Session: Nonpharmaceuticals: Safety Evaluation

Chairperson(s): *Lynea A. Murphy, The Dow Chemical Company, Toxicology & Environmental Research and Consulting, Midland, MI.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *11:00 AM–12:30 PM*

#1582 **Poster Board Number 241**
An Enterprise Integration Application for Chemical Information and Tools for Green Chemistry Initiatives. B. Ford[1,3], A. Broughton[1,3], N. Winje[1,3], A. Sadovnikova[2,3], and *D. Johnson*[1,2,3]. [1]UC Berkeley, Berkeley, CA; [2]Univ Michigan, Ann Arbor, MI; and [3]Elara Bioscience LLC, San Francisco, CA.

#1583 **Poster Board Number 242**
Comparative Toxicity of Epicatechin vs. Borohydride-Reduced Nanosilver in Prokaryotic and Eukarytoic Models. K. Murphy[1], T. Collins[1], *R. T. Posgai*[1], B. Demmitt[1], *S. M. Hussain*[2], M. G. Nielsen[1], J. Robinson[1], and J. J. Rowe[1]. [1]Department of Biology, Center for Tissue Regeneration and Engineering, University of Dayton, Dayton, OH; and [2]Applied Biotechnology Branch, Human Effectiveness Directorate, Air Force Research Laboratory, Wright–Patterson Air Force Base, Dayton, OH.

#1584 **Poster Board Number 243**
Safety Assessment of Irganox 1076 Migration from Use in Food Contact Applications. *A. P. Neal-Kluever*, and K. R. Hatwell. Division of Food Contact Notifications, FDA, College Park, MD.

#1585 **Poster Board Number 244**
Safety Assessment of R,S-Equol As a Dietary Supplement for Benign Prostatic Hyperplasia. E. D. Lephart. PDBio, BYU, Provo, UT. Sponsor: *P. Damian*.

#1586 **Poster Board Number 245**
Application of QSAR Models to Evaluate the Dermal Absorption of Cosmetic Ingredients. *F. Liu*[1], *V. Tu*[1], D. M. Frederick[1], and H. Frasch[2]. [1]Revlon Research Center, Edison, NJ; and [2]Health Effects Laboratory, NIOSH, Morgantown, WV.

Abstract #

#1587 **Poster Board Number 246**
An Immature Human Reconstructed Epidermis Model to Assess Baby Personal Care Product Ranges. S. Catoire, and *H. Ficheux*. THOR Personal Care, Compiegne, France.

#1588 **Poster Board Number 247**
Instant On-Site Glucose Measurements in Dogs. *A. Makin*, V. Golozoubova, J. Tovborg Jensen, and J. Løgsted. CiToxLAB, Lille Skensved, Denmark.

#1589 **Poster Board Number 248**
Safety Assessment of Hazardous Chemicals in Art Materials. *J. L. Doran*, C. Tuinman, *G. Goodfellow*, and *J. Daniels*. Intrinsik Health Sciences, Inc., Mississauga, ON, Canada.

#1590 **Poster Board Number 249**
Broad Spectrum Safety of Meratrim: A Novel Weight-Management Ingredient. *F. C. Lau*[1], J. Lugo[1], *Z. Saiyed*[1], G. Trimurtulu[2], A. Krishnaraju[2], and K. Sengupta[2]. [1]Research and Development, InterHealth Nutraceuticals Inc., Benicia, CA; and [2]Research and Development, Laila Nutraceuticals, Vijayawada, India.

#1591 **Poster Board Number 250**
Application of Metabolomics in Short-Term *In Vivo* Rat Toxicity Studies. *H. G. Kamp*[1], E. Fabian[1], M. Herold[2], G. Krennrich[1], L. Ralf[2], W. Mellert[1], G. Montoya-Parra[1], E. Peter[2], T. Walk[2], V. Strauss[1], and *B. van Ravenzwaay*[1]. [1]Toxicology, BASF SE, Ludwigshafen, Germany; and [2]Metanomics GmbH, Berlin, Germany.

#1592 **Poster Board Number 251**
A Novel 16 AirTEER Electrode System to Measure Transepithelial Electrical Resistance in Organotypic Cultures. S. Frentzel[1], M. Liley[2], S. Constant[3], M. Favre[2], A. Meister[2], S. Majeed[1], D. Kuehn[1], C. Mathis[1], *A. Hayes*[4], and J. Hoeng[1]. [1]Research & Development, Philip Morris International, Neuchatel, Switzerland; [2]CSEM - Centre Suisse d'Electronique et de Microtechnique SA, Neuchatel, Switzerland; [3]Epithelix SàRL, Geneve, Switzerland; and [4]Spherix Consulting, Rockville, MD.

#1593 **Poster Board Number 252**
The Use of Everted Rat Small Intestinal Sacs *In Vitro* to Estimate Relative Absorption Potential of a Series of Alpha Olefins. M. Penman[1], R. H. Powrie[2], and *C. R. Elcombe*[2]. [1]Penman Consulting, Brussels, Belgium; and [2]CXR Biosciences, Dundee, United Kingdom.

#1594 **Poster Board Number 253**
Evaluation of Nose-Only Inhalation Exposure to Aerosolized Benzyl Acetate in Sprague-Dawley Rats. *J. Randazzo*[2], *D. T. Kirkpatrick*[1], *D. Vitale*[1], and *M. Singal*[1]. [1]Respiratory Science Program, RIFM, Inc., Woodcliff Lake, NJ; and [2]Inhalation Toxicology, WIL Research, Ashland, OH.

#1595 **Poster Board Number 254**
Development of *In Vitro* Screens for Chemical Disruptors of the Retinol Signaling Pathway. *Y. Chen*, and D. H. Reese. CFSAN/OARSA, U.S. FDA, Laurel, MD.

#1596 **Poster Board Number 255**
Evaluation of Nose-Only Inhalation Exposure to Aerosolized β-Ionone in Sprague-Dawley Rats. *D. T. Kirkpatrick*[2], *J. Randazzo*[2], *D. Vitale*[1], and *M. Singal*[1]. [1]Respiratory Science Program, RIFM, Inc., Woodcliff Lake, NJ; and [2]Inhalation Toxicology, WIL Research, Ashland, OH.

Program Description (Continued)

Abstract #

#1597 **Poster Board Number 256**
Evaluation of Nose-Only Inhalation Exposure to Aerosolized Phenyl Ethyl Alcohol in Sprague-Dawley Rats. *D. Vitale*[1], *J. Randazzo*[2], *D. T. Kirkpatrick*[2], and *M. Singal*[1]. [1]Respiratory Science Program, RIFM, Inc., Woodcliff Lake, NJ; and [2]Inhalation Toxicology, WIL Research, Ashland, OH.

#1598 **Poster Board Number 257**
Evaluation of Nose-Only Inhalation Exposure to Aerosolized Methyl Dihydro Jasmonate in Sprague-Dawley Rats. *M. Singal*[1], *J. Randazzo*[2], *D. T. Kirkpatrick*[2], *F. G. Burleson*[3], and *D. Vitale*[1]. [1]Respiratory Science Program, RIFM, Inc., Woodcliff Lake, NJ; [2]Inhalation Toxicology, WIL Research, Ashland, OH; and [3]Burleson Research Technologies, Morrisville, NC.

#1599 **Poster Board Number 258**
Evaluation of Nose-Only Inhalation Exposure to Aerosolized Hydroxycitronellal in Sprague-Dawley Rats. *F. G. Burleson*[3], *M. Singal*[1], *J. Randazzo*[2], *D. T. Kirkpatrick*[2], and *D. Vitale*[1]. [1]Respiratory Science Program, RIFM, Inc., Woodcliff Lake, NJ; [2]Inhalation Toxicology, WIL Research, Ashland, OH; and [3]Burleson Research Technologies, Morrisville, NC.

#1600 **Poster Board Number 259**
Development of an Alternative Photosafety Assessment Approach for Cosmetic Ingredients Based on the Photochemical and Photo-Biochemical Properties. H. Nishida[1], M. Hirota[1], M. Kitagaki[1], S. Onoue[2], M. Kato[2], G. Suzuki[2], S. Yamada[2], and H. Kouzuki[1]. [1]Shiseido Research Center, Shiseido Co. Ltd., Yokohama, Japan; and [2]Department of Pharmacokinetics and Pharmacodynamics, School of Pharmaceutical Sciences, University of Shizuoka, Shizuoka, Japan. Sponsor: *T. Yoshida*.

#1601 **Poster Board Number 260**
Evaluation of the Subchronic Toxicity of Acetoxydihydrodicyclopentadiene. *V. T. Politano*, and *A. Api*. Research Institute for Fragrance Materials, Inc., Woodcliff Lake, NJ.

#1602 **Poster Board Number 261**
Optimization of a Primary Hepatocyte Assay for Prediction of Liver Carcinogenicity in Agrochemical Development. *L. A. Murphy*[1], L. Kan[1], *M. J. LeBaron*[1], *D. R. Boverhof*[1], J. Bailey[2], *C. Terry*[2], *R. Billington*[2], and *R. J. Rasoulpour*[1]. [1]The Dow Chemical Company, Midland, MI; and [2]Dow AgroSciences, Indianapolis, IN.

#1603 **Poster Board Number 262**
Academic and Commercial Partnership: Identifying Sustainable Flame Retardants by Rapid *In Vivo* Screening. *R. L. Tanguay*. Environmental and Molecular Toxicology, Oregon State Univ, Corvallis, OR.

#1604 **Poster Board Number 263**
Development of Three-Dimensional Reconstructed Model for Human Skin Irritation and Corrosive Tests. C. Zhang[1], B. Chen[1], Z. Du[1], Z. Wang[2], and X. Zhang[1]. [1]Forelandpharma Co Ltd, Beijing, China; and [2]Boston University, Boston, MA. Sponsor: *J. Wang*.

Abstract #

#1605 **Poster Board Number 264**
Lauric Aldehyde: Ninety-Day Repeated-Dose Oral (Dietary) Toxicity in Rats. G. Ritacco, *V. T. Politano*, and *A. Api*. Research Institute for Fragrance Materials, Woodcliff Lake, NJ.

#1606 **Poster Board Number 265**
Formulation, Analysis Method Development, and Validation for Dimethylaminoethanol Bitartrate in Gavage Dose Formulations. J. C. Blake[1], S. D. Cooper[1], M. C. Best[1], R. A. Fernando[1], V. G. Robinson[2], and S. Waidyanatha[2]. [1]Analytical Chemistry and Pharmaceutics, RTI International, Research Triangle Park, NC; and [2]Division of the National Toxicology Program, NIEHS, Research Triangle Park, NC. Sponsor: *K. Levine*.

#1607 **Poster Board Number 266**
Identification of Volatile Organic Compound Sources and Exposure Assessment of Upstream Oil and Gas Workers during Well Completion Activities. *J. E. Snawder*[1], M. J. Breitenstein[1], M. Alexander-Scott[1], E. J. Esswein[2], B. King[2], and M. Kiefer[2]. [1]Applied Research & Technology, NIOSH, Cincinnati, OH; and [2]Western States Office, NIOSH, Denver, CO.

#1608 **Poster Board Number 267**
Probabilistic Hazard Assessment for Skin Sensitization Potency Using Machine-Learning to Design Integrated Testing Strategies. V. D. Rocha, T. Luechtefeld, A. Maertens, *T. Hartung*, and A. Kleensang. Environmental Health Science - CAAT, Johns Hopkins School of Public Health, Baltimore, MD.

#1609 **Poster Board Number 268**
Development of Noncancer Threshold of Toxicological Concern (TTC) Database to Support Alternative Assessment Methods for Cosmetics-Related Chemicals. K. Muldoon-Jacobs[1], A. R. Boobis[2], S. Barlow[3], *S. P. Felter*[4], H. M. Hollnagel[5], D. Keller[6], V. Vitcheva[1], K. Arvidson[1], A. P. Worth[7], and *C. Yang*[8]. [1]US FDA CFSAN OFAS, College Park, MD; [2]Imperial College, London, United Kingdom; [3]Independent consultant, Brighton, United Kingdom; [4]Procter & Gamble, Cincinnati, OH; [5]Dow Europe GmbH, Horgen, Switzerland; [6]Henkel, Dusseldorf, Germany; [7]EC Joint Research Center, Ispra, Italy; and [8]Altamira LLC, Columbus, OH.

#1610 **Poster Board Number 269**
Evaluation of Four Alpha-Diketones for Toll-Like Receptor-4 (TLR-4) Activation in Human Embryonic Kidney Cells. *K. Thuett*[1], *B. D. Kerger*[2], *D. J. Paustenbach*[1], and B. L. Finley[1]. [1]Cardno ChemRisk, San Francisco, CA; and [2]Cardno ChemRisk, Aliso Viejo, CA.

#1611 **Poster Board Number 270**
High-Throughput Respirometric Assay Identifies Mitochondrial Toxicants in ToxCast Phase II. L. P. Wills[1], G. C. Beeson[1,2], *R. Schnellmann*[2], and C. Beeson[1,2]. [1]MitoHealth Inc, Charleston, SC; and [2]Drug Discovery and Biomedical Sciences, MUSC, Charleston, SC.

#1612 **Poster Board Number 271**
Electronic Cigarette Refill Fluids: Danger in a Bottle? B. Davis, M. Dang, J. Kim, and *P. Talbot*. University of California Riverside, Riverside, CA.

Program Description (Continued)

Abstract #

#1613 **Poster Board Number 272**
Cytotoxicity of Electronic Cigarette Refill Fluid Aerosols. *R. Z. Behar*, A. Razo, and *P. Talbot*. Cell Biology and Neuroscience, University of California, Riverside, Riverside, CA.

#1614 **Poster Board Number 273**
Apparent Lack of Cytotoxicity in Brands of e-Liquids Previously Reported As Being Cytotoxic. *J. H. Lauterbach*. Lauterbach & Associates, LLC, Macon, GA.

#1615 **Poster Board Number 274**
VUSE Electronic Cigarette Aerosol Characterization. *E. H. Theophilus*[1], J. Rowe[1], S. Chouchane[2], K. Kilby[1], C. Rhoades[1], S. Alderman[1], W. Morgan[1], and *R. J. Potts*[1]. [1]RJ Reynolds, Winston-Salem, NC; and [2]Eurofins, Lancaster Labs, Winston-Salem, NC.

#1616 **Poster Board Number 275**
Safety Assessment of Potential Food Ingredients on Canine Primary Hepatocytes. *L. W. Zhang*[1], B. Jeffery[2], *J. Riviere*[1], and *N. A. Monteiro-Riviere*[1]. [1]Department of Anatomy and Physiology, Kansas State University, Manhattan, KS; and [2]Global Quality and Food Safety, MARS Inc., McLean, VA.

#1616a **Poster Board Number 276**
Development of Formulation and Analysis Methods for Triphenyl Phosphate (TPP) in Rodent Feeds for Toxicology Studies. *B. Collins*[1], A. Mitchell[2], W. Vandaveer[2], V. Ault[2], N. Doll[2], S. Beckwith[2], N. Pearson[2], A. Mainey[2], K. Aillon[2], J. Algaier[2], and R. Harris[2]. [1]National Toxicology Program (NTP) NIEHS, Research Triangle Park, NC; and [2]MRIGlobal, Kansas City, MO.

#1616b **Poster Board Number 277**
Using Cluster Approaches to Assess the Safety of Chemicals Used in Consumer Products. *C. Baier-Anderson.* , C. Rudisill[2], L. Morlacci[2], M. Adams[1], B. Drake[1], J. Tunkel[2], and K. Mayo[1]. [1]US EPA, Washington, DC; and [2]SRC, Inc., North Syracuse, NY.

#1616c **Poster Board Number 278**
Toxicity of Tris(Chloropropyl)phosphate (TCPP) Dietary Exposure for 13 Weeks in Harlan Sprague-Dawley Rats and B6C3F1/N Mice. *K. Ryan*[1], *A. R. Pandiri*[3], D. Giri[5], K. Cimon[4], M. Buccellato[2], *L. M. Fomby*[2], *M. Hejtmancik*[2], *D. Y. Vasconcelos*[2], *K. L. Witt*[1], G. Travlos[1], *D. Malarkey*[1], and *M. D. Stout*[1]. [1]DNTP, RTP, NC; [2]Battelle, Columbus, OH; [3]EPL, Inc, RTP, NC; [4]PC, RTP, NC; and [5]PC, Houston, TX.

#1616d **Poster Board Number 279**
Use of Chemical Safety Assessment and the TTC to Evaluate the Potential Toxicity of an Endoscopic Guidewire. *N. S. Goud*[1], M. Beauchane[1], J. Kapitan[1], and *E. E. Reverdy*[1]. [1]Corporate Toxicology and Biocompatibility, Boston Scientific Corporation, Natick, MA.

#1616e **Poster Board Number 280**
Diet Effects on Endpoints Relevant to Reproductive Toxicity Assessments in CD-1 Mice. *K. Delclos*[1], *L. Camacho*[1], S. Lewis[1], M. Vanlandingham[1], G. Olson[2], *G. C. Gamboa Da Costa*[1], K. Woodling[1], E. Sepehr[1], D. R. Doerge[1], and B. E. Juliar[1]. [1]NCTR, Jefferson, AR; and [2]Toxicologic Pathology Associates, Jefferson, AR.

Abstract #

#1616f **Poster Board Number 281**
Chemical Characterization and Biocompatibility Investigation of One Drug-Combo Implant Devices for Neural Implication—Medtronic Antibiotics Impregnated Catheters. *X. Deng*[1], J. Bertrand[1], and D. Amery[1]. [1]Medtronic, Jacksonville, FL.

#1616g **Poster Board Number 282**
***In Vitro* Assessment of Cardiotoxicity Hazard of Environmental Compounds Using Fast Fluorescence Imaging of Beating iPSC-Derived Cardiomyocytes.** O. Sirenko[1], *K. Ryan*[2], *F. Parham*[2], *M. Behl*[2,3], *B. D. Anson*[4], E. F. Cromwell[1], and *R. R. Tice*[2]. [1]Research, Molecular Devices, Sunnyvale, CA; [2]National Toxicology Program, NIEHS/NIH, RTP, NC; [3]Kelly Government Solutions, RTP, NC; and [4]Cellular Dynamics International, Madison, WI.

Wednesday Morning, March 26
9:00 AM to 12:30 PM
Exhibit Hall

PS

Poster Session: Safety Assessment: Pharmaceutical Drug Discovery

Safety Assessment: Mechanisms and Novel Methods

Chairperson(s): *Jiri Aubrecht, Pfizer Inc., Department of Drug Safety Evaluation, Groton, CT.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *9:00 AM–11:00 AM*

#1617 **Poster Board Number 301**
Analysis of Four Hepatoxicants Using the xCELLigence Analytical System and HepaRG Cells. *C. Jin*[2], D. Steen[1], C. Chesne[1], and *Y. A. Abassi*[2]. [1]Biopredic International, St. Gregoire, France; and [2]ACEA Biosciences Inc, San Diego, CA.

#1618 **Poster Board Number 302**
Modeling of Inflammation-Mediated Liver Injury *In Vitro*. K. Balavenkatraman[1], B. Bertschi[1], M. Magnifico[2], A. Hauchard[1], S. Chibout[1], M. Uteng[1], J. Marlowe[2], P. J. Devine[2], *F. Pognan*[1], and *A. Wolf*[1]. [1]Novartis Pharma AG, Basel, Switzerland; and [2]Novartis Pharma AG, Cambridge, MA.

#1619 **Poster Board Number 303**
Developing an Impedance-Based Cellular Assay with Human iPSC-Derived Cardiomyocytes to Quantify Modulators of Cardiac Contractility. *C. W. Scott*[1], X. Zhang[2], N. Abi Gerges[1], Y. A. Abassi[2], and *M. Peters*[1]. [1]Drug Safety and Metabolism, AstraZeneca, Waltham, MA; and [2]ACEA Biosciences, San Diego, CA.

#1620 **Poster Board Number 304**
Assessment of Prolactin-Mediated Changes and Their Reversal in Molindone Treated Rats. *S. Goel*[1], S. Ganiger[2], and *G. Krishna*[1]. [1]Supernus Pharmaceuticals, Inc., Rockville, MD; and [2]Advinus Therapeutics Ltd., Bengaluru, India.

#1621 **Poster Board Number 305**
***In Vitro* Assessment of Intestinal Toxicity of Drugs Using an Electronic Impedance-Based Cell Monitoring System.** C. Aruga, T. Fujita, T. Yamamoto, and Y. Iwase. Safety Research Laboratories, Mitsubishi Tanabe Pharma Corporation, Chiba, Japan. Sponsor: *J. Shinoduka*.

WEDNESDAY

Program Description (Continued)

Abstract #

#1622 **Poster Board Number 306**
A Comparison of Human Hepatocyte Systems and Conditions for Hepatotoxicity Screening. C. Storck, F. Wang, J. Kwagh, J. Megill, and *O. P. Flint*. Discovery Toxicology, Bristol-Myers Squibb, Princeton, NJ.

#1623 **Poster Board Number 307**
A Chemical Derivative of Naturally Occurring Isothiocyanate, DJ4, Blocks Stress Fiber Formation. *V. P. Kale*, D. Desai, S. Amin, J. Hengst, S. Sung, and J. Yun. Pharmacology, Penn State College of Medicine, Hershey, PA.

#1624 **Poster Board Number 308**
Identification of Unknown Impurities in the Decorporation Agent 3,4,3-LI(1,2-HOPO) Using UPLC Xevo-TOF MSMS Instrumentation. N. Panyala, M. Sturzbecher-Hoehne, and *R. J. Abergel*. Chemical Sciences Division, Glenn T. Seaborg Center, Lawrence Berkeley National Laboratory, Berkeley, CA.

#1625 **Poster Board Number 309**
Preclinical Assessment of Monocarboxylate Transporter 1 (MCT1) Inhibition on Retinal Function and Vision. E. A. Martin[1], A. E. Allen[2], R. J. Lucas[2], K. A. Greenwood[1], and W. S. Redfern[1]. [1]Drug Safety and Metabolism, AstraZeneca, Alderley Park, Cheshire, United Kingdom; and [2]Faculty of Life Sciences, University of Manchester, Manchester, United Kingdom. Sponsor: *R. Roberts*.

#1626 **Poster Board Number 310**
Inhibition of MRP4- and BCRP-Mediated Transport by Tyrosine and Aurora Kinase Inhibitors. *R. N. Hardwick*[1], M. Snellings[2], *B. C. Ferslew*[2], and *K. L. Brouwer*[2]. [1]Curriculum in Toxicology, University of North Carolina, Chapel Hill, NC; and [2]Eshelman School of Pharmacy, University of North Carolina, Chapel Hill, NC.

#1627 **Poster Board Number 311**
Use of MALDI-Imaging As Part of an Integrated Approach to Predict the Nephrotoxic Potential of Polymyxin Derivatives. A. Gupta[1], R. Goodwin[2], N. Keirstead[2], A. Sathe[1], J. Harris[1], N. Johnson[2], A. Xue[2], C. Brown[2], D. Snow[2], F. McGrath[2], M. Pietras[2], L. Cheatham[2], P. I. Bentley[2], M. Blais[2], M. Wagoner[2], K. Thakur[1], T. Grebe[1], J. Swales[2], G. Kern[1], M. Hale[1], and *J. Sasaki*[2]. [1]Infection Innovative Medicines Unit, AstraZeneca, Waltham, MA; and [2]Drug Safety and Metabolism, AstraZeneca, Waltham, MA.

#1628 **Poster Board Number 312**
A Real-Time *In Vitro* Safety Assessment Approach Utilizing a Simplified, Multiparametric Work Flow. *A. L. Niles*[1], M. Sobol[1], *T. L. Riss*[1], S. Einhorn[3], M. Zhou[2], and D. F. Lazar[1]. [1]Promega, Madison, WI; [2]Promega Biosciences, San Luis Obispo, CA; and [3]Cellular Dynamics International, Madison, WI.

#1629 **Poster Board Number 313**
Antimycobacterial Activity and Cytotoxicity of South African Rubiaceae Species, a Potential Source of Promising Antituberculous Remedies. A. O. Aro, *L. J. McGaw*, and *K. A. Eloff*. Paraclinical Sciences, University of Pretoria, Pretoria North, Gauteng, South Africa.

Abstract #

#1630 **Poster Board Number 314**
Investigation of the Effects of Pyrrolamide Antibiotic Agents on Temperature in Rats. L. Wright[1], C. Sadler[1], J. Maynard[2], W. S. Redfern[1], J. McKay[1], H. Powell[1], J. Eakins[1], and S. Ricketts[2]. [1]DSM, AstraZeneca, Macclesfield, United Kingdom; and [2]PHC-Biomarker, AstraZeneca, Macclesfield, United Kingdom. Sponsor: *P. Duffy*.

#1631 **Poster Board Number 315**
Enhanced Sensitivity of Human and Animal Hepatocytes to Hepatotoxicants after a Prolonged Treatment Duration of 96 Hours. *A. P. Li*, and U. Doshi. In Vitro Toxicology, In Vitro ADMET Laboratories, Columbia, MD.

#1632 **Poster Board Number 316**
A Novel 19-Substituted Benzoquinone Ansamycin Ameliorates A53T alpha-Synuclein-Induced Toxicity in a SH-SY5Y Cell Model of Parkinson's Disease through the Upregulation of Heat Shock Proteins and the Induction of Autophagy. D. Siegel[1], *R. Xiong*[1], R. Kitson[3], W. Zhou[2], C. J. Moody[3], and *D. Ross*[1]. [1]Skaggs School of Pharmacy and Pharmaceutical Sciences, University of Colorado Anschutz Medical Campus, Aurora, CO; [2]School of Medicine, University of Colorado Anschutz Medical Campus, Aurora, CO; and [3]School of Chemistry, University of Nottingham, Nottingham, United Kingdom.

#1633 **Poster Board Number 317**
High-Throughput *In Vitro* Toxicity Screening Using Autonomously Bioluminescent Human Cells in 2D and 3D Cultures. *T. Xu*[1,2], J. D. Webb[1], A. Rogers[1,2], *D. Close*[2], *S. Ripp*[1,2], and G. S. Sayler[1,2]. [1]The University of Tennessee, Knoxville, TN; and [2]490 BioTech Inc., Knoxville, TN.

#1634 **Poster Board Number 318**
Lack of Neuropathy after Long-Term Tedizolid Phosphate Administration in Rats. *H. Hosako*[1], A. Radovsky[1], *D. Draganov*[1], J. Vija[1], and K. Bartizal[2]. [1]Toxicology, WIL Research, Ashland, OH; and [2]Cubist Pharmaceuticals, San Diego, CA.

#1635 **Poster Board Number 319**
Sequence Motifs Associated with Hepatotoxicity of Locked Nucleic Acid (LNA)-Modified Antisense Oligonucleotides. *B. D. Hollingshead*[1], *A. D. Burdick*[1], S. Sciabola[2], S. R. Mantena[1], R. Stanton[2], J. Warneke[1], M. Zeng[3], E. Martsen[3], A. Medvedev[3], S. S. Makarov[3], *L. Reed*[1], *J. Davis*[1], and L. O. Whiteley[1]. [1]Drug Safety Research and Development, Pfizer, Cambridge, MA; [2]Oligonucleotide Therapeutic Unit, Pfizer, Cambridge, MA; and [3]Attagene Inc, Morrisville, NC.

#1636 **Poster Board Number 320**
PARP Inhibitors and Centrosome Declustering: Bone Marrow Safety Implications. *M. Crosby*[1], *R. Caccese*[1], M. V. Nadella[1], K. Mikule[2], and *J. Sasaki*[1]. [1]Drug Safety and Metabolism, AstraZeneca Pharmaceuticals, LP, Waltham, MA; and [2]Oncology Innovative Medicines Unit, AstraZeneca, Waltham, MA.

WEDNESDAY

Education-Career Development Sessions
Exhibitor-Hosted Sessions
Featured Sessions
Historical Highlights Session
Informational Sessions
Platform Sessions

Program Description (Continued)

Abstract #

#1637 **Poster Board Number 321**
Zebrafish-Based Screening to Prioritize Drug Development for Glioblastoma Therapy. *L. Wehmas*[1], J. A. Greenwood[2,3], S. Liu[3], A. Punnoose[4], and *R. L. Tanguay*[1]. [1]Environmental and Molecular Toxicology, Oregon State University, Corvallis, OR; [2]Environmental Health Sciences Center, Oregon State University, Corvallis, OR; [3]Biochemistry and Biophysics, Oregon State University, Corvallis, OR; and [4]Physics, Boise State University, Boise, ID.

#1638 **Poster Board Number 322**
Mutagenicity, Citotoxicity, and Genotoxicity Evaluation of Megazol Analogs. F. D. Mello[1], A. S. Carvalho[2], M. M. Bastos[2], N. Boechat[2], C. Aiub[3], and I. Felzenszwalb[1]. [1]Department of Biophysics and Biometry, Rio de Janeiro State University, Rio de Janeiro, Brazil; [2]Institute of Pharmaceutical Technology, Oswaldo Cruz Institute, Rio de Janeiro, Brazil; and [3]Department of Genetics and Molecular Biology, Federal University of the State of Rio de Janeiro, Rio de Janeiro, Brazil. Sponsor: *D. Oliveira*.

#1639 **Poster Board Number 323**
Toxicological Safety Assessment of Novel 5,6-Dihydropyridazine-1(4H)-Carbohydrazides: An Antitubercular Agents. *R. Mishra*[1,2], A. A. Siddiqui[2], A. Husain[2], M. Rashid[2], and *V. Srinivasan*[3]. [1]School of Pharmacy and Emerging Sciences, Baddi University of Emerging Sciences and Technology, Baddi, Himachal Pradesh, India; [2]Department of Pharmacy, Jamia Hamdard, New Delhi, India; and [3]US Safety Evaluation, L'Oréal, Clark, NJ.

#1639a **Poster Board Number 324**
Evaluation of Drug-Induced Cardiotoxicity in Zebrafish. *R. Husain*[1], G. Chimote[2], A. Damre[3], N. Pawar[2], J. Sreenivasan[2], S. Satapathy[3], V. Agarwal[2], and *M. A. Mulla*[1]. [1]Toxicology, Piramal Enterprises Limited, Mumbai, Maharashtra, India; [2]Zebrafish & Nenotechnology, Piramal Enterprises Limited, Mumbai, Maharashtra, India; and [3]Discovery DMPK, Piramal Enterprises Limited, Mumbai, Maharashtra, India.

#1639b **Poster Board Number 325**
Identification of Compounds That Inhibit Dioxin Toxicity Using Cyp1a Reporter Zebrafish. S. Choi[1], and K. Kim[1]. [1]Chonnam National University Medical School, Gwangju, Republic of Korea. Sponsor: *H. Teraoka*.

#1639c **Poster Board Number 326**
Magnetic 3D Bio-Printing: A Novel High-Content Assay for Drug Toxicity Screening. H. Tseng[1], J. A. Gage[1], W. L. Haisler[2], S. K. Neeley[2], G. R. Souza[1], and T. C. Killian[3]. [1]Nano3D Biosciences, Houston, TX; [2]Bioengineering, Rice University, Houston, TX; and [3]Physics, Rice University, Houston, TX. Sponsor: *M. Wagoner*.

Abstract #

Wednesday Morning, March 26
9:00 AM to 12:30 PM
Exhibit Hall

PS

Poster Session: Safety Assessment: Drug Development II

Chairperson(s): *David Ackley, Pfizer Inc., Groton, CT.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *11:00 AM–12:30 PM*

#1640 **Poster Board Number 333**
Ocular Anatomical Features in Rabbits, Dogs, and Monkeys; a Comparison with Human Data. I. Atsumi, *M. Kurata*, and H. Sakaki. Toxicology, Senju Pharmaceutical Co., Kobe, Hyogo, Japan.

#1641 **Poster Board Number 334**
Retinal Toxicity Induced by a Novel Beta-Secretase Inhibitor in the Rodent. J. Werner[1], *M. Fielden*[1], J. A. Jamison[2], *A. A. Coppi*[1], D. Hickman[1], *R. T. Dunn*[1], E. Trueblood[1], *C. Afshari*[1], and R. Lightfoot-Dunn[1]. [1]Amgen, Thousand Oaks, CA; and [2]MPI Research, Mattawan, MI.

#1642 **Poster Board Number 335**
GSK2617971: *In Vitro* and *In Vivo* Characterization of a Mitochondrial Uncoupler. *C. Hu*[1], A. King[1], G. Brunori[2], A. Broom[2], J. Mangum[3], J. Armitage[2], R. Peterson[3], L. Day[4], L. King[1], S. Turner[1], *D. J. Murphy*[1], L. Schaller[5], J. Wilson[5], P. Turnbull[5], J. Lyon[2], and *K. J. French*[1]. [1]Safety Assessment, GlaxoSmithKline, King of Prussia, PA; [2]Safety Assessment, GlaxoSmithKline, Ware, United Kingdom; [3]Safety Assessment, GlaxoSmithKline, RTP, NC; [4]Drug Metabolism and Pharmacokinetics, GlaxoSmithKline, King of Prussia, PA; and [5]MM DPU, GlaxoSmithKline, RTP, NC.

#1643 **Poster Board Number 336**
The Mitosafe® Bioenergetic Balance Screen (BBS): An Innovative Cell-Based Profiler for Modulators of Mitochondrial Metabolism to Predict Hepatotoxicity. E. Cornille-Robert[1], P. Picamal[1], N. A. Compagnone[1], D. Hoet[2], and G. Labbe[2]. [1]Predictive Toxicology Dept., ICDD, Meyreuil, France; and [2]In Vitro Safety, Sanofi, Alfortville, France. Sponsor: *M. Doubovetzky*.

#1644 **Poster Board Number 337**
Mitochondrial Toxicity: Assessing *In Vitro-In Vivo* Correlative Risk in the Antiviral Human Rhinovirus Project (HRP). *M. S. Mondal*[1], *N. Keirstead*[2], *N. Johnson*[2], L. Cheatam[2], *H. J. Garside*[3], *M. Crosby*[2], A. Chen[4], M. Rooney[4], P. Bhagunde[4], M. Cornebise[4], J. Wang[5], Q. Yu[4], M. Henteman[4], S. Butler[4], S. Brocklehurst[3], and *J. Eakins*[3]. [1]Regulatory Safety, Drug Safety and Metabolism, Astrazeneca, Plc, Waltham, MA; [2]Drug Safety and Metabolism, Astrazeneca, Plc, Waltham, MA; [3]Drug Safety and Metabolism, Astrazeneca, Plc, Alderly Park, England, United Kingdom; [4]Infection iMed, Astrazeneca, Plc, Waltham, MA; and [5]Pharmaceutical Development, Astrazeneca, Plc, Waltham, MA.

#1645 **Poster Board Number 338**
A Novel Assay for Detection of Drug-Induced Effects on Calcium-Dependent Platelet Activation. D. Petrucci, A. Murray, and *K. French*. GlaxoSmithKline, King of Prussia, PA.

Program Description (Continued)

Abstract #

#1646 **Poster Board Number 339**
Rapid Screening of Master Viral Stocks for Wild-Type Contamination. G. K. Massey[2], G. P. Gambill[2], A. D. Penman[1,2], and *K. K. Daniels*[1]. [1]Toxicology and Pathology Services, Southern Research Institute, Birmingham, AL; and [2]Bioanalytical Sciences, Southern Research Institute, Birmingham, AL.

#1647 **Poster Board Number 340**
Understanding Mechanisms of Drug-Induced Liver Injury Using Primary Human Cell and Coculture Systems. *F. Shah*[1], *E. Berg*[2], *M. A. Polokoff*[2], *J. Yang*[2], and *N. Greene*[1]. [1]Compound Safety Prediction Group, Pfizer Inc., Groton, CT; and [2]BioSeek, a Division of DiscoveRx, South San Francisco, CA.

#1648 **Poster Board Number 341**
Assessment of Phencyclidine in the Evaluation of Physical Dependence in Rats Using the Nonprecipitated Withdrawal Test. *J. Toot*, T. Pringle, M. Bennett, K. Landis, and *P. Atterson*. WIL Research, Ashland, OH.

#1649 **Poster Board Number 342**
Investigation of the Method of Oral Mucosal Irritation Test by Oral Instillation in Rats. H. Kimoto, Y. Ito, S. Matsumoto, and E. Hosoki. Otsuka Pharmaceutical Co., Ltd., Tokushima, Japan. Sponsor: *W. Brock*.

#1650 **Poster Board Number 343**
Comparative Subchronic Toxicity Studies in Rats of LY2963016 (LY), an Insulin Glargine Product, with USA-Sourced Lantus® (US–L) and EU-Sourced Lantus® (EU–L). R. A. Byrd, J. L. Blackbourne, *A. E. Schultze*, and J. L. Vahle. Toxicology and Drug Disposition, Eli Lilly and Company, Indianapolis, IN.

#1651 **Poster Board Number 344**
Glucocorticoid-Induced Bone Loss in Aged Rats Is Not Reversible. R. Samadfam, E. Lesage, and S. Y. Smith. Bone Research, Charles River, Montreal, QC, Canada. Sponsor: *M. Vézina*.

#1652 **Poster Board Number 345**
Rat-Specific MOA for Tumor Formation in Rats with the SGLT2 Inhibitor Canagliflozin. B. Feyen[1], E. Moesen[1], S. De Jonghe[1], P. Vinken[1], J. Ying Ma[2], M. D. Johnson[2], M. Srinivas[2], *W. Coussement*[1], Y. Van Bekkum[1], and L. Lammens[1]. [1]Drug Safety Sciences, Janssen, Beerse, Belgium; and [2]Drug Safety Sciences, Janssen, Raritan, NJ.

#1653 **Poster Board Number 346**
Expanded Therapeutic Index of Antithrombin Silencing and Correction of APTT in a Hemophilia A Mouse Model. *S. Barros*, M. Carioto, J. Hettinger, Y. Jiang, J. Qin, H. Prabhala, A. Sehgal, and A. Akinc. Alnylam Pharmaceuticals, Cambridge, MA.

#1654 **Poster Board Number 347**
Repeated-Dose Intramuscular (IM) Toxicity Study with Poly-α-L-Glutamic Acid (PLG) in New Zealand White Rabbits. *L. Segal*[1], E. Grosdidier[3], C. Sobry[3], G. Giordano[1], M. Damsten[1], *R. Forster*[3], K. Frazier[2], and E. Destexhe[1]. [1]GlaxoSmithKline Vaccines, Wavre, Belgium; [2]GlaxoSmithKline Pharma, Upper Merrion, PA; and [3]CiToxLAB, Evreux, France.

Abstract #

#1655 **Poster Board Number 348**
Preclinical Safety Development of a New HSV-2 Prophylactic Candidate Vaccine to Support a First-in-Human Phase I Clinical Trial. D. Paul[1], V. Barban[2], A. Popineau[1], and *S. J. Gould*[1]. [1]NonClinical Safety, Sanofi Pasteur, Marcy l'Etoile, France; and [2]NonClinical Product Perfrmance, Sanofi Pasteur, Marcy l'Etoile, France.

#1656 **Poster Board Number 349**
Mechanism of Platelet Reduction in Monkeys with BMS-986001, an HIV Nucleoside Reverse Transcriptase Inhibitor. *M. Guha*[1], *M. S. Christin-Piche*[2], S. Clark[1], *R. Bunch*[1], T. Sanderson[1], and *M. H. Davies*[1]. [1]Drug Safety Evaluation, Bristol Myers Squibb, Mount Vernon, IN; and [2]Pre-Clinical Services, CRL, Montreal, QC, Canada.

#1657 **Poster Board Number 350**
NKTR-192, a Novel Polymer Conjugated Opioid Agonist, Demonstrates a Superior Preclinical Safety Profile to Traditional Opioids. *C. Ji*[1], X. Ge[1], *E. G. Tonkin*[1], *M. K. Sievert*[2], and *T. D. Sweeney*[1]. [1]Toxicology, Nektar Therapeutics, San Francisco, CA; and [2]Covance Laboratories, Madison, WI.

#1658 **Poster Board Number 351**
Preclinical Safety Evaluation of MTL-005, a Novel Metalloporphyrin Radiosensitizer. *J. Caldwell*[1,2], and C. Beattie[2]. [1]University of Liverpool, Liverpool, United Kingdom; and [2]MorEx Development Partners, London, United Kingdom.

#1659 **Poster Board Number 352**
Certolizumab Pegol, a Humanized Antibody Fab Fragment, Pharmacokinetic Considerations in Juvenile Monkey. *B. O. Depelchin*[1], J. Tibbitts[4], *I. Wakefield*[2], T. Parton[4], L. King[4], *S. Grote-Wessels*[3], and P. Theil[1]. [1]UCB, Braine-l' Alleud, Belgium; [2]NCSE Ltd, Shardlow, United Kingdom; [3]Covance, Munster, Germany; and [4]UCB, Slough, United Kingdom.

#1660 **Poster Board Number 353**
Nonclinical Safety Assessment of Tofacitinib in the Juvenile Rat and Monkey. *C. J. Bowman*, *M. Collinge*, *Z. Radi*, *T. T. Kawabata*, *W. M. Vogel*, and *D. J. Ball*. Pfizer, Groton, CT.

#1661 **Poster Board Number 354**
Case Study: The Evolving Cardiac Risk Assessment for a Novel Anticancer Agent. *R. J. Knight*, and C. Pollard. Drug Safety and Metabolism, AstraZeneca, Alderley Park, Cheshire, United Kingdom.

#1662 **Poster Board Number 355**
Infusion Administration of Lipid Emulsions in Preclinical Dog Studies—Practicality and Animal Welfare Consideration. S. Iqbal[1], H. van Wijk[1], and A. Castellernau[2]. [1]Covance Laboratories Ltd, Harrogate, United Kingdom; and [2]BBraun Melsungen AG, Melsungen, Germany. Sponsor: *A. Jackson*.

Program Description (Continued)

Wednesday Morning, March 26
9:00 AM to 12:30 PM
Exhibit Hall

PS

Poster Session: Education, Ethical, Legal, and Social Issues

Chairperson(s): *Lauren M. Aleksunes, Rutgers University, Piscataway, NJ, and Richard S. Pollenz, University of South Florida, Cell Biology, Tampa, FL.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *9:00 AM–11:00 AM*

Abstract #

#1662a **Poster Board Number 369**
The Science behind Personal Care Products: A Hands-On Approach to Engaging K–12 Students. *K. Sprugel*[1], and R. Weeks[2]. [1]Amgen Inc, Seattle, WA; and [2]NWABR Volunteer, Seattle, WA.

#1662b **Poster Board Number 370**
Strategy to Develop Expertise in Risk Assessment in Developing Countries. *S. B. Barros*[1], E. S. Nascimento[1], J. V. Camargo[2], *E. M. Faustman*[3], *A. Hayes*[4], L. Rosenheck[5], and G. D. Umbuzeiro[6]. [1]USP, Sao Paulo, Brazil; [2]UNESP, Botucatu, Brazil; [3]U of Washington, Seattle, WA; [4]Harvard University, Boston, MA; [5]LR Risk Consulting Inc, Greensboro, NC; and [6]UNICAMP, Limeira, Brazil.

#1662c **Poster Board Number 371**
National Library of Medicine Education-Related Resources in Toxicology, for 2014 and Beyond. *P. J. Hakkinen*[1], S. Publicker[1], and J. E. Kelly[1]. [1]National Library of Medicine, National Institutes of Health, Bethesda, MD.

#1662d **Poster Board Number 372**
Completion of an SOT Web Portal for Submission and Accessing K–12 Outreach Activities. *A. Slitt*[1], *D. R. Johnson*[3], and *T. K. Fick*[2]. [1]University of Rhode Island, Kingston, RI; [2]3M, Saint Paul, MN; and [3]US Army, Clinton, MS.

#1663 **Poster Board Number 401**
K–12 Education and Outreach: Inspiring Students Towards Careers in Science, Technology, Engineering, and Math (STEM). *V. S. Bhat*[1], R. Donofrio[2], K. LeVanseler[2], A. Brackman[3], *J. C. English*[1], *K. Cox*[1], A. Gadoth[1], and *A. D. Phelka*[1]. [1]Toxicology Services Dept., NSF International, Ann Arbor, MI; [2]Applied Research Center, NSF International, Ann Arbor, MI; and [3]Chemistry Laboratory, NSF International, Ann Arbor, MI.

#1664 **Poster Board Number 402**
Evaluation of a Summer Undergraduate Fellowship in Toxicology and Environmental Health Sciences: Self-Assessment of Research Competencies. *L. M. Aleksunes*[1], E. Caswell[2], J. E. Gutierrez[2], L. E. Liang[2], and *D. L. Laskin*[1]. [1]Pharmacology and Toxicology, Rutgers University, Piscataway, NJ; and [2]Center for School and Community-Based Research and Education, Rutgers University, Piscataway, NJ.

#1665 **Poster Board Number 403**
A Model for a Residential High School Summer Research-Based Engagement Program to Inspire Students toward STEM Disciplines and Toxicology. Y. Franco[2], *M. M. Bourgeois*[3], and *R. S. Pollenz*[1]. [1]Cell Biology, University of South Florida, Tampa, FL; [2]Secondary Education, University of South Florida, Tampa, FL; and [3]Public Health, University of South Florida, Tampa, FL.

Abstract #

#1666 **Poster Board Number 404**
Creating Undergraduate Research Opportunities within Structured Courses through the CREATTE Initiative: Processes, Case Studies, and Outcomes. *R. S. Pollenz*. Cell Biology, University of South Florida, Tampa, FL.

#1667 **Poster Board Number 405**
Escape from Toxic Island (Life Size!): A Toxicology Awareness Program Using Demonstrations and Hands-On Activities. *D. Hardej*[1,2], and *L. M. Hoffman*[1,2]. [1]Pharmaceutical Sciences, St. John's University, Jamaica, NY; and [2]MASOT, Bordentown, NJ.

#1668 **Poster Board Number 406**
Creating Research Opportunities in K–12 Outreach for Undergraduate Students. *A. J. Abritis*, and *M. M. Bourgeois*. EOH, USF COPH, Tampa, FL.

#1669 **Poster Board Number 407**
Evaluation of Technical and Knowledge-Based Outcomes following Participation in a One-Week High School Research Program in Toxicology and Environmental Health Sciences. *G. L. Guo*[1,2], *J. E. Moscovitz*[1,3], *A. Venosa*[1,3], *L. M. Aleksunes*[1,2], *A. Gow*[1,2], and *D. L. Laskin*[1,2]. [1]Pharmacology and Toxicology, Rutgers University, Piscataway, NJ; [2]Environmental and Occupational Health Sciences Institute, Rutgers University, Piscataway, NJ; and [3]Joint Graduate Program in Toxicology, Rutgers University, Piscataway, NJ.

#1670 **Poster Board Number 408**
Using a Case Study Followed by a Lab Exercise to Examine Acetylcholinesterase Activity. *M. J. Pomeroy-Black*. Biology, LaGrange College, LaGrange, GA.

#1671 **Poster Board Number 409**
A Toxicological Study Using Zebrafish (*Danio rerio*) As a Model. *M. Reynolds-Walsh*. Washington College, Chestertown, MD.

#1672 **Poster Board Number 410**
Incorporation of Evolution and Toxicology Enhances Conceptual Learning in Undergraduate Neuroscience Courses. *S. K. Infante*, and *C. P. Curran*. Biological Science, Northern Kentucky University, Highland Heights, KY.

#1673 **Poster Board Number 411**
Sparking Toxicology Interest in High School Students. *M. Lindsey*[1,2], and H. Ingram[2]. [1]Southwest Environmental Health Sciences Center, University of Arizona, Tucson, AZ; and [2]BIO5 Institute, University of Arizona, Tucson, AZ.

#1674 **Poster Board Number 412**
Implementation of an Academic Service Learning (AS-L) Project within an Undergraduate Course in Pharmacology. *B. Billack*. St John's University, Jamaica, NY.

#1675 **Poster Board Number 413**
Community Engagement: Chromium Contamination and Human Exposure in Garfield, NJ. *S. P. Doherty-Lyons*[1], S. Bari[2], J. Leng[2], F. Gany[2], and *J. T. Zelikoff*[1]. [1]New York University School of Medicine, Tuxedo, NY; and [2]Memorial Sloan Kettering Cancer Center, New York City, NY.

Program Description (Continued)

Abstract #

#1676 **Poster Board Number 414**
Education to Action: Supporting Youth Leadership through Environmental Health Education. *J. M. Gohlke*[1], M. C. Bernhard[1], S. B. Tyson[2], K. Brown[2], and L. Antoine[1]. [1]Environmental Health Sciences, University of Alabama at Birmingham (UAB), Birmingham, AL; and [2]Friends of West End, Birmingham, AL.

#1677 **Poster Board Number 415**
SOT Members Support K–12 Involvement and Outreach. *C. L. McGinnis*[1], *A. L. Slitt*[2], and *N. W. Hurst*[3]. [1]Quinnipiac University, Hamden, CT; [2]University of Rhode Island, Kingston, RI; and [3]Infinity Pharmaceuticals, Inc., Cambridge, MA.

#1678 **Poster Board Number 416**
Passive Sampling Devices Enable Capacity Building and Characterization of Bioavailable Pesticide Mixtures along the Niger, Senegal, and Bani Rivers of Africa. *G. Sower*[1], K. Anderson[1], D. Seck[2], K. A. Hobbie[1], A. Ndiaye Traore[2], M. McCartney[1], A. Ndaye[2], N. D. Forsberg[1], and T. A. Haigh[1]. [1]Department of Environmental & Molecular Toxicology, Oregon State University, Corvallis, OR; and [2]Centre Régional de Recherches en Ecotoxicologie et de Sécurité Environnementale, Dakar, Senegal.

#1679 **Poster Board Number 417**
The *Journal of Toxicological Education (JToxEd)*—A Milestone in Toxicology Education. *J. P. Gray*[1], *B. Billack*[2], *M. G. Borland*[3], *S. M. Ford*[2], *M. A. Gallo*[4], G. Hall[1], *S. D. Ray*[5], *M. Reynolds*[6], *A. L. Slitt*[7], *L. M. Williams*[8], and *S. M. Zamule*[9]. [1]Science, United States Coast Guard Academy, New London, CT; [2]Pharmaceutical Sciences, St. John's University, New York City, NY; [3]Chemistry & Biochemistry, Bloomsburg University, Bloomsburg, PA; [4]EOHSI, Rutgers University, Piscataway, NJ; [5]Pharmaceutical Sciences, Manchester University College of Pharmacy, Fort Wayne, IN; [6]Biology, Washington College, Chestertown, MD; [7]Biomedical & Pharmaceutical Sciences, University of Rhode Island, Kingston, RI; [8]Biology, Bates College, Lewiston, ME; and [9]Biology, Nazareth College, Rochester, NY.

#1680 **Poster Board Number 418**
A Unique Collaboration Producing Highly-Trained Toxicologic Pathologists: The MPI Research/Michigan State University Toxicologic Pathology Training Program. K. G. Nelson[1], S. D. Fitzgerald[2], and D. J. Patrick[1]. [1]Pathology, MPI Research, Mattawan, MI; and [2]Diagnostic Center for Population Animal Health, Michigan State University, East Lansing, MI. Sponsor: *C. Amuzie.*

#1680a **Poster Board Number 419**
Pedagogy and Policy: Teaching Effectiveness, Efficiency, and Equity. *T. Dodd-Butera*[1]. [1]Nursing, CSU San Bernardino, College of Natural Sciences, San Bernardino, CA.

Abstract #

Wednesday Morning, March 26
9:00 AM to 12:30 PM
Exhibit Hall

PS

Poster Session: Developmental Basis of Adult Disease

Chairperson(s): *Darryl B. Hood, Ohio State University, Columbus, OH.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *11:00 AM–12:30 PM*

#1681 **Poster Board Number 421**
Dioxin Exposure during Sexual Differentiation Causes Transgenerational Toxicity in Zebrafish. *T. Baker*[1,2], *R. E. Peterson*[1,2], and *W. Heideman*[1,2]. [1]Pharmacy School, University of Wisconsin-Madison, Madison, WI; and [2]Molecular and Environmental Toxicology Center, University of Wisconsin-Madison, Madison, WI.

#1682 **Poster Board Number 422**
Metabolomic Analysis of Embryonic Zebrafish Indicates Hyaluronic Acid As a Biomarker of Arsenic Exposure. *Y. Nkrumah-Elie*, J. Kirkwood, J. Stevens, E. Ho, and *R. L. Tanguay*. Environmental Health Sciences Center, Oregon State University, Corvallis, OR.

#1683 **Poster Board Number 423**
Multigenerational Effects of Benzo[a]pyrene Exposure on Survival and Developmental Deformities in Zebrafish Larvae. *K. L. Willett*, J. Corrales, C. Thornton, and M. B. White. Pharmacology and Environmental Toxicology, University of Mississippi, University, MS.

#1684 **Poster Board Number 424**
Benzo(a)pyrene Exposure Induces Global Methylation, Dampens Met Expression, and Induces Negative Behavioral Responses in Offspring Mice. *D. B. Hood*[1,3], Z. Li[1], M. Maguire[1], R. E. Rhoades[1], M. McCallister[1], and L. Rothblat[2]. [1]Department of Neuroscience and Pharmacology, Center for Molecular and Behavioral Neuroscience, Meharry Medical College, Nashville, TN; [2]Department of Psychology, George Washington University, Washington, DC; and [3]Division of Environmental Health Sciences, College of Public Health, Department of Neuroscience, College of Medicine, The Ohio State University, Columbus, OH.

#1685 **Poster Board Number 425**
***In Vivo* Aryl Hydrocarbon Receptor-Mediated Developmental Toxicity Impairs the Adult Cardiovascular System.** *V. S. Carreira*[1], *Y. Fan*[1], M. Jiang[2], S. Koch[2], M. Naticchioni[2], M. Smith[2], J. Rubinstein[2], and *A. Puga*[1]. [1]Environmental Health, University of Cincinnati, Cincinnati, OH; and [2]Internal Medicine, University of Cincinnati, Cincinnati, OH.

#1686 **Poster Board Number 426**
The Effects of Endocrine Disruption on the Maturation of the Developing Human Fetal Prostate. *C. M. Saffarini*[1], E. V. McDonnell[1], A. Amin[2,1], S. M. Huse[1], *D. Spade*[1], S. Kostadinov[3], S. J. Hall[1], and *K. Boekelheide*[1]. [1]Pathology and Laboratory Medicine, Brown University, Providence, RI; [2]Pathology and Laboratory Medicine, Rhode Island Hospital, Providence, RI; and [3]Pathology and Laboratory Medicine, Women and Infants Hospital, Providence, RI.

WEDNESDAY

Education-Career Development Sessions
Exhibitor-Hosted Sessions
Featured Sessions
Historical Highlights Session
Informational Sessions
Platform Sessions

Program Description (Continued)

Abstract #

#1687 **Poster Board Number 427**
Application of a Novel Method for Identification of Murine Metastable Epialleles to Human Populations. *C. Weinhouse*, J. Kim, *M. S. Nahar*, *K. E. Sant*, and *D. Dolinoy*. Environmental Health Sciences, University of Michigan School of Public Health, Ann Arbor, MI.

#1688 **Poster Board Number 428**
Perinatal Docosahexaenoic Acid Supplementation in Mice Suppresses Chronic Inflammatory Responses through Modulation of Notch Signaling. *M. Ali*, K. M. Heyob, M. S. Augustine, M. Velten, and *L. K. Rogers*. The Research Institute at Nationwide Children's Hospital, Columbus, OH.

#1689 **Poster Board Number 429**
Gestational Nanomaterial Exposure: What Does the Future Hold? *T. Nurkiewicz*[1], *P. G. Stapleton*[1], *C. E. Nichols*[2], *J. Yi*[1], *V. C. Minarchick*[1], and J. M. Hollander[2]. [1]Phys. and Pharm., WVU, Morgantown, WV; and [2]Exercise Phys., WVU, Morgantown, WV.

#1690 **Poster Board Number 430**
Mono-2-Ethylhexyl Phthalate (MEHP) Exposure Modifies Embryonic Nutrition, One-Carbon Metabolism, and Epigenetic Programming in Organogenesis-Stage Mouse Conceptuses. *K. E. Sant*, *J. L. Jilek*, *D. Dolinoy*, and C. Harris. Environmental Health Sciences, University of Michigan, Ann Arbor, MI.

#1690a **Poster Board Number 431**
Ancestral Exposure to Methylmercury (MeHg) Induces Transgenerational Inheritance of Neurobehavioral Defects. T. A. Kalluvila[1], *R. H. Klingler*[2], M. A. Pickens[2], and *M. J. Carvan*[1,2]. [1]School of Public Health, University of Wisconsin-Milwaukee, Milwaukee, WI; and [2]School of Freshwater Sciences, University of Wisconsin-Milwaukee, Milwaukee, WI.

#1690b **Poster Board Number 432**
***In Utero* Exposure to Diesel Exhaust Air Pollution Promotes Adverse Intrauterine Conditions, Resulting in Weight Gain, Altered Blood Pressure, and Increased Susceptibility to Heart Failure in Adult Mice.** *C. S. Weldy*[1], Y. Liu[1], H. Liggitt[2], and M. T. Chin[1]. [1]Medicine, Division of Cardiology, University of Washington, Seattle, WA; and [2]Comparative Medicine, University of Washington, Seattle, WA.

Abstract #

Wednesday Morning, March 26
9:00 AM to 12:30 PM
Exhibit Hall

PS

Poster Session: Reproductive Toxicology: Male

Chairperson(s): *John Richburg, University of Texas at Austin, Austin, TX, and Natasha Catlin, Brown University, Providence, RI.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *9:00 AM–11:00 AM*

#1691 **Poster Board Number 436**
Reproductive Parameters in a 90-Day Toxicity Study of Smart Herbal Purifier®—A Poly Herbal Supplement in Male Rats. Z. N. Igweze[1,3], *O. E. Orisakwe*[2], and A. W. Obianime[3]. [1]Pharmacology and Toxicology, Madonna University, Elele, Rivers State, Nigeria; [2]Toxicology Unit, Faculty of Pharmacy, University of Port-Harcourt, Port-Harcourt, Rivers State, Nigeria; and [3]Department of Pharmacology School of Basic Medical Sciences, University of Port-Harcourt, Port-Harcourt, Rivers State, Nigeria.

#1692 **Poster Board Number 437**
The Smokeless Tobacco Product, Gutkha, Alters Reproductive Parameters in Exposed Male Mice. *K. Koenig*[1], *S. P. Doherty-Lyons*[1], *D. Willis*[1], *C. Hoffman*[1], *J. L. Blum*[1], F. Gany[2], and *J. T. Zelikoff*[1]. [1]Environmental Health Sciences, New York University, Tuxedo, NY; and [2]Memorial Sloan-Kettering Cancer Center, New York City, NY.

#1693 **Poster Board Number 438**
Reproductive Toxicity of *Terminalia arjuna* in Male Albino Rats. *S. Chauhan*[1], and S. Agrawal[2]. [1]ICMR, New Delhi, India; and [2]Bhilai Mahila Mahavidyalaya, Bhilai, Durg, India.

#1694 **Poster Board Number 439**
The Haemogram, Spermiogram and Histopathology of Testicles and Epididymis of Male Wistar Rat Treated with Aloe Vera Gel. M. O. Oyeyemi, and O. S. Ajani. Department of Veterinary Surgery and Reproduction, University of Ibadan, Ibadan, Oyo, Nigeria. Sponsor: *A. Oyagbemi*.

#1695 **Poster Board Number 440**
Manganese: A Potential Reprotoxicant? D. McGough[1], L. Jardine[2], and M. Maher[3]. [1]International Manganese Institute, Paris, France; [2]Charles River Edinburgh, Edinburgh, United Kingdom; and [3]Intertek ASG, Manchester, United Kingdom. Sponsor: *W. Harvey*.

#1696 **Poster Board Number 441**
N-Acetylcysteine, but Not the Suspension of Treatment, Reverses the Effects of Arsenic Trioxide on the Mouse Male Reproductive System. R. F. Silva[1], L. R. Kiguti[3], C. S. Borges[2], P. V. Silva[2], G. Missassi[2], A. S. Pupo[3], and *W. D. Kempinas*[2]. [1]State University of Campinas, Campinas, SP, Brazil; [2]Morphology, State University of São Paulo, Botucatu, SP, Brazil; and [3]Pharmacology, State University of São Paulo, Botucatu, SP, Brazil.

#1697 **Poster Board Number 442**
Assessment of the Reproductive Toxicity of Inhalation Exposure to Ethyl Tertiary Butyl Ether in Male Mice with Normal, Low-Active, and Inactive ALDH2. R. Wang[1], Z. Weng[1,2], K. Ohtani[1], M. Suda[1], and Y. Yanagiba[1]. [1]Japan National Institute of Occupational Safety and Health, Kawasaki, Japan; and [2]NCTR, Jefferson, AR. Sponsor: *N. Mei*.

Program Description (Continued)

Abstract #

#1698 **Poster Board Number 443**
Comparison of Infant Background Data from Pre- and Postnatal Developmental Studies in Cynomolgus Monkeys of Mainland and Island Origins. *N. Lalayeva*[1], *S. Oneda*[1], *N. Makori*[1], *R. E. Watson*[1], S. Jacobson[1], S. M. Glaza[1], *T. Beck*[1], and K. Fukuzaki[2]. [1]Safety Assessment, SNBL USA, Ltd., Everett, WA; and [2]Corporate, Shin Nippon Biomedical Laboratories, Ltd, Tokyo, Japan.

#1699 **Poster Board Number 444**
Nonhuman Primate DART Data Interpretation: Challenges Associated with Background Changes in Pregnant Cynomolgus Monkeys. *S. Karanth, J. N. Tichenor*, A. Wilcox, J. K. Meyer, and *G. J. Chellman*. Toxicology, Charles River Laboratories, Preclinical Services, Reno, NV.

#1700 **Poster Board Number 445**
Telmisartan Attenuates the Somatic and Germ Cells Damage in Streptozotocin-Induced Diabetic Rat: Cellular and Molecular Mechanisms. *S. Kushwaha*, and *G. Jena*. Department of Pharmcaology and Toxicology, National Institute of Pharmaceutical Education and Research, Mohali, Punjab, India.

#1701 **Poster Board Number 446**
Expression and Localization of Xenobiotic Transporters in the Male Reproductive System. *D. M. Klein*[1], *N. J. Cherrington*[1], and S. H. Wright[2]. [1]Pharmacology/Toxicology, University of Arizona, Tucson, AZ; and [2]Physiology, University of Arizona, Tucson, AZ.

#1702 **Poster Board Number 447**
Phthalate Metabolism and Kinetics in an *In Vitro* Model of Testes Development. *S. Harris*[1], *S. Wegner*[1], S. Hong[1,2], and *E. M. Faustman*[1,2]. [1]Department of Environmental and Occupational Health Sciences, University of Washington, Seattle, WA; and [2]Institute for Risk Analysis and Risk Communication, University of Washington, Seattle, WA.

#1703 **Poster Board Number 448**
The Role of H19 Hypomethylation in Male Reproductive Toxicity Induced by Endocrine Disruptors p,p'-DDE. *Y. Song*. Zhejiang Academy of Medical Sciences, Hangzhou, China.

#1704 **Poster Board Number 449**
Developing a Screen for Analysis of Environmental Epigenetic Effects. *J. A. Camacho*, and *P. Allard*. Molecular Toxicology, UCLA, Los Angeles, CA.

#1705 **Poster Board Number 450**
Epigenetic Transgenerational Actions of Dibutyl Phthalate and Male Fertility. W. Wu, B. Yuan, J. Li, H. Gu, M. Chen, D. Wu, *C. Lu, Y. Xia*, and *X. Wang*. Nanjing Medical University, Nanjing, PR, China.

#1706 **Poster Board Number 451**
Epigenetic Mechanisms of Cadmium-Induced Placental Insufficiency. *M. L. Clive, P. Sysa Shah*, N. Johnston, T. Hargest, D. Bedja, and *K. Gabrielson*. Environmental Health Sciences, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD.

#1707 **Poster Board Number 452**
Dynamic Expression of Imprinted Genes and Epigenetic Factors in an *In Vitro* Testicular Coculture. *S. Wegner, S. Harris*, S. E. Pacheco, and *E. M. Faustman*. Department of Environmental and Occupational Health Sciences, University of Washington, Seattle, WA.

Abstract #

#1708 **Poster Board Number 453**
Age-Dependent Macrophage Infiltration into the Testis of Rats and Mice after Mono-(2-Ethylhexyl) Phthalate (MEHP) Exposure. *C. Murphy, A. Stermer*, and *J. H. Richburg*. Pharmacology & Toxicology, University of Texas at Austin, Austin, TX.

#1709 **Poster Board Number 454**
Seminiferous Tubule Atrophy Occurs Regardless of X-Ray Exposure in the p53-Null Rat Testis. *D. Spade*, M. S. Dai, *S. J. Hall*, and *K. Boekelheide*. Pathology & Laboratory Medicine, Brown University, Providence, RI.

#1710 **Poster Board Number 455**
The Stage-Specific Apoptotic Response of the Rat Testis to Low-Dose 2,5-Hexanedione and X-Irradiation Coexposure. *N. Catlin*, S. M. Huse, and *K. Boekelheide*. Brown University, Providence, RI.

#1711 **Poster Board Number 456**
Surface Charged Iron Oxide Nanoparticles May Influence Reproductive and Developmental Toxicity in CD-1 Mice. *K. R. Di Bona*[1], Y. Xu[2], Y. Bao[2], and J. F. Rasco[1]. [1]Department of Biological Sciences, The University of Alabama, Tuscaloosa, AL; and [2]Department of Chemical and Biological Engineering, The University of Alabama, Tuscaloosa, AL.

#1712 **Poster Board Number 457**
Long-Term Effects of Low-Dose Prenatal Exposure to Endocrine Disruptors on Male Reproduction and Development. S. Jones[1,2], A. Boisvert[1,3], T. Duong[1,4], S. Francois[1,4], and *M. Culty*[1,2,4]. [1]Research Institute of the McGill University Health Center, McGill University, Montreal, QC, Canada; [2]Experimental Medicine, McGill University, Montreal, QC, Canada; [3]Medicine, McGill University, Montreal, QC, Canada; and [4]Pharmacology & Therapeutics, McGill University, Montreal, QC, Canada.

#1713 **Poster Board Number 458**
Perinatal Exposure to an Environmentally Relevant Mixture of Brominated Flame Retardants: Developmental and Metabolic Outcomes. *E. W. Tung*[1], A. Kawata[1], M. Rigden[1], P. L. Lefevre[2], R. G. Berger[2], A. C. Holloway[3], *B. F. Hales*[2], and M. Wade[1]. [1]Hazard Identification Division, Health Canada, Ottawa, ON, Canada; [2]Pharmacology and Therapeutics, McGill University, Montreal, ON, Canada; and [3]Obstetrics and Gynecology, McMaster University, Hamilton, ON, Canada.

#1713a **Poster Board Number 459**
Reproductive and Developmental Toxicology Assessment of Oral Dietary Calcium Formate in Yucatan Miniature Swine. T. Madsen [1], A. Stricker-Krongrad[1], *D. W. Hobson*[2], C. Selby[1], G. P. Georges[4], *R. P. Hanzlik*[3], D. Brocksmith[1], J. Liu[1], and *G. Bouchard*[1]. [1]Sinclair Research Center, LLC, Columbia, MO; [2]LoneStar PharmTox, LLC, Bergheim, TX; [3]University of Kansas, Lawrence, KS; and [4]Nephro-Tech 1, LLC, Shawnee, KS.

Program Description (Continued)

Abstract #

#1713b **Poster Board Number 460**
Effect of Vincamine on the Reproductive System of Harlan Sprague-Dawley Rats and B6C3F1/N Mice. *I. Surh*[1], *B. McIntyre*[1], M. J. Hoenerhoff[2], *D. M. Fallacara*[4], D. Y. Vasconcelos[4], M. Vallant[3], and P. Chan[1]. [1]Toxicology Branch, National Toxicology Program, National Institute of Environmental Health Sciences, Research Triangle Park, NC; [2]Cellular & Molecular Pathology Branch, NIEHS, RTP, NC; [3]Program Operations Branch, NIEHS, RTP, NC; and [4]Battelle, Columbus, OH.

#1713c **Poster Board Number 461**
Dose Addition Predicts Effects of Phthalate Mixture on Male Reproductive Tract Development and Associated Fetal Testis Gene Expression in Rats. *K. L. Howdeshell*[1], *C. V. Rider*[1], J. R. Furr[2], *V. S. Wilson*[2], and *L. E. Gray*[2]. [1]NTP/NIEHS, RTP, NC; and [2]USEPA, RTP, NC.

#1713d **Poster Board Number 462**
The Effects of Triclosan on the Male Reproductive System of the Rat. *T. E. Stoker*[1], *G. W. Louis*[1], and D. Hallinger[1]. [1]Endocrinology Branch, US EPA, Research Triangle Park, NC.

#1713e **Poster Board Number 463**
Effect of Oral Bisphenol A (BPA) and Ethinyl Estradiol (EE2) on Genome-Wide Gene Expression in Prostates from 4-Day-Old Rats. *L. Camacho*[1], C. Chang[1], *M. Basavarajappa*[1], T. Han[1], J. C. Fuscoe[1], S. Lewis[1], M. Vanlandingham[1], and *K. Delclos*[1]. [1]NCTR, FDA, Jefferson, AR.

#1713f **Poster Board Number 464**
Effects of Bisphenol A (BPA) on Transcription in Male and Female Rat Mammary Glands. *M. Basavarajappa*[1], C. Chang[1], T. Han[1], J. C. Fuscoe[1], *K. Delclos*[1], and *L. Camacho*[1]. [1]NCTR, FDA, Jefferson, AR.

#1713g **Poster Board Number 465**
Aflatoxin B1 Interferes with Steroidogenic Machinery to Suppress Testosterone Secretion in Rats Leydig Cells. *I. A. Adedara*[1,2], M. K. Nanjappa[1], *E. O. Farombi*[2], and B. T. Akingbemi[1]. [1]Department of Anatomy, Physiology, and Pharmacology, Auburn University, Auburn, AL; and [2]Drug Metabolism and Toxicology Research Laboratories, Department of Biochemistry, University of Ibadan, Ibadan, Oyo, Nigeria.

#1713h **Poster Board Number 466**
Effect of Neonatal Exposure to Decabromodiphenyl Ether on Transcript Levels of Thyroid Hormone Receptor α and Androgen Receptor in Mouse Sertoli Cells. H. Miyaso[1,3], N. Nakamura[2], Y. Matsuno[1,3], and *C. Mori*[1,3]. [1]Center for Preventive Medical Science, Chiba University, Chiba, Japan; [2]Department of Pharmacology, Physiology and Toxicology, Food and Drug Administration, Jefferson, AR; and [3]Department of Bioenvironmental Medicine, Graduate School of Medicine, Chiba University, Chiba, Japan.

#1713i **Poster Board Number 467**
The microRNAs Pathway in Mechanism of Crude Oil-/Dispersant-Induced Reproductive Toxicity. *X. Pan*[1], Y. Zhang[1], and J. R. Polli[1]. [1]Biology, East Carolina University, Greenville, NC.

Abstract #

#1713j **Poster Board Number 468**
High-Content Screen and Mechanistic Study of Environmental Reproductive Toxins in *C. elegans*. *D. A. Parodi*[1], and *P. Allard*[1,2]. [1]ISG, UCLA, Los Angeles, CA; and [2]EHS, UCLA, Los Angeles, CA.

#1713k **Poster Board Number 469**
Cross-Species Evaluation of Endocrine Disrupting Effects of Lead (Pb) on Maturation and Development. *E. P. Hines*[1], L. Vinikoor-Imler[1], and M. G. Lassiter[1]. [1]EMAG, NCEA, US EPA, Research Triangle Park, NC.

Wednesday Morning, March 26
9:00 AM to 12:30 PM
Exhibit Hall

PS

Poster Session: Immunotoxicity II

Chairperson(s): *Cheryl Rockwell, Michigan State University, East Lansing, MI.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *11:00 AM–12:30 PM*

#1713l **Poster Board Number 471**
Dual Role of microRNA-31 in 2, 3, 7, 8-Tetrachlorodibenzo-*p*-dioxin(TCDD)-Mediated Upregulation of CYP1A1 and FoxP3 in Activated T Cells. *P. Mehrpouya*[1], *P. S. Nagarkatti*[1], and *M. Nagarkatti*[1]. [1]Pathology, Microbiology and Immunology, University of South Carolina School of Medicine, Columbia, SC.

#1713m **Poster Board Number 472**
Relationship between Allergic Characteristics of Swine Husbandry Workers and Endotoxin Level in Swine Farm Dust. H. Kim[2], *Y. Heo*[1], K. Shin[1], J. Jo[1], and K. Roque[1]. [1]Occupational Health, Catholic University of Daegu, Gyeongsan si, Republic of Korea; and [2]Preventive Medicine, The Catholic University of Korea, Seoul, Republic of Korea.

#1713n **Poster Board Number 473**
Glucose and Insulin Mediated Alteration in Metabolic Activity of U937 Cells. *A. Engin*[1], B. Karahalil[1], and *E. Coskun*[1]. [1]Department of Toxicology, Gazi University, Faculty of Pharmacy, Ankara, Turkey.

#1713o **Poster Board Number 474**
Ascorbic Acid Improves Hyperoxia-Compromised Host Defense against *Pseudomonas aeruginosa* Infection in Mice. V. S. Patel[1], V. Sampat[1], M. Espey[3], H. Wang[2], and *L. Mantell*[1,2]. [1]Department of Pharmaceutical Sciences, St. John's University College of Pharmacy and Health Sciences, Jamaica, NY; [2]Centers for Inflammation and Immunology, The Feinstein Institute for Medical Research, North Shore-LIJ Health Science, Manhasset, NY; and [3]National Institutes of Health, Bethesda, MD.

#1713p **Poster Board Number 475**
Immunotoxicity of Sodium Methyldithiocarbamate: Potential Connections of Disparate Effects. W. Tan[1], B. Nanduri[1], *X. Deng*[1], and *S. B. Pruett*[1]. [1]Basic Sciences, Mississippi State University, Mississippi State, MS.

WEDNESDAY

Program Description (Continued)

Abstract #

#1713q **Poster Board Number 476**
Immunotoxicity Profile following Exposure to Silt Deposit Dust Samples from Nellis Dunes Recreational Area, Clark County, Nevada. L. Murphy[1], W. B. David[2], R. M. Chow[2], M. Leetham-Spencer[1], M. Jensen[1], B. J. Buck[4], D. Goossens[4], Y. Teng[4], L. Gryder[3], S. Young[3], N. Walters[1], *D. E. Keil*[1], *M. M. Peden-Adams*[2], and *J. C. Dewitt*[5]. [1]Microbiology, MSU, Bozeman, MT; [2]Harry Reid Center for Env. Studies, UNLV, Las Vegas, NV; [3]Anthropology, UNLV, Las Vegas, NV; [4]Geoscience, UNLV, Las Vegas, NV; and [5]Pharmacology and Toxicology, ECU, Greenville, NC.

#1713r **Poster Board Number 477**
Immunotoxicity Profile following Exposure to Geological Dust Samples Collected from Nellis Dunes Recreational Area Map Unit CBN2: Median Grain Size 4.5 µm. M. Leetham-Spencer[1], *J. C. Dewitt*[4], *M. M. Peden-Adams*[2], R. M. Chow[2], W. B. David[2], L. T. Murphy[1], M. Jensen[1], N. Walters[1], L. Gryder[3], B. J. Buck[5], D. Goossens[5], Y. Teng[5], S. Young[3], and *D. E. Keil*[1]. [1]Microbiology, Montana State University, Bozeman, MT; [2]Harry Reid Center, University of Nevada, Las Vegas, NV; [3]Anthropology, University of Nevada, Las Vegas, NV; [4]Pharmacology and Toxicology, East Carolina University, Greenville, NC; and [5]Geoscience, University of Nevada, Las Vegas, NV.

#1713s **Poster Board Number 478**
Reducing Immunogenicity in a T Cell-Dependent Antibody Response (TDAR) in Cynomolgus Monkeys Leads to a Sensitive Assessment of Immunosuppression by Abatacept (CTLA4-Ig). *G. Bannish*[2], M. S. Perpetua[1], A. J. Beavis[1], B. Fraszczyk[1], S. Harvey[1], T. Ziegelhofer[3], J. Doughty[1], and L. A. Coney[2]. [1]Biomarkers, Bioanalysis, and Clinical Sciences, Huntingdon Life Sciences, East Millstone, NJ; [2]Biologics, Huntingdon Life Sciences, Huntingdon, Cambridgeshire, United Kingdom; and [3]Cardiology/Infusion Technology, Huntingdon Life Sciences, East Millstone, NJ.

#1713t **Poster Board Number 479**
Sulforaphane Inhibits Vascular Inflammation in Mice and Prevents TNF-alpha-Induced Monocyte Adhesion to Primary Endothelial Cells through Interfering with the NF-κB Pathway. P. Nallasamy[1], *H. Shah*[1], E. Brooke[1], *H. Zhu*[2], *Y. Li*[2], and *Z. Jia*[1]. [1]University of North Carolina at Greensboro, Greensboro, NC; and [2]Campbell University School of Osteopathic Medicine, Buies Creek, NC.

#1713u **Poster Board Number 480**
Pulmonary Toxicity and Global Gene Expression Changes in Response to Subchronic Inhalation Exposure to Crystalline Silica in Rats. *P. Joseph*[1], *R. Sellamuthu*[1], *J. R. Roberts*[1], S. Young[1], D. Richardson[1], W. McKinney[1], B. T. Chen[1], D. G. Frazer[1], J. Gu[1], M. L. Kashon[1], and C. Umbright[1]. [1]NIOSH, Morgantown, WV.

Abstract #

Wednesday Morning, March 26
9:00 AM to 12:30 PM
Exhibit Hall

PS

Poster Session: Gene Regulation and Signal Transduction II

Chairperson(s): *Sidhartha Ray, Manchester University, Fort Wayne, IN.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *9:00 AM–11:00 AM*

#1714 **Poster Board Number 501**
Regulation of Covalent Modification of 2-Tert-Butyl-1,4-Benzoquinone to Keap1 through Glutathione-Mediated *S*-Transarylation. *Y. Abiko*[1,2], and *Y. Kumagai*[1]. [1]Graduate School of Comprehensive Human Sciences, University of Tsukuba, Ibaraki, Japan; and [2]Research Fellow of the Japan Society for the Promotion of Science, Tokyo, Japan.

#1715 **Poster Board Number 502**
An Imaging-Based RNAi Screen Identifies Novel Regulators of Nrf2 Activation. S. Hiemstra, B. Herpers, M. Niemeijer, S. Wink, and *B. van de Water*. Toxicology, LACDR, Leiden, Netherlands.

#1716 **Poster Board Number 503**
Ambient Vapor Samples Activate the Nrf2-ARE Pathway but Not an Inflammatory Response in Human Bronchial Epithelial BEAS-2B Cells. Y. Shinkai[1,2], S. Nakajima[2], A. Eiguren-Fernandez[3], E. Stefano[3], D. A. Schmitz[3], J. R. Froines[3], A. K. Cho[3], and *Y. Kumagai*[1,2]. [1]Faculty of Medicine, University of Tsukuba, Tsukuba, Ibaraki, Japan; [2]Graduate School of Life and Environmental Sciences, University of Tsukuba, Tsukuba, Ibaraki, Japan; and [3]Southern California Particle Center, University of California Los Angeles, Los Angeles, CA.

#1717 **Poster Board Number 504**
Proteomics Analysis to Identify Sensor Proteins with Covalent Modification Associated with 1,4-Naphthoquinone-Induced Activation of Electrophilic Signal Transduction Pathways. R. Hirose[1], T. Miura[2], R. Sha[3], Y. Shinkai[1,2], T. Tanaka-Kagawa[4], and *Y. Kumagai*[1,2]. [1]Environmental Biology Lab, Faculty of Medicine, University of Tsukuba, Tsukuba, Ibaraki, Japan; [2]Graduate School of Comprehensive Human Sciences, University of Tsukuba, Tsukuba, Ibaraki, Japan; [3]Leading Graduate School Doctoral Program, University of Tsukuba, Tsukuba, Ibaraki, Japan; and [4]Division of Environmental Chemistry, National Institute of Health Sciences, Tokyo, Japan.

#1718 **Poster Board Number 505**
Role of Stress Response Proteins and Redox-Sensitive Transcription Factors in Chemically-Induced Liver Injury: Chemoprevention with Kolaviron and Curcumin. *E. O. Farombi*[1], S. Shrotriya[1,2], and Y. Surh[1,2]. [1]Biochemistry, University of Ibadan, Ibadan, Oyo State, Nigeria; and [2]Research Institute of Pharmaceutical Sciences, Seoul National University, Korea, Republic of Korea.

Program Description (Continued)

Abstract #

#1719 **Poster Board Number 506**
Ozone Induces Lung Epithelial Cell Inflammation through MAP Kinase Activation without NF-κB Activation. *S. D. McCullough*[1], K. E. Duncan[2], S. M. Swanton[1], L. A. Dailey[1], *D. Diaz-Sanchez*[1], and *R. Devlin*[1]. [1]Clinical Research Branch, US Environmental Protection Agency, Chapel Hill, NC; and [2]Center for Environmental Medicine, Asthma, and Lung Biology, University of North Carolina - Chapel Hill, Chapel Hill, NC.

#1720 **Poster Board Number 507**
Caloric Restriction Induces the Antioxidant Response in White Adipose Tissue. *L. Armstrong*, and *A. L. Slitt*. Biomedical and Pharmaceutical Sciences, University of Rhode Island, Narragansett, RI.

#1721 **Poster Board Number 508**
Using In-Cell Proteomics to Assess the Effects of Mitochondrial Oxidative Phosphorylation Inhibitors on Cell Metabolism. H. Garside[1], R. A. Capaldi[2], X. Luo[2], A. P. Capaldi[3], and J. Eakins[1]. [1]Drug Safety and Metabolism, AstraZeneca, Macclesfield, United Kingdom; [2]MetProf Inc, Tucson, AZ; and [3]University of Arizona, Tucson, AZ. Sponsor: *P. Duffy*.

#1722 **Poster Board Number 509**
The NF-kB Family Member RelB Controls microRNA miR-146a to Suppress Cigarette Smoke-Induced COX-2 Protein Expression in Lung Fibroblasts. *C. J. Baglole*, *M. Zago*, A. Rico de Souza, E. Hecht, S. Rousseau, Q. Hamid, and D. H. Eidelman. Medecine, McGill University, Montreal, QC, Canada.

#1723 **Poster Board Number 510**
Benzo[a]pyrene and β-Naphthoflavone Promote Nrf2 Nuclear Translocation in HepG2 Cells. E. C. Herrera-Cogco[1], L. Ramírez-Martínez[2], B. Munoz[1], A. Sánchez-Flores[3], F. Castorena[4], E. López-Bayghen[2], and *A. Albores*[1]. [1]Toxicology, Cinvestav, Mexico, DF, Mexico; [2]Genetics and Molecular Biology, Cinvestav, Mexico, DF, Mexico; [3]Escuela Nacional de Ciencias Biológicas, IPN, Mexico, DF, Mexico; and [4]Human Growth and Development Area, Tecnológico de Monterrey, Monterrey, NL, Mexico.

#1724 **Poster Board Number 511**
Heat Shock Protein A6 Expression Is Increased by AP1 and Repressed by TNIP1. *V. P. Ramirez*[1], M. Stamatis[2], A. Shmukler[2], and B. J. Aneskievich[1]. [1]Dept of Pharmaceutical Sciences, University of Connecticut, Storrs, CT; and [2]PharmD Program, School of Pharmacy, University of Connecticut, Storrs, CT.

#1725 **Poster Board Number 512**
Role of Cytokines in Regulation of Angiotensinogen in Human Hepatocytes. M. R. Karim, *R. A. Ansari*, M. A. Clark, and S. A. Rizvi. Pharmaceutical Sciences, Nova Southeastern University, Fort Lauderdale, FL.

#1726 **Poster Board Number 513**
Modification of Pattern Recognition Receptor Expression As a Potential Mechanism of GI Toxicity. *G. Yanochko*, and B. Hirakawa. Pfizer, Inc, San Diego, CA.

Abstract #

#1727 **Poster Board Number 514**
miRNAs Quantification and Evaluation of Suitable Housekeeping Genes in the Major Preclinical Species. A. Rogue, *R. Forster*, E. Floch, and P. J. Nicholas. CiToxLAB, Evreux, France.

#1728 **Poster Board Number 515**
Role of Hypoxiamimetics in Regulation of Angiotensinogen in Human Hepatocytes. *R. A. Ansari*, M. R. Karim, S. A. Rizvi, and M. A. Clark. Pharmaceutical Sciences, Nova Southeastern University, Fort Lauderdale, FL.

#1729 **Poster Board Number 516**
A Graph Theoretical Approach to Determine *In Vitro* Mode of Action. *J. A. Vrana*, *H. N. Williams*, A. A. Han, and *J. W. Boyd*. Chemistry, West Virginia University, Morgantown, WV.

#1730 **Poster Board Number 517**
Regulation of Airway Mucin Gene Expression by *Aspergillus.* B. Lee, X. Zhou, L. Zhu, and *Y. Chen*. University of Arizona, Tucson, AZ.

#1731 **Poster Board Number 518**
An Approach to Investigate Intracellular Protein Network Responses. A. A. Han[1], *H. N. Williams*[1], *J. A. Vrana*[1], N. Boggs[2], and *J. W. Boyd*[1]. [1]Chemistry, West Virginia University, Morgantown, WV; and [2]Applied Physics Laboratory, Johns Hopkins University, Laurel, MD.

#1732 **Poster Board Number 519**
The microRNA Pathway in Blast-Induced Neurotrauma. D. Dobbins, J. R. Polli, E. E. Connolly, and *X. Pan*. Biology, East Carolina University, Greenville, NC.

#1733 **Poster Board Number 520**
The Effect of Thiazolidinediones on Cell Metabolism. J. Eakins[1], R. A. Capaldi[2], X. Luo[2], A. P. Capaldi[3], and H. Garside[1]. [1]Drug Safety and Metabolism, AstraZeneca, Macclesfield, United Kingdom; [2]MetProf Inc., Tucson, AZ; and [3]University of Arizona, Tucson, AZ. Sponsor: *P. Duffy*.

#1734 **Poster Board Number 521**
High-Throughput Screening for Cellular Signaling Toxicity Provides Alternatives to Cytotoxicity Measures. *C. L. Sherwood*[1,2,3], M. McCorkel[2], and *S. Boitano*[1,2,4]. [1]Arizona Respiratory Center, University of Arizona, Tucson, AZ; [2]BIO 5 Research Institute, University of Arizona, Tucson, AZ; [3]Southwest Environmental Health Sciences Center, University of Arizona, Tucson, AZ; and [4]Physiology, University of Arizona, Tucson, AZ.

#1735 **Poster Board Number 522**
Forecasting Cell Death Dose-Response from Early Signal Transduction Responses *In Vitro.* *J. W. Boyd*, *J. A. Vrana*, *H. N. Williams*, and A. A. Han. Chemistry, West Virginia University, Morgantown, WV.

#1736 **Poster Board Number 523**
TC-PTP Inhibits UVB-Induced Keratinocyte Survival and Proliferation by Regulating Stat3 Signaling. J. W. Shin[1,2], H. Lee[1,2], L. D. Morales[2], T. J. Slaga[1], and *D. J. Kim*[1,2]. [1]Pharmacology, University of Texas Health Science Center at San Antonio, San Antonio, TX; and [2]Edinburg Medical Research Division, University of Texas Health Science Center at San Antonio, Edinburg, TX.

Program Description (Continued)

Abstract #

#1736a **Poster Board Number 524**
Patterns of Gene Coregulation across Multiple Tissues Undergoing Toxicological Challenge. *S. S. Auerbach*[1], D. L. Svoboda[2], *B. A. Merrick*[1], and *R. R. Tice*[1]. [1]National Toxicology Program, National Institute of Environmental Health Sciences, Research Triangle Park, NC; and [2]Social and Scientific Systems, Inc, Durham, NC.

#1736b **Poster Board Number 525**
Regulation of Human CYP2C9 Expression by Electrophilic Stress Involves AP-1 Activation and DNA Looping. N. L. Makia[1], S. Surapureddi[1], R. A. Prough[2], and *J. A. Goldstein*[1]. [1]Human Metabolism Group, Laboratory of Toxicology and Pharmacology, National Institute of Environmental Health Sciences (NIEHS), Research Triangle Park, NC; and [2]Biochemistry and Molecular Biology, University of Louisville School of Medicine, Louisville, KY.

#1736c **Poster Board Number 526**
Dose-Specific Nicotine-Dependent Behaviors in *Caenorhabditis elegans*: Regulation of Nicotinic Acetylcholine Receptors. J. R. Polli[1], and *X. Pan*[1]. [1]Biology, East Carolina University, Cary, NC.

#1736d **Poster Board Number 527**
Nrf2 Protects Mitochondrial Degeneration by Oxidative Stress. *J. G. Strom*[1], B. Xu[1], *J. A. Johnson*[2], and *Q. M. Chen*[1]. [1]Pharmacology, University of Arizona, Tucson, AZ; and [2]School of Pharmacy, University of Wisconsin-Madison, Madison, WI.

#1736e **Poster Board Number 528**
RNA-Seq Analysis of the Functional Link between Vascular Disruption and Adverse Developmental Consequences. *J. Franzosa*[1], *R. S. Settivari*[2], *R. Ellis-Hutchings*[2], *N. Kleinstreuer*[3], *K. Houck*[1], *E. W. Carney*[2], and *T. B. Knudsen*[1]. [1]NCCT, U.S. EPA, RTP, NC; and [2]The Dow Chemical Company, Midland, MI; and [3]ILS, Inc/NICEATM, NIEHS, RTP, NC.

Wednesday Morning, March 26
9:00 AM to 12:30 PM
Exhibit Hall

PS

Poster Session: Developmental Neurotoxicity II: New Methods, Persistent Chemicals, and Flame Retardants

Safety Assessment: Mechanisms and Novel Methods

Chairperson(s): *Helena T. Hogberg, Johns Hopkins University, Bloomberg School of Public Health, Baltimore, MD.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *11:00 AM–12:30 PM*

#1737 **Poster Board Number 533**
Developmental Neurotoxicity Assessment in a 3D Organotypic Neuronal Model Using a Metabolomics Approach. *H. T. Hogberg*, R. Bachinski, M. Bouhifd, G. Harris, A. Kleensang, S. Odwin-DaCosta, *D. Pamies*, L. Smirnova, L. Zhao, and *T. Hartung*. CAAT, Johns Hopkins University, Bloomberg School of Public Health, Baltimore, MD.

#1738 **Poster Board Number 534**
MiRNomics, Metabolomics; and 3D Neuronal Differentiation of LUHMES Progenitor Cells As an *In Vitro* Model for DNT Studies. L. Smirnova, G. Harris, J. Delp, *H. T. Hogberg*, *D. Pamies*, R. Bachinski, and *T. Hartung*. CAAT, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD.

Abstract #

#1739 **Poster Board Number 535**
Development of Calcium Responses and Electrical Activity in Differentiating Mouse Neural Progenitor Cells *In Vitro*. *M. M. Dingemans*, *M. de Groot*, and *R. H. Westerink*. Neurotoxicology Research Group; Institute for Risk Assessment Sciences; Faculty of Veterinary Medicine, Utrecht University, Utrecht, Netherlands.

#1740 **Poster Board Number 536**
Thyromimetic Effects of Araclor 1254 (AR) and Polybrominated Diether 100 (PBDE) on Angiogenesis (AG) Are Mediated via the αVβ3 Integrin Receptor. *M. Alnamnakani*[1,2], S. A. Mousa[2], and *H. A. El-Fawal*[1]. [1]Neurotoxicology Laboratory, Albany College of Pharmacy and Health Sciences, Albany, NY; and [2]Pharmaceutical Research Institute, Albany College of Pharmacy and Health Sciences, Albany, NY.

#1741 **Poster Board Number 537**
BDE-47 and BDE-49 Selectively Disrupt Axonal Outgrowth in Cultured Hippocampal Neurons. *H. Chen*, *D. Yang*, and *P. Lein*. University of California, Davis, Davis, CA.

#1742 **Poster Board Number 538**
Assessing Genetic Susceptibility to Motor Function Deficits following Developmental Exposure to Polychlorinated Biphenyls. M. Stegman, *C. P. Curran*, *S. K. Infante*, M. Kromme, B. Hays, K. Taylor, H. Garber, and A. Lang. Biological Sciences, Northern Kentucky University, Highland Heights, KY.

#1743 **Poster Board Number 539**
Motor Dysfunction in Mice Varying at the AhR and Cyp1a2 Loci following Developmental PCB Exposure. *C. P. Curran*, *S. K. Infante*, M. Stegman, M. Kromme, A. Lang, K. Taylor, H. Garber, and B. Hays. Biological Sciences, Northern Kentucky University, Highland Heights, KY.

#1744 **Poster Board Number 540**
Perinatal Exposure to PCBs Alters Amphetamine and Cocaine Behavioral Sensitization. M. M. Miller, J. N. Voeller, J. L. Nelms, A. E. Meyer, and *H. J. Sable*. Psychology, University of Memphis, Memphis, TN.

#1745 **Poster Board Number 541**
PFOS Induces Behavioral Alterations Compatible with ADHD in a Zebrafish Model of Developmental Neurotoxicity. S. Spulber[1], P. Kilian[1], S. Negri[2], M. Di Tuccio[2], and *S. Ceccatelli*[1]. [1]Neuroscience, Karolinska Institutet, Stockholm, Sweden; and [2]Environmental Research Center, Salvatore Maugeri Foundation, Pavia, Italy.

#1746 **Poster Board Number 542**
Early Embryonic 2,3,7,8-Tetrachlorodibenzo-*p*-dioxin (TCDD) Exposure Disrupts Forebrain and Cerebral Vascular Development in Zebrafish. *J. S. Plavicki*, K. Miller, E. Christensen, *R. E. Peterson*, and *W. Heideman*. School of Pharmacy, University of Wisconsin at Madison, Madison, WI.

WEDNESDAY

Education-Career Development Sessions
Exhibitor-Hosted Sessions
Featured Sessions
Historical Highlights Session
Informational Sessions
Platform Sessions

Program Description (Continued)

Abstract #

#1747 **Poster Board Number 543**
Rapid Identification and Characterization of Neuromodulator Chemicals Using an Embryonic Zebrafish System. *D. Reif*[1], *R. L. Tanguay*[2], *L. Truong*[2], and D. Mandrell[2]. [1]Bioinformatics Research Center, North Carolina State University, Raleigh, NC; and [2]Department of Environmental and Molecular Toxicology, Oregon State University, Corvallis, OR.

#1747a **Poster Board Number 544**
Predictions of Developmental Neurotoxicity Potential of TDCPP. *V. C. Moser*[1], P. M. Phillips[1], K. L. McDaniel[1], K. A. Jarema[1], *K. B. Paul*[2], J. M. Hedge[2], *W. R. Mundy*[2], *T. J. Shafer*[2], and *S. Padilla*[2]. [1]TAD/NHEERL, US EPA, RTP, NC; and [2]ISTD/NHEERL, US EPA, RTP, NC.

#1747b **Poster Board Number 545**
Impact of Perinatal TCDD Exposure on Neuroendocrine Stress Response System in Mice. S. L. Benner[1], T. Inoshita[1], Y. Ding[1], *M. Kakeyama*[1,2], and *C. Tohyama*[1]. [1]Grad School of Med., University of Tokyo, Bunkyo-Ku, Tokyo, Japan; and [2]Grad. Sch. Biomed. Sci, Nagasaki University, Nagasaki, Nagasaki, Japan.

#1747c **Poster Board Number 546**
Developmental Exposure to PCBs Differentially Alters Sensitivity to Audiogenic and Kindling-Induced Seizures in Rats. S. Bandara[1], *S. L. Schantz*[1], and *M. E. Gilbert*[2]. [1]University of Illinois at Urbana-Champaign, Urbana, IL; and [2]US EPA, Research Triangle Park, NC.

#1747d **Poster Board Number 547**
Zebrafish Model of PCB Developmental Neurotoxicity. *G. W. Miller*[1], and *P. Lein*[1]. [1]Molecular Biosciences, University of California, Davis, Davis, CA.

#1747e **Poster Board Number 548**
Sex-Dependent Effects of Lead and Prenatal Stress on Neonatal Stress Receptor and Adult Corticosterone Levels. *S. Pelkowski*[1], *M. Sobolewski*[1], *H. Weston*[1], *S. Kidd*[2], *D. W. Anderson*[2], *J. S. Schneider*[2], and *D. A. Cory-Slechta*[1]. [1]Univ. of Rochester, Rochester, NY; and [2]Thomas Jefferson Univ., Philadelphia, PA.

Wednesday Morning, March 26
9:00 AM to 12:30 PM
Exhibit Hall

PS

Poster Session: Developmental Neurotoxicity III: Pesticides, Food, and Drugs

Safety Assessment: Mechanisms and Novel Methods

Chairperson(s): *Henrik Viberg, Uppsala University, Environmental Toxicology, Uppsala, Sweden.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *9:00 AM–11:00 AM*

#1748 **Poster Board Number 549**
Persistent Organic Pollutants and Different Types of Pesticides Can Interact during Brain Development to Exacerbate Behavioral and Cognitive Defects in Mice. *H. Viberg, I. Lee, S. Buratovic*, A. Fredriksson, and *P. Eriksson*. Environmental Toxicology, Uppsala University, Uppsala, Sweden.

Abstract #

#1749 **Poster Board Number 550**
Adult Dose-Response-Related Behavioral Effects of 4 Different Pesticides, after Neonatal Exposure. S. Hallgren, *I. Lee, S. Buratovic*, A. Fredriksson, *P. Eriksson*, and *H. Viberg*. Environmental Toxicology, Uppsala University, Uppsala, Sweden.

#1750 **Poster Board Number 551**
Developmental Exposure to Levels of Chlorpyrifos That Do Not Inhibit Brain Cholinesterase Induces Decreased Emotional Reactivity in Rodents. *R. L. Carr, M. K. Ross*, and C. A. Nail. Center for Environmental Health Sciences, Mississippi State University, Mississippi State, MS.

#1751 **Poster Board Number 552**
Zebrafish Brain Development Is Altered by Early Exposure to the Organophosphate Chlorpyrifos. *H. Richendrfer*, and R. Creton. MCB, Brown University, Providence, RI.

#1752 **Poster Board Number 553**
Modeling the Developmental Neurotoxicity of Chlorpyrifos in Human Neural Stem Cells: Role of Butyrylcholinesterase in Neuronal Differentiation. A. K. Tiethof[1,2], R. P. Hart[3,4], J. C. Moore[4,5,6], and *J. R. Richardson*[1,2]. [1]Environmental and Occupational Health Sciences Institute and Department of Environmental and Occupational Medicine, Robert Wood Johnson Medical School, Piscataway, NJ; [2]Joint Program in Toxicology, Rutgers University, Piscataway, NJ; [3]Department of Cell Biology and Neuroscience, Rutgers University, Piscataway, NJ; [4]The Human Genetics Institute of New Jersey, Piscataway, NJ; [5]RUCDR Infinite Biologics, Piscataway, NJ; and [6]Department of Genetics, Rutgers University, Piscataway, NJ.

#1753 **Poster Board Number 554**
Astrocytes Protect against Diazinon- and Diazoxon-Induced Inhibition of Neurite Outgrowth by Regulating Neuronal Glutathione. *D. M. Pizzurro*[1,2], K. Dao[2], and *L. G. Costa*[2,3]. [1]Gradient, Cambridge, MA; [2]Department of Environmental and Occupational Health Sciences, University of Washington, Seattle, WA; and [3]Department of Neuroscience, University of Parma, Parma, Italy.

#1754 **Poster Board Number 555**
Prenatal Dexamethasone, As Used in Preterm Labor, Exacerbates the Impact of Postnatal Chlorpyrifos Exposure on Serotonergic Pathways. *F. Seidler*, J. Card, and *T. A. Slotkin*. Pharmacology & Cancer Biology, Duke University Medical Center, Durham, NC.

#1755 **Poster Board Number 556**
Ketamine Induces Neurotoxicity in the Developing Brain. *J. Liu*, X. Han, and S. D. Soriano. Anaesthesia, Harvard Medical School, Boston, MA.

#1756 **Poster Board Number 557**
Using 2D and 3D Electron Microscopy Techniques to Study Mitochondrial Ultrastructure in the Developing Rat Brain after Ketamine Treatment. T. Eustaquio[1], A. Paredes[1], *F. Liu*[2], *W. Slikker*[3], *M. G. Paule*[2], *P. C. Howard*[1], and *C. Wang*[2]. [1]Office of Scientific Coordination, USFDA-NCTR, Jefferson, AR; [2]Division of Neurotoxicity, USFDA-NCTR, Jefferson, AR; and [3]Office of the Director, USFDA-NCTR, Jefferson, AR.

Program Description (Continued)

Abstract #

#1757 **Poster Board Number 558**
Neonatal Low-Dose Coexposure to the Anaesthetic Agent Ketamine and Gamma-Radiation Causes Persistent Neurobehavioural Defects in Adult Mice. *P. Eriksson*[1], *S. Buratovic*[1], B. Stenerlöw[2], A. Fredriksson[1], and S. Sundell-Bergman[3]. [1]Dept. Environmental Toxicology, Uppsala University, Uppsala, Sweden; [2]Dept. Radiology, Oncology and Radiation Science, Uppsala University, Uppsala, Sweden; and [3]Dept. Soil and Environment, Swedish University, Uppsala, Sweden.

#1758 **Poster Board Number 559**
The Antirheumatic Drug, Leflunomide, Interferes with the Dopamine Synthesis Pathway. *A. Planchart*, L. St. Mary, K. Duke, M. Ihrie, and *C. Mattingly*. Biological Sciences, North Carolina State University, Raleigh, NC.

#1759 **Poster Board Number 560**
Cumulative Vaccination Alters Immune Responses in the Developing Brain. *K. Streifel*[1,3], K. L. Jones[2], J. Van de Water[2,3], and *P. Lein*[1,3]. [1]Department of Molecular Bioscience, University of California Davis, Davis, CA; [2]Department of Internal Medicine, University of California Davis, Davis, CA; and [3]M.I.N.D. Institute, University of California Davis, Davis, CA.

#1760 **Poster Board Number 561**
Dysregulation of Autism-Associated Synaptic Proteins by Environmental Contaminants. G. Kaushik, *J. C. Pfau*, K. Aho, and M. A. Thomas. Biological Sciences, Idaho State University, Pocatello, ID.

#1761 **Poster Board Number 562**
Nicotine-Induced Insomnia in Larval and Juvenile Zebrafish. *M. E. Wolter*, and K. R. Svoboda. Joseph J. Zilber School of Public Health, University of Wisconsin-Milwaukee, Milwaukee, WI.

#1762 **Poster Board Number 563**
Coexposure to Gamma-Radiation and Nicotine during a Critical Period of Neonatal Brain Development Can Exacerbate Cognitive Defects in Adult Mice. *S. Buratovic*[1], B. Stenerlöw[2], S. Sundell-Bergman[3], A. Fredriksson[1], and *P. Eriksson*[1]. [1]Dept. Environmental Toxicology, Uppsala University, Uppsala, Sweden; [2]Dept. Radiology, Oncology and Radiation Science, Uppsala University, Uppsala, Sweden; and [3]Dept. Soil and Environment, Swedish University of Agricultural Sciences, Uppsala, Sweden.

#1763 **Poster Board Number 564**
Integrating Kinetics and Dynamics for Domoic Acid: Lessons Learned from a Mouse Neurodevelopmental Study. J. Park[1,3], M. Shiotani[1], S. Hong[1,3], D. Wittington[2], *T. B. Cole*[1], *W. C. Griffith*[1,3], *T. M. Burbacher*[1], *L. G. Costa*[1], and *E. M. Faustman*[1,3]. [1]Environmental and Occupational Health Sciences, University of Washington, Seattle, WA; [2]Medicinal Chemistry, University of Washington, Seattle, WA; and [3]Institute for Risk Analysis and Risk Communication, University of Washington, Seattle, WA.

#1764 **Poster Board Number 565**
Neurohistopathology of Postnatal IP Dose of MK-801 in Juvenile Rats. *R. M. Parker*[1], D. C. Thake[2], and *R. C. Switzer*[3]. [1]DART, Huntingdon Life Sciences, East Millstone, NJ; [2]MW ToxPath Sciences LLC, Chesterfield, MO; and [3]NeuroScience Associates, Inc, Knoxville, TN.

Abstract #

#1764a **Poster Board Number 566**
Comparing the Neurotoxic Effects of Propofol and Ketamine in Rat Embryonic Neural Stem Cells. *F. Liu*[1], *N. V. Sadovova*[2], C. M. Fogle[1], *T. A. Patterson*[1], *M. G. Paule*[1], *W. Slikker*[1], and *C. Wang*[1]. [1]National Center for Toxicological Research, Jefferson, AR; and [2]Toxicologic Pathology Associates, Jefferson, AR.

#1764b **Poster Board Number 567**
Understanding the Mechanism of Anesthetic-Induced Developmental Neurotoxicity Provides Pathways to Prevention. *W. Slikker*[1], *F. Liu*[1], *N. V. Sadovova*[1], S. Liu[1], *X. Zhang*[1], C. M. Fogle[1], *T. A. Patterson*[1], *M. G. Paule*[1], and C. Wang[1]. [1]NCTR/FDA, Jefferson, AR.

#1764c **Poster Board Number 568**
Propofol Adverse Effects on Neural Stem Cell Differentiation and Viability. *N. V. Sadovova*[1], *F. Liu*[2], C. M. Fogle[2], *M. G. Paule*[2], *W. Slikker*[2], and *C. Wang*[2]. [1]Toxicologic Pathology Associates, Jefferson, AR; and [2]Neurotoxicology, NCTR/FDA, Jefferson, AR.

#1764d **Poster Board Number 569**
Evaluating Neural Progenitor Cell Expansion following Sevoflurane Exposure in Developing Rat Brain Using Micropositron Emission Tomography of [18F] Fluoro-L-Thymidine. S. Liu[1], *M. G. Paule*[1], *X. Zhang*[1], *G. Newport*[1], S. Apana[2], M. Berridge[2], *W. Slikker*[1], and *C. Wang*[1]. [1]Neurotoxicology, National Center for Toxicological Research, Jefferson, AR; and [2]3D Imaging, LLC, Little Rock, AR.

#1764e **Poster Board Number 570**
Vigabatrin-Induced Effects on the CNS of Juvenile Rats: Further Characterization of Histological Findings. *A. D. Rasmussen*[1], K. M. Wegener[1], P. Mullins[2], E. Richmond[2], and N. Downes[2]. [1]Regulatory Toxicology & Safety Assessment, H. Lundbeck A/S, Valby, Denmark; and [2]Sequani Ltd, Ledbury, Herefordshire, United Kingdom.

Program Description (Continued)

Wednesday Morning, March 26
9:15 AM to 10:15 AM
Room 106A West

E

Exhibitor-Hosted Session: Application of Molecular Imaging and Radiochemistry in Drug Development

Presented by:
MPI Research

Contemporary drug development is a lengthy process. Molecular imaging (MI) has become a solution to decrease development time via assessment of specific molecular targets. MI is a multidisciplinary field evaluating biological processes at the molecular and cellular levels *in vivo*. This session focuses on application of molecular imaging drug development.

Wednesday Morning, March 26
9:15 AM to 10:15 AM
Room 101C West

E

Exhibitor-Hosted Session: Developing LC-MS/MS Methods for Quantitation of Therapeutic Peptides: Challenges and Solutions

Presented by:
Tandem Labs

Given that therapeutic peptides are more specific and well tolerated by the body—since they are typically analogous to or synthetic versions of endogenous compounds—the development of therapeutic peptides has grown in biopharmaceutical research. This presentation will discuss developing peptide assays, including strategies for troubleshooting by referencing case studies.

Wednesday Morning, March 26
9:15 AM to 10:15 AM
Room 106C West

E

Exhibitor-Hosted Session: Reproduction Toxicology for Chemicals

Presented by:
Harlan Contract Research Services

Since 2005 the requirements for reproduction toxicology testing of chemicals has increased. The session will focus on the experiences of increased testing and the impact upon how we determine what are significant findings and the classification of "Reproductive Toxicants." The session will consider the opportunities for reducing animal usage.

Wednesday Morning, March 26
9:15 AM to 10:15 AM
Room 101A West

E

Exhibitor-Hosted Session: Risk Assessment of Postnatal Musculoskeletal Development—Juvenile and Reproductive Toxicology Studies

Presented by:
Charles River

Juvenile toxicology and postnatal studies can include basic measurements of growth to assess risk in developing animals, but when there are concerns of off-target effects, more comprehensive evaluations are required. This presentation, will discuss the incorporation of these measurements and specialized endpoints into these studies in a range of species.

Wednesday Morning, March 26
9:30 AM to 4:00 PM
Room 127A

FS

Research Funding Session: Research Funding Information Room

Chairperson(s): *David Dorman, North Carolina State University, Raleigh, NC.*

Sponsor(s):
Research Funding Committee

Program and review staff from agencies that fund research, including NIH, US FDA, NIEHS, CDC, and US EPA will be available in the Research Funding Information Room (Room 127A) for individual conversations. Check the posted schedule at the NIEHS booth 1129 for specific times staff members will be available all week to answer your questions about the scientific review or grant opportunities. The schedule also will be available in the Registration area and in Room 127A, and during the "Strategies for Funding Opportunities: Brown Bag Luncheon." On Wednesday, the Research Funding Information Room will host webinars with review staff who are unable to attend the Annual Meeting.

Wednesday Morning, March 26
10:00 AM to 11:00 AM
Room 103A West

(Ticket Required; SOT Student and Postdoctoral members only, limited seating)

Trainee Discussion with Medical Research Council (MRC) Lecturer: Dr. Scott

Chairperson(s): *Colleen E. McLoughlin, CDC-NIOSH, Morgantown, WV.*

Lecturer: *John D. Scott, Howard Hughes Medical Institute, Department of Pharmacology, University of Washington, Seattle, WA.*

Dr. Scott will meet informally for discussion with graduate students and postdoctoral scholars after his Keynote MRC Lecture (*see page 271*). Room occupancy is limited, and participants register for a ticket with their Annual Meeting registration.

Wednesday Morning, March 26
10:30 AM to 11:30 AM
Room 101A West

E

Exhibitor-Hosted Session: Developing a Comprehensive Preclinical Safety Program for Your Pharmaceutical Product: Influential Factors and Key Decisions

Presented by:
Toxikon Corporation

Designing a comprehensive preclinical safety program requires an understanding of the pharmaceutical product and applicable regulatory guidance. The presentation will guide participants through the decision-making process and key influential factors that will impact the design of the preclinical program, including factors that affect quality, budget, and timelines.

Program Description (Continued)

Wednesday Morning, March 26
10:30 AM to 11:30 AM
Room 106A West

E

Exhibitor-Hosted Session: Developments in Global Regulations for Crop Protection Products: Meeting the Challenge

Presented by:
Huntingdon Life Sciences

Developments in worldwide regulatory requirements for crop protection products require new approaches to provide data for conducting effective risk assessments for both humans and the environment. These range from new study designs to investigate specific risks to enhancement of existing designs to maximize the usefulness of available data.

Wednesday Morning, March 26
10:30 AM to 11:30 AM
Room 101C West

E

Exhibitor-Hosted Session: Discovery and Clinical Application of microRNA Biomarkers in Biofluids and Biofluid Subcompartments Like Exosomes

Presented by:
Exiqon, Inc

Discovery and clinical application of microRNA biomarkers in biofluids and biofluid subcompartments like exosomes. Presentation of Exiqon's highly sensitive LNA™-based microRNA qPCR system to detect microRNAs in challenging clinical material. Considerations for transforming biomarker discovery results into robust assay development. Presentation of case studies of microRNA biomarkers in biofluids.

Wednesday Morning, March 26
10:30 AM to 11:30 AM
Room 106C West

E

Exhibitor-Hosted Session: Solutions for Biologics Development

Presented by:
Covance

Development of Biologics requires knowledge of appropriate assays and studies needed to provide solutions to key questions. This session will address important considerations for designing antibody drug conjugate (ADC) studies, the importance of PK and PD in designing a study, and the impact of immunogenicity on study interpretation.

Wednesday Morning, March 26
11:45 AM to 12:45 PM
Room 101A West

E

Exhibitor-Hosted Session: Cellectis' New Generation of Human iPS Derived Specialized Cells with Improved Functionality: Enhanced hiPS-HEP2™, hiPS-CM™ and Pure hES-CM™ Highly Suitable for Toxicity Assessment

Presented by:
Cellectis AB

- Enhanced hiPS-HEP2™: Significant levels of several CYP enzymes relevant for toxicity and drug metabolism shown for the first time in hiPS-derived hepatocytes.
- hiPS-CM™ and Pure hES-CM™: Functional and high quality cardiomyocytes.

Cryopreserved and fresh, homogeneity, low batch-to-batch variation and maintained functionality overtime make the cells excellent *in vitro*-tools.

WEDNESDAY AFTERNOON

Wednesday Afternoon, March 26
12:00 Noon to 1:30 PM
Room 228A

Regional Chapter Collaboration and Communications Committee Meeting

Wednesday Afternoon, March 26
12:00 Noon to 1:30 PM
See room listing below.

Specialty Section Meeting/Luncheons: Comparative and Veterinary (221A); *In Vitro* and Alternative Methods (222)

Wednesday Afternoon, March 26
12:00 Noon to 1:20 PM
Room 124

R

Roundtable Session: Hydraulic Fracturing: Are There Worker Health Issues?

New Science and Perspectives Surrounding Environmental and Occupational Exposures

Chairperson(s): *Debra Kaden, ENVIRON International Corporation, Boston, MA, and Ziad S. Naufal, Chevron, Houston, TX.*

Sponsor(s):
Inhalation and Respiratory Specialty Section
Occupational and Public Health Specialty Section

Use of horizontal drilling and hydraulic fracturing in the US oil and gas (O&G) industry has expanded, with >500,000 workers in this industry in 2013. As with any industry, the workforce has the greatest potential for exposure to contaminants. Furthermore, due to the rapid expansion and need to work at multiple locations, many workers remain transient and work at different sites, often owned by different operators, which can lead to additional complexities when assessing exposures. O&G exploration using hydraulic fracturing has constantly evolved to increase efficiency in recovering oil and gas, which have market value, and further minimize any environmental and health hazards to workers and nearby residents. The highly sophisticated process holds potential hazards as high pressures are used, transferring large volumes of water, sand (silica), and small quantities of specific chemicals from the surface to specific geologic structures. Extensive use is made of diesel-powered equipment. Current practices seek to recover and reuse injected fluids to minimize water consumption and the disposal of hazardous waste, including trace elements and naturally-occurring radioactive material. Toxicology and epidemiology have been used to guide improvements in technology (e.g., advanced diesel engines, fuels, and exhaust after-treatment to reduce diesel emissions of PM and NOx) and replace proppants/additives with more environmentally-friendly alternatives. Concern for occupational hazards, including minimizing exposure to noxious agents that may have immediate or long-term impact, is key to planning hydraulic fracturing operations.

#1765	12:00	**Hydraulic Fracturing: Are There Worker Health Issues?** *D. Kaden*[1], *R. McClellan*[4], *J. E. Snawder*[3], R. A. Nocco[2], M. Finn[1], and *Z. Naufal*[2]. [1]ENVIRON International Corporation, Boston, MA; [2]Chevron, San Ramon, CA; [3]CDC-NIOSH, Williamstown, KY; and [4]Consultant, Albuquerque, NM.
	12:00	**Introduction.** D. Kaden. ENVIRON International Corporation, Boston, MA.

Program Description (Continued)

Abstract #

12:05 **NIOSH Exposure Assessment of Upstream Oil and Gas Production.** J. E. Snawder. CDC-NIOSH, Williamstown, KY.

12:20 **Collaborative Industry Initiatives to Evaluate and Mitigate Exposures in Hydraulic Fracturing Operations.** R. A. Nocco. Chevron, San Ramon, CA.

12:35 **Hydraulic Fracturing: Continually Changing to Reduce Hazards and Increase Efficiency.** R. O. McClellan. Toxicology & Human Health Risk Analysis, Albuquerque, NM.

12:50 **Exposure Assessment Plans—A Critical Tool in Assessing and Managing Potential Exposures from Hydraulic Fracturing Operations.** R. Rottersman. ENVIRON International Corporation, Chicago, IL.

1:05 **Panel Discussion/Q&A.**

Wednesday Afternoon, March 26
12:00 Noon to 1:20 PM
Room 128

IS

Informational Session: Understanding the Implications of Breastfed Infant Exposures to POPs: How Can We Do Better?

Chairperson(s): *Geniece M. Lehmann, Natl Exposure Res Lab, ORD, Research Triangle Park, NC, and David G. Farrer, Oregon Health Authority, Environmental Public Health, Portland, OR.*

Sponsor(s):
Biological Modeling Specialty Section
Occupational and Public Health Specialty Section
Reproductive and Developmental Toxicology Specialty Section

Persistent organic pollutants (POPs), such as polychlorinated biphenyls (PCBs), may accumulate within a woman's adipose tissue over many years prior to pregnancy and may subsequently partition into human milk upon breastfeeding. As a result, infant POP intake from breastfeeding may be much greater than average daily maternal POP doses. The developmental period is critical because it sets the stage for lifelong health. Humans continue to develop postpartum, and effects of POP exposure during this period may persist into childhood, or even adulthood. Thus, it is important to be able to accurately assess early-life exposures to these chemicals. In many cases, current environmental exposure assessment methods do not account for differences between maternal and infant POP exposures. In order to fully consider the breastfeeding pathway when assessing risk from POP exposure, it is useful to have methods to estimate a breastfed infant dose based on an average daily maternal dose. In this session, PCBs will be considered as an example of POPs to which human mothers and their infants are commonly exposed. Models developed to estimate breast milk PCB concentrations based on lifetime maternal exposure will be presented, as will the potential application of these models for identifying health effects associated with PCB exposure during infancy. Furthermore, potential policy implications of addressing the difference between average daily maternal PCB dose and breastfeeding infant dose will be discussed. Although PCBs were chosen as an example to use for these discussions, lessons learned can be applied to many POPs, including emerging chemicals of concern. This session will be of interest to risk assessors and regulators who seek to include the breastfeeding exposure pathway in the consideration of risks to infants from POPs. [The views expressed here do not reflect the views or policies of the US EPA.]

Abstract #

#1766 12:00 **Understanding the Implications of Breastfed Infant Exposures to POPs: How Can We Do Better?** *G. M. Lehmann*[1], *D. Farrer*[2], J. LaKind[3], M. Poulsen[4], *H. El-Masri*[1], *E. McLanahan*[1], and *S. Haddad*[5]. [1]US EPA, Research Triangle Park, NC; [2]Oregon Health Authority, Portland, OR; [3]LaKind Associates, LLC, Catonsville, MD; [4]Oregon Department of Environmental Quality, Portland, OR; and [5]Université de Montréal, Montréal, QC, Canada.

12:00 **POPs in Breast Milk: What Do the Data Mean for Mothers, Doctors, Regulators, and Others?** J. S. LaKind. LaKind Associates, LLC, Catonsville, MD.

12:15 **Oregon's Guidance on Assessing Risk from PCBs and Other POPs to Nursing Infants.** M. Poulsen. Oregon Department of Environmental Quality, Portland, OR.

12:30 **Species Kinetic Differences and Mixture Effects on the Disposition of PCBs in Human Milk.** H. A. El-Masri. US EPA, Research Triangle Park, NC.

12:45 **PBPK Modeling of Mother-Infant Lactational Transfer of POPs and Use in Epidemiological Assessment of Their Relationship with Neurodevelopmental Effects.** S. Haddad. Université de Montréal, Montréal, QC, Canada.

1:00 **Panel Discussion/Q&A.**

Wednesday Afternoon, March 26
12:00 Noon to 1:20 PM
Room 126

EC

Education-Career Development Session: Training and Continuing Education for the "Total Toxicologist": How Do We Optimize Training and Educational Opportunities for Different Job Sectors?

Chairperson(s): *Courtney E. Sulentic, Wright State University, Pharmacology&Toxicology, Dayton, OH, and Donald A. Fox, University of Houston, College of Optometry, Houston, TX.*

Sponsor(s):
Career Resource and Development Committee
Education Committee
Graduate Student Leadership Committee

The training and continuing education of toxicologists is a priority for the SOT membership as demonstrated by the SOT Professional Needs Assessment Task Force (PNATF) and the Education Summit. But what defines a well-trained toxicologist or the "Total Toxicologist?" Does the definition vary depending on the employment sector? Do current graduate programs and continuing education programs provide the necessary and sufficient training for toxicologists? To initiate a discussion regarding these questions, SOT and the National Institute of Environmental Health Sciences sponsored the 2011 Toxicology Educational Summit, which brought participants from academia, industry, and government together to better define the necessary skill sets for the Total Toxicologist (*Tox Sci* 127:331, 2012). Conclusions from the Summit underscored a deficiency in critical thinking, communication skills, and practical application of laboratory data to drug development and risk assessment as well as a need for improved educational opportunities for mid-career toxicologists. Sustaining a career in the current and future global environment, with the ever-changing and rapid advances in technology, requires partnerships between academia, industry, and government to train and re-train the Total Toxicologist. The goal of this session is to offer multi-faceted perspectives on the skill sets (both hard and soft) required for a successful career as a Total Toxicologist and will include talks from early-, mid-, or late-career toxicologists currently employed in academia, industry (pharmaceutical and agricultural/chemical), or government. The session will also provide a brief summary of the results from the PNATF survey to offer a perspective from the SOT membership regarding their perceived training needs. This session should be of interest to students, postdocs, and early-

Program Description (Continued)

Abstract #

and mid-career toxicologists and is consistent with SOT's goals to continue educational awareness and advancements for all toxicologists.

#1767 12:00 **Training and Continuing Education for the "Total Toxicologist": How Do We Optimize Training and Educational Opportunities for Different Job Sectors?** *C. E. Sulentic*[1], and *D. A. Fox*[2]. [1]Wright State University, Dayton, OH; and [2]University of Houston, Houston, TX.

12:00 **Introduction.** C. E. Sulentic. Wright State University, Dayton, OH.

12:05 **Planning from Day 1: Timely Completion of Your Training, and Specialized Training for the Job That You Want.** M. Genter. University of Cincinnati, Cincinnati, OH.

12:17 **Creating Futures for New Toxicologists: Challenges in Academic Toxicology Training for 21st-Century Jobs.** D. L. Eaton. University of Washington, Mukilteo, WA.

12:29 **Skill and Career Growth for the Toxicologist in the Pharmaceutical Industry.** M. S. Bogdanffy. Boehringer Ingelheim Pharmaceuticals Inc., Ridgefield, CT.

12:41 **What Do I Need in My Toolbox? Defining the Core Skill Set for a 21st-Century Toxicologist in the Chemical Industry.** L. Murphy. The Dow Chemical Company, Midland, MI.

12:53 **From Research to Regulatory Science: Toxicology Careers in Government.** D. R. Germolec. NIEHS, Research Triangle Park, NC.

1:05 **Panel Discussion/Q&A.**

Wednesday Afternoon, March 26
12:30 PM to 1:20 PM
North Ballroom 120B

FS

Distinguished Toxicology Scholar Award Lecture: Investigating the Toxicity of Dioxin



Lecturer: *Richard E. Peterson, University of Wisconsin Madison, Madison, WI.*

Our research is aimed at identifying endpoints of dioxin developmental toxicity and elucidating mechanisms involved. *In utero* and lactational exposure of male rats to dioxin reduced sperm counts and prostate weights and feminized sexual behavior. In rats and mice ventral prostate agenesis was seen and, in bird and fish embryos, craniofacial and heart malformations. Among fish embryos, lake trout were the most sensitive, with embryo mortality occurring at environmentally relevant levels of dioxin exposure. Subsequently TEF values were determined for dioxin-like chemicals in fish and used to demonstrate a role for dioxin-induced embryo mortality in the forty-year extirpation and subsequent recovery of lake trout in Lake Ontario. To understand the mechanism of embryo toxicity, chicken and zebrafish embryos were used to show that heart malformations were a prominent effect. Using zebrafish, dioxin embryo toxicity was found to be AhR2- and ARNT1-dependent, partially mediated by downregulation of SOX9b, associated with impaired epicardial development, and caused by activation of AhR signaling, specifically, in cardiomyocytes. None of this research would have been possible without the collaborative work of undergraduate, graduate and postdoctoral students, technicians, scientists and faculty, here and abroad, and the continuous support of NIEHS and UW Sea Grant.

Abstract #

Wednesday Afternoon, March 26
1:00 PM to 4:30 PM
Exhibit Hall

PS

Poster Session: Oxidative Injury and Redox Biology

Chairperson(s): *Scott W. Burchiel, University of New Mexico, Toxicology, Albuquerque, NM.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *1:00 PM–2:45 PM*

#1768 **Poster Board Number 101**
Pesticides-Induced Oxidative Damage: Possible *In Vitro* Protection by Antioxidants. K. A. Osman[1], A. K. Salama[2], and O. A. Omran[2]. [1]Pesticide Chemistry & Technology Department, College of Agriculture, Alexandria, Egypt; and [2]Medical Laboratories, Faculty of Science, Majmaah University, Majmaah, Saudi Arabia. Sponsor: *K. Osman*.

#1769 **Poster Board Number 102**
Effects of Aspirin on LPS-Induced Metabolic Stress in Mouse Macrophage and Human Hepatoma Cells. *H. Raza*, A. John, and J. Shafarin. Biochemistry, UAEU, Al Ain, United Arab Emirates.

#1770 **Poster Board Number 103**
Brominated Diphenyl Ether-47 Induces Oxidative Stress and Inflammatory Pathways in Human Placental Cells *In Vitro*. *H. Park*, and *R. Loch-Caruso*. University of Michigan, Ann Arbor, MI.

#1771 **Poster Board Number 104**
Radical Acylation of L-Lysine-Containing Peptides and Soralbumin by Peroxynitrite-Treated Diacetyl and Methylglyoxal. *E. J. Bechara*[1,2], R. Tokikawa[2], M. Machini[2], M. Uemi[1], N. A. Assunção[1], and A. A. Alves[1]. [1]Ciências Exatas e da Terra, Universidade Federal de São Paulo, Diadema, São Paulo, Brazil; and [2]Bioquimica, Universidade de São Paulo, São Paulo, Brazil.

#1772 **Poster Board Number 105**
Mrp1 Protects against Doxorubicin-Induced Cardiotoxicity *In Vitro*. W. Zhang, D. Coy, J. Deng, and *M. Vore*. Graduate Center for Toxicology, University of Kentucky, Lexington, KY.

#1773 **Poster Board Number 106**
Disruption of Keap1/Nrf2-Antioxidant Response after Chronic Doxorubicin Exposure *In Vivo*. *K. K. Nordgren*, and *K. B. Wallace*. Biomedical Science, University of Minnesota Medical School, Duluth, MN.

#1774 **Poster Board Number 107**
Oxidative DNA Damage in Liver and Kidney of Weanling Rats due to Subchronic Coexistence of Aflatoxicosis and Protein Malnutrition. *O. A. Rotimi*[1,3], *O. Ademuyiwa*[1], F. Oluwafemi[2], and *E. A. Balogun*[1]. [1]Department of Biochemistry, Federal University of Agriculture, Abeokuta, Nigeria; [2]Microbiology, Federal University of Agriculture, Abeokuta, Nigeria; and [3]Biological Sciences, Covenant University, Ota, Nigeria.

#1775 **Poster Board Number 108**
Boric Acid Activates PERK in DU-145 Prostate Cancer Cells. *K. E. Yamada*[1], *S. Kobylewski*[1], and C. D. Eckhert[2,1]. [1]Molecular Toxicology IDP, University of California, Los Angeles, Los Angeles, CA; and [2]Environmental Health Sciences, University of California, Los Angeles, Los Angeles, CA.

Program Description (Continued)

Abstract #

#1776 **Poster Board Number 109**
DNA Fragmentation in Rats following Exposure to Delta 9-Tetra Hydrocannabinol. *O. A. Dosumu*[1], S. O. Rotimi[3], *E. O. Abam*[1,4], *O. Ademuyiwa*[1], R. N. Ugbaja[1], O. B. Onunkwor[1], T. F. Akinhanmi[1,2], *O. O. Ogunrinola*[1,6], *A. D. Wusu*[1,6], O. Afolabi[1,5], and D. O. Babayemi[1]. [1]Biochemistry, Federal University of Agriculture, Abeokuta, Ogun, Nigeria; [2]Chemistry, Federal University of Agriculture, Abeokuta, Ogun, Nigeria; [3]Biological Sciences, Covenant University, Ota, Ogun, Nigeria; [4]Biochemistry, Bell's University, Sango Ota, Ogun, Nigeria; [5]Biochemistry, Ladoke Akintola University of Technology, Ogbomosho, Oyo, Nigeria; and [6]Biochemistry, Lagos State University, Ojoo, Lagos, Nigeria.

#1777 **Poster Board Number 110**
MALDI-Mass Spectrometry-Based Biochemical Microscopy of Cardiolipin Molecular Species in Brain Tissue. A. Amoscato[1], L. J. Sparvero[1], R. He[3], B. Pitt[1], H. Bayir[2,1], and *V. E. Kagan*[1]. [1]Environmental and Occupational Health, University of Pittsburgh, Pittsburgh, PA; [2]Critical Care Medicine, University of Pittsburgh, Pittsburgh, PA; and [3]Pharmacy College, Jinan University, Guangzhou, China.

#1778 **Poster Board Number 111**
Exposure to Zinc Induces Compartment Specific Redox Changes in Bronchial Epithelial Cells. *P. Wages*[1], R. Silbajoris[2], L. Brighton[3], and J. Samet[2,1]. [1]Curriculum in Toxicology, UNC, Chapel Hill, NC; [2]EPHD, NHEERL, EPA, Chapel Hill, NC; and [3]CEMALB, UNC, Chapel Hill, NC.

#1779 **Poster Board Number 112**
p97 Modulates Nrf2-KEAP1-Mediated Antioxidant Response. *T. Wu*, M. Kang, M. Long, S. Tao, E. Chapman, and *D. D. Zhang*. College of Pharmacy, University of Arizona, Tucson, AZ.

#1780 **Poster Board Number 113**
Microtubule-Associated Protein 1s (MAP1s) Is a Novel Component of the Noncanonical p62-Dependent Mechanism of Nrf2 Regulation. E. M. Rojo de la Vega Guinea, *T. Wu*, S. Tao, Y. Zheng, and *D. D. Zhang*. College of Pharmacy, University of Arizona, Tucson, AZ.

#1781 **Poster Board Number 114**
Selenoprotein P Regulates PCB3 Metabolite-Induced Oxidative Stress and Toxicity in Human Keratinocytes. W. Xiao[1], Y. Zhu[1,2], E. Sarsour[1], A. Kalen[1], N. Aykin-Burns[1,3], D. R. Spitz[1], and P. Goswami[1]. [1]Department of Radiation Oncology, The University of Iowa, Iowa City, IA; [2]Department of Radiation Oncology, Northwestern University, Chicago, IL; and [3]Department of Pharmaceutical Sciences, University of Arkansas for Medical Sciences, Little Rock, AR. Sponsor: *L. Robertson*.

#1782 **Poster Board Number 115**
17 alpha-Estradiol Down-Regulates Glutathione Synthesis in Serum-Deprived PC-12 Cells. I. Sørvik, K. E. Rakkestad, G. R. Øverby, K. B. Debernard, G. H. Mathisen, and R. E. Paulsen. Department of Pharmaceutical Biosciences, University of Oslo, School of Pharmacy, Oslo, Norway. Sponsor: *M. Løvik*.

Abstract #

#1783 **Poster Board Number 116**
Pharmacological Inhibition of c-Jun N-Terminal Protein Kinase (JNK) Blocks Lipid Droplet Accumulation Caused by Malondialdehyde (MDA) and Intralipid in Rat Hepatocytes. A. R. Cardoso[2], E. L. Holmuhamedov[3], R. N. Deepe[1], and *J. J. Lemasters*[1]. [1]Drug Discovery & Biomedical Sciences and Biochemistry & Molecular Biology, Medical University of South Carolina, Charleston, SC; [2]Biochemistry, University of São Paulo, São Paulo, Brazil; and [3]Center for Integrative Research on Cardiovascular Aging, Aurora University, Milwaukee, WI.

#1784 **Poster Board Number 117**
Development of a Novel Luminogenic Assay for H2O2 Detection. J. J. Cali, J. Schultz, S. Duellman, G. Vidugiris, H. Wang, W. Zhou, and P. Meisenheimer. Research, Promega Corporation, Madison, WI. Sponsor: *T. Riss*.

#1785 **Poster Board Number 118**
Nrf2 but Not NF-kB Is Activated by African Dust Organic Extract in BEAS-2B. *R. I. Rodríguez*, and *B. D. Jimenez-Velez*. Biochemistry and Center for Environmental and Toxicological Research, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

#1786 **Poster Board Number 119**
Perfluorooctanoic Acid (PFOA) Causes Oxidative Stress in the Mouse Pancreas. *L. M. Kamendulis*, *Q. Wu*, and *B. A. Hocevar*. Environmental Health, Indiana University School of Public Health, Bloomington, IN.

#1787 **Poster Board Number 120**
Investigating the Bioenergetic and Oxidative Impacts of Rapid Altitude Adjustment. M. K. Makley[1,4], R. R. Chapleau[1,4], A. G. Ntamack[2], *R. A. James*[2,3], *J. M. Gearhart*[1,4], and *D. A. Mahle*[4]. [1]Henry M. Jackson Foundation, Wright Patterson AFB, OH; [2]NAMRU-D, Wright Patterson AFB, OH; [3]Camris International, Wright Patterson AFB, OH; and [4]USAF 711HPW/RHDJ, Wright Patterson AFB, OH.

#1788 **Poster Board Number 121**
Studying Nrf2-Mediated Oxidative Stress Response in Human Keratinocytes Exposed to Two Plant Polyphenols—Quercetin and Curcumin. P. Xue[1], *B. Sun*[1], J. Dong[1], *Y. Adeleye*[2], *P. L. Carmichael*[2], *A. White*[2], *M. E. Andersen*[1], *R. A. Clewell*[1], and *J. Pi*[1]. [1]The Hamner Institute, Durham, NC; and [2]SEAC, Unilever INC, Colworth Science Park, Bedfordshire, United Kingdom.

#1789 **Poster Board Number 122**
Ethacrynic Acid Enhances Oxygen Toxicity-Compromised Macrophage Functions by Inhibiting HMGB1 Release and NF-κB Activation. M. Wang[1], M. Muralidhar[1], *R. A. Sitapara*[1], S. Gorasiya[1], W. Wu[1], and *L. Mantell*[1,2,3]. [1]Pharmaceutical Science, St John's University, Jaimaica, NY; [2]Center for Inflammation and Immunology, The Feinstein Institute for Medical Research, Manhasset, NY; and [3]Center for Heart and Lung Research, The Feinstein Institute for Medical Research, Manhasset, NY.

Program Description (Continued)

Abstract #

#1790 **Poster Board Number 123**
Protection of HepG2 Cells from Acrolein Toxicity by CDDO-Im via Glutathione-Mediated Mechanism. *H. Shah*[1], C. Saunders[1], *A. Speen*[1], E. Brooke[1], P. Nallasamy[1], *H. Zhu*[2], *Y. Li*[2], and *Z. Jia*[1]. [1]Department of Biology, University of North Carolina at Greensboro, Greensboro, NC; and [2]Department of Pharmacology, Campbell University School of Osteopathic Medicine, Greensboro, NC.

#1791 **Poster Board Number 124**
Methionine Sulfoxide Reductase A: A Novel Nrf2 Target Gene. B. Harder, S. Tao, W. Tian, *G. T. Wondrak*, and *D. D. Zhang*. Pharmacology and Toxicology, University of Arizona, Tucson, AZ.

#1792 **Poster Board Number 125**
Production of Reactive Oxygen Species by the Redox Cycling of 9,10-Phenanthraquinone in Human Monocyte THP-1 Cells: Role of the Mitochondrial Electron Transport Chain. *Z. Jia*[1], *H. Zhu*[3], *M. A. Trush*[2], and *Y. Li*[3,1]. [1]Department of Biology, University of North Carolina at Greensboro, Greensboro, NC; [2]Bloomberg School of Public Health, Johns Hopkins University, Baltimore, MD; and [3]Department of Pharmacology, Campbell University School of Osteopathic Medicine, Buies Creek, NC.

#1793 **Poster Board Number 126**
Approaches to Minimize Hyperoxia-Induced Impairment of Macrophage Phagocytic Function. W. Wu, L. K. Sharma, and *L. Mantell*. St. John's University, Jamaica, NY.

#1794 **Poster Board Number 127**
Identification of Novel Chemical Inhibitors of Nrf2-ARE Activity and Their Application in Sensitizing Human Acute Monocytic Leukemia Cells to Chemotherapy. H. Peng[2,3], P. Xue[2,4], Y. Hou[1,2], H. Zhang[2,4], *B. Sun*[2], J. Dong[2], T. Zhou[2], W. Qu[4], *S. Peng*[3], B. Nelson[2], *R. A. Clewell*[2], *Q. Zhang*[2], *M. E. Andersen*[2], and *J. Pi*[2,1]. [1]School of Public Health, China Medical University, Shenyang, Liaoning, China; [2]The Hamner Institutes for Health Sciences, RTP, NC; [3]Academy of Military Medical Sciences, Beijing, China; and [4]Fudan University, Shanghai, China.

#1795 **Poster Board Number 128**
Radical-Containing Ultrafine Particulate Matter Suppresses Cardiomyocyte Nrf2-Signaling. *G. Chuang*, and *K. J. Varner*. Pharmacology, LSU Health Sciences Center, New Orleans, LA.

#1796 **Poster Board Number 129**
Transcriptomic Changes in a Murine Hyperoxic Lung Injury Model and Analysis of Sex-Specific Changes. K. Lingappan, W. Jiang, L. Wang, *X. Couroucli*, and *B. Moorthy*. Baylor College of Medicine, Houston, TX.

#1797 **Poster Board Number 130**
Altered Mitochondrial Bioenergetics in Response to Arsenic Exposure: New Outlook on Arsenic-Induced Toxicity. *H. D. Chavan*, K. Mickey, and *P. Krishnamurthy*. Pharmacology, Toxicology & Therapeutics, Kansas University Medical Center, Kansas City, KS.

Abstract #

#1798 **Poster Board Number 131**
Keap1 Redox-Dependent Regulation of Doxorubicin-Induced Oxidative Stress Response in Cardiac Myoblasts. *K. B. Wallace*, and *K. K. Nordgren*. Biomedical Science, University of Minnesota Medical School, Duluth, MN.

#1799 **Poster Board Number 132**
Retinoic Acid Receptor-Dependent Interactions Contribute to the Selective Cytoprotection Afforded by All-Trans-Retinoic Acid against Renal Injury. *J. Sapiro*, R. T. Miller, *R. D. Canatsey*, A. B. Romans, *T. J. Monks*, and *S. S. Lau*. SWEHSC, Pharmacology and Toxicology, University of Arizona, Tucson, AZ.

#1800 **Poster Board Number 133**
Administration of Sulindac, an NSAID, and Qurectin, an Antioxidant, in Combination Attenuates Bleomycin-Induced Lung Fibrosis in Wistar Rats. R. Verma[2], M. V. Patel[2], *V. Piccirillo*[1], P. Mehta[2], D. Gohel[2], T. Marvania[2], and S. Balakrishnan[3]. [1]VJP Consulting, Inc., Ashburn, VA; [2]Department of Toxicology, Jai Research Foundation, Valvada, Gujarat, India; and [3]Department of Zoology, The M.S. University of Baroda, Vadodara, Gujarat, India.

#1801 **Poster Board Number 134**
Dietary Flavonoid Quercetin Attenuates Bleomycin-Induced Pulmonary Fibrosis in Rats by Improving Lung Antioxidant Status. D. Gohel[2], *V. J. Piccirillo*[1], M. V. Patel[2], R. Verma[2], P. Mehta[2], T. Marvania[2], and S. Balakrishnan[3]. [1]VJP Consulting, Inc., Ashburn, VA; [2]Deptartment of Toxicology, Jai Research Foundation, Valvada, Gujarat, India; and [3]Department of Zoology, The M.S. University of Baroda, Vadodara, Gujarat, India.

#1802 **Poster Board Number 135**
Nrf2 Activation by the First-in-Class Direct Keap1-Nrf2 Interaction Inhibitor LH601A in Human Kidney Cells. G. Thorne[1], *X. Wen*[2], M. S. Joy[4], L. Hu[3], and *L. M. Aleksunes*[2,5]. [1]Dept of Pharmacy and Health Professions, Elizabeth City State University, Elizabeth City, NC; [2]Dept of Pharmacology and Toxicology, Rutgers University, Piscataway, NJ; [3]Dept of Medicinal Chemistry, Rutgers University, Piscataway, NJ; [4]Dept of Pharmaceutical Sciences, University of Colorado, Aurora, CO; and [5]Environmental and Occupational Health Sciences Institute, Piscataway, NJ.

#1803 **Poster Board Number 136**
A Novel Mitochondria-Targeted Antioxidant for Mitigation of Radiation. *A. Banerjee*, N. Sieracki, M. Bonini, and *A. V. Lyubimov*. Pharmacology, University of Illinois, Chicago, IL.

#1804 **Poster Board Number 137**
Fibrate Engagement of a Peroxisomal TSC Signaling Node Induces Autophagy via mTORC1 Repression. *D. N. Tripathi*[1], J. Zhang[1], J. Jing[1], A. Alexander[2], R. Dere[1], and *C. L. Walker*[1]. [1]Center for Translational Cancer Research, IBT Texas A & M HSC, Houston, TX; and [2]Department of System Biology, UT M D Anderson Cancer Center, Houston, TX.

Program Description (Continued)

Abstract #

#1804a **Poster Board Number 138**
Distinct Roles of Basal and Inducible Nrf2-Medicated Antioxidant Response against Cobalt Chloride-Induced Cytotoxicity in Human Keratinocytes. R. Zhao[1], L. Wang[1], M. Zhang[1], S. Jiang[1], J. Fu[2], J. Chen[1], B. Yang[3], X. Liang[3], D. Guan[1], and *J. Pi*[2]. [1]School of Forensic Medicine, China Medical University, Shenyang, China; [2]School of Public Health, China Medical University, Shenyang, China; and [3]China Medical University, Shenyang, China.

#1804b **Poster Board Number 139**
A Dilution Effect in the Malondialdehyde Measurement in Serum with High-Performance Liquid Chromatography-Tandem Mass Spectrometry. *Q. Wu*[1], *L. M. Kamendulis*[1], and *B. A. Hocevar*[1]. [1]Department of Environmental Health, Indiana University School of Public Health, Bloomington, IN.

#1804c **Poster Board Number 140**
Role of Cystine/Glutamate Transporter Slc7a11 in Bleomycin-Induced Lung Inflammation and Fibrosis in Mice. *H. Cho*[1], L. Miller-DeGraff[1], and S. R. Kleeberger[1]. [1]Laboratory of Respiratory Biology, NIEHS, NIH, Research Triangle Park, NC.

Wednesday Afternoon, March 26
1:00 PM to 4:30 PM
Exhibit Hall

PS

Poster Session: Risk Assessment II

Enhancing Strategies for Risk Assessment

Chairperson(s): *Lynne T. Haber, Toxicology Excellence for Risk Assessment (TERA), Cincinnati, OH.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *2:45 PM–4:30 PM*

#1805 **Poster Board Number 141**
Animal Behaviors Associated with Developmental Chlorpyrifos Exposure Are Inconsistent with Autism. *A. Lavin Williams*, and *J. M. DeSesso*. Exponent, Alexandria, VA.

#1806 **Poster Board Number 142**
Toxicologic Assessment of Air Ion Exposures in Laboratory Animals. W. H. Bailey[2], and *A. Lavin Williams*[1]. [1]Exponent, Alexandria, VA; and [2]Exponent, Bowie, MD.

#1807 **Poster Board Number 143**
Assessment of Antiandrogenic Effects Observed following Exposure to Phthalates: An Evaluation of Concordance between Epidemiological, Animal, and Mechanistic Evidence. *X. Arzuaga*[1], *A. Hotchkiss*[1], T. Walker[1], C. Brinkerhoff[2,1], K. Christensen[1], and G. Cooper[1]. [1]ORD/NCEA, US EPA, Washington, DC; and [2]Oak Ridge Institute for Science & Education, Oak Ridge, TN.

#1808 **Poster Board Number 144**
Evidence on the Carcinogenicity of Butyl Benzyl Phthalate (BBP) and Possible Mechanisms of Action. *C. Hsieh*, M. Sun, J. D. Budroe, *M. S. Sandy*, and *L. Zeise*. OEHHA, Cal/EPA, Sacramento, CA.

Abstract #

#1809 **Poster Board Number 145**
Integrated Mechanistic Evidence on Noncancer, Portal-of-Entry Effects following Formaldehyde Inhalation. *A. D. Kraft*, B. S. Glenn, G. S. Cooper, B. F. Pachkowski, K. D. Salazar, and J. M. Fritz. US EPA, Washington, DC.

#1810 **Poster Board Number 146**
Weight-of-Evidence Evaluation of Short-Term Ozone Exposure and Cardiovascular Effects. *R. L. Prueitt*[1], S. N. Sax[2], H. N. Lynch[2], J. C. Lemay[2], J. M. King[2], and *J. E. Goodman*[2]. [1]Gradient, Seattle, WA; and [2]Gradient, Cambridge, MA.

#1811 **Poster Board Number 147**
Do Asbestos-Induced Pleural Plaques Cause Lung Function Deficits? *L. E. Kerper*[1], *H. N. Lynch*[1], L. C. Mohr[2], and *J. E. Goodman*[1]. [1]Gradient, Cambridge, MA; and [2]Medical University of South Carolina, Charleston, SC.

#1812 **Poster Board Number 148**
Firefighters' Inhalation Exposures and the Risk of Developing Multiple Myeloma. *M. Peterson*, and *P. A. Valberg*. Gradient, Seattle, WA.

#1813 **Poster Board Number 149**
Toxicological Review of Biocides Used in Hydraulic Fracturing. *A. Pawlisz*, and *A. L. LeBeau*. CRA, Dallas, TX.

#1814 **Poster Board Number 150**
Acute Effects of Acrolein in Human Volunteers during Controlled Exposure. A. Dwivedi, *L. Ernstgård*, L. Palmberg, J. C. Lorentzen, and *G. Johanson*. Institute of Environmental Medicine, Karolinska Institutet, Stockholm, Sweden.

#1815 **Poster Board Number 151**
At the Intersection of Occupational Toxicology and Product Quality: Harmonization of Risk-Based Values in the Pharmaceutical Sector. *P. Weideman*[1], *A. Maier*[2], *A. Willis*[3], *R. Sandhu*[3], and S. Gomez[1]. [1]Safety Assessment, Genentech, Inc., South San Francisco, CA; [2]Dept. of Environmental Health, University of Cincinnati College of Medicine, Cincinnati, OH; and [3]Toxicology Excellence for Risk Assessment, Cincinnati, OH.

#1816 **Poster Board Number 152**
Cumulative Risks in Occupational Settings: A Checklist Tool to Support Decision Making. R. C. Lee[1], P. Nance[2], A. Lamba[3], and *A. Maier*[4]. [1]Neptune and Company, Inc., Albuquerque, NM; [2]Toxicology Excellence for Risk Assessment, Cincinnati, OH; [3]US Environmental Protection Agency, Washington, DC; and [4]University of Cincinnati, Cincinnati, OH.

#1817 **Poster Board Number 153**
Improper Use of Haber's Law Results in Erroneous Fatality Estimation from Predictive Models. *H. Salem*[1,2], *J. Moser*[2,3], and D. R. Sommerville[1]. [1]U.S. Army Edgewood Chemical Biological Center, Aberdeen Proving Ground, MD; [2]Chemical Security Analysis Center, Department of Homeland Security, Gunpowder (APG-EA), MD; and [3]Battelle Memorial Institute, Columbus, OH.

Program Description (Continued)

Abstract #

#1818 **Poster Board Number 154**
Impact of Nonconstant Concentration Exposure on Lethality of Inhaled Hydrogen Cyanide in the Rat: A Case Study for Assessing the Validity of Toxic Load Models. *L. M. Sweeney*[1], D. R. Sommerville[3], *S. R. Channel*[4], N. M. Gargas[2], and B. C. Sharits[2]. [1]NAMRU Dayton, Henry M. Jackson Foundation, WPAFB, OH; [2]NAMRU Dayton, CAMRIS, WPAFB, OH; [3]Edgewood Chemical Biological Center, Aberdeen Proving Ground, MD; and [4]Leidos, Linton, IN.

#1819 **Poster Board Number 155**
A Framework for Risk Assessment for Less-Than-Chronic and Intermittent Exposures to Chemicals (Noncancer Endpoints). *L. T. Haber*[1], *B. Meek*[2], A. Li-Muller[3], M. Yole[3], *A. K. Mohapatra*[3], and S. Petrovic[3]. [1]Toxicology Excellence for Risk Assessment (TERA), Cincinnati, OH; [2]University of Ottawa, Ottawa, ON, Canada; and [3]Health Canada, Ottawa, ON, Canada.

#1820 **Poster Board Number 156**
Use of a Single-Pass, Nose-Only Exposure System to Simulate High Altitudes. *R. A. James*[1], *D. A. Mahle*[2], *D. R. Mattie*[3], *P. R. Eden*[4], *W. R. Howard*[5], and *B. A. Wong*[6]. [1]Environmental Health Effects Research Directorate, Camris International, NAMRUD, Wright Patterson AFB, OH; [2]USAF 711 HPW/RHDJ, US Air Force, Wright Patterson AFB, OH; [3]USAF 711 HPW/RHDJ, US Air Force, Wright Patterson AFB, OH; [4]USAF 711 HPW/RHDJ, US Air Force, Wright Patterson AFB, OH; [5]Environmental Health Effects Research Directorate, US Navy, NAMRUD, Wright Patterson AFB, OH; and [6]Environmental Health Effects Research Directorate, Henry M. Jackson Foundation, NAMRUD, Wright Patterson AFB, OH.

#1821 **Poster Board Number 157**
Comparison of Liver Toxicity Potencies of Three Dinitrotoluene Compounds. *Z. Yan*[1], and *J. Zhao*[2]. [1]ORISE, Cincinnati, OH; and [2]National Center for Environmental Assessment, US EPA, Cincinnati, OH.

#1822 **Poster Board Number 158**
Methylmercury Inhibition of Serum Paraoxonase 1 Activity and the Risk of Cardiovascular Disease. B. R. Sonawane[1], R. Nath[1], P. Lewandowski[2], and *G. L. Ginsberg*[3]. [1]NCEA/ORD, U.S Envoronmental Protection Agency, Washington, DC; [2]School of Medicine, Deakin University, Geelong, VIC, Australia; and [3]Connecticut Department of Public Health, Hartford, CT.

#1823 **Poster Board Number 159**
Determination of the Relative Allergenicity of Food Products for Quantitative Hazard Assessment. A. Kruizinga, R. Klein Entink, M. Blom, G. Houben, and J. van Bilsen. TNO, Zeist, Netherlands. Sponsor: *R. Woutersen*.

Abstract #

#1824 **Poster Board Number 160**
A 21st-Century Roadmap for Human Health Risk Assessment. *A. R. Boobis*[1], *T. Pastoor*[2], *A. N. Bachman*[3], *S. M. Cohen*[4], *M. Dellarco*[5], I. Dewhurst[6], J. Doe[7], *N. G. Doerrer*[8], *M. Embry*[8], *A. Moretto*[9], R. D. Phillips[3], *J. Rowlands*[10], and *J. Y. Tanir*[8]. [1]Imperial College London, London, United Kingdom; [2]Syngenta Ltd., Greensboro, NC; [3]ExxonMobil Biomedical Sciences, Inc., Annandale, NJ; [4]University of Nebraska Medical Center, Omaha, NE; [5]National Institute of Child Health and Human Development, Bethesda, MD; [6]UK Chemicals Regulation Directorate, York, United Kingdom; [7]Parker Doe Partnership LLP, Cheshire, United Kingdom; [8]ILSI Health and Environmental Sciences Institute, Washington, DC; [9]University of Milan, Milan, Italy; and [10]The Dow Chemical Company, Midland, MI.

#1825 **Poster Board Number 161**
Poor Pregnancy Outcome and Small for Gestational Age Associated with Blood Cadmium among Mothers in Malaysia. *M. Jaafar*[1], R. Sarimin[1], A. Ismail[1], and N. Ashikin[2]. [1]Department of Community Health, National University of Malaysia, Cheras, Kuala Lumpur, Malaysia; and [2]Toxicology and Pharmacology Unit, Institute of Medical Research, Kuala Lumpur, Malaysia.

#1826 **Poster Board Number 162**
Lung Overload: Conclusions of an ECETOC Task Force. R. Kreiling[2], J. C. Carrillo[2], M. Kellert[2], W. Koch[2], N. Krueger[2], L. Levy[2], F. Linker[2], L. Ma-Hock[1], T. Petry[2], E. van Miert[2], D. Warheit[2], H. Vrijhof[2], H. Wiegand[2], *B. van Ravenzwaay*[1], and A. Poole[2]. [1]Toxicology, BASF SE, Ludwigshafen/Rhein, Germany; and [2]ECETOC, Brüssel, Belgium.

#1827 **Poster Board Number 163**
A Decision Tree to Optimize Literature Identification for Pharmaceutical Risk Assessment. D. Lee[1], *B. K. Gadagbui*[1], *J. Reichard*[1], A. Willis[1], *A. Maier*[2], and *R. Sandhu*[1]. [1]Toxicology Excellence for Risk Assessment (TERA), Cincinnati, OH; and [2]University of Cincinnati, Cincinnati, OH.

#1828 **Poster Board Number 164**
Use of Cluster Groups in Systematic Review of Literature. M. Cawley[1], *M. Selgrade*[1], *C. F. Gibbons*[2], and R. Jones[2]. [1]ICF, International, Durham, NC; and [2]NCEA, U.S. EPA, Washington, DC.

#1829 **Poster Board Number 165**
Evaluating Study Quality: A Comparison of the TOXR Tool and OHAT Approaches. *R. Blain*[1], *A. S. Bale*[2], A. L. Boyles[3], *A. A. Rooney*[3], D. Segal[2], C. Skuce[1], and *M. Selgrade*[1]. [1]ICF International, Durham, NC; [2]EPA, Office of Research and Development, NCEA, Washington, DC; and [3]NTP, National Institute of Environmental Health Sciences, Durham, NC.

#1830 **Poster Board Number 166**
Systematic Evaluation of Inhalation Studies for Exposure Quality: A Case Study with Formaldehyde. *J. E. Whalan*, *A. M. Jarabek*, *J. J. Stanek*, *G. M. Woodall*, *P. G. Reinhart*, *A. Galizia*, *E. D. McLanahan*, *B. S. Glenn*, A. Davis, *A. D. Kraft*, *S. L. Makris*, and *L. D. Burgoon*. National Center for Environmental Assessment, US EPA, Washington, DC.

Program Description (Continued)

Abstract #

#1831 **Poster Board Number 167**
Development of a Database Tool to Track the Study Selection Process for Hazard Identification: Naphthalene Case Study. *C. Keshava*[2], *K. Zaccaria*[1], *P. McClure*[1], *J. A. Stickney*[1], and *W. A. Chiu*[2]. [1]SRC, Inc., East Syracuse, NY; and [2]National Center for Environmental Assessment, US EPA, Washington, DC.

#1831a **Poster Board Number 168**
Scientists' Attitudes toward Regulatory Risk Assessment. S. Lichter[3], and *J. M. DeSesso*[1,2]. [1]Exponent, Alexandria, VA; [2]Georgetown University, Washington, DC; and [3]CMPA, George Mason University, Arlington, VA.

#1831b **Poster Board Number 169**
US EPA's Framework for Human Health Risk Assessment to Inform Decision Making. *J. W. Fitzpatrick*[1], R. Schoeny[2], K. Gallagher[3], and *E. V. Ohanian*[3]. [1]OSA, US EPA, Washington, DC; [2]ORD, US EPA, Washington, DC; and [3]OW, US EPA, Washington, DC.

#1831c **Poster Board Number 170**
When Does Exogenous Exposure to Endogenously Produced Chemicals and Essential Elements Become a Problem? *N. Birchfield*[1], T. Berner[1], R. Nath[1], B. R. Sonawane[1], P. White[1], J. Ball[1], R. P. Subramaniam[1], C. J. Brinkerhoff[1], K. Hogan[1], J. Gift[1], *B. Buckley*[1], *E. O. Owens*[1], *A. D. Kraft*[1], B. S. Glenn[1], L. Flowers[1], J. Jinot[1], and C. Scott[1]. [1]Office of Research and Development, U.S. Environmental Protection Agency, Washington, DC.

#1831d **Poster Board Number 171**
Environmental Epigenetics: Potential Application in Human Health Risk Assessment. *S. P Kuppusamy*[1], *J. Phillip Kaiser*[2], and *S. C. Wesselkamper*[2]. [1]ORISE, ORD, NCEA, U.S. EPA, Cincinnati, OH; and [2]ORD, NCEA, U.S. EPA, Cincinnati, OH.

#1831e **Poster Board Number 172**
New Concepts for Risk and Safety Assessment of Plant Food Supplements (PFS). S. van den Berg[1], and *I. Rietjens*[1]. [1]Toxicology, Wageningen University, Wageningen, Netherlands.

#1831f **Poster Board Number 173**
Probabilistic Environmental Hazard Assessments of ToxCast Phase I and II *In Vitro* Datasets. L. A. Kristofco[1], D. A. Dreier[1], *E. S. Williams*[1], *J. Corrales*[1], *E. P. Gallagher*[2], *T. Kavanagh*[2], *A. Voutchkova*[3], J. B. Zimmerman[4], P. Anastas[4], and *B. W. Brooks*[1]. [1]Environmental Science, Baylor University, Waco, TX; [2]University of Washington, Seattle, WA; [3]George Washington University, Washington, DC; and [4]Yale University, New Haven, CT.

#1831g **Poster Board Number 174**
Developing an Evidence-Based Rationale for Determining the Necessity of Repeat Inhalation Studies of Agrochemical Aerosols with Irritant Properties. *P. Singh*[1], *P. M. Hinderliter*[1], R. Chamanza[1], J. Wright[1], P. Whalley[1], A. Stevens[1], *J. D. McDonald*[2], P. J. Kuehl[2], *M. Doyle-Eisele*[2], C. Garner[2], and R. W. Lewis[1]. [1]Syngenta, Greensboro, NC; and [2]Lovelace Respiratory Research Institute, Albuquerque, NM.

Abstract #

#1831h **Poster Board Number 175**
Comparison of Developmental and Neurotoxic Endpoints Observed in Experimental Animal Studies following Inhalation Exposure to n-Butanol and n-Butyl Acetate. J. Weaver[1], T. Blessinger[1], A. F. Sasso[1], *S. L. Makris*[1], and *A. S. Bale*[2]. [1]National Center for Environmental Assessment, US-EPA, Washington, DC; and [2]Drug and Chemical Evaluation Section, DEA, Washington, DC.

#1831i **Poster Board Number 176**
Relative Oral Bioavailability of Benzo(a) pyrene from Soils at Environmentally-Relevant Concentrations. *J. W. Munson*[1], *Y. W. Lowney*[2], M. Ruby[3], and *S. M. Roberts*[1]. [1]University of Florida, Gainsville, FL; [2]Exponent, Boulder, CO; and [3]Integral Consulting, Louisville, CO.

#1831j **Poster Board Number 177**
***In Vitro* Toxicity Assessment of Dust Emissions from South African Gold Mine Dumps.** C. Andraos[1,2], and *M. Gulumian*[1,2]. [1]Toxicology, NIOH, Johannesburg, Gauteng, South Africa; and [2]Haematology & Molecular Medicine, Wits, Johannesburg, Gauteng, South Africa.

#1831k **Poster Board Number 178**
Potential Mode of Action for Respiratory Effects following Exposure to Libby Amphibole Asbestos. *M. R. Gwinn*[1], *A. M. Jarabek*[1], and B. R. Sonawane[1]. [1]Office of Research & Development, US Environmental Protection Agency, Washington, DC.

#1831l **Poster Board Number 179**
Development of an Open-Source Integrated Test Strategy for Skin Sensitization Potency. J. Pirone[1], M. Smith[1], *N. Kleinstreuer*[2], *T. A. Burns*[2], *J. Strickland*[2], Y. Dancik[3], R. Morris[1], *L. Rinckel*[2], *W. Casey*[4], and J. Jaworska[3]. [1]SSS, Inc., Durham, NC; [2]ILS, Inc., Research Triangle Park, NC; [3]P & G NV, Bever, Belgium; and [4]DHHS/NIH, NIEHS/NTP/NICEATM, Research Triangle Park, NC.

#1831m **Poster Board Number 180**
Prevalence of Molds in Residential Indoor and Outdoor Environments in Northern California and Its Implication in Health Risk Assessment. I. Arnould[1], and *S. Kim*[1]. [1]ToxiSan, Bangor, CA.

WEDNESDAY

Poster Sessions
Regional Interest Session
Roundtable Sessions
Symposium Sessions
Thematic Sessions
Workshop Sessions

Program Description (Continued)

Abstract #

Wednesday Afternoon, March 26
1:00 PM to 4:30 PM
Exhibit Hall

PS

Poster Session: Neurotoxicity: Pesticides

Safety Assessment: Mechanisms and Novel Methods

Chairperson(s): *Muhammad M. Hossain, Robert Wood Johnson Medical School, University of Medicine and Dentistry of New Jersey, Environmental and Occupational Medicine, Piscataway, NJ, and Nikolay M. Filipov, University of Georgia, Physiology and Pharmacology, Athens, GA.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *1:00 PM–2:45 PM*

#1832 **Poster Board Number 201**
Environmental Pesticides Induce Histones H3 and H4 Acetylation in Cell Culture Models of Parkinson's Disease: Interplay between Mitochondrial Dysfunction and Epigenetic Modifications in Parkinson's Disease. A. Charli, H. Jin, *V. Anantharam*, B. Natarajan, *A. Kanthasamy*, and *A. Kanthasamy*. Biomedical Sciences, Iowa State University, Ames, IA.

#1833 **Poster Board Number 202**
Comparison of *In Vitro* Cell Models for Assessment of Pesticide-Induced Dopaminergic Neurodegeneration. *H. J. Heusinkveld*, and *R. H. Westerink*. Neurotoxicology Research Group, Institute for Risk Assessment Sciences - University of Utrecht, Utrecht, Netherlands.

#1834 **Poster Board Number 203**
Low Concentrations of Insecticides Induce Acute and Concentration-Dependent Effects on Calcium Homeostasis in PC12 Cells. M. Meijer, and *R. H. Westerink*. Neurotoxicology Research Group, Institute for Risk Assessment Sciences (IRAS), Utrecht, Netherlands.

#1835 **Poster Board Number 204**
Azole Fungicides Disturb Intracellular Ca^{2+} in an Additive Manner in Dopaminergic PC12 Cells. *R. H. Westerink*, and *H. J. Heusinkveld*. Neurotoxicology Research Group, Institute for Risk Assessment Sciences - Utrecht University, Utrecht, Netherlands.

#1836 **Poster Board Number 205**
Atrazine Alters Neuronal Redox Status but Does Not Activate Nrf2. *J. Roede*[1,3], *D. I. Walker*[2,3], and *J. M. Hansen*[3]. [1]Pharmaceutical Sciences, University of Colorado, Aurora, CO; [2]Civil and Environmental Engineering, Tufts University, Medford, MA; and [3]Medicine, Emory University, Atlanta, GA.

#1837 **Poster Board Number 206**
Gestational and Lactational Drinking Water Exposure to Atrazine Causes Specific Behavioral Deficits and Selectively Alters Monoaminergic Systems in C57BL/6 Mouse Dams, Juvenile, and Adult Offspring. *Z. Lin*[1,2], *N. M. Filipov*[1,2], and *C. A. Dodd*[1,3]. [1]Physiology and Pharmacology, Univ. of Georgia, Athens, GA; [2]Interdisciplinary Toxicology Program, Univ. of Georgia, Athens, GA; and [3]Biology, Fort Valley State University, Fort Valley, GA.

Abstract #

#1838 **Poster Board Number 207**
***N*-Methyl-*D*-aspartate Receptor Activation May Contribute to Glufosinate Neurotoxicity.** *S. R. Lantz*[1,3], C. M. Mack[2], K. A. Wallace[2], E. F. Key[1], *T. J. Shafer*[2], and *J. E. Casida*[1]. [1]Dept. of Nutritional Sciences and Toxicology, University of California, Berkeley, CA; [2]Integrated Systems Toxicology Division, NHEERL, ORD, U.S. Environmental Protection Agency, Research Triangle Park, NC; and [3]Marquette Biological Station, U.S. Fish and Wildlife Service, Marquette, MI.

#1839 **Poster Board Number 208**
Nrf2 Upregulation in Response to Paraquat Exposure in Rat Neuroblast Cells. *L. Chen*, A. Fowler, M. Narasimhan, L. Mahimainathan, D. Patel, M. Rathinam, and G. I. Henderson. Pharmacology and Neuroscience, TTUHSC, Lubbock, TX.

#1840 **Poster Board Number 209**
Paraquat and MPTP Induce Alterations in the Expression Profiles of microRNA in Neuro-2A Cells. H. Li, Q. Wang, N. Ren, Z. Wang, and S. Wu. Department of Occupational and Environmental Health, School of Public Health, Fujian Medical University, Fuzhou, Fujian, China. Sponsor: *Q. Zhang*.

#1841 **Poster Board Number 210**
DDT and DDE Enhance the Toxicity of Amyloid Beta Peptides in *Drosophila*. L. DeRespiris[3], K. Carney[2], M. Konsolaki[2], *K. R. Reuhl*[3], and *J. Richardson*[1]. [1]RWJMS, Piscataway, NJ; [2]Genetics, Rutgers University, Piscataway, NJ; and [3]Pharmacology and Toxicology, Rutgers University, Piscataway, NJ.

#1842 **Poster Board Number 211**
Nanomolar Bifenthrin Alters Synchronous Ca^{2+} Oscillations and Cortical Neuron Development Independent of Sodium Channel Activity. *Z. Cao*[1], Y. Cui[1], H. M. Nguyen[2], D. P. Jenkins[2], H. Wulff[2], and *I. N. Pessah*[1]. [1]Molecular Biosciences, School of Veterinary Medicine, UCDavis, Davis, CA; and [2]Pharmacology, School of Medicine, UCDavis, Davis, CA.

#1843 **Poster Board Number 212**
Protective Role of Melatonin against Alpha-Cypermethrin-Induced Oxidative Stress in Human Neuroblastoma Cell Line SH-SY5Y. *A. Anadon*, J. Del Pino Sans, M. A. Martínez, E. Ramos, I. Ares, V. Castellano, M. Martínez, M. R. Martínez-Larrañaga, and A. Romero. Departamento de Toxicologia y Farmacologia, Universidad Complutense de Madrid, Madrid, Spain.

#1844 **Poster Board Number 213**
Pyrethroid Pesticides Directly Activate Microglia through Voltage-Gated Sodium Channels Leading to Increased TNF-alpha Release. J. Liu[1], *M. M. Hossain*[2], and *J. R. Richardson*[2]. [1]Ernest Mario School of Pharmacy, Rutgers University, Piscataway, NJ; and [2]Department of Environmental & Occupational Medicine, Rutgers Robert Wood Johnson Medical School, Piscataway, NJ.

Program Description (Continued)

Abstract #

#1845 **Poster Board Number 214**
Repeated Pesticide Exposure Causes Hippocampal ER Stress, Neuroinflammation, and Cognitive Deficits in Mice. *M. M. Hossain*[1], *E. DiCicco-Bloom*[2], and *J. Richardson*[1]. [1]Environmental and Occupational Medicine and Environmental and Occupational Health Sciences Institute, Rutgers-Robert Wood Johnson Medical School, Piscataway, NJ; and [2]Neuroscience and Cell Biology, Rutgers-Robert Wood Johnson Medical School, Piscataway, NJ.

#1846 **Poster Board Number 215**
Effects of Permethrin on the Acoustic Startle Response in Adult Male Sprague-Dawley Rats. C. V. Vorhees[1], *T. G. Osimitz*[2], *L. P. Sheets*[3], D. Minnema[4], M. Brooks[5], *D. W. Gammon*[6], and M. T. Williams[1]. [1]Child Neurology, Cincinnati Children's Research Foundation, Cincinnati, OH; [2]Science Strategies LLC, Charlottesville, VA; [3]Bayer CropScience, Research Triangle Park, NC; [4]Syngenta Crop Protection, Research Triangle Park, NC; [5]Ag-Chem Consulting LLC, Clifton, VA; and [6]FMC Corp, Philadelphia, PA.

#1847 **Poster Board Number 216**
Acute Alterations in Thermoregulatory Response after Single-Compound and Joint Oral Exposure to Pyrethroid Insecticides in Infant Rats. C. S. Sosa Holt[1], *U. Bardullas*[2], and *M. J. Wolansky*[1,3]. [1]Quimica Biologica, Universidad de Buenos Aires (UBA), Buenos Aires, Argentina; [2]Departamento de Neurobiología Conductual y Cognitiva, Instituto de Neurobiologia, Universidad Nacional Autonoma de Mexico, Queretaro, Mexico; and [3]IQUIBICEN (CONICET), UBA, Buenos Aires, Argentina.

#1848 **Poster Board Number 217**
Acute Exposure to a Glyphosate-Containing Herbicide Leads to Mitochondrial Dysfunction in *Caenorhabditis elegans*. C. E. Todt, *R. Negga*, S. K. Jadav, D. C. Bailey, and *V. A. Fitsanakis*. Biology, King College, Bristol, TN.

#1849 **Poster Board Number 218**
Chronic Exposure to TouchDown, a Glyphosate-Containing Herbicide, Leads to Mitochondrial Inhibition in *Caenorhabditis elegans*. D. C. Bailey, *R. Negga*, C. E. Todt, R. E. Barnett, and *V. A. Fitsanakis*. Biology, King College, Bristol, TN.

#1850 **Poster Board Number 219**
Detection of Reactive Oxygen Species in *Caenorhabditis elegans* after Exposure to Glyphosate- or Mn/Zn Ethylene-*bis*-Dithiocarbamate-Containing Pesticides. A. D. Shelton, *R. Negga*, D. C. Bailey, and *V. A. Fitsanakis*. Biology, King College, Bristol, TN.

#1851 **Poster Board Number 220**
Treatment of *Caenorhabditis elegans* with Either a Glyphosate-Containing Herbicide or Manzate Leads to Decreased ATP Levels. S. E. Orfield, R. H. Nichols, S. L. Burchfield, and *V. A. Fitsanakis*. Biology, King College, Bristol, TN.

#1852 **Poster Board Number 221**
Maneb (Manganous Ethylenebisdithiocarbamate) Alters Expression of Genes Involved in Oxidative Stress and Induces Stress Proteins in Rat Hippocampal Astrocytes. M. Akhtar, and *L. D. Trombetta*. Pharmaceutical Sciences, St. John's University, Queens, NY.

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#1853 **Poster Board Number 222**
Manganese-Containing Dithiocarbamates-Induced Cell Death via Senescence Pathway. C. Ta, and *S. Cheng*. Sciences, John Jay College of Criminal Justice, New York City, NY.

#1854 **Poster Board Number 223**
Decreased Gene Expression of Acetylcholine Receptors and Acetylcholinesterase in the Honeybee due to Imidacloprid Exposure. C. C. Byrnes, and *J. A. Roling*. Biology Department, Bridgewater State University, Bridgewater, MA.

#1855 **Poster Board Number 224**
Differential Expression of MAP-2 (Microtubule Associated Protein-2) Gene Transcripts in the Central Nervous System of Hens Treated with DFP (Diisopropyl Phosphorofluoridate). *T. V. Damodaran*[1,2], and *M. B. Abou-Donia*[2]. [1]Biology, North Carolina Central University, Durham, NC; and [2]Pharmacology and Cancer Biology, Duke University Medical Center, Durham, NC.

#1856 **Poster Board Number 225**
Comparative Study on Short- and Long-Term Behavioral Consequences of Organophosphate Exposure: Relationship to AChE mRNA Expression. C. Lopez-Granero[1,2], D. Cardona[2], N. Parmalee[1], E. Gimenez[2], R. Lozano[2], J. Barril[3], *M. Aschner*[1], F. Sanchez-Santed[2], and F. Cañadas[2]. [1]Albert Einstein College of Medicine, New York; [2]Universidad de Almeria, Almeria, Spain; and [3]Universidad Miguel Hernandez, Elche, Spain.

#1857 **Poster Board Number 226**
Chlorpryifos Disrupts Social Behavior in Adult Zebrafish. *J. M. Bailey*, A. N. Oliveri, and *E. D. Levin*. Integrated Toxicology and Environmental Health Program, Duke University Medical Center, Durham, NC.

#1858 **Poster Board Number 227**
Neurotoxic Effects of Repeated Exposure to Low-Dose Chlorpyrifos in Rats. *Y. S. Lee*[1], J. A. Lewis[2], *D. A. Jackson*[2], and J. D. Stallings[2]. [1]ORISE/USACEHR, Frederick, MD; and [2]US Army Center for Environmental Health Research, Frederick, MD.

#1859 **Poster Board Number 228**
Chlorpyrifos Oxon Primes Microglia: Enhanced LPS-Induced TNFα Production. S. Brookins, S. Levesque, C. McGraw, *T. Taetzsch*, and *M. L. Block*. Anatomy and Neurobiology, Virginia Commonwealth University, Richmond, VA.

#1860 **Poster Board Number 229**
***In Utero* Chlorpyrifos Exposure Leads to Behavioral Deficits and Alterations in Hippocampal GABAergic Synaptic Transmission.** *R. D. Burke*, J. D. Pescrille, J. Mamczarz, *E. F. Periera*, and *E. X. Albuquerque*. Epidemiology and Public Health, Div. of Translational Toxicology, University of MD Baltimore, Baltimore, MD.

#1861 **Poster Board Number 230**
Prenatal Exposure to Chlorpyrifos Leads to MAPK Dysfunction and Epigenetic Modifications in the Brain. *S. W. Todd*[1,2], *W. R. Randall*[1], *E. F. Pereira*[2], J. D. Pescrille[2], J. Mamczarz[2], and *E. X. Albuquerque*[2]. [1]Toxicology, University of Maryland, Baltimore, Baltimore, MD; and [2]Epidemiology and Public Health, University of Maryland, Baltimore, MD.

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#1862 **Poster Board Number 231**
Fipronil Disposition in the Brain and Changes in the Serotoninergic System. M. R. Martínez-Larrañaga, M. A. Martínez, I. Ares, R. Pita, M. Martínez, V. Castellano, A. Romero, E. Ramos, and *A. Anadon*. Departamento de Toxicologia y Farmacologia, Universidad Complutense de Madrid, Madrid, Spain.

#1863 **Poster Board Number 232**
Triclopyr: Subchronic Neurotoxicity Study in Fisher F344 Rats. M. Corvaro[1], M. Aggarwal[1], A. K. Andrus[2], R. M. Golden[2], R. Hukkanen[2], S. Marty[2], and *D. L. Eisenbrandt*[3]. [1]Dow Agrosciences, Milton, United Kingdom; [2]Toxicology & Environmental Research and Consulting;, The Dow Chemical Company, Midland, MI; and [3]Dow AgroSciences LLC, Indianapolis, IN.

#1863a **Poster Board Number 233**
Effects Produced by Single and Repeated Dosages of Fipronil on the EEG of Long-Evans Rats. D. Lyke[1], K. L. McDaniel[1], *V. C. Moser*[1], and *D. W. Herr*[1]. [1]TAD/NB, US EPA, Durham, NC.

#1863b **Poster Board Number 234**
Changes in Rat Serum Bionindicators after Single or Repeated Dosages of Fipronil. *D. W. Herr*[1], D. Lyke[1], R. McMahen[3], M. Strynar[3], J. M. Hedge[2], K. L. McDaniel[1], and *V. C. Moser*[1]. [1]TAD/NB, US EPA, Durham, NC; [2]ISTD, US EPA, Durham, NC; and [3]NERL, US EPA, Durham, NC.

#1863c **Poster Board Number 235**
Chronic, but Not Acute, Treatment of *Caenorhabditis elegans* with TouchDown Leads to Increased Oxidative Stress. R. A. Donaldson[1], *R. Negga*[1], and *V. A. Fitsanakis*[1]. [1]Biology, King College, Bristol, TN.

Wednesday Afternoon, March 26
1:00 PM to 4:30 PM
Exhibit Hall

PS

Poster Session: Liver and Models

Chairperson(s): *James R. Roede, University of Colorado, Aurora, CO.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *2:45 PM–4:30 PM*

#1864 **Poster Board Number 236**
Application of Proteomics to Identify Deregulated Proteins Associated with Idiosyncratic Liver Toxicity in a Rat Model of LPS/Diclofenac Co-administration. S. Ramm[1], B. Morissey[2], C. Rooney[2], S. Pennington[2], and A. Mally[1]. [1]Department of Toxicology, University of Wuerzburg, Wuerzburg, Germany; and [2]UCD Conway Institute, University College Dublin, Dublin, Ireland. Sponsor: *W. Dekant*.

#1865 **Poster Board Number 237**
The Use of microRNAs to Explore the Mechanisms of Phenobarbital-Mediated Toxicity in the Rat. *M. Osborne*[1], *R. A. Currie*[2], *J. Wright*[2], and *N. J. Gooderham*[1]. [1]Imperial College London, London, United Kingdom; and [2]Syngenta, Bracknell, United Kingdom.

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#1866 **Poster Board Number 238**
Performance and Standardized Threshold of Traditional Serum Biomarkers for Diagnosis and Prediction of DILI in Rats. Y. Tonomura, Y. Kato, H. Hanafusa, Y. Morikawa, K. Matsuyama, T. Uehara, M. Ueno, and M. Torii. Drug Developmental Research Laboratories, Shionogi & Co., Ltd., Toyonaka, Osaka, Japan. Sponsor: *K. Nakamura*.

#1867 **Poster Board Number 239**
Tissue Factor Decryption Contributes to Coagulation Triggered by Fas-Induced Hepatocyte Apoptosis. *J. P. Luyendyk*[1], *A. K. Kopec*[1], *N. Joshi*[2], H. Cline[1], *C. E. Rockwell*[2], and M. Lopez[1]. [1]Pathobiology and Diagnostic Investigation, Michigan State University, East Lansing, MI; and [2]Pharmacology/Toxicology, Michigan State University, East Lansing, MI.

#1868 **Poster Board Number 240**
Toxicogenomic Analysis of Liver Samples from Rats Treated with a Spleen Tyrosine Kinase Inhibitor Reveals No Enrichment in Liver Injury Ontologies Despite Transaminase Elevations. *B. D. Jeffy*, *K. Ghoreishi*, R. Magpantay, and *M. Breider*. Exploratory Toxicology, Celgene Corporation, San Diego, CA.

#1869 **Poster Board Number 241**
MiRNA-Seq Analysis of Livers of Rats Exposed to Phenobarbital. *M. Flores Torres*[1], *J. Wright*[2], *R. Currie*[2], and *N. J. Gooderham*[1]. [1]Surgery and Cancer, Imperial College London, London, United Kingdom; and [2]Syngenta, Jeallot's Hill International Research Centre, Bracknell, United Kingdom.

#1870 **Poster Board Number 242**
Aroclor 1260 Exposure Causes Steatohepatitis and Activates Hepatic Receptors in an Animal Model of Diet-Induced Obesity. B. Wahlang[1], M. Song[1], L. Al-Eryani[1], H. Clair[1], J. Guardiola[1], K. C. Falkner[1], *R. A. Prough*[2], *J. States*[3], and M. Cave[1,4]. [1]Department of Medicine/GI, University of Louisville, Louisville, KY; [2]Biochemistry, University of Louisville, Louisville, KY; [3]Pharmacology & Toxicology, University of Louisville, Louisville, KY; and [4]Medicine, Robley Rex VAMC, Louisville, KY.

#1871 **Poster Board Number 243**
Secretome and Intracellular Metabolomics Analysis in HepG2 Cells after Exposure to Liver Toxicants. T. Ramirez[1], W. Mellert[1], A. Strigun[2], *H. Kamp*[1], T. Walk[2], L. Ralf[2], and *B. van Ravenzwaay*[1]. [1]Toxicology, BASF SE, Ludwigshafen/Rhein, Germany; and [2]metanomics, Berlin, Germany.

#1872 **Poster Board Number 244**
A Physiologically Relevant 3D Cell Culture Model for Hepatotoxic Studies. L. Price[4,1], S. Ramaiahgari[1], M. den Braver[2], V. Terpstra[3], M. Coonen[5], D. Jennen[5], B. Herpers[4], J. N. Commandeur[2], *J. H. van Delft*[5], and *B. van de Water*[1]. [1]Division of Toxicology, LACDR, Leiden, Netherlands; [2]Division of Molecular Toxicology, AIMS, Vrije University Amsterdam, Amsterdam, Netherlands; [3]Department of Pathology, Bronovo Hospital, The Hague, Netherlands; [4]OcellO, Leiden, Netherlands; and [5]Department of Toxicogenomics, Maastricht University, Maastricht, Netherlands.

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#1873 **Poster Board Number 245**
Modified High-Content Imaging Micropatterned Hepatocyte Coculture Model for Predictive Toxicology. *O. Trask*[1], A. Moore[2], *M. E. Andersen*[1], and *E. LeCluyse*[1]. [1]Institute for Chemical Safety Sciences, The Hamner Institutes for Health Sciences, Research Triangle Park, NC; and [2]Hepregen Corporation, Medford, MA.

#1874 **Poster Board Number 246**
Abnormal Immune Response to Antigen Challenge in Subjects with Alcoholic Cirrhosis: Baseline Data from the Zinc in Alcoholic Cirrhosis (ZAC) Trial. M. Mohammad[1], K. C. Falkner[1], *S. Barve*[1], *Z. Zhou*[2], C. McClain[1,3], and *M. Cave*[1,3]. [1]Department of Medicine/GI, University of Louisville, Louisville, KY; [2]Nutrition, UNC-Greensboro, Greensboro, NC; and [3]Robley Rex VAMC, Louisville, KY.

#1875 **Poster Board Number 247**
Combining Two High-Content Screening Approaches Measuring Phospholipidosis and Lysosomal Trapping with *In Silico* Modelling Approaches to Predict Phopholipidosis Occurrence in Humans. P. A. Walker, C. Bauch, S. Ellis, H. Woodhouse, and C. Dilworth. Cyprotex, Maccelsfield, United Kingdom. Sponsor: *C. Strock*.

#1876 **Poster Board Number 248**
A Long-Term Perfused Immune-Liver Coculture System to Model Antituberculosis Efficacy and Drug-Induced Liver Injury. T. Gumbo[1], S. Shuford[2], S. Srivastava[1], C. Sherman[1], A. Dasgupta[3], D. Orr[2], and *H. E. Crosswell*[2]. [1]Office of Global Health, University of Texas Southwestern, Dallas, TX; [2]KIYATEC, Greenville, SC; and [3]Alternative Cellular Therapeutics, Marietta, GA.

#1877 **Poster Board Number 249**
Accelerated Cytotoxicity Mechanism Screening of Flutamide in Isolated Rat Hepatocytes. *A. Maruf*[1], and P. J. O'Brien[1,2]. [1]Pharmacology & Toxicology, University of Toronto, Toronto, ON, Canada; and [2]Faculty of Pharmacy, University of Toronto, Toronto, ON, Canada.

#1878 **Poster Board Number 250**
A Novel Mouse Model for Phenytoin-Induced Liver Injury: Involvement of Immune-Related Factors and P450-Mediated Metabolism. E. Sasaki[1], K. Tsuneyama[2], T. Fukami[1], M. Nakajima[1], and *T. Yokoi*[1,3]. [1]Graduate School of Medical Science, Kanazawa University, Kanazawa, Ishikawa, Japan; [2]Graduate School of Medicine and Pharmaceutical Science for Research, University of Toyama, Toyama, Japan; and [3]Department of Drug Safety Sciences, Nagoya University Graduate School of Medicine, Nagoya, Aichi, Japan.

#1879 **Poster Board Number 251**
An Environmental 2nd Hit: Effect of Vinyl Chloride Exposure on Liver Injury in Experimental Hepatotoxicity and in Humans. *L. Anders*[1], *A. Douglas*[1], J. Guardiola[1], *V. L. Massey*[1], I. Kirpich[2], M. Mohammad[2], K. C. Falkner[2], M. Cave[2,3], C. McClain[2,3], and *J. Beier*[1]. [1]Pharmacology & Toxicology, University of Louisville, Louisville, KY; [2]Department of Medicine/GI, University of Louisville, Louisville, KY; and [3]Robley Rex VAMC, Louisville, KY.

Abstract #

#1880 **Poster Board Number 252**
Towards a Human 3D Biomimetic Liver Construct for the Investigation of Immune-Mediated Damage to Human "Sentinel" Biosensing Hepatocytes for Physiology and Predicting Toxicology. *N. Senutovitch*[1,2], *L. A. Vernetti*[1,2], A. Gough[1,2], R. DeBiasio[1], T. Shun[1], A. Bakan[2,1], and D. L. Taylor[1,2]. [1]Drug Discovery Institute, University of Pittsburgh, Pittsburgh, PA; and [2]Computational and Systems Biology, University of Pittsburgh, Pittsburgh, PA.

#1881 **Poster Board Number 253**
Dissecting Toxicity Mechanisms in Induced Pluripotent Stem Cell-Derived Hepatocytes and Hepatic Cell Lines. M. Liljevald[1], A. Sjögren[2], G. Brolén[3], J. Sagemark[1], X. Li[2], A. Jonebring[3], *I. Cotgreave*[1], *B. Glinghammar*[1], and *T. B. Andersson*[2]. [1]Discovery Safety, AstraZeneca, Mölndal, Sweden; [2]DMPK RIA iMED, AstraZeneca, Mölndal, Sweden; and [3]Discovery Sciences, RAD, AstraZeneca, Mölndal, Sweden.

#1882 **Poster Board Number 254**
Trovafloxacin Potentiates Lipopolysaccharide-Induced Tumor Necrosis Factor Release in RAW Cells in an ERK-Dependent Manner. *K. L. Poulsen*[1,2], R. P. Albee[1], *P. E. Ganey*[1,2], and *R. A. Roth*[1,2]. [1]Pharmacology and Toxicology, Michigan State University, East Lansing, MI; and [2]Center for Integrative Toxicology, Michigan State University, East Lansing, MI.

#1883 **Poster Board Number 255**
Early Identification of Clinically Relevant Drug Interactions with the Human Bile Salt Export Pump (BSEP; ABCB11). P. Artursson[1], J. M. Pedersen[3,1], P. Matsson[1], C. A. Bergström[1], J. Hoogstraate[2], A. Noren[1], and *E. LeCluyse*[3]. [1]Uppsala University, Uppsala, Sweden; [2]Acturum Life Science AB, Sodertalje, Sweden; and [3]The Hamner Institutes of Health Sciences, Research Triangle Park, NC.

#1884 **Poster Board Number 256**
Developmental Exposure to Bisphenol A (BPA) Induces Hepatic Lipid Accumulation Mediated through Nrf2 Activation. *P. Shimpi*[1], B. Rubin[2], and *A. L. Slitt*[1]. [1]University of Rhode Island, Kingston, RI; and [2]Sackler School of Graduate Biomedical Sciences, Tufts University, Boston, MA.

#1885 **Poster Board Number 257**
Species Difference May Account for the Discrepancy in Predicting Drugs Causing Severe Drug-Induced Liver Injury (sDILI). J. Zhang[1], U. Doshi[2], *A. P. Li*[2], and *W. Tong*[1]. [1]Division of Bioinformatics and Biostatistics, FDA/NCTR, Jefferson, AR; and [2]In Vitro ADMET Laboratories LLC, Columbia, MD.

#1886 **Poster Board Number 258**
Trovafloxacin-Induced DNA Damage in HepG2 Cells Causes p21 Upregulation and Activation of ATR and Sensitizes Cells to TNF-Mediated Cytotoxicity Involving ERK. *K. M. Beggs*[1,2], *P. E. Ganey*[1,2], and *R. A. Roth*[1,2]. [1]Pharmacology and Toxicology, Michigan State University, East Lansing, MI; and [2]Center for Integrative Toxicology, Michigan State University, East Lansing, MI.

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#1887 **Poster Board Number 259**
Inhibition of Bile Salt Export by Marketed Drugs in Primary Hepatocytes from Human, Monkey, Dog, Rat, and Mouse. K. He[1], J. Zhang[2], L. Cai[1], M. Yang[1], S. Qin[1], and *W. Tong*[2]. [1]Biotranex LLC, Monmouth Junction, NJ; and [2]Division of Bioinformatics and Biostatistics, NCTR/FDA, Jefferson, AR.

#1888 **Poster Board Number 260**
Role of Epithelial to Mesenchymal Transition in the Hepatic Fibrosis of OVE26 Type 1 Diabetic Mice. Q. Zhang[1,2], X. Jiang[1], Y. Li[1], X. Miao[1], *C. Zhang*[1], *L. Cai*[1], and M. Cheng[2]. [1]University of Louisville, Louisville, KY; and [2]Guiyang Medical College, Guiyang, Guizhou, China.

#1889 **Poster Board Number 261**
FXR Regulates FoxO3 Activation in Ethanol-Induced Autophagy and Liver Injury. S. Manley[1], H. Ni[1], J. Williams[1], H. Yang[1], B. Kong[2], G. L. Guo[2], and W. Ding[1]. [1]Pharmacology, Toxicology and Therapeutics, University of Kansas Medical Center, Kansas City, KS; and [2]Pharmacology and Toxicology, Rutgers, Piscataway, NJ. Sponsor: *U. Apte*.

#1890 **Poster Board Number 262**
Global Proteomic Analysis of Acetaminophen Toxicity in 3D Human Liver Microtissues. C. Escher[2], R. Ossala[2], *P. Gunness*[1], M. Bober[2], F. Grimm[2], L. Reiter[2], Y. Butscheid[2], and *S. Messner*[1]. [1]InSphero AG, Schlieren, ZH, Switzerland; and [2]Biognosys, Schlieren, ZH, Switzerland.

#1891 **Poster Board Number 263**
Integrated Proteomic and miRNA Transcriptional Analysis Reveals the Hepatotoxicity Mechanism of PFNA Exposure in Mice. J. Wang, Y. Shengmin, W. Zhang, H. Zhang, and *J. Dai*. Key Laboratory of Animal Ecology and Conservation Biology, Institute of Zoology, Chinese Academy of Sciences, Beijing, China.

#1892 **Poster Board Number 264**
Sertraline Induces Endoplasmic Reticulum Stress in Hepatic Cells. *L. Guo*[1], *J. Xuan*[1], L. Couch[1], A. Iyer[2], and *S. Chen*[1]. [1]NCTR, Jefferson, AR; and [2]University of Maryland, Baltimore, MD.

#1893 **Poster Board Number 265**
Sertraline, an Antidepressant, Induces Apoptosis in Hepatic Cells through the Mitogen-Activated Protein Kinase Pathway. *S. Chen*, *J. Xuan*, *H. Lin*, L. Couch, *N. Mei*, *V. N. Dobrovolsky*, and *L. Guo*. National Center for Toxicological Research, Jefferson, AR.

#1894 **Poster Board Number 266**
High-Content Analysis of a High-Throughput Human *In Vitro* Metabolic Model. S. D. Cole[1,2,3], J. S. Madren-Whalley[1], A. P. Li[4], and *H. Salem*[1,5]. [1]US Army Edgewood Chemical Biological Center, Gunpowder, MD; [2]National Research Council, Washington, DC; [3]Defense Threat Reduction Agency, Fort Belvoir, VA; [4]In Vitro ADMET Laboratories, Inc., Columbia, MD; and [5]Department of Homeland Security, Aberdeen Proving Ground, MD.

Abstract #

#1895 **Poster Board Number 267**
Comparative Metabolism of Eight Model Pharmaceutical Compounds in Rat- and Human-Liver Microsomes, Suspension Hepatocytes, and Micropatterned Cocultures of Primary Hepatocytes. J. Enoru[1], W. DeMaio[1], A. Watanyar[1], *K. Draper*[1], A. Moore[2], and O. Ukairo[2]. [1]Ricerca Biosciences, Concord, OH; and [2]Hepregen Corporation, Medford, MA.

#1896 **Poster Board Number 268**
Expression of Drug Processing Genes in Livers of Germ-Free Mice. *F. Selwyn*, *J. Cui*, and *C. Klaassen*. University of Kansas Medical Center, Kansas City, KS.

#1897 **Poster Board Number 269**
Morphological Changes to Mitochondria in Response to Compounds with Different Modes of Action. A. Winkley, A. Davies, *D. W. Brewster*, and S. Tekur. DSE, Vertex, Cambridge, MA.

#1898 **Poster Board Number 270**
***In Vivo* Extrapolation of *In Vitro* Drug-Induced Hepatocyte Accumulation of Triglycerides to Predict Steatosis in Rodents and Humans.** P. Patel, M. Atari, H. Woodhouse, P. A. Walker, and S. Thomas. Cyprotex, Maccelsfield, United Kingdom. Sponsor: *C. Strock*.

#1899 **Poster Board Number 271**
Using *In Silico* Modeling to Understand the Role of BSO in GSH Metabolism. S. Das, R. Kumar, A. Khanna, S. Louha, K. Rajendran, B. Thota, D. Raman, D. Srivastava, N. Rajeswara, N. Mandyam, S. Raghavan, and *K. Subramanian*. Strand Life Sciences, Bangalore, India.

#1899a **Poster Board Number 272**
Validation of a 3-Dimensional Liver Microtissue Model for Long-Term Hepatotoxicity Studies. *S. Messner*[3], *T. Moeller*[1], and B. Larson[2]. [1]BioreclamationIVT, Halethorpe, MD; [2]BioTek, Winooski, VT; and [3]InSphero, Schlieren, Switzerland.

#1899b **Poster Board Number 273**
Detection of Human Hepatic Toxicity in Chimeric Mice with Humanized Liver by Human ALT1 ELISA System. C. Tateno[1,2], H. Iwanari[3], T. Shimada[1], T. Kimura[4], C. Yamasaki[1], M. Kakuni[1], and Y. Ishida[1,2]. [1]PhoenixBio Co., Ltd., Higashihiroshima, Japan; [2]Liver Research Project Center, Hiroshima University, Hiroshima, Japan; [3]Quantitative Biology and Medicine, RCAST, Tokyo University, Tokyo, Japan; and [4]Institute of Immunology Co., Ltd., Tokyo, Japan. Sponsor: *M. Hayashi*.

#1899c **Poster Board Number 274**
Development of High-Throughput AlphaLISA Immunoassays to Quantify ALT and AST Levels in Human Primary Hepatocytes Culture Supernatant. E. Doudement[1], *H. Uppal*[1], *D. L. Misner*[1], and *D. M. Dambach*[1]. [1]Safety Assessment, Genentech Inc, S. San Francisco, CA.

#1899d **Poster Board Number 275**
MicroRNA miR122 Induction by Bile Salt Export Pump (BSEP) Inhibiting DILI Drugs in Primary Cultured Human Hepatocytes. Q. Yang[1], *U. Doshi*[1], and *A. P. Li*[1]. [1]In Vitro ADMET Laboratories, Advanced Pharmaceutical Sciences, Columbia, MD.

Program Description (Continued)

Abstract #

#1899e **Poster Board Number 276**
"Inside-Out" Membrane Vesicles: An *In Vitro* Model to Study Transporter-Mediated Drug Interactions Which Can Lead to Liver Toxicity. A. Gao[1], N. Li[2], S. Parikh[2], J. Bourgea[2], and C. J. Patten[2]. [1]Corning Life Sciences, Kennebunk, ME; and [2]R&D, Corning Life Sciences, Bedford, MA. Sponsor: *C. Crespi*.

Wednesday Afternoon, March 26
1:00 PM to 4:30 PM
Exhibit Hall

PS

Poster Session: Stem Cell Biology and Toxicology

Stem Cell Models for Integrated Biology

Chairperson(s): *Blake D. Anson, Cellular Dynamics International, Madison, WI.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *1:00 PM–2:45 PM*

#1900 **Poster Board Number 301**
Connexin 32 Maintains Stemness of Hematopoiesis. *Y. Hirabayashi*[1], B. Yoon[2], I. Tsuboi[3], *J. Kanno*[1], *J. E. Trosko*[4], and *T. Inoue*[3]. [1]Div. of Cell. & Molecul. Tox., Nat'l Inst. of Health Sciences, Tokyo, Japan; [2]Lab. of Histology & Molecul. Pathogenesis, School of Vet. Med., Kangwon Nat'l Univ., Chuncheon, Republic of Korea; [3]Nihon Univ. School of Med., Tokyo, Japan; and [4]Michigan State Univ., East Lansing, MI.

#1901 **Poster Board Number 302**
A Novel CXCR4 Antagonist SDF-1βP2G Enhances Ischemic Angiogenesis via Endothelial Progenitor Cell Mobilization, Infiltration, and Incorporation. X. Yan[1,2], *L. Cai*[1,2], and *Y. Tan*[1,2]. [1]Kosair Children's Hospital Research Institute, Department of Pediatrics, University of Louisville, Louisville, KY; and [2]Chinese-American Research Institute for Diabetic Complications, Wenzhou Medical College, Wenzhou, Zhejiang, China.

#1902 **Poster Board Number 303**
Evaluation of Cell Health *In Vitro* Using Video Bioinformatics. *S. C. Lin*, *B. Davis*, H. Yip, and *P. Talbot*. Cell Biology and Neuroscience, University of California, Riverside, CA.

#1903 **Poster Board Number 304**
Delayed Electrophysiologic and Proarrhythmic Effects of Kinase Inhibitors Assessed in Human Induced Pluripotent Stem Cell-Derived Cardiomyocytes (hiPSC CM). H. Shi[1], M. Huang[1], D. Xing[1], J. Zhu[1], G. Lewen[2], *S. P. Adams*[1], and P. C. Levesque[1]. [1]Discovery Toxicology, Bristol-Myers Squibb, Princeton, NJ; and [2]Research Informatics and Automation, Bristol-Myers Squibb, Princeton, NJ.

#1904 **Poster Board Number 305**
Aluminum Maltolate Interferes with Gene Expression of Epigenetic Modifying Enzymes in Mouse Embryonic Stem Cells. *A. Aliberti*, and *F. A. Barile*. Pharmaceutical Sciences, St. John's University College of Pharmacy, Queens, NY.

Abstract #

#1905 **Poster Board Number 306**
Lineage Stage Specific Modulation of Rat Hepatic Stem/Progenitor Cell Growth by Activation of the Aryl Hydrocarbon Receptor (AhR). *J. A. Harrill*[1], B. Parks[1], E. Wauthier[2], *J. Rowlands*[3], L. M. Reid[2], and *R. S. Thomas*[1]. [1]The Hamner Institutes for Health Sciences, Research Triangle Park, NC; [2]Program in Molecular Biology and Biotechnology, Department of Cell Biology and Physiology, University of North Carolina, Chapel Hill, NC; and [3]The Dow Chemical Company, Midland, MI.

#1906 **Poster Board Number 307**
Aflatoxin B1 Effects on Differenciation, Proliferation, and Cell Death on Human Adult Hepatic Stem/Progenitor Cells. W. Hassen[1], S. Gerbal-Chaloin[2], I. Iankova[2], C. Duret[2], P. Briolitti[2], J. Ramos[3], and M. Daujat-Chanvanieu[2]. [1]Department of Cellular Physiology and Toxicology, Institute of Biotechnology, Monastir, Tunisia; [2]Hepatic Differentiation of Stem Cells and Biotherapy of Liver Diseases, Normal and Malignant Stem Cells, Inserm U1040, Research Institute of Biotherapy, University of Montpellier, Montpellier, France; and [3]University Hospital of St Eloi, CHU St Eloi, Montpellier, Montpellier, France. Sponsor: *A. Lopez de Cerain*.

#1907 **Poster Board Number 308**
Low Levels of Aryl Hydrocarbon Receptor Expression in Mouse Embryonic Stem Cells Deregulate Pluripotency Balance. C. Ko, Y. Fan, Q. Wang, and *A. Puga*. Environmental Health, University of Cincinnati, Cincinnati, OH.

#1908 **Poster Board Number 309**
Predictive Assays for Cardiotoxicity Using Embryonic Stem Cell-Derived Cytiva™ Cardiomyocytes (hESC-CM). K. F. Marcoe, J. Chesnut-Speelman, T. Arnold, S. Wang, *J. Kushleika*, *Y. Zhao*, and U. Warrior. Toxicology Cellular Services, Eurofins Cerep-Panlabs, Redmond, WA.

#1909 **Poster Board Number 310**
Early Activation of Aryl Hydrocarbon Receptor Alters the Expression of Homeobox Transcription Factors That Control Cardiomyocyte Differentiation. *Q. Wang*, J. Chen, C. Ko, Y. Fan, *Y. Xia*, M. Medvedovic, and *A. Puga*. University of Cincinnati, Cincinnati, OH.

#1910 **Poster Board Number 311**
***In Vitro* Multiparameter Assessment of Cardiotoxicity in Human Induced Pluripotent Stem Cell (iPSC)-Derived Cardiomyocytes.** M. L. Wolfe[1], B. D. Anson[2], and H. Ma[1]. [1]Cellular and Molecular Biology, MPI Research, Mattawan, MI; and [2]Cellular Dynamics International, Madison, WI. Sponsor: *T. Rogers*.

#1911 **Poster Board Number 312**
Evaluation of a 3D Stem Cell Model of Intestinal Epithelium to Predict and Model Enterotoxicity. *M. Wagoner*[1], M. V. Nadella[1], R. Caccese[1], K. Adams[1], *J. Sasaki*[1], and *Y. P. Dragan*[2]. [1]Safety Assessment, AstraZeneca Pharmaceuticals, Waltham, MA; and [2]E.I. du Pont de Nemours and Company, Wilmington, DE.

Program Description (Continued)

Abstract #

#1912 **Poster Board Number 313**
Characterization of a Brain Microphysiological System for Studying Gene/Environment Interactions. *D. Pamies*[1], G. Makri[3], *J. P. Bressler*[2], K. M. Christian[3], G. Harris[1], C. O'Driscoll[2], L. Smirnova[1], P. Marina[2], R. Bachinski[1], *T. Hartung*[1], and *H. T. Hogberg*[1]. [1]CAAT, Johns Hopkins, Bloomberg School of Public Health, Baltimore, MD; [2]Kennedy Krieger Institute, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD; and [3]Institute for Cell Engineering, Johns Hopkins School of Medicine, Baltimore, MD.

#1913 **Poster Board Number 314**
The Potential Therapeutic Role of Secreted Antiviral Entry Inhibitory (SAVE) Peptides Expressed by Transduced Mesenchymal Stem Cells (MSCs). *N. Lee*[1,3], E. Walker[1], L. Egerer[2], D. Laer[2], B. Bunnell[1,3], and S. Braun[1,3]. [1]Regenerative Medicine, Tulane National Primate Center, New Orleans, LA; [2]Division of Virology, Innsbruck Medical University, Innsbruck, Austria; and [3]Biomedical Sciences, Tulane University, New Orleans, LA.

#1914 **Poster Board Number 315**
Foetal-Derived Human Neural Stem/Progenitor Cells (h-NPCs): Safety Profile in the Mouse following Single Intracerebroventricular (ICV) Administration. G. Di Gallo[1], E. Riccardi[1], C. I. Bernardi[1], E. Brambilla[2], F. Ruffini[2], and G. Martino[2]. [1]Preclinical Development, Accelera S.r.l., Nerviano - Milano, Italy; and [2]Division of Neuroscience, San Raffaele Hospital - Experimental Neurology Institute, Milano, Italy. Sponsor: *M. Brughera*.

#1915 **Poster Board Number 316**
High-Throughput Developmental Toxicology Screening Platform Using Human iPSC-Based Transcriptional Analysis. R. Abujarour, B. Valamehr, M. Robinson, and P. Flynn. Fate Therapeutics, San Diego, CA. Sponsor: *R. Totah*.

#1916 **Poster Board Number 317**
Arsenic-Induced Aberrant Gene Regulation of Human Adipose-Derived Mesenchymal Stem Cells. J. J. Shearer, and *M. L. Figueiredo*. UTMB, Galveston, TX.

#1917 **Poster Board Number 318**
A Biomarker-Based Developmental Toxicity Screen Using Human Induced Pluripotent Stem Cells for Compound Prioritization. L. A. Egnash, J. A. Palmer, A. Smith, K. R. Conard, P. R. West, R. E. Burrier, E. Donley, and F. R. Kirchner. Stemina Biomarker Discovery, Inc., Madison, WI. Sponsor: *L. Recio*.

#1918 **Poster Board Number 319**
Investigation of Mitochondrial Toxicity in Stem Cell-Derived Cardiomyocytes. S. Schwengberg[1,2], R. Kettenhofen[2], J. Hynes[3], C. Carey[3], *E. Clarke*[4], and H. Bohlen[2]. [1]Cells at Work Consulting & Services, Dueren, Germany; [2]Axiogenesis AG, Cologne, Germany; [3]Luxcel Biosciences, Inc., Cork, Ireland; and [4]ReachBio LLC, Seattle, WA.

Abstract #

#1919 **Poster Board Number 320**
Monitoring of Calcium Transients of Human Cardiomyocytes Derived from Induced Pluripotent Stem Cells As a Predictive Tool for High-Throughput Assessment of Cardiac Toxicity. R. Kettenhofen[1], A. Duenbostell[1], T. Niedereichholz[2], J. D'Angelo[2], H. Horai[2], S. Schwengberg[1,3], H. Bohlen[1], and T. Licher[4]. [1]Axiogenesis AG, Cologne, Germany; [2]Hamamatsu Photonics K.K., Hamamatsu City, Japan; [3]Cells at Work Consulting & Services, Dueren, Germany; and [4]Sanofi-Aventis Deutschland GmbH, Frankfurt, Germany. Sponsor: *E. Clarke*.

#1920 **Poster Board Number 321**
An *Ex Vivo* Platform to Evaluate the Differential Effects of Potential Therapies on Leukemia Progenitors (CFU-L) vs. Normal Bone Marrow (NBM) Progenitors (CFU-GM). *E. Clarke*, B. Kyriss, and A. Mergaert. ReachBio LLC, Seattle, WA.

#1921 **Poster Board Number 322**
Cryopreserved Hepatocytes and Stem Cell-Derived Hepatocyted As Microphysiological 3D Liver Models in LiverChip. C. Rowe[1], E. Large[1], T. Cornforth[1], A. Robinson[1], A. Marguerie[2], L. Wray[2], M. Yeo[2], E. Sceats[1], and D. Hughes[1]. [1]Zyoxel Ltd, Oxford, United Kingdom; and [2]Definigen Ltd, Cambridge, United Kingdom. Sponsor: *S. Tannenbaum*.

#1922 **Poster Board Number 323**
LiverChip 3D Liver Platform Distinguishes between Known Hepatotoxic Drugs and Closely Related Structural Analogues. I. Taylor, C. Rowe, E. Large, T. Cornforth, A. Robinson, E. Sceats, and D. Hughes. Zyoxel Ltd, Oxford, United Kingdom. Sponsor: *S. Tannenbaum*.

#1922a **Poster Board Number 324**
Tobacco Smoke Effects on an Endothelial Cell Model Derived from Inducible Pluripotent Stem Cells. D. Gerhold[1], D. Kuo[1], G. Chen[2], G. Chen[2], J. Braisted[1], J. Zhu[2], and M. Boehm[2]. [1]Toxicology, NIH/NCATS National Center for Advancing Translational Sciences, Rockville, MD; and [2]NHLBI, NIH, Bethesda, MD. Sponsor: *M. Xia*.

#1922b **Poster Board Number 325**
Neural Stem Cell Susceptibility to Japanese Diesel Exhaust Particulate Matter. *C. Hegg*[1], C. Jia[1], and L. Koch[1]. [1]Pharmacology and Toxicology, Michigan State University, East Lansing, MI.

#1922c **Poster Board Number 326**
Clostridial Toxins Cause Synaptic Inhibition in Networked Populations of Stem Cell-Derived Neurons. *P. McNutt*[1], P. H. Beske[1], K. S. Hubbard[1], M. E. Lyman[1], and K. M. Tuznik[1]. [1]USAMRICD, Aberdeen Proving Ground-Edgewood Area, MD.

#1922d **Poster Board Number 327**
Characterization of Functionally Networked, Central Nervous System Neurons Derived from Stem Cells As an *In Vitro* Platform for Neurotoxin Research. M. E. Lyman[1], *P. McNutt*[1], K. S. Hubbard[1], P. H. Beske[1], and K. M. Tuznik[1]. [1]USAMRICD, Aberdeen Proving Ground-Edgewood Area, MD.

Program Description (Continued)

Abstract #

#1922e **Poster Board Number 328**
Transcriptomic Effects of Curcumin and Piperine in Breast Stem Cells. *J. Colacino*[1], S. P. McDermott[2], M. A. Sartor[3], M. Kakarala[4], M. S. Wicha[2], and L. S. Rozek[1]. [1]Environmental Health Sciences, University of Michigan School of Public Health, Ann Arbor, MI; [2]Comprehensive Cancer Center, University of Michigan, Ann Arbor, MI; [3]Computational Medicine and Bioinformatics, University of Michigan, Ann Arbor, MI; and [4]Van Andel Research Institute, Grand Rapids, MI.

#1922f **Poster Board Number 329**
Development of a Human Adipose Stem Cell Model for Chemical Obesogen Screening. *C. Deisenroth*[1], and B. Foley[1]. [1]The Hamner Institutes for Health Sciences, Research Triangle Park, NC.

Wednesday Afternoon, March 26
1:00 PM to 4:30 PM
Exhibit Hall

PS

Poster Session: Genotoxicity Mechanisms

Chairperson(s): *Nan Mei, NCTR, US FDA, Jefferson, AR.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *2:45 PM–4:30 PM*

#1923 **Poster Board Number 333**
Cytoprotective Effects of the Antioxidants Tempol and WR-1065 in Human Lymphoblastoid Cells Exposed to Zidovudine (AZT). M. O. On'Gele[1], H. Braun[1], K. Divi[1], *M. C. Poirier*[1], *J. B. Mitchell*[2], and *O. Olivero*[1]. [1]Carcinogen-DNA Interactions, National Cancer Institute, Bethesda, MD; and [2]Tumor Biology Section, National Cancer Institute, Bethesda, MD.

#1924 **Poster Board Number 334**
Prolonged Exposure to Particulate Chromate Inhibits Homologous Recombination Repair Proteins. *C. L. Browning*[1,2], *H. Xie*[1,2], Q. Qin[1], J. Masson[3], and *J. P. Wise*[1,2]. [1]Wise Laboratory of Environmental and Genetic Toxicology, Maine Center for Toxicology and Environmental Health, University of Southern Maine, Portland, ME; [2]Graduate School of Biomedical Sciences and Engineering, University of Maine, Orono, ME; and [3]Genome Stability Laboratory, Laval University Cancer Research Center, Quebec City, QC, Canada.

#1925 **Poster Board Number 335**
Targeted Ubiquitination and Degradation of Human DNA Ligase I by the CUL4-DDB1 Ubiquitin Ligase Complex. *Z. Peng*, and A. Tomkinson. Internal Medicine, Univ of New Mexico, Albuquerque, NM.

#1926 **Poster Board Number 336**
Activation of ATM-Dependent Genotoxic Signaling in Human Lung Cells by Formaldehyde. S. Ortega Atienza, J. Morse, and *A. Zhitkovich*. Pathology and Molecular Medicine, Brown University, Providence, RI.

Abstract #

#1927 **Poster Board Number 337**
p53 Regulation of the GADD45a Gene Is Restricted to Genotoxin Exposure As a Consequence of a Requirement for p53/WT1 Interaction in the Promoter. R. Walmsley[1,2], and D. Johnson[3]. [1]Faculty of Life Sciences, University of Manchester, Manchester, United Kingdom; [2]Gentronix Ltd, Manchester, United Kingdom; and [3]Animal Molecular Biology, Harper Adams University, Newport, United Kingdom. Sponsor: *S. Dertinger*.

#1928 **Poster Board Number 338**
Oxidative DNA Damage/Repair Induces Inflammatory Gene Expression in the Airways by 8-Oxoguanine DNA Glycosylase-Mediated Cell Signaling. L. Aguilera-Aguirre[1], A. Bacsi[1], T. G. Wood[2], A. R. Brasier[2,3,4], *B. T. Amerede*s[2,3,4], X. Ba[1], and I. Boldogh[1,2]. [1]Microbiology and Immunology, University of Texas Medical Branch, Galveston, TX; [2]Sealy Center for Molecular Medicine, University of Texas Medical Branch, Galveston, TX; [3]Institute for Translational Sciences, University of Texas Medical Branch, Galveston, TX; and [4]Internal Medicine, University of Texas Medical Branch, Galveston, TX.

#1929 **Poster Board Number 339**
Interpreting *In Vitro* Micronucleus Positive Results: Simple Biomarker Matrix Discriminates Clastogens, Aneugens, and Irrelevant Positive Agents. S. Bryce[1], *J. Bemis*[1], *S. Dertinger*[1], J. Mereness[1], M. Schuler[2], R. Spellman[2], J. Moss[2], and D. Dickinson[2]. [1]Litron Laboratories, Rochester, NY; and [2]Pfizer, Groton, CT.

#1930 **Poster Board Number 340**
Error-Prone Double-Strand Break Repair Plays a Predominant Role in Oxidative Stress-Induced Mutagenesis. V. Sharma[1], L. Collins[1], W. Sun[2], *J. A. Swenberg*[1], and J. Nakamura[1]. [1]Department of Environmental Sciences and Engineering, UNC, Chapel Hill, NC; and [2]Department of Genetics, UNC, Chapel Hill, NC.

#1931 **Poster Board Number 341**
A New Mode of Action for the Cytolethal Distending Toxin. *B. Salles*, E. Bezine, Y. Fedor, J. Vignard, E. Boutet-Roubinet, and G. Mirey. Toxalim, INRA, Toulouse, France.

#1932 **Poster Board Number 342**
Investigating Mechanisms of Mitochondrial DNA Damage-Mediated Developmental Arrest. E. Turner[1], L. Donoghue[1], C. Hopkins[2], T. Brock[2], and *J. N. Meyer*[1]. [1]Nicholas School of the Environment, Duke University, Durham, NC; and [2]Knudra Diagnostics, Salt Lake City, UT.

#1933 **Poster Board Number 343**
Impact of p53 Functionality in *In Vitro* Mammalian Cell Toxicity Testing. R. Smith, J. Whitwell, and J. Clements. Covance Laboratories, Harrogate, United Kingdom. Sponsor: *J. Bhalli*.

#1934 **Poster Board Number 344**
Evaluation of DNA Repair Center Kinetics after Treatment with Chemicals Causing Linear and Nonlinear Dose-Response Curves for Micronuclei. *B. Sun*[1], *O. Trask*[1], S. Ross[1], *P. L. Carmichael*[2], *Y. Adeleye*[2], *M. E. Andersen*[1], and *R. A. Clewell*[1]. [1]The Hamner Institute, Durham, NC; and [2]SEAC, Unilever INC, Colworth Science Park, Bedfordshire, United Kingdom.

Program Description (Continued)

Abstract #

#1935 **Poster Board Number 345**
The Bystander DNA Double-Strand Breaks Induced by Alpha-Particles and the Protective Effect by Vanillin Derivative VND3207. *P. Zhou*[1,2], H. Guan[1], C. Fan[1,2], Y. Wang[1], X. Liu[1], and B. Huang[2]. [1]Radiation Toxicology and Oncology, Beijing Institute of Radiation Medicine, Beijing, China; and [2]Institute for Environmental Medicine and Radiation Hygiene, The University of South China, Hengyang, Hunan Province, China.

#1936 **Poster Board Number 346**
UV-Induced DNA Damage and Repair Regulation at Ends of Chromosomes. *D. Parikh*, and *P. L. Opresko*. University of Pittsburgh, Pittsburgh, PA.

#1937 **Poster Board Number 347**
Effects of Cadmium and 17α-Ethinylestradiol on Benzo(a)pyrene Adduct Formation. *K. E. Germ*, *S. Tang*, and *G. D. Mayer*. Environmental Toxicology, Texas Tech University, Lubbock, TX.

#1938 **Poster Board Number 348**
Integration of Genomic Biomarkers in Cancer Risk Assessment for Xenobiotics with Positive Findings in Chromosome Damage Assays. H. Li[2], D. R. Hyduke[4], C. L. Yauk[3], *J. Aubrecht*[1], and A. Fornace[2]. [1]Dept of Drug Safety Evaluation, Pfizer Inc, Groton, CT; [2]Georgetown University, Washington, DC; [3]Health Canada, Ottawa, ON, Canada; and [4]Utah State University, Logan, UT.

#1939 **Poster Board Number 349**
Developmental Exposure to Ultraviolet C Radiation Results in Altered Energy Production Later in Life in *Caenorhabditis elegans*. J. Rooney, *R. K. Bodhicharla*, *A. S. Bess*, *M. C. Leung*, I. T. Ryde, A. Luz, and *J. N. Meyer*. Nicholas School of the Environment, Duke University, Durham, NC.

#1940 **Poster Board Number 350**
Investigating Genetic Susceptibility to Mitochondrial Toxicity. A. Luz, and *J. N. Meyer*. Nicholas School of the Environment, Duke University, Durham, NC.

#1941 **Poster Board Number 351**
Investigations of Dose-Response for Key Events in the Mode of Action (MOA) for Propylene Oxide (PO)-Induced Mutagenicity in TK6 Cells. *L. H. Pottenger*[1], M. R. Schisler[1], F. Zhang[1], N. Visconti[1], *Z. Ji*[1], *D. Delker*[2], L. G. McFadden[1], *M. Bartels*[1], *B. Gollapudi*[3], and *M. J. LeBaron*[1]. [1]The Dow Chemical Company, Midland, MI; [2]University of Utah, Salt Lake City, UT; and [3]Exponent, Midland, MI.

#1942 **Poster Board Number 352**
Depleted Uranium Induces DNA Damage and Alteration of DNA Repair Proteins in Human Lung Epithelial Cells. *H. Xie*, V. Sekeroglu, Z. Sekeroglu, *C. Falank*, *A. L. Holmes*, and *J. P. Wise*. University of Southern Maine, Portland, ME.

#1943 **Poster Board Number 353**
Antimutagenic Effect of *Curcuma longa* L. and Photoactivated Cow Urine Using Salmonella Reverse Mutation Assay. R. M. Nagane[1], N. N. Patel[1], K. E. Tendulkar[1], N. U. Dhumal[1], K. D. Vashi[1], and *V. J. Piccirillo*[2]. [1]Toxicology, Jai Research Foundation, Vapi, India/Gujrat, India; and [2]VJP Consulting, Inc., Ashburn, VA.

Abstract #

#1943a **Poster Board Number 354**
Comparison of Genotoxic Effects of Major Diesel Exhaust Components in Human Alveolar Basal Epithelial Cells (A549). P. Rossner[1], J. Stolcpartova[1], J. Schmuczerova[1], A. Milcova[1], E. Hruba[2], M. Machala[2], and *J. Topinka*[1]. [1]Institute of Experimental Medicine, Prague, Czech Republic; and [2]Veterinary Research Institute, Brno, Czech Republic.

#1943b **Poster Board Number 355**
Nitroxide TEMPO: A Genotoxic and Oxidative Stress Inducer in Cultured Cells. *X. Guo*[1], R. A. Mittelstaedt[1], *L. Guo*[1], J. G. Shaddock[1], *R. H. Heflich*[1], *M. M. Moore*[1], and *N. Mei*[1]. [1]NCTR, Jefferson, AR.

#1943c **Poster Board Number 356**
454 Next-Generation Sequencing Reveals a Catalogue of SNPs and Novel Genetic Anomalies in the Transcriptome of TK6 Cells. J. Revollo[1], D. Petibone[1], S. M. Morris[1], B. Green[1], and B. Ning[1]. [1]Division of Genetic and Molecular Toxicology, National Center for Toxicological Research, Jefferson, AR. Sponsor: *S. Chigurupati*.

#1943d **Poster Board Number 357**
MGMT Promoter/Enhancer Haplotypes Alter Transcription Factors Binding. *M. Xu*[1], I. Nekhayeva[1], *C. E. Cross*[1], J. Speidel[1], and *S. Abdel-Rahman*[1]. [1]UTMB, Galveston, TX.

#1943e **Poster Board Number 358**
Exploring *In Vivo* Genotoxicity Thresholds through an Integrated Evaluation of 5-FU. *S. C. Gehen*[1], *D. Geter*[2], K. Pant[3], J. Mehta[1], *R. Billington*[1], and *B. Gollapudi*[2,4]. [1]Dow AgroSciences, Indianapolis, IN; [2]The Dow Chemical Company, Midland, MI; [3]BioReliance, Rockville, MD; and [4]Exponent, Inc, Midland, MI.

#1943f **Poster Board Number 359**
Timecourse of Altered Hepatic Nucleotide Excision Repair Activity following Treatment of Mice with the Tobacco-Specific Carcinogen 4-(Methylnitrosamino)-1-(3-Pyridyl)-1-Butanone. *C. M. Harris*[1], and *T. E. Massey*[1]. [1]Pharmacology and Toxicology Graduate Program, Department of Biomedical and Molecular Sciences, Queens University, Kingston, ON, Canada.

#1943g **Poster Board Number 360**
Non-B-DNA-Induced Mutagenesis in Eukaryotes. J. McKinney[1], and K. Vasquez[1]. [1]Pharmacology & Toxicology, University of Texas at Austin, Austin, TX. Sponsor: *R. Finch*.

#1943h **Poster Board Number 361**
Reduction of Genotoxicity from External and Endogenous Sources with Yel002. M. J. Davoren[1], and *R. H. Schiestl*[1]. [1]Environmental Health Science, UCLA, Los Angeles, CA.

#1943i **Poster Board Number 362**
Somatic and Germ Cell Mutant Analysis in the Big Blue® Transgenic Mouse Mutation Assay with N-Ethyl-N-nitrosourea (ENU). R. R. Young[1], H. Dinesdurage[1], D. Bruning[1], *M. McKeon*[1], T. Vidmar[2], and *M. Aardema*[1,3]. [1]Toxicology, BioReliance, Rockville, MD; [2]BioSTAT Consultants, Inc, Portage, MI; and [3]Marilyn Aardema Consulting, LLC, Fairfield, OH.

WEDNESDAY

Education-Career Development Sessions
Exhibitor-Hosted Sessions
Featured Sessions
Historical Highlights Session
Informational Sessions
Platform Sessions

Program Description (Continued)

Abstract #

#1943j **Poster Board Number 363**
Integration of *Pig-a* and Micronucleus Endpoints into the Big Blue® Transgenic Mouse Mutation Assay: Results for Benzo(a)pyrene (BaP) and N-Ethyl-N-nitrosourea (ENU). L. F. Stankowski[1], *M. Aardema*[2], *R. Kulkarni*[1], T. E. Lawlor[1], *M. McKeon*[1], *Y. Xu*[1], *D. Torous*[3], *S. Dertinger*[3], and R. R. Young[1]. [1]BioReliance, Rockville, MD; [2]Marilyn Aardema Consulting, LLC, Fairfield, OH; and [3]Litron Laboratories, Rochester, NY.

Wednesday Afternoon, March 26
1:00 PM to 4:30 PM
Exhibit Hall

PS

Poster Session: Nanotoxicology: *In Vitro*

Chairperson(s): *Saura C. Sahu, US FDA, Department of Toxicology, Laurel, MD.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *1:00 PM–2:45 PM*

#1944 **Poster Board Number 401**
Comparative Cytotoxicity of Nanosilver in HepG2 and Caco2 Cells. *S. C. Sahu*, J. Zheng, J. Ihrie, *J. Yourick*, and R. Sprando. Toxicology, US Food and Drug Administration, Laurel, MD.

#1945 **Poster Board Number 402**
Induction of Autophagy at Noncytotoxic Concentrations of Silver Nanoparticles in HepG2 Cells. *A. Mishra*, Q. Zhang, G. Kumar, B. Casey, and *P. L. Goering*. CDRH, USFDA, Silver Spring, MD.

#1946 **Poster Board Number 403**
Flow Cytometry-Based Evaluation of Silver Nanoparticle Cytotoxicity: Role of Serum Concentration in Media. *G. Kumar*[1], W. Wei[2], H. Degheidy[1], B. Casey[1], and *P. L. Goering*[1]. [1]CDRH, FDA, Silver Spring, MD; and [2]University of Maryland, College Park, MD.

#1947 **Poster Board Number 404**
Size- and Surface Coating-Dependent Uptake and Cellular Responses of Iron Oxide Nanoparticles in Human Mammary Healthy and Breast Cancer Epithelial Cells. *Q. Zhang*[1], S. Rajan[1], K. M. Tyner[2], B. Casey[1], C. Dugard[3], Y. Jones[3], A. Paredes[3], C. Clingman[2], *P. C. Howard*[3], and *P. L. Goering*[1]. [1]CDRH, FDA, Silver Spring, MD; [2]CDER, FDA, Silver Spring, MD; and [3]NCTR, FDA, Jefferson, AR.

#1948 **Poster Board Number 405**
Influence of Single-Walled Carbon Nanotubes with Different Physico-Chemical Properties on the Cellular Responses in Alveolar Epithelial Cells and Macrophages. *K. Fujita*[1,2], S. Endoh[2], J. Maru[2], H. Kato[1,2], N. Shinohara[1,2], M. Horie[3], and M. Fukuda[2]. [1]National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan; [2]Technology Research Association for Single Wall Carbon Nanotubes (TASC), Tsukuba, Japan; and [3]University of Occupational and Environmental Health, Kitakyushu, Japan.

Abstract #

#1949 **Poster Board Number 406**
Comparative Biocompatibility of Nano-Anticancer Drugs. *S. Lee*[1], J. Son[1], D. Khang[2], and *S. Kim*[1]. [1]Phamacology, Kyungpook National Univ, Daegu, Republic of Korea; and [2]School of Materials Science and Engineering and Center for NBECS, Gyeongsang National University, Jinju, Republic of Korea.

#1950 **Poster Board Number 407**
Protein Carbonylation As a Marker of Oxidative Stress Induced by Nanoparticles: Analysis of 16 Inorganic Nanoparticles. M. D. Driessen[1], R. Ossig[2], J. Schnekenburger[2], A. Vennemann[3], M. Wiemann[3], A. Luch[1], and *A. Haase*[1]. [1]German Federal Institute for Risk Assessment, Berlin, Germany; [2]Biomedical Technology Center, University of Münster, Münster, Germany; and [3]IBE R&d gGmbH, Münster, Germany.

#1951 **Poster Board Number 408**
ERK Pathway Is Activated in Bare-FeNPs-Induced Autophagy. E. Park[1], *M. Cho*[3], H. Umh[2], Y. Kim[2], S. Kim[1], and J. Kim[1]. [1]Department of Molecular Science and Technology, Ajou University, Suwon, Gyeonggi-Do, Republic of Korea; [2]Department of Chemical Engineering, Kwangwoon University, Seoul, Republic of Korea; and [3]College of Veterinary Medicine, Seoul University, Seoul, Republic of Korea.

#1952 **Poster Board Number 409**
Hidden Hazards of Nanoparticles: Crosstalk between Toxicogenomics, DNA Damage, and Cell Death. *Q. Saquib*[1], A. A. Al-Khedhairy[1], M. A. Siddiqui[1], J. A. Siddiqui[1], M. Faisal[2], S. Dwivedi[1], S. T. Khan[1], and J. Musarrat[3]. [1]Department of Zoology, College of Science, King Saud University, Riyadh, Saudi Arabia; [2]Department of Botany, King Saud University, Riyadh, Saudi Arabia; and [3]Department of Agricultural Microbiology, Aligarh Muslim University, Aligarh, India.

#1953 **Poster Board Number 410**
Lung Tissue Culture Model for Assessment of Cytotoxicity and Inflammation Induced by Inhalable Carbon Black Nanoparticles. A. Braun[1,4], O. Danov[1,4], J. Kopf[1], M. Stroebele[2], T. Hansen[1], H. Fehrenbach[3], and K. Sewald[1,4]. [1]Fraunhofer Institute for Toxicology and Experimental Medicine, Hannover, Germany; [2]Karlsruhe Institute of Technology, Karlsruhe, Germany; [3]Airway Research Center North, Member of the German Center for Lung Research, Borstel, Germany; and [4]Biomedical Research in Endstage and Obstructive Lung Disease Hannover (BREATH), Member of the German Centre for Lung Research (DZL), Hannover, Germany. Sponsor: *C. Dasenbrock*.

#1954 **Poster Board Number 411**
Long-Term Exposures to Low Doses of Cobalt Nanoparticles Induce Cell-Transformation Enhanced by Oxidative Damage. R. Marcos[1,2], B. Annangi[1], J. Bach[1], G. Vales[1], L. Rubio[1], and A. Hernandez[1,2]. [1]Universitat Autonoma de Barcelona, Cerdanyola del Valles, Spain; and [2]CIBERESP, Barcelona, Spain. Sponsor: *A. Sampayo*.

#1955 **Poster Board Number 412**
***In Vitro* 3D Collagen-Based Hydrogel Model to Evaluate Cytotoxicity of Silver Nanoparticles.** N. Bhatt[1,2], *G. Kumar*[1], J. Stegemann[2], H. Degheidy[1], and *P. L. Goering*[1]. [1]CDRH, FDA, Silver Spring, MD; and [2]Dept Biomed Engineering, University of Michigan, Ann Arbor, MI.

WEDNESDAY

Program Description (Continued)

Abstract #

#1956 **Poster Board Number 413**
Nanosilver-Induced Apoptosis in Cell Lines Depends on the Presence of p53. *R. Foldbjerg*, and *H. N. Autrup*. Environmental and Occupational Medicine, Aarhus University, Aarhus, Denmark.

#1957 **Poster Board Number 414**
Silver Nanoparticle-Induced Apoptosis, Genotoxicity, and Oxidative Stress in CHO Cells. P. J. John[1], K. K. Awasthi[1], A. Awasthi[1], N. Kumar[2], and P. Roy[2]. [1]Zoology, University of Rajasthan, Jaipur, Rajasthan, India; and [2]Biotechnology, Indian Institute of Technology, Roorkee, Uttarakhand, India. Sponsor: *S. Rana*.

#1958 **Poster Board Number 415**
Influence of Capping Agents on Cellular Uptake of Silver Nanoparticles and the Resultant Toxicity. *F. Zhang*, B. Lau, and *E. D. Bruce*. Ecological, Earth and Environmental Sciences, Baylor University, Waco, TX.

#1959 **Poster Board Number 416**
Partial Reduction of Silver Nanoparticle-Dependent Cytotoxicity and Stress Activation following Magnetic Field Exposure. N. J. Braun[1], K. K. Comfort[2], and *S. M. Hussain*[3]. [1]Department of Biomedical Engineering, Purdue University, West Lafayette, IN; [2]Chemical and Materials Engineering, University of Dayton, Dayton, OH; and [3]Molecular Bioeffects Branch, Human Effectiveness Directorate, Air Force Research Laboratory, Wright Patterson AFB, OH.

#1960 **Poster Board Number 417**
Ionic Dissolution of Silver Nanoparticles Is the Root Cause behind the Differential Disruption of EGF Signal Transduction. K. K. Comfort[1], E. Maurer[2], and *S. M. Hussain*[2]. [1]Chemical and Materials Engineering, University of Dayton, Dayton, OH; and [2]Molecular Bioeffects Branch, Human Effectiveness Directorate, Air Force Research Laboratory, Wright Patterson AFB, OH.

#1961 **Poster Board Number 418**
Design and Validation of Nanomaterial Aerosol Exposure Techniques for *In Vitro* Toxicology. *C. Grabinski*[1,2], M. Sankaran[2], and *S. M. Hussain*[1]. [1]Molecular Bioeffects Branch, Air Force Research Laboratory, Wright Patterson AFB, OH; and [2]Department of Chemical Engineering, Case Western Reserve University, Cleveland, OH.

#1962 **Poster Board Number 419**
Strain-Dependent Responses to Quantum Dots in Mouse Hepatocytes. *T. Ward*[1], R. S. McMahan[3], *C. C. White*[1], J. Shang[2], X. Hu[2], X. Gao[2], *D. L. Eaton*[1], *T. J. Kavanagh*[1], W. C. Parks[3], and W. A. Altemeier[3]. [1]Department of Environmental and Occupational Health Sciences, University of Washington, Seattle, WA; [2]Department of Bioengineering, University of Washington, Seattle, WA; and [3]Department of Medicine, University of Washington, Seattle, WA.

#1963 **Poster Board Number 420**
Quantifying the Impact of Ag Nanoparticle Structure and Dissolution in Cell Culture Media on Cell Exposure and Biological Impact. P. Munusamy[1], S. Chen[2], B. Leo[2], C. Liu[1], *J. N. Smith*[1], *B. Thrall*[1], and D. R. Baer[1]. [1]Pacific Northwest National Laboratory, Richland, WA; and [2]Imperial College, London, United Kingdom.

Abstract #

#1964 **Poster Board Number 421**
Does Microfluidic Dispersion Influence the Toxicity of Geometric TiO2 Nanomaterials? T. B. Tilly[1,2], *L. L. Kerr*[2], *L. K. Braydich-Stolle*[1], *J. J. Schlager*[1], and *S. M. Hussain*[1]. [1]Molecular Bioeffects, AFRL, Dayton, OH; and [2]Chemical, Paper, and Biomedical Engineering, Miami University, Oxford, OH.

#1965 **Poster Board Number 422**
Low-Level Exposure to Silver Nanoparticles-Induced Hypertrophy, Multinucleation, and Senescence in Lung Epithelial Cells. *D. Ellis*[2,1], *C. E. Sulentic*[1], and *S. M. Hussain*[2]. [1]Department of Pharmacology & Toxicology, Wright State University, Dayton, OH; and [2]Molecular Bioeffects Branch, Bioeffects Division, Air Force Research Laboratory, Wright Patterson AFB, OH.

#1966 **Poster Board Number 423**
Evaluation of Tungstate Nanoparticle Cytotoxicity. *K. M. Dunnick*[1,2], *M. A. Badding*[1], D. Schwegler-Berry[1], N. R. Fix[1], S. Wong[1,2], and S. S. Leonard[3,4]. [1]NIOSH, Morgantown, WV; [2]West Virginia University, Morgantown, WV; [3]State University of New York at Stony Brook, Stony Brook, NY; and [4]Brookhaven National Laboratory, Upton, NY.

#1967 **Poster Board Number 424**
***In Vitro* Cytotoxicity Assay of TiO_2 Nanoparticles in Pulmonary Epithelial and Macrophage-Like Cells.** K. Iwasawa[1], T. Aoyama[1], K. Harano[1], N. Shinohara[2], G. Zhang[2], M. Gamo[2], and Y. Sakai[1]. [1]Institute of Industrial Science, the University of Tokyo, Tokyo, Japan; and [2]RISS, National Institute of Advanced Industrial Science and Technology, Tsukuba, Japan. Sponsor: *H. Kojima*.

#1968 **Poster Board Number 425**
Differential Mode of Nano-Bio Interaction by Graphene Nanomaterials. N. Chatterjee, H. Eom, and *J. Choi*. University of Seoul, Seoul, Republic of Korea.

#1969 **Poster Board Number 426**
Amorphous Silica Nanoparticle-Mediated Hepatotoxicity: A System Toxicology Approach. H. Eom, N. Chatterjee, and *J. Choi*. University of Seoul, Seoul, Republic of Korea.

#1970 **Poster Board Number 427**
Cerium Oxide Nanoparticles Air Exposure: A Comparison Study Using a Human 3D Airway Model and A549 and Beas-2B Cell Lines. I. M. Kooter[1], Y. Staal[2], M. Grollers-Mulderij[1], M. Steenhof[1], E. Duistermaat[2], F. A. van Acker[2], E. Schoen[1], E. van Someren[1], and F. Kuper[1]. [1]TNO, Utrecht, Netherlands; and [2]TNO Triskelion BV, Zeist, Utrecht, Netherlands. Sponsor: *R. Wouters*.

#1971 **Poster Board Number 428**
Zinc Oxide Nanoparticles Induce Cytotoxicity in Human Endothelial Colony-Forming Cells. Y. Suzuki[1], S. Tada-Oikawa[1], *G. Ichihara*[2], K. Izuoka[1], and S. Ichihara[1]. [1]Mie University, Tsu, Japan; and [2]Nagoya University Graduate School of Medicine, Nagoya, Japan.

Program Description (Continued)

Abstract #

#1972 **Poster Board Number 429**
Biological Evaluation of Ultrananocrystalline and Nanocrystalline Diamond Coatings. S. Skoog[1,2], *G. Kumar*[2], J. Zheng[2], A. Sumant[3], *P. L. Goering*[2], and R. Narayan[1]. [1]Joint Dept. of Biomedical Eng., UNC & NCSU, Raleigh, NC; [2]CDRH, US FDA, Silver Spring, MD; and [3]Center for Nanoscale Materials, Argonne National Laboratory, Argonne, IL.

#1973 **Poster Board Number 430**
Preparation, Characterization and Antimicrobial Activity of Eu3+-Doped Hydroxyapatite Nanopowders. J. F. Delgado-Jimenez[1,2], R. Agustin-Serrano[2], E. Reyes-Cervantes[2], J. L. Varela[2], R. Gonzalez-Rodriguez[4], J. A. Quenel[1], *T. D. Palacios-Hernandez*[1,3], and E. Rubio-Rosas[2]. [1]DCQB, Universidad de las Americas Puebla, San Andres Cholula, Puebla, Mexico; [2]CUVyTT, Benemerita Universidad Autonoma de Puebla, Puebla, Mexico; [3]CB, Universidad Popular Autonoma del Estado de Puebla, Puebla, Mexico; and [4]Texas Christian University, Fort Worth, TX.

#1973a **Poster Board Number 431**
Silver Nanoparticles and Ionic Silver Have Opposite Effects on Spontaneous Activity and Pharmacological Responses in Neuronal Networks *In Vitro*. *J. D. Strickland*[1], J. Crooks[2], D. Hall[2], *K. Dreher*[2], and *T. J. Shafer*[2]. [1]NCSU, Raleigh, NC; and [2]NHEERL, ORD, U.S. Environmental Protection Agency, Research Triangle Park, NC.

#1973b **Poster Board Number 432**
***In Vitro* Cytotoxicity and Phagocytosis of Silver Nanomaterials in Murine Macrophages.** *T. D. Green*[1], A. Badawy[2], *T. Tolaymat*[3], and D. J. Thomas[1]. [1]ISTD,NHEERL,ORD, EPA, RTP, NC; [2]Civil & Environ. Engin., University of Cincinnati, Cincinnati, OH; and [3]LPRCD,NRMRL,ORD, EPA, Cincinnati, OH.

#1973c **Poster Board Number 433**
Mechanistic Study of Silver Nanoparticle-Induced DNA Damage in L5178Y Mouse Lymphoma Cells. *H. Lin*[1], W. S. Lam[1], *X. Guo*[1], S. L. Dial[1], *J. Yan*[1], *T. Chen*[1], *T. Ingle*[1], *A. Paredes* [1], *Y. Jones*[1], *P. C. Howard*[1], *M. M. Moore*[2], and *N. Mei*[1]. [1]NCTR/FDA, Jefferson, AR; and [2]ENVIRON International Corporation, Little Rock, AR.

#1973d **Poster Board Number 434**
An Evaluation of the Potential Phototoxicity of CeO2 Nanoparticles in Retinal Pigment Epithelial Cells *In Vitro*. L. N. Pantlin[2], J. N. Ortenzio[1], V. Holub[1], L. L. Degn[1], R. Zucker[1], and *W. K. Boyes*[1]. [1]USEPA, Research Triangle Park, NC; and [2]Psychology, Meredith College, Raleigh, NC.

#1973e **Poster Board Number 435**
Comparing Bioactivity Profiles of Diverse Nanomaterials Based on High-Throughput Screening (HTS) in ToxCast™. *A. Wang*[1], *J. Franzosa*[1], *I. Shah*[1], D. L. Filer[1], *N. Kleinstreuer*[2], S. Marinakos[3], and *K. Houck*[1]. [1]US EPA, Durham, NC; [2]ILS, Durham, NC; and [3]Duke Univ, Durham, NC.

Abstract #

#1973f **Poster Board Number 436**
Silver Nanoparticles Induce Antiproliferative Effects on Airway Smooth Muscle Cells: Role of Nitric Oxide and Muscarinic Receptor Signaling Pathway. C. Gonzalez[1,2], M. A. Ramirez-Lee[1], *H. Rosas-Hernandez*[1,2], S. Salazar-Garcia[1], J. M. Hernandez[1], R. Espinosa-Tanguma[1], F. J. Gonzalez[1], and *S. F. Ali*[2]. [1]Laboratorio de Fisiologia Celular, Universidad Autonoma de San Luis Potosi, San Luis Potosi, SLP, Mexico; and [2]Division of Neurotoxicology, NCTR, Jefferson, AR.

#1973g **Poster Board Number 437**
Laser 3D Printing with Nanoscale Resolution: Improving Biocompatibility and Mitigating Toxicity from Photoinitiators. *P. E. Petrochenko*[1,2], R. Narayan[2], *P. L. Goering*[1], and A. Ovsianikov[3]. [1]CDRH, USFDA, Silver Spring, MD; [2]Joint Dept Biomed Engr, UNC-CH, Chapel Hill, NC; and [3]Inst Materials Sci Technol, TU Wien, Vienna, Austria.

#1973h **Poster Board Number 438**
***In Vitro* Penetration of Polyethylene Glycol- and Citrate-Coated Silver Nanoparticles into Human Skin.** V. Topping[1,2], K. Belgrave[1,2], Z. Keltner[1], R. Sprando[1], *J. Yourick*[1], and *M. E. Kraeling*[1]. [1]Office of Applied Research and Safety Assessment, US FDA, Laurel, MD; and [2]ORISE, US DOE, Oakridge, TN.

#1973i **Poster Board Number 439**
***In Vitro* Penetration of Anionic Dendrimer Nanoparticles into Pig and Human Skin.** K. Belgrave[1], V. Topping[1], *X. Gao*[1], K. Schlick[2], E. Simanek[2], S. Man[3], A. K. Patri[3], R. Sprando[1], *J. Yourick*[1], and *M. Kraeling*[1]. [1]Office of Applied Research and Safety Assessment, USFDA, Laurel, MD; [2]Department of Chemistry, Texas Christian University, Fort Worth, TX; and [3]Nanotechnology Characterization Laboratory, Leidos Biomedical Research, Inc., Frederick National Laboratory for Cancer Research, Frederick, MD.

#1973j **Poster Board Number 440**
***In Vitro* Penetration of Neutral Dendrimer Nanoparticles into Pig and Human Skin.** *M. Kraeling*[1], K. Belgrave[1], V. Topping[1], *X. Gao*[1], K. Schlick[2], E. Simanek[2], S. Man[3], A. K. Patri[3], R. Sprando[1], and *J. Yourick*[1]. [1]Office of Applied Research and Safety Assessment, USFDA, Laurel, MD; [2]Department of Chemistry, Texas Christian University, Fort Worth, TX; and [3]Nanotechnology Characterization Laboratory, Leidos Biomedical Research, Inc., Frederick National Laboratory for Cancer Research, Frederick, MD.

Program Description (Continued)

Abstract #

Wednesday Afternoon, March 26
1:00 PM to 4:30 PM
Exhibit Hall

PS

Poster Session: Nanotoxicology: *In Vivo*

Chairperson(s): *Kristine L. Willett, University of Mississippi, University, MS.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *2:45 PM–4:30 PM*

#1974 **Poster Board Number 441**
An Improved Dispersion Method (Taquann Method) of Multiwall Carbon Nanotube for a Whole-Body Inhalation Exposure System. *J. Kanno*, Y. Taquahashi, Y. Ogawa, A. Takagi, M. Tsuji, and K. Morita. Division of Cellular and Molecular Toxicology, National Institute of Health Sciences, Tokyo, Japan.

#1975 **Poster Board Number 442**
Effects of Prenatal Inhalation Exposure to Copper Nanoparticles (Cu NPs) on Dams and Offspring in Mouse Model. A. Adamcakova-Dodd[1], L. S. Powers[2], K. N. Gibson-Corley[3], M. F. Monick[2], V. Grassian[4], and *P. S. Thorne*[1]. [1]Occupational and Environmental Health, Univ of Iowa, Iowa City, IA; [2]Internal Medicine, UI, Iowa City, IA; [3]Pathology, UI, Iowa City, IA; and [4]Chemistry, UI, Iowa City, IA.

#1976 **Poster Board Number 443**
Health Surveillance Study on MWCNT Manufacturing Workers. J. Lee[2], S. Park[2], J. Lee[1], J. Shin[2], Y. Lee[2], J. Baek[2], J. Hwang[2], K. Ahn[3], *J. Park*[4], and *I. Yu*[1]. [1]Institute of Nanoproduct Safety Research, Hoseo University, Asan, Republic of Korea; [2]Occupational Lung Diseases Institute, Ansan, Republic of Korea; [3]Department of Mechanical Engineering, Hanyang University, Ansan, Republic of Korea; and [4]College of Medicine, Chung-Ang University, Ansan, Republic of Korea.

#1977 **Poster Board Number 444**
The Effects of Pharyngeal Aspiration-Exposure to Zinc Oxide Nanoparticles on Pulmonary Fibrosis Induced by Bleomycin in Mice. W. Wu[1], *G. Ichihara*[1], S. Tada-Oikawa[2], Y. Suzuki[2], J. Chang[1], N. Hashimoto[3], Y. Hasegawa[3], *D. W. Porter*[4], *V. Castranova*[4], C. Gabazza[5], E. Gabazza[5], and S. Ichihara[2]. [1]Occupational and Environmental Health, Nagoya University Graduate School of Medicine, Nagoya, Japan; [2]Mie University Graduate School of Regional Innovation, Tsu, Japan; [3]Respiratory Medicine, Nagoya University Graduate School of Medicine, Nagoya, Japan; [4]National Institute for Occupational Safety and Health, Morgantown, WV; and [5]Mie University Graduate School of Medicine, Tsu, Japan.

#1978 **Poster Board Number 445**
Effects of Nanoparticle Pre-Exposure Dispersion Status on Bioactivity in the Mouse Lung. *T. M. Sager*[1,2], M. Wolfarth[2], *V. Castranova*[2], and *A. Holian*[1]. [1]University of Montana, CEHS, Missoula, MT; and [2]NIOSH, Morgantown, WV.

Abstract #

#1979 **Poster Board Number 446**
Effects of Multiwalled Carbon Nanotube Solubility on Inflammation and Lung Function. *D. Botelho*[1], A. Porter[2], F. Chung[3], T. Tetley[3], J. Zhang[4], and *A. Gow*[1]. [1]Toxicology, Rutgers University, Piscataway, NJ; [2]Materials, Imperial College, London, United Kingdom; [3]National Heart & Lung Institute, Imperial College, London, United Kingdom; and [4]Nicholas School of the Environment & Duke Global Health Institute, Duke University, Durham, NC.

#1980 **Poster Board Number 447**
Pre-Exposure to Nontoxic Levels of Magnetite Nanoparticles Sensitizes Mice to Pulmonary Infection by *Streptococcus pneumoniae.* *J. G. Pounds*[1], *J. N. Smith*[1], J. Klein[1], H. D. Jolley[1], V. K. Kodali[1], K. Rosso[1], *B. D. Thrall*[1], C. F. Frevert[2], S. J. Skerrett[2], and *J. G. Teeguarden*[1]. [1]Systems Toxicology, Pacific Northwest National Laboratory, Richland, WA; and [2]Medicine, University of Washington, Seattle, WA.

#1981 **Poster Board Number 448**
A Comparative *In Vivo* Screening of Nine Classes of Multiwalled Carbon Nanotubes for Acute Lung Toxicity in Mice. M. Cartwright[1], S. Schmuck[1], C. White[1], C. Corredor[2], *D. Botta*[1], *D. K. Scoville*[1], C. Chisholm[1], J. Posner[2,3], *T. Gordon*[4], and *T. J. Kavanagh*[1]. [1]Environmental and Occupational Health Sciences, University of Washington, Seattle, WA; [2]Chemical Engineering, University of Washington, Seattle, WA; [3]Mechanical Engineering, University of Washington, Seattle, WA; and [4]Environmental Medicine, New York University, Tuxedo, NY.

#1982 **Poster Board Number 449**
Inhalation of Nanosized Titanium Dioxide Alters Cardiovascular Autonomic Function. *T. L. Knuckles*, *J. Yi*, and *T. R. Nurkiewicz*. Center for Cardiovascular and Respiratory Sciences, West Virginia University, Morgantown, WV.

#1983 **Poster Board Number 450**
Endothelial Cells As Biosensors to Assess the Vascular Inflammatory Potential of Serum following Nanomaterial Exposure. M. Aragon[1], M. Dunlap[1], *J. R. Roberts*[2], *A. Erdely*[2], and *M. Campen*[1]. [1]University of New Mexico, Albuquerque, NM; and [2]NIOSH, Morgantown, WV.

#1984 **Poster Board Number 451**
Surface Amination Enhances the Toxicity of Silica-Coated Silver Nanoparticles. *J. A. Bonventre*[1], B. Harper[1], and *S. L. Harper*[1,2]. [1]Environmental & Molecular Tox, Oregon State University, Corvallis, OR; and [2]Chem., Biol. & Env. Eng, Oregon State University, Corvallis, OR.

#1985 **Poster Board Number 452**
Establishment of an Inexpensive, *In Vivo* Screening Tool for Nanomaterial Safety Using the Adult Zebrafish. N. Elrod[1], J. Brady[1,2], *L. K. Braydich-Stolle*[3], *S. M. Hussain*[3], and J. Speshock[1]. [1]Biology, Tarleton State University, Stephenville, TX; [2]Texas A&M AgriLife Research Institute, Stephenville, TX; and [3]Air Force Research Laboratories, Wright-Patterson Air Force Base, OH.

#1986 **Poster Board Number 453**
Genetic Influence of Pulmonary Response to Silver Nanoparticles Exposure and Candidate Gene Identifications. M. Hernandez, K. Galdanes, *L. Chen*, and *T. Gordon*. Environmental Health Science, NYU, Tuxedo, NY.

WEDNESDAY

Program Description (Continued)

Abstract #

#1987 **Poster Board Number 454**
Effects of Nanosilver and Silver Nitrate Exposure on Ionic Regulation and Nanoparticle Size Characterization Using Field-Flow Fractionation in Fathead Minnows. *A. D. Hawkins*[1], C. Thornton[1], A. Bednar[2], A. J. Kennedy[2], *J. A. Steevens*[2], J. Cizdiel[1], and *K. L. Willett*[1]. [1]University of Mississippi, Oxford, MS; and [2]ERDC, Vicksburg, MS.

#1988 **Poster Board Number 455**
Unique Particle Effects in Fathead Minnow Gill Gene Expression and Uptake following Exposure to Nanosilver and Silver Nitrate. *N. G. Reyero Vinas*[1,2], *A. D. Hawkins*[3], C. Thornton[3], A. J. Kennedy[2], *J. A. Steevens*[2], K. Bu[4], J. Cizdiel[4], and *K. L. Willett*[3]. [1]Mississippi State University, Vicksburg, MS; [2]ERDC, US Army, Vicksburg, MS; [3]ETRP, University of Mississippi, University, MS; and [4]Chemistry, University of Mississippi, University, MS.

#1989 **Poster Board Number 456**
Investigating the Influence of Oral Exposure to Silver Nanoparticles on Intestinal Microbiota in Nonhuman Primates. *G. K. Hinkley*[1], T. M. Ngo[2], M. Ukhanova[2], *J. W. Munson*[1], V. Mai[2], and *S. M. Roberts*[1]. [1]Physiological Sciences, University of Florida CEHT, Gainesville, FL; and [2]Emerging Pathogens Institute, University of Florida, Gainesville, FL.

#1990 **Poster Board Number 457**
Histopathological Analysis of Malignant Tumors Induced by Intraperitoneal Injection of Carbon Nanotubes. S. Rittinghausen[1], B. Bellmann*[1], A. Hackbarth[1], H. Ernst[1], U. Heinrich[1], A. Leonhardt[2], and D. Schaudien[1]. [1]Fraunhofer Institute for Toxicology and Experimental Medicine, Hannover, Germany; and [2]Leibniz Institute for Solid State and Materials Research, Dresden, Germany. Sponsor: *C. Dasenbrock*.

#1991 **Poster Board Number 458**
Safety Evaluation of Fullerene Nanoparticle and Fullerene Whisker *In Vivo* Experiment. *I. Yoko*, G. Hasegawa, and M. Nakao. Kurume University, Kurume, Japan.

#1992 **Poster Board Number 459**
Repeated-Dose Toxicity Testing of 9 Nanoparticles with Different Surface Functionalizations. R. Büsen[1], W. Wohlleben[3,1], *H. G. Kamp*[1], V. Strauss[1], M. Dammann[1], S. K. Treumann[1], S. Gröters[1], *K. Wiench*[2], *B. van Ravenzwaay*[1], and *R. Landsiedel*[1]. [1]Experimental Toxicology and Ecology, BASF SE, Ludwigshafen/Rhein, Germany; [2]Product Safety, BASF SE, Ludwigshafen/Rhein, Germany; and [3]Polymer Physics, BASF SE, Ludwigshafen/Rhein, Germany.

#1993 **Poster Board Number 460**
Comparative Biochemical and Histopathological Evaluation of PEG-Coated and Noncoated Gold Nanoparticles in Sprague-Dawley Rats. *A. Patlolla*[1], C. Collier[2], and *P. B. Tchounwou*[3]. [1]Biology/Environmental Science, Jackson State University, Jackson, MS; [2]Environmental Science, Jackson State University, Jackson, MS; and [3]Jackson State University, Jackson, MS.

Abstract #

#1994 **Poster Board Number 461**
The Effects of Metal Oxide Nanoparticles on Angiogenesis in Transgenic Zebrafish. *J. Chang*[1,2], *G. Ichihara*[1], Y. Shimada[3], S. Tada-Oikawa[2], Y. Suzuki[2], R. Sehsah[1], M. Kato[1], T. Tanaka[3], and S. Ichihara[2]. [1]Occupational and Environmental Health, Nagoya University Graduate School of Medicine, Nagoya, Aichi, Japan; [2]Mie University Graduate School of Regional Innovation Studies, Tsu, Japan; and [3]Molecular and Cellular Pharmacology, Pharmacogenomics and Pharmacoinformatics, Mie University Graduate School of Medicine, Tsu, Japan.

#1995 **Poster Board Number 462**
The Effect of Silica Nanoparticles on Endocytosis and Reproduction in *Caenohabditis elegans*. H. Eom, N. Chatterjee, and *J. Choi*. School of Environmental Engineering and Graduate School of Energy and Environmental System Engineering, University of Seoul, Seoul, Republic of Korea.

#1996 **Poster Board Number 463**
***In Vivo* Invasion of Chorioallantoic Membrane by Lung Adenocarcinoma Cells Exposed to Titanium Dioxide Nanoparticles.** A. Déciga-Alcaraz[1], E. I. Medina-Reyes[1], V. Freyre-Fonseca[1,2], N. L. Delgado-Buenrostro[1], J. O. Flores Flores[3], and *Y. I. Chirino*[1]. [1]Facultad de Estudios Superiores-Iztacala, National University of Mexico, Estado de Mexico, Mexico; [2]Escuela Nacional de Ciencias Biológicas, Instituto Politécnico Nacional, Distrito Federal, Mexico; and [3]Centro de Ciencias Aplicadas y Desarrollo Tecnológico, National University of Mexico, Distrito Federal, Mexico.

#1997 **Poster Board Number 464**
Secondary Mechanisms Drive Silica Nanomaterial Genotoxicity As Shown by the OGG1 Comet Assay and Genomic Analysis. A. Sullivan[1], T. Downs[1], Y. Shan[1], R. Adams[1], M. Crosby[2], and S. Pfuhler[1]. [1]Mason Business Center, The Procter & Gamble Company, Mason, OH; and [2]AstraZeneca Pharmaceuticals, Waltham, MA. Sponsor: *C. Ryan*.

#1998 **Poster Board Number 465**
Generation of Titanium Dioxide Nanoparticle Aerosols for Biodisposition Kinetic Assessment. I. Pujalté, D. Dieme, *S. Haddad*, and *M. Bouchard*. Universite de Montréal, Montréal, QC, Canada.

#1999 **Poster Board Number 466**
Impact of Liposome-Induced Complement Activation on Tumor Growth and Angiogenesis. B. Rowland, M. Sabnani, R. Rajan, M. Markiewski, and I. La-Beck. Texas Tech University Health Science Center, Abilene, TX. Sponsor: *A. Elder*.

#2000 **Poster Board Number 467**
The Comparative Effects of Nanoporous and Colloidal Silica Nanoparticles in Atopic Dermatitis. *S. Kim*. Pharmacology, Kyungpook National University Medical School, Daegu, Republic of Korea.

#2001 **Poster Board Number 468**
5-Day Repeated Inhalation Toxicity of Graphene Nanopowder. J. Shin[1], J. Kim[2], J. Baek[1], J. Hwang[1], J. Lee[1], T. Kim[2], E. Kim[2], and *I. Yu*[2]. [1]Occupational Lung Diseases Institute, KCOMWEL, Ansan, Gyeonggi, Republic of Korea; and [2]Institute of Nano Products Safety Research, Hoseo University, Asan, Chungnam, Republic of Korea.

Program Description (Continued)

Abstract #

#2002 **Poster Board Number 469**
Acute Effects of Multiple-Dose Metallofullerene Exposures in Mice after Intraperitoneal Exposure. V. Wallace[1], J. Hinckley[1], *B. S. Jortner*[1], *M. Ehrich*[1], and Z. Zhou[2]. [1]Virginia-Maryland Regional College of Veterinary Medicine, Blacksburg, VA; and [2]Luna NanoWorks, Danville, VA.

#2003 **Poster Board Number 470**
BrdU Screening—a Short-Time Test for Reliable Prediction of Carcinogenicity for MWCNT. A. Hackbarth[1], D. Schaudien[1], B. Bellmann*[1], H. Ernst[1], A. Leonhardt[2], U. Heinrich[1], and S. Rittinghausen[1]. [1]Fraunhofer Institute for Toxicology and Experimental Medicine, Hannover, Germany; and [2]Leibniz Institute for Solid State and Materials Research, Dresden, Germany. Sponsor: *C. Dasenbrock*.

#2004 **Poster Board Number 471**
Silver Nanoparticles, Injected Intravenously, Accumulate in the Spleen of Mice and Cause Major Changes in Immune Cell Profiles. *D. Willis*[1], *P. L. Goering*[2], T. H. Umbreit[2], H. Degheidy[2], *Q. Zhang*[2], J. Zheng[2], B. Casey[2], L. Graham[2], L. Chen[2], *M. Betz*[2], and *J. T. Zelikoff*[1]. [1]Environmental Medicine, NYU School of Medicine, Tuxedo, NY; and [2]Center for Devices and Radiological Health, FDA, Silver Spring, MD.

#2004a **Poster Board Number 472**
Thirty-Day Whole-Body Inhalation Toxicity and Tissue Burden Study of Multiwalled Carbon Nanotubes in Harlan Sprague-Dawley Rats and B6C3F1 Mice. *B. C. Sayers*[1], *M. D. Stout*[1], M. F. Cesta[1], *N. A. Moore*[2], *G. L. Baker*[2], K. M. Patton[2], B. K. Hayden[2], J. A. Dill[2], and *N. J. Walker*[1]. [1]Division of the National Toxicology Program, National Institute of Environmental Health Sciences, Research Triangle Park, NC; and [2]Battelle Toxicology Northwest, Richland, WA.

#2004b **Poster Board Number 473**
Cerium Oxide Nanoparticles Induced Lung Fibrosis Involving Epithelial-Mesenchymal Transition (EMT). J. Y. Ma[1], B. D. Dolash[1], M. Barger[1], D. Schwegler-Berry[1], R. R. Mercer[1], and *V. Castranova*[1]. [1]PPRB/HELD, NIOSH, Morgantown, WV.

#2004c **Poster Board Number 474**
Cytotoxicity and Genotoxicity Assessment of Silver Nanoparticles in Mouse. *T. Chen*[1], *Y. Li*[1], *J. A. Bhalli*[2], *W. Ding*[1], J. Yan[1], M. G. Pearce[1], C. K. Cunningham[3], Y. Jones[3], W. A. Monroe[3], *T. Zhou*[4], and *P. C. Howard*[3]. [1]Division of Genetic and Molecular Toxicology, FDA/National Center for Toxicological Research, Jefferson, AR; [2]Covance Laboratories Inc, Indianapolis, IN; [3]Nanotechnology Core Facility, FDA/National Center for Toxicological Research, Jefferson, AR; and [4]Center for Veterinary Medicine, FDA, Rockville, MD.

#2004d **Poster Board Number 475**
One Year Pulmonary Outcomes After Exposure to Carbonaceous Nano-Engineered Materials and Asbestos. *A. A. Shvedova*[1], *N. Yanamala*[1], E. K. Kisin[1], A. R. Murray[1], *A. Hubbs*[1], P. Keohavong[2], L. P. Sycheva[3], *V. E. Kagan*[2], and *V. Castranova*[1]. [1]HELD/PPRB, CDC/NIOSH, Morgantown, WV; [2]University of Pittsburgh, Pittsburgh, PA; and [3]Sysin Research Institute of Human Ecology and Environmental Health, Moscow, Russian Federation.

Abstract #

#2004e **Poster Board Number 476**
Effect of Prenatal Exposure to Carbon Black Nanoparticle on Gene Expression in the Spleen of Offspring Mouse. M. Umezawa[1,2], S. Okamoto[1], R. Shimizu[1], and K. Takeda[1,2]. [1]Department of Hygienic Chemistry, Faculty of Pharmaceutical Sciences, Tokyo University of Science, Noda, Chiba, Japan; and [2]The Center for Environmental Health Science for the Next Generation, Research Institute for Science and Technology, Tokyo University of Science, Noda, Chiba, Japan. Sponsor: *K. Nohara*.

#2004f **Poster Board Number 477**
Quantum Dot-Induced Changes in Pulmonary Function Are Mouse Strain Dependent. *D. K. Scoville*[1], D. An[2], *C. Carosino*[1], *C. White*[1], *M. Cartwright*[1], S. Schmuck[1], X. Gao[3], W. C. Parks[2], W. A. Altemeier[2], and *T. Kavanagh*[1]. [1]Environmental and Occupational Health Sciences, University of Washington, Seattle, WA; [2]Medicine, University of Washington, Seattle, WA; and [3]Bioengineering, University of Washington, Seattle, WA.

#2004g **Poster Board Number 478**
The Mitochondrial Effects of a Chronic Exposure to a Low-Dose of Silver Nanoparticles Are Rescued by an Antioxidant. *C. M. Palmeira*[1,2], J. S. Teodoro[1,2], R. Silva[2], A. T. Varela[1,2], F. V. Duarte[1,2], and A. P. Rolo[1,3]. [1]Center for Neurosciences and Cell Biology, University of Coimbra, Coimbra, Portugal; [2]Department of Life Sciences, University of Coimbra, Coimbra, Portugal; and [3]Department of Biology, University of Aveiro, Aveiro, Portugal.

#2004h **Poster Board Number 479**
Nanoceria *In Vivo* Biotransformation Is Associated with Loss of Its Pro-Oxidant Brain Effects. U. Graham[5], S. S. Hardas[2], *R. Yokel*[1], P. Wu[3], E. Grulke[3], *M. T. Tseng*[4], and D. Butterfield[2]. [1]Pharm Sci, U KY, Lexington, KY; [2]Chemistry, U KY, Lexington, KY; [3]Chemical & Materials Engineering, U KY, Lexington, KY; [4]Anatomical Sciences & Neurobiology, U Louisville, Louisville, KY; and [5]CAER, U KY, Lexington, KY.

Wednesday Afternoon, March 26
1:00 PM to 4:30 PM
Exhibit Hall

PS

Poster Session: Immunotoxicity

Chairperson(s): *Cheryl E. Rockwell, Michigan State University, Pharmacology & Toxicology, East Lansing, MI, and M. D. Laiosa, University of Wisconsin-Milwaukee, Zilber School of Public Health, Milwaukee, WI.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *1:00 PM–2:45 PM*

#2005 **Poster Board Number 501**
Cannabinoid Receptor Function on Bone Marrow-Derived Dendritic Cells. *J. Suarez-Martinez*[1,2], R. Crawford[1], and *N. E. Kaminski*[1,3]. [1]Center for Int Tox, Michigan State University, E. Lansing, MI; [2]Comp Med and Int Biol, Michigan State University, E. Lansing, MI; and [3]Pharm and Tox, Michigan State University, E. Lansing, MI.

Program Description (Continued)

Abstract #

#2006 **Poster Board Number 502**
Cannabinoid Regulation of Peripheral Sympathetic Neuronal Activity: Possible Role in Cannabinoid-Mediated Immunosuppression. T. J. Simkins[3,4], D. Fried[2], J. J. Galligan[2,3], J. L. Goudreau[2,3,4], K. J. Lookingland[2,3,4], and *B. L. Kaplan*[1]. [1]Department of Basic Sciences, Center for Environmental Health Sciences, Mississippi State University, Mississippi State, MS; [2]Department of Pharmacology and Toxicology, Michigan State University, East Lansing, MI; [3]Neuroscience Program, Michigan State University, East Lansing, MI; and [4]Center for Integrative Toxicology, Michigan State University, East Lansing, MI.

#2007 **Poster Board Number 503**
Modulation of HIVGP120 Antigen-Specific Immune Responses by Δ9-Tetrahydrocannabinol *In Vivo*. *W. Chen*[1,3], *R. B. Crawford*[3], *B. L. Kaplan*[2,3], K. Smith[3], and *N. E. Kaminski*[2,3]. [1]Microbiology and Molecular Genetics, East Lansing, MI; [2]Pharmacology and Toxicology, Michigan State University, East Lansing, MI; and [3]Center for Integrative Toxicology, Michigan State University, East Lansing, MI.

#2008 **Poster Board Number 504**
Δ9 Tetrahydrocannabinol (THC) Expands and Activates Highly Immunosuppressive MDSCs via S100A8 Secretion. *J. M. Sido*, *P. S. Nagarkatti*, and *M. Nagarkatti*. Pathology, Immunology & Microbiology, University of South Carolina School of Medicine, Columbia, SC.

#2009 **Poster Board Number 505**
The Role of Chemical Sensitizer's Reactivity in the Generation of Reactive Species and the Activation of the Nrf2 Pathway in THP-1 Cells. S. Karaki[1], *M. Pallardy*[1], C. Migdal[1], M. Azoury[1], E. Gimenez-Arnaud[2], J. Lepoittevin[2], and S. Kerdine-Römer[1]. [1]UniverSud, INSERM UMR 996, Faculté de Pharmacie, Châtenay-Malabry, France; and [2]Université de Strasbourg, CNRS UMR 7177, Laboratoire de Dermatochimie, Strasbourg, France.

#2010 **Poster Board Number 506**
Protein Kinase CK2 and JNK Control Nrf2/Keap1 Activation in Response to Skin Contact Sensitizers in THP1 Cells. M. de Bourayne[1], Z. El Ali[1], O. Filhol Cochet[2], C. Cochet[2], *M. Pallardy*[1], and S. Kerdine-Römer[1]. [1]INSERM URM-996, Univ Paris Sud, Châtenay-Malabry, France; and [2]INSERM U1036, iRTSV, CEA, Grenoble, France.

#2011 **Poster Board Number 507**
Nrf2 Controls Dendritic Cells Survival in Response to Contact Sensitizers through bcl-2 and Antioxidant Genes Expression. Z. El Ali[1], C. Deloménie[2], *M. Pallardy*[1], and S. Kerdine-Römer[1]. [1]INSERM URM-996, Univ. Paris Sud, Châtenay-Malabry, France; and [2]IFR141-IPSIT, Univ. Paris Sud, Châtenay-Malabry, France.

#2012 **Poster Board Number 508**
Nrf2 Has Differential Effects on the Early Events of Murine T Cell Activation. *A. E. Turley*[1,3], *J. W. Zagorski*[2], and *C. E. Rockwell*[1,3,2]. [1]Pharmacology and Toxicology, Michigan State University, East Lansing, MI; [2]Cellular and Molecular Biology, Michigan State University, East Lansing, MI; and [3]Center for Integrative Toxicology, Michigan State University, East Lansing, MI.

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#2013 **Poster Board Number 509**
Inhibition of IL-2 Production by the Nrf2 Activator, tBHQ, Correlates with Inhibition of NFκB Activation in Activated Jurkat T Cells. *J. W. Zagorski*[1,3], *A. E. Turley*[1,2], H. E. Dover[1,2], K. R. VanDenBerg[1,2], J. R. Compton[1,2], and *C. E. Rockwell*[1,2,3]. [1]Pharmacology and Toxicology, Michigan State University, East Lansing, MI; [2]Center of Integrated Toxicology, Michigan State University, East Lansing, MI; and [3]Cellular and Molecular Biology, Michigan State University, East Lansing, MI.

#2014 **Poster Board Number 510**
Maintenance of Long-Term Self-Renewal in Hematopoietic Stem Cells by Aryl Hydrocarbon Receptor-Dependent Regulation of Reactive Oxygen Species during Fetal Development. E. Tate[1], Y. Chen[2], *D. Wang*[2], and *M. D. Laiosa*[1]. [1]Zilber School of Public Health, UW-Milwaukee, Milwaukee, WI; and [2]Blood Research Institute, Milwaukee, WI.

#2015 **Poster Board Number 511**
Impaired by TCDD of Human Hematopoietic Stem Cells to B Cell Lineage Commitment. *J. Li*[1,3], *A. Phadnis*[1,3], *R. B. Crawford*[2,3], and *N. E. Kaminski*[1,2,3]. [1]Genetics Program, Michigan State University, East Lansing, MI; [2]Department of Pharmacology and Toxicology, Michigan State University, East Lansing, MI; and [3]Center for Integrative Toxicology, Michigan State University, East Lansing, MI.

#2016 **Poster Board Number 512**
TCDD-Aryl Hydrocarbon Receptor (AhR) Pathway-Mediated Suppression of Human B Cell Activation Involves BCL-6 in Human Primary B cells. *A. Phadnis-Moghe*[1,2], *R. B. Crawford*[2,3], and *N. E. Kaminski*[2,3]. [1]Genetics Program, Michigan State University, East Lansing, MI; [2]Center for Integrative Toxicology, Michigan State University, East Lansing, MI; and [3]Dept. Of Pharmacology and Toxicology, Michigan State University, East Lansing, MI.

#2017 **Poster Board Number 513**
Developmental Activation of the AhR Enhances the CD4⁺ T Cell Response in the Influenza Virus-Infected Lung. *L. Boule*[1], *B. Winans*[2], and *B. Lawrence*[1,2]. [1]Microbiology and Immunology, University of Rochester Medical Center, Rochester, NY; and [2]Environmental Medicine, University of Rochester Medical Center, Rochester, NY.

#2018 **Poster Board Number 514**
Suppression by 2,3,7,8-Tetrachlorodibenzo-*p*-Dioxin (TCDD) of IL-2 Plus IL-21-Induced B Cell Activation. B. Avalos[1], *A. S. Phadnis*[2,3], and *N. E. Kaminski*[3,4]. [1]Biology, Univ. of Puerto Rico, San Juan, Puerto Rico; [2]Genetics, Michigan State University, East Lansing, MI; [3]Center for Integrative Toxicology, Michigan State University, East Lansing, MI; and [4]Pharmacology and Toxicology, Michigan State University, East Lansing, MI.

#2019 **Poster Board Number 515**
Evaluation of Aryl Hydrocarbon Receptor (AhR) Polymorphism G1661A on TCDD-Mediated Biological Activity in the Human B Cell. *N. Kovalova*[1], R. Crawford[2], and *N. E. Kaminski*[2]. [1]Pharmacology and Toxicology, Michigan State University, East Lansing, MI; and [2]Center for Integrative Toxicology, Michigan State University, East Lansing, MI.

Program Description (Continued)

Abstract #

#2020 **Poster Board Number 516**
Immunologic Comparison between Wild Type and Aryl Hydrocarbon Receptor (AhR$^{-/-}$) Null Rats Treated with a TCDD Dosing Regimen That Causes Hepatic Inflammation. R. Crawford[1], S. D'Ingillo[1], *A. Phadnis*[1], *W. Chen*[1], *J. Suarez-Martinez*[1], *J. Li*[1], *N. Kovalova*[1], *B. L. Kaplan*[1], *J. A. Harrill*[2], *R. S. Thomas*[2], and *N. E. Kaminski*[1]. [1]Center for Integrative Toxicology, Michigan State University, East Lansing, MI; and [2]The Hamner Institutes for Health Sciences, Research Triangle Park, NC.

#2021 **Poster Board Number 517**
TCDD-Induced Activation of the Human IgH hs1,2 Enhancer Is Not Altered by Mutation of Transcription Factor Binding Sites within the Polymorphic Region. *A. Snyder*, S. Ochs, B. Johnson, and *C. E. Sulentic*. Pharmacology and Toxicology, Wright State University, Dayton, OH.

#2022 **Poster Board Number 518**
Elucidating the Role of the Polymorphic Human hs1,2 Enhancer in the Effects of TCDD. *A. K. Freiwan*, B. Johnson, and *C. E. Sulentic*. Wright State University, Dayton, OH.

#2023 **Poster Board Number 519**
Benzo(a)pyrene Exposure Suppresses FcγRII (CD32)-IgG Antibody Complex Binding by Disruption of Lipid Raft Membrane Integrity. R. S. Clark[1], *D. B. Hood*[2], M. Maguire[1], and *A. Ramesh*[3]. [1]Neuroscience and Pharmacology, Meharry Medical College, Nashville, TN; [2]Division of Environmental Health Sciences, College of Public Health and Department of Neuroscience, College of Medicine, Ohio State University, Columbus, OH; and [3]Biochemistry and Cancer Biology, Meharry Medical College, Nashville, TN.

#2024 **Poster Board Number 520**
Wear Particles Derived from Metal Hip Implants Generates Multinucleated Giant Cells in a 3-Dimensional Peripheral Tissue-Equivalent Model. D. K. Dutta[1], P. A. Potnis[1], K. Rhodes[2], and S. C. Wood[1]. [1]CDRH/OSEL/DB, FDA, Silver Spring, MD; and [2]University of Maryland, College Park, MD. Sponsor: *P. Goering*.

#2025 **Poster Board Number 521**
Dermal Exposure to Triclosan Induces Changes in Expression of Innate and Adaptive Immune Genes in a Mouse Model. *S. Anderson*, *N. B. Marshall*, *C. M. Long*, K. L. Anderson, E. Lukomska, and *B. J. Meade*. NIOSH, Morgantown, WV.

#2026 **Poster Board Number 522**
The α7 Nicotinic Acetylcholine Receptor Agonist GTS-21 Improves Bacterial Clearance in Mice by Restoring Hyperoxia-Compromised Macrophage Function. *R. A. Sitapara*[1], L. Sharma[1], V. S. Patel[1], C. R. Ashby[1], S. Gorasiya[1], M. Zur[1], and *L. Mantell*[1,2]. [1]Department of Pharmaceutical Sciences, St. John's University, Queens, NY; and [2]The Feinstein Institute for Medical Research, North Shore-LIJ Health System, Manhasset, NY.

#2027 **Poster Board Number 523**
Regulation of Epithelial B Cell Activating Factor by Ribosomal Insults. K. Do[1], D. Kim[2], and *Y. Moon*[1]. [1]Department of Microbiology and Immunology, Pusan National University School of Medicine and Immunoregulatory Therapeutics Group in Brain Busan 21 Project, Yangsan, Republic of Korea; and [2]National Institute of Animal Science, RDA, Suwon, Republic of Korea.

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#2028 **Poster Board Number 524**
NKG2D-RAE-1 Mediates the Interaction between Intestinal Epithelial Cells and Intraepithelial Lymphocytes in Food Allergy. *R. Pieters*[1], L. Kruijsen[1], C. Giannakou[1], L. Boon[2], J. Smit[1], and M. Bol-Schoenmakers[1]. [1]Institute for Risk Assessment Sciences, Immunotoxicology, and Immunology Division, Utrecht University, Utrecht, Netherlands; and [2]Bioceros Inc, Utrecht, Netherlands.

#2029 **Poster Board Number 525**
Oxycyte®, a Perfluorocarbon (PFC) Emulsion, and Its Effects on Immunocompetence. *S. Anderson*[1], *V. J. Johnson*[2], *G. Burleson*[2], and T. Bradshaw[1]. [1]Oxygen Biotherapeutics Inc, Morrisville, NC; and [2]Burleson Research Technologies, Inc., Morrisville, NC.

#2030 **Poster Board Number 526**
Leptin Mediated CD57 Expression on CD8+ve Cytotoxic T Cells Are Crucial for Toxicity-Induced Nonalcoholic Steatohepatitis. R. K. Seth[1], *S. Das*[1], A. Kumar[2], A. Chanda[1], *M. B. Kadiiska*[2], *G. Michelotti*[3], *J. E. Manautou*[4], *A. Diehl*[3], and *S. Chatterjee*[1]. [1]Environmental Health Sciences, University of South Carolina, Columbia, SC; [2]Free Radical Metabolism Group, Institute of Environmental Health Sciences, Research Triangle Park, NC; [3]Division of Gastroenterology, Duke University, Durham, NC; and [4]Pharmaceutical Sciences, University of Connecticut, Storrs, CT.

#2031 **Poster Board Number 527**
Automated High Content Imaging of NF-κB Signaling Modulation in Drug-Induced Liver Injury (DILI). S. Huppelschoten, B. Herpers, L. Fredriksson, S. Wink, K. Yan, and *B. van de Water*. LACDR, Toxicology, Leiden University, Leiden, Zuid-Holland, Netherlands.

#2032 **Poster Board Number 528**
Effect of 1-Bromopropane on Expression of IL-4 and IL-5 and Secretion of β-Hexosaminidase by Calcium Influx in RBL-2H3 Cells. H. Han[1], H. Kim[1], K. Lee[2], *T. Jeong*[3], and *H. Jeong*[1]. [1]Pharmacy, Chungnam National University, Daejeon, Republic of Korea; [2]College of Pharmacy, Chonnam National University, Gwangju, Republic of Korea; and [3]College of Pharmacy, Yeungnam University, Gyeongsan, Republic of Korea.

#2033 **Poster Board Number 529**
Renal Dendritic Cells Attenuate Cisplatin Neprotoxicity Independent of Neutrophil Regulation. *R. K. Tadagavadi*, G. Guofeng, W. Wang, and W. Reeves. Department of Medicine, Pennsylvania State University College of Medicine, Hershey, PA.

#2034 **Poster Board Number 530**
Entecavir: Chemokine Receptor 2 (CCR2)-Mediated Chemotaxis As a Mode of Action for Mouse-Specific Pulmonary Macrophage Accumulation. *G. L. Gong*[1], J. Pang[2], Q. Zhao[2], *E. Janovitz*[1], and *L. D. Lehman-McKeeman*[1]. [1]Discovery Toxicology, Bristol-Myers Squibb, Princeton, NJ; and [2]Disc Biology Immunology, Bristol-Myers Squibb, Princeton, NJ.

Program Description (Continued)

Abstract #

#2035 **Poster Board Number 531**
Differential Infiltration of Macrophages into the Testis after Mono (2-Ethylhexyl) Phthalate Exposure in F344 Rats and C57B6/J Mice. *A. Stermer*, *C. Murphy*, and *J. H. Richburg*. Pharmacology and Toxicology, University of Texas at Austin, Austin, TX.

#2036 **Poster Board Number 532**
Methylenediphenyl Diisocyanate Binds Membrane and Intracellular Proteins of Intact THP-1 Cells. *M. Mhike*[1,2], J. M. Hettick[2], B. F. Law[2], T. A. Bledsoe[2], *I. Chipinda*[2], A. R. Lemons[2], B. J. Green[2], A. P. Nayak[2], R. Simoyi[1], D. Beezhold[2], and *P. D. Siegel*[2]. [1]Chemistry, Portland State University, Portland, OR; and [2]Allergy and Clinical Immunology Division, Centers for Disease Control, Morgantown, WV.

#2037 **Poster Board Number 533**
Biodistribution of Reolysin® (Pelareorep) in Sprague-Dawley Rats to Support the Use of This Orphan Virus As an Investigational Drug for Cancer Treatment. A. Parenteau[2], R. Chakrabarty[1], H. Tran[1], A. Hagerman[1], S. Serl[1], B. Thompson[1], M. Coffey[1], R. Tavcar[2], I. Boulay[2], M. Bigras[2], and *R. Forster*[3]. [1]Oncolytics Biotech Inc., Calgary, AB, Canada; [2]CiToxLAB North America, Laval, QC, Canada; and [3]CiToxLAB France, Evreux, France.

#2038 **Poster Board Number 534**
Multi-Endpoint Assessment of Bone Marrow Toxicity in Sprague-Dawley Rats. *J. Piccotti*, *K. Ghoreishi*, L. Alvarado, R. Magpantay, S. Couto, and *M. Breider*. Exploratory Toxicology, Celgene Corporation, San Diego, CA.

#2039 **Poster Board Number 535**
Cysteine Microenvironment Determines Nitrosylation Status: Lessons from Proteome Analysis of NOS2 and GSNOR Knockout Mice. *C. B. Massa*[1], P. T. Doulias[2], H. Ischiropoulos[2], and *A. Gow*[1]. [1]Toxicology, Rutgers, Piscataway, NJ; and [2]Pediatrics, University of Pennsylvania, Philadelphia, PA.

#2040 **Poster Board Number 536**
Assessment of Sensitization Potential of Textile Dyes Using a Nonradioactive Local Lymph Node Assay and an *In Vitro* Loose-Fit Coculture-Based Sensitization Assay. V. Ahuja[1], A. Sonnenburg[2], S. Sharma[1], and *R. Stahlmann*[2]. [1]Drug Safety Assessment, Novel Drug Discovery & Development, Lupin Ltd. (Research Park), Pune, India; and [2]Institute of Clinical Pharmacology and Toxicology, Charité-Universitätsmedizin Berlin, Berlin, Germany.

#2040a **Poster Board Number 537**
Influence of Nickel Rich $PM_{2.5}$ Exposure on MAPKs and NF-κB Signaling and Inflammatory Cytokines. B. A. Narayanan[1], *J. Blum*[1], D. Tian[1], N. K. Narayanan[1], *J. T. Zelikoff*[1], J. Niu[2], *Q. Qu*[1], *M. Costa*[1], and *L. Chen*[1]. [1]Environmental Medicine, NYU School of Medicine, New York City, NY; and [2]Public Health, Lanzhou University, Gansu, Gansu, China.

#2040b **Poster Board Number 538**
Potential Immunotoxicity of a Polyfluoroalkyl Substance Replacement of Perfluorooctanoic Acid. *J. DeWitt*[1], B. R. Rushing[1], Q. Hu[1], and M. Strynar[2]. [1]Pharmacology and Toxicology, East Carolina Univ, Greenville, NC; and [2]Human Exposure & Atmospheric Sciences Division, MDAB, US EPA, RTP, NC.

Abstract #

#2040c **Poster Board Number 539**
Ah Receptor Activation Alters the Phenotype and Function of Pulmonary Innate Lymphocytes. *D. M. Shepherd*[1], B. P. Seaver[1,2], and *C. A. Beamer*[1,2]. [1]Biomedical & Pharmaceutical Sciences, University of Montana, Missoula, MT; and [2]Center for Environmental Health Sciences, University of Montana, Missoula, MT.

Wednesday Afternoon, March 26
1:00 PM to 4:30 PM
Exhibit Hall

PS

Poster Session: Kidney

Safety Assessment: Mechanisms and Novel Methods

Chairperson(s): *Monica Valentovic, Marshall University School of Medicine, Pharmacology, Physiology and Toxicology, Huntington, WV.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *2:45 PM–4:30 PM*

#2041 **Poster Board Number 541**
Failure of Reversal of Oxidative Damage in Renal Tissues of Lead Acetate-Treated Rats. *A. S. Akinrinde*[1], T. O. Omobowale[2], *A. A. Oyagbemi*[1], *A. B. Saba*[1], B. S. Ogunpolu[2], and O. T. Daramola[2]. [1]Dept of Vet. Physiology, Biochemistry and Pharmacology, University of Ibadan, Nigeria, Ibadan, Oyo, Nigeria; and [2]Veterinary Medicine, University of Ibadan, Nigeria, Ibadan, Oyo, Nigeria.

#2042 **Poster Board Number 542**
Disposition and Toxicity of Mercury in Aging Rats. *C. Bridges*, L. Joshee, and *R. K. Zalups*. Mercer University, Macon, GA.

#2043 **Poster Board Number 543**
Profiling of Human, Canine, and Rat Urine Samples Using Bio-Plex Pro RBM Kidney Toxicity Assays. W. Tan[1], H. Schnaars[2], K. Marshall[2], H. Akey[2], L. Stephen[2], A. Baugher[1], D. Jethwaney[1], and C. Linnevers[1]. [1]Bio-Rad Inc, Hercules, CA; and [2]Myriad RBM Inc, Saranac Lake, NY. Sponsor: *E. Dominic*.

#2044 **Poster Board Number 544**
Protection against Type 2 Diabetes-Induced Nephropathy by Multiple Exposures to Low-Dose Radiation Was Associated with Improvement of Dyslipidemia and Insulin Resistance and Suppression of Renal Inflammation and Oxidative Stress. *C. Zhang*[1,2,3], M. Shao[1,2], *L. Cai*[1,2,3], and X. Lu[2]. [1]Chinese-American Research Institute for Diabetic Complications, Wenzhou Medical University, Wenzhou, China; [2]Ruian Center of Chinese-American Research Institute for Diabetic Complications, the Third Affiliated Hospital of the Wenzhou Medical University, Wenzhou, China; and [3]KCHRI & Department of Pediatrics, University of Louisville, Louisville, KY.

Program Description (Continued)

Abstract #

#2045 **Poster Board Number 545**
Attenuation of Hyperlipidemia- and Diabetes-Induced Early-Stage Apoptosis and Late-Stage Renal Dysfunction via Administration of Fibroblast Growth Factor 21 Is Associated with Suppression of Renal Inflammation. X. Lu[1], *C. Zhang*[1,2,3], X. Li[2], and *L. Cai*[1,2,3]. [1]Ruian Center of Chinese-American Research Institute for Diabetic Complications, The Third Affiliated Hospital of the Wenzhou Medical University, Ruian, Zhejiang, China; [2]Chinese-American Research Institute for Diabetic Complications, Wenzhou Medical University, Wenzhou, China; and [3]KCHRI & Department of Pediatrics, University of Louisville, Louisville, KY.

#2046 **Poster Board Number 546**
ALDH16A1 Interacting with HPRT1 in the Purine Salvage Pathway. *M. M. Sandoval*, *V. Vasiliou*, *Y. Chen*, *B. C. Jackson*, and R. Johnson. Pharmaceutical Sciences, University of Colorado, Aurora, CO.

#2047 **Poster Board Number 547**
The Possible Role of Fluoride on Aggravation of Tubulointerstitial Fibrosis Caused by Unilateral Ureteral Obstruction through TGF-β1. T. Kido[1,2], *M. Tsunoda*[2], C. Sugaya[2], and H. Yanagisawa[1]. [1]Public Health and Environmental Medicine, The Jikei University School of Medicine, Tokyo, Japan; and [2]Preventive Medicine, Kitasato University School of Medicine, Sagamihara, Kanagawa, Japan.

#2048 **Poster Board Number 548**
Effects of Cadmium (Cd) on the Localization of Cystatin C and Megalin in Rat Kidney. *W. C. Prozialeck*, A. Van Dreel, *J. Edwards*, P. C. Lamar, C. Ackerman, I. Stock, and A. Papaeliou. Dept of Pharmacology, Midwestern University, Downers Grove, IL.

#2049 **Poster Board Number 549**
Zn-Excess Intake Increases Systemic Blood Pressure and Deteriorates Renal Function through Superoxide Radical-Induced Oxidative Stress. H. Yanagisawa, and T. Kido. Department of Public Health and Environmental Medicine, The Jikei University School of Medicine, Tokyo, Japan. Sponsor: *M. Tsunoda*.

#2050 **Poster Board Number 550**
Epigenetic Changes in p21 Expression in Renal Cells after Exposure to Bromate. *N. E. Scholpa*, X. Zhang, and *B. S. Cummings*. Pharmaceutical and Biomedical Sciences, University of Georgia, Athens, GA.

#2051 **Poster Board Number 551**
Effects of Proguanil Hydrochloride on Selected Hematological, Liver, and Kidney Function Indices in Rats. *J. O. Adebayo*, M. A. Adekunle, Z. A. Ajao, F. O. Audu, R. A. Adeyemo, and *E. A. Balogun*. Biochemistry, University of Ilorin, Ilorin, Kwara, Nigeria.

#2052 **Poster Board Number 552**
Proteomic Biomarkers for Early Detection of Acute Kidney Injury (AKI) in Rats. *H. Kim*[1], T. Kim[1], E. Lee[2], E. Park[2], B. Jung[1], M. Shin[1], and *B. M. Lee*[1]. [1]School of Pharmacy, Sungkyunkwan University, Suwon, Republic of Korea; and [2]College of Pharmacy, Pusan National University, Suwon, Republic of Korea.

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#2053 **Poster Board Number 553**
Deficiency in Mdr1/MDR1 Increases Paraquat Accumulation and Toxicity in Mice and Human Renal Proximal Tubule Cells. *X. Wen*[1], *C. J. Gibson*[1], I. Yang[2], B. Buckley[2], *J. R. Richardson*[2,3], M. J. Goedken[4], and *L. M. Aleksunes*[1,2]. [1]Pharmacology and Toxicology, Rutgers Univ, Piscataway, NJ; [2]Environmental and Occupational Health Sciences Institute, Rutgers Univ, Piscataway, NJ; [3]Environmental & Occupational Medicine, Rutgers Univ, Piscataway, NJ; and [4]Pathology, Merck Research Laboratories, Kenilworth, NJ.

#2054 **Poster Board Number 554**
Bisphenol A Induces Inflammatory Response and Cytokine Release in Renal Mesangial Cells. B. Chen[1], C. Wu[1], S. Liu[1], C. Chiang[2], *C. Huang*[3], and *Y. Chen*[4]. [1]Institute of Toxicology, College of Medicine, National Taiwan University, Taipei, Taiwan; [2]Department of Integrated Diagnostics & Therapeutics, College of Medicine and Hospital, National Taiwan University, Taipei, Taiwan; [3]Graduate Institute of Chinese Medical Science, School of Chinese Medicine, China Medical University, Taichung, Taiwan; and [4]Department of Physiology and Graduate Institute of Basic Medical Science, China Medical University, Taichung, Taiwan.

#2055 **Poster Board Number 555**
Cell-Based Approach to Predict Kidney Toxicity. *M. Adler*[1,2], E. M. Gottwald[1,2], *A. K. Ajay*[1,2], X. Lu[3], M. Hafner[2], A. Subramanian[3], P. Sorger[2], and *V. S. Vaidya*[1,2]. [1]Brigham and Women's Hospital, Boston, MA; [2]Harvard Medical School, Boston, MA; and [3]Broad Institute of MIT and Harvard, Cambridge, MA.

#2056 **Poster Board Number 556**
Cyclosporin A-Induced Apoptosis in Renal Proximal Tubular Epithelial Cells Is Associated with Trb3 Induction. D. Germano, *M. Uteng*, *S. Chibout*, *F. Pognan*, and *A. Wolf*. Discovery & Investigative Safety, Novartis Pharma AG, Basel, Switzerland.

#2057 **Poster Board Number 557**
MiR-27b Regulates Podocyte Function by Targeting Adenosine Receptor. *Z. Li*, *B. L. Homer*, S. O'Neil, and R. Nassirpour. Pfizer, Andover, MA.

#2058 **Poster Board Number 558**
Inhibitors of Ceramide Synthesis Protect Mice from Cisplatin-Induced Acute Kidney Injury. *T. Dupre*, A. R. Mather, and L. J. Siskind. Pharmacology and Toxicology, University of Louisville, Louisville, KY.

#2059 **Poster Board Number 559**
Methyl Isobutyl Ketone (MIBK) Induces an Exposure-Related Increase in Measures of α2u-Globulin (α2u) Nephropathy in Male but Not Female F344 Rats. *S. Borghoff*[1], *G. C. Hard*[2], *T. S. Poet*[3], J. Davis[4], *S. M. Green*[5], *B. J. Hughes*[6], T. Mensing[7], and *S. S. Sarang*[8]. [1]ToxStrategies, Inc, Cary, NC; [2]Private Consultant, Tairua, New Zealand; [3]Summit Toxicology, Richland, WA; [4]ILS, Inc, Morrisville, NC; [5]Eastman Chemical, Kingsport, TN; [6]Dow Chemical, Midland, MI; [7]Sasol Solvents, Moers, Germany; and [8]Shell International, Houston, TX.

Program Description (Continued)

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#2060 **Poster Board Number 560**
Ameliorative Effects of Metformin on Aristolochic Acid-Induced Renal Toxicity in Mice Due to Its Ability to Control Methylglyoxal and N^{ε}-(Carboxymethyl)Lysine Accumulation. T. Huang[1], Y. Li[1], S. Chen[1], Y. Lee[2], L. Tien[2], and J. Lee[1]. [1]School of Pharmacy, Taipei Midecal University, Taipei, Taiwan; and [2]School of Medicine, Fu-Jen Catholic University, New Taipei City, Taiwan.

#2061 **Poster Board Number 561**
Altered Expression of Renal Drug Transporters in Multiple Rodent Models of Nonalcoholic Steatohepatitis. *M. Canet*, *R. N. Hardwick*, *A. D. Lake*, *A. L. Dzierlenga*, *J. Clarke*, and *N. J. Cherrington*. Pharmacology and Toxicology, University of Arizona, Tucson, AZ.

#2062 **Poster Board Number 562**
Resveratrol Reduces Doxorubicin Cytotoxicity in Human Kidney (HK-2) Cells. L. K. Vu[2], *G. O. Rankin*[1], H. Hedrick[1], J. G. Ball[1], and *M. Valentovic*[1]. [1]Pharmacology, Physiology and Toxicology, Marshall University School of Medicine, Huntington, WV; and [2]University of Charleston, Charleston, WV.

#2063 **Poster Board Number 563**
Inhibition of TGF-β1-Induced Renal Epithelial Mesenchymal Transition by Chrysin. R. Nagavally, and *S. M. Ford*. Toxicology Program, St. John's University, Jamaica, NY.

#2064 **Poster Board Number 564**
Exploration of the Role of Renal Biotransformation in 3,4,5-Trichloroaniline Nephrotoxicity *In Vitro*. *C. Racine*, D. Anestis, and *G. O. Rankin*. Pharmacology, Physiology & Toxicology, Marshall University, Huntington, WV.

#2065 **Poster Board Number 565**
Renal Epithelial Hyperplasia Caused by Urinary Crystals of a Novel GKA and Its Metabolites after Acute Dosing in Sprague-Dawley Rats. *E. Tien*[4], *J. R. Turk*[4], N. Everds[4], Q. Ye[1], M. Nguyen[4], P. Cao[3], J. Schroeder[4], R. Kelly[2], L. Jin[1], and *C. Afshari*[4]. [1]Pharmacokinetics and Drug Metabolism, Amgen, Inc., South San Francisco, CA; [2]Pharmaceutics, Amgen, Inc., South San Francisco, CA; [3]Molecular Structure and Characterization, Amgen, Inc., South San Francisco, CA; and [4]Comparative Biology and Safety Sciences, Amgen, Inc., Thousand Oaks, CA.

#2066 **Poster Board Number 566**
Are Succinate and Diglycolic Acid Taken Up into Human Kidney Proximal Tubule Cells by the Same Sodium Dicarboxylate Transporters? C. N. Robinson, *G. M. Landry*, C. Dunning, and *K. McMartin*. Pharmacology, Toxicology & Neuroscience, LSU Health Sciences Center, Shreveport, LA.

#2067 **Poster Board Number 567**
Transporter Function and Response to Nephrotoxicants in a p16-Modified Human Renal Proximal Tubule Epithelial Cell Line. T. Steiner, N. Venkatraman, Y. Xiao, J. Blasberg, M. Bourner, and *D. C. Thompson*. Sigma-Aldrich, St. Louis, MO.

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#2067a **Poster Board Number 568**
Development and Characterization of a Novel Cell-Based Model to Study MATE1- and MATE2K-Mediated Drug Uptake and Interactions. C. J. Patten[1], J. Wang[1], K. Cooper[1], J. Bourgea[1], A. Gao[1], and N. Li[1]. [1]Corning Life Sciences, Bedford, MA. Sponsor: *C. Crespi*.

Wednesday Afternoon, March 26
1:00 PM to 2:00 PM
Room 101A West

E

Exhibitor-Hosted Session: The Dead Cells Still Count in Liver Injury Biomarker Research

Presented by:
DiaPharma Group, Inc.

The dead cells still count for DILI. Cytokeratin 18 tests are a valuable biomarker addition for hepatotoxicity prediction. Using HepaRG cells, researchers can examine *in vitro* hepatotoxicity of various environmental and pharmaceutical toxicants. Please join Christiane Guillouzzou (CSO, Biopredic International), and Matt Cave, MD (University of Louisville) for this exhibitor-hosted session.

Wednesday Afternoon, March 26
1:30 PM to 4:15 PM
North Ballroom 120B

S

Symposium Session: Exploring the Interface between Air Pollution and Metabolic Syndrome: The Bittersweet Dilemma

New Science and Perspectives Surrounding Environmental and Occupational Exposures

Chairperson(s): *Urmila P. Kodavanti, Robert S. Kerr Environmental Research Center, EPHD/NHEERL, Research Triangle Park, NC, and James G. Wagner, Michigan State University, East Lansing, MI.*

Sponsor(s):
Cardiovascular Toxicology Specialty Section
Inhalation and Respiratory Specialty Section
Mechanisms Specialty Section

The metabolic syndrome (MetS) affects approximately 32% of the US population and is expected to grow to 34% by 2020. The conventional risk factors, such as diet and sedentary lifestyle, do not fully explain this rising epidemic. Multiple lines of epidemiological evidence show associations of high ambient air pollution with the incidence of metabolic disease, such as diabetes, and risk factors that comprise the metabolic syndrome. Coincident with uncontrolled air pollution in developing countries are improved lifestyle (less physical activity) and calorie-rich diets. These imply that there is likely an interaction between diet, metabolic processes, and injuries induced by inhaled pollutants. While new research on the contribution of air pollution to cardiometabolic derangements is emerging, the mechanisms by which airborne materials can affect multiple cardiovascular and metabolic pathways are unknown. The goal of this session is to present new data from both animal and human studies to shed light on the interaction of air pollutant exposure with both the incidence and exacerbation of diabetes, obesity, and cardiovascular disease. Some key issues to be addressed by presentations in this session include: What behavioral, dietary, and environmental factors contribute to the development of MetS and, subsequently, to type 2 diabetes and cardiovascular disease? How do obesity and other metabolic abnormalities interact to promote cardiovascular disease? How do air pollutants alter cardiometabolic outcomes during controlled versus natural exposures in humans? How does diet-induced metabolic syndrome alter cardiovascular responses to single and multipollutant exposures? How does obesity predispose for exaggerated airway responses to pollutants? Lastly, how do air pollutants alter stress pathways and energy expenditure? Together, the presentations begin to answer these critical questions and provide some seminal examples of the toxic interface between diet, metabolic homeostasis, and air pollutant exposure.

Program Description (Continued)

Abstract #

#2068 1:30 **Exploring the Interface between Air Pollution and Metabolic Syndrome: The Bittersweet Dilemma.** *U. P. Kodavanti*[1], and *J. G. Wagner*[2]. [1]EPHD, NHEERL, US EPA, Research Triangle Park, NC; and [2]Cardiorespiratory Toxicology, Michigan State University, East Lansing, MI.

1:30 **Introduction.** J. G. Wagner. Cardiorespiratory Toxicology, Michigan State University, East Lansing, MI.

#2069 1:35 **The Role of Overweight and Obesity in the Diabetes and Cardiorenal Syndrome.** J. R. Sowers. Department of Internal Medicine, Diabetes and Cardiovascular Center, University of Missouri, Columbia, MO. Sponsor: *U. Kodavanti*.

#2070 2:07 **The Effects of Air Pollution Exposures on Aspects of the Metabolic Syndrome in Humans.** R. Brook. Division of Cardiovascular Medicine, University of Michigan, Ann Arbor, MI. Sponsor: *U. Kodavanti*.

#2071 2:39 **Cardiometabolic Interactions of Diet and Air Pollution: Field Studies with Multipollutant Atmospheres.** *J. G. Wagner*. Cardiorespiratory Toxicology, Michigan State University, East Lansing, MI.

#2072 3:11 **Augmented Pulmonary Responses to Acute Ozone Exposure in Obese Mice: Roles of TNFR2, IL-13, and IL-17A.** S. A. Shore. Department of Environmental Health, Harvard School of Public Health, Boston, MA. Sponsor: *U. Kodavanti*.

#2073 3:43 **Emerging Evidence of Ozone's Metabolic Effects and Potential Mechanisms.** *U. P. Kodavanti*. EPHD, NHEERL, US EPA, Research Triangle Park, NC.

Wednesday Afternoon, March 26
1:30 PM to 4:15 PM
Room 129

Workshop Session: Advances in the Application of Imaging Technologies to Developmental Toxicology

Safety Assessment: Mechanisms and Novel Methods

Chairperson(s): *Susan L. Makris, US EPA, ORD, NCEA, Washington, DC, and Vicki Sutherland, Bristol-Myers Squibb, Reproductive Toxicology, New Brunswick, NJ.*

Sponsor(s):
Neurotoxicology Specialty Section
Regulatory and Safety Evaluation Specialty Section
Reproductive and Developmental Toxicology Specialty Section

The multiple imaging modalities utilized in developmental science have allowed for the ability to visualize everything from gene activation in a zebrafish embryo to developmental stages in a growing conceptus to malformations in scores of rodent fetuses in a high-throughput manner. This workshop is designed to showcase the advantages of the various imaging systems utilized in developmental studies and their benefits to basic researchers, preclinical experimenters, and clinicians alike. Presentations include examples of the diverse imaging tools (confocal episcopic fluorescence, 2-photon microscopy, ultrasound, micro-MRI, PET, and micro-CT) currently being utilized for developmental (including neurodevelopmental) toxicology studies and how these techniques are being applied to help understand the normal versus a diseased state. The potential for expanded application of developmental imaging data in a regulatory context for pharmaceuticals and environmental chemicals is widely recognized. However, there are challenges in implementing this conceptual shift in the methods traditionally used for hazard characterization and in applying the results in decision-making. Technical and methodological standards need to be developed; validation studies will be necessary to demonstrate the sensitivity, specificity, and reliability of the methods to support utilizing them in a regulatory context; and laboratories will need to weigh the cost of implementing

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an imaging protocol against the potential gains in technical efficiency and increased study sensitivity.

#2074 1:30 **Advances in the Application of Imaging Technologies to Developmental Toxicology.** *S. L. Makris*[5], *V. Sutherland*[1], C. Lo[2], *M. G. Paule*[3], and L. D. Wise[4]. [1]Reproductive Toxicology, Bristol-Myers Squibb Company, New Brunswick, NJ; [2]Department of Developmental Biology, University of Pittsburgh, Pittsburgh, PA; [3]Division of Neurotoxicology, NCTR, US FDA, Jefferson, AR; [4]Developmental & Reproductive Toxicology, Merck Research Laboratories, West Point, PA; and [5]National Center for Environmental Assessment, US EPA, Washington, DC.

1:30 **Introduction.** S. L. Makris. ORD, NCEA, US EPA, Washington, DC.

#2075 1:32 **Lightsheet Microscopy for Rapid High-Resolution of Fluorescent Reporters and Fusion Proteins in Developing Zebrafish.** K. J. Clark, Biochemistry and Molecular Biology Department, Mayo Clinic, Rochester, MN. Sponsor: *V. Sutherland*.

#2076 2:05 **High-Throughput Phenotyping Pipeline Using Multiple Imaging Modalities for the Diagnosis of Structural Birth Defects in Fetal/Newborn Mice.** C. W. Lo[1], X. Liu[1], A. Kim[1], Y. Chen[1], Y. Li[1], N. Klena[1], L. Leatherbury[2], R. Francis[1], and K. Tobita[1]. [1]Department of Developmental Biology, University of Pittsburgh, Pittsburgh, PA; and [2]Children's National Medical Center, Washington, DC. Sponsor: *V. Sutherland*.

#2077 2:40 **PET/CT Approaches to Imaging Aspects of Neurotoxicity in the Developing Animal.** *M. G. Paule*. Division of Neurotoxicology, NCTR, US FDA, Jefferson, AR.

#2078 3:15 **Recent Applications of Micro-CT Imaging in Preclinical Developmental Toxicology.** C. Winkelmann. Imaging Department, Merck Research Laboratories, West Point, PA. Sponsor: *V. Sutherland*.

#2079 3:50 **Imaging Data for Scientific Decision-Making in a Regulatory Context.** *S. L. Makris*. ORD, NCEA, US EPA, Washington, DC.

Wednesday Afternoon, March 26
1:30 PM to 4:15 PM
North Ballroom 120D

Workshop Session: Beyond hERG: Novel Cardiovascular De-Risking Strategies and Their Regulatory Acceptance

Safety Assessment: Mechanisms and Novel Methods

Chairperson(s): *John Davis, Pfizer, Inc., Andover, MA, and Tiffini K. Brabham, Pfizer, Inc., Drug Safety Research & Development, Cambridge, MA.*

Sponsor(s):
Cardiovascular Toxicology Specialty Section
Drug Discovery Toxicology Specialty Section

Whether drug development is prosecuting small molecule or biologic programs, cardiovascular safety is still one of the leading causes of compound attrition. The rationale for attrition has gone far beyond the traditional drug-induced long QT syndrome associated with inhibition of the human Ether-a-go-go Related Gene (hERG). Pharmaceutical companies have built-in greater controls for eliminating that hurdle by using sensitive high-throughput *in vitro* screens around this and other important cardiac ion channels that have significantly reduced arrythmogenic risks. Despite these advances, adverse effects on the cardiovascular system remain a multi-

Program Description (Continued)

Abstract #

factorial risk, difficult to discern, especially during early drug discovery stages. Recent comprehensive preclinical attrition data has demonstrated that hemodynamic alterations, vasculitis, and left ventricular cardiac hypertrophy are increasing in incidence in short- and long-term animal studies. Unlike the well-established mechanistic link between hERG and QT prolongation, these unique pathologies either lack suitable investigative tools and models, or have a lack of confidence in the underlying mechanisms preclinically. This challenge is compounded by the advancement of molecules that act as novel targets for which limited safety data are available. However, in the past couple of years promising advances have been made in *in vitro* and *ex vivo* assay development, which have the potential to impact industry cardiovascular safety de-risking standards much as hERG screening did. Investigators are exploring more integrative tactics, by effectively employing predictive *ex vivo* tissues baths as well as stem cell-derived human cardiomyocytes to rank-order and/or advance suitable drug candidates. While developing innovative tools is important, it's also clear, as the diversity of pharmaceutical drug products evolve into a more challenging target space (i.e., kinase inhibition), these inherent risks need to be evaluated on par with regulatory expectations.

#2080	1:30	**Beyond hERG: Novel Cardiovascular De-Risking Strategies and Their Regulatory Acceptance.** *J. Davis*, and *T. Brabham*. Pfizer, Andover, MA.
	1:30	**Introduction.** J. Davis. Pfizer, Andover, MA.
#2081	1:35	**Study of Cardiovascular Safety of Small Molecules and Biologics: The State of Science, Challenges, and Gaps.** *A. S. Bass*[1], and F. Sannajust[2]. [1]Discovery Sciences Support, Merck & Co., Boston, MA; and [2]Safety and Exploratory Pharmacology, Merck & Co., West Point, PA.
#2082	2:00	**Regulatory Expectations for Submission of Novel *In Vitro* Assays Addressing Cardiovascular Risk.** T. Papoian. US FDA, Silver Spring, MD. Sponsor: *J. Davis*.
#2083	2:25	**Translation of Models for Assessment of Hemodynamic Endpoints.** J. Heyen[1], M. Hemkens[1], *W. Hu*[3], C. Northcott[4], L. Warren[5], A. Bassyouni[1], S. Jenkinson[1], J. Steidl[4], *T. Brabham*[4], and *J. Davis*[2]. [1]Global Safety Pharmacology, Pfizer, San Diego, CA; [2]Investigative Toxicology, Pfizer, Cambridge, MA; [3]Investigative Toxicology, Pfizer, San Diego, CA; [4]Global Safety Pharmacology, Pfizer, Groton, CT; and [5]Compound Safety Prediction, Pfizer, Groton, CT.
#2084	2:50	**Development of Tools for Early Assessment of Cardiac Hypertrophy Risk during Drug Development: Leveraging Cell Models and Gene Expression Analysis.** T. K. Baker, and G. H. Searfoss. Investigative Toxicology, Eli Lilly and Company, Indianapolis, IN. Sponsor: *J. Stevens*.
#2085	3:15	**Applications of Stem Cell-Derived Cardiomyocytes—From Basic Research to Arrhythmia Prediction to Potential Regulatory Implications.** *K. L. Kolaja*. Cellular Dynamics International, Montclair, NJ.
#2086	3:40	**Cardiovascular Risk Assessment for Biopharmaceuticals.** H. M. Vargas. Safety & Exploratory Pharmacology, Amgen, Inc, Thousand Oaks, CA. Sponsor: *J. Davis*.
	4:05	**Panel Discussion/Q&A.**

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Wednesday Afternoon, March 26
1:30 PM to 4:15 PM
Room 126

Workshop Session: Communication and Engagement with the Public about Toxicology in a World That Misunderstands Science and Scientists: How Do You Make Your Message Relevant and "Sticky"?

Chairperson(s): *Barbara L. Kaplan, Mississippi State University, Department of Basic Sciences, Center for Environmental Health Sciences, Mississippi State, MS, and Steven J. Hermansky, ConAgra Foods Inc, Research and Quality Innovation, Omaha, NE.*

Sponsor(s):
Communications Committee
Education Committee
Food Safety Specialty Section

Dissemination of scientific results drives innovation and productivity in all fields, including toxicology. It is critical to effectively communicate findings to colleagues, peers and trainees in written and oral forms and most of us are comfortable in this arena. However, it is more difficult to communicate results and translate risk to the lay public that listens to messages through an emotional lens—especially in the world of social media that defines "experts" based upon frequency and volume of communication rather than demonstrated expertise. Certainly, the public faces a barrage of environmental health issues associated with alleged hazards due to contamination of food, water, air and soils. To make appropriate decisions, the public, media and legislators need information in a readily understandable format presented in a way that resonates with them. In general, communicating and engaging with the lay public is not addressed as part of graduate training, and, therefore, even accomplished toxicologists who are effective scientific communicators find themselves underprepared. Communication directed "at" lay audiences, even that which uses appropriate terminology, is often ignored and does not "stick" with the target audience. Moreover, it is now clear that effective public communication must exceed simple dissemination of results; all stakeholders, including affected communities and populations, should be engaged by toxicologists in bidirectional discussions that facilitate learning by both scientists and the public on an emotional and transparent level. Four actors from four different vantage points will present on the role scientists should play in communication and engagement with the public about toxicology. A discussion panel will follow.

#2087	1:30	**Communication and Engagement with the Public about Toxicology in a World That Misunderstands Science and Scientists: How Do You Make Your Message Relevant and "Sticky"?** *B. L. Kaplan*[1], and *S. J. Hermansky*[2]. [1]Center for Environmental Health Sciences, Department of Basic Sciences, Mississippi State University, Mississippi State, MS; and [2]Research and Quality Innovation, ConAgra Foods, Omaha, NE.
	1:30	**Introduction.** B. L. Kaplan. Center for Environmental Health Sciences, Department of Basic Sciences, Mississippi State University, Mississippi State, MS.
#2088	1:35	**To Speak or Not to Speak…That Is the Question…And the Challenge.** *M. P. Holsapple*. Battelle, Columbus, OH.
#2089	2:10	**The New Universe of "Knowledge"** *S. J. Hermansky*. Research and Quality Innovation, ConAgra Foods, Omaha, NE.
#2090	2:45	**Values, Trust, and Science.** C. Arnot. Center for Food Integrity, Gladstone, MO. Sponsor: *S. Hermansky*.
	3:20	**Panel Discussion/Q&A.**

Program Description (Continued)

Abstract #

Wednesday Afternoon, March 26
1:30 PM to 4:15 PM
Room 122

Workshop Session: Databases Facilitating Systems Biology Approaches to Toxicology

Safety Assessment: Mechanisms and Novel Methods

Chairperson(s): *Susan M. Bello, The Jackson Laboratory, Mouse Genome Informatics, Bar Harbor, ME, and Mary Shimoyama, Medical College of Wisconsin, Human and Molecular Genetics Center, Rat Genome Database, Milwaukee, WI.*

Sponsor(s):
Mechanisms Specialty Section
Molecular Biology Specialty Section

The application of systems biology approaches to toxicology promises discovery of new molecular and genetic connections, the ability to draw novel inferences about mechanisms and modes of actions, and the ability to build better predictive models. However, a systems biology approach first requires identifying appropriate data from a vast array of possible data types and resources. By using multiple high-quality databases, researchers can pull together the required gene, pathway, chemical relationship, and other information needed to build their predictive model. To best use these resources, one first needs to know what resources exist, what the strengths and limitations of the resources are, and how to efficiently retrieve data from them. This session will provide an introduction to several types of resources, including model organism (Mouse Genome Informatics, Rat Genome Database), pathway (Reactome), and toxicology (Comparative Toxicogenomics Database, EPA Dashboard) databases. The goal of this session is to familiarize participants with the power and limitations of publicly available databases that may be used to build and refine models of biological systems that can be applied to toxicology research. Talks will present content overviews for each database and demonstrate data retrieval and analysis capabilities. Speakers also will be available for interactive demonstration sessions during the meeting (see the US EPA booth for dates and times).

#2092	1:30	**Databases Facilitating Systems Biology Approaches to Toxicology.** *S. M. Bello*[1], and M. Shimoyama[2]. [1]Mouse Genome Informatics, The Jackson Laboratory, Bar Harbor, ME; and [2]Rat Genome Database, Medical College of Wisconsin, Milwaukee, WI.
	1:30	**Introduction.** S. M. Bello. The Jackson Laboratory, Bar Harbor, ME.
#2093	1:35	**Mouse Genome Informatics: Using Data Integration to Facilitate Discovery of Relationships Among Genes.** *S. M. Bello*, M. Ringwald, J. E. Richardson, J. A. Kadin, C. J. Bult, J. A. Blake, and J. T. Eppig. Mouse Genome Informatics, The Jackson Laboratory, Bar Harbor, ME.
#2094	2:05	**Chemical Connections at the Rat Genome Database.** M. Shimoyama. Rat Genome Database, Medical College of Wisconsin, Milwaukee, WI. Sponsor: *S. Bello*.
#2095	2:35	**The Reactome Knowledgebase: Using Open-Source Data Analysis Tools to Reveal Biological Pathways in Toxicological Data Sets.** *M. E. Gillespie*. St. John's University, Queens, NY.
#2096	3:05	**The Comparative Toxicogenomics Database (CTD): Facilitating Mechanistic Understanding of Chemical Effects.** *C. J. Mattingly*. Biology, North Carolina State University, Raleigh, NC.
#2097	3:35	**Interactive Web Application (Chemical Safety for Sustainability Dashboard) for Computational Toxicology Data Exploration.** *M. T. Martin*. US EPA, Research Triangle Park, NC.
	4:05	**Panel Discussion/Q&A.**

Abstract #

Wednesday Afternoon, March 26
1:30 PM to 4:15 PM
Room 121

Workshop Session: Genomics in Toxics Regulation and Litigation in the Era of Whole Genome Sequencing

Enhancing Strategies for Risk Assessment

Chairperson(s): *Gary E. Marchant, Arizona State University, College of Law, Tempe, AZ, and Anthony R. Schatz, Merck, Global Safety and Environmental Affairs, Whitehouse Station, NJ.*

Sponsor(s):
Ethical
Legal and Social Issues Specialty Section

Genomic and other 'omic data are increasingly being used in both toxic tort litigation and environmental standard-setting. For example, defendants are beginning to request genetic testing of toxic tort plaintiffs to demonstrate alternative causation, while plaintiffs are using genomic biomarkers in appropriate cases to buttress their proof of specific causation. On the regulatory side, the US Environmental Protection Agency is increasingly using genetic susceptibility data to identify susceptible subgroups in setting ambient air quality standards, while using toxicogenomic data to evaluate and characterize the toxicology of pesticides and chemicals. These initial applications of genomic data are setting the precedents and creating the pathways for much broader use of genomic data in both the toxic tort litigation and environmental regulation contexts as we rapidly move into the era of whole genome sequencing. This year, tens of thousands of people will have their genome sequenced. That number is expected to rapidly climb to the millions and perhaps even hundreds of millions over the next few years. This session will discuss current applications of genomic data, and how whole genome sequencing will greatly increase the availability and use of genomic data, in both the litigation and regulatory domains. It will also discuss the complex ethical, legal, and social issues the increased use of genomic data will present in these contexts, including informed consent, disclosure and access issues, the "right not to know," privacy and confidentiality issues, and the rights and responsibilities of those that produce and are harmed by toxic substances with differential genetic susceptibility.

#2098	1:30	**Genomics in Toxics Regulation and Litigation in the Era of Whole Genome Sequencing.** *A. R. Schatz*[2], and *G. E. Marchant*[1]. [1]College of Law, Arizona State University, Tempe, AZ; and [2]Global Safety & Environment, Merck & Co, Whitehouse Station, NJ.
	1:30	**Introduction.** A. R. Schatz[1], and G. E. Marchant[2]. [1]Global Safety & Environment, Merck & Co, Whitehouse Station, NJ; and [2]College of Law, Arizona State University, Tempe, AZ.
#2099	1:35	**Incorporating Genomic Data into the Risk-Analysis Paradigm.** *H. J. Clewell*. The Hamner Institutes For Health Sciences, Research Triangle Park, NC.
#2100	2:10	**Regulatory Applications and Implications of Whole Genome Sequencing.** M. A. Rothstein. Institute for Bioethics, Health Policy and Law, University of Louisville School of Medicine, Louisville, KY. Sponsor: *G. Marchant*.
#2101	2:45	**Genome Sequence Data and Toxic Torts.** *A. J. Harris*. ENVIRON, Little Rock, AR.
#2102	3:20	**Next Generation Sequencing and Genetic Liability.** *G. E. Marchant*. College of Law, Arizona State University, Tempe, AZ.
	3:55	**Panel Discussion/Q&A.**

Program Description (Continued)

Abstract #

Wednesday Afternoon, March 26
1:30 PM to 4:15 PM
Room 124

Workshop Session: Is Manganese-Induced Parkinsonism Mediated via Dopamine Neuron Degeneration or Dysfunction?

Chairperson(s): *Wei Zheng, Purdue University, School of Health Sciences, West Lafayette, IN, and Tomas R. Guilarte, Columbia University Mailman School of Public Health, Environmental Health Sciences, New York, NY.*

Sponsor(s):
Mechanisms Specialty Section
Metals Specialty Section
Neurotoxicology Specialty Section

Degeneration of dopamine (DA)-containing neurons in Substantia Nigra Pars Compacta (SNpc) is responsible for clinical manifestation of idiopathic Parkinson's disease (IPD). Manganese (Mn) intoxication is known to cause a clinical syndrome that partially overlaps with those typically seen in IPD. Cumulative data from clinical observations, animal experiments, and imaging approaches have come to the point of inciting a discussion on whether the neurotoxicity mediated by Mn on the DAergic system is one of dysfunction, degeneration, or both. This workshop brings together internationally recognized experts in the field with their diverse experimental observations on Mn-DA research to address this issue. The session starts with a brief introduction of the nigrostriatal pathway in movement disorders, followed by a description of the topic in question. The first speaker presents neuropathological features of human brains collected from autopsy workers chronically exposed to Mn. The second speaker shows clinical data from subjects exposed to the eliciting drug and discusses the integrity of DA terminals. The third speaker discusses the observations from nonhuman primate studies suggesting that Mn-induced movement abnormalities are associated with an impaired DAergic function. The fourth speaker reports the data from a rat model on Mn accumulation in SNpc and neurochemical changes in brain by synchrotron X-ray fluorescent and neurochemical/pathological analyses. The last speaker demonstrates the temporal relationship of injury vis-à-vis the affected neurotransmitter systems in a *C. elegans* model. The topic on DA dysfunction, degeneration, and related entwining processes will further the current understanding of the contribution of dysfunction vs. degeneration in environmental etiology of neuronal diseases. The session will be of interest to a broader audience and, in particular, to those engaged in toxicological research related to Mn toxicity, IPD and neurodegenerative diseases, neuroscience, neurotoxicology, and systems biology.

#2103	1:30	**Is Manganese-Induced Parkinsonism Mediated via Dopamine Neuron Degeneration or Dysfunction?** *W. Zheng*[1], and *T. R. Guilarte*[2]. [1]School of Health Sciences, Purdue University, West Lafayette, IN; and [2]Environmental Health Science, Columbia University, New York City, NY.
	1:30	**Introduction.** W. Zheng. School of Health Sciences, Purdue University, West Lafayette, IN.
#2104	1:40	**Pre- and Post-Synaptic Dopaminergic Dysfunction in Mn-Exposed Workers.** B. A. Racette[1], and G. Nelson[2]. [1]Neurology, Washington University School of Medicine, St. Louis, MO; and [2]Division of Epidemiology and Biostatistics, University of the Witwatersrand, Johannesburg, South Africa. Sponsor: *W. Zheng*.
#2105	2:08	**Manganese-Induced Parkinsonism in Methcathinone Abusers.** K. Sikk[1], S. Haldre[2], S. Aquilonius[3], and P. Taba[2]. [1]Department of Neurology, North Estonia Central Hospital, Tallinn, Estonia; [2]Department of Neurology and Neurosurgery, University of Tartu, Tartu, Estonia; and [3]Department of Neuroscience, Neurology, Uppsala University, Uppsala, Sweden. Sponsor: *W. Zheng*.

Abstract #

#2106	2:36	**Nigrostriatal Dopamine System Dysfunction in Manganese-Exposed Nonhuman Primates.** *T. R. Guilarte*. Environmental Health Sciences, Columbia University Mailman School of Public Health, New York City, NY.
#2107	3:04	**Accumulation of Manganese in Substantia Nigra and Alterations in Brain Neurochemistry following Subchronic Manganese Exposure in Rats.** *W. Zheng*[1], Y. Pushkar[2], and *J. R. Cannon*[1]. [1]School of Health Sciences, Purdue University, West Lafayette, IN; and [2]Physics, Purdue University, West Lafayette, IN.
#2108	3:32	**Manganese (Mn) Interaction with Dopaminergic Neurons: Evidence from *C. elegans*.** *M. Aschner, C. Au*, and *A. Benedetto*. Department of Pediatrics, Vanderbilt University Medical Center, Nashville, TN.
	4:00	**Panel Discussion/Q&A.**

Wednesday Afternoon, March 26
1:30 PM to 4:15 PM
North Ballroom 120A

Workshop Session: Science-Based Preclinical Safety Assessment: Decision-Making to Enhance Regulatory Success

Safety Assessment: Mechanisms and Novel Methods

Chairperson(s): *Ruth Roberts, AstraZeneca, Macclesfield, United Kingdom, and Mary Jane M. Hinrichs, MedImmune Inc, Gaithersburg, MD.*

Sponsor(s):
Drug Discovery Toxicology Specialty Section
Regulatory and Safety Evaluation Specialty Section

Diversity is increasing in the biological targets, pharmacological strategies, and types of chemistry being investigated in first-time-in-human (FTIH) studies; similarly, there is growing information, guidance, and experience to protect volunteer/patient safety. In response, regulatory toxicology strategies have diversified and evolved from those practiced only a decade ago, reflecting advances in science and technology and the experiences of individuals and organizations. In this context, this workshop will consider the key question: Are these 'diversities' complementary and working expeditiously to bring important new (and safer) medicines to patients? In order to address this, speakers will cover the four key areas of small molecules, traditional biologics, innovative biologics, and nucleotide constructs. The presentations will include specific discussion of the science and technology in each area, will consider strategic and tactical issues such as study design, species selection, target organ toxicity profiles, and regulatory guidance relevant to safety assessment. Building on this, each talk will be illustrated with case studies that address the question. This will be followed by a regulatory perspective covering issues and challenges associated with novel pharmacologic targets and new molecular chemistries balancing innovation with the need to ensure volunteer/patient safety. Overall, the presentations will provide clear information illustrated by examples on the different strategies employed for the different types of chemistries with an emphasis on relevance and outcome. The session will be of broad interest to academic, industry, regulatory, and consultant toxicologists who wish to be updated in this critical and evolving area.

#2109	1:30	**Science-Based Preclinical Safety Assessment: Decision-Making to Enhance Regulatory Success.** *R. Roberts*[1], and *M. Hinrichs*[2]. [1]AstraZeneca, Macclesfield, United Kingdom; and [2]MedImmune, Gaithersburg, MD.
	1:30	**Introduction.** R. Roberts. AstraZeneca, Macclesfield, United Kingdom.
#2110	1:35	**Regulatory Toxicology Testing for Small Molecules: Strategies and Outcome Analysis.** *R. Roberts*, S. Horner, D. Lees, D. Ryan, R. Callander, and *S. Robinson*. AstraZeneca, Macclesfield, United Kingdom.

Program Description (Continued)

Abstract #

#2111	2:00	**Risk Assessment of "Traditional" Biologics.** *L. Andrews*. Sanofi, Waltham, MA.
#2112	2:25	**Risk Assessment of Humanized Monoclonal Antibodies, Antibody-Drug Conjugates, and Novel Antibody Constructs.** *M. Hinrichs, L. A. Iciek, K. P. McKeever*, and *P. C. Ryan*. MedImmune, Gaithersburg, MD.
#2113	2:50	**Safety Assessment of Oligonucleotide Constructs.** *S. Henry*. Preclinical Development, Isis Pharmaceuticals, Inc., Carlsbad, CA.
#2114	3:15	**Regulatory Authority Experience with Diverse Molecular Chemistries and Preclinical Safety Assessments Supporting First Time in Humans.** *D. Jacobson Kram*. US FDA, Silver Spring, MD.
	3:40	**Panel Discussion/Q&A.**

Wednesday Afternoon, March 25
2:15 PM to 3:30 PM
Room 226A

Undergraduate Educator Network Meeting

Chairperson(s): *Mindy F. Reynolds, Chairperson, Undergraduate Education Subcommittee, Washington College, Chestertown, MD.*

Sponsor(s):
Education Committee
Undergraduate Education Subcommittee

The Education Committee and the Undergraduate Education Subcommittee are hosting the Undergraduate Educator Network Meeting for all faculty involved in the teaching of toxicology to undergraduates, as well as those interested in including toxicology at the undergraduate level. Hear an update on initiatives for undergraduate faculty, provide your input, and network.

Wednesday Afternoon, March 26
4:00 PM to 5:00 PM
Room 226A

Undergraduate Student Meeting

Chairperson(s): *Mindy F. Reynolds, Chairperson, Undergraduate Education Subcommittee, Washington College, Chestertown, MD, and Catherine West, University of Southern Maine, Portland, ME.*

Sponsor(s):
Education Committee
Undergraduate Education Subcommittee

All Undergraduate students attending the meeting are encouraged to participate in an informal meeting to talk about shared interests related to career paths in toxicology, discuss undergraduate tox-related activities, clubs, and majors on their campuses, and to provide feedback to the Undergraduate Education Subcommittee.

Wednesday Afternoon, March 26
4:30 PM to 5:20 PM
North Ballroom 120B

FS

Translational Impact Award Lecture: Ancient Medicine for the Mitigation of Aflatoxin Exposures



Lecturer: *Timothy D. Phillips, Texas A&M University, College Station, TX.*

Global concerns about the safety of food have evoked a growing awareness of the hazards associated with aflatoxins. The aflatoxin problem is longstanding, unavoidable, and inextricable. Appropriate interventions that can mitigate toxin exposures in the vulnerable are high priorities. Dr. Phillips, and colleagues in Texas, Ghana, Georgia, and Alabama, have shown that the inclusion of a dioctahedral smectite clay (NS) in the diet of animals and humans is an effective strategy for decreasing aflatoxin exposures. NS clay tightly and preferentially binds aflatoxins in the gastrointestinal tract resulting in decreased aflatoxin bioavailability. In mechanistic studies, we have shown that the intact dicarbonyl system in aflatoxin is essential for optimal sorption. Thermodynamic evidence suggests that aflatoxin reacts at multiple sites on clay surfaces (especially those within the interlayer region). Phase I and IIa intervention trials in Texas and the Northern Ashanti Region of Ghana have shown that NS significantly reduces biomarkers of aflatoxin exposure in urine and blood and is well-tolerated by participants, including children. Clay-based enterosorption of aflatoxins is a practical and sustainable approach that will benefit more than 4.5 billion people living in climates conducive to the growth of fungi and the production of mycotoxins in staple foods.

Wednesday Afternoon, March 26
4:30 PM to 5:50 PM
Room 124

HH

Historical Highlights Session: A History of the 3Rs in Toxicity Testing: From Russell and Burch to 21st Century Toxicology

Chairperson(s): *Ian Kimber, University of Manchester, Toxicology, Manchester, United Kingdom, and Martin L. Stephens, Johns Hopkins University, Center for Alternatives to Animal Testing, Baltimore, MD.*

Sponsor(s):
***In Vitro* and Alternative Methods Specialty Section**

The 3Rs—replace, reduce, and refine—have become the internationally established framework guiding the development of alternatives to animal experimentation in toxicology. Yet this framework languished for two decades after it was first proposed in 1959 by British scientists William Russell and Rex Burch. Then, as the animal experimentation controversy intensified in the 1980s, the concept of alternatives became politically charged, with some arguing that *in vivo* experiments could be replaced readily and others arguing that they were irreplaceable. A generation or so later, following the 2007 publication of a US National Research Council (NRC) report *Toxicity Testing in the 21st Century, a Vision and Strategy*, prominent scientists began predicting the near elimination of animal use in toxicity testing through the development of "21st-Century Toxicology." How have we gotten from Russell and Burch to the beginnings of 21st-Century Toxicology? In this session, we will present results from comprehensive citation and literature searches that track the influence of Russell and Burch's 3Rs framework and the prevalence of 3Rs-related research in toxicology over time. We will also draw on timelines of various 3Rs activities, including the founding of 3Rs organizations, centers, journals and websites, funding sources, the organization of workshops and conferences, the enactment of animal welfare/alternatives laws, and other milestones, to inform our historical analysis. We will present a historical narrative framed around four phases of activity: incubation (1959–1979), increasing acceptance and spread (1980–early 1990s), maturation (early 1990s–2007), and paradigm shift (2007–present).

Program Description (Continued)

Abstract #

The impact of more than 50 years of 3Rs activity will be measured in part by focusing on the validation and regulatory acceptance status of alternative methods and trends in animal-use statistics, concluding with a discussion of remaining challenges to the development, validation, regulatory acceptance, and implementation of 3Rs methods.

#2115 4:30 **A History of the 3Rs in Toxicity Testing: From Russell and Burch to 21st Century Toxicology.** *M. L. Stephens*[1], and N. Mak[2]. [1]CAAT, Johns Hopkins University, Baltimore, MD; and [2]Alternatives Research and Development Foundation, Jenkintown, PA.

4:30 **Introduction.** I. Kimber. University of Manchester, Manchester, United Kingdom.

4:40 **Historical Patterns in 3Rs-Related Activity in Toxicology: Literature Searches, Citation Analysis, and Timelines.** N. Mak. Alternatives Research and Development Foundation, Jenkintown, PA.

5:05 **A History of the 3Rs Activity in Toxicology: Phases and Impacts.** M. L. Stephens. Johns Hopkins University, Baltimore, MD.

5:30 **Panel Discussion/Q&A.**

Wednesday Afternoon, March 26
4:30 PM to 5:50 PM
Room 126

IS

Informational Session: Leadership in Science: Skills and Styles

Chairperson(s): *Brinda Mahadevan, Abbott Laboratories, Medical Safety & Surveillance, Columbus, OH, and Prathibha Rao, Bristol-Myers Squibb Company, Princeton, NJ.*

Sponsor(s):
Career Resource and Development Committee
Postdoctoral Assembly
Women in Toxicology Special Interest Group

In the 21st century, more than any other time in history, science is a team sport and requires cross-disciplinary/cross-functional interaction to meet the objectives and gain results. These interactions across multiple disciplines often require careful management and skillful leadership. Often times we fall prey to the belief that "a leader is always born". However, all of us "lead" in everyday life subconsciously or rather unconsciously. A question that begs to be asked is, "Why should anyone be led by me?" The answer can be elusive and requires the recognition that not all leaders are born. Good leaders can be developed. This, of course, leads to question, "How?" That again has to be addressed directly in terms of tangible competencies and behaviors. Is this due to the perception that the scientific ladder and management ladder are parallel, and one cannot support the other? The 21st century demands that each of us "own" our careers as well as the contributions towards society in a variety of ways. The time has arrived to spur the enthusiasm to "lead" in all fronts—the classroom to the boardroom and beyond. This informational session will include presentations by key leaders from academia, industry, government, and consulting. The speakers will introduce the concept of leadership as it relates to the current and emerging work environment, followed by a testimonial of core skills and styles required to be an effective leader. The testimonials will be individual but will provide set of tangible core qualities that are key to succeed and lead—at all levels. The session is designed for presentation and includes time for questions and discussion.

Abstract #

#2116 4:30 **Leadership In Science: Skills and Styles.** *B. Mahadevan*[1], *P. Rao*[2], *L. S. Birnbaum*[3], *H. I. Swanson*[4], *M. Aardema*[5], and *L. Burns Naas*[6]. [1]Regulatory Affairs, Abbott Nutrition, Abbott Laboratories, Columbus, OH; [2]Global Regulatory Affairs & Safety Sciences, Bristol Myers Squibb, Princeton, NJ; [3]NIEHS, RTP, NC; [4]Molecular and Biomedical Pharmacology, University of Kentucky, Lexington, KY; [5]Marilyn Aardema Consulting LLC, Scientific Advisor, BioReliance, Rockville, MD, and [6]Drug Safety Evaluation, Gilead Sciences Inc, Foster City, CA.

4:30 **Introduction.** B. Mahadevan. Abbott Laboratories, Columbus, OH.

4:40 **Leadership—Doing the Right Things.** L. S. Birnbaum. NIEHS, Research Triangle Park, NC.

4:50 **Developing a Leadership Style That Works for You.** H. Swanson. University of Kentucky, Lexington, KY.

5:00 **Leadership Skills and Styles to Be Effective across Different Organizations.** M. Aardema. Marilyn Aardema Consulting LLC, Fairfield, OH.

5:10 **Leadership—What Would You Do If You Weren't Afraid?** L. Burns Naas. Gilead Sciences Inc., Foster City, CA.

5:20 **Panel Discussion/Q&A.** P. Rao. Bristol-Myers Squibb Company, Princeton, NJ.

Wednesday Afternoon, March 26
4:30 PM to 5:50 PM
Room 125

IS

Informational Session: Recent Challenges Beyond the Usual Toxicological and Public Health Challenges in Africa

New Science and Perspectives Surrounding Environmental and Occupational Exposures

Chairperson(s): *Abdel M. Kadry, US EPA, Office of Research and Development, National Center for Environmental Assessment (8601-D), Washington, DC, and Steven R. Myers, University of Louisville, School of Medicine, Louisville, KY.*

Sponsor(s):
Food Safety Specialty Section
Risk Assessment Specialty Section
Toxicologists of African Origin Special Interest Group

Africa has shown strong levels of economic growth over the last ten years, with African countries among the fastest movers on the United Nations Development Program's (UNDP) Human Development Index. However, there are still a large number of toxicological problems and environmental challenges that face the continent. While considerable work has been done to recognize the hazards of air pollution and minimize its extent in many of the world's cities, the major metropolitan areas of several African cities still suffer from excessive air pollution. Air pollution can come from a variety of sources, including vehicle exhaust, uncontrolled industrial production, resource extraction, as well as various industrial emissions. Disposal of scrap tires is also a serious challenge facing several African countries. The unregulated widespread practice of using scraps of tires as a source of energy in several African countries may raise concerns for food, public health, and environmental safety. Tires are a very rich source of energy; however, tires are made of a complex mixture of ingredients that release toxic chemicals upon burning. The appropriate storage, labeling, and the judicial use of pesticides also pose a challenge. There are large numbers of pesticide stockpiles scattered over the continent, often stored haphazardly. In many African countries, empty pesticide containers are used to store fuel, food, and water. There are 50,000 metric tons of obsolete and banned pesticides still in use in many African countries.

Program Description (Continued)

Abstract #

This informational session should enhance our understanding of the opportunities for increased global research initiatives focusing on solving the new emerging toxicological challenges facing Africa.

#2117 4:30 **Recent Challenges Beyond the Usual Toxicological and Public Health Challenges in Africa.** *A. M. Kadry*[1], *S. Myers*[2], *E. Afriyie-Gyawu*[3], *S. Soliman*[4], and M. T. Ahmed[5]. [1]Office of Research and Development, National Center for Environmental Assessment, US EPA, Washington, DC; [2]Department of Pharmacology and Toxicology, University of Louisville, Louisville, KY; [3]College of Health and Human Sciences, Georgia Southern University, Statesboro, GA; [4]Pesticide Chemistry and Toxicology, Alexandria University, Alexandria, Egypt; and [5]Pesticide Chemistry and Toxicology, Suez Canal University, Ismalia, Egypt.

4:30 **Introduction.** A. M. Kadry. US EPA, Washington, DC.

4:35 **Toxicology of Air Pollution and Particulate Matter in Some African Cities.** S. Myers. University of Louisville, Louisville, KY.

4:50 **Toxicological and Public Health Implications of the Use of Scrap Rubber Tires for Smoking Meat in Africa.** E. Afriyie-Gyawu. Georgia Southern University, Statesboro, GA.

5:05 **Pesticide Usage in Africa: The Risk and Benefit with Special Focus on Obsolete Pesticides.** S. Soliman. Alexandria University, El Shatby, Egypt.

5:20 **Pesticides in Egypt: An Overview.** M. T. Ahmed. Suez Canal University, Ismailia, Egypt.

5:35 **Panel Discussion/Q&A.**

WEDNESDAY EVENING

Wednesday Evening, March 26
6:00 PM to 7:30 PM
Sheraton
See room listing below.

Specialty Section Meeting/Receptions: Drug Discovery Toxicology (Maryvale); Immunotoxicology (Valley of the Sun C); Mechanisms (Valley of the Sun A); Mixtures (Estrella); Neurotoxicology (Valley of the Sun D); Regulatory and Safety Evaluation (Encanto); Risk Assessment (Phoenix Ballroom D)

Notes

Program Description (Continued)

THURSDAY MORNING

Thursday Morning, March 27
8:30 AM to 12:00 Noon
Hall 1

PS

Poster Session: Animal Models of Disease

Chairperson(s): *Chandrassegar Saravanan, Novartis Institutes for Biomedical Research, PCS, Cambridge, MA.*

Displayed: *8:30 AM–12:00 Noon*

Abstract #

#2118 **Poster Board Number 101**
Comparison of the Rabbit, Diabetic Miniature Swine and Nonhuman Primate to Evaluate the Clinical Biopotency of Insulin Products. A. Stricker-Krongrad[1], S. Renna[1], L. Brown[1,2], E. C. Blair[1], T. Madsen[1], B. C. Hanks[1,2], J. Liu[1], and *G. Bouchard*[1,2]. [1]Sinclair Research Center, LLC, Auxvasse, MO; and [2]Sinclair BioResources, LLC, Auxvasse, MO.

#2119 **Poster Board Number 102**
Evaluation of Phototoxicity of Intravitreal Injected Porphyrin in Albino Rabbit. T. Aya, K. Watanabe, S. Tsukamoto, Y. Oshita, T. Mochizuki, Y. Yao, *K. Hosoi*, and K. Kawazu. Santen Pharmaceutical Co., LTD., Ikoma-shi, Nara, Japan.

#2120 **Poster Board Number 103**
Development of a Novel Model of Latent Oncogenic Herpesvirus Reactivation for Immunotoxicologic Evaluations. *R. Mikkelsen*[1], *J. Aligo*[2], *M. R. Walker*[2], *D. Weinstock*[2], *F. G. Burleson*[1], and *G. R. Burleson*[1]. [1]Burleson Research Technologies, Inc., Morrisville, NC; and [2]Biologics Toxicology, Janssen Pharmaceuticals, Inc., Spring House, PA.

#2121 **Poster Board Number 104**
Efficacy and Pharmacokinetics of Brincidofovir for Treatment of Lethal Rabbitpox Virus (RPXV) Infection in NZW Rabbits; A Model of Human Smallpox. *I. M. Grossi*[1], S. Foster[1], K. Van Sickle[1], L. Keilholz[1], M. Rose[1], T. Brundage[1], J. Long[2], R. Krile[2], and *L. C. Trost*[1]. [1]Pharm/Tox, Chimerix, Inc., Durham, NC; and [2]Tox, Battelle Biomedical Research Center, Columbus, OH.

#2122 **Poster Board Number 105**
Effect of Prandial Status on Plasma Bile Acids Composition in Dogs. *I. L. Csanaky*[1], P. Shipkova[2], *D. Robertson*[2], M. Reily[2], *A. J. Lickteig*[1], M. Pratt-Hyatt[1], *C. D. Klaassen*[1], and *L. D. Lehman-McKeeman*[2]. [1]University of Kansas Medical Center, Kansas City, KS; and [2]Bristol-Myers Squibb Co, Princeton, NJ.

#2123 **Poster Board Number 106**
Assessment of DNA Copy Number Alterations in Fibrosis-Associated Mouse Liver Tumors. G. Silva[1], G. Chappell[1], *T. Uehara*[1], *I. Pogribny*[2], and *I. Rusyn*[1]. [1]Environmental Sciences and Engineering, University of North Carolina, Chapel Hill, NC; and [2]National Center for Toxicological Research, US Food and Drug Administration, Jefferson, AR.

Abstract #

#2124 **Poster Board Number 107**
Expression of Cysteine-Rich Secretory Protein LCCL Domain Containing 2 [CRISPLD2] Is Associated with Bile Duct Hyperplasia and Pericellular Fibrosis in Nonalcoholic Steatohepatitis. C. Saravanan[1], C. Spence[2], J. Trevaskis[2], X. Wang[2], J. Galarneau[1], W. Chutkow[2], and K. Mansfield[1]. [1]Discovery and Investigative Pathology, Novartis Institutes for Biomedical Research, Cambridge, MA; and [2]Cardiovascular and Metabolism, Novartis Institutes for Biomedical Research, Cambridge, MA. Sponsor: *V. Sasseville*.

#2125 **Poster Board Number 108**
Repetitive Exposures to Low Dose X-Rays Radiation Attenuates Testicular Apoptotic Cell Death in Type 2 Diabetic Rats via Akt-Mediated Nrf2 Activation. Y. Zhao[1], X. Chen[1], J. Dai[2], *Y. Tan*[2], *L. Cai*[2,1], and W. Li[1]. [1]Cancer Center, First Hospital, Jilin University, Changchun, Jilin, China; and [2]KCHRI at Department of Pediatrics, University of Louisville, Louisville, KY.

#2126 **Poster Board Number 109**
Hematopoeitic Characteristics of the Macaque following a Single Dose OF Irradiation. *R. Love*[1], *N. Makori*[1], S. M. Glaza[1], T. Beck[1], and K. Fukuzaki[2]. [1]Safety Assessment, SNBL USA, Everett, WA; and [2]Corporate, Shin Nippon Biomedical Laboratories, Ltd., Tokyo, Japan.

#2127 **Poster Board Number 110**
Dry Eye Symptoms in a Mouse Model of Mucin Deficiency. X. Zhou, and *Y. Chen*. University of Arizona, Tucson, AZ.

#2128 **Poster Board Number 111**
Toxic Milk Leads to the "Mask" Phenotype in Hephaestin Knockout Mice. *K. E. Page*[1], E. Lachenauer[1], J. Luong[1], C. Han[1], H. Irimagawa[1], Y. He[1], D. W. Killilea[2], D. M. Frazer[3], G. J. Anderson[3], B. K. Fuqua[3], and *C. Vulpe*[1]. [1]Nutritional Science and Toxicology, University of California, Berkeley, Berkeley, CA; [2]Children's Hospital Oakland Research Institute, Oakland, CA; and [3]QIMR Berghofer Medical Research Institute, Brisbane, QLD, Australia.

#2129 **Poster Board Number 112**
Alterations of Contractile Gene Expression (Mypt1, CPI-17, and Myosin Kinase) in RUPP, L-NAME, and Adriamycin Rodent Models of Preeclampsia. *J. Toot*[1], and J. Reho[2]. [1]WIL Research, Ashland, OH; and [2]Department of Medicine, Division of Cardiology, University of Maryland, Baltimore, MD.

#2129a **Poster Board Number 113**
Variability in Neurotoxicity: Who Is Susceptible and Why. G. Alam[1], *D. B. Miller*[2], *J. P. O'Callaghan*[2], L. Lu[3], *R. W. Williams*[3], and B. C. Jones[1]. [1]Biobehavioral Health, The Pennsylvania State University, University Park, PA; [2]CDC-NIOSH, Morgantown, WV; and [3]University of Tennessee Health Sciences Center, Memphis, TN.

#2129b **Poster Board Number 114**
Nuclear Receptor Small Heterodimer Partner (SHP) Modulates Circadian Clock Control of ER Stress Signaling in Alcoholic Liver Disease (ALD). L. Wang[1], H. Tsuchiya[1], and Y. Zhang[1]. [1]University of Utah, Salt Lake City, UT. Sponsor: *G. Guo*.

Program Description (Continued)

Abstract #

#2129c **Poster Board Number 115**
Mammary Gland Tumor Promotion by IGF1 and an Insulin Analogue in the p53+/R270HWAPCre Mouse Model. B. ter Braak[1], K. Siezen[3], *B. van de Water*[1], and J. van der Laan[1,2,3]. [1]Toxicology, LACDR, Leiden University, Leiden, Zuid-Holland, Netherlands; [2]National Institute of Public Health and the Environment, Bilthoven, Netherlands; and [3]Medicines Evaluation Board, Utrecht, Netherlands.

#2129d **Poster Board Number 116**
Characteristics of IgG Deposit and Neurodevelopmental Protein Expression in Brain of BTBR T+tf/J Mouse Fetus. *Y. Heo*[1], S. Hwang[1], C. Kim[1], H. Kim[2], K. Shin[1], and J. Jo[1]. [1]Occupational Health, Catholic University of Daegu, Gyeongsan-si, Republic of Korea; and [2]Preventive Medicine, The Catholic University of Korea, Seoul, Republic of Korea.

Thursday Morning, March 27
8:30 AM to 12:00 Noon
Hall 1

PS

Poster Session: Animal Models: Measurements and Validation

Chairperson(s): *Kate Read, Huntingdon Life Sciences, Veterinary Services, Alconbury, United Kingdom.*

Displayed: *8:30 AM–12:00 Noon*

#2130 **Poster Board Number 121**
Lifetime Carcinogenicity Studies in the CD-1 Mouse: Historical Data for Survival and Neoplasms. *J. Le Bigot*, C. Thirion-Delalande, B. Palate, and *R. Forster*. CiToxLAB, Evreux, France.

#2131 **Poster Board Number 122**
Historical Control Data Generated in a 2-Year Life Span Study in Wistar Rats (Crl:Wi(Han)) Demonstrate a Reliable Model for Carcinogenicity Studies. M. Kunze[1], P. Allingham[1], A. Leoni[1], A. Albrecht[1], W. Riedel[1], S. Gähler[2], G. Pohlmeyer-Esch[3], K. Weber[2], and *J. F. Hardisty*[4]. [1]BSL BIOSERVICE Scientific Laboratories GmbH, Planegg, Germany; [2]AnaPath GmbH, Oberbruchsiten, Germany; [3]KALEIDIS, Saint-Louis, France; and [4]EPL Inc., Durham, NC.

#2132 **Poster Board Number 123**
A One-Year Feeding Study for WistarHannover GPT Delta Transgenic Rat. H. Takagi[1], Y. Nozaki[1], A. Kawada[1], M. Yamada[2], K. Masumura[2], and T. Nohmi[3]. [1]Biotechnical Center, JAPAN SLC, Inc., Hamamatsu, Japan; [2]Division of Genetics and Mutagenesis, National Institute of Health Sciences, Tokyo, Japan; and [3]Biological Safety Research Center, National Institute of Health Sciences, Tokyo, Japan. Sponsor: *A. Nishikawa*.

#2133 **Poster Board Number 124**
Carcinogenic Monitoring Data on RasH2 Mice to Guarantee a Long-Term Biologic Stability. *K. Urano*[1], K. Machida[1], T. Mizushima[1], C. Nishime[1], E. Nishinaka[2], R. Inoue[1], M. Yasuda[1], and *H. Tsutsumi*[1]. [1]Central Institute for Experimental Animals, Kawasaki, Japan; and [2]JAC, LTD., Tokyo, Japan.

Abstract #

#2134 **Poster Board Number 125**
Ranges of Commonly Evaluated Clinical Chemistry, Hematology, and Coagulation Parameters from Clinically Healthy Cynomolgus Monkeys of Asian Origin. *L. Lanning*[1], K. Taylor[2], and J. Hewitt[2]. [1]Office of Regulatory Affairs, NIH/NIAID/DMID, Bethesda, MD; and [2]Office of Biodefense, Research Resources, and Translational Research, NIH/NIAID/DMID, Bethesda, MD.

#2135 **Poster Board Number 126**
Comparison of Historical Control Parameters Derived from Subchronic Studies Conducted in CD®IGS Rats Fed 5002 or 5CR4 Certified Diets. *M. A. Morse*[1], B. Jacob[2], and A. M. Sargeant[2]. [1]Toxicology, Charles River Laboratories, Spencerville, OH; and [2]Pathology, Charles River Laboratories, Spencerville, OH.

#2136 **Poster Board Number 127**
Comparison of Rodent Euthanasia Using Carbon Dioxide (CO2) by Pre-Filled, Slow-Filled, And Rapid-Filled Methods in Mice. *J. K. Herman*[1], J. Seeman[2], B. Joachim[1], T. Richer[4], M. Logan[3], and L. W. Dochterman[3]. [1]Toxicology, Covance Laboratories, Madison, WI; [2]Lab Animal Medicine, Covance Laboratories, Madison, WI; [3]Pathology, Covance Laboratories, Madison, WI; and [4]Toxicology Operations, Covance Laboratories, Madison, WI.

#2137 **Poster Board Number 128**
Effects of Blood Collection via Catheter on Hematology and Coagulation Parameters in Rats. *A. M. Brooks*, *A. N. Alexander*, L. Hudgens, and R. Hall. Toxicology, Covance Laboratories Inc., Madison, WI.

#2138 **Poster Board Number 129**
Characterization of Background Routine and Specialization Ocular Endpoints Used in Juvenile NHP Toxicology Studies. *K. Tenneson*, S. Wise, and *M. Vézina*. Ocular and Neuroscience, Charles River, Montreal, QC, Canada.

#2139 **Poster Board Number 130**
Data Comparison of the Respiratory Parameters during the Acclimatization Phase of Rat Snout-Only and Whole-Body Plethysmography Studies. S. Moore, R. Armstrong, and S. Jordan. Huntingdon Life Sciences, Huntingdon, United Kingdom. Sponsor: *D. Mitchell*.

#2140 **Poster Board Number 131**
Comparison of 4DCT-Derived Ventilation Maps to Deposition Patterns of Inhaled Particulates in Healthy and Diseased Rat Lungs. R. E. Jacob[1], W. J. Lamm[2], D. R. Einstein[1,3], M. Kueger[2], R. W. Glenny[2], and *R. A. Corley*[1]. [1]Pacific Northwest National Laboratory, Richland, WA; [2]Pulmonary and Critical Care Medicine, University of Washington, Seattle, WA; and [3]Mechanical Engineering, University of Washington, Seattle, WA.

#2141 **Poster Board Number 132**
Development of an Impedance-Based Model For Assessment of Cardiopulmonary Function in Rabbits. M. Horsmon[1], N. M. Vincelli[2], and R. Kristovich[1]. [1]US Army Edgewood Chemical Biological Center, Gunpowder, MD; and [2]Leidos, Gunpowder, MD. Sponsor: *S. Hulet*.

Program Description (Continued)

Abstract #

#2142 **Poster Board Number 133**
Comparison of Cardiovascular Parameters Recorded via Radio-Telemetry in Göttingen and Chinese Bama Minipigs. S. Mason, L. Qu, R. Wu, S. McPherson, and *Q. He*. WuXi AppTec, Suzhou, China.

#2143 **Poster Board Number 134**
Comparative Sensitivities of the Rat, Dog, and Monkey Larynx and Tracheal Bifurcation in Inhalation Toxicity Studies. A. M. Pilling[2], V. Mowat[1], and D. J. Alexander[3]. [1]Pathology, HLS, Huntingdon, United Kingdom; [2]Toxpath Consultancy Ltd, Stradbroke, Suffolk, United Kingdom; and [3]DA Nonclinical Safety Ltd, Godmanchester, Cambs, United Kingdom. Sponsor: *D. Mitchell*.

#2144 **Poster Board Number 135**
Species-Related Differential Sensitivity for Assessing Hemodynamics and Respiratory Function Using Combined Telemetry-Plethysmography Model. E. Hayes, S. Rompion, S. Goineau, P. Guillaume, and *G. Froget*. Porsolt, Le Genest Saint Isle, France.

#2145 **Poster Board Number 136**
Effect on Dosimetry of Altered Respiratory Minute Volume During Inhalation Exposure. X. Li, S. Oag, P. McDonald, and P. Smith. Inhalation Toxicology, Charles River Edinburgh, Edinburgh, United Kingdom. Sponsor: *W. Harvey*.

#2146 **Poster Board Number 137**
Implantation of Left Ventricular Pressure Telemetry with Solid Tip ECG in the Cynomolgous Macaque: Surgical and Anaesthetic Considerations. K. Read. Veterinary Services, Huntingdon Life Sciences, Alconbury, United Kingdom. Sponsor: *D. Mitchell*.

#2147 **Poster Board Number 138**
Onset of Sexual Maturity in Female Göttingen Minipigs. B. Peter[1], E. de Rijk[1], H. Lorentsen[2], A. Zeltner[2], and *H. Emmen*[1]. [1]Toxicology, WIL Research, Den Bosch, Netherlands; and [2]Ellegaard Göttingen Minipigs A/S, Dalmose, Denmark.

#2148 **Poster Board Number 139**
Ovarian Cycle Features in Socially Housed Cynomolgus Monkeys (*Macaca fascicularis*). A. Mitchell[1], C. M. Luetjens[2], S. M. Henwood[1], and *G. F. Weinbauer*[2]. [1]Covance Laboratories, Madison, WI; and [2]Covance Laboratories GmbH, Muenster, Germany.

#2149 **Poster Board Number 140**
Development of a Novel Duodenal Catherization Model in the Minipig Using an Implant Modified from the Clinic. R. Rose, and K. Read. Veterinary Services, Huntingdon Life Sciences, Alconbury, United Kingdom. Sponsor: *D. Mitchell*.

#2150 **Poster Board Number 141**
Comparison of Cynomolgus and Marmoset Monkeys for Preclinical Testing of Biopharmaceuticals. *W. Frings*, and B. Niggemann. Covance Laboratories GmbH, Muenster, Germany.

Abstract #

#2151 **Poster Board Number 142**
Hepatic Microsomal UDP-Glucuronosyltransferase (UGT) Activities in Microminipig. E. Higashi[1], A. Ando[1], S. Iwano[1], N. Murayama[2], H. Yamazaki[2], and *Y. Miyamoto*[1]. [1]Toxicology and Pharmacokinetics Laboratories, Toray Industries, Inc., Kanagawa, Japan; and [2]Laboratory of Drug Metabolism and Pharmacokinetics, Showa Pharmaceutical University, Tokyo, Japan.

#2151a **Poster Board Number 143**
Quantity of Plasma Not a Constraint to Measure Clinical Chemistry Analytes. S. Jana[1], *V. Goyal*[1], *S. Pandey*[1], A. Gothi[1], S. Kakade[1], and R. Nirogi[1]. [1]Discovery Toxicology, Suven Life Science Ltd, Hyderabad, Andhra Pradesh, India.

#2151b **Poster Board Number 144**
Determining the Effect of Storage Conditions on Different Coagulation Parameters. *S. Pandey*[1], *V. Goyal*[1], A. Gothi[1], S. Jana[1], S. Kakade[1], and R. Nirogi[1]. [1]Discovery Toxicology, Suven Life Science Ltd, Hyderabad, Andhra Pradesh, India.

#2151c **Poster Board Number 145**
Basal and Short-Term Food Denial Stress-Induced Plasma Cortisol in Four Lineages of Miniswine. A. Stricker-Krongrad[2], N. Patel[1], N. Yumibe[1], D. Yurek[1], N. Huang[1], S. Renna[2], D. White[2], L. Brown[2], J. Liu[2], and *G. Bouchard*[2]. [1]Eli Lilly & Company, Indianapolis, IN; and [2]Sinclair Research, Auxvasse, MO.

#2151d **Poster Board Number 146**
Successful Social Housing of Mature Male Cynomolgus Macaques in Mixed Sex Rooms. D. M. Abney[1], K. Harding[2], J. Toscano[1], L. Poor[1], E. Moreau[3], H. Moomaw[1], D. Reim[1], and C. Winnicker[4]. [1]Charles River Laboratories, Reno, NV; [2]Charles River Laboratories, Houston, TX; [3]Charles River Laboratories, Senneville, QC, Canada; and [4]Charles River Laboratories, Wilmington, MA. Sponsor: *R. Kaiser*.

Thursday Morning, March 27
8:30 AM to 12:00 Noon
Hall 1

PS

Poster Session: Animal Models: Methods Development

Chairperson(s): *Sven H. Korte, Covance Laboratories GmbH, Muenster, Germany.*

Displayed: *8:30 AM–12:00 Noon*

#2152 **Poster Board Number 151**
Surgical and Nonsurgical Options for Dosing of Centrally Administered Compounds and CSF Sampling in Toxicity Studies Using Cynomolgus Monkeys. C. Rose, S. H. Korte, F. Runge, and B. Niggemann. Covance Laboratories GmbH, Muenster, Germany. Sponsor: *G. Weinbauer*.

#2153 **Poster Board Number 152**
Selection of Ocular Histology Tissue Sections Based on Ophthalmic Examination Findings. *M. C. Collins*. Preclinical Services, Charles River Laboratories, Reno, NV.

#2154 **Poster Board Number 153**
Dermal Administration in Toxicity Studies Using the Cynomolgus Monkey. S. H. Korte, and B. Niggemann. Covance Laboratories GmbH, Muenster, Germany. Sponsor: *G. Weinbauer*.

Program Description (Continued)

Abstract #

#2155 **Poster Board Number 154**
Comparative Analysis of Cynomolgus Monkeys Behaviour by 24 Hour Time-Lapse Video Monitoring in Toxicity Studies. C. M. Luetjens. Covance Laboratories GmbH, Muenster, Germany. Sponsor: *G. Weinbauer*.

#2156 **Poster Board Number 155**
Investigation of a Suitable Method for Monkey Semen Collection. G. Lei, S. McPherson, W. Hongping, C. Barker, S. Mason, and *Q. He*. WuXi AppTec, Suzhou, China.

#2157 **Poster Board Number 156**
Collection of Semen Samples from Rabbits in Drug Disposition Studies. J. D. Stuhler[1], J. Relph[1], M. Jensson[1], T. Eckhoff[1], F. Thalacker[1], and V. Tedesco[2]. [1]Metabolism, Covance Laboratories, Madison, WI; and [2]Novartis Pharmaceuticals Corporation, East Hanover, NJ. Sponsor: *V. Dinkel*.

#2158 **Poster Board Number 157**
Hepatic Portal Vein Catheterization in the Dog. H. Murphy, and K. Read. Veterinary Services, Huntingdon Life Sciences, Alconbury, United Kingdom. Sponsor: *D. Mitchell*.

#2159 **Poster Board Number 158**
Advances in Intranasal Delivery for Two Commonly Used Preclinical Test Systems. M. C. Freke[1], J. Douville[1], *D. O. Clarke*[2], A. Everly[2], and A. Viau[1]. [1]Inhalation Toxicology, Charles River, Montreal, QC, Canada; and [2]Nonclinical Safety Assessment, Eli Lilly and Company, Indianapolis, IN.

#2160 **Poster Board Number 159**
Packed Cell Reinjection As a Technique for Serial Blood Sampling in Rats. *P. S. Coder*, S. M. Davis, R. Moehle, A. Obrecht, and *D. G. Stump*. WIL Research, Ashland, OH.

#2161 **Poster Board Number 160**
Blood Capillary Microsampling in Suckling Rats—Reduction in and/or Elimination of the Need for Satellite Pups. N. S. Powles-Glover[1], S. Clubb[2], L. Jardine[2], and J. Stewart[1]. [1]AstraZeneca, Macclesfield, United Kingdom; and [2]Charles River, Edinburgh, United Kingdom. Sponsor: *W. Harvey*.

#2162 **Poster Board Number 161**
Quantified Electroencephalography (qEEG) in Safety Pharmacology. *G. Froget*, E. Esneault, G. Peyon, D. Babin, and V. Castagné. Porsolt, Le Genest Saint Isle, France.

#2163 **Poster Board Number 162**
Serotonin Reduction Impairs Executive Function and Induces Submissive-Like Behavior in Mice: A Validation Study of a New Cognitive Test for Chemical Risk Assessment. T. Endo[1], S. Benner[1], W. Ling[1], N. Endo[1], E. Kimura[1], *C. Tohyama*[1], and M. Kakeyama[1,2]. [1]Laboratory of Environmental Health Sciences, Center for Disease Biology and Integrative Medicine, Graduate School of Medicine, the University of Tokyo, Tokyo, Japan; and [2]Department of Neurobiology and Behavior, Graduate School of Biomedical Sciences, Nagasaki University, Nagasaki, Japan.

Abstract #

#2163a **Poster Board Number 163**
A Simple Method of Cerebrospinal Fluid Collection from Conscious Beagle Dogs and Its Application As a Surrogate for the Assessment of CNS Exposures. *V. Goyal*[1], S. Pagrut[1], *S. Pandey*[1], S. Jana[1], A. Gothi[1], S. Kakade[1], G. Bhyrapuneni[1], and R. Nirogi[1]. [1]Discovery Toxicology, Suven Life Science Ltd, Hyderabad, Andhra Pradesh, India.

#2163b **Poster Board Number 164**
Phosgene-Induced Lung Injury in the Conscious Pig. S. Graham[1], A. J. Smith[1], R. L. Perrott[1], B. J. Jugg[1], and *A. M. Sciuto*[2]. [1]Dstl, Salisbury, United Kingdom; and [2]USAMRICD, Aberdeen Proving Ground, MD.

#2163c **Poster Board Number 165**
LCt50 Determination of Sarin and Soman in Conscious Guinea Pigs (GP) Using a Nose-Only Vapor Inhalation Model. W. Holmes[1], D. Paradiso[1], J. Koenig[1], R. B. Lee[1], J. H. McDonough[1], and D. Anderson[1]. [1]USAMRICD, Aberdeen Proving Ground, MD. Sponsor: *J. Grahm*.

Thursday Morning, March 27
8:30 AM to 12:00 Noon
Hall 1

PS

Poster Session: Skin

Chairperson(s): *Tirupapuliyur Damodaran, North Carolina Central University, Durham, NC.*

Displayed: *8:30 AM–12:00 Noon*

#2164 **Poster Board Number 201**
The Endogenous Arylhydrocarbon Receptor Ligand 6-Formylindolo[3,2-b]Carbazole (FICZ) Is a Phototoxic UVA-Sensitizer in Epidermal Keratinocytes and Reconstructed Human Skin. R. Justiniano, S. L. Park, *S. Qiao*, C. M. Cabello, and *G. T. Wondrak*. Pharmacology and Toxicology, College of Pharmacy and Arizona Cancer Center, University of Arizona, Tucson, AZ.

#2165 **Poster Board Number 202**
Linalool and Limonene in Fragranced Products: Stability and Quantification of Potentially Sensitizing Hydroperoxides. *G. Adamson*[3], S. Kern[1], H. Dkhil[2], and A. Natsch[1]. [1]Givaudan Schweiz AG, Duebendorf, Switzerland; [2]Givaudan France SA, Argenteuil, France; and [3]Givaudan US, East Hanover, NJ.

#2166 **Poster Board Number 203**
Vetiveryl Acetate Evaluated for Potential Phototoxicity Utilizing a Human Epidermal Model and Patch Testing. J. F. Lalko, and *A. Api*. Research Institute for Fragrance Materials Inc., Woodcliff Lake, NJ.

#2167 **Poster Board Number 204**
***In Vivo* Phototoxicity Evaluation in Hairless Mice followed by 8-Methoxypsoralen, Lomefloxacin, and Ofloxacin.** Y. Takahashi, S. Utsunomiya, T. Yamada, Y. Yamashita, N. Koyashiki, A. Arima, H. Sameshima, and *R. Nagata*. Shin Nippon Biomedical Laboratories, Ltd. (SNBL), Kagoshima, Japan.

Program Description (Continued)

Abstract #

#2168 **Poster Board Number 205**
Development of an Alternative Method for Assessment of Skin Sensitization Using the *In Vitro* IL-18 Reconstructed Human Epidermis (RHE) Model. *S. M. Furst*[1], H. Lineberry[1], H. Aloor[1], J. Therrien[1], and E. Roggen[2]. [1]Safety Assessment, Stiefel a GSK company, Research Triangle Park, NC; and [2]3Rs Management and Consulting ApS, Lyngby, Denmark.

#2169 **Poster Board Number 206**
TRPA1 Inhibitors Counteract Inflammation and Edema in a Mouse Model of CS Tear Gas Agent-Induced Cutaneous Injury. S. Achanta[1], S. Balakrishna[1], N. Chintagari[1,2], B. F. Bessac[1,3], A. Sui[1], and *S. E. Jordt*[1]. [1]Pharmacology, Yale University, New Haven, CT; [2]US Food and Drug Administration, Bethesda, MD; and [3]Texas A & M Health Science Center, Kingsville, TX.

#2170 **Poster Board Number 207**
Differential Induction of DUOX Isoforms by Arsenite and Vanadate: A Novel Role for Reactive Oxygen? *T. Hill*[1,2], and R. H. Rice[1]. [1]Environmental Toxicology, University of California at Davis, Davis, CA; and [2]School of Nursing, University of Northern Colorado, Greeley, CO.

#2171 **Poster Board Number 208**
Involvement of Reactive Oxygen Species (ROS) and Gene Expression Profile in Response to p-Phenylenediamine and Components of Permanent Hair Dyes in Human Keratinocytes (HaCaT) Cells and Human Skin Explants. T. Zanoni[1], A. Bast[1,2], *G. Hageman*[1,2], and D. P. de Oliveira[1]. [1]Environmental Toxicology, University of Sao Paulo-USP, Ribeirao Preto, Brazil; and [2]Toxicology, University of Maastricht, Maastricht, Netherlands.

#2172 **Poster Board Number 209**
Dermal Absorption *In Vitro* and Its Influencing Parameters. K. Guth, E. Fabian, S. Wölk, *B. van Ravenzwaay*, and *R. Landsiedel*. Toxicology, BASF SE, Ludwigshafen/Rhein, Germany.

#2173 **Poster Board Number 210**
Evaluation of Age, Storage, and Skin Preparation Technique on Dermal Absorption in Rat Skin. *S. Chaudhuri*, *A. T. McCoy*, F. Zhang, S. C. Hansen, L. K. Sosinski, and *M. Bartels*. Toxicology, The Dow Chemical Company, Midland, MI.

#2174 **Poster Board Number 211**
The Effect of Coformulants on Dermal Uptake—A Raman Study. T. Patel[1], D. Salazar[3], G. Bell[3], J. Wright[3], B. Parr-Dobranzski[3], A. Ghaemmaghami[2], P. Williams[1], C. J. Roberts[1], and F. R. Rose[1]. [1]School of Pharmacy, University of Nottingham, Nottingham, United Kingdom; [2]School of Life Sciences, University of Nottingham, Nottingham, United Kingdom; and [3]Syngenta Ltd, Jealott's Hill International Research Centre, Berkshire, United Kingdom. Sponsor: *P. Botham*.

#2175 **Poster Board Number 212**
Skin Absorption of Performance Amines Used in Metalworking Fluids. L. Roux, J. Brooks, J. Yeatts, and *R. E. Baynes*. NCSU, Raleigh, NC.

Abstract #

#2176 **Poster Board Number 213**
***In Vitro* Human Skin Permeation: Example of CMI/MI and Tolylfluanid, Two Irritant, and Sensitizer Biocides.** *A. Berthet*[1], P. Spring[2], N. Charriere[1], D. Vernez[1], and *N. B. Hopf*[1]. [1]Institute for Work and Health, Lausanne, Switzerland; and [2]Dermatology, Centre Hospitalier Universitaire Vaudois, Lausanne, Switzerland.

#2177 **Poster Board Number 214**
The *In Vitro* SkinEthic RHE Skin Corrosion As a Reference Test Method in the Acute Testing Strategy. V. Leblanc[1], C. Tornier[2], M. Grandidier[1], C. Robert[2], N. Seyler[2], J. Cotovio[1], and N. Alépée[1]. [1]L'Oréal, Aulnay sous Bois, France; and [2]L'Oréal, Gerland, France. Sponsor: *D. Bury*.

#2178 **Poster Board Number 215**
***In Vitro* Skin Corrosion and Irritation Assessment of Ingredients Using EpiSkin Model: Top-Down and Bottom-Up Approaches.** M. Grandidier, J. Cotovio, and N. Alépée. L'Oréal, Aulnay sous Bois, France. Sponsor: *D. Bury*.

#2179 **Poster Board Number 216**
The Usefulness of the Validated SkinEthic RHE Method to Identify Skin Corrosive UN GHS Subcategories. C. Tornier[1], C. Robert[1], J. Cotovio[2], and N. Alépée[2]. [1]L'Oréal, Gerland, France; and [2]L'Oréal, Aulnay sous Bois, France. Sponsor: *D. Bury*.

#2180 **Poster Board Number 217**
Chronic Solar Simulated UVR Exposure Alters Histone Modifications at Photoaging Gene Promoters in Human Dermal Fibroblasts. *L. Passantino*[1], M. Matsui[2], and *M. Costa*[1]. [1]Nelson Institute of Environmental Medicine, New York University, New York City, NY; and [2]Estee Lauder Companies, Inc., Melville, NY.

#2181 **Poster Board Number 218**
Timecourse of Recovery following UV-Induced Damage Using a Full-Thickness Human Skin Equivalent. M. A. Bachelor, *P. J. Hayden*, M. Klausner, G. Stolper, J. Oldach, and M. Li. MatTek Corporation, Ashland, MA.

#2182 **Poster Board Number 219**
Effect of Exposure Area on Nerve Agent Absorption through Skin *In Vitro*. *C. Dalton*, S. Graham, and *J. Jenner*. Biomedical Sciences, Dstl, Salisbury, United Kingdom.

#2182a **Poster Board Number 220**
***In Vitro* Dermal Permeation of Nicotine from Surrogate E-Cigarette Liquids.** H. Frasch[1], and A. M. Barbero[1]. [1]National Institute for Occupational Safety and Health, Morgantown, WV. Sponsor: *S. Anderson*.

#2182b **Poster Board Number 221**
Using Mode of Action in Predicting Skin Toxicity. V. Veljovic[1], D. Mitic Potkrajac[1], B. Rakic[1], and *G. Apic*[1]. [1]Cambridge Cell Networks Ltd, Novi Sad, Serbia.

#2182c **Poster Board Number 222**
Identification of Putative Skin Sensitizers Using QSAR Models Enriched by *In Vitro* Data. A. Tropsha[1], V. Alves[2], E. Muratov[1], D. Fourches[1], *J. Strickland*[3], *N. Kleinstreuer*[3], and C. Andrade[2]. [1]UNC-Chapel Hill, Chapel Hill, NC; [2]Federal University of Goiás, Goiânia, GO, Brazil; and [3]ILS, Inc., Research Triangle Park, NC.

Program Description (Continued)

Thursday Morning, March 27
8:30 AM to 12:00 Noon
Hall 1

PS

Poster Session: Reproductive Toxicology: Female

Chairperson(s): *Ayelet Ziv-Gal, University of Illinois Urbana-Champaign, Urbana, IL.*

Displayed: *8:30 AM–12:00 Noon*

Abstract #

#2183 **Poster Board Number 226**
Phosphoramide Mustard-Induced DNA Adduct Formation and DNA Damage Repair Response Induction in Rat Ovarian Granulosa Cells. *S. Ganesan*, and *A. Keating*. Animal Science, Iowa State University, Ames, IA.

#2184 **Poster Board Number 227**
***In Utero* BPA Exposure May Cause Transgenerational Reproductive Effects in Mice.** *A. Ziv-Gal, W. Wang, C. Zhou*, and *J. A. Flaws*. Comparative Biosciences, University of Illinois at Urbana-Champaign, Urbana, IL.

#2185 **Poster Board Number 228**
Genistein Exposure Inhibits Growth and Alters Steroidogenesis in Adult Mouse Antral Follicles. *J. Peretz*, and *J. A. Flaws*. Comparative Biosciences, University of Illinois at Urbana-Champaign, Urbana, IL.

#2186 **Poster Board Number 229**
Di(2-ethylhexyl) Phthalate May Accelerate Early Ovarian Folliculogenesis by Increasing pAKT Levels in the Ovary. *P. R. Hannon*, and *J. A. Flaws*. Department of Comparative Biosciences, University of Illinois, Urbana, IL.

#2187 **Poster Board Number 230**
Phosphoramide Mustard-Induced Changes in Glucose Metabolism in the Neonatal Rat Ovary. *J. A. Madden*, and *A. Keating*. Animal Science, Iowa State University, Ames, IA.

#2188 **Poster Board Number 231**
A Short Low-Dose Exposure to Di-n-Butyl Phthalate (DBP) Disrupts 17Beta-Estradiol Production in CD-1 Female Mice. A. Acuff, and *Z. R. Craig*. School of Animal and Comparative Biomedical Sciences, University of Arizona, Tucson, AZ.

#2189 **Poster Board Number 232**
Temporal Impact of Obesity on Expression of Genes Encoding Enzymes Involved in Ovarian Xenobiotic Biotransformation. *J. Nteeba*, and *A. Keating*. Department of Animal Science, Iowa State University, Ames, IA.

#2190 **Poster Board Number 233**
Examining Triclosan-Induced Potentiation of the Estrogen Uterotrophic Effect. *G. W. Louis*[1,2], D. Hallinger[1], and *T. E. Stoker*[1]. [1]Endocrine Toxicology Branch, US Environmental Protection Agency, Research Triangle Park, NC; and [2]Oak Ridge Institute for Science and Education, Oak Ridge, TN.

#2191 **Poster Board Number 234**
Propylparaben Has No Estrogenic Activity When Administered for 3 Months in Juvenile Rats. *L. Sivaraman*[1], *L. Pouliot*[2], Y. Zhao[1], G. Liu[1], H. Shen[1], B. Wang[1], C. Parrula[1], T. Brodie[1], *M. J. Graziano*[1], and *M. E. McNerney*[1]. [1]Bristol-Myers Squibb Co., New Brunswick, NJ; and [2]Charles River Laboratories Preclinical Services, Montreal, QC, Canada.

Abstract #

#2192 **Poster Board Number 235**
Combined Repeated-Dose Toxicity Studies with the Reproduction/Developmental Toxicity Screening Tests for Perfluorotetradecanoic Acid and Perfluorohexadecanoic Acid in Rats. *A. Hirose*[1], S. Fujii[2], T. Suzuki[3], H. Kato[1], T. Kawamura[1], M. Matsumoto[1], M. Takahashi[1], M. Hirata-Koizumi[1], T. Nishimura[4], *M. Ema*[5], and A. Ono[1]. [1]Division of Risk Assessment, National Institute of Health Sciences, Tokyo, Japan; [2]Safety Research Institute for Chemical Compounds Co., Ltd., Sapporo, Japan; [3]Tokyo Metropolitan Institute of Public Health, Tokyo, Japan; [4]Teikyo Heisei University, Tokyo, Japan; and [5]National Institute of Advanced Industrial Science and Technology, Tsukuba, Japan.

#2193 **Poster Board Number 236**
Inhalation Exposure of Pregnant Mice to Concentrated Airborne Particulate Matter Leads to Adverse Obstetric Outcomes Associated with Particular Exposure "Windows" *J. L. Blum, L. Chen*, and *J. T. Zelikoff*. Environmental Medicine, New York University School of Medicine, Tuxedo, NY.

#2194 **Poster Board Number 237**
***In Utero* Exposure of F-344 Rats to Low Levels of Dietary Zeranol Induces Transgenerational Effects on Sexual Development and Susceptibility to Chemically-Induced Mammary Carcinogenesis.** *C. Lewis*[1], *J. T. Barrett*[1,2], P. Vakil[2], *M. A. Gallo*[1,2], and *H. Zarbl*[1,2]. [1]GSBS, RWJMS-Rutgers University, Piscataway, NJ; and [2]EOHSI, Rutgers University, Piscataway, NJ.

#2195 **Poster Board Number 238**
Transfer of Triclocarban through Gestation and Lactation. *H. Enright*[1], V. Lao[1], M. Sarachine Falso[2], B. A. Buchholz[2], K. Kulp[1], and *M. A. Malfatti*[1]. [1]Biosciences and Biotechnology Division, Lawrence Livermore National Laboratory, Livermore, CA; and [2]Center for Accelerator Mass Spectrometry, Lawrence Livermore National Laboratory, Livermore, CA.

#2196 **Poster Board Number 239**
Plasma Microsampling of the Female Mouse and Fetus for Pharmacokinetic Profiling of Monoclonal Antibodies. E. Marsden[1], S. Haertle[2], L. Reynaud[1], and *S. Baudet*[1]. [1]WIL Research Europe-Lyon, St Germain-Nuelles, France; and [2]MorphoSys AG, Planegg, Germany.

#2196a **Poster Board Number 240**
Mammary Gland Histopathology of the Harlan Sprague-Dawley Rat: A Model for Mammary Tumor Susceptibility Studies following Perinatal Endocrine Disrupting Compound Exposures. *J. P. Stanko*[1], and *S. E. Fenton*[1]. [1]National Toxicology Program Laboratory, NTP/NIEHS, Research Triangle Park, NC.

#2196b **Poster Board Number 241**
Early-Life Mammary Effects in Male and Female Rats following Low-Dose Maternal and Drinking Water Exposure to a VOC Mixture. *A. J. Filgo*[1,2], *E. M. Quist*[1,3], and *S. E. Fenton*[1]. [1]NTP Labs, DNTP, NIEHS, NIH, DHHS, Research Triangle Park, NC; [2]Curriculum in Toxicology, University of North Carolina, Chapel Hill, NC; and [3]Comparative Biomedical Sciences, College of Veterinary Medicine, NC State University, Raleigh, NC.

Program Description (Continued)

Abstract #

#2196c **Poster Board Number 242**
Altered Mammary Development As a Result of *In Utero* Exposure to a High and Low Dose of Inorganic Arsenic (iAs) in the CD-1 Mouse. *D. K. Robinson*[1,2], *S. E. Fenton*[2], K. Rodriguez[3], and H. Yao[3]. [1]Toxicology, University of North Carolina at Chapel Hill, Cary, NC; [2]NTP Laboratory, NIEHS, RTP, NC; and [3]Laboratory of Reproductive and Developmental Toxicology, NIEHS, RTP, NC.

#2196d **Poster Board Number 243**
Prenatal PFOA Exposure Mediates Effects in the Murine Mammary Gland through Endocrine Disruption. *M. B. Macon*[1,2], and *S. E. Fenton*[2]. [1]Curriculum in Toxicology, UNC-CH, Chapel Hill, NC; and [2]NTP Laboratory, NIEHS, NIH, RTP, NC.

Thursday Morning, March 27
8:30 AM to 12:00 Noon
Hall 1

PS

Poster Session: Safety Assessment: Drug Development III

Chairperson(s): *Peter Korytko, Preclinical GPS, Bainbridge Island, WA.*

Displayed: *8:30 AM–12:00 Noon*

#2196e **Poster Board Number 246**
Mode of Action and Human Relevance Assessment of Male CD-1 Mouse Renal Adenocarcioma Associated with Lifetime Exposure to Empagliflozin. *J. A. Phillips*[1], M. E. Taub[1], N. Ishiguro[2], S. VanTongeren[1], B. Knight[1], E. C. Ludwig-Schwellinger[3], J. Yuan[1], J. D. Smith[1], H. Yu[1], P. A. Escobar[1], W. T. Loging[1], and *W. W. Ku*[1]. [1]Boehringer Ingelheim Pharmaceuticals, Inc., Ridgefield, CT; [2]Kobe Pharma Research Institute, Kobe, Japan; and [3]Boehringer Ingelheim Pharmaceuticals, GmbH, Biberach, Germany.

#2196f **Poster Board Number 247**
General Toxicology and Carcinogenicity Assessment of Empagliflozin, an SGLT2 Inhibitor for the Treatment of Type 2 Diabetes Mellitus. *M. Bogdanffy*[1], *R. F. Stachlewitz*[1], S. VanTongeren[1], B. Knight[1], *W. W. Ku*[1], *S. G. Emeigh Hart*[1], and *K. T. Blanchard*[1]. [1]Nonclinical Drug Safety, Boehringer Ingelheim Pharmaceuticals, Inc., Ridgefield, CT.

#2196g **Poster Board Number 248**
A Predominant Oxidative Renal Metabolite of Empagliflozin in Male Mice Is Cytotoxic in Mouse Renal Tubular Cells but Not Genotoxic. J. D. Smith[1], Z. Huang[1], H. Maw[1], R. Nardi[1], P. Foppiano[1], L. Her[1], W. Loging[1], P. A. Escobar[1], *J. A. Phillips*[1], H. Yu[1], M. E. Taub[1], and *W. W. Ku*[1]. [1]Boehringer Ingelheim Pharmaceuticals Inc., Ridgefield, CT.

#2196h **Poster Board Number 249**
Pathogenesis of Renal Injury in the Male CD-1 Mouse Associated with Exposure to Empagliflozin. B. Knight[1], *S. Emeigh Hart*[1], *J. A. Phillips*[1], S. Koegler[1], J. Hall[1], and *W. W. Ku*[1]. [1]Boehringer Ingelheim Inc., Ridgefield, CT.

Abstract #

#2196i **Poster Board Number 250**
RNA-Seq Reveals Molecular Changes in Renal Injury Associated with Exposure to Empagliflozin in the Male CD-1 Mouse. *J. Yuan*[1], P. Pande[1], J. Hill[2], Y. Wang[2], D. Hall[3], J. Mikl[3], and *W. W. Ku*[1]. [1]Nonclinical Drug Safety, Boehringer Ingelheim Pharmaceuticals, Inc., Ridgefield, CT; [2]Scientific Knowledge Discovery, Boehringer Ingelheim Pharmaceuticals, Inc., Ridgefield, CT; and [3]Biometrics and Data Management, Boehringer Ingelheim Pharmaceuticals, Inc., Ridgefield, CT.

#2196j **Poster Board Number 251**
Nonclinical Safety Assessment of Exendin (9-39) in Juvenile Rats and Dogs. *K. E. Elsass*[2], *N. Bordelon*[2], M. Lynch[2], M. Hawk[2], T. Arndt[2], P. Hong[2], K. Knostman[2], D. DeLeon[3], and *P. S. Terse*[1]. [1]National Center for Advancing Translational Sciences, Bethesda, MD; [2]Battelle, Columbus, OH; and [3]The Children's Hospital of Philadelphia, Philadelphia, PA.

#2196k **Poster Board Number 252**
ETI-204 Nonclinical Safety Assessment of CNS Findings from Inhalational Anthrax Animal Studies. *B. Yamamoto*[1], *M. T. Butt*[2], N. Serbina[1], H. Tang[1], and *A. Shadiack*[1]. [1]Elusys Therapeutics, Pine Brook, NJ; and [2]Tox Path Specialists, Frederick, MD.

#2196l **Poster Board Number 253**
Nonclinical Assessment of NRX-1074, an Orally Bioavailable NMDAR Partial Agonist. *G. W. Wolfe*[1], *M. M. Vegarra*[1], *C. S. Godin*[1], D. Houck[2], and J. Gidda[2]. [1]Smithers Avanza, Gaithersburg, MD; and [2]Naurex, Inc, Evanston, IL.

#2196m **Poster Board Number 254**
Comparative Prolactin Study in Mouse and Rat Using CNS Drugs: Molindone, Haloperidol and Reserpine. S. Ganiger[1], H. Krishnappa[1], S. Sulaiman[1], *S. Goel*[2], and *G. Krishna*[2]. [1]Safety Assessment, Advinus Therapeutics Ltd, Bangalore, Karnataka, India; and [2]Supernus Pharmaceuticals, Inc, Rockville, MD.

#2196n **Poster Board Number 255**
Assessment of Prolactin-Mediated Changes and Their Reversal in Molindone-Treated rasH2 Mice. *G. Krishna*[1], S. Ganiger[2], and *S. Goel*[1]. [1]Supernus Pharmaceuticals, Inc., Rockville, MD; and [2]Advinus Therapeutics Ltd., Bengaluru, India;

#2196o **Poster Board Number 256**
The Role of Receptor Occupancy Analysis during Preclinical Development of Biologics. *S. Kirk*[1], K. Troth[1], A. Head[1], and W. Beck[1]. [1]Covance Laboratories Ltd, Harrogate, United Kingdom.

#2196p **Poster Board Number 257**
De-Risking Potential Infection Risk with Anti-CSF-1. *K. S. Rajapaksa*[1], W. Lin[1], E. Suto[1], Z. Huang[1], J. Eastham-Anderson[1], P. Katavolos[1], C. D. Austin[1], *D. M. Danilenko*[1], J. DeVoss[1], W. Lee[1], F. Martin[1], and A. A. Zarrin[1]. [1]Genentech, South San Francisco, CA.

#2196q **Poster Board Number 258**
A Method Validation for the Screening and Confirmation of Neutralizing Antibodies (NAb) against PEG-IL-29 in HCV Human Sera Using a Cell-Based Assay with a Bioluminescent Detection Platform. J. Hantash[1]. [1]Biotechnology Services, Tandem Labs Inc., West Trenton, NJ. Sponsor: *Z. Radi*.

Program Description (Continued)

Abstract #

#2196r **Poster Board Number 259**
Assessing Safety and Efficacy of Anti-CD20 Biologics in Human Immune System Mice. K. E. Howard[1], X. Li[1], J. Austin[1], and C. Gonzalez[1]. [1]CDER/OTS/OCP/DARS, US FDA, Silver Spring, MD. Sponsor: *J. Weaver*.

#2196s **Poster Board Number 260**
Recombinant H7N9-Avian Influenza Vaccine: A 57-Day Repeat-Dose Intramuscular Toxicity Study with and without Saponin-Based Adjuvant Matrix M in the New Zealand White Rabbit. *M. M. Vegarra*[1], *C. S. Godin*[1], and D. Flyer[2]. [1]Smithers Avanza, Gaithersburg, MD; and [2]Novavax,Inc, Rockville, MD.

#2196t **Poster Board Number 261**
Characterization of Ototoxic Synergism between Kanamycin and Amitriptyline in Guinea Pigs. M. M. Abernathy[1], R. Tapp[1], D. Gauvin[1], and T. Baird[1]. [1]Neurobehavioral Sciences, MPI Research, Mattawan, MI. Sponsor: *J. Heward*.

#2196u **Poster Board Number 262**
Sildenafil-Induced Changes in Auditory Brainstem Response in Mice. Y. Kuroiwa[1], T. Ogawa[1], Y. Nakayama[1], K. Maeda[1], Y. Tuda[2], A. Nakamura[1], T. Enami[1], S. Okazaki[1], H. Kuse[2]. [1]BoZo Research Center Inc., Gotemba, Shizuoka, Japan; and [2]BoZo Research Center Inc., Kannami, Shizuoka, Japan. Sponsor: *W. Ruddock*.

#2196v **Poster Board Number 263**
When a Convulsion Is Not a Seizure: Behavior and EEG Studies with SCH A in the Beagle Dog. *M. Kallman*[1], M. Sgro[1], *C. Markgraf*[2], and L. Ballering[2]. [1]Covance Laboratories, Greenfield, IN; and [2]Merck Research Laboratories, Lafayette, NJ.

#2196w **Poster Board Number 264**
The Effect of Anesthetic on QT Interval Measurements in Guinea Pigs. L. A. Neves[1], H. Wang[1], J. Huang[1], *P. B. Senese*[1], and *M. R. Gralinski*[1]. [1]CorDynamics, Inc., Chicago, IL.

#2196x **Poster Board Number 265**
IG-001 Suppressed Hypersensitivity Reactions versus Taxol® in Beagle Dogs. *O. J. D'Cruz*[1], J. Hsu[1], and V. Trieu[1]. [1]Sorrento Therapeutics, Irvine, CA.

#2196y **Poster Board Number 266**
Repeat-Dose Rabbit Vaginal Tolerance/Toxicity Study of Diindolylmethane Cream for Topical Treatment of Cervical Intraepithelial Neoplasia. *T. L. Horn*[1], M. Muzzio[1], C. J. Detrisac[2], M. A. Zeligs[3], D. L. Boring[4], and *D. L. McCormick*[1]. [1]IIT Research Institute, Chicago, IL; [2]Pathology Associates, Chicago, IL; [3]BioResponse Nutrients, LLC, Boulder, CO; and [4]National Cancer Institute, Bethesda, MD.

#2196z **Poster Board Number 267**
A Retrospective Analysis of the Effect of Housing Conditions on Body Weight, Food Consumption and Survival in Rat Carcinogenic Rat Studies. *D. Zhao*[1], *C. N. Papagiannis*[2], *D. W. Poage*[2], *R. L. Yeager*[1], *D. R. Davila*[1], J. Hiner[2], and L. Shu[3]. [1]Preclinical Safety, AbbVie Inc, North Chicago, IL; [2]MPI Research, Mattwan, MI; and [3]Statistics, AbbVie Inc, North Chicago, IL.

Abstract #

#2196aa **Poster Board Number 268**
Global Cross-Company Data-Sharing on the Use of Recovery Animals for Human Safety Assessment. F. Sewell[1], and K. Chapman[1]. [1]National Centre for the Replacement, Refinement & Reduction of Animals in Research (NC3Rs), London, United Kingdom. Sponsor: *L. Burns Naas*.

#2196bb **Poster Board Number 269**
Comparison of the Expression of ALP Isoenzymes in Serum among Five Animal Species Used in Toxicity Studies. K. Goto[1], Y. Nishihara[1], J. Kobayashi[1], A. Okamuro[2], H. Mizuguchi[2], T. Narita[2], R. Haneda[2], and K. Hatayama[1]. [1]BoZo Research Center Inc., Gotemba, Shizuoka, Japan; and [2]Bozo Research Center Inc., Kannami, Shizuoka, Japan. Sponsor: *W. Ruddock*.

Thursday Morning, March 27
8:30 AM to 12:00 Noon
Hall 1

PS

Poster Session: Persistent Organic Pollutants

New Science and Perspectives Surrounding Environmental and Occupational Exposures

Chairperson(s): *Hans-Joachim Lehmler, University of Iowa, Department of Occupational and Environmental Health, Iowa City, IA.*

Displayed: *8:30 AM–12:00 Noon*

#2197 **Poster Board Number 301**
Aryl Hydrocarbon Receptor Activation Impairs Insulin Signaling through Degrading IRS-1. *C. Wang*[1], *C. Xu*[1], S. Krager[2], C. Jaeger[1], K. Bottum[2], and S. Tischkau[1]. [1]Pharmacology, SIU School of Medicine, Springfield, IL; and [2]Internal Medicine, SIU School of Medicine, Springfield, IL.

#2198 **Poster Board Number 302**
Exposure to p,p'-Dichlorodiphenyldichloroethylene (DDE) Promotes Fasting Hyperglycemia in Male C57BL/6 Mice. G. E. Howell[1], J. Kilic[2], E. C. Meek[1], and *J. E. Chambers*[1]. [1]Center for Environmental Health Sciences, Mississippi State University College of Veterinary Medicine, Mississippi State, MS; and [2]Biological Sciences, Mississippi College, Clinton, MS.

#2199 **Poster Board Number 303**
PCB126 Alters Adipogenesis and Induces Metabolic Disruption in a Human Adipocyte Model. *G. S. Gadupudi*[1,3], F. Gourronc[2], A. J. J. Klingelhutz[2], and *L. W. Robertson*[1,3]. [1]Graduate Program in Human Toxicology, University of Iowa, Iowa City, IA; [2]Microbiology, University of Iowa, Iowa City, IA; and [3]Occupational & Environmental Health, University of Iowa, Iowa City, IA.

#2200 **Poster Board Number 304**
TCDD Treatment Enhances Hepatic Stellate Cell Activation during Experimental Liver Fibrosis. *C. L. Lamb*, W. A. Harvey, and *K. A. Mitchell*. Biological Sciences, Boise State University, Boise, ID.

Program Description (Continued)

Abstract #

#2201 **Poster Board Number 305**
Congener- and Species-Specific Differences in Relative Effect Potencies of Dioxin-Like Compounds between *In Vitro*-Exposed Human Peripheral Blood Lymphocytes and Mouse Splenic Cells. K. van Ede, K. Gaisch, *M. Van den Berg*, and *M. B. van Duursen*. Toxicology, IRAS, Utrecht University, Utrecht, Netherlands.

#2202 **Poster Board Number 306**
Measurement of Protein Adducts Formed by Quinoid Metabolites of Polychlorinated Biphenyls (PCBs). *M. Li*[1], *L. W. Robertson*[1,2], P. A. Kapke[3], and *G. Ludewig*[1,2]. [1]Interdisciplinary Graduate Program in Human Toxicology, The University of Iowa, Iowa City, IA; [2]Department of Occupational and Environmental Health, The University of Iowa, Iowa City, IA; and [3]Hybridoma Facility, Iowa State University, Ames, IA.

#2203 **Poster Board Number 307**
The Effects of Polycyclic Aromatic Hydrocarbons on Cellular Proliferation and Viability in Clone-9 Rat Liver Cells. *S. J. Gray*, and *E. D. Bruce*. Environmental Science, Baylor University, Waco, TX.

#2204 **Poster Board Number 308**
Biotranformation of BDE-100 to Potentially Toxic Metabolites: Predominant Role of Human CYP2B6. M. S. Gross[1], D. M. Butryn[1], B. P. McGarrigle[2], D. S. Aga[1], and *J. R. Olson*[2]. [1]Chemistry, University at Buffalo, Buffalo, NY; and [2]Pharmacology and Toxicology, University at Buffalo, Buffalo, NY.

#2205 **Poster Board Number 309**
Enantioselective Disposition of 2,2',3,5',6-Hexachlorobiphenyl (PCB 95) and Its Metabolites in Mouse Dams Dosed during Pregnancy. *I. Kania-Korwel*[1], *C. Barnhart*[2], K. M. Truong[2], *P. Lein*[2], and *H. Lehmler*[1]. [1]Department of Occupational and Environmental Health, Univ of Iowa, Iowa City, IA; and [2]School of Veterinary Medicine, University of California, Davis, CA.

#2206 **Poster Board Number 310**
Decreased Hepatocyte Nuclear Factor 4 alpha Activity As a Mechanism of Hepatomegaly Induced by PFOA and PFOS. S. McGreal[1], A. McCarthy[1], *C. Walesky*[1], M. Manley[1], *C. S. Lau*[2], *B. Hagenbuch*[1], and *U. Apte*[1]. [1]Department of Pharmacology, Toxicology and Therapeutics, University of Kansas Medical Center, Kansas City, KS; and [2]National Health and Environmental Effects Research Laboratory, U.S. Environmental Protection Agency, Research Triangle Park, NC.

#2207 **Poster Board Number 311**
Low-Dose Perfluorooctanesulfonic Acid (PFOS) Induces Hepatic Lipid Accumulation and Dampens Caloric Restriction-Induced Lipid Loss in Mice. *D. Salter*, *J. Xu*, W. Wei, *L. Armstrong*, and *A. L. Slitt*. Biomedical and Pharmaceutical Sciences, University of Rhode Island, Kingston, RI.

#2208 **Poster Board Number 312**
Bile Salt Transporters Are Involved in the Disposition of Perfluoroalkyl Sulfonates in Rats and Humans. W. Zhao[1], *J. Zitzow*[2], *D. J. Ehresman*[2], *S. Chang*[2], *J. L. Butenhoff*[2], and *B. Hagenbuch*[1]. [1]Pharmacology, Toxicology and Therapeutics, The University of Kansas Medical Center, Kansas City, KS; and [2]Medical Department; 3M Center, St. Paul, MN.

Abstract #

#2209 **Poster Board Number 313**
Evaluation of 6-Week Dietary Exposure to 100 ppm Perfluorooctane Sulfonate (PFOS) and Normal Choline or High Choline in Sprague-Dawley Rats. *B. D. Bagley*, *S. Chang*, *D. J. Ehresman*, and *J. L. Butenhoff*. 3M Company, St. Paul, MN.

#2210 **Poster Board Number 314**
Perfluoroalkyl Acids in River and Sea Water of Japan. *N. Saito*[1], N. Shimizu[2], and *S. Tsuda*[1]. [1]Iwate Institute of Environmental Health Sciences, Morioka, Japan; and [2]LSCA, Application Centre, Agilent Technologies Japan Ltd, Tokyo, Japan.

#2211 **Poster Board Number 315**
Mortality Experience of APFO Production Workers. B. Alexander[1], K. Raleigh[1], G. Ramachandran[1], T. Church[1], L. Scott[1], S. Mongin[1], P. Logan[2], S. Morey[3], and *G. Olsen*[2]. [1]University of Minnesota, Minneapolis, MN; [2]3M Company, St. Paul, MN; and [3]More Consulting, Inc, St. Paul, MN.

#2212 **Poster Board Number 316**
iTRAQ Protein Profile Analysis of Mouse Testis after Perfluorooctanoate (PFOA) Exposure. H. Zhang[1], L. Yin[1], L. Bin[2], Y. Shengmin[1], and *J. Dai*[1]. [1]Institute of zoology, Beijing, China; and [2]Anhui University, Hefei, China.

#2213 **Poster Board Number 317**
Effects of Perfluorooctanoate (PFOA) and Perfluorooctanesulfonate (PFOS) on Cholesterol Efflux in Macrophage-Derived Foam Cells. *J. Vanden Heuvel*[1,2], J. A. Garban[1], and J. T. Thompson[1]. [1]Veterinary and Biomedical Sciences, Penn State University, University Park, PA; and [2]Indigo Biosciences, Inc., State College, PA.

#2213a **Poster Board Number 318**
Tetrabromobisphenol A versus Bisphenol A: Excitation-Contraction Coupling Impairment through Divergent Mechanisms. *R. Zhang*[1], and *I. N. Pessah*[1]. [1]Department of Molecular Biosciences, School of Veterinary Medicine, University of California, Davis, Davis, CA.

#2213b **Poster Board Number 319**
An Evaluation of Gestational Exposure to Perfluorooctanoic Acid (PFOA): Effects on Body Composition and Physiological Factors. *D. L. Diggs*[1], J. Norwood[1], C. Wood[1], M. Lin[1], *J. M. Rogers*[1], *C. S. Lau*[1], and *B. D. Abbott*[1]. [1]ORD, NHEERL, TAD, DTB, US EPA, Durham, NC.

Thursday Morning, March 27
8:30 AM to 12:00 Noon
Hall 1

PS

Poster Session: Metals in the Environment

Chairperson(s): *Jennifer L. Freeman, Purdue University, Health Sciences, West Lafayette, IN.*

Displayed: *8:30 AM–12:00 Noon*

#2214 **Poster Board Number 326**
Cardiovascular Effects of Lead, Inorganic Mercury, and Methylmercury: Potential Risk to Humans. T. Wildemann[1,2], S. D. Siciliano[1,2], and *L. P. Weber*[1,3]. [1]Toxicology Graduate Program, University of Saskatchewan, Saskatoon, SK, Canada; [2]Soil Science, University of Saskatchewan, Saskatoon, SK, Canada; and [3]Veterinary Biomedical Sciences, University of Saskatchewan, Saskatoon, SK, Canada.

Program Description (Continued)

Abstract #

#2215 **Poster Board Number 327**
Stainless Steel Leaches Nickel and Chromium into Foods during Cooking. K. A. Hobbie, K. L. Kamerud, and K. Anderson. Department of Environmental & Molecular Toxicology, Oregon State University, Corvallis, OR. Sponsor: *G. Sower*.

#2216 **Poster Board Number 328**
Oxidative Stress and Heavy Metal Toxicity in Work Place Exposure to Heavy Metals in Nigeria. *O. M. Akinosun*, and O. S. Adeleye. Chemical Pathology, University of Ibadan, Nigeria, Ibadan, Oyo, Nigeria.

#2217 **Poster Board Number 329**
Gene Expression Profiling in Saudi Individuals Exposed to Environmental Heavy Metals. *I. M. Attafi*[1], *S. A. Albakheet*[3], K. S. Famulski[2], and H. M. Korashy[3]. [1]Poison Control Center, Jazan Health Affairs, Jazan, Saudi Arabia; [2]Alberta Transplant Applied Genomics Centre, University of Alberta, Edmonton, AB, Canada; and [3]Pharmacology and Toxicology, King Saud University, Riyadh, Saudi Arabia.

#2218 **Poster Board Number 330**
Are Metals in Rolling Tobacco Less Risky Than Cigarettes? M. C. Rubio-Armendáriz[1], C. Silva[1], D. González-Weller[1], Á. J. Gutiérrez[1], G. Luis-González[1], A. Hardisson[1], and A. Anadon[2]. [1]Toxicología, Universidad de La Laguna, La Laguna, S/C de Tenerife, Islas Canaria, Spain; and [2]Toxicología y Farmacología, Universidad Complutense, Madrid, Spain. Sponsor: *A. Anadón*.

#2219 **Poster Board Number 331**
Evaluation of Electric Arc Furnace-Processed Steel Slag for Dermal Corrosion, Irritation, and Sensitization. *M. Suh*[1], J. J. Yzenas[2], and *D. Proctor*[1]. [1]ToxStrategies, Mission Viejo, CA; and [2]Edw. C. Levy Company, Valparaiso, IN.

#2220 **Poster Board Number 332**
MicroRNA Expression Profiles and ICP-MS Hair Analysis of Individuals Living Down-Wind of an Active, Open-Pit Copper and Molybdenum Mine in an Urban Superfund Site. H. Dysinger, *K. Hailer*, D. Hobbs, and M. Calhoun. Chemistry, Montana Tech of the University of Montana, Butte, MT.

#2221 **Poster Board Number 333**
Initial Characterization of Metal Exposures in Community Residents Living Adjacent to the Black Leaf Pesticide Manufacturing Complex. I. Kirpich[1], M. Mohammad[1], K. C. Falkner[1], *G. E. Arteel*[2], R. Barnett[1], *J. States*[2], *R. A. Prough*[3], and M. Cave[1,4]. [1]Department of Medicine/GI, University of Louisville, Louisville, KY; [2]Pharmacology & Toxicology, University of Louisville, Louisville, KY; [3]Biochemistry, University of Louisville, Louisville, KY; and [4]Robley Rex VAMC, Louisville, KY.

#2222 **Poster Board Number 334**
Influence of Light/Dark Condition on Bioaccumulation and Toxic Severity of Heavy Metals in Mice. *N. Miura*, and K. Ohtani. National Institute of Occupational Safety and Health (JNIOSH), Kawasaki, Japan.

Abstract #

#2223 **Poster Board Number 335**
Safety Evaluation of Tibetan Medicine Zuotai in Mice. L. Wei, C. Li, Y. Du, D. Wang, X. Chen, and H. Yang. Pharmacology and Safety Evaluation Key Laboratory of Tibetan Medicine in Qinghai Province, Northwest Institute of Plateau Biology, Chinese Academy of Sciences, Xining, China, Xining, Qinghai, China. Sponsor: *X. Huang*.

#2224 **Poster Board Number 336**
Development and Validation of a Method to Measure a Suite of Organotin Compounds in Serum from Danish Women of Child Bearing Age. *V. G. Robinson*[2], K. Thayer[2], *K. Levine*[1], R. A. Fernando[1], and *S. Waidyanatha*[2]. [1]RTI International, Research Triangle Park, NC; and [2]Division of the National Toxicology Program, National Institute of Environmental Health Sciences, Research Triangle Park, NC.

#2225 **Poster Board Number 337**
Evaluation of the Design, Performance, and Metal Emissions of Electronic Cigarettes. *M. T. Williams*[1,2], A. Villarreal[2], K. Bozhilov[3], and *P. Talbot*[2]. [1]Environmental Toxicology, University of California, Riverside, Riverside, CA; [2]Cell Biology and Neuroscience, University of California, Riverside, Riverside, CA; and [3]Central Facility for Advanced Microscopy, University of California, Riverside, Riverside, CA.

#2226 **Poster Board Number 338**
Oxidized LDL As a Marker of Cardiovascular Disease Risk in a Navajo Population Exposed to Heavy Metal Mining Contaminants. *M. E. Harmon*[1], C. Miller[2], *M. Campen*[1], C. Shuey[3], M. Cajero[2], S. Lucas[1], B. Pacheco[2], S. Ramone[3], T. Nez[3], and *J. L. Lewis*[2]. [1]College of Pharmacy, University of New Mexico, Albuquerque, NM; [2]Community Environmental Health Program, University of New Mexico, Albuquerque, NM; and [3]Southwest Research and Information Center, Albuquerque, NM.

#2227 **Poster Board Number 339**
Biomonitoring Trace Metals in Seminal Plasma and Urine and Their Relationships with Male Reproductive Endpoints. K. Kantaria, and *A. Jeng*. School of Community and Environmental Health, Old Dominion University, Norfolk, VA.

#2228 **Poster Board Number 340**
Toxic Metal Levels in Children Residing in a Smelting Craft Village in Vietnam: A Pilot Biomonitoring Study. S. K. Miller[1], A. P. Sanders[1], V. Nguyen[2], J. B. Kotch[3], and *R. Fry*[1,4]. [1]Environmental Health Sciences and Engineering, Gillings School of Global Public Health, University of North Carolina, Chapel Hill, NC; [2]Department of Maternal and Child Health, Gillings School of Global Public Health, University of North Carolina, Chapel Hill, NC; [3]Department of Surgery, School of Medicine, University of North Carolina, Chapel Hill, NC; and [4]Curriculum in Toxicology, School of Medicine, University of North Carolina, Chapel Hill, NC.

#2229 **Poster Board Number 341**
Assessment of Heavy Metal Residues in Food Crops Irrigated by Municipal Wastewater. M. M. Shereif. Chemistry, King Saud University, Riyadh, Saudi Arabia. Sponsor: *A. Kadry*.

Program Description (Continued)

Abstract #

#2230 **Poster Board Number 342**
Novel Oral Detoxification of Mercury, Cadmium, and Lead with Thiol-Modified Mesoporous Silica. T. Sangvanich[2], *D. Castro*[1,2], W. Ngamcherdtrakul[2], J. Morry[2], W. Yantasee[1,2], and G. Fryxell[3]. [1]PDX Pharmaceuticals, Portland, OR; [2]Biomedical Engineering, Oregon Health and Science University, Portland, OR; and [3]Pacific Northwest National Laboratory, Richland, WA.

#2231 **Poster Board Number 343**
Vulnerability of Frontal Cortex to Chronic Manganese Exposure in Welders. *Z. Long*[1,2], *C. Yeh*[1,2], X. Li[3], S. Snyder[1], E. Zauber[4], Y. Jiang[3], and *U. Dydak*[1,2]. [1]School of Health Sciences, Purdue Univ., West Lafayette, IN; [2]Dept. of Radiology and Imaging Sciences, Indiana Univ. School of Medicine, West Lafayette, IN; [3]Guangxi Medical Univ., Nanning, China; and [4]Dept. of Neurology, Indiana Univ. School of Medicine, Indianapolis, IN.

#2232 **Poster Board Number 344**
Measuring Community Lead (PB) Toxicity: Filling the Prevention Gap to Advance from Reactive to Proactive Medicine. *H. W. Mielke*[1], C. R. Gonzales[2], E. T. Powell[2], and P. W. Mielke[3]. [1]Pharmacology, Tulane University School of Medicine, New Orleans, LA; [2]Lead Lab, Inc., New Orleans, LA; and [3]Colorado State University, Fort Collins, CO.

#2233 **Poster Board Number 345**
Correlation of Blood Cr (III) and Adverse Health Effects: Application of PBPK Modeling to Determine Nontoxic Blood Concentrations. *A. Monnot*, *W. V. Christian*, *D. J. Paustenbach*, and *B. L. Finley*. ChemRisk, San Francisco, CA.

#2234 **Poster Board Number 346**
The Effect of Seasonal Variation on the Concentration of Metals in Water, Fish, Aquatic Plant, and Soil Sediment in El-Fayoum, Egypt. K. A. Abdou[1], A. A. Sharkawy[2], M. M. Mahmod[1], and E. O. Hamed[3]. [1]Department of Toxicology and Forensic Medicine, Faculty of Veterinary Medicine, Beni Suef University, Beni Suef, Egypt; [2]Department of Toxicology and Forensic Medicine, Faculty of Veterinary Medicine, Assiut University, Assiut, Egypt; and [3]Biochemistry Department, Animal Health Institute, Animal Health Institute, El-Fayoum, Egypt. Sponsor: *A. Kadry*.

#2234a **Poster Board Number 347**
Comparison of Lead Exposure in Different Production Plants. J. Valachova[1], *O. Osina*[1], T. Vasicko[1], and L. Musak[1]. [1]Jessenius Faculty of Medicine, Comenius University, Martin, Slovakia.

#2234b **Poster Board Number 348**
Manganese Accumulates in Leaves of Radishes Grown in Manganese-Supplemented Soils. S. Clarke-Lambert[1], M. Stapleton[1], K. Ruddock[1], and D. Skeete[1]. [1]Biology, Medgar Evers College, Brooklyn, NY. Sponsor: *E. Catapane*.

Abstract #

#2234c **Poster Board Number 349**
Environmental Uranium Exposure and Immune Function among Navajo Community Members—DiNEH Study. J. Ong[1], E. Erdei[1], R. L. Rubin[2], C. Miller[1], B. Pacheco[1], M. Cajero[1], C. Shuey[1,3], and *J. L. Lewis*[1]. [1]College of Pharmacy-Community and Environmental Health, University of New Mexico, Albuquerque, NM; [2]University of New Mexico Health Sciences Center, School of Medicine, University of New Mexico, Albuquerque, NM; and [3]Southwest Research and Information Center (SRIC), Albuquerque, NM.

#2234d **Poster Board Number 350**
Pilot Study of Environmental Monitoring of Konya Region near Abandoned Mercury Mine in Turkey. B. Karahalil[1], M. Ulukaya[1], and *O. Alp*[2]. [1]Toxicology Department, Gazi University Faculty of Pharmacy, Ankara, Turkey; and [2]Analytical Chemistry, Gazi University Faculty of Pharmacy, Ankara, Turkey.

Thursday Morning, March 27
8:30 AM to 12:00 Noon
Hall 1

PS

Poster Session: Exposure Assessment and Biomonitoring II

New Science and Perspectives Surrounding Environmental and Occupational Exposures

Chairperson(s): *Woodrow Setzer, US EPA, Research Triangle Park, NC.*

Displayed: *8:30 AM–12:00 Noon*

#2234e **Poster Board Number 355**
Comparative Study of US EPA's Building Assessment and Survey Evaluation Database. R. DeHate[1], B. Skelly[1], *G. T. Johnson*[2], and *R. D. Harbison*[2]. [1]GEI Consultants, Inc, Valrico, FL; and [2]College of Public Health, University of South Florida, Tampa, FL.

#2234f **Poster Board Number 356**
Videographic Methodology for Quantification of Dermal Contact with Water During Recreational Beach Use. C. B. Roberts[1], *L. Stuchal*[1], and *S. M. Roberts*[1]. [1]University of Florida, Gainesville, FL.

#2234g **Poster Board Number 357**
Plasma Hydroxylated Polybrominated Diphenyl Ethers (HO-PBDEs) in Californian Women of High Risk for Birthing an Autistic Child. *Y. Lin*[1], I. Hertz-Picciotto[2], D. Tancredi[2], *I. N. Pessah*[1], and *B. Puschner*[1]. [1]VM: Molecular Biosciences, University of California, Davis, Davis, CA; and [2]Public Health Sciences, University of California, Davis, Davis, CA.

#2234h **Poster Board Number 358**
Exposure Monitoring for Natural and Anthropogenic Polybrominated Diphenyl Ethers (PBDE) and Derivatives in Puget Sound, Washington, Area Volunteers. *I. Schultz*[1], and L. Kuo[2]. [1]Marine Sciences, Pacific NW National Lab, Sequim, WA; and [2]Pacific NW National Lab, Sequim, WA.

#2234i **Poster Board Number 359**
High-Throughput Modeling of Indoor Exposures to Chemicals. *C. I. Nicolas*[1,3], *M. R. Goldsmith*[2], *B. K. Ahir*[1,3], *T. B. Knudsen*[1], *J. Rabinowitz*[1], *W. Setzer*[1], *K. Mansouri*[1,3], and *J. F. Wambaugh*[1]. [1]NCCT, U.S. EPA, RTP, NC; [2]NERL, U.S. EPA, RTP, NC; and [3]ORISE, Oak Ridge, TN.

Program Description (Continued)

Abstract #

#2234j **Poster Board Number 360**
Consumer Exposure to Bisphenol A from Plastic Bottles Depends on Degree of Usage. F. Bidabadi[1], and *M. A. Yakubu*[1]. [1]Environmental & Interdisciplinary Sciences, Texas Southern University, Houston, TX.

#2234k **Poster Board Number 361**
Direct Determination of BPA, BPA Glucuronide, BPA Sulfate, and BPS in Human Urine. R. Gerona[1], *A. J. Schecter*[2], M. Friesen[1], *D. Cherry*[3], N. Thiex[4], W. C. Shropshire[2], and J. Moye[5]. [1]U California, San Francisco, CA; [2]U Texas School of Public Health, Dallas, TX; [3]U Washington, Seattle, WA; [4]South Dakota State University, Brookings, SD; and [5]NICHD, NIH, Bethesda, MD.

#2234l **Poster Board Number 362**
Application of Physiologically-Based Pharmacokinetic Modeling of Bisphenol A to Estimation of Daily Intake Amounts by Age and Gender. D. Jeong[1], S. Kim[1], H. Moon[2], J. Park[3], K. Kim[1], *K. Choi*[1], and *S. Kim*[1]. [1]Environmental Health, Seoul National University, Seoul, Republic of Korea; [2]Marine Sciences and Convergent Technology, Hanyang University, Ansan, Republic of Korea; and [3]Environmental Health Sciences, Soonchunhyang University, Asan, Republic of Korea.

#2234m **Poster Board Number 363**
High-Throughput Exposure Estimation Using NHANES Data. C. L. Strope[1], *B. A. Wetmore*[3], *W. Setzer*[1], *J. Rabinowitz*[1], R. Pearce[1], *K. Dionisio*[2], and *J. F. Wambaugh*[1]. [1]National Center for Computational Toxicology, Environmental Protection Agency, Durham, NC; [2]National Exposure Research Laboratory, Environmental Protection Agency, Durham, NC; and [3]The Hamner Institutes for Health Sciences, Durham, NC.

#2234n **Poster Board Number 364**
Inferring Population Exposure from Biomonitoring Data on Urinary Concentrations. W. Setzer[1], J. Rabinowitz[1], and *J. F. Wambaugh*[1]. [1]National Center for Computational Toxicology, US EPA, Research Triangle Park, NC.

#2234o **Poster Board Number 365**
Urinary Arsenic Metabolism Profiles of Workers in a Copper Mining and Smelting Plant. S. Xi[1], Q. Sun[1], S. Liu[1], and G. Sun[1]. [1]Department of Environmental and Occupational Health, School of Public Health, China Medical University, Shenyang, China. Sponsor: *J. Pi.*

#2234p **Poster Board Number 366**
Urinary Arsenic Concentration As a Biomarker of Exposure to Arsenic in Drinking Water. L. Schwarcz[1], *B. Malczewska-Toth*[1], and H. Krapfl[1]. [1]New Mexico Department of Health, Santa Fe, NM.

#2234q **Poster Board Number 367**
A Comprehensive Evaluation of Inorganic Arsenic in Food and Considerations for Dietary Intake Analyses. *A. Lewis*[1], *H. N. Lynch*[1], G. I. Greenberg[1], and M. C. Pollock[1]. [1]Gradient, Cambridge, MA.

#2234r **Poster Board Number 368**
Organic Chemical Exposure and Dose from Paper Products: A New Suite of Integrated Predictive Models. M. Posson[1], *K. T. Bogen*[1], M. Glomski[1], and P. Sheehan[1]. [1]Health Sciences, Exponent, Inc., Oakland, CA.

Abstract #

#2234s **Poster Board Number 369**
Exploring Exposure Pathways with Chemical/Product Categorical (CPCat) Data. K. Dionisio[1], A. Frame[1], *M. Goldsmith*[1], *J. F. Wambaugh*[1], A. Liddell[1], T. Cathey[2], D. Smith[1], J. Vail[1], and *R. Judson*[1]. [1]US EPA, RTP, NC; and [2]Lockheed Martin, Durham, NC.

#2234t **Poster Board Number 370**
Naturally-Occurring Airborne Diacetyl Concentrations Resulting from Roasting and Grinding Coffee Beans in an Industrial Setting. S. Gaffney[1], C. J. Ronk[1], *B. L. Finley*[1], J. L. Henshaw[1], *J. S. Pierce*[1], L. McCarthy[1], J. Lotter[1], and A. Abelmann[1]. [1]Cardno ChemRisk, San Francisco, CA.

#2234u **Poster Board Number 371**
Serum Ferritin, Calcium, Albumin and Ascorbic Acid Levels in Smokers in Calabar, Nigeria. E. R. Egbe[1], Y. D. Obisesan[1], and S. T. Maleghemi[2]. [1]Medical Laboratory Science, University of Calabar, Calabar, Cross River, Nigeria; and [2]Community Medicine, University of Calabar, Calabar, Cross River, Nigeria. Sponsor: *J. Anetor*.

#2234v **Poster Board Number 372**
Estimated HPHC Intakes from SNUS Consumption: Comparison with Dietary Intakes. *P. Begemann*[1], *O. Mudasiru*[1], C. Ward[1], M. Curvall[2], and L. Rutqvist[2]. [1]Health Sciences, ENVIRON International Corporation, Arlington, VA; and [2]Swedish Match, Stockholm, Sweden.

#2234w **Poster Board Number 373**
Dermal Absorption of Benzo[a]pyrene: Assessment of Flux from Aged Soil and Application to Risk Assessment of Contaminated Sites. J. Kissel[1], A. Bunge[2], *Y. W. Lowney*[3], and M. Ruby[4]. [1]University of Washington, Seattle, WA; [2]Colorado School of Mines, Golden, CO; and [3]Exponent, Boulder, CO; and [4]Integral Consulting, Louisville, CO.

#2234x **Poster Board Number 374**
Hematoxicity and Genotoxicity in Children Exposed to Benzene in a Petrochemical Area in México. P. Nadia[1], R. Diana[2], H. Alejandra[1], E. D. Israel[2], and M. Brenda[1]. [1]Instituto de Ciencias de la Salud, Universidad Autónoma del Estado de Hidalgo, Pachuca, Hidalgo, Mexico; and [2]Universidad de Guanajuato, Guanajuato, Mexico, Mexico. Sponsor: *M. Gonsebatt.*

#2234y **Poster Board Number 375**
Refined Exposure Assessment for Three Active Ingredients of Humidifier Disinfectants. J. Lee[1], J. Kwon[2], and C. Kim[1]. [1]Institute of Environmental Protection and Safety, NeoEnBiz Co., Bucheon, Republic of Korea; and [2]Division of Environmental Science and Ecological Engineering, Seoul, Republic of Korea. Sponsor: *J. Choi*.

#2234z **Poster Board Number 376**
Evaluation of Asbestos Exposure Associated with Research Laboratories. *G. T. Johnson*[1], E. Garcia[1], D. Newfang[1], *J. Coyle*[1], C. Blake[2], and *R. D. Harbison*[1]. [1]College of Public Health, University of South Florida, Tampa, FL; and [2]Bureau Veritas North America, Kennesaw, GA.

Program Description (Continued)

Abstract #

#2234aa **Poster Board Number 377**
Managing the Risk of Occupational Allergy in the Enzyme Detergent Industry. *D. Basketter*[1], *F. H. Kruszewski*[2], S. Mathieu[3], D. Kirchner[4], A. S. Panepinto[4], M. Fieldsend[5], V. Siegert[6], F. Barnes[7], R. Bookstaff[4], M. Simonsen[8], and B. Concoby[9]. [1]DABMEB Consultancy Ltd., Sharnbrook, United Kingdom; [2]American Cleaning Institute, Washington, DC; [3]A.I.S.E., Brussels, Belgium; [4]Procter & Gamble Company, Cincinnati, OH; [5]Unilever, Sharnbrook, United Kingdom; [6]Henkel AG & Company, Duesseldorf, Germany; [7]Robert McBride Ltd., Manchester, United Kingdom; [8]Novozymes A/S, Bagsvaerd, Denmark; and [9]DuPont Company, Palo Alto, CA.

Thursday Morning, March 27
8:30 AM to 12:00 Noon
Hall 1

PS

Poster Session: Risk Assessment III

Enhancing Strategies for Risk Assessment

Chairperson(s): *Barbara A. Wetmore, The Hamner Institutes for Health Sciences, Research Triangle Park, NC.*

Displayed: *8:30 AM–12:00 Noon.*

#2235 **Poster Board Number 401**
Asbestos Content of Heavy Equipment Brake-Wear Debris and Associated Airborne Exposures during Brake Work. M. Grespin[1], E. Donovan[1], R. Ward[1], *A. Madl*[2], and *B. L. Finley*[3]. [1]Cardno ChemRisk, San Francisco, CA; [2]Cardno ChemRisk, Aliso Viejo, CA; and [3]Cardno ChemRisk, Brooklyn, NY.

#2236 **Poster Board Number 402**
Determination of Air Conc. and Exposure to Spores from Microbe-Based Cleaning Products: Influence of Human Activity and Vacuuming. *N. W. Berg*[1], J. Sedivy[2], R. Testman[3], K. Acedo[3], and *T. G. Osimitz*[4]. [1]Novozymes A/S, Bagsvaerd, Denmark; [2]Novozymes Biologicals, Inc., Salem, VA; [3]Golden Pacific Laboratories, Fresno, CA; and [4]Science Strategies, LLC, Charlottesville, VA.

#2237 **Poster Board Number 403**
A Continuing Legacy of Chlordane and Dieldrin?—A Case Example of Pesticides in Well Water in Stamford, Connecticut. *S. M. Rusnak*[1], and A. Fountain[2]. [1]CT Dept. of Public Health, Hartford, CT; and [2]Stamford Department of Health, Stamford, CT.

#2238 **Poster Board Number 404**
Surface Water Risk Assessment of Pesticides in Ethiopia. B. M. Teklu[1], P. I. Adriaanse[2], M. M. Terhorst[2], J. W. Deneer[2], and P. J. van den Brink[1,2]. [1]Aquatic Ecology and Water Management, Wageningen University, Wageningen, Netherlands; and [2]Altera, Wageningen University and Research Centre, Wageningen, Netherlands. Sponsor: *A. Patrick*.

#2239 **Poster Board Number 405**
Human Health Risk Assessment of Metals in Fish in Ghana. *D. Doke*, and *J. M. Gohlke*. Environmental Health Sciences, Univ of Alabama at Birmingham (UAB), Birmingham, AL.

Abstract #

#2240 **Poster Board Number 406**
Exposure Assessment of Children Ingesting Pb in Lipstick and Its Comparison to Regulatory Values. M. Lippi, M. Abramson, *W. V. Christian*, and *A. Monnot*. ChemRisk, San Francisco, CA.

#2241 **Poster Board Number 407**
Improving Emergency Preparedness: Reviewing Respiratory Irritants of Hazardous Chemicals to Enhance the Chemical Mixture Methodology. *H. Dixon*[1,4], C. Nix[2,4], J. Yao[4], H. Fournier[3,4], S. Folkens[3,4], C. Glantz[4], and X. Yu[4]. [1]University of Puget Sound, Tacoma, WA; [2]University of Ashland, Ashland, OH; [3]Wittenberg University, Springfield, OH; and [4]Pacific Northwest National Laboratory, Richland, WA.

#2242 **Poster Board Number 408**
Health Effects of Mercury in Flared Natural Gas. S. Yu[1], *L. Hall*[1], S. Karania[2], H. Wong[2], and M. Keinath[2]. [1]ENVIRON International Corporation, Emeryville, CA; and [2]ENVIRON International Corporation, San Francisco, CA.

#2243 **Poster Board Number 409**
TCE, Vapor Intrusion, and Risk Management: A Case Study. *J. M. LaVelle*. CDM Smith, Green Valley, AZ.

#2244 **Poster Board Number 410**
Risk Assessment of Biogas Trace Constituents. K. Kloc, *A. G. Salmon*, R. H. Lam, D. Siegel, and *M. Marty*. Office of Environmental Health Hazard Assessment, California Environmental Protection Agency, Oakland, CA.

#2245 **Poster Board Number 411**
A Global Harmonized Risk Assessment for Volatile Cyclic Siloxanes (D4 and D5). *R. Gentry*[1], C. Van Landingham[1], *T. Greene*[1], T. Guerrero[2], and *K. P. Plotzke*[3]. [1]ENVIRON International Corporation, Monroe, LA; [2]Silicones Environmental, Health and Safety Center, Washington, DC; and [3]Dow Corning Corporation, Midland, MI.

#2246 **Poster Board Number 412**
Proposed Methodology for Risk Assessment of Groundwater High in Nitrates for Distillation Processes. *L. A. Haighton*, H. Fikree, *J. W. Card*, and V. Lee-Brotherton. Cantox Health Sciences International, Mississauga, ON, Canada.

#2247 **Poster Board Number 413**
Risk from Exposure to Triorthocresyl Phosphate (TOCP) in Aircraft Cabins and Flight Decks. *C. Y. Chan*, *L. J. Swenson*, *J. Hobden*, *N. A. Moore*, and *B. J. Kelman*. Veritox, Inc., Redmond, WA.

#2248 **Poster Board Number 414**
Exposure to Vitamin A (Retinol and Retinyl Esters) from Cosmetics Increases the Proportion of the Population That Exceeds the Upper Intake Level. R. B. Hetland[1], *B. Granum*[1], J. E. Paulsen[1], V. Thrane[1], J. L. Lyche[1], C. Lutzow-Holm[2], T. O. Fotland[1], I. L. Lillegaard[1], and I. Steffensen[1]. [1]Norwegian Scientific Committee for Food Safety, Oslo, Norway; and [2]External Expert, Oslo, Norway.

#2249 **Poster Board Number 415**
Assessment of Potential Health Risks on the Basis of the Character and Degree of Chemical Pollution of the Environment. M. I. Kombarova, A. S. Radilov, and V. R. Rembovskiy. Research Institute of Hygiene, Occupational Pathology and Human Ecology, Leningrad Region, Russian Federation. Sponsor: *K. Khamidulina*.

Program Description (Continued)

Abstract #

#2250 **Poster Board Number 416**
***In Vitro* Bioactivity in ToxCast Assays for Fruit and Vegetable Extracts.** *B. A. Wetmore*[1], *E. Berg*[2], M. A. Polokoff[2], *R. S. Thomas*[3], and *M. E. Andersen*[1]. [1]The Hamner Institutes for Health Sciences, Research Triangle Park, NC; [2]BioSeek, a Division of DiscoveRx, Inc., South San Francisco, CA; and [3]National Center for Computational Toxicology, USEPA, Research Triangle Park, NC.

#2250a **Poster Board Number 417**
Merging ExpoCast™ with ToxCast™: Incorporating High-Throughput Exposure Predictions with Dosimetry-Adjusted *In Vitro* Bioactivity to Inform Toxicity Testing Strategies. *M. B. Black*[1], *J. F. Wambaugh*[2], M. Sochaski[2], *R. Judson*[2], *S. S. Ferguson*[3], *K. Houck*[2], *H. J. Clewell*[2], *M. E. Andersen*[1], *R. Thomas*[2], and *B. A. Wetmore*[1]. [1]The Hamner Institutes for Health Sciences, Research Triangle Park, NC; [2]National Center for Computational Toxicology, USEPA, Research Triangle Park, NC; and [3]Life Technologies, Durham, NC.

#2250b **Poster Board Number 418**
Development of Reverse Toxicokinetic Models to Correlate *In Vitro* and *In Vivo* Estrogen Receptor Activity. *X. Chang*[1], *N. Kleinstreuer*[1], *P. Ceger*[1], *J. T. Hamm*[1], *B. Jones*[1], *L. Rinckel*[1], and *W. Casey*[2]. [1]ILS, Inc., Research Triangle Park, NC; and [2]DHHS/NIH, NIEHS/NTP/NICEATM, Research Triangle Park, NC.

#2250c **Poster Board Number 419**
Estimation of Methylmercury Intake Doses in the South Korea Population Using a PBPK Model. S. Lee[1], *Y. Tan*[2], J. Sobus[2], *M. Phillips*[3], and *S. Kim*[1]. [1]School of Public Health, Seoul National University, Seoul, Republic of Korea; [2]NERL, US EPA, RTP, NC; and [3]NERL, US EPA, Duluth, MN.

#2250d **Poster Board Number 420**
Protecting Astronaut Health at First Entry into Vehicles Visiting the International Space Station: Insights from Whole-Module Offgas Testing. *V. E. Meyers*[1], T. F. Limero[2], V. DeVera[2], P. F. Cheng[2], J. J. Hand[2], J. B. Trowbridge[2], and *J. T. James*[1]. [1]NASA JSC, Houston, TX; and [2]Wyle Integrated Science and Engineering, Houston, TX.

#2250e **Poster Board Number 421**
Public Health Concerns Surrounding Fine Particulate Matter Generated from Hydraulic Fracturing. *A. LeBeau*[1], and *A. Pawlisz*[1]. [1]CRA, Dallas, TX.

#2250f **Poster Board Number 422**
Cancer Risk of PAHs in Particulate Matter from Biofuel Combustion. *D. A. Sarigiannis*[1], S. P. Karakitsios[1], D. Zikopoulos[1], S. Nikolaki[1], and M. Kermenidou[1]. [1]Chemical Engineering, Aristotle University of Thessaloniki, Thessaloniki, Greece.

#2250g **Poster Board Number 423**
Data Source Summary Documents (DSSDs) Derived for Updated Drinking Water Standards and Health Advisories (DWSHA) Tables. D. J. Stewart[1,2], *C. Bast*[2], *C. S. Wood*[2], and *S. S. Kueberuwa*[3]. [1]University of Tennessee, Knoxville, TN; [2]Oak Ridge National Laboratory, Oak Ridge, TN; and [3]U.S. Environmental Protection Agency, Washington, DC.

#2250h **Poster Board Number 424**
Toluene and Dibutyl Phthalate in Nail Lacquers: A Proposition 65 Exposure Assessment. *J. Keenan*[1], L. Kopelovich[1], and N. Jacobs[1]. [1]Cardno ChemRisk, San Francisco, CA.

Abstract #

#2250i **Poster Board Number 425**
A Tiered Safety Assessment Approach for Evaluating Chemicals in Consumer Products and Applications for Asthma Risk Management. M. J. Vincent[1], *A. Maier*[2], M. Jayjcok[3], *B. Gadagbui*[1], A. Parker[1], and S. Ross[1]. [1]Toxicology Excellence for Risk Assessment, Cincinnati, OH; [2]University of Cincinnati, Cincinnati, OH; and [3]Jayjock & Associates, Langhorne, PA.

#2250j **Poster Board Number 426**
Automatic Topic Classification for Environmental Human Health Assessment. K. L. Painter[1], S. J. Dutton[2], *E. O. Owens*[2], and *L. D. Burgoon*[2]. [1]Oak Ridge Institute for Science and Education/ Environmental Protection Agency, Research Triangle Park, NC; and [2]Environmental Protection Agency, Research Triangle Park, NC.

#2250k **Poster Board Number 427**
Use of Text-Mining and Machine Learning to Prioritize the Results of a Complex Literature Search. B. Howard[1], *R. Shah*[1,4], V. Walker[2], S. Holmgren[3], and K. Thayer[2]. [1]Sciome LLC, RTP, NC; [2]OHAT, National Toxicology Program, NIEHS, RTP, NC; [3]Office of Scientific Information Management, NIEHS, RTP, NC; and [4]SSS, Durham, NC.

#2250l **Poster Board Number 428**
HAWC (Health Assessment Workspace Collaborative): A Modular Web-Based Interface to Facilitate Development of Human Health Assessments of Chemicals. *A. J. Shapiro*[1], and I. Rusyn[1]. [1]Env. Sci; and Engin., Univ. North Carolina at Chapel Hill, Chapel Hill, NC.

Thursday Morning, March 27
8:30 AM to 12:00 Noon
Hall 1

PS

Poster Session: Computational Toxicology and Data Integration II

Chairperson(s): *Ruthann Rudel, Silent Spring Institute, Newton, MA.*

Displayed: *8:30 AM–12:00 Noon*

#2251 **Poster Board Number 431**
Toxic Effects of Secondhand Smoke-Revealing Mechanism by Systems Biology Approach. D. Mitic Potkrajac[1], B. Rakic[1], A. Price[1], *G. Apic*[1], and R. B. Russell[2]. [1]Cambridge Cell Networks Ltd, Cambridge, United Kingdom; and [2]Cell Networks, University of Heidelberg, Heidelberg, Germany.

#2252 **Poster Board Number 432**
Profiling Environmental Chemicals That Induce the Antioxidant Response Pathway Using Cell-Based Assays and Cheminformatics Tools. M. T. Kim[1,2], *A. Sedykh*[3], J. Zhang[1,2], *R. Huang*[4], *M. Xia*[4], and *H. Zhu*[1,2]. [1]Chemistry, Rutgers, The State University of New Jersey, Camden, NJ; [2]Center for Computational and Integrative Biology, Rutgers, The State University of New Jersey, Camden, NJ; [3]Multicase Inc., Beachwood, OH; and [4]NIH National Center for Advancing Translational Sciences, Department of Health and Human Services, Rockville, MD.

Program Description (Continued)

Abstract #

#2253 **Poster Board Number 433**
Improving the Development of Adverse Outcome Pathways: Lessons Learned from the AhR Rodent Liver Tumor and AhR Avian Teratogenicity/ Embryolethality AOPs. *R. A. Becker*[1], *T. Simon*[2], G. Patlewicz[3], S. W. Kennedy[4], A. Farhat[4], and *R. Budinsky*[5]. [1]American Chemistry Council, Washington, DC; [2]Ted Simon LLC, Winston, GA; [3]Dupont Haskell Global Centers, Newark, DE; [4]Environment Canada, Ottawa, ON, Canada; and [5]The Dow Chemical Company, Midland, MI.

#2254 **Poster Board Number 434**
Data Mining Approach to Formulate Alerting Chemotypes for Liver Steatosis/Steatohepatitis/ Fibrosis. A. S. Mostrag-Szlichtyng[1], V. Vitcheva[4], M. D. Nelms[2], P. Alov[4], I. Tsakovska[4], S. J. Enoch[2], A. P. Worth[3], M. T. Cronin[2], and *C. Yang*[1]. [1]Altamira LLC, Columbus, OH; [2]Liverpool John Moores University, Liverpool, United Kingdom; [3]European Commission - Joint Research Centre, Institute for Health & Consumer Protection, Ispra, Italy; and [4]Bulgarian Academy of Science, Institute of Biophysics and Biomedical Engineering, Sofia, Bulgaria.

#2255 **Poster Board Number 435**
Novel Expert Reports for Drug-Induced Kidney Injury (DIKI). *G. Apic*[1], A. Stelkic[1], D. Mitic Potkrajac[1], V. Veljovic[1], and R. B. Russell[2]. [1]Cambridge Cell Networks Ltd, Cambridge, United Kingdom; and [2]Cell Networks, University of Heidelberg, Heidelberg, Germany.

#2256 **Poster Board Number 436**
Identification of Adverse Outcome Pathways for the Nephrotoxicity of Nucleoside and Nucleotide Antiviral Drugs. W. C. Drewe[1], A. Cayley[1], *R. Benz*[2], N. L. Kruhlak[2], and B. Surfraz[1]. [1]Lhasa Limited, Leeds, West Yorkshire, United Kingdom; and [2]Center for Drug Evaluation and Research, Food and Drug Administration, Silver Spring, MD.

#2257 **Poster Board Number 437**
Using Adverse Outcome Pathways to Identify Existing Knowledge for Mechanisms of Teratogenicity Resulting from Endocrine Disruption. M. L. Patel[1], A. Cayley[1], W. C. Drewe[1], *R. Benz*[2], N. L. Kruhlak[2], and B. Surfraz[1]. [1]Lhasa Limited, Leeds, United Kingdom; and [2]Center for Drug Evaluation and Research, Food and Drug Administration, Silver Spring, MD.

#2258 **Poster Board Number 438**
Arsenic and Pancreatic Cancer: A Computational Systems Toxicology Analysis of Risk. R. Coronel, C. Han, K. Kan, P. Nguyen, and *D. Johnson*. Nutri Sci & Toxicology, UC Berkeley, Berkeley, CA.

#2259 **Poster Board Number 439**
Breast Cancer-Relevant Biological Pathways in the US EPA ToxCast and US NTP Tox21 Hazard Screening Programs. *R. Rudel*, and J. M. Ackerman. Silent Spring Institute, Newton, MA.

#2260 **Poster Board Number 440**
High-Content Screening of Rodent Mammary Gland Carcinogens in Two Breast Cell Lines. *C. Vulpe*[1], J. M. Ackerman[2], A. Tagmount[1], and *R. Rudel*[2]. [1]University of California, Berkeley, CA; and [2]Silent Spring Institute, Newton, MA.

Abstract #

#2261 **Poster Board Number 441**
Re-Evaluation and Expansion of the US FDA/ CDER Rodent Carcinogenicity Database for Structure-Based Analysis. D. Guo, B. L. Minnier, L. Stavitskaya, and N. L. Kruhlak. FDA, Silver Spring, MD. Sponsor: *R. Rouse*.

#2262 **Poster Board Number 442**
Establishing Best Practice for the Application of a Novel Statistical-Based Model to Evaluate Potential Mutagenic Impurities under ICH M7. C. Barber[1], T. Hanser[1], N. L. Kruhlak[2], and L. Stavitskaya[2]. [1]Research, Lhasa Limited, Leeds, United Kingdom; and [2]US Food and Drug Administration, Silver Spring, MD. Sponsor: *C. Marchant*.

#2263 **Poster Board Number 443**
Genotoxic Risk Assessment of Impurities in Drug Substances. S. Raimondo, L. Marocchio, Z. Cimarosti, and L. Costa. Safety Assessment, Aptuit, Verona, Italy. Sponsor: *C. Powell*.

#2264 **Poster Board Number 444**
Can Public Data Improve Mutagenicity Predictions for Proprietary Compounds? R. V. Williams, C. G. Barber, and *C. Marchant*. Lhasa Limited, Leeds, United Kingdom.

#2265 **Poster Board Number 445**
An Improved Workflow to Perform *In Silico* Mutagenicity Assessment of Impurities As Per ICH M7 Guideline. S. Chakravarti, and R. D. Saiakhov. MultiCASE Inc, Beachwood, OH. Sponsor: *G. Klopman*.

#2266 **Poster Board Number 446**
Development of an *In Silico* Profiler for Mitochondrial Toxicity. M. D. Nelms[1], M. T. Cronin[1], A. N. Richarz[1], *C. Yang*[2], and S. J. Enoch[1]. [1]School of Pharmacy and Chemistry, Liverpool John Moores University, Liverpool, United Kingdom; and [2]Altamira LLC, Columbus, OH.

#2267 **Poster Board Number 447**
Computational Identification of Active Phytochemicals and Potential Mechanisms for the Alleviation of Bleomycin-Induced Pulmonary Fibrosis. N. Chan, E. Perez, S. Li, and *D. E. Johnson*. Nutritional Sciences & Toxicology, UC Berkeley, Berkeley, CA.

#2268 **Poster Board Number 448**
EDCs DataBank: 3D-Structure Database of Endocrine Disrupting Chemicals. *D. Montes-Grajales*, and *J. Olivero-Verbel*. Environmental and Computational Chemistry Group, University of Cartagena, Cartagena, Colombia.

#2269 **Poster Board Number 449**
Computational Prediction of Off-Target Selectivity of Small Molecules Based on Ligand Set Similarity Using SEAware: Similarity Ensemble Approach Software. *M. Fielden*[1], M. Keiser[2], E. Gregori-Puigjané[2], J. Houze[1], W. Zhong[1], and C. Fotsch[1]. [1]Amgen, Thousand Oaks, CA; and [2]Seachange Pharmaceuticals, San Francisco, CA.

Program Description (Continued)

Abstract #

#2270 **Poster Board Number 450**
Molecular Dynamic Simulation Studies of Bisphenol A and Its Analogs with Estrogen Related Receptor-Gamma and Human Androgen Receptor. *R. M. Uppu*[1,2]. [1]Dept of Biology, Chemistry and Environmental Toxicology, Southern University and A & M College, Baton Rouge, LA; and [2]Biological Sciences, Louisiana State University, Baton Rouge, LA.

#2271 **Poster Board Number 451**
Amoxillin- and Pefloxacin-Induced Ionoregulatory Disruptions in Rat Tissues. *S. O. Rotimi*[1,4], D. Ojo[2], *E. A. Balogun*[1], O. Talabi[3], and *O. Ademuyiwa*[1]. [1]Department of Biochemistry, Federal University of Agriculture, Abeokuta, Abeokuta, Ogun, Nigeria; [2]Department of Microbiology, Federal University of Agriculture, Abeokuta, Abeokuta, Ogun, Nigeria; [3]Health Centre, Federal University of Agriculture, Abeokuta, Abeokuta, Ogun, Nigeria; and [4]Department of Biological Sciences, Covenant University, Ota, Ogun, Nigeria.

#2272 **Poster Board Number 452**
Enhanced Alternatives Analysis: Automated Evaluation of Chemical Hazard Attributes to Identify Preferred Substitutes. *P. J. Beattie*, J. P. Rinkevich, and J. Orchard-Hays. SciVera, LLC, Charlottesville, VA.

#2273 **Poster Board Number 453**
***In Silico* Workflow for Assessing Skin Irritation, Penetration, and Sensitization Potentials Using Chemotype-Based Models and Alerts.** J. Rathman[2,3], J. Schwöbel[1], T. Magdziarz[1], A. Mostrag-Szlchtying[2], A. Tarhov[1], L. Terfloth[1], and *C. Yang*[2,3]. [1]Molecular Networks GmbH, Erlangen, Germany; [2]Altamira LLC, Columbus, OH; and [3]Chemical and Biomolecular Engineering, The Ohio State University, Columbus, OH.

#2273a **Poster Board Number 454**
Computational Molecular Modeling for the Assessment of Nanoparticle Toxicity: Interactions with Biomolecules. *N. Yanamala*[1], *V. E. Kagan*[2], and *A. A. Shvedova*[1,3]. [1]HELD/PPRB, CDC/NIOSH, Morgantown, WV; [2]Department of Environmental and Occupational Health, University of Pittsburgh, Pittsburgh, PA; and [3]Department Physiology and Pharmacology, West Virginia University, Morgantown, WV.

#2273b **Poster Board Number 455**
Benchmarking Assessment of Open Source and Newly Released *Salmonella* Mutagenicity (Q) SAR Models for Potential Use under ICH M7. L. Stavitskaya[1], B. L. Minnier[1], and N. L. Kruhlak[1]. [1]Food and Drug Administration, Silver Spring, MD. Sponsor: *R. Rouse.*

#2273c **Poster Board Number 456**
Pragmatic Issues in Applying Multiple *In Silico* Systems for Drug Safety Assessment. *R. Benz*[1], K. P. Cross[2], and G. J. Myatt[2]. [1]OmnyCorp, Rockville, MD; and [2]Leadscope, Inc., Columbus, OH.

Abstract #

#2273d **Poster Board Number 457**
Metabolism Simulation and Toxicity Prediction in the Evaluation of Food Ingredient/ Contaminant Safety. L. Terfloth[1], K. Arvidson[2], K. Muldoon-Jacobs[2], P. Volarath[2], A. Tarkhov[1], T. Magdziarz[1], J. Rathman[3,4], D. Hristozov[4], and *C. Yang*[1,4]. [1]Molecular Networks GmbH, Erlangen, Germany; [2]Center for Food Safety and Applied Nutrition, Office of Food Additive Safety, U.S. Food and Drug Administration, College Park, MD; [3]Chemical and Biomolecular Engineering, The Ohio State University, Columbus, OH; and [4]Altamira LLC, Columbus, OH.

#2273e **Poster Board Number 458**
Comparison of Pattern Recognition Methods for Toxicogenomics Time Series. D. M. Hendrickx[1], D. Jennen[1], J. J. Briedé[1], R. Cavill[1], T. M. de Kok[1], and J. Kleinjans[1]. [1]Toxicogenomics, Maastricht University, Maastricht, Netherlands. Sponsor: *H. van Loveren.*

#2273f **Poster Board Number 459**
Constructing a Cleft Palate Adverse Outcome Pathway through HTS Data and Literature Mining Integration. N. C. Baker[1], *N. S. Sipes*[2], M. Hutson[3], and *T. B. Knudsen*[2]. [1]Lockheed Martin, Research Triangle Park, NC; [2]NCCT, US Environmental Protection Agency, Research Triangle Park, NC; and [3]Departments of Physics and Biological Sciences, Vanderbilt University, Nashville, TN.

#2273g **Poster Board Number 460**
Warning from Fold Change: Prediction of Potential Toxicity Based on Drug-Induced Genomic Expression Change. K. Wang[1,2], and *J. C. Fuscoe*[1]. [1]National Center for Toxicological Research, Food and Drug Administration, Jefferson, AR; and [2]Bio-X Institutes, Shanghai Jiao Tong University, Shanghai, China.

#2273h **Poster Board Number 461**
Development of QSAR Models for Prediction of Hepatotoxicity Using Post-Market Data from US FDA's AERS Database. N. L. Kruhlak[1], L. Stavitskaya[1], K. P. Cross[2], and X. Zhu[1]. [1]CDER/OTS/ OCP/DARS, US Food and Drug Administration, Silver Spring, MD; and [2]Leadscope Inc., Columbus, OH. Sponsor: *R. Rouse.*

#2273i **Poster Board Number 462**
A Database of *In Vivo* Estrogenic Activity for EDSP21 Reference Chemicals. *P. Ceger*[1], *N. Kleinstreuer*[1], *X. Chang*[1], *B. Jones*[1], *J. T. Hamm*[1], *L. Rinckel*[1], D. Rotroff[2], and *W. Casey*[3]. [1]ILS, Inc., Research Triangle Park, NC; [2]NC State University, Raleigh, NC; and [3]DHHS/NIH, NIEHS/NTP/ NICEATM, Research Triangle Park, NC.

#2273j **Poster Board Number 463**
Using Weighted Entropy to Rank Chemicals in Tox21 Phase II BG1 ER-Luc Estrogen Receptor Assays. K. Shockley[1]. [1]Biostatistics Branch, National Institute of Environmental Health Sciences, Research Triangle Park, NC. Sponsor: *R. Tice.*

Program Description (Continued)

Abstract #

#2273k **Poster Board Number 464**
FDALabel Database: Enabling Insights from Drug Labeling to Accelerate Advancement of Translational and Regulatory Sciences in Drug Safety. H. Fang[1], S. C. Harris[2], Z. Liu[2], J. Xu[2], *Q. Shi*[3], *P. C. Howard*[1], and *W. Tong*[2]. [1]Office of Scientific Coordination, NCTR/FDA, Jefferson, AR; [2]Division of Bioinformatics and Biostatistics, NCTR/FDA, Jefferson, AR; and [3]Division of Systems Biology, NCTR/FDA, Jefferson, AR.

#2273l **Poster Board Number 465**
ToxCast Assay Annotation: An Application of BioAssay Ontology to Produce an Assay Metadata Reference with Extensions to the Assay Target Annotations. J. Phuong[1,2], *L. Truong*[1], *K. Houck*[1], *R. Judson*[1], and *M. T. Martin*[1]. [1]National Center for Computational Toxicology, Office of Research and Development, US EPA, Research Triangle Park, NC; and [2]Dept of Environmental Science and Engineering, Univ of North Carolina at Chapel Hill, Chapel Hill, NC.

#2273m **Poster Board Number 466**
Predictive Toxicology Tools Application in Contaminated Sites Health Risk Assessment and Remediation. *A. K. Mohapatra*[1], and B. Hardy[2]. [1]Environmental Health Program, Health Canada (Praries Region Alberta), Calgary, AB, Canada; and [2]Douglas Connect GmbH, Zeiningen, Switzerland.

#2273n **Poster Board Number 467**
Web Application Supporting Chemical Safety Decisions. S. Watford[1,2], J. Edwards[3], *R. Judson*[1], M. Linnenbrink[1], J. Kancherla[1], and *M. T. Martin*[1]. [1]USEPA/ORD/NCCT, Research Triangle Park, NC; [2]University of North Carolina, Chapel Hill, NC; and [3]ICF International, Durham, NC.

Thursday Morning, March 27
8:30 AM to 12:00 Noon
Hall 1

PS

Poster Session: Computational Toxicology and Data Integration III

Chairperson(s): *John Wambaugh, US EPA, Research Triangle Park, NC.*

Displayed: *8:30 AM–12:00 Noon*

#2273o **Poster Board Number 470**
Pharmacokinetic Triage for Environmental Chemicals. *J. F. Wambaugh*[1], *C. Strope*[1], C. Nicolas[1], *R. Judson*[1], *M. Goldsmith*[1], *H. A. El-Masri*[1], *B. A. Wetmore*[2], J. P. Sluka[3], A. Tropsha[4], S. Bosgra[5], *I. Shah*[1], *R. S. Thomas*[1], and W. Setzer[1]. [1]US EPA, RTP, NC; [2]The Hamner Institutes for Health Sciences, RTP, NC; [3]Indiana University, Bloomington, IN; [4]University of North Carolina, Chapel Hill, NC; and [5]Utrecht University, Utrecht, Netherlands.

#2273p **Poster Board Number 471**
Estimation of Octanol/Water Partition Coefficient and Aqueous Solubility of Environmental Chemicals Using Molecular Fingerprints and Machine Learning Methods. *Q. Zang*[1], K. Mansouri[1], and *R. Judson*[1]. [1]National Center for Computational Toxicology, US EPA, Research Triangle Park, NC.

Abstract #

#2273q **Poster Board Number 472**
Screening Environmental Chemicals in Metabolically Competent Human-Derived Hepatocytes. J. Jack[1,2], *J. Franzosa*[1], P. G. Kothiya[1], J. Bonzo[3], P. Hurban[4], S. Siferd[4], *S. Ferguson*[5], J. Liu[1], *S. D. Hester*[1], *A. Lake*[1], *K. Houck*[1], and *J. F. Wambaugh*[1]. [1]US EPA, Research Triangle Park, NC; [2]North Carolina State University, Raleigh, NC; [3]Life Technologies, Frederick, MD; [4]Expression Analysis, Research Triangle Park, NC; and [5]NTP, NIEHS, Research Triangle Park, NC.

#2273r **Poster Board Number 473**
Prioritization of the Tox21 10k Library for Xenobiotic Metabolism and Toxicity Studies Using *In Silico* Metabolism Models. *S. Ferguson*[1], *N. Kleinstreuer*[2], M. Lawless[3], and *R. R. Tice*[1]. [1]DHHS/NIH, NIEHS/DNTP, Research Triangle Park, NC; [2]ILS, Inc., Research Triangle Park, NC; and [3]Simulations Plus, Lancaster, CA.

#2273s **Poster Board Number 474**
***In Vitro* Screening of 1877 Industrial and Consumer Chemicals, Pesticides, and Pharmaceuticals in up to 782 Assays: ToxCast Phase I and II.** *R. Judson*[1], *K. Houck*[1], *M. T. Martin*[1], *A. M. Richard*[1], *T. B. Knudsen*[1], *N. S. Sipes*[1], I. Shah[1], S. B. Little[1], J. F. Wambaugh[1], M. Linnenbrink[1], *J. Franzosa*[1], J. Phuong[1], P. G. Kothiya[1], K. W. McLaurin[1], *D. L. Filer*[1], *M. C. Leung*[1], C. Strope[1], L. Truong[1], *R. Thomas*[1], D. Smith[1], *D. Reif*[2], *D. Rotroff*[2], *N. Kleinstreuer*[4], *M. Xia*[3], and *R. Huang*[3]. [1]US EPA, Research Triangle Park, NC; [2]North Carolina State University, Raleigh, NC; [3]NIH, NCATS, Rockville, MD; and [4]NICETM, Durham, NC.

#2273t **Poster Board Number 475**
Using ToxCast Nuclear Receptor Activity to Predict Liver Toxicity. J. Liu[1,2], *R. Judson*[1], *M. T. Martin*[1], and *I. Shah*[1]. [1]National Center for Computational Toxicology (NCCT), US EPA, Durham, NC; and [2]University of Arkansas at Little Rock/University of Arkansas for Medical Sciences, Little Rock, AR.

#2273u **Poster Board Number 476**
***In Silico* Study of ToxCast GPCR Assays by Quantitative Structure-Activity Relationships (QSARs) Modeling.** K. Mansouri[1], *N. S. Sipes*[1], and *R. Judson*[1]. [1]EPA, Research Triangle Park, NC.

#2273v **Poster Board Number 477**
Predicting Toxic and Therapeutic Mechanisms of the ToxCast Chemical Library by Phenotypic Screening. *K. Houck*[1], *N. Kleinstreuer*[2], J. Yang[3], E. Berg[3], *T. B. Knudsen*[1], *A. M. Richard*[1], *M. T. Martin*[1], *D. Reif*[4], *R. Judson*[1], and M. A. Polokoff[3]. [1]National Center for Computational Toxicology, US EPA, Research Triangle Park, NC; [2]ILS/NICEATM, NIEHS, RTP, NC; [3]BioSeek/DiscoveRx, S. San Francisco, CA; and [4]NCSU, Raleigh, NC.

#2273w **Poster Board Number 478**
Predictive Models for Mechanism-of-Action Classification of Chemicals Using Phenotypic Data. *E. Berg*[1], J. Yang[1], and M. A. Polokoff[1]. [1]BioSeek LLC, South San Francisco, CA.

Program Description (Continued)

Abstract #

#2273x **Poster Board Number 479**
Read-Across Driven by Molecular Initiating Events: Comparison of *In Silico* Profiling with Experimental Results for Reactivity. A. N. Richarz[1], T. W. Schultz[2], *C. Yang*[3], M. T. Cronin[1], and S. J. Enoch[1]. [1]School of Pharmacy and Chemistry, Liverpool John Moores University, Liverpool, United Kingdom; [2]College of Veterinary Medicine, The University of Tennessee, Knoxville, TN; and [3]Altamira LLC, Columbus, OH.

#2273y **Poster Board Number 480**
ToxBank Integrated Data Analysis of SEURAT-1 Reference Compounds. *B. Hardy*[1], G. J. Myatt[2], P. Kohonen[3], and R. C. Grafström[3]. [1]Douglas Connect GmbH, Zeiningen, Switzerland; [2]Leadscope, Columbus, OH; and [3]Karolinska Institute, Stockholm, Sweden.

#2273z **Poster Board Number 481**
Protein-Fragment Complementation Assays Detect and Describe Nuclear Receptor Activity across the ToxCast Chemical Library. D. L. Filer[1], *R. Judson*[1], D. Rotroff[1], *D. Reif*[2], *A. M. Richard*[1], *K. Houck*[1], and *M. T. Martin*[1]. [1]US EPA NCCT, Research Triangle Park, NC; and [2]Genetics, NCSU, Raleigh, NC.

#2273aa **Poster Board Number 482**
ToxCast Workflow: Big Data Processing and Analysis of High-Throughput Screening Assays for Environmental Chemicals. *P. G. Kothiya*[1], D. Reif[2], *R. Judson*[1], *D. L. Filer*[1], *A. M. Richard*[1], and *M. T. Martin*[1]. [1]National Center for Computational Toxicology, Environmental Protection Agency, RTP, NC; and [2]Department of Genetics, North Carolina State University, Raleigh, NC.

#2273bb **Poster Board Number 483**
A Data Analysis Pipeline for Tox21 Quantitative High-Throughput Screening Assays and Its Application to Toxicity Profiling of Flame Retardants. *J. Hsieh*[1], *A. Sedykh*[2], *M. Behl*[1], *R. Huang*[3], *M. Xia*[3], and *R. R. Tice*[1]. [1]DNTP/NIEHS, Durham, NC; [2]MultiCASE Inc., Cleveland, OH; and [3]NCATS, Rockville, MD.

#2273cc **Poster Board Number 484**
Alternative Methods for Toxicity Testing for Human Health Risk Assessment. *D. Petersen*[1], *J. C. Lambert*[1], *S. C. Wesselkamper*[1], and *J. Zhao*[1]. [1]EPA, Cincinnati, OH.

Thursday Morning, March 27
9:00 AM to 11:45 AM
North Ballroom 120A

Symposium Session: Clinical Evaluation of Emerging Biomarkers of Drug-Induced Liver Injury

Advancing Clinical and Translational Toxicology and Application of Biomarkers

Chairperson(s): *Jiri Aubrecht, Pfizer Inc., Department of Drug Safety Evaluation, Groton, CT, and Alison H. Harrill, University of Arkansas for Medical Sciences, Little Rock, AR.*

Sponsor(s):
Clinical and Translational Toxicology Specialty Section
Drug Discovery Toxicology Specialty Section
Risk Assessment Specialty Section

Drug-induced liver injury (DILI) remains the primary cause of drug failures during clinical development and post-marketing. It is estimated that up to 40% of potentially hepatotoxic compounds in humans go undetected in preclinical studies that utilize conventional biomarkers. Serum alanine aminotransferase (ALT) activity is a widely used clinical biomarker to assess the risk of liver injury during drug development and approvals by regulatory agencies. Since ALT increases may be transient, thus less clinically relevant, the development of alternative biomarker strategies capable of differentiating transient ALT increases from those that progress to severe DILI is essential. Several biomarkers identified by evidence from peer-reviewed literature and datasets at various institutions are being evaluated as potential DILI biomarkers by individual scientists and international research consortia such as Innovative Medicines Initiative and Critical Path Institute's Predictive Safety Testing Consortium. In this symposium we will discuss gaps and opportunities for clinical evaluation of DILI biomarkers and their application in DILI biomarkers strategies. Special attention will be given to the evaluation of protein- and miRNA-based biomarkers for detection of DILI in the clinic including their potential to facilitate the understanding of underlying toxic mechanisms. Furthermore, we will introduce the application of NextGen Sequencing in DILI biomarker research in human subjects.

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#2274 9:00 **Clinical Evaluation of Emerging Biomarkers of Drug-Induced Liver Injury.** *J. Aubrecht*[1], *S. J. Schomaker*[1], *A. H. Harrill*[2], *H. Jaeschke*[3], and J. H. van Delft[4]. [1]Dept of Drug Safety Evaluation, Pfizer Inc., Groton, CT; [2]Hamner-UNC Institute for Drug Safety Sciences, The Hamner Institutes for Health Sciences, Research Triangle Park, NC; [3]Dept. of Pharmacology, Toxicology & Therapeutics, University of Kansas Medical Center, Kansas City, KS; and [4]Department of Toxicogenomics, Maastricht University, Maastricht, Netherlands.

9:00 **Introduction.** J. Aubrecht. Department of Drug Safety Evaluation, Pfizer Inc, Groton, CT.

#2275 9:05 **Clinical Evaluation of Emerging Biomarkers of Drug-Induced Liver Injury: Gaps and Opportunities.** *J. Aubrecht*. Dept of Drug Safety Evaluation, Pfizer Inc., Groton, CT.

#2276 9:34 **Evaluation of Emerging Biomarkers of DILI in Human Populations.** *S. J. Schomaker*. Department of Drug Safety Evaluation, Pfizer Inc., Groton, CT.

#2277 10:03 **Mechanistic Biomarkers of Mitochondrial Dysfunction during Drug-Induced Liver Injury in Humans.** *H. Jaeschke*. Dept. of Pharmacology, Toxicology & Therapeutics, University of Kansas Medical Center, Kansas City, KS.

#2278 10:32 **Novel Liver Biomarkers Provide Insight into Benign Drug-Induced ALT Elevations in the Clinic.** *A. H. Harrill*. University of Arkansas for Medical Sciences, Little Rock, AR.

#2279 11:01 **Application of NextGen Sequencing for Discovery of Novel miR-Based Candidate Biomarkers of DILI in Human Subjects.** J. H. van Delft. Department of Toxicogenomics, Maastricht University, Maastricht, Netherlands. Sponsor: *J. Aubrecht*.

11:30 **Panel Discussion/Q&A.**

Program Description (Continued)

Abstract #

Thursday Morning, March 27
9:00 AM to 11:45 AM
Room 121

Innovations in Toxicological Sciences (ITS)

Symposium Session: Does Evolution Matter in Toxicity Testing in the 21st Century? Rethinking Cross-Species Extrapolation in Hazard Characterization

Enhancing Strategies for Risk Assessment

Chairperson(s): *Maxwell C. Leung, US EPA, National Center for Computational Toxicology, Research Triangle Park, NC, and Thomas B. Knudsen, US EPA, National Center Computational Toxicology, Research Triangle Park, NC.*

Sponsor(s):
Comparative and Veterinary Specialty Section
Molecular Biology Specialty Section
Regulatory and Safety Evaluation Specialty Section

Training in evolutionary thinking can help biomedical researchers, clinicians, and toxicologists ask useful questions that they might not otherwise pose. Emerging high-throughput technologies, predictive toxicology, and bioinformatics, as well as alternative toxicity models such as bacteria, yeast, *C. elegans*, zebrafish, and stem cells, provide new information across the phylogenetic tree at a molecular scale to support human health risk assessments. These novel approaches also create an opportunity to consider what role evolution plays in toxicity testing, particularly in cross-species toxicity extrapolation of pollutants and manufactured chemicals. This symposium aims to generate discussion on evolution and three specific aspects of toxicity testing: (1) how can the phylogeny of species-xenobiotics interaction influence the design and interpretation of high-throughput screens with microbes and alternative animal models; (2) how can the molecular evolution of naturally-occurring toxins and species interaction in the natural world inform the hazard characterization of pollutants and manufactured chemicals; and (3) how can comparative physiology in both vertebrates and invertebrates influence the development of adverse outcome pathways for human health risk assessments.

#2280	9:00	**Does Evolution Matter in Toxicity Testing? Rethinking Cross-Species Extrapolation in Hazard Characterization.** *M. C. Leung*, and *T. B. Knudsen*. National Center for Computational Toxicology, US EPA, Research Triangle Park, NC.
	9:00	**Introduction.** M. C. Leung. NCCT, US EPA, Research Triangle Park, NC.
#2281	9:05	**Evolutionary Approaches in Cross-Species Toxicity Extrapolation: A Naturalist's Perspective.** R. DeSalle. Division of Invertebrate Zoology, American Museum of Natural History, New York City, NY. Sponsor: *M. Leung*.
#2282	9:37	**A High-Throughput DNA Damage Platform and Engineered Mice for Fluorescence Detection of Mutations Together Provide Insights into Ancient Strategies of DNA Repair.** *B. P. Engelward*, J. Ge, D. K. Wood, D. M. Weingeist, and O. Kiraly. Department of Biological Engineering, Massachusetts Institute of Technology, Cambridge, MA.
#2283	10:09	**Molecular Evolution of Transcription Factors in Zebrafish and Killifish: Implications for Biomedical and Environmental Toxicology.** *A. R. Timme-Laragy*[1,2], and *M. E. Hahn*[2]. [1]School of Public Health and Health Sciences, University of Massachusetts, Amherst, MA; and [2]Department of Biology, Woods Hole Oceanographic Institution, Woods Hole, MA.

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#2284	10:41	**The Comparative Toxicogenomics Database (CTD): Leveraging Species Diversity to Understand Mechanisms of Toxicity.** *C. J. Mattingly*. Department of Biology, North Carolina State University, Raleigh, NC.
#2285	11:13	**A Conceptual Framework for Cross-Species Extrapolation to Support Chemical Risk Assessment.** G. T. Ankley. Office of Research and Development, US EPA, Duluth, MN. Sponsor: *M. Leung*.

Thursday Morning, March 27
9:00 AM to 11:45 AM
North Ballroom 120B

Symposium Session: Neurobehavioral Impacts of Early-Life Manganese Exposure: Linking Human and Animal Model Studies

Advancing Clinical and Translational Toxicology and Application of Biomarkers

Chairperson(s): *Donald Smith, University of California, Microbiology and Environmental Toxicology, Santa Cruz, CA, and Roberto G. Lucchini, Icahn School of Medicine at Mount Sinai, Department of Preventive Medicine, New York, NY.*

Sponsor(s):
Clinical and Translational Toxicology Specialty Section
Metals Specialty Section
Neurotoxicology Specialty Section

This symposium will highlight advances in our understanding of the complex causal relationships between early-life environmental manganese (Mn) exposure and lasting neurobehavioral impairment, gained through the coordinated integration of epidemiological and animal model studies. Behavior and cognitive function are among the most important public health outcomes, since the potential loss of neurological functioning early in life due to toxic exposures may result in diminished academic and economic productivity that can persist over the life span. Motor abnormalities are likewise relevant in relation to neurodegenerative disorders, leading to Parkinsonian disturbances in the aged. Multidisciplinary investigations that synthesize advances in developmental testing, animal toxicology, exposure assessment, statistical modeling, and epidemiology are necessary to gain insights into the impacts of early-life Mn exposure—impacts that have direct implications for public health. This symposium will address this research need through presentation of coordinated human and animal research that focuses on comparable neurophenotypes across species and age ranges, and that incorporates novel exposure-assessment tools, such as Mn levels in shed deciduous teeth, to assess the impacts of early-life and lifelong Mn exposure over distinct developmental windows/life stages.

#2286	9:00	**Neurobehavioral Impacts of Early-Life Manganese Exposure: Linking Human and Animal Model Studies.** *D. Smith*[1], *R. Lucchini*[2,4], *R. O. Wright*[2], E. Haynes[3], M. Arora[2], and *S. A. Beaudin*[1]. [1]Microbiology and Environmental Toxicology, University of California Santa Cruz, Santa Cruz, CA; [2]Department of Preventive Medicine, Icahn School of Medicine at Mount Sinai, New York City, NY; [3]Department of Environmental Health, University of Cincinnati, Cincinnati, OH; and [4]Occupational Health, University of Brescia, Brescia, Italy.
	9:00	**Introduction.** D. Smith. Microbiology and Environmental Toxicology, University of California Santa Cruz, Santa Cruz, CA.
#2287	9:05	**Animal-Human Correlates of Early-Life Mn Exposure and Executive Functioning.** R. O. Wright. Department of Preventive Medicine, Icahn School of Medicine at Mount Sinai, New York City, NY. Sponsor: *D. Smith*.

Program Description (Continued)

Abstract #

#2288 9:32 **Neurodevelopmental Effects of Ambient Exposure to Manganese in Appalachian Children Residing near a Ferromanganese Refinery.** E. Haynes. Department of Environmental Health, University of Cincinnati, Cincinnati, OH. Sponsor: *D. Smith*.

#2289 9:59 **Manganese Exposure across Different Life Stages Produces Comparable Deficits in Neuromotor Function and Olfactory Discrimination.** *R. Lucchini*[1,2]. [1]Department of Preventive Medicine, Icahn School of Medicine at Mount Sinai, New York City, NY; and [2]Occupational Medicine, University of Brescia, Brescia, Italy.

#2290 10:26 **Validation of Novel Exposure Biomarkers in Manganese-Exposed Rats and in a Cohort of Children at Risk of Environmental Manganese Exposure.** M. Arora. Department of Preventive Medicine, Icahn School of Medicine at Mount Sinai, New York. Sponsor: *D. Smith*.

#2291 10:53 **Fine Neuromotor Deficits following Early and Lifelong Manganese Exposure, and the Efficacy of Oral Methylphenidate Treatment to Alleviate Motor Function Deficits.** *D. Smith*. Microbiology and Environmental Toxicology, University of California Santa Cruz, Santa Cruz, CA.

#2292 11:19 **Attentional Deficits in Early-Life and Lifelong Manganese-Exposed Rats and Their Reversal with Oral Methylphenidate Treatment.** *S. A. Beaudin*. Microbiology and Environmental Toxicology, University of California Santa Cruz, Santa Cruz, CA.

Thursday Morning, March 27
9:00 AM to 11:45 AM
North Ballroom 120D

Workshop Session: Are Biofuels More or Less Toxic Than Conventional Fuels and What Are the Implications for Human Exposure and Risk?

New Science and Perspectives Surrounding Environmental and Occupational Exposures

Chairperson(s): *Annemoon M. van Erp, Health Effects Institute, Boston, MA, and Michael C. Madden, US EPA, Human Studies Division, Chapel Hill, NC.*

Sponsor(s):
Cardiovascular Toxicology Specialty Section
Inhalation and Respiratory Specialty Section
Occupational and Public Health Specialty Section

During the past decade, the use of biofuels such as biodiesel and bioethanol has been steadily increasing as a viable alternative to the use of petroleum-based fuels. Although there are clear advantages in terms of energy security and climate change, there are several unknowns about the long-term effects of the use of biofuels on the environment and on human health. Because there are many different biofuels and biofuel blends that originate from different feedstocks, evaluating their effects on the environment and human health over their entire lifecycle becomes rather complex. Although there may be reductions in emissions of certain compounds, there may also be unintended consequences. For example, adding bioethanol to gasoline reduces emissions of benzene and other hydrocarbons, but increases the levels of toxic aldehydes in the engine exhaust, and also leads to increased evaporative emissions. While first-generation biofuels such as ethanol derived from corn are now widespread, next-generation fuels such as those produced by microorganisms are under development. The workshop will start with an overview of the types of biofuels that are currently available and recent results of comparative emissions-testing programs in the US. We will then present the latest results from several research programs to evaluate the emissions and comparative toxicity of biofuels, including *in vitro* testing for

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genotoxicity, *in vivo* evaluation of pulmonary and cardiovascular effects, and the toxicity of fatty acid methyl esters (FAME) that are found in biodiesel. In addition to new results regarding emissions testing, the workshop will discuss different approaches and harmonization of toxicity testing *in vitro* and *in vivo*. Finally, we will conclude with approaches to assess human exposure and health impacts. [This may not represent official US EPA policy.]

#2293 9:00 **Are Biofuels More or Less Toxic than Conventional Fuels and What Are the Implications for Human Exposure and Risk?** *A. M. van Erp*[1], and *M. C. Madden*[2]. [1]Health Effects Institute, Boston, MA; and [2]US EPA, Research Triangle Park, NC.

9:00 **Introduction.** A. M. van Erp. Health Effects Institute, Boston, MA.

#2294 9:05 **Biofuel Usage, Composition, and Engine Emissions.** K. Hoekman. Desert Research Institute, Reno, NV. Sponsor: *A. van Erp*.

#2295 9:35 ***In Vitro* Toxicological Evaluations of Emissions from Heavy-Duty Vehicles Using Biofuel Blends.** *N. Kado*, and *C. F. Vogel*. Environmental Toxicology and Center for Health and the Environment, University of California Davis, Davis, CA.

#2296 10:05 **Comparative Toxicity and Mutagenicity of Biodiesel Exhaust.** *I. Gilmour*[1], D. Demarini[2], N. Fukagawa[3], *U. P. Kodavanti*[1], *A. K. Farraj*[1], *M. S. Hazari*[1], and *S. H. Gavett*[1]. [1]EPHD, US EPA, Durham, NC; [2]ISTD, US EPA, Durham, NC; and [3]University of Vermont, Burlington, VT.

#2297 10:35 **Approaches to Comparative Biofuels Toxicity Testing and Recent Results from Europe.** *M. Gerlofs-Nijland*. National Institute for Public Health and the Environment, Bilthoven, Netherlands.

#2298 11:05 **Human Health Impact Assessment of Biofuels.** M. Egyed, N. Edmonds, N. Charman, S. Lamy, and M. Rouleau. Health Canada, Ottawa, ON, Canada. Sponsor: *A. van Erp*.

11:35 **Panel Discussion/Q&A.**

Thursday Morning, March 27
9:00 AM to 11:45 AM
Room 122

Workshop Session: Role of Circulating Factors in Mediating Systemic Toxicity of Inhaled Substances

Safety Assessment: Mechanisms and Novel Methods

Chairperson(s): *Matthew J. Campen, University of New Mexico, Pharmaceutical Sciences, Albuquerque, NM, and Lung Chi Chen, NYU School of Medicine, Environmental Medicine, Tuxedo, NY.*

Sponsor(s):
Cardiovascular Toxicology Specialty Section
Inhalation and Respiratory Specialty Section
Occupational and Public Health Specialty Section

Air pollution has been long known to cause chronic and acute systemic health effects, including cardiovascular and possibly neurodegenerative diseases, but the pathway by which inhaled substances drive effects beyond the lung is unclear. The lung provides an effective barrier against most gaseous and particulate components of air pollution, and those that are taken up systemically are often in remarkably low concentrations. Moreover, several studies fail to see the same effects at relevant concentrations when particulates are delivered by gavage, intravenously, or in cell culture studies, implying that there is a lung-specific reaction that occurs to drive the systemic effects. Recent studies have revealed that inhalation exposures to a variety of pollutants can lead to the generation of circulating bioactive

Program Description (Continued)

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factors that drive endothelial cell activation and may also be responsible for neuroinflammation. Circulatory changes include generation of adducted proteins, altered metabolites and lipids, and altered function of lipoproteins. The identity of the causal component(s) in the circulation remains unclear, but ongoing lipidomic and metabolomic research is providing important insights. This workshop will highlight a number of advances in this area related to exposures to particulate matter, metals, ozone, combustion mixtures, and nanomaterials.

#2299	9:00	**Role of Circulating Factors in Mediating Systemic Toxicity of Inhaled Substances.** *L. Chen*[1], and *M. Campen*[2]. [1]Environmental Medicine, New York University School of Medicine, Tuxedo Park, NY; and [2]Pharmaceutical Sciences, University of New Mexico, Albuquerque, NM.
	9:00	**Introduction.** L. Chen[1], and M. Campen[2]. [1]Environmental Medicine, New York University School of Medicine, Tuxedo Park, NY; and [2]Pharmaceutical Sciences, University of New Mexico, Albuquerque, NM.
#2300	9:15	**Influence of $PM_{2.5}$ Exposure on the Receptor for Advanced Glycation End Products: Insight into an Emerging Risk for Diabetes.** J. M. Vaughan[1], B. Narayanan[1], A. Schmidt[2], and *L. Chen*[1]. [1]Environmental Medicine, New York University, New York City, NY; and [2]Medicine, New York University, New York City, NY.
#2301	9:45	**Carbon-Based Engineered Nanomaterial Exposure Alters Circulating Factors that Induce Endothelial Activation and Impairment of Nitric Oxide Synthesis.** *A. Erdely*[1], and M. Aragon[2]. [1]CDC-NIOSH, Morgantown, WV; and [2]University of New Mexico, Albuquerque, NM.
#2302	10:15	**Endothelial Cell Pattern Recognition Receptors, CD36 and LOX-1, Contribute to Responses to Pollution-Induced Circulating Factors.** *M. Campen*. Pharmaceutical Sciences, University of New Mexico, Albuquerque, NM.
#2303	10:45	**Ambient PM and Diesel Exhaust Alter Functionality of HDL.** J. Araujo. School of Medicine, University of California Los Angeles, Los Angeles, CA. Sponsor: *M. Campen*.
#2304	11:15	**Systemic Effects of Inhalation Exposure Mediated by 'Omic Perturbation in Serum.** A. K. Ottens. Neurosciences, Virginia Commonwealth University, Richmond, VA. Sponsor: *M. Campen*.

Thursday Morning, March 27
9:00 AM to 11:45 AM
Room 129

Workshop Session: The Use of Dogs and Minipigs As an Alternative to the Nonhuman Primate in Nonclinical Safety Assessment of Biopharmaceuticals

Safety Assessment: Mechanisms and Novel Methods

Chairperson(s): *Joerg Bluemel, MedImmune LLC, Biologics Safety Assessment, Gaithersburg, MD, and John A. Wisler, Amgen Inc., Department of Toxicology, Thousand Oaks, CA.*

Sponsor(s):
Biotechnology Specialty Section
Drug Discovery Toxicology Specialty Section
Regulatory and Safety Evaluation Specialty Section

Appropriate species selection is paramount for the nonclinical safety evaluation of biopharmaceuticals. Regulatory guidance requires the use of a pharmacological responder species, in particular for biopharmaceuticals. Most often the nonhuman primate (NHP) is considered as the only pharmacologically relevant species, and especially the cynomologus monkey is frequently used for nonclinical safety studies. In recent years, ethical concerns, increased public scrutiny, and issues of availability and transportation of NHPs have put considerable pressure on researchers worldwide to improve study designs and to intensify the search for alternative species. Besides recent activities to improve study designs to reduce the number of animals used, there is a sense of urgency to intensify the search for alternative species and consider nontraditional approaches beyond the use of "standard" toxicology species. Species like the dog and minipig are meanwhile widely used in toxicity studies for chemical-derived pharmaceuticals but rarely considered for nonclinical safety evaluation of biopharmaceuticals. The limited availability of scientific background data, e.g., pharmacogenomic or physiology comparisons, and limited regulatory experiences are considered as major obstacles for a wider use of dogs and minipigs for biopharmaceutical safety testing. A better understanding of factors like sequence homology, target/ligand expression, downstream signaling, effector functions, and antibody kinetics, as well as the availability of tools like species-specific background databases, *in vitro* assays, or reagents, would greatly facilitate the use of dogs and minipigs. Increased use of dogs and minipigs for nonclinical safety assessment of biopharmaceuticals would in turn increase the regulatory confidence and experience. The objective of this workshop is to review and discuss recent progression and challenges in the scientific characterization of dogs and minipigs and discuss their utility and limitations for regulatory safety testing of biopharmaceuticals.

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#2305	9:00	**The Use of Dogs and Minipigs As an Alternative to the Nonhuman Primate in Nonclinical Safety Assessment of Biopharmaceuticals.** *J. A. Wisler*[2], and *J. Bluemel*[1]. [1]MedImmune, Gaithersburg, MD; and [2]Amgen, Thousand Oaks, CA.
	9:00	**Introduction.** J. A. Wisler. Amgen Inc, Thousand Oaks, CA.
#2306	9:05	**The Immune System and Immune Function Testing in the Dog and Minipig.** *H. N. Lebrec*. Toxicology Sciences, Amgen Inc., Thousand Oaks, CA.
#2307	9:35	**The Dog and Minipig As Pharmacology Models to Evaluate Biopharmaceuticals.** *N. Dybdal*. Safety Assessment Pathology, Genentech, South San Francisco, CA.
#2308	10:05	**Animal Model Genomic Data Aids Species Selection in Pharmaceutical Discovery and Development.** J. J. Vamathevan. Computational Biology, GlaxoSmithKline, Stevenage, United Kingdom. Sponsor: *J. Wisler*.
#2309	10:35	**Regulatory Acceptance of Nontraditional Animal Models for Safety Assessment: EU Perspective.** J. van der Laan. Section on Pharmacology, Toxicology and Biotechnology (FTBB), Medicines Evaluation Board, Utrecht, Netherlands. Sponsor: *J. Bluemel*.
#2310	11:05	**Regulatory Acceptance of Nontraditional Animal Models for Safety Assessment: US Perspective.** *A. Jacobs*. US FDA, Silver Spring, MD.
	11:35	**Panel Discussion/Q&A.**

Program Description (Continued)

Abstract #

Thursday Morning, March 27
9:00 AM to 11:45 AM
Room 126

RI

Regional Interest Session: When the Dust Settles: Exposure Assessment and Health Effects from Dust Exposures in the Arid Southwest

Chairperson(s): *R. Clark Lantz, University of Arizona, Department of Cellular and Molecular Medicine, Tucson, AZ, and Jacob D. McDonald, LRRI, Albuquerque, NM.*

Sponsor(s):
Mountain West Regional Chapter

In the arid southwestern United States, respirable dust levels in the atmosphere can be problematic due to the low humidity and strong winds. Over the last several years, these conditions have led to increased incidence of high dust exposures, especially in densely populated regions. Based on climate change models, these conditions are expected to worsen, with the southwestern US projected to be among the regions that will be most affected by these changes. This issue can be particularly acute just downwind from sources such as roads or legacy mine tailing sites, where dusts can contain high levels of respirable particulate matter that may also contain metals, including arsenic, copper, chromium, and cadmium, and legacy waste from hundreds of abandoned uranium mines in the region. Dusts and pollutants generated by other sources can also contribute to decrement in air quality and increased risk of adverse health outcomes. Airborne pollutants have long been implicated as potential etiological agents in the development of asthma and other diseases. In addition, exposure to airborne particulates exacerbates the pulmonary responses in already sensitized individuals. Further complicating these responses is the fact that ingestion of high levels of arsenic in drinking water is occurring simultaneously in the southwestern US. This session will focus on these important regional issues. Talks will present data on exposure assessment and characterization of dusts from roads and legacy mines. Potential adverse health outcomes from these exposures will be presented. The impact of these exposures on native populations will also be discussed. Data from both population and laboratory-based research will provide excellent examples and information related to the effects of exposure to dusts and metal containing dusts. This will be of interest to those involved in metal- toxicology, pulmonary toxicology, developmental toxicology, public health, risk assessment, and regulatory management.

#2311	9:00	**When the Dust Settles: Exposure Assessment and Health Effects from Dust Exposures in the Arid Southwest.** *R. Lantz*. Dept of Cellular and Molecular Medicine, University of Arizona, Tucson, AZ.
	9:00	**Introduction.** R. Lantz. Department of Cell Biology and Anatomy, University of Arizona, Tucson, AZ.
#2312	9:05	**Influence of Collection Region and Site Type on the Composition of Paved Road Dust: It's Not Just Dirt!!!** *J. D. McDonald*. Lovelace Respiratory Research Institute, Albuquerque, NM.
#2313	9:45	**Multimedia Exposure to Metals near a Mine Tailings Site.** M. Loh. Community, Environment and Policy, University of Arizona, Tucson, AZ. Sponsor: *R. Lantz*.
#2314	10:25	**Effects of *In Utero* and Early Postnatal Exposures to Metal-Containing Dusts.** *R. Lantz*. Dept of Cellular and Molecular Medicine, University of Arizona, Tucson, AZ.
#2315	11:05	**Metals, the West, and Translational Science.** *J. L. Lewis*. Community Environmental Health Program, University of New Mexico, Albuquerque, NM.

Abstract #

Thursday Morning, March 27
9:00 AM to 11:45 AM
Room 125

PL

Platform Session: Autoimmunity/Hypersensitivity to Environmental Contaminants

Chairperson(s): *Ian Kimber, University of Manchester, Toxicology, Manchester, United Kingdom, and M. Firoze Khan, University of Texas Medical Branch, Department of Pathology, Galveston, TX.*

#2316	9:00	**Metabolic Pathways Related to Inflammation Are Disrupted by Arsenic in the Livers of Mice Fed a Western Diet.** *W. Watson*[1], X. Shi[2], X. Wei[2], I. Koo[2], R. H. Schmidt[3], X. Yin[2], S. Kim[2], A. Vaughn[1], C. McClain[1,4], *G. E. Arteel*[3], and X. Zhang[2]. [1]Department of Medicine/GI, University of Louisville, Louisville, KY; [2]Chemistry, University of Louisville, Louisville, KY; [3]Pharmacology & Toxicology, University of Louisville, Louisville, KY; and [4]Robley Rex VAMC, Louisville, KY.
#2317	9:23	**Organic Species of Arsenic Have Adverse Effects on *Pseudomonas aeruginosa*-Induced Immune Response.** *E. Notch*, R. Barnaby, B. Coutermarsh, V. Taylor, B. Jackson, and *B. Stanton*. Geisel School of Medicine at Dartmouth, Hanover, NH.
#2318	9:46	**Arsenic Exposure and Cell-Mediated Immunity in Preschool Children in Rural Bangladesh.** S. Ahmed[1,2], Y. Wagatsuma[3], M. Kippler[1], R. Raqib[2], and *M. E. Vahter*[1]. [1]Institute of Environmental Medicine (IMM), Karolinska Institutet, Stockholm, Sweden; [2]International Centre for Diarrheal Disease Research, Bangladesh, Dhaka, Bangladesh; and [3]University of Tsukuba, Tsukuba, Japan.
#2319	10:09	**Inhibition of Arsenic-Induced Unfolded Protein Response Prevents Endothelial Activation and Inhibits Atherosclerosis in APO E-Knockout Mice.** *S. Srivastava*, S. D. Sithu, N. S. Wickramasinghe, E. Vladykovskaya, P. Haberzettl, A. Agarwal, M. Winner, R. E. Hamid-Berair, and S. E. D'Souza. University of Louisville, Louisville, KY.
#2320	10:32	**Arsenite Exposure-Induced Lymphocytes G0/G1 Arrest Is Attributable to p130 Accumulation via p16 Increase.** K. Okamura[1,2], and *K. Nohara*[1,2]. [1]Center for Environmental Health Sciences, National Institute for Environmental Studies, Tsukuba, Japan; and [2]Grad. Sch. of Life &Environ. Sci., University of Tsukuba, Tsukuba, Japan.
#2321	10:55	**Obesity and Lung Inflammation after Asbestos Exposure.** *T. A. Brown*, and *A. Holian*. Center for Environmental Health Sciences, University of Montana, Missoula, MT.
#2322	11:18	**The Characteristics of Activated Lymphocytes in Silicosis Differing in Th17 Phenotype from Systemic Scleroderma.** *Y. Nishimura*[1], S. Lee[1], N. Kumagai-Takei[1], H. Matsuzaki[1], H. Hayashi[2], W. Fujimoto[2], Y. Morita[3], M. Kusaka[4], and *T. Otsuki*[1]. [1]Hygiene, Kawasaki Medical School, Kurashiki, Japan; [2]Dermatology, Kawasaki Medical School, Kurashiki, Japan; [3]Rheumatology, Kawasaki Medical School, Kurashiki, Japan; and [4]Kusaka Hospital, Bizen, Japan.

Program Description (Continued)

Abstract #

Thursday Morning, March 27
9:00 AM to 11:45 AM
Room 128

PL

Platform Session: Ozone: Multiple Tissue Endpoints

New Science and Perspectives Surrounding Environmental and Occupational Exposures

Chairperson(s): *James G. Wagner, Michigan State University, East Lansing, MI, and Debra L. Laskin, Rutgers University, Piscataway, NJ.*

#2323 9:00 **Transient Receptor Potential Cation Channel A1 (TRPA1) Mediates Decrements in Cardiac Mechanical Function and Dysrhythmia Caused by a Single Air Pollution Exposure in Mice.** *N. Kurhanewicz*[1], *R. McIntosh-Kastrinsky*[1], A. Ledbetter[2], L. Walsh[2], *A. K. Farraj*[2], and *M. S. Hazari*[2]. [1]University of North Carolina, Chapel Hill, NC; and [2]Environmental Public Health Division, USEPA, Research Triangle Park, NC.

#2324 9:20 **Inhalation Exposures to Ozone Induce Insulin Resistance and Pulmonary Pathology in Type II Diabetes-Prone Mice.** *K. Allen*, R. Lewandowski, *J. G. Wagner*, and *J. R. Harkema*. Great Lakes Air Center for Integrated Environmental Research, Michigan State University, East Lansing, MI.

#2325 9:40 **Ozone-Induced Impairment of Systemic Metabolic Processes: Influence of Prior Ozone Exposure and Metformin Pretreatment on Aged Wistar Kyoto (WKY) Rats.** V. L. Bass[1], D. Andrews[2], J. Richards[2], M. Schladweiler[2], A. Ledbetter[2], *D. B. Miller*[1], and *U. P. Kodavanti*[2]. [1]UNC, Chapel Hill, NC; and [2]NHEERL, US EPA, Research Triangle Park, NC.

#2326 10:00 **Serum Metabolomic Profiling and Liver Transcriptomic Analysis Provides Mechanistic Evidence of Ozone (O3)-Induced Systemic Metabolic Impairment.** *D. B. Miller*[1], *E. D. Karoly*[2], *W. Ward*[3], *D. Andrews*[3], *V. L. Bass*[3], *M. Schladweiler*[3], *A. Ledbetter*[3], and *U. P. Kodavanti*[3]. [1]University of North Carolina-Chapel Hill, Chapel Hill, NC; [2]METABOLON INC., Durham, NC; and [3]NHEERL, U.S. EPA, RTP, NC.

#2327 10:20 **Ccr2 Regulates Inflammatory Cell Accumulation in the Lung and Tissue Injury following Ozone Exposure.** *A. M. Groves*, *M. Francis*, *M. Mandal*, H. Choi, *J. D. Laskin*, and *D. L. Laskin*. Rutgers University, Piscataway, NJ.

#2328 10:40 **Development of Eosinophilic Rhinitis and Nasal Tissue Remodelling in Mice Episodically Exposed to Ozone.** C. Ong, *K. Allen*, C. Brandenberger, D. Jackson-Humbles, L. Bramble, R. Lewandowski, *J. G. Wagner*, and *J. R. Harkema*. Great Lakes Air Center for Integrated Environmental Research, Michigan State University, East Lansing, MI.

#2329 11:00 **Acute Fine Ambient Particulate and Ozone Coexposures in Durham, North Carolina: Influence of Season on Particle Chemistry and Cardiovascular Responses in Rats.** *A. K. Farraj*[1], L. Walsh[1], N. Coates[1], F. Malik[1], D. Winsett[1], K. Kovalcik[1], J. McGee[1], *M. A. Higuchi*[1], *M. S. Hazari*[1]. [1]US Environmental Protection Agency, Research Triangle Park, NC.

Abstract #

#2330 11:20 **Does Obesity Increase Susceptibility to Ozone? Respiratory, Behavioral, and Metabolic Assessments in Brown Norway Rats.** *C. J. Gordon*[1], A. F. Johnstone[1], P. Phillips[1], *U. P. Kodavanti*[2], K. A. Jarema[1]. [1]Toxicity Assessment Division, US EPA, Research Triangle Park, NC; and [2]Environmental Public Health Division, US EPA, Research Triangle Park, NC.

THANK YOU ATTENDEES

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2013-2014 Council



LOIS D. LEHMAN-MCKEEMAN

President
2013–2014

T: 609.252.3516
F: 609.252.7046
lois.lehman-mckeeman@bms.com

- Board of Publications, Member
- Celebrating Membership Accomplishments Task Force, Contact
- Endowment Fund Board, *Ex-Officio* Member
- Finance Committee, Member
- IUTOX Councilor, Member, Contact



NORBERT E. KAMINSKI

Vice President
2013–2014

T: 517.353.3786
F: 517.432.3218
kamins11@msu.edu

- Board of Publications, *Ad Hoc* Member, Contact
- Finance Committee, Member
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- Nominating Group for Honorary Members, Member
- Scientific Program Committee, Chair
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  - *Non-SOT Meeting, Component, and Global Funding, Member*



PETER L. GOERING

Vice President-Elect
2013–2014

T: 301.796.0253
F: 301.796.9826
petergoering.tox@gmail.com

- Awards Committee, Contact
- IUTOX Councilor, Member
- Scientific Program Committee, Co-Chair
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- Council Subcommittees:
  - *ATSDR/NCEH/CDC Liaison Group, Chair*
  - *EPA Government Liaison Group, Member*
  - *NICHD Government Liaison Group, Member*



DENISE ROBINSON GRAVATT

Treasurer
2013–2015

T: 860.715.0694
F: 860.441.5499
denise.robinson-gravatt@pfizer.com

- Endowment Fund Board, *Ex-Officio* Member
- Finance Committee, Chair, Contact
- ToxExpo Liaison Working Group, Contact
- Council Subcommittees
  - *FDA/NCTR Government Liaison Group, Member*
  - *NIOSH Government Liaison Group, Chair*
  - *Non-SOT Meeting, Component, and Global Funding, Chair*



JUDITH T. ZELIKOFF

Secretary
2013–2014

T: 845.731.3528
F: 845.351.5472
judith.zelikoff@nyumc.org

- Historian, Contact
- Newsletter Editor
- Postdoctoral Assembly, Contact
- Research Funding Committee, Contact
- Specialty Sections, Contact
- Council Subcommittees:
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  - *NICHD Government Liaison Group, Chair*
  - *NIEHS Government Liaison Group, Member*



LEIGH ANN BURNS NAAS

Secretary-Elect
2013–2014

T: 650.577.7866
F: 650.522.5266
leighann.burns@gilead.com

- Communications Committee, Co-Contact
- Specialty Sections, Co-Contact
- Council Subcommittees:
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  - *NIEHS Government Liaison Group, Chair*
  - *NIOSH Government Liaison Group, Member*



WILLIAM SLIKKER JR.

Past President
2013–2014

T: 870.543.7517
F: 870.543.7576
william.slikker@fda.hhs.gov

- Audit Committee, Contact
- Endowment Fund Board, Member, Contact
- Nominating Committee, Contact
- Nominating Group for Honorary Members, Chair, Contact
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  - *NIOSH Government Liaison Group, Member*

2013–2014 Council (Continued)



LORRENE A. BUCKLEY

Councilor
2012–2015

T: 317.277.7324
buckleyla@lilly.com

- Career Research and Development Committee, Contact
- Communications Committee, Contact
- Council Subcommittees:
  - *EPA Government Liaison Group, Member*
  - *NICHD Government Liaison Group, Member*



MYRTLE A. DAVIS

Councilor
2013–2016

T: 240.276.5915
myrtledavis@sprintmail.com

- Committee on Diversity Initiatives, Co-Contact
- Education Committee, Co-Contact
- Council Subcommittees:
  - *ATSDR/NCEH/CDC Government Liaison Group, Member*
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  - *Non-SOT Meeting, Component, and Global Funding, Member*



DORI R. GERMOLEC

Councilor
2011–2014

T: 919.541.3230
F: 919.541.4255
germolemur@gmail.com

- Continuing Medical Education (CME) Task Force, Contact
- Education Committee, Contact
- ToXchange Task Force, Contact
- Council Subcommittees:
  - *EPA Government Liaison Group, Chair*
  - *FDA/NCTR Government Liaison Group, Member*



JOHN C. LIPSCOMB

Councilor
2011–2014

T: 513.569.7217
F: 513.487.2539
lipscomb.john@epa.gov

- Committee on Diversity Initiatives, Council Contact
- Membership Committee, Council Contact
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- Special Interest Groups, Council Contact
- Council Subcommittee:
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IVAN RUSYN

Councilor
2012–2015

T: 919.843.2596
F: 919.843.2596
iir@unc.edu

- CCT Conferences Committee, Contact
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JOHN A. WISLER

Councilor
2013–2016

T: 805.447.9787
F: 805.376.9467
jwisler@amgen.com

- Membership Committee, Co-Contact
- Regional Chapters, Co-Contact
- Council Subcommittees:
  - *EPA Government Liaison Group, Member*
  - *NICHD Government Liaison Group, Member*
  - *NIOSH Government Liaison Group, Member*



SHAWN D. LAMB

Executive Director

T: 703.438.3115
F: 703.438.3113
shawnl@toxicology.org

- Audit Committee, Staff Liaison
- Endowment Fund Board, *Ex-Officio* Member
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Barbara D. Beck, Co-Chair (2013–2014), Member (2013–2015)
Janice E. Chambers, Member (2013–2015)
Samuel Monroe Cohen, Member (2012–2014)
Suzanne Compton Fitzpatrick, Member (2013–2015)
Mary E. Gilbert, Member (2012–2014)
Terry Gordon, Member (2013–2015)
Peter L. Goering*
Raul A. Suarez**

Membership Committee
Michael L. Dourson, Chair (2013–2014), Member (2011–2014)
Tao Wang, Co-Chair (2013–2014), Member (2012–2015)
Lauren M. Aleksunes, Member (2011–2014)
Kathleen Gabrielson, Member (2013–2016)
Michelle J. Hooth, Member (2012–2015)
William Mark Valentine, Member (2013–2016)
Kathryn E. Page, Postdoctoral Representative (2013–2014)
Michelle Carroll Turpin, Student Representative (2012–2014)
John A. Wisler*
John C. Lipscomb*
Matthew J. Price**

Nominating Committee
Jon C. Cook, Chair (2013–2014), Member (2012–2014)
Rosonald R. Bell, Member (2012–2014)
James V. Bruckner, Member (2012–2014)
George B. Corcoran, Member (2013–2015)
Brian S. Cummings, Member (2013–2015)
Alison C. P. Elder, Member (2012–2014)
Bruce A. Fowler, Member (2013–2015)
Anthony M. Ndifor, Member (2013–2015)
Martin A. Philbert, Member (2012–2014)
William Slikker Jr.*
Shawn Douglas Lamb**

Appointed Committees

Audit Committee
Marion F. Ehrich, Chair (2013–2014), Member (2011–2014)
James E. Klaunig, Co-Chair (2013–2014), Member (2012–2015)
Kim Boekelheide, Member (2013–2016)
William Slikker Jr.*
Shawn Douglas Lamb**

Board of Publications
Janice E. Chambers, Chair (2013–2014), Member (2010–2014)
Matthew J. Campen, Co-Chair (2013–2014), Member (2012–2016)
Patricia E. Ganey, Member (2013–2017)
Douglas A. Keller, Member (2011–2015)
Lois D. Lehman-McKeeman, Member (2013–2014)
Gary W. Miller, *ToxSci* Editor-in-Chief, *Ad Hoc* Member (2013–2016)
Norbert E. Kaminski,* *Ad Hoc* Member (2013–2014)
Marcia G. Lawson**

Career Resource and Development Committee
Jeffrey S. Moffit, Chair (2013–2014), Member (2011–2014)
William J. Brock, Co-Chair (2013–2014), Member (2012–2015)
Anne Marie Api, Member (2013–2015)
Ambuja S. Bale, Member (2013–2016)
Erica D. Bruce, Member (2013–2016)
Michele La Merrill, Member (2013–2014)
Gregory S. Ladics, Member (2011–2014)
Betina J. Lew, Member (2013–2016)
Vikrant Vijay, Member (2012–2015)
Smitha Krishnan Infante, Postdoctoral Representative (2013–2014)
Xiao Pan, Student Representative (2013–2014)
Lorrene A. Buckley*
Kim von Brook**
Kevin Merritt**

Celebrating Membership Accomplishments Task Force
David L. Eaton, Chair (2012–2014), Member (2012–2014)
Nancy D. Claude, Member (2012–2014)
Barbara F. Hales, Member (2012–2014)
Bruce D. Hammock, Member (2012–2014)
Ian Kimber, Member (2012–2014)
Donald R. Mattison, Member (2012–2014)
Sten Gosta Orrenius, Member (2012–2014)
Cheryl Lyn Walker, Member (2012–2014)
Lois D. Lehman-McKeeman*
Raul A. Suarez**

Committee on Diversity Initiatives
Ofelia A. Olivero, Chair (2013–2014), Member (2011–2014)
Kristini Miles, Co-Chair (2013–2014), Member (2012–2015)
Sudheer Beedanagari, Member (2011–2014)
Rosonald R. Bell, Member (2011–2014)
Robert P. Casillas, Member (2012–2015)
Sakina E. Eltom, Member (2013–2016)
Umesh M. Hanumegowda, Member (2013–2016)
Jorge M. Naciff, Member (2013–2016)
Douglas K. Stevens, Member (2012–2015)
Jose E. Manautou, *Ad Hoc* Member (2011–2014)
Senthilkumar Perumal Kuppusamy, Postdoctoral Representative (2013–2014)
Brittany Lynn Baisch, Student Representative (2012–2014)
John C. Lipscomb*
Myrtle A. Davis*
Susan D. Simmons**

Communications Committee
Lisa Tonner Navarro, Chair (2013–2014), Member (2012–2015)
Cynthia A. Afshari, Member (2013–2016)
Aaron Barchowsky, Member (2013–2016)
Joy A. Cavagnaro, Member (2012–2015)
Nathan J. Cherrington, Member (2011–2014)
George B. Corcoran, Member (2012–2015)
George P. Daston, Member (2013–2016)
John W. Davis II, Member (2011–2014)
Timothy P. Pastoor, Member (2010–2014)
Linda G. Roberts, Member (2012–2015)
Chad Brocker, Postdoctoral Representative (2013–2014)
Kelly Almond, Student Representative (2012–2014)
Leigh Ann Burns Naas*
Lorrene A. Buckley*
Shawn Douglas Lamb**
Michelle Werts**

* Council Contact
** Staff Liaison
TBD=To be determined

Elected and Appointed Committees (Continued)

Communications Committee: Congressional Subcommittee
George B. Corcoran, Chair (2009–2015), Member (2009–2015)
Dennis J. Devlin, Member (2012–2014)
George M. Gray, Member (2009–2014)
Michael P. Holsapple, Member (2010–2014)
Daland R. Juberg, Member (2009–2015)
W. Mark Lafranconi, Member (2012–2014)
James C. Lamb IV, Member (2012–2015)
Mary T. McBride, Member (2012–2014)
David Taylor Szabo, Member (2011–2014)
Lisa Navarro, Member (2013–2014)
Alison J. Abritis, Student Representative (2012–2014)
Lorrene A. Buckley*
Leigh Ann Burns Naas*
Shawn Douglas Lamb**
Michelle Werts**

Communications Committee: Toxic Substances Control Act (TSCA) Subcommittee
Daland R. Juberg, Chair (2010–2014), Member (2010–2014)
Susan J. Borghoff, Member (2013–2014)
Deborah A. Cory-Slechta, Member (2013–2014)
William H. Farland, Member (2010–2014)
Ronald S. Filler, Member (2010–2014)
George M. Gray, Member (2010–2014)
Michael P. Holsapple, Member (2011–2014)
W. Mark Lafranconi, Member (2010–2014)
James C. Lamb IV, Member (2010–2014)
Moiz Mumtaz, Member (2013–2014)
Lisa Navarro, Member (2013–2014)
Ruthann A. Rudel, Member (2013–2014)
Robert S. Skoglund, Member (2010–2014)
Lorrene A. Buckley*
Leigh Ann Burns Naas*
Shawn Douglas Lamb**
Michelle Werts**

Contemporary Concepts in Toxicology (CCT) Conferences Committee
Laurie C. Haws, Chair (2013–2014), Member (2011–2014)
Donna L. Mendrick, Co-Chair, Member (2013–2016)
Eric B. Harstad, Member (2013–2016)
Ronald N. Hines, Member (2013–2014)
Daland R. Juberg, Member (2012–2015)
Elaina M. Kenyon, Member (2013–2016)
Ruth A. Roberts, Member (2013–2014)
Justin G. Teeguarden, Member (2012–2015)
Ivan Rusyn*
Clarissa Russell Wilson**

CCT Organizing Committee for FutureTox II: Pathways to Prediction
Thomas B. Knudsen, Co-Chair (2013–2014)
Douglas A. Keller, Co-Chair (2013–2014)
Edward W. Carney, Member (2013–2014)
Nancy G. Doerrer, Member (2013–2014)
David L. Eaton, Member (2013–2014)
Suzanne Compton Fitzpatrick, Member (2013–2014)
Kenneth L. Hastings, Member (2013–2014)
Donna L. Mendrick, Member (2013–2014)
Raymond R. Tice, Member (2013–2014)
Paul B. Watkins, Member (2013–2014)
Maurice P. Whelan, Member (2013–2014)
Ivan Rusyn*
Marcia Lawson**

Continuing Education Committee
Mark E. Hurtt, Chair (2013–2014), Member (2011–2014)
Qiyu Jay Zhao, Co-Chair (2013–2014), Member (2012–2015)
Gayathri Chadalapaka, Member (2012–2015)
Saber M. Hussain, Member (2013–2016)
William B. Mattes, Member (2012–2015)
Monicah A. Otieno, Member (2013–2016)
Gary O. Rankin, Member (2013–2016)
Vishal S. Vaidya, Member (2011–2014)
Tao Wang, Member (2011–2014)
Sachin Bhusari, Postdoctoral Representative (2013–2014)
Sanket Gadhia, Student Representative (2013–2014)
Ivan Rusyn*
David Rosse**

Council Subcommittee for Non–SOT Meeting, Component, and Global Funding
Denise Robinson Gravatt, Chair (2012–2014), Member (2012–2014)
Myrtle Davis, Member (2013–2015)
Norbert E. Kaminski, Member (2013–2015)
Ivan Rusyn, Member (2013–2015)
David Rosse**

Continuing Medical Education (CME) Task Force
John G. Benitez, Chair (2013–2014), Member (2012–2015)
Michael J. Kosnett, Member (2013–2016)
Martin A. Philbert, Member (2012–2015)
Kenneth S. Ramos, Member (2012–2015)
Richard Y. Wang, Member (2012–2015)
Dori R. Germolec*
Matthew J. Price**

Education Committee
Teresa L. Leavens, Chair (2013–2014), Member (2011–2014)
Richard S. Pollenz, Co-Chair (2013–2014), Member (2013–2015)
James P. Luyendyk, Member (2013–2016)
Chudy I. Nduaka, Member (2011–2014)
Thu Annelise Nguyen, Member (2013–2016)
Rafael A. Ponce Jr., Member (2012–2015)
Vicente Santa Cruz, Member (2013–2016)
Dana L. Shuey, Member (2011–2014)
Leshuai Wu Zhang, Member (2012–2015)
Emily G. Notch, Postdoctoral Representative (2012–2014)
Christin M. Grabinski, Student Representative (2013–2014)
Dori R. Germolec*
Myrtle A. Davis*
Betty Eidemiller**

Education Committee: K–12 Subcommittee
Angela Slitt, Chair (2013–2014), Member (2011–2014)
Daniel E. Arrieta, Member (2011–2014)
Virunya S. Bhat, Member (2013–2016)
Marie Meagher Bourgeois, Member (2013–2016)
Teri Fick, Member (2011–2014)
David R. Johnson, Member (2013–2016)
Todd Camenisch, Member (2013–2014)
Martha A. Lindsey, *Ad Hoc* Member (2013–2014)
Dana Shuey, Education Liaison (2012–2014)
Thu Annelise Nguyen, Education Committee Co-Liaison (2013–2014)
Dori R. Germolec*
Myrtle A. Davis*
Betty Eidemiller**



Elected and Appointed Committees (Continued)

Education K–12 Subcommittee: Regional Chapter Contacts

Southeastern: Marie Meagher Bourgeois, Chair (2013–2016), Member (2013–2016)
Allegheny-Erie: Anne E. Simmons (2011–2014)
Central States: Thu Annelise Nguyen (2011–2014)
Lake Ontario: Warren G. Foster (2013–2014)
Lone Star: Jeffrey L. Larson (2013–2014)
Michigan: Bjorn A. Thorsrud (2011–2014)
Mid-Atlantic: Diane Hardej (2011–2016)
Midwest: Gregory L. Erexson (2013–2014)
Mountain West: Martha A. Lindsey (2011–2014)
National Capital Area: Gopala Krishna (2011–2014)
North Carolina: Danielle Jessica Carlin (2013–2014)
Northeast: Courtney L. McGinnis (2011–2014)
Northern California: Toufan Parman (2011–2014)
Northland: Therese K. Fick (2011–2014)
Ohio Valley: Christine A. Curran (2011–2014)
Pacific Northwest: Katie Sprugel (2011–2014)
South Central: Heather E. Kleiner-Hancock (2011–2014)
Southern California: Diana Johnson (2011–2014)
Angela Slitt, *Ad Hoc* Member (2013–2014)
Dori R. Germolec*
Myrtle A. Davis*
Betty Eidemiller**

Education Subcommittee: Graduate Education

James P. Luyendyk, Chair (2013–2014), Education Committee (2013–2014)
Ambuja S. Bale, CRAD (2013–2014)
Christin M. Grabinski, Education Committee Graduate Student Representative (2013–2014)
Teresa L. Leavens, Education Committee Chair (2013–2014)
Emily G. Notch, Education Committee Postdoctoral Representative (2013–2014)
Xiao Pan, CRAD Graduate Student Representative (2013–2014)
Richard S. Pollenz, Education Committee (2013–2014)
Dori R. Germolec*
Myrtle A. Davis*
Betty Eidemiller**

Education Subcommittee: ToxLearn Work Group

Phil Wexler, Chair (2004–2014), Member (2004–2014)
John H. Duffus, Member (2004–2014)
Tammy R. Dugas, Member (2006–2014)
Sue M. Ford, Member (2006–2014)
Pertti J. Hakkinen, Member (2012–2014)
Michael A. Kamrin, Member (2004–2014)
Sidhartha D. Ray, Member (2011–2014)
Paul Wright, Member (2004–2014)
Teresa L. Leavens, Education Committee Liaison (2013–2014)
Dori R. Germolec*
Myrtle A. Davis*
Betty Eidemiller**

Education Subcommittee: Undergraduate Education

Mindy F. Reynolds, Chair (2013–2014), Member (2009–2015)
Shu-Yuan Cheng, Member (2013–2016)
Teresa Dodd-Butera, Member (2009–2014)
Joshua P. Gray, Member (2012–2015)
Sara Heggland, Member (2009–2014)
Kristine L. Willett, Member (2013–2016)
Richard S. Pollenz, Education Committee Liaison (2013–2014)
James P. Luyendyk, Co-Liaison (2013–2014)
Dori R. Germolec*
Myrtle A. Davis*
Betty Eidemiller**

Endowment Fund Board

Jeff Handler, Chair (2012–2014), Member (2011–2014)
Daniel Acosta Jr., *Ad Hoc* Member (2013–2015)
Laura Andrews, Member (2013–2016)
Norman J. Barlow, Member (2012–2015)
Matthew S. Bogdanffy, Member (2013–2016)
Jon C. Cook, Member (2012–2014)
John B. Morris, Member (2012–2016)
I. Glenn Sipes, Member (2012–2015)
Kendall B. Wallace, Member (2011–2014)
Shawn Douglas Lamb, *Ex-Officio* Member (2012–2014)
Lois D. Lehman-McKeeman, *Ex-Officio* Member (2013–2014)
Denise Robinson Gravatt, *Ex-Officio* Member (2012–2016)
William Slikker Jr.,* Member (2012–2014)
Clarissa Russell Wilson**

Finance Committee

Denise Robinson Gravatt,* Chair (2013–2014), Member (2012–2015)
Jack H. Dean, Member (2013–2017)
Norbert E. Kaminski, Member (2013–2016)
Lois D. Lehman-McKeeman, Member (2012–2014)
Anthony M. Ndifor, Member (2012–2015)
John P. Wise Sr., Member (2013–2016)
Shawn Douglas Lamb**
Clarissa Russell Wilson**

Government Liaison Groups

ATSDR/NCEH/CDC

Peter L. Goering, Chair (2013–2014), Member (2010–2014)
Myrtle A. Davis, Member (2013–2014)
Norbert E. Kaminski, Member (2012–2016)
Judith T. Zelikoff, Member (2011–2014)
Moiz Mumtaz, Agency Contact (2011–2014)
John S. Wheeler, Agency Contact (2011–2014)
Marcia Lawson**

DoD

Donald A. Fox, Chair (2013–2014)
Leigh Ann Burns Naas, Member (2013–2014)
Gail Darlene Chapman, Member (2013–2014)
Myrtle A. Davis, Member (2013–2014)
Janis E. Hulla, Member (2013–2014)
Saber M. Hussain, Member (2013–2014)
William Slikker Jr., Member (2013–2014)
Harry Salem, Department Contact (2013–2014)
Shawn Douglas Lamb**
Marcia Lawson**

EPA

Dori R. Germolec, Chair (2013–2014), Member (2012–2014)
Lorrene A. Buckley, Member (2013–2014)
Vicki L. Dellarco, Member (2012–2014)
Peter L. Goering, Member (2013–2014)
Edward V. Ohanian, Member (2013–2014)
John A. Wisler, Member (2013–2014)
Harold Zenick, Agency Contact (2010–2014)
Marcia Lawson**

FDA/NCTR

Ivan Rusyn, Chair (2013–2014), Member (2012–2014)
Myrtle Davis, Member (2013–2014)
Dori R. Germolec, Member (2011–2014)
Denise Robinson Gravatt, Member (2012–2014)
Donna L. Mendrick, Agency Contact (2013–2014)
Marcia Lawson**

Elected and Appointed Committees (Continued)

NICHD
Judith T. Zelikoff, Chair (2011–2014)
Lorrene A. Buckley, Member (2012–2014)
Peter L. Goering, Member (2013–2014)
John A. Wisler, Member (2013–2014)
Lisa Kaeser, Agency Contact (2010–2014)
Michael Dellarco, Agency Contact (2013–2014)
Kim von Brook**

NIEHS
Leigh Ann Burns Naas, Chair (2013–2014)
John C. Lipscomb, Member (2013–2014)
Ivan Rusyn, Member (2012–2014)
Judith T. Zelikoff, Member (2013–2014)
John M. Balbus, Agency Contact (2010–2014)
Christopher P. Weis, Agency Contact (2013–2014)
Kim von Brook**

NIOSH
Denise Robinson Gravatt, Chair (2013–2014)
Leigh Ann Burns Naas, Member (2013–2014)
William Slikker Jr., Member (2013–2014)
John A. Wisler, Member (2013–2014)
Vincent Castranova, Agency Contact (2012–2014)
Kim von Brook**

Graduate Student Leadership Committee (GSLC) Executive Board
Traci Brown, Chair (2013–2014)
Traci Brown, Programming Subcommittee Chair (2013–2014)
Holly M. Hewitt, Communications Subcommittee Chair (2013–2014)
Marianna Stamou, Professional Development Subcommittee Chair (2013–2014)
Alessandro Venosa, Secretary (2013–2014)
Ivan Rusyn*
David Rosse**

Graduate Student Leadership Committee (GSLC)
Traci Brown, Chair (2013–2014)
Alison J. Abritis, Southeastern (2012–2014)
Kelly Michelle Almond, Ethical, Legal, and Social Issues (2013–2014)
Laura E. Armstrong, Mechanisms (2013–2014)
Brittany Lynn Baisch, Women in Toxicology (2012–2014)
Christopher Alexander Bates, Ohio Valley (2013–2014)
Mark J. Canet, Mountain West (2012–2014)
Michelle A. Carroll-Turpin, Clinical and Translational Toxicology (2013–2014)
Sandra Chang, Northern California (2013–2014)
Shirisha Chittiboyina, Association of Scientists of Indian Origin (2012–2014)
Justin A. Colacino, Stem Cells (2012–2014)
Meghan Marie Cromie, Lone Star (2013–2014)
Kirsten Sue Eckstrum, Midwest (2013–2014)
Sanket Gadhia, *In Vitro* and Alternative Methods (2012–2014)
Christin M. Grabinski, Nanotoxicology (2012–2014)
Holly Marie Hewitt, Communications Subcommittee Chair (2013–2014)
Forrest C. Jessop, Medical Device (2012–2014)
Desinia B. Miller, Inhalation and Respiratory (2013–2014)
Vijay Kumar P. Kale, Biotechnology (2013–2014)
Nicole Anne Kurhanewicz, Mixtures (2013–2014)
Monica Langley, Drug Discovery Toxicology (2013–2014)
Madisa Macon, North Carolina (2013–2014)

Graduate Student Leadership Committee (GSLC) *(continued)*
Ciara Ann-Marie Martin, Southern California (2012–2014)
Wilbes Mbiya, Toxicologists of African Origin (2013–2014)
Mitchell R. McGill, Central States (2012–2014)
Valerie Minarchick, Cardiovascular Toxicology (2013–2014)
Caroline Moore, Neurotoxicology (2013–2014)
Jackson Nteeba, Reproductive and Developmental Toxicology (2012–2014)
Xiao Pan, Food Safety (2013–2014)
Abhishruti S. Parihar, National Capital Area (2012–2014)
Hae-Ryung Park, Korean Toxicologists Association in America (2013–2014)
Hannah Christine Pope-Varsalona, Allegheny-Erie (2012–2014)
Shuxi Qiao, Dermal Toxicology (2013–2014)
Vincent Ramirez, Northeast (2013–2014)
Jessica Krystle Roberts, Molecular and Systems Biology (2012–2014)
Catherine Michelle Rondelli, Hispanic Organization of Toxicologists (2013–2014)
Karilyn E. Sant, Michigan (2012–2014)
Laura C. Savery, Metals (2012–2014)
Ravikumar Atulkumar Sitapara, Mid-Atlantic (2012–2014)
Marianna Stamou, Professional Development Subcommittee Chair (2013–2014)
Alessandro Venosa, Toxicologic and Exploratory Pathology (2012–2014)
Brent J. Voels, Northland (2013–2014)
Chad Walesky, Carcinogenesis (2013–2014)
Leah Wehmas, Pacific Northwest (2013–2014)
Kathy Siyu Xue, American Association of Chinese in Toxicology (2013–2014)
Arif Yurdagul, South Central (2013–2014)
Todd James Zurlinden, Biological Modeling (2013–2014)
Ivan Rusyn*
David Rosse**

Graduate Student Leadership Committee (GSLC) Communications Subcommittee
Holly Marie Hewitt, Communications Subcommittee Chair (2013–2014), Member (2013–2014)
Karilyn E. Sant, Communications Subcommittee Secretary (2013-2014), Member (2013–2014)
Justin A. Colacino, Member (2013–2014)
Mitchell R. McGill, Member (2013–2014)
Hae-Ryung Park, Member (2013–2014)
Hannah Christine Pope-Varsalona, Member (2013–2014)
Vincent Ramirez, Member (2013–2014)
Jessica Krystle Roberts, Member (2013–2014)
Laura C. Savery, Member (2013–2014)
Kathy Siyu Xue, Member (2013–2014)
Arif Yurdagul, Member (2013–2014)
Todd James Zurlinden, Member (2013–2014)
Ivan Rusyn*
David Rosse**

* Council Contact
** Staff Liaison
TBD=To be determined



Elected and Appointed Committees (Continued)

Graduate Student Leadership Committee (GSLC) Professional Development Subcommittee

Marianna Stamou, Professional Development Subcommittee Chair (2013–2014), Member (2013–2014)
Alison J. Abritis, Professional Development Subcommittee Secretary (2013–2014), Member (2013–2014)
Christopher Alexander Bates, Member (2013–2014)
Shirisha Chittiboyina, Member (2013–2014)
Sanket Gadhia, Member (2013–2014)
Desinia Johnson, Member (2013–2014)
Vijaykumar P. Kale, Member (2013–2014)
Madisa Macon, Member (2013–2014)
Ciara Ann-Marie Martin, Member (2013–2014)
Wilbes Mbiya, Member (2013–2014)
Jackson Nteeba, Member (2013–2014)
Xiao Pan, Member (2013–2014)
Ravikumar Atulkumar Sitapara, Member (2013–2014)
Brent J. Voels, Member (2013–2014)
Ivan Rusyn*
David Rosse**

Graduate Student Leadership Committee (GSLC) Programming Subcommittee

Traci Brown, Programming Subcommittee Chair (2013–2014), Member (2012–2014)
Forrest C. Jessop, Programming Subcommittee Secretary (2013–2014), Member (2013–2014)
Kelly Michelle Almond, Member (2013–2014)
Laura E. Armstrong, Member (2013–2014)
Brittany Lynn Baisch, Member (2012–2014)
Traci Brown, Member (2012–2014)
Mark J. Canet, Member (2013–2014)
Michelle A. Carroll-Turpin, Member (2013–2014)
Sandra Chang, Member (2013–2014)
Meghan Marie Cromie, Member (2013–2014)
Christin M. Grabinski, Member (2013–2014)
Nicole Anne Kurhanewicz, Member (2013–2014)
Monica Langley, Member (2013–2014)
Valerie Minarchick, Member (2013–2014)
Caroline Moore, Member (2013–2014)
Abhishruti S. Parihar, Member (2013–2014)
Shuxi Qiao, Member (2013–2014)
Catherine Michelle Rondelli, Member (2013–2014)
Chad Walesky, Member (2013–2014)
Leah Wehmas, Member (2013–2014)
Ivan Rusyn*
David Rosse**

Historian

Hanspeter R. Witschi, Chair (2013–2014), Member (2010–2014)
Judith T. Zelikoff*
Clarissa Russell Wilson**

ICT Organizing Committee

William Slikker Jr.*, Chair (2013–2019), Member (2013–2019)
Lorrene A. Buckley, Member (2013–2019)
Dori R. Germolec, Member (2013–2019)
Peter L. Goering, Member (2013–2019)
Denise Robinson Gravatt, Member (2013–2019)
Ivan Rusyn, Member (2013–2019)
Judith T. Zelikoff, Member (2013–2019)
Clarissa Russell Wilson**

Nominating Committee for Honorary Members

William Slikker Jr., Chair (2013–2014), Member (2013–2014)
Jon C. Cook, Member (2012–2014)
Norbert E. Kaminski, Member (2013–2015)
Matthew J. Price**

Postdoctoral Assembly (PDA) Executive Board

Ebany J. Martinez–Finley, Chair (2013–2014), Member (2011–2014)
Colleen Elizabeth McLoughlin, Member (2013–2015), Vice Chair (2013–2014)
Karin Marie Streifel, Secretary (2013–2015)
Kellie Ann Fay, Treasurer (2013–2014)
Rhiannon N. Hardwick, Councilor (2013–2014)
Katie Beth Paul, Councilor (2013–2014)
Judith T. Zelikoff*
Susan D. Simmons**

Postdoctoral Assembly (PDA) Representatives

Regional Chapters

Allegheny-Erie: Kevin Beezhold (2013–2014)
Central States: Yue Cui (2013–2014)
Lone Star: Amelia Romoser (2013–2014)
Michigan: Katryn Allen (2013–2014)
Mid-Atlantic: Daniel Willis (2013–2014)
Midwest: Mary Jo Laws (2013–2014)
National Capital Area: Chad Brocker (2013–2014)
North Carolina: Yuanyuan Xu (2013–2014)
Northeast: Emily G. Notch (2013–2014)
Northern California: Kathryn E. Page (2013–2014)
Northland: Kendra Nordgren (2013–2014)
Ohio Valley: Chi Zhang (2013–2014)
Pacific Northwest: Josephine A. Bonventre (2013–2014)
South Central: Si Chen (2013–2014)
Southern California: Ian Keith Blaby (2013–2014)

Special Interest Groups

Association of Scientists of Indian Origin: Sainath Babu (2013–2014)
American Association of Chinese in Toxicology: Xianai Wu (2013–2014)
Hispanic Organization of Toxicologists: Rene Vinas (2013–2014)
Toxicologists of African Origin: Stephen S. Kishinhi (2013–2014)
Women in Toxicology: Phoebe Stapleton (2013–2014)

Elected and Appointed Committees (Continued)

Specialty Sections
Biological Modeling: Martin B. Phillips (2013–2014)
Biotechnology: Amy M. Sharma (2013–2014)
Carcinogenesis: Esra Mutlu (2013–2014)
Cardiovascular Toxicology: Michael Christopher Boyle (2013–2015)
Clinical and Translational Toxicology: Tracie Baker (2013–2014)
Comparative and Veterinary: Sachin Bhusari (2013–2014)
Drug Discovery Toxicology: Arya Sobhakumar (2013–2014)
Ethical, Legal, and Social Issues: Mary Elizabeth Kushman (2013–2014)
Food Safety: Brenna Montague Flannery (2013–2014)
Immunotoxicology: Kinta Serve (2013–2014)
In Vitro and Alternative Methods: Sindhura Ramasahayam (2013–2014)
Inhalation and Respiratory: Samantha Jean Snow (2013–2014)
Mechanisms: Matthew D. Merrell (2013–2014)
Medical Device: Amber Nagy (2013–2014)
Metals: Alicia Marie Bolt (2013–2015)
Mixtures: Paul Robert Eden (2013–2014)
Molecular and Systems Biology: Daniel James Spade (2013–2014)
Nanotoxicology: Amy Wang (2013–2014)
Neurotoxicology: Kristen R. Ryan (2013–2014)
Occupational and Public Health: Rajendran Sellamuthu (2013–2014)
Regulatory and Safety Evaluation: Senthilkumar Perumal Kuppusamy (2013–2014)
Reproductive and Developmental Toxicology: Smitha Krishnan Infante (2013–2014)
Risk Assessment: Michelle C. DeSimone (2013–2014)
Stem Cells: Ntube Nini Olive Ngalame (2013–2014)
Toxicologic and Exploratory Pathology: Christopher Gibson (2012–2014)

Research Funding Committee
Richard K. Miller Sr., Chair (2013–2014), Member (2012–2015)
Jamie C. Dewitt, Member (2012–2015)
David C. Dorman, Member (2011–2014)
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Society of Toxicology Awards and Honors

SOT Honor Descriptions

Honorary Membership

The Society of Toxicology recognizes nonmembers who embody outstanding and sustained achievements in the field of toxicology with Honorary Membership. Candidates are nominated by two Full or Associate members of the Society. Seconding letters and information regarding career achievements in toxicology should accompany the nomination. A two-thirds vote of Council determines recipients, with not more than two Honorary Members elected during any one term of Council. Nominations should be sent to SOT Headquarters by October 9.

Inductees

1962 Eugene M. K. Geiling*
1962 W. F. Von Oettingen*
1962 Torald H. Sollman*
1963 Ethel Browning*
1966 R. Tecwyn Williams*
1976 Norton Nelson*
1982 George H. Hitchings*
1986 Bernard B. Brodie*
1986 Herbert Remmer*
1991 Hyman J. Zimmerman*
1994 Ronald W. Estabrook
1994 Wendell W. Weber
1995 Gertrude B. Elion*
1995 Charles S. Lieber*
1996 Sten G. Orrenius
1996 Dennis Parke*
1997 John E. Casida
1997 Roger W. Russell*
1998 Jud Coon
1998 Michel Mercier
1999 William O. Robertson
1999 Takashi Sugimura
2000 Findlay Russell*
2001 Herbert L. Needleman
2007 Mario Molina
2008 Lee Hartwell
2008 H. Robert Horvitz
2009 Gilbert S. Omenn
2009 Sir John E. Walker
2010 Sir Philip Cohen
2010 Ferid Murad
2011 William C. Hays
2011 Frances Oldham Kelsey
2012 Frank J. Gonzalez
2012 Leroy Hood
2013 Bruce A. Beutler
2013 Jeremy K. Nicholson
2014 Sir John B. Gurdon
2014 Donald E. Ingber

Awards Descriptions

Achievement Award

The Achievement Award is presented to a member of the Society of Toxicology who has less than 15 years of experience since obtaining his/her highest earned degree (in the year of the SOT Annual Meeting) and has made significant contributions to toxicology. This award consists of a plaque and a cash stipend.

Award Recipients

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1968 Allan H. Conney*
1969 Samuel S. Epstein
1970 Sheldon D. Murphy*
1971 Yves Alarie
1972 Robert L. Dixon*
1974 Morris F. Cranmer
1975 Ian C. Munro*
1976 Curtis D. Klaassen
1977 James E. Gibson
1978 Raymond D. Harbison
1979 Michael R. Boyd
1980 Philip G. Watanabe*
1982 Frederick P. Guengerich
1984 Melvin E. Andersen
1985 Alan R. Buckpitt
1986 Sam Kacew
1987 James S. Bus
1988 Jeanne M. Manson
1989 James P. Kehrer
1990 Michael P. Waalkes
1991 Debra Lynn Laskin
1992 Michael P. Holsapple
1993 David L. Eaton
1994 James L. Stevens
1995 Lucio G. Costa
1996 Kenneth S. Ramos
1997 Kevin E. Driscoll
1998 Rick G. Schnellmann
1999 Michel Charbonneau*
2000 Christopher Bradfield
2001 Martin A. Philbert
2002 Ruth A. Roberts
2003 Lois D. Lehman-McKeeman
2004 David C. Dorman
2006 José E. Manautou
2007 Jeffrey M. Peters
2008 Ivan Rusyn
2009 Russell S. Thomas
2010 Gary W. Miller
2011 Nathan Cherrington
2012 Donna D. Zhang
2013 Wei Xu
2014 Matthew J. Campen

Arnold J. Lehman Award

The Arnold J. Lehman Award is presented to recognize an individual who has made a major contribution to risk assessment and/or the regulation of chemical agents, including pharmaceuticals. The contribution may have resulted from the application of sound scientific principles to regulation and/or from research activities that have significantly influenced the regulatory process. The nominee may be employed in academia, government, or industry and must be an SOT member. This award consists of a plaque and a cash stipend.

Award Recipients

1980 Allan H. Conney*
1981 Gabriel L. Plaa*
1982 Gary M. Williams
1983 David P. Rall*
1984 Tibor Balasz
1985 Frederick Coulston*
1986 Gerrit Johannes Van Esch
1987 John P. Frawley*
1988 Kundan S. Khera*
1989 Richard H. Adamson
1990 Harold C. Grice
1991 Bernard A. Schwetz
1992 Roger O. McClellan
1993 Thomas W. Clarkson
1994 Bruce N. Ames
1995 Emil A. Pfitzer*
1996 John F. Rosen*
1998 Helmut Alfred Greim
2000 Carole A. Kimmel, Janardan K. Reddy
2001 Samuel M. Cohen
2002 Dennis Paustenbach
2003 Michael L. Dourson
2004 Melvin E. Andersen
2005 Rory B. Conolly
2006 Kathryn R. Mahaffey*
2007 Harvey J. Clewell
2008 Vicki Dellarco
2009 Michael Bolger
2010 Edward V. Ohanian
2011 Bette Meek
2012 Joe L. Mauderly
2013 Moiz Mumtaz
2014 B. Bhaskar Gollapudi

Indicates SOT Awards

*Deceased

REFERENCE



Society of Toxicology Awards and Honors (Continued)

Best Postdoctoral Publication Awards

The Best Postdoctoral Publication Awards recognize talented postdoctoral researchers who have recently published exceptional papers in the field of toxicology. Applications are reviewed by the Postdoctoral Assembly Board and outside reviewers with appropriate scientific expertise. The research reported in the paper must have been conducted while the applicant was engaged in a postdoctoral research position. The applicant will be the first author on a peer-reviewed paper published online or in print, or in press, in the preceding interval of October 1, 2012, and September 30, 2013. Review articles will not be accepted unless they contain meta-analyses, and/or decision analyses. Co-first authored papers will be accepted, with clear delineation of applicant's effort. The review process follows NIH conflict of interest, confidentiality, and nondisclosure rules.

Award Recipients

2007 Nadine Dragin, Kristen Mitchell, Drobna Zuzana
2008 Joshua P. Gray, Christie M. Sayes, Khristy J. Thompson
2009 Jeffrey W. Card, Kembra Howdeshell, Lewis Zhichang Shi
2010 Bret F. Bessac, Manabu Nukaya, Nicholas Radio
2011 Dieldrich S. Bermudez , Joshua A. Harrill, Jordan Ned Smith
2012 Maryse Lemaire, Xuefeng Ren, Nisha S. Sipes
2013 Petra Haberzettl, Anne Loccisano, Yuanyuan Xu
2014 Annie Lumen, Gul Mehnaz Mustafa, Phoebe A. Stapleton

Board of Publications for the Best Paper in *Toxicological Sciences* Award

The Board of Publications Award for the Best Paper in *Toxicological Sciences* is presented to the author(s) of the best paper published in this official SOT publication during a 12-month period, terminating with the June issue of the calendar year preceding the Annual Meeting at which the award is presented. The author(s) need not be a member of the Society of Toxicology. Submissions should include a one-page summary of the paper's contribution to the science of toxicology and a copy of the article for which the nomination is being made. Any member of the Society may submit one title for consideration. In addition, the titles of no more than six papers to be considered are submitted by the editor of *Toxicological Sciences*. All papers submitted will be evaluated by the Board of Publications. This award consists of a plaque and a cash stipend. (This award was formerly known as the Frank R. Blood Award from 1974–1994.)

Best Paper in *Toxicological Sciences*

(formerly published as Fundamental and Applied Toxicology)

Award Recipients

1995 J. L. Larson, D. C. Wolf, B. E. Butterworth
1995 M. I. Luster, C. Portier, D. G. Pait, G. J. Rosenthal, D. R. Germolec, E. Corsini, B. L. Blaylock, P. Pollock, Y. Kouchi, W. Craig, K. L. White, A. E. Munson, C. E. Comment
1996 B. C. Allen, R. J. Kavlock, C. A. Kimmel, E. M. Faustman
1997 F. L. Fort, H. Ando, T. Suzuki, M. Yamamoto, T. Hamashima, S. Sato, T. Kitazaki, M. C. Matony, G. D. Hodgen
1998 D. D. Parrish, M. J. Schlosser, J. C. Kapeghian, V. M. Traina
1999 C. A. Franklin, M. J. Inskip, C. L. Baccanale, C. M. Edwards, W. I. Manton, E. Edwards, E. J. O'Flaherty
2000 H. A. Boulares, C. Giardina, C. L. Navarro, E. A. Khairallah*, S. D. Cohen
2001 J. Chen, Y. Li, J. A. Lavigne, M. A. Trush, J. D. Yager
2002 M. J. Bajt, J. A. Lawson, S. L. Vonderfecht, J. S. Gujral, H. Jaeschke
2003 S. Haddad, M. Beliveau, R. Tardif, K. Krishnan
2004 A. Nyska, C. Moyer, A. Ledbetter, D. Christiani, M. Schlasweiler, D. Costa, R. Hauser, U. Kodavanti
2005 N. V. Soucy, M. A. Ihnat, L. Hess, C. D. Kamat, A. Barchowsky, M. J. Post, L. R. Klei, C. Clark
2006 H. Sawada, K. Takami, S. Ashai
2007 T. Green, R. Lee, S. Lloyd, J. Noakes, T. Pastoor, R. Peffer, M. Robinson, P. Rose, A. Toghill, F. Waechter, E. Weber
2008 S. Snykers, T. Vanhaecke, P. Papelue, A. Luttun, Y. Jiang, Y. V. Heyden, C. Verfaillie, V. Rogiers
2009 Q. Yang, T. Nagano, Y. Shah, C. Cheung, S. Ito, F. J. Gonzalez
2010 R. L. M. Dobson, S. Motlagh, M. Quijano, R. T. Cambron, T. R. Baker, A. M. Pullen, B.T. Regg, A. S. Bigalow-Kern, T. Vennard, A. Fix, R. Reimschuessel, G. Overmann, Y. Shan, G. P. Daston
2011 K. Lu, L. B. Collins, H. Ru, E. Bermudez, J. A. Swenberg
2012 J. G. DeKeyser, E. M. Laurenzana, E. C. Peterson, T. Chen, C. J. Omiecinski
2013 R. Sellamuthu, C. Umbright, J.R. Roberts, R. Chapman, S-H Young, D. Richardson, H. Leonard, W. McKinney, B. Chen, D. Frazer, S. Li, M. Kashon, P. Joseph
2014 A. Schinwald, F. A. Murphy, A. Prina-Mello, C. A. Poland, F. Byrne, D. Movia, J. R. Glass, J. C. Dickerson, D. A. Schultz, C. E. Jeffree, W. MacNee, K. Donaldson

Frank R. Blood Award

Award Recipients

1974 Y. Alarie
1975 D. J. Ecobichon, G. J. Johnstone, O. Hutzinger
1976 R. D. Brown
1977 J. Dedinas, G. D. DiVincenzo, C. J. Kaplan
1978 P. J. Gehring*, E. O. Madrid, G. R. McGowan, P. G. Watanabe*
1979 R. Fradkin, E. J. Ritter, W. J. Scott, J. G. Wilson
1980 J. A. Last, P. F. Moore, O. G. Raabe, B. K. Tarkington
1981 Y. Alarie, M. Brady, C. Dixon, M. Karol
1982 M. E. Andersen, M. L. Gargas, L. J. Jenkins Jr., R. A. Jones
1983 H. D. Heck
1984 E. Dybing, S. Nelson, E. Soderlund, C. von Bahr
1985 N. Imura, M. Inokawa, K. Miura
1986 C. C. Wilhite, M. I. Dawson, K. J. Williams
1987 J. Kao, F. K. Patterson, J. Hall
1988 D. L. Laskin, S. Ji, A. M. Pilaro
1989 R. G. Cuddihy, W. C. Griffith, R. F. Henderson, J. L. Mauderly, R. O. McClellan, M. D. Snipes, R. K. Wolff
1990 W. P. Beierschmitt, J. T. Brady, J. B. Bartolone, D. S. Wyand, E. A. Khairallah*, S. D. Cohen
1991 J. B. Silkworth, D. Cutler, L. Antrim, D. Houston, C. Tumasonis, L. S. Kaminsky
1992 D. A. Fox, S. D. Rubinstein, P. Hsu
1993 T. Mably, R. W. Moore, R. W. Goy, R. E. Peterson
1994 S. J. Borghoff, W. H. Lagarde

Congressional Science Leadership Award

The Congressional Science Leadership Award provides recognition of a congressional leader who demonstrates reliance upon sound scientific principles in either (1) public policy or decision-making relating to health and safety or (2) dedicated advancement of legislation for the protection of human, animal, and environmental health. This award consists of a plaque.

Award Recipients

2009 Congressman David Wu (D-OR)
2010 Senator Johnny Isakson (R-GA)
Congressman David Price (D-NC)
2011 Congresswoman Judy Biggert (R-IL)
Senator Amy Klobuchar (D-MN)
2012 Congressman Rush Holt (D-NJ)
2013 Congressman Dave Reichert (R-WA)

Contributions to Public Awareness of the Importance of Animals in Toxicology Research Award

The Contributions to Public Awareness of the Importance of Animals in Toxicology Research Award is presented annually to an individual (or organization) in recognition of contributions made to the public understanding of the role and importance of experimental animals in toxicological science. This award may be for either a single seminal piece of work or a longer-term contribution to public understanding of the necessity of the use of animals in toxicological research to both ensure and enhance the quality of human and animal health and the environment. This award consists of a plaque and a cash stipend.

Award Recipients

2000 Allegheny-Erie Regional Chapter
2001 Massachusetts Society for Medical Research
2002 George Nethercutt
2003 Michael Derelanko
2004 North Carolina Association for Biomedical Research (NCABR), Americans for Medical Progress (AMP)
2005 Orrin G. Hatch, Foundation for Biomedical Research (FBR)
2006 Jayne Mackta

Society of Toxicology Awards and Honors (Continued)

Distinguished Toxicology Scholar Award

The Distinguished Toxicology Scholar Award is presented to a member of SOT who has made substantial and seminal scientific contributions to our understanding of the science of toxicology. Nominees should be active scientists involved in toxicological research. The prime consideration for this award is scientific accomplishments. This award consists of a plaque and a cash stipend. The recipient delivers the Distinguished Toxicology Scholar Award Lecture at the SOT Annual Meeting. (This award was presented in 2001 as the Scientific Achievement Award.)

Award Recipients

2001 James E. Troska
2003 Henry C. Pitot
2004 Gerald N. Wogan
2005 Daniel Nebert
2006 Sten G. Orrenius
2007 Stephen H. Safe
2008 Toshio Narahashi*
2009 Lance R. Pohl
2010 Harihara M. Mehendale
2011 Oliver Hankinson
2012 Ernest Hodgson
2013 John J. Lemasters
2014 Richard E. Peterson

Education Award

The Education Award is presented to an individual who is distinguished by the teaching and training of toxicologists and who has made significant contributions to education in the broad field of toxicology. This award consists of a plaque and a cash stipend.

Award Recipients

1975 Harold C. Hodge*
1976 Ted A. Loomis
1977 Robert B. Forney*
1979 Sheldon D. Murphy*
1980 Herbert H. Cornish*
1981 Frederick Sperling*
1982 Lloyd W. Hazleton*
1983 Julius M. Coon*
1984 Frank Guthrie, Ernest Hodgson
1985 William B. Buck
1986 Robert I. Krieger
1987 Gabriel L. Plaa*
1988 John Autian
1989 Tom S. Miya
1990 Charles H. Hine
1991 Hanspeter R. Witschi
1992 Dean E. Carter*
1993 Curtis D. Klaassen
1994 Robert A. Neal*
1995 William Carlton
1996 Robert Snyder
1997 Albert E. Munson
1998 David J. Holbrook
1999 Jules Brodeur
2000 Gary Carlson
2001 Harihara Mehendale
2002 Joseph Borzelleca
2003 Frederick W. Oehme
2004 A. Jay Gandolfi
2005 Nobuyuki Ito
2006 Robert A. Schatz
2007 Torbjörn Malmfors
2008 Steven Cohen
2009 Janice E. Chambers, Serrine S. Lau
2010 Tetsuo Satoh
2011 Michael Gallo
2012 John H. Duffus
2013 Rick G. Schnellmann
2014 Herman N. Autrup

Enhancement of Animal Welfare Award

The Enhancement of Animal Welfare Award is presented annually to a member of the Society in recognition of a contribution made to the advancement of toxicological science through the development and application of methods that replace, refine, or reduce the need for experimental animals. The achievement recognized may be either a seminal piece of work or a long-term contribution to toxicological science and animal welfare. This award consists of a plaque and a cash stipend.

Award Recipients

2000 Yves Alarie
2001 Alan Goldberg
2002 Gary Williams
2003 G. Frank Gerberick, Ian Kimber
2005 Daniel Acosta
2006 William S. Stokes
2007 Thomas Hartung
2009 Sally Robinson
2010 Leonard M. Schechtman
2013 Martin L. Stephens

Founders Award

The SOT Founders Award is presented to a Full, Emeritus Full, or Retired Full member of the Society of Toxicology who has demonstrated outstanding leadership in fostering the role of toxicological sciences in safety decision-making through the development and/or application of state-of-the-art approaches that elucidate, with a high degree of confidence, the distinctions for humans between safe and unsafe levels of exposures to chemical and physical agents. This award consists of a plaque and a cash stipend.

Award Recipients

2008 John Doull
2009 Roger O. McClellan
2010 James S. Bus
2011 Joseph F. Borzelleca
2012 John A. Moore
2013 William Alfred Suk
2014 John A. Thomas

Global Senior Scholar Exchange Program

The Society of Toxicology Global Senior Scholar Exchange Program (GSSEP) aims to increase the global impact of toxicology on human health and safety by working to strengthen toxicology programs and capacity in universities in developing countries. Through this novel program, SOT will sponsor specific collaborations between universities in the United States and in developing countries. The program enables an exchange visit of senior scientists between the partnered universities to address identified gaps in the developing country university's core toxicology curriculum; supports courses or symposia on toxicology topics of high priority in the developing country; and funds the senior scholars' attendance at the SOT Annual Meeting as an opportunity to present research and establish networking opportunities.

Award Recipients

2012 Jesus Olivero-Verbel (Colombia), Orish Ebere Orisakwe (Nigeria)
2013 Sri Noegrohati (Indonesia), Mohamed Mosaad Salama (Egypt)
2014 Gonzalo J. Diaz (Colombia) Ebenezer O. Farombi (Nigeria)

Graduate Student Travel Support

Graduate Student Travel Support defrays expenses for doctoral students presenting platform talks or posters at the SOT Annual Meeting. To be eligible, the student must be an SOT member (or have submitted a membership application) who has not previously received SOT Graduate Student Travel Support. Funding priority is based on seniority in graduate school.

Leading Edge in Basic Science Award

The Leading Edge in Basic Science Award is presented to a scientist who, based on his/her research, has made a recent (within the past five years), seminal basic scientific contribution to understanding fundamental mechanisms of toxicity. The recipient may be a respected basic scientist, member or nonmember, including toxicologists as well as other scientists who may not identify themselves with the discipline of toxicology but whose research findings are likely to have a pervasive impact on the field of toxicology. The recipient delivers the Leading Edge in Basic Science Award Lecture at the SOT Annual Meeting. This award consists of a plaque and a cash stipend.

Award Recipients

2009 John Katzenellenbogen
2010 Richard S. Paules
2011 Masayuki Yamamoto
2012 Myung-Haing Cho
2013 Donald E. Ingber
2014 Vishal S. Vaidya



Society of Toxicology Awards and Honors (Continued)

Merit Award

The Merit Award is presented to a member of the Society of Toxicology in recognition of distinguished contributions to toxicology throughout an entire career in areas such as research, teaching, regulatory activities, consulting, and service to the Society. This award consists of a plaque and a cash stipend. The recipient delivers the Merit Awardee Lecture at the SOT Annual Meeting.

Award Recipients

1966 Henry F. Smyth Jr.*
1967 Arnold J. Lehman*
1968 R. T. Williams*
1969 Harold C. Hodge*
1970 Don D. Irish
1971 Kenneth P. DuBois*
1972 O. Garth Fitzhugh*
1973 Herbert E. Stokinger*
1974 William B. Deichmann*
1975 Frederick Coulston*
1976 Verald K. Rowe*
1977 Harry W. Hays*
1978 Julius M. Coon*
1979 David W. Fassett*
1980 Bernard L. Oser*
1981 John H. Weisburger
1982 Harold M. Peck*
1983 Perry J. Gehring*
1984 Tom S. Miya
1985 Carrol S. Weil*
1986 Ted A. Loomis
1987 Bo Holmstedt
1988 Seymour L. Friess*
1989 Wayland J. Hayes Jr.*
1990 Sheldon D. Murphy*
1991 Toshio Narahashi*
1992 W. Norman Aldridge
1993 John Doull
1994 Ernest Hodgson
1995 Robert A. Scala
1996 Gabriel L. Plaa*
1997 Mary O. Amdur*
1998 John A. Thomas
1999 Thomas Clarkson
2000 Philippe Shubik*
2001 Donald Reed
2002 Bernard Schwetz
2003 M. W. Anders
2004 Robert Goyer
2005 Roger O. McClellan
2006 A. Wallace Hayes
2007 James A. Swenberg
2008 Hanspeter Witschi
2009 Gary M. Williams
2010 Marion F. Ehrich
2011 Michael Aschner
2012 Curtis D. Klaassen
2013 Frederick Peter Guengerich
2014 Jay I. Goodman

Minority Undergraduate Student and Advisor Awards

The Minority Undergraduate Student and Advisor Awards provide support for awardees to participate in the Undergraduate Education Program at the SOT Annual Meeting. This program is an introduction to the discipline of toxicology for undergraduate science majors and includes an orientation, a special poster session with scientists, and activities with an SOT mentor. The travel awards are for those from groups underrepresented in the sciences (African American, Native American, Latino or Hispanic Americans, and Pacific Islanders) and for their advisors. The advisors are eligible regardless of racial or ethnic background. Meeting registration and support for travel, lodging, and meals are provided for students and advisors who are not local to the meeting site. Students and advisors from local institutions receive meeting and program registration and meals. In the past, the program has been supported in part by NIH-MARC, Pfizer, Johnson & Johnson, Covance, and other supporters. The recipient list is available on the website.

Outstanding Graduate Student Leadership Awards

The Outstanding Graduate Student Leadership Award is presented by the SOT Graduate Student Leadership Committee in recognition of graduate student representatives who have contributed to the Society in a significant manner beyond the routine duties of a representative of a Regional Chapter, Specialty Section, or Special Interest Group.

Award Recipients

2009 Enrique Fuentes-Mattei, Sheppard A. Martin
2010 Haitian Lu, Erica N. Rogers, Prasad Krishnan
2011 Heather Bolstad, Michael Borland
2012 Chad Brocker, Azita Cuevas
2013 Shirisha Chittiboyina, Hannah Pope-Varsalona

Perry J. Gehring Diversity Student Travel Award

The Perry J. Gehring Diversity Student Travel Award recognizes a student who was selected to participate in a previous SOT Undergraduate Program, is from an ethnic group underrepresented in toxicology (African American, Hispanic, Native American, or Pacific Islander), and is presenting a paper at the upcoming SOT meeting. The award recipient is selected by the Committee on Diversity Initiatives.

The Gehring Student Travel Award is provided through the Society of Toxicology Endowment Fund. This award recognizes Dr. Perry J. Gehring, who served as SOT President in 1980–1981 and made important scientific contributions, especially in biological modeling and evidence-based assessment. Dr. Gehring had a strong interest in encouraging individuals from ethnic groups underrepresented in the sciences to enter biomedical sciences and toxicology.

Award Recipients

2009 Vanessa De La Rosa
2010 Nygerma L. Dangleben
2011 Eva A. Amouzougan
2012 Alba K. Gonzalez Rivera
2013 Alexandra Colón-Rodríguez
2014 Pamella B. Tijerina

Pfizer SOT Undergraduate Student Travel Awards

Pfizer SOT Undergraduate Student Travel Awards are presented through the Society of Toxicology to foster an interest in graduate studies in the field of toxicology by bringing promising undergraduate students to the SOT Annual Meetings. Pfizer, Inc., will provide up to five awards per year to undergraduate students presenting research at the Annual Meeting. Awardees will be selected by the Education Committee based on the quality of the submitted abstract and the advisor's supporting recommendation. Those selected will receive travel assistance for the meeting, a plaque presented at the annual Awards Ceremony, and recognition at a special Pfizer function. Awardees will be matched with a graduate student and a Pfizer scientist to mentor them during the Annual Meeting, and will have the opportunity to attend the Society of Toxicology Undergraduate Education Program on the Sunday of the Annual Meeting.

Award Recipients

2006 Shawntay Chaney, Theresa M. Eagle, Natalie Malek, Adeliada Segarra, Ryan Vaughan
2007 Kay Gonsalves, Lisa Koselke, Basharat Sanni, Sonia Talathi, Anna Zimmerman
2008 Amy DeMicco, Tharu Fernando, Yamel Perdomo, Amy Yi Hsan Saik, Kelly Sullivan
2009 Sherine Crawford, Trish T. Hoang, Kelly Krcmarik, Cory M. Mathias, P. Sean McGrath
2010 Annie L. Carlton, Alisha Chitrakar, Megan E. Culbreth, Chang Woo Lee, Sharon Ochs
2011 Brandon Haghverdian, Jessica H. Hartman, Camila Odio, Viviana Vidal Anaya, Phillip Alan Wages

Society of Toxicology Awards and Honors (Continued)

2012 Ashley Press, Darien Shapiro, Qi Wang, Brittany Winner, Frances A. Xin
2013 Amy Ashworth, Naing Bajaj, Adrienne R. Klinger, Anna Lang, Douglas J. Saforo
2014 Wesley Cai, Cory V. Gerlach, Lukas Gora, Elaine Kuo, Virginia Mitchell, Kia Z. Perez-Vale, Ricardo Rivera-Soto, Bradley Rowland, Kelly Schlotman, Jennette Shoots, Kelly VanDenBerg

Public Communications Award

The Public Communications Award is presented by the Society of Toxicology to an individual who has made a major contribution to broadening the awareness of the general public on toxicological issues through any aspect of public communications. The award should reflect accomplishments made over a significant period of time. Examples of qualifying media in which the nominated communication may appear are as follows: books, brochures, continuing education courses, databases, extension bulletins, magazines, newspapers (local or national), outreach, public presentations, public forums, radio and television scripts, and workshops. This award consists of a plaque and a cash stipend.

Award Recipients

1994 Michael A. Kamrin
1995 Philip Abelson*
1996 Bruce N. Ames
1997 Audrey Gotsch
1999 Ann de Peyster
2001 Anna Shvedova
2002 Sam Kacew
2003 Charlene A. McQueen
2004 Kenneth Olden
2005 Robert Kreiger
2007 Linda S. Birnbaum
2010 Philip Wexler
2012 Martin A. Philbert
2013 Marti Lindsey
2014 David L. Eaton

SOT/AstraZeneca/SOT Endowment Fund/IUTOX Travel Award

(formerly known as SOT/AstraZeneca/IUTOX Travel Fellowships)

The Society of Toxicology sponsors travel awards administered by IUTOX and sponsored by AstraZeneca, the Society of Toxicology, and the SOT Endowment Fund. Awards are available to junior and senior scientists from a country where toxicology is underrepresented to assist with travel to attend the Society of Toxicology Annual Meeting.

Award Recipients

2002 Christophor Dishovsky (Bulgaria), Zoltan Gregus (Hungary), Maritza Rojas Martini (Venezuela), Choon-Nam Ong (Singapore), W. Wasowicz (Poland), Ping-kun Zhou (China)
2003 Jian-Hui Liang (China), Marjan G. Vracko (Slovenia), Eman A. Seif (Egypt)
2004 Cristina Bolaton (Philippines), P.K. Gupta (India), Salmaan Inayat-Hussain (Malaysia), Xianping Ying (China)
2005 Diana B. Apostolova (Bulgaria), Marite Arija Bake (Latvia), Teresa I. Fortuoul (Mexico), Mary Gulumian (South Africa), He Jiliang (China), Khalidya Khamidulina (Russia), L. Orish Orisakwe (Nigeria), Songsak Srianujata (Thailand), Sinan Suzen (Turkey)
2006 Olanike Adeyemo (Nigeria), Deepak Argwal (India), Carlos Colangelo (Argentina), Sandra Demichelis (Argentina), Mumtaz Iscan (Turkey), Karolina Lyubomirova (Bulgaria), Osman Aly Osman (Egypt), Shuang-Qing Peng (China), Julia Radenkova-Saeva (Bulgaria)
2007 Hatem Ahmed (Egypt), Jiri Bajgar (Czech Republic), Ismet Çok (Turkey), Carlos Garcia (Peru), Wenceslao Kiat (Philippines), Calivarathan Latchoumycandane (Singapore), Fateheya Metwally (Egypt), Hilmi Orhan (Turkey), Nwoha Umunna (Nigeria)
2008 Jin-Ho Chung (Korea), Lyndy McGaw (South Africa), Kemal Buyukguzel (Turkey), Hande Gurer-Orhan (Turkey), Phillip Burcham (Australia), Sayed Bakry (Egypt), Zdravko Paskalev (Bulgaria), Gafer Rageh Ahmed (Egypt)
2009 Sema Burgaz (Turkey), Estefania G. Moreira (Brazil), Kolawole V. Olorunshola (Nigeria), Kelly P.K. Olympio (Brazil), Betzabet Quintanilla-Vega (Mexico), Jalila Ben Salah (Tunisia), Suleeporn Sangrajang (Thailand)
2010 Asongalem Emmanuel Acha (Cameroon), Ayse Basak Engin (Turkey), Ronnie A. D. Frazer-Williams (Sierra Leone), Yan Li (China), Jesus T. Olivero-Verbel (Colombia), Suresh V. S. Rana (India), Ganna Shayakhmetova (Ukraine), Vanessa Steenkamp (South Africa), Marcelo J. Wolansky (Argentina), Motao Zhu (China)
2011 Sonali Das (India), Rawiwan Maniratanachote (Thailand), Anoka A. Njan (Nigeria), Daam Settachan (Thailand), Osman S. Shaik (India), Songsak Srianujata (Thailand), Omoniyi Kayode Yemitan (Nigeria), Qinli Zhang (China), Bin Zhao (China)
2012 Oladipo Ademuyiwa (Nigeria), Murali Badanthadka (India), Sunisa Chaiklieng (Thailand), Xianju Huang (China), Zhenlie Huang (China), Guojun Li (China), Jianlin Lou (China), Maria Samayoa (Guatemala), Haixue Wang (China), Jingshu Zhang (China), Xiaofeng Zhang (China), Li Zhou (China)
2013 John I. Anetor (Nigeria), Kailen Boodhia (South Africa), Karina R. Caballero-Gallardo (Colombia), Osama S. El-Tawil (Egypt), Miriam Carolina Guzmán Quilo (Guatemala), Wafa Hassen (Tunisia), Saleem Khan (India), Wenceslao A. Kiat Jr. (Philippines), Ravinesh Mishra (India), Olubanke O. Ogunlana (Nigeria)
2014 Samir Abbès (Tunisia), Wafa Hassen (Tunisia), Gopabandhu Jena (India), Sameeh A. Mansour (Egypt), Siti N. Mubarokah (Indonesia), Olufunke E. Ola-Davies (Nigeria), Iyekhoetin M. Omoruyi (Nigeria), Ishiaq Omotosho (Nigeria), Muneeb U. Rehman (India), Yang Song (China), Jing Zhang (China)

SOT Regional Chapter Awards

Most SOT Regional Chapters provide awards to recognize outstanding students, postdoctoral scholars, or scientists throughout their career. Application requirements and deadlines vary. For more details refer to the award descriptions on the SOT website at **www.toxicology.org**, under Regional Chapters or the Awards and Fellowships section.

SOT Special Interest Group Awards

SOT Special Interest Groups provide awards to recognize outstanding students, postdoctoral scholars, or scientists throughout their career. Application requirements and deadlines vary. For more details refer to the award descriptions on the SOT website at **www.toxicology.org**, under Special Interest Groups or the Awards and Fellowships section.

SOT Specialty Section Student Awards

Most SOT Specialty Sections provide awards to recognize outstanding students, postdoctoral scholars, or scientists throughout their career at the SOT Annual Meeting. Application requirements and deadlines vary. For more details refer to the award descriptions on the SOT website at **www.toxicology.org**, under Specialty Sections or the Awards and Fellowships section.



Society of Toxicology Awards and Honors (Continued)

Toxicology Landmarks Program

SOT is committed to creating a safer and healthier world by advancing the science of toxicology. In order to accomplish this mission, SOT will work to become a forum for novel discoveries and to increase the visibility of the organization and the members as scientific leaders and resources. The SOT Landmarks Program accomplishes these objectives by recognizing the scientists, science, and achievements that toxicology has made throughout the ages. Each year, the SOT Communications Committee evaluates entries for the Landmarks Program and selects an achievement for recognition. The chosen landmark will be recognized with a plaque that will be placed at an appropriate location to honor an individual, event, or notable achievement that contributed to the advancement of the science of toxicology. That achievement will be confirmed by the leadership of the Society and will be recognized at the SOT Annual Meeting and ToxExpo.

Award Recipients

2012 Bruce N. Ames
2013 Herbert L. Needleman

Translational Impact Award

The Translational Impact Award is presented to a scientist whose recent (in the past 10 years) outstanding clinical, environmental health, or translational research has improved human and/or public health in an area of toxicological concern. Scientists who are leaders in multidisciplinary team efforts who have contributed to alleviating toxicity-related health problems are particularly attractive candidates. The nominee may be a member or nonmember from any background (toxicologists, clinicians, basic scientists, epidemiologists, engineers, etc.). This award consists of a plaque and a cash stipend. The recipient delivers the Translational Impact Award Lecture at the SOT Annual Meeting.

Award Recipients

2009 Thomas W. Kensler
2010 Kenneth E. McMartin
2011 Weida Tong
2012 John G. Benitez
2014 Timothy D. Phillips

Translational/Bridging Travel Award

Two awards will be given annually to assist with travel to the SOT Annual Meeting. The SOT Awards Committee will confer two awards annually to either a mid- or senior-level scientist or clinician with at least ten years of postdoctoral research or clinical practice experience and who has an active research program, or currently is active in the practice of clinical toxicology, medical toxicology, disease prevention, or in the application of transitional toxicology. This award consists of a cash stipend and a complimentary registration for the SOT Annual Meeting.

Award Recipient

2012 Xuemei Huang
2013 M. Shane Hutson

Undergraduate Educator Award

The Undergraduate Educator Award, sponsored by the Endowment Fund, is presented to an SOT member who is distinguished by outstanding contributions to the teaching of undergraduate students in toxicology and toxicology-related areas, and whose efforts support SOT's strategic efforts to "Build for the Future of Toxicology." Members of the Society of Toxicology who have made significant contributions to undergraduate education in toxicology may be nominated and should have a faculty appointment with primary responsibilities in the teaching of undergraduates and demonstrate a distinguished undergraduate teaching record. This award consists of a plaque and a cash stipend.

Award Recipients

2011 Joan B. Tarloff*
2012 Sue M. Ford
2013 Sidhartha Ray
2014 William D. Atchison

Undergraduate Toxicology Education Awards

The Undergraduate Toxicology Education Awards provide support for awardees to participate in the Undergraduate Education Program at the SOT Annual Meeting. This program is an introduction to the discipline of toxicology for undergraduate science majors and includes an orientation, a special poster session with scientists, and activities with an SOT mentor. The travel awards are for those from institutions that receive a limited amount of federal funding in science and technology (list of institutions is available on the website). Preference in selection will be students who are first-generation college attendees (that is, neither parent graduated from a four-year academic institution).

Meeting registration and support for travel, lodging, and meals are provided for students who are not local to the meeting site. Students from local institutions receive registration, meeting materials, and an expense stipend. The recipient list is available on the website.

Sponsored Award Descriptions

AstraZeneca Traveling Lectureship Awards

The AstraZeneca Traveling Lectureship Award is presented through the Society of Toxicology to recognize excellence in research and service in toxicology and to promote greater collaboration between European and North American toxicologists and to enable North American toxicologists. The award is intended to familiarize recipients with research and regulatory issues in Europe and to bring a North American perspective to these issues. Candidates for the award should be established, mid-career North American scientists who are members of the Society and who demonstrate the ability to develop collaborative relationships with European colleagues.

Award Recipients

1990 Robert I. Krieger, Joseph R. Landolph
1991 Sam Kacew
1992 Charles V. Smith, Jerold A. Last
1993 Terrence James Monks, Harihara H. Mehendale
1995 David L. Eaton, Hanspeter R. Witschi
1996 Rick G. Schnellmann, James P. Kehrer
1997 Lucio G. Costa, Durisala Desaiah
1998 Syed F. Ali, Curtis J. Omiecinski
1999 Alvaro Puga
2000 Kenneth Ramos, Garold Yost
2001 Ronald Hines, Richard Seegal
2003 William D. Atchison
2004 Charlene A. McQueen
2005 Kevin M. Crofton
2006 Robert A. Roth
2007 Michael S. Denison
2008 José E. Manautou
2009 Kim Boekelheide
2010 J. Chris Corton
2011 Saber Hussain
2012 Bhagavatula Moorthy

Colgate-Palmolive Awards for Student Research Training in Alternative Methods

The purpose of the Colgate-Palmolive Awards for Student Research Training in Alternative Methods is to enhance student research training using *in vitro* methods or alternative techniques to reduce, replace, or refine use of animals in toxicological research. The Awards Committee will present the awards to graduate students. Two or more awards, up to $3,750 each, are available annually. Awards will defray travel, per diem, and training expenses.

The award is for expenses for training consistent with the goal of this award program. The training may include, but is not limited to, use of *in vitro* and *ex vivo* procedures, use of nonmammalian animal models, computer modeling, and structure-activity relationships. Graduate students may propose to develop expertise in relevant methodologies at (1) a laboratory away from their home institution; (2) a laboratory at their home institution that would not be available to them otherwise; or (3) approved workshops, symposia, or continuing education programs where hands-on training will be received. The training should help toxicology graduate students enhance their thesis or dissertation research.

Award Recipients

2000 Jason Gross
2001 Jason Biggs, Victoria Richards
2002 Kartik Shankar, Chad M. Vezina, Ryan L. Williams
2003 Sachin Devi, Midhun Korrapati, Pallavi Limaye
2004 Jaya Chilakapati, Marc A. Nascarella
2005 Vishaka Bhave, Ankur Dnyanmote, Jonathan Maher
2006 Mary Hassani, Prajakta Palkar
2007 Renee Gardner, Prajakta Palkar, Rohit Singhal, René Viñas
2008 Kimberly A. Hays, Haitian Lu
2009 Jennifer Cole, Katie Beth Paul, Samuel Peterson
2010 Maxwell C. K. Leung, David T. Szabo, Natalia M. VanDuyn
2011 Vijay More
2012 Agnes Forgacs, René Viñas
2013 Aaron Lulla, Jamie Moscovitz, Alexandra Munoz
2014 Laura E. Armstrong, Christin M. Grabinski

Colgate-Palmolive Grants for Alternative Research

The Colgate-Palmolive Grants for Alternative Research will identify and support efforts that promote, develop, refine, or validate scientifically acceptable animal alternative methods to facilitate the safety assessment of new chemicals and formulations. Scientists at any stage of career progression may submit a proposal. High priority will be given to projects that use *in vitro* or nonanimal models, reproductive and developmental toxicology, neurotoxicology, systemic toxicology, sensitization, and acute toxicity. The maximum award is $40,000, made as a single lump payment. Awardees can re-apply for funding in subsequent years.

Award Recipients

2006 Rola Barhoumi, Abby Benninghoff, Jodie Flaws, Courtney Sulentic, Xiaouzhong Yu
2007 Rita L. Caruso, Daniel R. Cerven, Anne R. Greenlee, Glenn M. Walker
2008 Daniel R. Ceven, Duncan C. Ferguson, Shashi K. Ramiah
2009 Qin M. Chen, Timothy J. Shafer, Mehmet Uzumcu
2010 Patrick Allard, Duncan C. Ferguson, Mehmet Uzumcu
2011 Patrick Allard, Hao Zhu
2012 Mingzhu Fang, Jennifer Freeman
2013 Lei Li Kerr, Hao Zhu
2014 Patricia E. Ganey, Matthew Troese

Colgate-Palmolive Postdoctoral Fellowship Award in *In Vitro* Toxicology

The Colgate-Palmolive Company sponsors the Colgate-Palmolive Postdoctoral Fellowship Award in *In Vitro* Toxicology through the Society of Toxicology to advance the development of alternatives to animal testing in toxicological research. The award is given annually and includes stipend and research-related costs up to $44,000 for one year (including funding to attend the SOT Annual Meeting to present this research). The award is available to postdoctoral trainees employed by academic institutions, federal/national laboratories, or research institutes worldwide. Preference will be given to applicants in their first year of postdoctoral study.

Award Recipients

1988 Ernest Bloom
1989 Gin Hsieh
1990 Dennis E. Chapman
1991 Anne Walsh
1992 Qin Chen
1993 Erika Cretton
1994 William Chan
1995 Bob Van de Water
1997 Alan Parrish
1999 Russell Thomas
2001 Kevin Kerzee, Christopher Reilly
2002 Kevin Kerzee
2003 Kimberly Miller
2004 Kimberly Miller
2005 Francis Tukov
2007 Aaron Rowland
2008 Aaron Rowland
2009 Ankur Dnyanmote
2010 Ankur Dnyanmote

Sponsored Award Descriptions (Continued)

2011 Cassandra Deering-Rice
2012 Melanie Adler
2013 Melanie Adler
2014 Jonathan H. Shannahan

Colgate-Palmolive Traveling Lectureship in Alternative Methods in Toxicology Award

Offered 1996–2008

Award Recipients

1996 University of Mississippi Medical Center
Visiting Professor: Tetsuo Satoh
1996 University of Illinois at Urbana
Visiting Professor: Julio Davila
1996 Mississippi State University
Visiting Professor: Michael Holsapple
1996 Washington State University
Visiting Professor: Daniel Acosta
1997 Indiana University School of Medicine
Visiting Professor: A. Jay Gandolfi
1997 University of Arizona Health Science Center
Visiting Professor: Kevin E. Driscoll
1997 University of New Mexico
Health Sciences Center
Visiting Professor: Sam Kacew
1997 University of Illinois
Visiting Professor: Michael Denison
1998 University of Washington
Visiting Professor: Bruce Fowler
1998 San Diego State University
Visiting Professor: Leigh Ann Burns-Naas
1999 San Diego State University
Visiting Professor: Robert Chapin
2000 Yale University, School of Medicine
Visiting Professor: Narendre Singh
2001 Medical College of Wisconsin
Visiting Professor: Garold Yost
2003 Washington State University
Visiting Professor: Marc W. Fariss
2004 University of Louisiana at Monroe
Visiting Professor: Snorri S. Thorgeirsson
2008 University of Louisiana at Monroe
Visiting Professor: George Michalopoulos

Novartis Graduate Student Fellowship Award

The Novartis Graduate Student Fellowship Award is available for student members of the SOT engaged in full-time graduate study toward a PhD in toxicology. The major professor must be an SOT member. The evaluation is based primarily on originality of the dissertation research, research productivity, relevance to toxicology, scholastic achievement, and letters of recommendation. Finalists are interviewed at the Annual Meeting and receive travel support.

Award Recipients

1989 Timothy Zacharewski
1990 Mary Suzanne Stefaniak
1991 Donald Bjerke
1992 Lhanoo Gunawardhana
1993 Christopher Martenson
1994 Nyla Harper
1995 Heather E. Kleiner
1996 Russell Thomas
1997 Melva Rios-Blancos
1998 Kent Carlson
1999 Mark Hickman
2000 Jeffrey Moran
2001 Vishal Vaidya
2002 Kartik Shankar
2003 Sachin Devi
2004 James Luyendyk
2005 Andrea W. Wong
2006 Sheung P. Ng
2007 Atrayee Banerjee
2008 Helen J. Badham
2009 Yue Cui
2010 Eric N. Liberda
2011 Alexandria Lau
2012 Julia E. Rager

Syngenta Fellowship Award in Human Health Applications of New Technologies

The Syngenta Fellowship Award in Human Health Applications of New Technologies is presented to either a third-year (or later) graduate student or a postdoctoral trainee. Funding in the amount of $15,000 is to support mode-of-action research aimed at characterizing dose-dependent effects of xenobiotics on mammalian systems in such a way that the causal sequence of key events underlying toxicity is elucidated. The work should permit a quantitative basis for extrapolation of the results from animal bioassays or animal models (*in silico, in vitro*) to humans at relevant human doses. The awardee will receive funding to travel to the SOT Annual Meeting to accept the award and for travel to a Syngenta facility to present the results.

Award Recipients

2010 Haitian Lu
2011 Michelle C. DeSimone
2012 Benjamin Moeller
2013 Julia E. Rager
2014 Dilshan S. Harischandra

Endowment Fund Honor Roll of Contributors

The SOT Endowment Fund Board, on behalf of the entire membership of the Society of Toxicology, gratefully acknowledges the generosity of the many donors who made contributions to the SOT Endowment Fund from January 2012 to December 2013.

2012–2013 Honor Roll of Contributors

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$50,000-$100,000

None at this time.

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$25,000-$49,999

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Details about SOT 2013 Endowment Fund Recipients can be found on pages 83–85.
For more information about the Award Recipients and the Endowment Fund, please visit ***www.toxicology.org/endowment.***



Endowment Fund Honor Roll of Contributors (Continued)

2012–2013 Honor Roll of Contributors

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2012–2013 Honor Roll of Contributors

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$100–$249 in 2012–2013

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No Diamond Contributors ($10,000 or more), Platinum Contributors ($5,000–$9,999), or Employer's Matching Contributions were received January 2012 to December 2013.

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$2,500–$4,999

• KR Global Partners, Inc. •

—SILVER CONTRIBUTORS—

$1,000–$2,499

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Endowment Fund Donor Contribution Form

SOT Endowment Family of Funds

The individual Funds that make up the SOT Endowment Fund are briefly described below. All are, or intend to become, Permanently Restricted Net Asset Funds, with their assets invested so their Funds will be continued in perpetuity with proceeds used for the purpose(s) identified by their original donor or those who provided leadership for creating each specific Fund.

Society Funds

- **Education**—Proceeds from this Fund support a margin of excellence in SOT Educational Activities.
- **Global Activities**—Proceeds from this Fund will be used to promote the involvement of the SOT in international activities such as those of the International Union of Toxicology.
- **SOT Strategic Priorities**—Proceeds from this Fund support the highest priority needs of the Society as determined by the SOT Council.

Your contributions can have twice the IMPACT—Matches will be made to the Education, Global Activities, and SOT Strategic Priorities Society Funds and to specified Named Funds *(listed below with the asterisk)* that support the Society Funds.

Named Funds

These Funds match the interests of the donors with the future financial needs of SOT, its Specialty Sections (SS), Special Interest Groups (SIG), and Regional Chapters (RC).

- **Daniel and Patricia Acosta Diversity Student Fund***—SOT Education Fund
- **Mary Amdur Student Award**—Inhalation and Respiratory SS
- **Young Soo Choi Student Scholarship Award**—Korean Toxicologists Association in America SIG
- **Laxman S. Desai ASIO Student Award**—Association of Scientists of Indian Origin SIG
- **Diversity Initiatives**—Committee on Diversity Initiatives
- **John Doull Student Award**—Risk Assessment SS
- **Environmental Carcinogenesis Research Fellowship Fund**—Carcinogenesis SS
- **Founders Fund**—Founders Fund recipient selected by Awards Committee
- **Angelo Furgiuele Young Investigator Technology Award**—Reproductive and Developmental Toxicology SS
- **Perry J. Gehring Biological Modeling Student Award**—Biological Modeling SS
- **Perry J. Gehring Diversity Student Travel Award**—Committee on Diversity Initiatives
- **Perry J. Gehring Risk Assessment Student Award**—Risk Assessment SS
- **Harry W. Hays Memorial***—SOT Education and/or Priority Needs Fund
- **Health and Environmental Science Institute Immunotoxicology Young Investigator Student Award**—Immunotoxicology SS
- **Vera W. Hudson and Elizabeth K. Weisburger Scholarship**—Women in Toxicology SIG
- **Frank C. Lu Food Safety Student Award**—Food Safety SS
- **Jean Lu Student Scholarship Award**—American Association of Chinese in Toxicology SIG
- **Roger O. McClellan Student Award**—Comparative and Veterinary SS and Toxicologic and Exploratory Pathology SS
- **Harihara Mehendale ASIO Student Award**—Association of Scientists of Indian Origin SIG
- **Metals Specialty Section Student Research Award**—Metals SS
- **Molecular and Systems Biology Student Award**—Molecular and Systems Biology SS
- **Sheldon D. Murphy Memorial Fund***—SOT Education and/or Student Travel
- **Toshio Narahashi Neurotoxicology Fellowship Award**—Neurotoxicology SS
- **Pacific Northwest Toxicology Development**—Pacific Northwest RC
- **Emil A. Pfitzer Drug Discovery Student Award**—Drug Discovery Toxicology SS
- **Gabriel L. Plaa Education Award**—Mechanisms SS
- **Regulatory and Safety Evaluation Student Award**—Regulatory and Safety Evaluation SS
- **Renal Toxicology Fellowship Award**—Mechanisms SS
- **Robert J. Rubin Student Travel Award**—Mechanisms SS and Risk Assessment SS
- **Dharm V. Singh ASIO Student Award**—Association of Scientists of Indian Origin SIG
- **Dharm V. Singh Carcinogenesis Award**—Carcinogenesis SS
- **Carl C. Smith Student Mechanisms Award**—Mechanisms SS
- **Ronald G. Thurman Student Travel Award**—Mechanisms SS
- **Toxicologists of African Origin Endowment**—Toxicologists of African Origin SIG

Recognition Levels

Individual Recognition
(Based on July–June Fiscal Year Giving)

- ***Paracelsus* Circle**—$500 or more
- **Gold**—$250–$499 or more
- **Silver**—$100–$249 or more
- **Bronze**—$40–$99 in a given year

Individual Recognition
(Cumulative Contributions)

- **Lifetime *Paracelsus* Circle Visionary**—$50,000 or more
- **Lifetime *Paracelsus* Circle Futurist**—$25,000–$49,999
- **Lifetime *Paracelsus* Circle Leader**—$10,000–$24,999
- **Lifetime *Paracelsus* Circle Benefactor**—$5,000–$9,999
- **Lifetime *Paracelsus* Circle Member**—$5,000 Commitment

Corporate/Institutional Recognition information can be found on the SOT website under contributions.

Donors who give $40 or more will be identified by name on the SOT Endowment Fund website and other Fund literature unless they wish to remain anonymous. In the case of couples who are both members of the SOT, the Recognition Level is based on the contribution of each individual. Thus, a $500 joint contribution from a couple who are both members of the SOT is recognized at the Gold Level and a $1,000 joint contribution is recognized at the *Paracelsus* Circle Level.

501(c)3 Charitable Organization

The SOT Endowment Fund is part of the Society of Toxicology, a charitable, nonprofit, 501(c)3 organization under the Internal Revenue Code. The SOT Tax Identification Number is 52-605-7050. Contributions to the SOT Endowment Fund typically will be considered tax-deductible contributions. The Society of Toxicology will provide written acknowledgment of all contributions made to the SOT Endowment Fund.

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Donor Contribution Form

The SOT Endowment Fund is a family of Funds created to match the interests of Donors with the future financial needs of the SOT, its Specialty Sections, Special Interest Groups, and Regional Chapters. The individual Funds and Recognition Levels are briefly described on the proceeding page.

Contribution Information

☐ I wish to be identified by name as an Endowment Fund Donor by Recognition Level, as shown on the proceeding page. Name for acknowledgment:

_____

☐ I do not want to be publicly identified as a Donor; I wish to remain anonymous.

☐ I intend to contribute $5,000 or more within ten years in order to be recognized as a ***Paracelsus*** **Circle Lifetime Member**.
(For budget purpose only—not legally enforceable.)

☐ My employer will match my contribution.
(Please enclose your employer's Matching Gift Form)

Employer _____

Please contact me concerning the following:

☐ To assist in arranging a Corporate Gift/Stock or other assets.

☐ Naming the SOT Endowment Fund in my Will or Trust.

☐ Purchasing a Charitable Gift Annuity.

☐ Establishing a new Fund.

☐ Contributing securities, property, etc.

☐ Other _____

☐ I am giving my gift ($500 minimum):

In memory of _____

In honor of _____

Donor Information

Name			
Affiliation			
Address			
City		State/Region	
Country		Zip	
Telephone		Fax	
Email			

Contributions of $500 or greater may be allocated to one or more funds in increments of $250 per fund.

General Purpose Funds

Education	$
Global Activities	$
SOT Strategic Priorities	$

Named Funds

(Listed on the proceeding page)

	$
	$
	$
	$
	$
	$
TOTAL	$

Payment

☐ Enclosed is a check for $ _____ Check # _____

☐ AMEX ☐ Discover ☐ Diners ☐ MasterCard ☐ Visa

Credit Card #		Exp Date	
Name on Card			
Signature			
Date			

Individuals who are interested in making a donation to create a specific purpose Fund or individuals from a Specialty Section or other formal/informal group who are interested in providing leadership for creating a specific purpose Fund are encouraged to contact Clarissa Wilson at SOT Headquarters by telephone: 703.438.3115 or email: clarissa@toxicology.org.

Mail or Fax to:

Society of Toxicology Endowment Fund
1821 Michael Faraday Drive, Suite 300
Reston, VA 20191

Fax: 703.438.3113

SOT Affiliates

The Society of Toxicology has established a special category for private, public, and not-for-profit organizations that wish to contribute to the success of SOT toward "creating a safer and healthier world by advancing the science of toxicology."

AbbVie
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Washington, DC

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Raritan, New Jersey

Metabolon, Inc.
Durham, North Carolina

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Mattawan, Michigan

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Groton, Connecticut

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Cincinnati, Ohio

Regeneron Pharmaceuticals, Inc.
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Bridgewater, New Jersey

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Ledbury, Herefordshire, United Kingdom

SNBL USA, Ltd.
Everett, Washington

Syngenta Crop Protection, Inc.
Greensboro, North Carolina

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WIL Research Laboratories, LLC
Ashland, Ohio

WuXi AppTec
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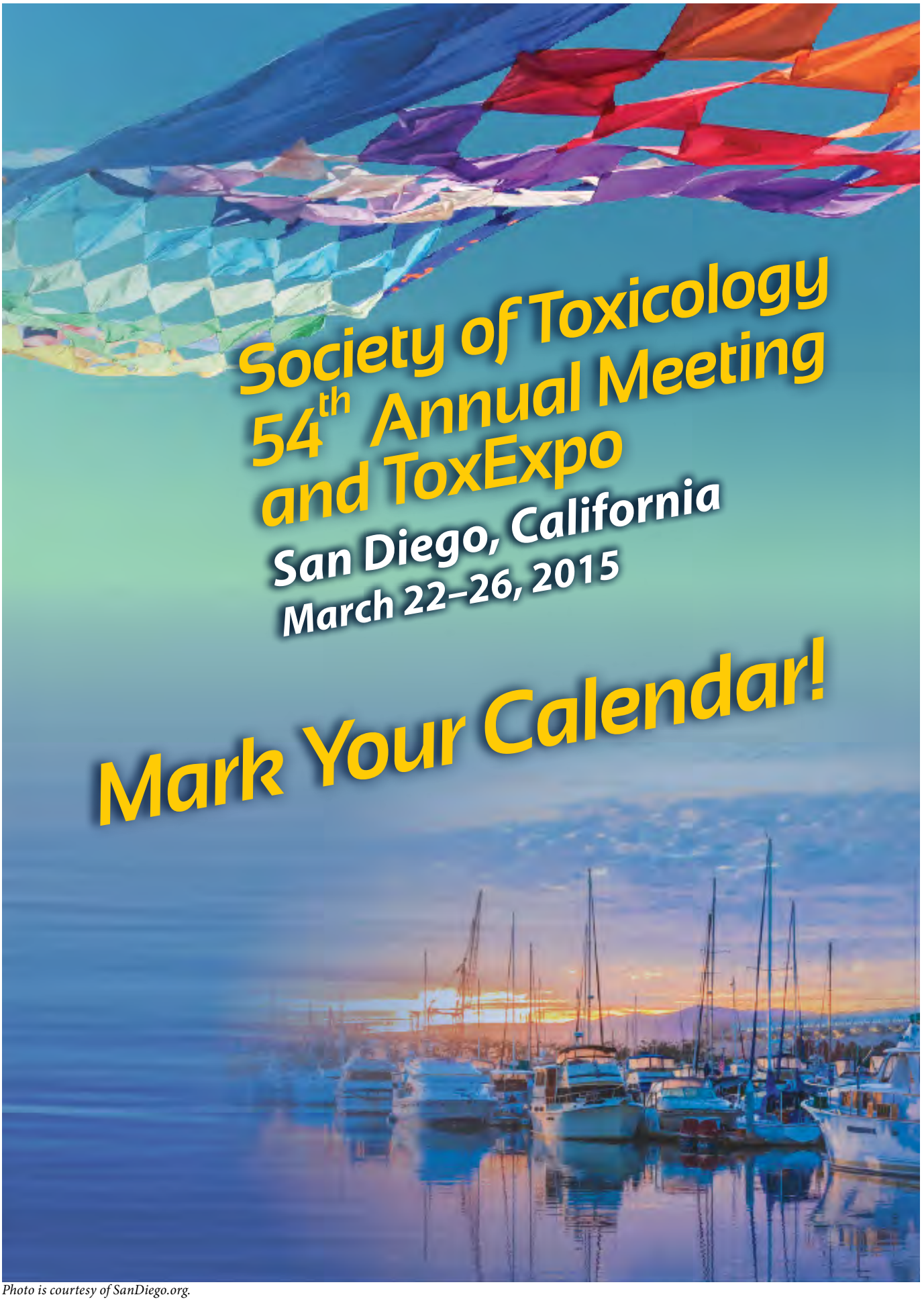


Photo is courtesy of SanDiego.org.



Headquarters Staff

Society of Toxicology Headquarters

1821 Michael Faraday Drive, Suite 300, Reston, Virginia 20190
Tel: 703.438.3115 • Fax: 703.438.3113 • Email: sothq@toxicology.org • Website: **www.toxicology.org**

Staff Contact	*Extension*	*Email*	*Activity*
Shawn Douglas Lamb	1444	shawnl@toxicology.org	Executive Director
Clarissa Russell Wilson	1455	clarissa@toxicology.org	Deputy Executive Director
Rosibel Alvarenga	1432	rosibel@toxicology.org	Membership Services
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Tonia Masson	1433	tonia@toxicology.org	Administration
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Kevin Merritt	1601	kevin@toxicology.org	Career Resource and Development, Membership Services, Regional Chapters, Special Interest Groups
Tierre Miller	1451	tierre@toxicology.org	Administration, Webinars
Debbie O'Keefe	1441	debbie@toxicology.org	Publications/World Wide Web
Ashley Pomper	1402	sothq@toxicology.org	Membership Services
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Raul A. Suarez	1461	raul@toxicology.org	Awards Committee, Membership Services, Specialty Sections
Christopher Tucker	1603	christopher@toxicology.org	Publications/World Wide Web
Kim von Brook	1600	kimberly@toxicology.org	Career Resource and Development, Government Liaison Committees, Membership Services
Michelle Werts	1640	michelle@toxicology.org	Communications, Congressional Relations, Media
Adorna Williams	1405	adorna@toxicology.org	Publications/World Wide Web
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Society of Toxicology
1821 Michael Faraday Drive, Suite 300 • Reston, VA 20190
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