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
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)

1:15 PM to 5:00 PM
AFTERNOON CONTINUING EDUCATION COURSES
9. Epidemiology for Toxicologists: What the Numbers Really Mean (p107)
10. Innovations in Methodologies for Inhalation Exposure and Interpretations of In Vivo Toxicity (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: __________________________

SOT Mobile Event App or Event Website

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.

Scan Me!
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 (p144)
• Autoimmunity/Hypersensitivity (p142)
• Biological Modeling (p136)
• Biomarkers (p139)
• Carcinogenesis (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)

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
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)
- Children’s Health and Juvenile Toxicity (p213)
- Clinical and Translational Toxicology (p213)
- Developmental Toxicology: Mammalian Models II (p234)
- Endocrine Toxicology (p231)
- Epigenetics (p222)
- Gene Regulation and Signal Transduction I (p218)
- Inflammation in Disease (p224)
- Medical Devices (p221)
- Nanotoxciology: Metals, Environmental, and In Silico (p210)
- Natural Products: In Vitro (p208)
- Natural Products: In Vivo (p209)
- New Science on Neurodegenerative Disease (p219)
- Pharmacokinetics and Disposition (p216)
- Toxicity of Chemical Mixtures (p226)

12:00 Noon to 1:30 PM

RESEARCH FUNDING SESSION

Research Funding Information Room (p235)

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)

9:30 AM to 4:00 PM

RESEARCH FUNDING SESSION

Strategies for Funding Opportunities: Brown Bag Luncheon (p236)

1:30 PM to 4:15 PM

WORKSHOP SESSIONS

- Addressing Uncertainties of the Toxicology of Nanomaterials in Food and Food Contact Products (p264)
- 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)

3:00 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 Metabol-Induced Disruption of DNA Repair (p272)
- Molecular Mechanisms Involved in Neuro/Glial Toxicity: From Oxidative Stress to Redox Signal Transduction (p272)
- The Role of the AhR in Stem Cell Development and Lineage Specification (p273)
- Three Dimensions of Nanomaterial Pulmonary Toxicity: Innate Immunity, TLRs, and Inflammasomes (p273)

WORKSHOP SESSIONS

- Improving the Safety of Dietary Supplements and Natural Health Products by Assessing Effects in Humans (p274)
- Toxicogenomic Technologies Can Improve the Assessment of Xenobiotic-Induced Liver Injury and Inform Human Relevance (p275)
- Understanding Weight of Evidence: Exploring Different Approaches to Integrating Evidence from Diverse Data Streams (p275)

9:00 AM to 12:30 PM

POSTER SESSIONS

- Biomarkers II (p278)
- Carcinogenesis III (p276)
- Developmental Basis of Adult Disease (p290)
- Developmental Neurotoxicity II: New Methods, Persistent Chemicals, and Flame Retardants (p296)
- Developmental Neurotoxicity III: Pesticides, Food, and Drugs (p297)
- Education, Ethical, Legal, and Social Issues (p289)
- Exposure Assessment and Biomonitoring (p281)
- Gene Regulation and Signal Transduction II (p294)
- Immunotoxicity II (p293)
- Nonpharmaceuticals: Safety Evaluation (p283)
- Reproductive Toxicology: Male (p291)
- Safety Assessment: Drug Development II (p287)
- Safety Assessment: Pharmaceutical Drug Discovery (p285)
Thursday, March 27

8:30 AM to 12:00 Noon
SYMPOSIUM SESSIONS
- Animal Models of Disease (p335)
- Animal Models: Measurements and Validation (p336)
- Animal Models: Methods Development (p337)
- Computational Toxicology and Data Integration II (p348)
- Computational Toxicology and Data Integration III (p351)
- Exposure Assessment and Biomonitoring II (p345)
- Metals in the Environment (p343)
- Persistent Organic Pollutants (p342)
- Reproductive Toxicology: Female (p340)
- Risk Assessment III (p347)
- Safety Assessment: Drug Development III (p341)
- Skin (p338)

9:00 AM to 11:45 AM
POSTER SESSIONS
- Clinical Evaluation of Emerging Biomarkers of Drug-Induced Liver Injury (p352)
- Neurobehavioral Impacts of Early-Life Manganese Exposure: Linking Human and Animal Model Studies (p353)

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 (p332)

4:30 PM to 5:50 PM
INFORMATIONAL SESSIONS
- Leadership in Science: Skills and Styles (p333)
- Recent Challenges Beyond the Usual Toxicological and Public Health Challenges in Africa (p333)

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)

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
POSTER SESSIONS
- Genotoxicity Mechanisms (p315)
- Immunotoxicity (p322)
- Kidney (p325)
- Liver and Models (p310)
- Nanotoxicology: In Vitro (p317)
- Nanotoxicology: In Vivo (p320)
- Neurotoxicity: Pesticides (p308)
- Oxidative Injury and Redox Biology (p302)
- Risk Assessment II (p305)
- Stem Cell Biology and Toxicology (p313)

1:30 PM to 4:15 PM
SYMPOSIUM SESSION
- Exploring the Interface between Air Pollution and Metabolic Syndrome: The Bittersweet Dilemma (p327)

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
HISTORICAL HIGHLIGHTS SESSION
- A History of the 3Rs in Toxicity Testing: From Russell and Burch to 21st Century Toxicology (p332)

4:30 PM to 5:50 PM
INFORMATIONAL SESSIONS
- Leadership in Science: Skills and Styles (p333)
- Recent Challenges Beyond the Usual Toxicological and Public Health Challenges in Africa (p333)
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.

Direct Connection—SOT QR Codes

Scan these QR (Quick Response) codes with your smartphone or mobile device to access the latest and greatest SOT Annual Meeting information and services on the Internet.

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.

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.

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.

SOT Website

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

ToXchange

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

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

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front Fold-Out Cover—Scientific Program Overview</td>
<td>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.</td>
</tr>
<tr>
<td>Daily Pocket Calendar (pages 5–13)</td>
<td>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.</td>
</tr>
<tr>
<td>Schedule by Event Name (pages 15–24)</td>
<td>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.</td>
</tr>
<tr>
<td>Scientific Session Index (pages 112–117)</td>
<td>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.</td>
</tr>
<tr>
<td>Poster Session Schedules and Board Surface Maps (pages 119–126)</td>
<td>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.</td>
</tr>
<tr>
<td>Author Index (pages 359–388)</td>
<td>The numerals following the author’s 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.</td>
</tr>
<tr>
<td>Abstract Keyword Index (pages 390–406)</td>
<td>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.</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Listing</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Session Type and Title</td>
<td>Session type and title display in bold type. A brief description for each scientific session type is listed below.</td>
</tr>
<tr>
<td>Sponsor(s)</td>
<td>This section lists the sponsors from SOT Special Interest Groups, Specialty Sections, Regional Chapters, or SOT Committees. Sponsors are listed alphabetically.</td>
</tr>
<tr>
<td>Abstract Number or Presentation Time</td>
<td>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).</td>
</tr>
<tr>
<td>Poster Sessions</td>
<td>The poster board surface number is listed above the title of each individual poster presentation for easy reference.</td>
</tr>
</tbody>
</table>

Session Type Legend

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

Saturday

Events are listed alphabetically by the event start time.
Most events will be held in the Phoenix Convention Center or the North Building unless otherwise noted. Events at the Phoenix Convention Center are noted as CC.

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 Valley 7

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

4:00 PM to 7:00 PM
Continuing Education Access and App Center
CC Lower Level

8:00 AM to 6:00 PM
Undergraduate Education Program: Toxicology Lectures (CDI Travel Awardees and Registered Participants)
CC Room 103 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 Science Associate Editors Meeting
Sheraton Marvylee A

12:15 PM to 12:55 PM
Undergraduate Education Program: Lunchon (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: Advises
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 105A, 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)

3:00 PM to 3:50 PM
Health Science Education Building, University High School Student and Teacher Workshop: Lotions

8:00 PM to 12:00 AM
Sheraton Camelback A

10:30 PM to 12:00 AM
Council Meeting
Renaissance Salon 7

12:00 AM to 2:00 AM
Continuing Education Afternoon Courses (Ticket Required)
(CC Room 101C West

Sunday

Events are listed alphabetically by the event start time.
Most events will be held in the Phoenix Convention Center or the North Building unless otherwise noted. Events at the Phoenix Convention Center are noted as CC.

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

8:00 AM to 5:00 PM
Continuing Education Committee Meeting
CC Room 228B

7:30 AM to 3:00 AM
Council Members Photographed
CC North Ballroom Foyer

2:00 PM to 4:00 PM
Congressional Subcommittee Meeting
Speaker Ready Room

3:00 PM to 5:00 PM
Clerical Department Meeting
CC Room 228A

8:00 AM to 10:00 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 Science Associate Editors Meeting
Sheraton Marvylee A

12:15 PM to 12:55 PM
Undergraduate Education Program: Lunchon (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: Advises
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 105A, 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)

4:00 PM to 5:00 PM
Undergraduate Education Program: Career Development Program: (Invited: All Current and Past Participants and Volunteers off the Undergraduate Education Program for Minority Students, (Ticket Required)
CC Room 105 West

4:00 PM to 5:00 PM
Continuing Education Committee Meeting
CC North Ballroom 120A

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

4:00 PM to 7:00 PM
Continuing Education Committee Meeting
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 Meeting
CC North Ballroom 120A

5:00 PM to 6:00 PM
Undergraduate Education Program: Registration for Students
CC Room 102 West

5:15 PM to 6:15 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

March 22

2:00 PM to 4:25 PM
Undergraduate Education Program: Career Development Program: Career Opportunities in Toxicology, Linda S. Brinbaum, 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 of Excellence Recipients Photographed
CC North Ballroom 120D

4:45 PM to 5:15 PM
Awards Ceremony—Performing by Nicole Peace (All Attendees Welcome)
CC North Ballroom 120D

5:15 PM to 6:00 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 8:30 PM
Loveable Respiratory Research Institute Reception Hyatt Regency

7:30 PM to 9:00 PM
Student/Postdoctoral Scholar Mixer (Ticket Required)
CC Room 101C West

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

March 23

Arizona does not observe daylight savings...
Daily Pocket Calendar (Continued)

Scientific Program Overview by Day & Time

Sunday
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

1:15 PM to 5:00 PM
CONTINUING EDUCATION AFTERNOON COURSES
9. Epidemiology for Toxicologists: What the Numbers Really Mean
10. Innovations in Methodologies for Inhalation Exposure and Interpretations of In Vivo Toxicity
12. Stem Cells in Toxicology
13. Translational Biomarkers in the Assessment of Health and Disease

March 23

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.

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

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.)
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.

**Monday**

- **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
- **10:30 AM to 11:30 AM** Exhibitor Hosted Session: National Toxicology Program CC Room 101A West
- **11:00 AM to 12:00 Noon** CME Task Force Meeting CC Room 22A
- **12:00 Noon to 1:30 PM** Economic and Competitive Analysis Theme Session A CC Room 22B
- **1:30 PM to 3:00 PM** Welcome Reception for New Members CC Room 222
- **3:30 PM to 4:30 PM** Oral Presentations in Emergency Response and Rapid Methods CC Exhibit Hall
- **4:30 PM to 5:30 PM** Research Funding Information Room CC Exhibit Hall
- **5:30 PM to 6:30 PM** Robert W. Turner Memorial Lecturer CC Room 222
- **6:30 PM to 8:00 PM** Young Investigators’ Poster Session CC Room 222

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.)

**Event Calendar**

March 24

|
|---|
|**10:30 AM to 11:30 AM** | Exhibitor Hosted Session: National Toxicology Program CC Room 101A West |
|**11:00 AM to 12:00 Noon** | CME Task Force Meeting CC Room 22A |
|**12:00 Noon to 1:30 PM** | Economic and Competitive Analysis Theme Session A CC Room 22B |
|**1:30 PM to 3:00 PM** | Welcome Reception for New Members CC Room 222 |
|**3:30 PM to 4:30 PM** | Orals Presentations in Emergency Response and Rapid Methods CC Exhibit Hall |
|**4:30 PM to 5:30 PM** | Research Funding Information Room CC Exhibit Hall |
|**5:30 PM to 6:30 PM** | Robert W. Turner Memorial Lecturer CC Room 222 |
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Tweet using #2014SOT and #toxexpo

for up-to-date information use the SOT event app or event website

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.

Monday (Continued)

8:00 AM to 9:00 AM
PLENARY OPENING LECTURE
The Origins and Future of Pluripotency and Cellular Reprogramming: Lecture: Sir John B. Gurdon, University of Cambridge (Hall D)

9:15 AM to 12:00 Noon
SYMPOSIUM SESSIONS
• Air Pollution and Cardiovascular Effects: Mechanisms and Role of Lipid Peroxidation (Room 120A)
• 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 121B)
• Methylenecyclopropene’s Modes of Action: New Approaches to Understanding an Old Problem (Room 124)
• To Bag or Not to Bag the Immune System: Benefits and Consequences of Altering the Microbiome (Room 121C)

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 12:00 Noon
POSTER SESSIONS
(Exhibit Hall—See Poster Board Surface Map on pages 120–121)
• Alternatives to Mammalian Models I
• Anatomically Hypersensitive 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

12:30 PM to 1:30 PM
ROUNDTABLE SESSIONS
• Environmental Factors in Dysregulation of Puberty Timing and Progression (Room 125)
• Nonsteroidal Estrogens Can Be Monitored, Too: Characterization of Novel Biomarkers of Drug-Induced Kidney Injury (DIIK) in Rats, Canines, Nonhuman Primates, and Humans (Room 124)
• Autoimmune/Hypersensitivity
• Biomedical 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

12:30 PM to 1:00 PM
MERIT AWARD LECTURE
Toxicology is Part of the Solution
Lecturer: Jay J. Goodman, Michigan State University

1:00 PM to 4:30 PM
POSTER SESSIONS
(Exhibit Hall—See Poster Board Surface Map on pages 120–121)
• Biobehavioral/Pharmacological I
• 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
• Pharmagenomics and Genetic Polymorphisms
• Regulation and Policy
• Risk Assessment I
• Systems Biology and Toxicology

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**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.

**Tuesday**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event Description</th>
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</thead>
<tbody>
<tr>
<td>8:30 AM to 9:30 AM</td>
<td>Exhibit Hosted Session: WuXi AppTec Inc.</td>
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<tr>
<td></td>
<td>CC Room 101C West</td>
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<tr>
<td>8:30 AM to 9:30 AM</td>
<td>Graduate Education Subcommittee Meeting</td>
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<tr>
<td></td>
<td>CC Room 228</td>
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<tr>
<td>8:30 AM to 5:00 PM</td>
<td>Job Bank Center</td>
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<td></td>
<td>CC Room 130</td>
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<tr>
<td>8:30 AM to 5:00 PM</td>
<td>Job Bank/Member Match Lounge</td>
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<tr>
<td></td>
<td>CC Room 11A</td>
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<tr>
<td>8:30 AM to 4:30 PM</td>
<td>SOF Pavilion, Booth 1623</td>
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<td></td>
<td>CC Exhibit Hall</td>
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<tr>
<td>8:30 AM to 4:30 PM</td>
<td>SOF Exhibit Hall Open</td>
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<td></td>
<td>CC Exhibit Hall</td>
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<tr>
<td>9:00 AM to 10:30 AM</td>
<td>Auditor Committee Meeting</td>
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<td>CC Room 225</td>
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<tr>
<td>9:00 AM to 10:00 AM</td>
<td>Complimentary Coffee</td>
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<td></td>
<td>CC Exhibit Hall</td>
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<tr>
<td>9:00 AM to 12:00 PM</td>
<td>Poster Sessions</td>
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<td></td>
<td>CC Exhibit Hall</td>
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<tr>
<td>9:00 AM to 11:45 AM</td>
<td>Scientific Sessions</td>
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<td></td>
<td>CC (See Session Index on Pages 112-117 or Mobile Event App for Room Locations)</td>
</tr>
<tr>
<td>9:00 AM to 11:45 AM</td>
<td>Special Symposium: Frontiers for Toxicology Session</td>
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<tr>
<td></td>
<td>Noncoding RNAs in Human Health, Therapeutics, and Environmental Disease</td>
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<td></td>
<td>(See Session Index on Mobile Event App for Room Locations)</td>
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<tr>
<td>9:30 AM to 4:00 PM</td>
<td>Research Funding Information Room</td>
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<td></td>
<td>CC Room 127</td>
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<tr>
<td>9:45 AM to 10:45 AM</td>
<td>Exhibit Hosted Session: Algorithmia Pharma</td>
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<td></td>
<td>CC Room 104C West</td>
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<tr>
<td>9:45 AM to 10:45 AM</td>
<td>Exhibit Hosted Session: Charles River</td>
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<td></td>
<td>CC Room 101A West</td>
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<tr>
<td>9:45 AM to 10:45 AM</td>
<td>Exhibit Hosted Session: MPH Research</td>
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<td></td>
<td>CC Room 106A West</td>
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<tr>
<td>9:45 AM to 10:45 AM</td>
<td>Exhibit Hosted Session: Malvern Instruments</td>
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<td></td>
<td>CC Room 106C West</td>
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<tr>
<td>10:30 AM to 2:00 PM</td>
<td>High School Poster Exposure</td>
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<td>(Across from SOF Pavilion, Booth 1623)</td>
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<tr>
<td>11:00 AM to 12:00 Noon</td>
<td>Exhibit Hosted Session: Ellegaard Göttingen Minipigs</td>
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<td>CC Room 106A West</td>
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<tr>
<td>11:00 AM to 12:00 Noon</td>
<td>Exhibit Hosted Session: EPL, Inc.</td>
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<td>CC Room 101A West</td>
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<tr>
<td>11:00 AM to 12:00 Noon</td>
<td>Exhibit Hosted Session: Sigma-Aldrich</td>
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<td>CC Room 106C West</td>
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<tr>
<td>11:00 AM to 12:00 Noon</td>
<td>Exhibit Hosted Session: Tandem Labs</td>
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<td>CC Room 101C West</td>
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<tr>
<td>11:00 AM to 12:00 Noon</td>
<td>Exhibit Letter Editorial Board Meeting</td>
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<td>Hyatt Sandler</td>
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<tr>
<td>12:00 Noon to 1:10 PM</td>
<td>Association of Scientists of Indian Origin</td>
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<td>Special Interest Group Lunch and Learn</td>
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<tr>
<td>12:00 Noon to 1:10 PM</td>
<td>Endowment Fund Board Meeting</td>
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<td>CC Room 225</td>
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<tr>
<td>12:00 Noon to 1:10 PM</td>
<td>Ethical, Legal, and Social Issues Specialty Session</td>
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<tr>
<td></td>
<td>Meeting/Lunch</td>
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<tr>
<td>12:00 Noon to 1:10 PM</td>
<td>Human Toxicology Project Consortium: Development of</td>
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<td>a Knowledge Base for Quantitative Modelling of</td>
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<tr>
<td>12:00 Noon to 1:10 PM</td>
<td>Adverse Outcome Pathways: Stakeholder Input Session</td>
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<td>Hyatt Casedy</td>
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<tr>
<td>12:00 Noon to 1:10 PM</td>
<td>Networking Time</td>
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<tr>
<td>12:00 Noon to 1:30 PM</td>
<td>Exhibitor-Hosted Session: ACEA Biosciences, Inc.</td>
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<td>CC Room 10HC West</td>
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<tr>
<td>12:00 Noon to 1:30 PM</td>
<td>Exhibitor-Hosted Session: Bioserv Division</td>
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<td></td>
<td>CC Room 101A West</td>
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<tr>
<td>12:15 PM to 1:15 PM</td>
<td>Exhibit Hosted Session: ICF International</td>
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<td></td>
<td>CC Room 101A West</td>
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<tr>
<td>12:15 PM to 1:15 PM</td>
<td>Exhibit Hosted Session: IVIVC Research</td>
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<td></td>
<td>CC Room 106A West</td>
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<tr>
<td>12:30 PM to 1:00 PM</td>
<td>Poster Session Set (See Poster Board Surface Maps on Pages 112-117 or Mobile Event App for Room Locations)</td>
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<tr>
<td></td>
<td>CC Exhibit Hall</td>
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<tr>
<td>1:00 PM to 4:00 PM</td>
<td>EPA CNST Research Grant Kick-Off Meeting: Developmental Neurotoxicity AOP</td>
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<td>CC Room 22B</td>
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<tr>
<td>1:00 PM to 4:00 PM</td>
<td>Poster Sessions</td>
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<tr>
<td></td>
<td>CC Exhibit Hall</td>
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<tr>
<td>1:00 PM to 2:30 PM</td>
<td>Exhibit Hosted Session: Cellular Dynamics International</td>
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<td></td>
<td>CC Room 106C West</td>
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<tr>
<td>1:00 PM to 2:30 PM</td>
<td>Exhibit Hosted Session: CIToxLAB &amp; Ellegaard Göttingen Minipigs</td>
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<td></td>
<td>CC Room 101C West</td>
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<tr>
<td>1:00 PM to 2:30 PM</td>
<td>Exhibit Hosted Session: Hepregen Corporation</td>
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<td></td>
<td>CC Room 101A West</td>
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<tr>
<td>1:00 PM to 2:30 PM</td>
<td>Exhibit Hosted Session: Huntington Life Sciences</td>
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<td></td>
<td>CC Room 106A West</td>
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<tr>
<td>1:00 PM to 2:30 PM</td>
<td>IUTOX Future ICT Meetings</td>
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<td></td>
<td>CC Room 22A</td>
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<tr>
<td>1:00 PM to 4:15 PM</td>
<td>Scientific Sessions (See Session Index on Pages 112-117 or Mobile Event App for Room Locations)</td>
</tr>
</tbody>
</table>

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## 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.

### Tuesday (Continued)

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
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<tbody>
<tr>
<td>6:30 PM to 8:30 PM</td>
<td>Hispanic Organization of Toxicologists Special Interest Group Reception and Awards Ceremony</td>
<td>Arizona Latino Arts and Culture Center</td>
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<tr>
<td>6:30 PM to 8:00 PM</td>
<td>Kettering Reception, University of Cincinnati</td>
<td>Sheraton Alhambra</td>
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<tr>
<td>7:00 PM to 10:00 PM</td>
<td>Northern California Regional Chapter Reception</td>
<td>The Arrogant Butcher</td>
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<tr>
<td>7:30 PM to 9:00 PM</td>
<td>Sun Showdown (All Attendees Invited)</td>
<td>Sheraton Encanto</td>
</tr>
<tr>
<td>7:30 PM to 10:00 PM</td>
<td>University of Rochester Toxicology Program Alumni Reception</td>
<td>Sheraton North Mountain</td>
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</tbody>
</table>

### Scientific Program Overview by Day & Time

**Tuesday**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
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<tbody>
<tr>
<td>8:00 AM to 8:50 AM</td>
<td>Leading Edge in Basic Science Award Lecture</td>
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<td></td>
<td>A Two-Pronged Approach to Modernize Toxicology Lecture</td>
<td>Vishal S. Vaidya, Harvard Medical School</td>
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<tr>
<td>9:00 AM to 11:45 AM</td>
<td>Special Symposium</td>
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<td></td>
<td>• Frontiers for Toxicology Session: Noncoding RNAs in Human Health, Therapeutics, and Environmental Disease (North Ballroom 120A)</td>
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<tr>
<td>12:00 Noon to 2:00 PM</td>
<td>Special Session</td>
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<td></td>
<td>• Risk Assessment of Metals (Room 123)</td>
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<tr>
<td>2:00 PM to 3:45 PM</td>
<td>Research Funding Session</td>
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<td></td>
<td>Research Funding Information Room (Room 127A)</td>
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<tr>
<td>2:30 PM to 3:15 PM</td>
<td>Poster Session</td>
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<td></td>
<td>(Exhibit Hall—See Poster Board Surface Map on pages 122–123)</td>
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<tr>
<td></td>
<td>• Alternatives to Mammalian Models II</td>
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<td>• Children’s Health and Juvenile Toxicity</td>
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<td></td>
<td>• Clinical and Translational Toxicology</td>
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<tr>
<td></td>
<td>• Developmental Toxicology: Mammalian Models II</td>
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<td>• Endocrine Toxicology</td>
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<td>• Epigenetics</td>
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<td>• Gene Regulation and Signal Transduction I</td>
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<td>• Inflammation in Disease</td>
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<td></td>
<td>• Medical Devices</td>
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<td></td>
<td>• Neonototoxicology: Metals, Environmental, and In Silico</td>
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<td>• Natural Products: In Vitro</td>
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<td>• Natural Products: In Vivo</td>
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<td>• New Science on Neurodegenerative Disease</td>
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<td>• Pharmacokinetics and Disposition</td>
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<td></td>
<td>• Toxicity of Chemical Mixtures</td>
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<tr>
<td>3:45 PM to 4:30 PM</td>
<td>Poster Session</td>
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<td>(Exhibit Hall—See Poster Board Surface Map on pages 122–123)</td>
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<td>• Arsenic</td>
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<td></td>
<td>• Carcinogenesis II</td>
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<td></td>
<td>• Cardiovascular Toxicity and Hemodynamics: An In Vitro Approach</td>
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<td></td>
<td>• Developmental Neurotoxicity: Mechanisms, Metals, and Industrial Chemicals</td>
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<tr>
<td></td>
<td>• Inhalants and Cardiopulmonary: Agents and Methods</td>
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<td></td>
<td>• Inhalants and Cardiopulmonary: PM, Online, and Diesel Exhaust</td>
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<td></td>
<td>• Liver</td>
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<td>• Metal Neurotoxicity: Mn</td>
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<td>• Metal Neurotoxicity: II: MelHg and Other Metals</td>
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<td>• Metals I: Zn, Cd, Hg</td>
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<td>• Metals II</td>
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<td>• Receptors</td>
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</table>

**March 25**

**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 123)
- 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)
Wednesday  March 26

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 226A

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
ToxExpo Exhibits Open
CC Exhibit Hall

8:30 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
Exhibit-Held Session: Charles River
CC Room 101A West

9:15 AM to 10:15 AM
Exhibit-Held Session: Harlan Contract Research Services
CC Room 104C West

9:15 AM to 10:15 AM
Exhibit-Held Session: MPI Research
CC Room 106A West

9:15 AM to 10:15 AM
Exhibit-Held Session: Tandon Labs
CC Room 104C West

9:30 AM to 4:00 PM
Research Funding Information Room
CC Room 117A

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

10:00 AM to 11:00 AM
Trainer Discussion with Medical Research Council (MRC) Lecturer: Dr. Scott (Ticket Required; SOT Student and Postdoctoral members only, limited seating)
CC Room 101A West

10:30 AM to 11:30 AM
Exhibit-Held Session: Covance
CC Room 106C West

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

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

10:30 AM to 11:30 AM
Exhibit-Held Session: Toxikon Corporation
CC Room 101A West

11:30 AM to 1:00 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
Exhibit-Held Session: Collectix AB
CC Room 101A West

11:45 AM to 1:00 PM
Toxicology Editorial Board Meeting
Hyatt Regency

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 229A

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 Dioxins, 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
Exhibit-Held Session: DiaPharma Group, Inc.
CC Room 101A West

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

1:00 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 Student Committee 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-Society Toxicology Consortium (TSTC) Hyatt Ballroom A

2:15 PM to 3:30 PM
Undergraduate Educator Network Meeting
CC Room 228A

4:00 PM to 5:00 PM
Complimentary Lemonade and Popcorn
CC Exhibit Hall

4:00 PM to 5:00 PM
Undergraduate Student Meeting
CC Room 228A

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

4:30 PM to 6:00 PM
1 lunch break

4:30 PM to 5:20 PM
Translational Impact Award Lecture: Ancient Medicine for the Mitigation of Modern 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
Sherraton Phoenix Ballroom 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
Miauros Specialty Section Meeting/Reception
Sheraton Estrella

6:00 PM to 7:30 PM
Neurotoxicology Specialty Section Meeting/Reception
Sheraton Phoenix Bha\room C

6:30 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
### Daily Pocket Calendar (Continued)

#### Scientific Program Overview by Day & Time

**Wednesday**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00 AM to 9:00 AM</td>
<td><strong>KEYNOTE MEDICAL RESEARCH COUNCIL (MRC) LECTURE</strong></td>
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<tr>
<td>Guiding Signals through Anchored Enzyme Complexes Implications for Disease</td>
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<tr>
<td>Lecture: John D. Scott, Howard Hughes Medical Institute, Department of Pharmacology, University of Washington (North Ballroom 121A)</td>
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<tr>
<td>9:00 AM to 11:45 AM</td>
<td><strong>SYMPOSIUM SESSIONS</strong></td>
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<tr>
<td>• In Vivo Microphysiological Systems: Advancing Regulatory Science through Innovation (North Ballroom 120D)</td>
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<tr>
<td>• Mechanisms of Metal-Induced Disruption of DNA Repair (Room 123)</td>
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<tr>
<td>• Molecular Mechanisms Involved in Neuro/Glial Toxicity: From Oxidative Stress to Redox Signal Transduction (Room 122)</td>
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<tr>
<td>• The Role of the AAT in Stem Cell Development and Lineage Specification (Room 124)</td>
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<tr>
<td>• Three Dimensions of Nanomaterial Pulmonary Toxicity: Inate Immunity, TLBs, and Inflammations (Room 125)</td>
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<tr>
<td>9:00 AM to 12:30 PM</td>
<td><strong>WORKSHOP SESSIONS</strong></td>
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<tr>
<td>• Improving the Safety of Dietary Supplements and Natural Health Products by Assessing Effects in Humans (Room 125)</td>
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<tr>
<td>• Toxicogenetic Technologies Can Improve the Assessment of Xenobiotic-Induced Liver Injury and Inform Human Relevance (North Ballroom 120B)</td>
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<td>• Understanding Weight of Evidence: Exploring Different Approaches to Integrating Evidence from Diverse Data Streams (Room 129)</td>
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<tr>
<td>9:00 AM to 12:30 PM</td>
<td><strong>POSTER SESSIONS (Exhibit Hall—See Poster Board Surface Map on pages 124–125)</strong></td>
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<tr>
<td>• Biomarkers II</td>
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<td>• Carcinogenesis III</td>
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<td>• Developmental Basis of Adult Disease</td>
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<td>• Developmental Neurotoxicity II: New Methods, Persistent Chemicals, and Flame Retardants</td>
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<td>• Developmental Neurotoxicity III: Pesticides, Food, and Drugs</td>
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<td>• Education, Ethical, Legal, and Social Issues</td>
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<td>• Exposure Assessment and Biomonitoring</td>
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<td>• Gene Regulation and Signal Transduction II</td>
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<td>• Immunotoxicity II</td>
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<td>• Nonpharmaceuticals: Safety Evaluation</td>
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<td>• Reproductive Toxicology: Male</td>
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<td>• Safety Assessment: Drug Development II</td>
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<tr>
<td>• Safety Assessment: Pharmaceutical Drug Discovery</td>
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<tr>
<td>9:30 AM to 4:00 PM</td>
<td><strong>RESEARCH FUNDING SESSION</strong></td>
<td>(Room 127A)</td>
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<td>Research Funding Information Room</td>
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<tr>
<td>12:00 Noon to 1:20 PM</td>
<td><strong>ROUNDTABLE SESSION</strong></td>
<td>(Room 124)</td>
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<tr>
<td>• Hydraulic Fracturing: Are There Worker Health Issues?</td>
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<tr>
<td>INFORMATIONAL SESSIONS</td>
<td><strong>DISTINGUISHED TOXICOLOGY SCHOLAR AWARD LECTURE</strong></td>
<td>(Room 125)</td>
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<tr>
<td>Investigating the Toxicity of Dioxin</td>
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<tr>
<td>Lecture: Richard E. Peterson, University of Wisconsin Madison (North Ballroom 120B)</td>
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<tr>
<td>1:00 PM to 4:30 PM</td>
<td><strong>POSTER SESSIONS (Exhibit Hall—See Poster Board Surface Map on pages 124–125)</strong></td>
<td>(Room 126)</td>
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<tr>
<td>• Genotoxicity Mechanisms</td>
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<td>• Immunotoxicity</td>
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<td>• Kidney</td>
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<td>• Liver and Models</td>
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<td>• Nanotoxicology: In Vitro</td>
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<td>• Neurotoxicity: Pesticides</td>
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<td>• Oxidative Injury and Renal Biology</td>
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<td>• Risk Assessment II</td>
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<td>• Stem Cell Biology and Toxicology</td>
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<tr>
<td>1:30 PM to 4:15 PM</td>
<td><strong>SYMPOSIUM SESSION</strong></td>
<td>(Room 127B)</td>
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<tr>
<td>• Exploring the Interface between Air Pollution and Metabolic Syndrome: The Bittersweet Dilemma (North Ballroom 120B)</td>
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<tr>
<td>WORKSHOP SESSIONS</td>
<td><strong>WORKSHOP SESSIONS</strong></td>
<td>(Room 128)</td>
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<tr>
<td>• Advances in the Application of Imaging Technologies to Developmental Toxicology (Room 129)</td>
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<tr>
<td>• Beyond hERG: Novel Cardiovascular De-Risking Strategies and Their Regulatory Acceptance (North Ballroom 120D)</td>
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<tr>
<td>• 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 123)</td>
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<tr>
<td>• Databases Facilitating Systems Biology Approaches to Toxicology (Room 122)</td>
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<td>• Genomics in Toxicology and Litigation in the Era of Whole Genome Sequencing (Room 121)</td>
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<td>• Is Manganese-Induced Parkinsonism Mediated via Dopamine Neuron Degeneration or Dysfunction? (Room 124)</td>
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<td>• Science-Based Preclinical Safety Assessment: Decision-Making to Enhance Regulatory Success (North Ballroom 120A)</td>
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<td>4:30 PM to 5:20 PM</td>
<td><strong>TRANSLATIONAL IMPACT AWARD LECTURE</strong></td>
<td>(Room 129)</td>
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<tr>
<td>Ancient Medicine for the Mitigation of Aflatoxin Exposures</td>
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<td>Lecture: Timothy D. Phillips, Texas A&amp;M University (North Ballroom 120B)</td>
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<td>4:30 PM to 5:50 PM</td>
<td><strong>HISTORICAL HIGHLIGHTS SESSION</strong></td>
<td>(Room 123)</td>
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<tr>
<td>A History of the 3Rs in Toxicity Testing. From Russell and Burch to 21st Century Toxicology (Room 121)</td>
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<tr>
<td>INFORMATIONAL SESSIONS</td>
<td><strong>INFORMATIONAL SESSIONS</strong></td>
<td>(Room 124)</td>
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<tr>
<td>• Leadership in Science Skills and Styles (Room 126)</td>
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<tr>
<td>• Recent Challenges Beyond the Usual Toxicological and Public Health Challenges in Africa (Room 125)</td>
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</table>

#### 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.

Thursday

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

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

8:30 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 248

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

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 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

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

6:00 PM to 7:30 PM
Welcome Reception
CC Lower Level

6:00 PM to 7:30 PM
Welcome Reception
Sheraton Alhambra

8:00 PM to 10:00 PM
Welcome Reception
Sheraton Deer Valley

8:30 PM to 11:30 PM
Welcome Reception
Sheraton Laveen

March 27

Scientific Program Overview by Day & Time

Thursday

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 III
• Computational Toxicology and Data Integration III
• 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)
• Neurobehavioral Impacts of Early-Life Manganese Exposure: Linking Human and Animal Model Studies (North Ballroom 120H)

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 Deer Valley

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

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 129)

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)

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.

Follow @SOTToxicology and @ToxExpo on Twitter
Tweet using #2014SOT and #toxexpo
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](http://www.toxicology.org/ms/globalfunds). Or visit the SOT Poster in the Global Gallery.

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

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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.
<table>
<thead>
<tr>
<th>Event:</th>
<th>Date:</th>
<th>Time:</th>
<th>Location:</th>
<th>Room:</th>
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<tbody>
<tr>
<td>@SOT Center—Internet Access and App Center</td>
<td>Saturday, Mar 22</td>
<td>4:00 PM to 7:00 PM</td>
<td>Convention Center</td>
<td>Lower Level</td>
</tr>
<tr>
<td>@SOT Center—Internet Access and App Center</td>
<td>Sunday, Mar 23</td>
<td>7:00 AM to 6:00 PM</td>
<td>Convention Center</td>
<td>Lower Level</td>
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<tr>
<td>@SOT Center—Internet Access and App Center</td>
<td>Monday, Mar 24</td>
<td>7:00 AM to 6:00 PM</td>
<td>Convention Center</td>
<td>Lower Level</td>
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<tr>
<td>@SOT Center—Internet Access and App Center</td>
<td>Tuesday, Mar 25</td>
<td>7:00 AM to 6:00 PM</td>
<td>Convention Center</td>
<td>Lower Level</td>
</tr>
<tr>
<td>@SOT Center—Internet Access and App Center</td>
<td>Wednesday, Mar 26</td>
<td>8:00 AM to 6:00 PM</td>
<td>Convention Center</td>
<td>Lower Level</td>
</tr>
<tr>
<td>@SOT Center—Internet Access and App Center</td>
<td>Thursday, Mar 27</td>
<td>8:00 AM to 12:00 Noon</td>
<td>Convention Center</td>
<td>Lower Level</td>
</tr>
<tr>
<td>25-Year (Or More) Member Reception (By Invitation Only)</td>
<td>Sunday, Mar 23</td>
<td>7:00 PM to 8:00 PM</td>
<td>Convention Center</td>
<td>North Ballroom Foyer</td>
</tr>
<tr>
<td>American Association of Chinese in Toxicology and Korean Toxicologists Association in America Special Interest Groups’ Career Workshop</td>
<td>Tuesday, Mar 25</td>
<td>7:30 AM to 9:00 AM</td>
<td>Convention Center</td>
<td>Room 227</td>
</tr>
<tr>
<td>Academy of Toxicological Sciences Board of Directors Meeting</td>
<td>Wednesday, Mar 26</td>
<td>6:30 AM to 8:00 AM</td>
<td>Sheraton</td>
<td>Arcadia</td>
</tr>
<tr>
<td>Academy of Toxicological Sciences Reception</td>
<td>Wednesday, Mar 26</td>
<td>8:30 PM to 10:00 PM</td>
<td>Sheraton</td>
<td>Phoenix Ballroom A</td>
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<tr>
<td>Allegheny-Erie and Michigan Regional Chapter Joint Reception</td>
<td>Monday, Mar 24</td>
<td>5:00 PM to 6:30 PM</td>
<td>Hyatt</td>
<td>Sundance</td>
</tr>
<tr>
<td>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.</td>
<td>Monday, Mar 24</td>
<td>5:00 PM to 6:00 PM</td>
<td>Sheraton</td>
<td>Phoenix Ballroom A</td>
</tr>
<tr>
<td>American Association of Chinese in Toxicology Special Interest Group Meeting/Reception</td>
<td>Monday, Mar 24</td>
<td>6:00 PM to 9:00 PM</td>
<td>Sheraton</td>
<td>Phoenix Ballroom A</td>
</tr>
<tr>
<td>American Board of Toxicology Board of Directors Meeting</td>
<td>Saturday, Mar 22</td>
<td>12:00 Noon to 6:00 PM</td>
<td>Renaissance</td>
<td>Salon 7</td>
</tr>
<tr>
<td>American Board of Toxicology Open Mixer Meeting</td>
<td>Monday, Mar 24</td>
<td>4:30 PM to 6:00 PM</td>
<td>Renaissance</td>
<td>Salon 6</td>
</tr>
<tr>
<td>Arizona Night</td>
<td>Sunday, Mar 23</td>
<td>8:00 PM to 10:30 PM</td>
<td>Hyatt</td>
<td>Sundance</td>
</tr>
<tr>
<td>Association of Scientists of Indian Origin Special Interest Group Lunch and Learn</td>
<td>Tuesday, Mar 25</td>
<td>12:00 Noon to 1:30 PM</td>
<td>Sheraton</td>
<td>Camelback</td>
</tr>
<tr>
<td>Association of Scientists of Indian Origin Special Interest Group Meeting/Reception</td>
<td>Monday, Mar 24</td>
<td>7:00 PM to 9:00 PM</td>
<td>Sheraton</td>
<td>Deer Valley</td>
</tr>
<tr>
<td>Audit Committee Meeting</td>
<td>Tuesday, Mar 25</td>
<td>9:00 AM to 10:30 AM</td>
<td>Convention Center</td>
<td>Room 225A</td>
</tr>
<tr>
<td>Awards Ceremony (All Attendees Welcome)</td>
<td>Sunday, Mar 23</td>
<td>5:15 PM to 6:30 PM</td>
<td>Convention Center</td>
<td>North Ballroom 120D</td>
</tr>
<tr>
<td>Awards Ceremony Music—Performed by Nicole Pesce (All Attendees Welcome)</td>
<td>Sunday, Mar 23</td>
<td>4:45 PM to 5:15 PM</td>
<td>Convention Center</td>
<td>North Ballroom 120D</td>
</tr>
<tr>
<td>Awards Committee Meeting</td>
<td>Tuesday, Mar 25</td>
<td>7:00 AM to 8:00 AM</td>
<td>Convention Center</td>
<td>Room 226A</td>
</tr>
<tr>
<td>Awards Recipients Photographed</td>
<td>Sunday, Mar 23</td>
<td>3:45 PM to 4:45 PM</td>
<td>Convention Center</td>
<td>North Ballroom 120D</td>
</tr>
<tr>
<td>Biological Modeling Specialty Section Meeting/Reception</td>
<td>Tuesday, Mar 25</td>
<td>6:00 PM to 7:30 PM</td>
<td>Sheraton</td>
<td>Valley of the Sun B</td>
</tr>
<tr>
<td>Biotechnology Specialty Section Meeting/Reception</td>
<td>Tuesday, Mar 25</td>
<td>6:00 PM to 7:30 PM</td>
<td>Sheraton</td>
<td>Maryvale</td>
</tr>
<tr>
<td>Board of Publications Meeting</td>
<td>Wednesday, Mar 26</td>
<td>10:00 AM to 11:30 AM</td>
<td>Convention Center</td>
<td>Room 225B</td>
</tr>
<tr>
<td>Carcinogenesis Specialty Section Meeting/Reception</td>
<td>Monday, Mar 24</td>
<td>6:00 PM to 7:30 PM</td>
<td>Sheraton</td>
<td>Encanto A</td>
</tr>
<tr>
<td>Carcinogenesis Specialty Section Officers Meeting</td>
<td>Monday, Mar 24</td>
<td>12:00 Noon to 1:30 PM</td>
<td>Convention Center</td>
<td>Room 230</td>
</tr>
<tr>
<td>Cardiovascular Toxicology Specialty Section Meeting/Reception</td>
<td>Tuesday, Mar 25</td>
<td>6:00 PM to 7:30 PM</td>
<td>Sheraton</td>
<td>Valley of the Sun C</td>
</tr>
<tr>
<td>Career Resource and Development Committee Meeting</td>
<td>Sunday, Mar 23</td>
<td>7:30 AM to 9:30 AM</td>
<td>Convention Center</td>
<td>Room 225B</td>
</tr>
<tr>
<td>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)</td>
<td>Saturday, Mar 22</td>
<td>7:00 PM to 9:00 PM</td>
<td>Convention Center</td>
<td>Room 105 West</td>
</tr>
<tr>
<td>Central States Regional Chapter Meeting</td>
<td>Monday, Mar 24</td>
<td>7:00 AM to 8:00 AM</td>
<td>Renaissance</td>
<td>Marston Café</td>
</tr>
<tr>
<td>Clinical and Translational Toxicology Specialty Section Meeting/Reception</td>
<td>Tuesday, Mar 25</td>
<td>6:00 PM to 7:30 PM</td>
<td>Sheraton</td>
<td>Laveen B</td>
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<tr>
<td>Event:</td>
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<tr>
<td>Clinical and Translational Toxicology Specialty Section Officers Meeting</td>
<td>Monday, Mar 24</td>
<td>6:30 AM to 8:00 AM</td>
<td>Convention Center</td>
<td>Room 222</td>
</tr>
<tr>
<td>CME Task Force Meeting</td>
<td>Monday, Mar 24</td>
<td>11:00 AM to 12:00 Noon</td>
<td>Convention Center</td>
<td>Room 228A</td>
</tr>
<tr>
<td>Coat/Luggage Check</td>
<td>Sunday, Mar 23</td>
<td>8:00 AM to 8:00 PM</td>
<td>Convention Center</td>
<td>Lower Level</td>
</tr>
<tr>
<td>Coat/Luggage Check</td>
<td>Monday, Mar 24</td>
<td>7:00 AM to 6:00 PM</td>
<td>Convention Center</td>
<td>Lower Level</td>
</tr>
<tr>
<td>Coat/Luggage Check</td>
<td>Tuesday, Mar 25</td>
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<td>Convention Center</td>
<td>Lower Level</td>
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<tr>
<td>Coat/Luggage Check</td>
<td>Wednesday, Mar 26</td>
<td>7:00 AM to 6:00 PM</td>
<td>Convention Center</td>
<td>Lower Level</td>
</tr>
<tr>
<td>Coat/Luggage Check</td>
<td>Thursday, Mar 27</td>
<td>7:00 AM to 12:00 Noon</td>
<td>Convention Center</td>
<td>Lower Level</td>
</tr>
<tr>
<td>Committee on Diversity Initiatives Meeting</td>
<td>Wednesday, Mar 26</td>
<td>7:00 AM to 8:30 AM</td>
<td>Convention Center</td>
<td>Room 225B</td>
</tr>
<tr>
<td>Comparative and Veterinary Specialty Section Meeting/Luncheon</td>
<td>Wednesday, Mar 26</td>
<td>12:00 Noon to 1:30 PM</td>
<td>Convention Center</td>
<td>Room 221A</td>
</tr>
<tr>
<td>Complimentary Coffee</td>
<td>Monday, Mar 24</td>
<td>9:00 AM to 10:00 AM</td>
<td>Convention Center</td>
<td>Exhibit Hall</td>
</tr>
<tr>
<td>Complimentary Coffee</td>
<td>Tuesday, Mar 25</td>
<td>9:00 AM to 10:00 AM</td>
<td>Convention Center</td>
<td>Exhibit Hall</td>
</tr>
<tr>
<td>Complimentary Coffee</td>
<td>Wednesday, Mar 24</td>
<td>9:00 AM to 10:00 AM</td>
<td>Convention Center</td>
<td>Exhibit Hall</td>
</tr>
<tr>
<td>Complimentary Lemonade and Popcorn</td>
<td>Monday, Mar 24</td>
<td>2:30 PM to 3:30 PM</td>
<td>Convention Center</td>
<td>Exhibit Hall</td>
</tr>
<tr>
<td>Complimentary Lemonade and Popcorn</td>
<td>Tuesday, Mar 25</td>
<td>2:30 PM to 3:30 PM</td>
<td>Convention Center</td>
<td>Exhibit Hall</td>
</tr>
<tr>
<td>Complimentary Lemonade and Popcorn</td>
<td>Wednesday, Mar 26</td>
<td>2:30 PM to 3:30 PM</td>
<td>Convention Center</td>
<td>Exhibit Hall</td>
</tr>
<tr>
<td>Concession Stands</td>
<td>Sunday, Mar 23</td>
<td>7:30 AM to 2:30 PM</td>
<td>Convention Center</td>
<td>Metro Marché</td>
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<tr>
<td>Concession Stands</td>
<td>Monday, Mar 24</td>
<td>7:30 AM to 9:30 AM</td>
<td>Convention Center</td>
<td>Metro Marché</td>
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<tr>
<td>Concession Stands</td>
<td>Monday, Mar 24</td>
<td>9:00 AM to 4:30 PM</td>
<td>Convention Center</td>
<td>Exhibit Hall</td>
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<td>Tuesday, Mar 25</td>
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<td>Metro Marché</td>
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<td>Concession Stands</td>
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<td>Concession Stands</td>
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<td>Metro Marché</td>
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<tr>
<td>Concession Stands</td>
<td>Thursday, Mar 27</td>
<td>7:30 AM to 12:00 Noon</td>
<td>Convention Center</td>
<td>Metro Marché</td>
</tr>
<tr>
<td>Congressional Subcommittee Meeting</td>
<td>Sunday, Mar 23</td>
<td>3:00 PM to 5:00 PM</td>
<td>Convention Center</td>
<td>Room 228A</td>
</tr>
<tr>
<td>Contemporary Concepts in Toxicology Conferences Committee Meeting</td>
<td>Wednesday, Mar 26</td>
<td>7:00 AM to 8:00 AM</td>
<td>Convention Center</td>
<td>Room 226A</td>
</tr>
<tr>
<td>Continuing Education Sunrise Mini-Course (Ticket Required)</td>
<td>Sunday, Mar 23</td>
<td>7:00 AM to 7:45 AM</td>
<td>Convention Center</td>
<td>(See Signage or Mobile Event App for Room Location)</td>
</tr>
<tr>
<td>Continuing Education Morning Courses (Ticket Required)</td>
<td>Sunday, Mar 23</td>
<td>8:15 AM to 12:00 Noon</td>
<td>Convention Center</td>
<td>(See Signage or Mobile Event App for Room Location)</td>
</tr>
<tr>
<td>Continuing Education Afternoon Courses (Ticket Required)</td>
<td>Sunday, Mar 23</td>
<td>1:15 PM to 5:00 PM</td>
<td>Convention Center</td>
<td>(See Signage or Mobile Event App for Room Location)</td>
</tr>
<tr>
<td>Continuing Education Committee Meeting</td>
<td>Monday, Mar 24</td>
<td>12:00 Noon to 1:30 PM</td>
<td>Convention Center</td>
<td>Room 225B</td>
</tr>
<tr>
<td>Continuing Education Committee Walk-Through</td>
<td>Saturday, Mar 22</td>
<td>4:30 PM to 5:15 PM</td>
<td>Convention Center</td>
<td>North Ballroom 120A</td>
</tr>
<tr>
<td>Continuing Education Luncheon for Speakers, Committee, and Student Volunteers (By Invitation Only)</td>
<td>Sunday, Mar 23</td>
<td>11:45 AM to 1:15 PM</td>
<td>Convention Center</td>
<td>Room 127</td>
</tr>
<tr>
<td>Council Meeting</td>
<td>Saturday, Mar 22</td>
<td>1:00 PM to 3:30 PM</td>
<td>Sheraton North Mountain</td>
<td>Room 127</td>
</tr>
<tr>
<td>Council Members Photographed</td>
<td>Sunday, Mar 23</td>
<td>3:30 PM to 3:45 PM</td>
<td>Convention Center</td>
<td>North Ballroom 120D</td>
</tr>
<tr>
<td>Council Orientation Breakfast</td>
<td>Saturday, Mar 22</td>
<td>7:30 AM to 8:00 AM</td>
<td>Sheraton Camelback B</td>
<td>Room 222</td>
</tr>
<tr>
<td>Council Orientation Meeting</td>
<td>Saturday, Mar 22</td>
<td>8:00 AM to 11:30 AM</td>
<td>Sheraton Camelback A</td>
<td></td>
</tr>
<tr>
<td>Council Orientation Luncheon</td>
<td>Saturday, Mar 22</td>
<td>11:30 AM to 1:00 PM</td>
<td>Sheraton Camelback B</td>
<td></td>
</tr>
<tr>
<td>Dermal Toxicology Specialty Section Meeting/Reception</td>
<td>Tuesday, Mar 25</td>
<td>6:00 PM to 7:30 PM</td>
<td>Sheraton Valley of the Sun A</td>
<td></td>
</tr>
<tr>
<td>Dermal Toxicology Specialty Section Officers Meeting</td>
<td>Monday, Mar 24</td>
<td>6:30 AM to 8:00 AM</td>
<td>Convention Center</td>
<td>Room 222</td>
</tr>
</tbody>
</table>

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.)*
<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
<th>Time</th>
<th>Location</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distinguished Toxicology Scholar Award Lecture: Investigating the Toxicity of Dioxin. Lecturer: Richard E. Peterson, University of Wisconsin</td>
<td>Wednesday, Mar 26</td>
<td>12:30 PM to 1:20 PM</td>
<td>Convention Center</td>
<td>North Ballroom 120B</td>
</tr>
<tr>
<td>Drug Discovery Toxicology Specialty Section Meeting/Reception</td>
<td>Wednesday, Mar 26</td>
<td>6:00 PM to 7:30 PM</td>
<td>Sheraton</td>
<td>Maryvale</td>
</tr>
<tr>
<td>Education Committee Meeting</td>
<td>Tuesday, Mar 25</td>
<td>7:00 AM to 8:30 AM</td>
<td>Convention Center</td>
<td>Room 228B</td>
</tr>
<tr>
<td>Elsevier Editorial Board Member Reception</td>
<td>Monday, Mar 24</td>
<td>5:00 PM to 7:00 PM</td>
<td>Sheraton</td>
<td>Estrella</td>
</tr>
<tr>
<td>Endowment Fund Board Meeting</td>
<td>Tuesday, Mar 25</td>
<td>12:00 Noon to 1:30 PM</td>
<td>Convention Center</td>
<td>Room 225B</td>
</tr>
<tr>
<td>EPA CSS STAR Research Grants Kick-Off Meeting: Developmental Neurotoxicity AOP</td>
<td>Tuesday, Mar 25</td>
<td>1:00 PM to 6:00 PM</td>
<td>Convention Center</td>
<td>Room 226B</td>
</tr>
<tr>
<td>Ethical, Legal, and Social Issues Specialty Section Meeting/Luncheon</td>
<td>Tuesday, Mar 25</td>
<td>12:00 Noon to 1:30 PM</td>
<td>Convention Center</td>
<td>Room 231A</td>
</tr>
<tr>
<td><strong>Exhibitor-Hosted Sessions (See Pages 43–45 or Mobile Event App for Details)</strong></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Exhibitor-Hosted Session: ACEA Biosciences, Inc.</td>
<td>Monday, Mar 24</td>
<td>12:15 PM to 1:15 PM</td>
<td>Convention Center</td>
<td>Room 106A East</td>
</tr>
<tr>
<td>Exhibitor-Hosted Session: Algorithme Pharma</td>
<td>Tuesday, Mar 25</td>
<td>9:45 AM to 10:45 AM</td>
<td>Convention Center</td>
<td>Room 101C West</td>
</tr>
<tr>
<td>Exhibitor-Hosted Session: Battelle Memorial Institute</td>
<td>Monday, Mar 24</td>
<td>2:45 PM to 3:45 PM</td>
<td>Convention Center</td>
<td>Room 101C West</td>
</tr>
<tr>
<td>Exhibitor-Hosted Session: Biopredic International</td>
<td>Monday, Mar 24</td>
<td>3:30 PM to 4:30 PM</td>
<td>Convention Center</td>
<td>Room 101C West</td>
</tr>
<tr>
<td>Exhibitor-Hosted Session: BioReliance</td>
<td>Monday, Mar 24</td>
<td>1:00 PM to 2:00 PM</td>
<td>Convention Center</td>
<td>Room 106A West</td>
</tr>
<tr>
<td>Exhibitor-Hosted Session: Cellectis AB</td>
<td>Wednesday, Mar 26</td>
<td>11:45 AM to 12:45 PM</td>
<td>Convention Center</td>
<td>Room 101A West</td>
</tr>
<tr>
<td>Exhibitor-Hosted Session: Cellular Dynamics International</td>
<td>Tuesday, Mar 25</td>
<td>1:30 PM to 2:30 PM</td>
<td>Convention Center</td>
<td>Room 106C West</td>
</tr>
<tr>
<td>Exhibitor-Hosted Session: ChanTest Corp.</td>
<td>Monday, Mar 24</td>
<td>9:15 AM to 10:15 AM</td>
<td>Convention Center</td>
<td>Room 106A West</td>
</tr>
<tr>
<td>Exhibitor-Hosted Session: Charles River</td>
<td>Monday, Mar 24</td>
<td>2:15 PM to 3:15 PM</td>
<td>Convention Center</td>
<td>Room 106A West</td>
</tr>
<tr>
<td>Exhibitor-Hosted Session: Charles River</td>
<td>Tuesday, Mar 25</td>
<td>9:45 AM to 10:45 AM</td>
<td>Convention Center</td>
<td>Room 101A West</td>
</tr>
<tr>
<td>Exhibitor-Hosted Session: Charles River</td>
<td>Wednesday, Mar 26</td>
<td>9:15 AM to 10:15 AM</td>
<td>Convention Center</td>
<td>Room 101A West</td>
</tr>
<tr>
<td>Exhibitor-Hosted Session: Cellectis Ab</td>
<td>Tuesday, Mar 25</td>
<td>1:30 PM to 2:30 PM</td>
<td>Convention Center</td>
<td>Room 101C West</td>
</tr>
<tr>
<td>Exhibitor-Hosted Session: Covance</td>
<td>Tuesday, Mar 25</td>
<td>8:30 AM to 9:30 AM</td>
<td>Convention Center</td>
<td>Room 106A West</td>
</tr>
<tr>
<td>Exhibitor-Hosted Session: Covance</td>
<td>Wednesday, Mar 25</td>
<td>10:30 AM to 11:30 AM</td>
<td>Convention Center</td>
<td>Room 106C West</td>
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<tr>
<td>Exhibitor-Hosted Session: DiaPharma Group, Inc.</td>
<td>Wednesday, Mar 26</td>
<td>1:00 PM to 2:00 PM</td>
<td>Convention Center</td>
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<tr>
<td>Exhibitor-Hosted Session: DiscoveRx Corporation, BioSeek Division</td>
<td>Tuesday, Mar 25</td>
<td>12:15 PM to 1:15 PM</td>
<td>Convention Center</td>
<td>Room 101C West</td>
</tr>
<tr>
<td>Exhibitor-Hosted Session: Ellegaard Göttingen Minipigs</td>
<td>Tuesday, Mar 25</td>
<td>11:00 AM to 12:00 Noon</td>
<td>Convention Center</td>
<td>Room 106A West</td>
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<tr>
<td>Exhibitor-Hosted Session: EMD Millipore Corporation</td>
<td>Tuesday, Mar 25</td>
<td>8:30 AM to 9:30 AM</td>
<td>Convention Center</td>
<td>Room 106C West</td>
</tr>
<tr>
<td>Exhibitor-Hosted Session: EPL, Inc.</td>
<td>Tuesday, Mar 25</td>
<td>11:00 AM to 12:00 Noon</td>
<td>Convention Center</td>
<td>Room 101A West</td>
</tr>
<tr>
<td>Exhibitor-Hosted Session: Exiqon, Inc.</td>
<td>Wednesday, Mar 26</td>
<td>10:30 AM to 11:30 AM</td>
<td>Convention Center</td>
<td>Room 101C West</td>
</tr>
<tr>
<td>Exhibitor-Hosted Session: Fraunhofer ITEM</td>
<td>Monday, Mar 24</td>
<td>11:45 AM to 12:45 PM</td>
<td>Convention Center</td>
<td>Room 106A West</td>
</tr>
<tr>
<td>Exhibitor-Hosted Session: Gentronix Limited</td>
<td>Monday, Mar 24</td>
<td>1:00 PM to 2:00 PM</td>
<td>Convention Center</td>
<td>Room 101C West</td>
</tr>
<tr>
<td>Exhibitor-Hosted Session: Harlan Contract Research Services</td>
<td>Monday, Mar 24</td>
<td>11:45 AM to 12:45 PM</td>
<td>Convention Center</td>
<td>Room 106C West</td>
</tr>
<tr>
<td>Exhibitor-Hosted Session: Harlan Contract Research Services</td>
<td>Tuesday, Mar 25</td>
<td>2:45 PM to 3:45 PM</td>
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<td>Exhibitor-Hosted Session: Harlan Contract Research Services</td>
<td>Wednesday, Mar 26</td>
<td>9:15 AM to 10:15 AM</td>
<td>Convention Center</td>
<td>Room 106C West</td>
</tr>
<tr>
<td>Exhibitor-Hosted Session: Hepregen Corporation</td>
<td>Tuesday, Mar 25</td>
<td>1:30 PM to 2:30 PM</td>
<td>Convention Center</td>
<td>Room 101A West</td>
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<tr>
<td>Exhibitor-Hosted Session: Huntingdon Life Sciences</td>
<td>Monday, Mar 24</td>
<td>9:15 AM to 10:15 AM</td>
<td>Convention Center</td>
<td>Room 106A West</td>
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<td>Exhibitor-Hosted Session: Huntingdon Life Sciences</td>
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<td>Exhibitor-Hosted Session: Huntingdon Life Sciences</td>
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<td>Convention Center</td>
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</tr>
<tr>
<td>Exhibitor-Hosted Session: Hurle Corporation</td>
<td>Monday, Mar 24</td>
<td>1:00 PM to 2:00 PM</td>
<td>Convention Center</td>
<td>Room 101A West</td>
</tr>
<tr>
<td>Exhibitor-Hosted Session: ICF International</td>
<td>Tuesday, Mar 25</td>
<td>12:15 PM to 1:15 PM</td>
<td>Convention Center</td>
<td>Room 101A West</td>
</tr>
<tr>
<td>Exhibitor-Hosted Session: In Vitro ADMET Laboratories LLC</td>
<td>Monday, Mar 24</td>
<td>3:30 PM to 4:30 PM</td>
<td>Convention Center</td>
<td>Room 101A West</td>
</tr>
<tr>
<td>Exhibitor-Hosted Session: InSphero AG</td>
<td>Monday, Mar 24</td>
<td>3:30 PM to 4:30 PM</td>
<td>Convention Center</td>
<td>Room 106A West</td>
</tr>
<tr>
<td>Exhibitor-Hosted Session: Korea Institute of Toxicology</td>
<td>Monday, Mar 24</td>
<td>10:30 AM to 11:30 AM</td>
<td>Convention Center</td>
<td>Room 106C West</td>
</tr>
<tr>
<td>Exhibitor-Hosted Session: Leadscape, Inc.</td>
<td>Monday, Mar 24</td>
<td>2:45 PM to 3:45 PM</td>
<td>Convention Center</td>
<td>Room 106A West</td>
</tr>
<tr>
<td>Exhibitor-Hosted Session: Lhasa Limited</td>
<td>Monday, Mar 24</td>
<td>10:30 AM to 11:30 AM</td>
<td>Convention Center</td>
<td>Room 101C West</td>
</tr>
</tbody>
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Follow @SOToxicology and @ToxExpo on Twitter. Tweet using #2014SOT and #toxexpo for up-to-date information use the SOT event app or event website.
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<tr>
<td>Exhibitor-Hosted Session: Malvern Instruments</td>
<td>Tuesday, Mar 25</td>
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<td>Convention Center</td>
<td>Room 106C West</td>
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<tr>
<td>Exhibitor-Hosted Session: MPI Research</td>
<td>Monday, Mar 24</td>
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<td>Convention Center</td>
<td>Room 101C West</td>
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<tr>
<td>Exhibitor-Hosted Session: MPI Research</td>
<td>Tuesday, Mar 25</td>
<td>9:45 AM to 10:45 AM</td>
<td>Convention Center</td>
<td>Room 106A West</td>
</tr>
<tr>
<td>Exhibitor-Hosted Session: MPI Research</td>
<td>Wednesday, Mar 26</td>
<td>9:15 AM to 10:15 AM</td>
<td>Convention Center</td>
<td>Room 106A West</td>
</tr>
<tr>
<td>Exhibitor-Hosted Session: MultiCASE Inc</td>
<td>Monday, Mar 24</td>
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<tr>
<td>Exhibitor-Hosted Session: National Institute of Environmental Health Sciences</td>
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<tr>
<td>Exhibitor-Hosted Session: National Toxicology Program</td>
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<tr>
<td>Exhibitor-Hosted Session: NSF International Applied Research Center</td>
<td>Monday, Mar 24</td>
<td>10:30 AM to 11:30 AM</td>
<td>Convention Center</td>
<td>Room 106A West</td>
</tr>
<tr>
<td>Exhibitor-Hosted Session: PDS Preclinical Data Systems Inc.</td>
<td>Monday, Mar 24</td>
<td>1:00 PM to 2:00 PM</td>
<td>Convention Center</td>
<td>Room 106C West</td>
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<tr>
<td>Exhibitor-Hosted Session: PDS Preclinical Data Systems Inc.</td>
<td>Tuesday, Mar 25</td>
<td>2:45 PM to 3:45 PM</td>
<td>Convention Center</td>
<td>Room 101A West</td>
</tr>
<tr>
<td>Exhibitor-Hosted Session: Promega Corporation</td>
<td>Tuesday, Mar 25</td>
<td>8:30 AM to 9:30 AM</td>
<td>Convention Center</td>
<td>Room 101A West</td>
</tr>
<tr>
<td>Exhibitor-Hosted Session: Sigma-Aldrich</td>
<td>Tuesday, Mar 25</td>
<td>11:00 AM to 12:00 Noon</td>
<td>Convention Center</td>
<td>Room 106C West</td>
</tr>
<tr>
<td>Exhibitor-Hosted Session: SNBL USA, Ltd.</td>
<td>Monday, Mar 24</td>
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<td>Convention Center</td>
<td>Room 106A West</td>
</tr>
<tr>
<td>Exhibitor-Hosted Session: Stemina Biomarker Discovery</td>
<td>Monday, Mar 24</td>
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<td>Convention Center</td>
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<tr>
<td>Exhibitor-Hosted Session: Tandem Labs</td>
<td>Monday, Mar 24</td>
<td>2:15 PM to 3:15 PM</td>
<td>Convention Center</td>
<td>Room 101A West</td>
</tr>
<tr>
<td>Exhibitor-Hosted Session: Tandem Labs</td>
<td>Tuesday, Mar 25</td>
<td>11:00 AM to 12:00 Noon</td>
<td>Convention Center</td>
<td>Room 101C West</td>
</tr>
<tr>
<td>Exhibitor-Hosted Session: Tandem Labs</td>
<td>Wednesday, Mar 26</td>
<td>9:15 AM to 10:15 AM</td>
<td>Convention Center</td>
<td>Room 101C West</td>
</tr>
<tr>
<td>Exhibitor-Hosted Session: Toxikon Corporation</td>
<td>Wednesday, Mar 26</td>
<td>10:30 AM to 11:30 AM</td>
<td>Convention Center</td>
<td>Room 101A West</td>
</tr>
<tr>
<td>Exhibitor-Hosted Session: VisualSonics</td>
<td>Monday, Mar 24</td>
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<td>Convention Center</td>
<td>Room 101C West</td>
</tr>
<tr>
<td>Exhibitor-Hosted Session: WIL Research</td>
<td>Tuesday, Mar 25</td>
<td>12:15 PM to 1:15 PM</td>
<td>Convention Center</td>
<td>Room 106A West</td>
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<tr>
<td>Exhibitor-Hosted Session: WuXi Apptec Inc.</td>
<td>Tuesday, Mar 25</td>
<td>8:30 AM to 9:30 AM</td>
<td>Convention Center</td>
<td>Room 101C West</td>
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<tr>
<td>Finance Committee Meeting</td>
<td>Wednesday, Mar 26</td>
<td>11:30 AM to 1:30 PM</td>
<td>Convention Center</td>
<td>Room 225A</td>
</tr>
<tr>
<td>Food and Chemical Toxicology Associate and Managing Editor Board Meeting</td>
<td>Tuesday, Mar 25</td>
<td>8:00 PM to 10:00 PM</td>
<td>Hyatt Cassidy</td>
<td></td>
</tr>
<tr>
<td>Food Safety Specialty Section Meeting/Reception</td>
<td>Monday, Mar 24</td>
<td>6:00 PM to 7:30 PM</td>
<td>Sheraton Valley of the Sun D</td>
<td></td>
</tr>
<tr>
<td>Food Safety Specialty Section Officers Meeting</td>
<td>Monday, Mar 24</td>
<td>6:30 AM to 8:00 AM</td>
<td>Convention Center</td>
<td>Room 222</td>
</tr>
<tr>
<td>Global Collaboration Coffee</td>
<td>Monday, Mar 24</td>
<td>9:30 AM to 11:30 AM</td>
<td>Convention Center</td>
<td>Room 127C</td>
</tr>
<tr>
<td>Global Gallery of Toxicology Poster Session—Representative Attended</td>
<td>Monday, Mar 24</td>
<td>11:45 AM to 12:15 PM</td>
<td>Convention Center</td>
<td>Exhibit Hall</td>
</tr>
<tr>
<td>Government Liaison Groups Collaboration Meeting</td>
<td>Monday, Mar 24</td>
<td>3:15 PM to 4:45 PM</td>
<td>Convention Center</td>
<td>Room 127C</td>
</tr>
<tr>
<td>Graduate Education Subcommittee Meeting</td>
<td>Tuesday, Mar 25</td>
<td>8:30 AM to 9:30 PM</td>
<td>Convention Center</td>
<td>Room 228B</td>
</tr>
<tr>
<td>Graduate Student Leadership Committee Executive Board Meeting</td>
<td>Wednesday, Mar 26</td>
<td>8:00 AM to 9:00 AM</td>
<td>Convention Center</td>
<td>Room 228A</td>
</tr>
<tr>
<td>Graduate Student Leadership Committee Meeting</td>
<td>Wednesday, Mar 26</td>
<td>6:45 AM to 7:45 AM</td>
<td>Convention Center</td>
<td>Room 224B</td>
</tr>
<tr>
<td>Guest/Spouse Hospitality Room</td>
<td>Sunday, Mar 23</td>
<td>8:00 AM to 5:00 PM</td>
<td>Sheraton</td>
<td>Room 428</td>
</tr>
<tr>
<td>Guest/Spouse Hospitality Room</td>
<td>Monday, Mar 24</td>
<td>8:00 AM to 5:00 PM</td>
<td>Sheraton</td>
<td>Room 428</td>
</tr>
<tr>
<td>Guest/Spouse Hospitality Room</td>
<td>Tuesday, Mar 25</td>
<td>8:00 AM to 5:00 PM</td>
<td>Sheraton</td>
<td>Room 428</td>
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<tr>
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<td>Wednesday, Mar 26</td>
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<td>Sheraton</td>
<td>Room 428</td>
</tr>
<tr>
<td>Guest/Spouse Hospitality Room</td>
<td>Thursday, Mar 27</td>
<td>8:00 AM to 10:00 AM</td>
<td>Sheraton</td>
<td>Room 428</td>
</tr>
<tr>
<td>HESI Luncheon Seminar (Registration Required)</td>
<td>Monday, Mar 24</td>
<td>12:00 Noon to 1:30 PM</td>
<td>Sheraton Valley of the Sun A</td>
<td></td>
</tr>
<tr>
<td>High School Poster Exposition (Across from SOT Pavilion, Booth 1623)</td>
<td>Tuesday, Mar 25</td>
<td>10:30 AM to 2:30 PM</td>
<td>Convention Center</td>
<td>Exhibit Hall</td>
</tr>
<tr>
<td>High School Student and Teacher Workshop: Lotions Are Not Potions: Toxicology and Product Safety</td>
<td>Saturday, Mar 22</td>
<td>8:30 AM to 4:15 PM</td>
<td>Health Science Education Building University of Arizona Biomedical Campus</td>
<td></td>
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<tbody>
<tr>
<td>Hispanic Organization of Toxicologists Special Interest Group Reception and Awards Ceremony</td>
<td>Tuesday, Mar 25</td>
<td>6:30 PM to 9:30 PM</td>
<td>Arizona Latino Arts and Culture Center</td>
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<tr>
<td>Housing Desk</td>
<td>Saturday, Mar 22</td>
<td>4:00 PM to 7:00 PM</td>
<td>Convention Center</td>
<td>Lower Level</td>
</tr>
<tr>
<td>Housing Desk</td>
<td>Sunday, Mar 23</td>
<td>8:00 AM to 5:00 PM</td>
<td>Convention Center</td>
<td>Lower Level</td>
</tr>
<tr>
<td>Housing Desk</td>
<td>Monday, Mar 24</td>
<td>8:00 AM to 5:00 PM</td>
<td>Convention Center</td>
<td>Lower Level</td>
</tr>
<tr>
<td>Housing Desk</td>
<td>Tuesday, Mar 25</td>
<td>8:00 AM to 11:00 AM</td>
<td>Convention Center</td>
<td>Lower Level</td>
</tr>
<tr>
<td>Human &amp; Experimental Toxicology Editorial Board Meeting</td>
<td>Monday, Mar 24</td>
<td>11:30 AM to 2:30 PM</td>
<td>Hyatt</td>
<td>Cassidy</td>
</tr>
<tr>
<td>Human Toxicology Project Consortium: Adverse Outcome Pathways 101: The How and Why of Development and Use</td>
<td>Tuesday, Mar 25</td>
<td>5:00 PM to 7:00 PM</td>
<td>Hyatt</td>
<td>Ballroom C</td>
</tr>
<tr>
<td>Human Toxicology Project Consortium: Development of a Knowledge Base for Quantitative Modelling of Adverse Outcome Pathways: Stakeholder Input Session</td>
<td>Monday, Mar 24</td>
<td>5:00 PM to 6:30 PM</td>
<td>Hyatt</td>
<td>Berein</td>
</tr>
<tr>
<td>Human Toxicology Project Consortium: Development of a Knowledge Base for Quantitative Modelling of Adverse Outcome Pathways: Stakeholder Input Session</td>
<td>Tuesday, Mar 25</td>
<td>12:00 Noon to 1:30 PM</td>
<td>Hyatt</td>
<td>Cassidy</td>
</tr>
<tr>
<td>Human Toxicology Project Consortium: Development of a Knowledge Base for Quantitative Modelling of Adverse Outcome Pathways: Stakeholder Input Session</td>
<td>Thursday, Mar 27</td>
<td>8:00 AM to 9:00 AM</td>
<td>Hyatt</td>
<td>Remington</td>
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<tr>
<td>Immunotoxicology Specialty Section Meeting/Reception</td>
<td>Wednesday, Mar 26</td>
<td>6:00 PM to 7:30 PM</td>
<td>Sheraton</td>
<td>Valley of the Sun C</td>
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<tr>
<td>In Vitro and Alternative Methods Specialty Section Meeting/ Luncheon</td>
<td>Wednesday, Mar 26</td>
<td>12:00 Noon to 1:30 PM</td>
<td>Convention Center</td>
<td>Room 222</td>
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<tr>
<td>In Vitro Toxicology Lecture and Luncheon for Students (Ticket Required), Lecturer: Helena Kandarova, MatTek Corp. and MatTek In Vitro Life Science Laboratories</td>
<td>Monday, Mar 24</td>
<td>6:30 PM to 8:00 AM</td>
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<tr>
<td>Inhalation and Respiratory Specialty Section Meeting/Reception</td>
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<tr>
<td>Inhalation and Respiratory Specialty Section Technical Meeting</td>
<td>Wednesday, Mar 26</td>
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<tr>
<td>International Neurotoxicology Association Business Meeting</td>
<td>Monday, Mar 24</td>
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<tr>
<td>IUTOX Future ICT Meetings</td>
<td>Tuesday, Mar 25</td>
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<td>Convention Center</td>
<td>Room 226A</td>
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<tr>
<td>Job Bank Center</td>
<td>Sunday, Mar 23</td>
<td>1:00 PM to 5:00 PM</td>
<td>Convention Center</td>
<td>Room 130</td>
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<tr>
<td>Job Bank Center</td>
<td>Monday, Mar 24</td>
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<td>Convention Center</td>
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<tr>
<td>Job Bank Center</td>
<td>Tuesday, Mar 25</td>
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<tr>
<td>Job Bank Center</td>
<td>Wednesday, Mar 26</td>
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<tr>
<td>Job Bank/Mentor Match Lounge</td>
<td>Sunday, Mar 23</td>
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<tr>
<td>Job Bank/Mentor Match Lounge</td>
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<tr>
<td>Job Bank/Mentor Match Lounge</td>
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<tr>
<td>Job Bank/Mentor Match Lounge</td>
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<tr>
<td>K-12 Regional Outreach Contacts Meeting</td>
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<tr>
<td>Kettering Reception, University of Cincinnati</td>
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<td>Sheraton</td>
<td>Alhambra</td>
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<tr>
<td>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</td>
<td>Wednesday, Mar 26</td>
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<tr>
<td>Korean Toxicologists Association in America Meeting/Reception</td>
<td>Monday, Mar 24</td>
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<td>Thai’d Up Restaurant</td>
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<tr>
<td>Leading Edge in Basic Science Award Lecture: A Two-Pronged Approach to Modernize Toxicology, Lecturer: Vishal S. Vaidya, Harvard Medical School</td>
<td>Tuesday, Mar 25</td>
<td>8:00 AM to 8:50 AM</td>
<td>Convention Center</td>
<td>North Ballroom 120B</td>
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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.)
### Schedule by Event Name (Continued)

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<tr>
<td>Lone Star and South Central Regional Chapter Joint Mixer</td>
<td>Tuesday, Mar 25</td>
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<td>Tom's Tavern</td>
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<tr>
<td>Lovelace Respiratory Research Institute Reception</td>
<td>Sunday, Mar 23</td>
<td>7:30 PM to 10:30 PM</td>
<td>Hyatt Cassidy</td>
<td></td>
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</tr>
<tr>
<td>Mechanisms Specialty Section Meeting/Reception</td>
<td>Wednesday, Mar 26</td>
<td>6:00 PM to 7:30 PM</td>
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<tr>
<td>Mechanisms Specialty Section Officers Meeting</td>
<td>Monday, Mar 24</td>
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<td>Convention Center</td>
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<tr>
<td>Medical Device Specialty Section Meeting/Reception</td>
<td>Monday, Mar 24</td>
<td>6:00 PM to 7:30 PM</td>
<td>Sheraton</td>
<td>Paradise Valley</td>
</tr>
<tr>
<td>Membership Committee Meeting</td>
<td>Wednesday, Mar 26</td>
<td>11:30 AM to 1:00 PM</td>
<td>Convention Center</td>
<td>Room 226A</td>
</tr>
<tr>
<td>Merit Award Lecture: Toxicology Is Part of the Solution,</td>
<td>Monday, Mar 24</td>
<td>12:30 PM to 1:20 PM</td>
<td>Convention Center</td>
<td>North Ballroom 120B</td>
</tr>
<tr>
<td>Lecturer: Jay I. Goodman, Michigan State University</td>
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</tr>
<tr>
<td>Metals Specialty Section Meeting/Reception</td>
<td>Monday, Mar 24</td>
<td>6:00 PM to 7:30 PM</td>
<td>Sheraton</td>
<td>Encanto B</td>
</tr>
<tr>
<td>Michigan State University Environmental Toxicology Reception</td>
<td>Tuesday, Mar 25</td>
<td>9:00 AM to 11:00 PM</td>
<td>Sheraton</td>
<td>Camelback B</td>
</tr>
<tr>
<td>Mid-Atlantic Regional Chapter Luncheon</td>
<td>Monday, Mar 24</td>
<td>12:00 Noon to 2:00 PM</td>
<td>Majerle's Sports Grill</td>
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<tr>
<td>Mixtures Specialty Section Meeting/Reception</td>
<td>Wednesday, Mar 26</td>
<td>6:00 PM to 7:30 PM</td>
<td>Sheraton</td>
<td>Estrella</td>
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<tr>
<td>Molecular and Systems Biology Specialty Section Meeting/Reception</td>
<td>Monday, Mar 24</td>
<td>6:00 PM to 7:30 PM</td>
<td>Sheraton</td>
<td>Alhambra</td>
</tr>
<tr>
<td>Molecular and Systems Biology Specialty Section Officers Meeting</td>
<td>Monday, Mar 24</td>
<td>6:30 AM to 8:00 AM</td>
<td>Convention Center</td>
<td>Room 221C</td>
</tr>
<tr>
<td>Molecular Devices, LLC: <em>In Vitro Assessment of Environmental Compound-Induced Cardiotoxicity Potential Using Human Induced Pluripotent Stem Cell (iPSC)-Derived Cardiomyocytes</em></td>
<td>Monday, Mar 24</td>
<td>1:00 PM to 2:00 PM</td>
<td>Hyatt</td>
<td>Ballroom D</td>
</tr>
<tr>
<td>MPI Research: Got Science?</td>
<td>Monday, Mar 24</td>
<td>6:00 PM to 10:00 PM</td>
<td>Renaissance</td>
<td>Terrace</td>
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<tr>
<td>Nanotoxicology Specialty Section Meeting/Reception</td>
<td>Monday, Mar 24</td>
<td>6:00 PM to 7:30 PM</td>
<td>Sheraton</td>
<td>Valley of the Sun A</td>
</tr>
<tr>
<td>Networking Time</td>
<td>Tuesday, Mar 25</td>
<td>12:00 Noon to 1:30 PM</td>
<td>Convention Center</td>
<td></td>
</tr>
<tr>
<td>Neurotoxicology Specialty Section Meeting/Reception</td>
<td>Wednesday, Mar 26</td>
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<td>Sheraton</td>
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</tr>
<tr>
<td>NIEHS-SOT Memorandum of Understanding Signing Ceremony</td>
<td>Sunday, Mar 23</td>
<td>3:00 PM to 3:30 PM</td>
<td>Convention Center</td>
<td>North Ballroom 120D</td>
</tr>
<tr>
<td>Northeast Regional Chapter Student Luncheon</td>
<td>Tuesday, Mar 25</td>
<td>12:00 Noon to 1:30 PM</td>
<td>Convention Center</td>
<td>Room 222A</td>
</tr>
<tr>
<td>Northern California Regional Chapter Reception</td>
<td>Tuesday, Mar 25</td>
<td>7:00 PM to 10:00 PM</td>
<td>The Arrogant Butcher</td>
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<tr>
<td>Occupational and Public Health Specialty Section Meeting/Luncheon</td>
<td>Monday, Mar 24</td>
<td>12:00 Noon to 1:30 PM</td>
<td>Convention Center</td>
<td>Room 222</td>
</tr>
<tr>
<td>Ocular Toxicology Specialty Section Meeting/Reception</td>
<td>Tuesday, Mar 25</td>
<td>6:00 PM to 7:30 PM</td>
<td>Sheraton</td>
<td>Ahwatukee</td>
</tr>
<tr>
<td>Ohio Valley Regional Chapter Reception</td>
<td>Tuesday, Mar 25</td>
<td>4:15 PM to 6:30 PM</td>
<td>Copper Blues</td>
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<tr>
<td>Pacific Northwest Regional Chapter Reception</td>
<td>Monday, Mar 24</td>
<td>5:30 PM to 7:30 PM</td>
<td>Tom's Tavern</td>
<td></td>
</tr>
<tr>
<td>Past Presidents Breakfast</td>
<td>Monday, Mar 24</td>
<td>6:30 AM to 8:00 AM</td>
<td>Convention Center</td>
<td>Room 225B</td>
</tr>
<tr>
<td>Past Presidents’ 5k Fun Run/Walk</td>
<td>Tuesday, Mar 25</td>
<td>6:30 AM to 8:00 AM</td>
<td>Steele Indian School Park</td>
<td></td>
</tr>
<tr>
<td>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</td>
<td>Monday, Mar 24</td>
<td>8:00 AM to 9:00 AM</td>
<td>Convention Center</td>
<td>Hall 1</td>
</tr>
<tr>
<td>Postdoctoral Assembly Board Meeting</td>
<td>Tuesday, Mar 25</td>
<td>6:45 AM to 7:45 AM</td>
<td>Convention Center</td>
<td>Room 225B</td>
</tr>
<tr>
<td>Postdoctoral Assembly Luncheon <em>(Ticket Required)</em></td>
<td>Tuesday, Mar 25</td>
<td>12:00 Noon to 1:15 PM</td>
<td>Convention Center</td>
<td>Room 105B West</td>
</tr>
<tr>
<td>Poster Sessions</td>
<td>Monday, Mar 24</td>
<td>9:30 AM to 12:30 PM</td>
<td>Convention Center</td>
<td>Exhibit Hall</td>
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<tr>
<td>Poster Sessions</td>
<td>Monday, Mar 24</td>
<td>1:00 PM to 4:30 PM</td>
<td>Convention Center</td>
<td>Exhibit Hall</td>
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<td>Poster Sessions</td>
<td>Tuesday, Mar 25</td>
<td>9:00 AM to 12:30 PM</td>
<td>Convention Center</td>
<td>Exhibit Hall</td>
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<td>Poster Sessions</td>
<td>Tuesday, Mar 25</td>
<td>1:00 PM to 4:30 PM</td>
<td>Convention Center</td>
<td>Exhibit Hall</td>
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<td>Poster Sessions</td>
<td>Wednesday, Mar 26</td>
<td>9:00 AM to 12:30 PM</td>
<td>Convention Center</td>
<td>Exhibit Hall</td>
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<td>Poster Sessions</td>
<td>Wednesday, Mar 26</td>
<td>1:00 PM to 4:30 PM</td>
<td>Convention Center</td>
<td>Exhibit Hall</td>
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<td>Poster Sessions</td>
<td>Thursday, Mar 27</td>
<td>8:30 AM to 12:00 Noon</td>
<td>Convention Center</td>
<td>Hall 1</td>
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<td>Event</td>
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<tr>
<td>Poster Set Up (See Poster Board Surface Maps on Pages 120–121 or</td>
<td>Monday, Mar 24</td>
<td>7:30 AM to 9:30 AM</td>
<td>Convention Center</td>
<td>Exhibit Hall</td>
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<tr>
<td>Poster Set Up (See Poster Board Surface Maps on Pages 120–121 or</td>
<td>Monday, Mar 24</td>
<td>12:30 PM to 1:00 PM</td>
<td>Convention Center</td>
<td>Exhibit Hall</td>
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<tr>
<td>Poster Set Up (See Poster Board Surface Maps on Pages 122–123 or</td>
<td>Tuesday, Mar 25</td>
<td>7:30 AM to 9:00 AM</td>
<td>Convention Center</td>
<td>Exhibit Hall</td>
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<td>Mobile Event App for Details)</td>
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<tr>
<td>Poster Set Up (See Poster Board Surface Maps on Pages 122–123 or</td>
<td>Tuesday, Mar 25</td>
<td>12:30 PM to 1:00 PM</td>
<td>Convention Center</td>
<td>Exhibit Hall</td>
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<tr>
<td>Poster Set Up (See Poster Board Surface Maps on Pages 124–125 or</td>
<td>Wednesday, Mar 26</td>
<td>7:30 AM to 9:00 AM</td>
<td>Convention Center</td>
<td>Exhibit Hall</td>
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<tr>
<td>Poster Set Up (See Poster Board Surface Maps on Pages 124–125 or</td>
<td>Wednesday, Mar 26</td>
<td>12:30 PM to 1:00 PM</td>
<td>Convention Center</td>
<td>Exhibit Hall</td>
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<td>Mobile Event App for Details)</td>
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<tr>
<td>Poster Set Up (See Poster Board Surface Map on Page 126 or Mobile</td>
<td>Thursday, Mar 27</td>
<td>7:00 AM to 8:30 AM</td>
<td>Convention Center</td>
<td>Hall 1</td>
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<tr>
<td>Event App for Details)</td>
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<tr>
<td>President’s Reception (By Invitation Only)</td>
<td>Wednesday, Mar 26</td>
<td>7:00 PM to 8:30 PM</td>
<td>Sheraton Phoenix</td>
<td>Phoenix Ballroom C</td>
</tr>
<tr>
<td>Public Outreach Event: All About Poisons—Toxicology Revealed!</td>
<td>Saturday, Mar 22</td>
<td>10:30 AM to 12:30 PM</td>
<td>Burton Barr Central Library, Phoenix</td>
<td></td>
</tr>
<tr>
<td>QIAGEN’s Ingenuity Pathway Analysis Workshop</td>
<td>Monday, Mar 24</td>
<td>12:00 Noon to 1:00 PM</td>
<td>Sheraton Deer Valley</td>
<td></td>
</tr>
<tr>
<td>Regional Chapter Collaboration and Communications Committee Meeting</td>
<td>Wednesday, Mar 26</td>
<td>12:00 Noon to 1:30 PM</td>
<td>Convention Center</td>
<td>Room 228A</td>
</tr>
<tr>
<td>Registration</td>
<td>Saturday, Mar 22</td>
<td>4:00 PM to 7:00 PM</td>
<td>Convention Center</td>
<td>Lower Level</td>
</tr>
<tr>
<td>Registration</td>
<td>Sunday, Mar 23</td>
<td>7:00 AM to 8:00 PM</td>
<td>Convention Center</td>
<td>Lower Level</td>
</tr>
<tr>
<td>Registration</td>
<td>Monday, Mar 24</td>
<td>7:00 AM to 5:00 PM</td>
<td>Convention Center</td>
<td>Lower Level</td>
</tr>
<tr>
<td>Registration</td>
<td>Tuesday, Mar 25</td>
<td>8:00 AM to 4:00 PM</td>
<td>Convention Center</td>
<td>Lower Level</td>
</tr>
<tr>
<td>Registration</td>
<td>Wednesday, Mar 26</td>
<td>8:00 AM to 4:00 PM</td>
<td>Convention Center</td>
<td>Lower Level</td>
</tr>
<tr>
<td>Registration</td>
<td>Thursday, Mar 27</td>
<td>8:00 AM to 12:00 Noon</td>
<td>Convention Center</td>
<td>Lower Level</td>
</tr>
<tr>
<td>Regulatory and Safety Evaluation Specialty Section Meeting/Reception</td>
<td>Wednesday, Mar 26</td>
<td>6:00 PM to 7:30 PM</td>
<td>Sheraton Encanto</td>
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</tr>
<tr>
<td>Regulatory and Safety Evaluation Specialty Section Officers Meeting</td>
<td>Monday, Mar 24</td>
<td>6:30 AM to 8:00 AM</td>
<td>Convention Center</td>
<td>Room 222</td>
</tr>
<tr>
<td>Reproductive and Developmental Toxicology Specialty Section</td>
<td>Tuesday, Mar 25</td>
<td>6:00 PM to 7:30 PM</td>
<td>Sheraton Valley of the Sun D</td>
<td>Room 222</td>
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<tr>
<td>Meeting/Reception</td>
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<tr>
<td>Reproductive and Developmental Toxicology Specialty Section</td>
<td>Monday, Mar 24</td>
<td>7:00 AM to 8:30 AM</td>
<td>Convention Center</td>
<td>Room 226A</td>
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<tr>
<td>Officers Meeting</td>
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<tr>
<td>Research Data Alliance Toxigenomics Interoperability Interest Group</td>
<td>Thursday, Mar 27</td>
<td>8:30 AM to 10:00 AM</td>
<td>Sheraton Alhambra</td>
<td></td>
</tr>
<tr>
<td>Research Funding Committee Meeting</td>
<td>Tuesday, Mar 25</td>
<td>7:00 AM to 8:00 AM</td>
<td>Convention Center</td>
<td>Room 225A</td>
</tr>
<tr>
<td>Research Funding Information Room</td>
<td>Monday, Mar 24</td>
<td>9:30 AM to 4:00 PM</td>
<td>Convention Center</td>
<td>Room 127A</td>
</tr>
<tr>
<td>Research Funding Information Room</td>
<td>Tuesday, Mar 25</td>
<td>9:30 AM to 4:00 PM</td>
<td>Convention Center</td>
<td>Room 127A</td>
</tr>
<tr>
<td>Research Funding Information Room</td>
<td>Wednesday, Mar 26</td>
<td>9:30 AM to 4:00 PM</td>
<td>Convention Center</td>
<td>Room 127A</td>
</tr>
<tr>
<td>Risk Assessment Specialty Section Meeting/Reception</td>
<td>Wednesday, Mar 26</td>
<td>6:00 PM to 7:30 PM</td>
<td>Sheraton Phoenix Ballroom D</td>
<td>Room 222</td>
</tr>
<tr>
<td>Risk Assessment Specialty Section Officers Meeting</td>
<td>Monday, Mar 24</td>
<td>6:30 AM to 8:00 AM</td>
<td>Convention Center</td>
<td>Room 222</td>
</tr>
<tr>
<td>Roundtable of Toxicology Consultants Annual Business Meeting</td>
<td>Monday, Mar 24</td>
<td>4:30 PM to 6:30 PM</td>
<td>Hyatt Cassidy</td>
<td></td>
</tr>
<tr>
<td>Rutgers University Joint Graduate Program in Toxicology Annual</td>
<td>Tuesday, Mar 25</td>
<td>9:00 PM to 11:00 PM</td>
<td>Hyatt Ballroom D</td>
<td></td>
</tr>
<tr>
<td>Dessert Reception</td>
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</tr>
<tr>
<td>Satellite Meeting: Updates on 21st Century Toxicology Activities and</td>
<td>Thursday, Mar 27</td>
<td>12:30 PM to 4:30 PM</td>
<td>Sheraton Deer Valley</td>
<td></td>
</tr>
<tr>
<td>Related Efforts: Invited Presentations and Open Microphone</td>
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<tr>
<td>Satellite Meeting: Workshop on Translational Biomarkers of</td>
<td>Thursday, Mar 27</td>
<td>12:00 Noon to 5:00 PM</td>
<td>Sheraton Laveen</td>
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<tr>
<td>Neurotoxicity</td>
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<td>Event:</td>
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<tr>
<td>Scientific Liaison Coalition Meeting</td>
<td>Sunday, Mar 23</td>
<td>8:00 AM to 12:00 PM</td>
<td>Sheraton</td>
<td>Alhambra</td>
</tr>
<tr>
<td>Scientific Program Committee Meeting</td>
<td>Thursday, Mar 27</td>
<td>12:00 Noon to 1:30 PM</td>
<td>Convention Center</td>
<td>Room 225B</td>
</tr>
<tr>
<td>Scientific Program Committee Walk-Through</td>
<td>Monday, Mar 24</td>
<td>7:00 AM to 7:45 AM</td>
<td>Convention Center</td>
<td>North Ballroom 120A</td>
</tr>
<tr>
<td>Scientific Sessions</td>
<td>Monday, Mar 24</td>
<td>9:15 AM to 12:00 Noon</td>
<td>Convention Center</td>
<td>(See Session Index on Pages 112–117 or Mobile Event App for Room Locations)</td>
</tr>
<tr>
<td>Scientific Sessions</td>
<td>Monday, Mar 24</td>
<td>12:10 PM to 1:30 PM</td>
<td>Convention Center</td>
<td>(See Session Index on Pages 112–117 or Mobile Event App for Room Locations)</td>
</tr>
<tr>
<td>Scientific Sessions</td>
<td>Monday, Mar 24</td>
<td>2:00 PM to 4:45 PM</td>
<td>Convention Center</td>
<td>(See Session Index on Pages 112–117 or Mobile Event App for Room Locations)</td>
</tr>
<tr>
<td>Scientific Sessions</td>
<td>Tuesday, Mar 25</td>
<td>9:00 AM to 11:45 AM</td>
<td>Convention Center</td>
<td>(See Session Index on Pages 112–117 or Mobile Event App for Room Locations)</td>
</tr>
<tr>
<td>Scientific Sessions</td>
<td>Tuesday, Mar 25</td>
<td>1:30 PM to 4:15 PM</td>
<td>Convention Center</td>
<td>(See Session Index on Pages 112–117 or Mobile Event App for Room Locations)</td>
</tr>
<tr>
<td>Scientific Sessions</td>
<td>Wednesday, Mar 26</td>
<td>9:00 AM to 11:45 AM</td>
<td>Convention Center</td>
<td>(See Session Index on Pages 112–117 or Mobile Event App for Room Locations)</td>
</tr>
<tr>
<td>Scientific Sessions</td>
<td>Wednesday, Mar 26</td>
<td>12:00 Noon to 1:20 PM</td>
<td>Convention Center</td>
<td>(See Session Index on Pages 112–117 or Mobile Event App for Room Locations)</td>
</tr>
<tr>
<td>Scientific Sessions</td>
<td>Wednesday, Mar 26</td>
<td>1:30 PM to 4:15 PM</td>
<td>Convention Center</td>
<td>(See Session Index on Pages 112–117 or Mobile Event App for Room Locations)</td>
</tr>
<tr>
<td>Scientific Sessions (Sunset)</td>
<td>Wednesday, Mar 26</td>
<td>4:30 PM to 5:50 PM</td>
<td>Convention Center</td>
<td>(See Session Index on Pages 112–117 or Mobile Event App for Room Locations)</td>
</tr>
<tr>
<td>Scientific Sessions</td>
<td>Thursday, Mar 27</td>
<td>9:00 AM to 11:45 AM</td>
<td>Convention Center</td>
<td>(See Session Index on Pages 112–117 or Mobile Event App for Room Locations)</td>
</tr>
<tr>
<td>SOT Annual Business Meeting (All SOT Members Invited)</td>
<td>Tuesday, Mar 25</td>
<td>4:30 PM to 6:00 PM</td>
<td>Convention Center</td>
<td>North Ballroom 120D</td>
</tr>
<tr>
<td>SOT Mentoring Breakfast (Reservations Required)</td>
<td>Monday, Mar 24</td>
<td>6:15 AM to 7:45 AM</td>
<td>Convention Center</td>
<td>Room 221A</td>
</tr>
<tr>
<td>SOT Office</td>
<td>Saturday, Mar 22</td>
<td>4:00 PM to 7:00 PM</td>
<td>Convention Center</td>
<td>Room 224A</td>
</tr>
<tr>
<td>SOT Office</td>
<td>Sunday, Mar 23</td>
<td>7:00 AM to 5:30 PM</td>
<td>Convention Center</td>
<td>Room 224A</td>
</tr>
<tr>
<td>SOT Office</td>
<td>Monday, Mar 24</td>
<td>7:00 AM to 5:00 PM</td>
<td>Convention Center</td>
<td>Room 224A</td>
</tr>
<tr>
<td>SOT Office</td>
<td>Tuesday, Mar 25</td>
<td>7:00 AM to 4:30 PM</td>
<td>Convention Center</td>
<td>Room 224A</td>
</tr>
<tr>
<td>SOT Office</td>
<td>Wednesday, Mar 26</td>
<td>7:00 AM to 4:30 PM</td>
<td>Convention Center</td>
<td>Room 224A</td>
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<tr>
<td>SOT Office</td>
<td>Thursday, Mar 27</td>
<td>7:00 AM to 12:00 Noon</td>
<td>Convention Center</td>
<td>Room 224A</td>
</tr>
<tr>
<td>SOT Pavilion, Booth 1623</td>
<td>Monday, Mar 24</td>
<td>9:00 AM to 4:30 PM</td>
<td>Convention Center</td>
<td>Exhibit Hall</td>
</tr>
<tr>
<td>SOT Pavilion, Booth 1623</td>
<td>Tuesday, Mar 25</td>
<td>8:30 AM to 4:30 PM</td>
<td>Convention Center</td>
<td>Exhibit Hall</td>
</tr>
<tr>
<td>SOT/EUROTOX Debate: Are Nonmonotonic Dose-Responses at Low Dose Levels Toxicologically Relevant?</td>
<td>Monday, Mar 24</td>
<td>4:45 PM to 6:00 PM</td>
<td>Convention Center</td>
<td>North Ballroom 120D</td>
</tr>
<tr>
<td>Southeastern Regional Chapter Reception</td>
<td>Monday, Mar 24</td>
<td>6:00 PM to 8:00 PM</td>
<td>Canyon Café</td>
<td>Room 123</td>
</tr>
<tr>
<td>Speaker Ready Room (Scientific Session and ePoster Upload)</td>
<td>Saturday, Mar 22</td>
<td>4:00 PM to 7:00 PM</td>
<td>Convention Center</td>
<td>Room 123</td>
</tr>
<tr>
<td>Speaker Ready Room (Scientific Session and ePoster Upload)</td>
<td>Sunday, Mar 23</td>
<td>2:00 PM to 4:30 PM</td>
<td>Convention Center</td>
<td>Room 123</td>
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<tr>
<td>Speaker Ready Room (Scientific Session and ePoster Upload)</td>
<td>Monday, Mar 24</td>
<td>7:00 AM to 5:00 PM</td>
<td>Convention Center</td>
<td>Room 123</td>
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<tr>
<td>Speaker Ready Room (Scientific Session and ePoster Upload)</td>
<td>Tuesday, Mar 25</td>
<td>7:00 AM to 4:30 PM</td>
<td>Convention Center</td>
<td>Room 123</td>
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</table>
### Schedule by Event Name (Continued)

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

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

Toxicological Sciences

- A top original research journal in Toxicology
- Ranked 8 out of 85 in this category
- Advance Access—quick online publication, weeks ahead of print
- Optional open access for authors

VISIT OUR BOOTH AT TOXEXPO 2014
OR VISIT US ONLINE AT
www.toxsci.oxfordjournals.org

* 2012 Journal Citation Reports (Thomson Reuters, 2013)
Lower Level • North Building
@SOT Center, Plenary Lecture, Poster Sessions, Registration, ToxExpo, and Welcome Reception

EXHIBIT HALL
ToxExpo Entrance
(see pages 38–39 for ToxExpo Floor Plan)

100 Level • West Building
Exhibitor-Hosted Sessions and Undergraduate Program

300 Level • West Building
In Vitro Toxicology Lecture and Luncheon Student/Postdoctoral Scholar Mixer

Follow @SOTToxicology and @ToxExpo on Twitter Tweet using #2014SOT and #toxexpo
Sheraton Phoenix Downtown Hotel Maps

Second Level
Ancillary Meetings
(Sunday–Wednesday)

Third Level

Fourth Level

SUITE 428
SOT Guest/Spouse Hospitality Room
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.
## Phoenix Hotel Accommodations

<table>
<thead>
<tr>
<th>Hotel</th>
<th>Rate</th>
<th>Address</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Aloft Phoenix Airport</td>
<td>$189</td>
<td>4450 E. Washington Street, Phoenix, AZ 85034</td>
<td>602.275.6300</td>
</tr>
<tr>
<td>2) DoubleTree Guest Suites Phoenix</td>
<td>$199</td>
<td>320 N. 44th Street, Phoenix, AZ 85008</td>
<td>602.225.0500</td>
</tr>
<tr>
<td>3) Fairfield Inn and Suites Phoenix Midtown</td>
<td>$179</td>
<td>2520 N. Central Avenue, Phoenix, AZ 85004</td>
<td>602.716.9900</td>
</tr>
<tr>
<td>4) Hilton Garden Inn Phoenix Airport North</td>
<td>$179</td>
<td>3838 E. Van Buren Street, Phoenix, AZ 85008</td>
<td>602.306.2323</td>
</tr>
<tr>
<td>5) Hilton Garden Inn Phoenix Midtown</td>
<td>$199</td>
<td>4000 N. Central Avenue, Phoenix, AZ 85012</td>
<td>602.279.9811</td>
</tr>
<tr>
<td>6) Holiday Inn Express and Suites Phoenix Downtown</td>
<td>$209</td>
<td>620 N. 6th Street, Phoenix, AZ 85004</td>
<td>602.452.2020</td>
</tr>
<tr>
<td>7) Holiday Inn Phoenix Downtown North</td>
<td>$159</td>
<td>212 W. Osborn Road, Phoenix, AZ 85031</td>
<td>602.595.4444</td>
</tr>
<tr>
<td>8) Hotel Palomar Phoenix CityScape</td>
<td>$239</td>
<td>2 E. Jefferson Street, Phoenix, AZ 85004</td>
<td>602.253.6633</td>
</tr>
</tbody>
</table>

### 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 overbooking 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
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: 602.352.1234
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 Blocks 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
* SOT Headquarters Hotel
$229 single/double
340 N. 3rd Street, Phoenix, AZ 85004
Tel: 602.307.9929
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
.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.**

### Restaurants within Seven Blocks of the Convention Center, Listed Alphabetically

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

B=Breakfast, L=Lunch, D=Dinner (as of 1/10/2014)
<table>
<thead>
<tr>
<th>Restaurant Name</th>
<th>Address</th>
<th>Phone Number</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cibo Urban Wine Cafe</td>
<td>603 N. 5th Avenue</td>
<td>602.441.2697</td>
<td>$$</td>
</tr>
<tr>
<td>Cocina 10 at Crescent Ballroom</td>
<td>308 N. 2nd Avenue</td>
<td>602.716.2222</td>
<td>$$</td>
</tr>
<tr>
<td>Compass Arizona Grill</td>
<td>122 N. 2nd Street</td>
<td>602.440.3166</td>
<td>D</td>
</tr>
<tr>
<td>Copper Blues</td>
<td>50 W. Jefferson Street, Suite 200</td>
<td>480.719.5005</td>
<td>LD $$</td>
</tr>
<tr>
<td>Corner Bakery Cafe</td>
<td>455 N. 3rd Street, Suite 1065</td>
<td>602.252.1346</td>
<td>BLD $$</td>
</tr>
<tr>
<td>Crave Sandwich Café and Catering</td>
<td>541 E. Van Buren Street, Suite B3</td>
<td>602.257.1616</td>
<td>BL $</td>
</tr>
<tr>
<td>Crazy Jims</td>
<td>305 W. Washington Avenue, Suite 104</td>
<td>602.254.6550</td>
<td>BL $$</td>
</tr>
<tr>
<td>Devil's Greens</td>
<td>206 E. Taylor Street</td>
<td>602.496.6708</td>
<td>L</td>
</tr>
<tr>
<td>Dick's Hideaway</td>
<td>6008 N. 16th Street</td>
<td>602.241.1881</td>
<td>BLD $$$</td>
</tr>
<tr>
<td>District American Kitchen and Wine Bar</td>
<td>320 N. 3rd Street</td>
<td>602.817.5400</td>
<td>BLD $$$</td>
</tr>
<tr>
<td>Donovan's Steak and Chop House</td>
<td>3101 E. Camelback Road</td>
<td>602.955.3666</td>
<td>D $$$</td>
</tr>
<tr>
<td>Downtown Deli</td>
<td>130 N. Central Avenue</td>
<td>602.258.3069</td>
<td>L</td>
</tr>
<tr>
<td>Downtown Pizza Lounge</td>
<td>144 E. Washington Street</td>
<td>602.254.1522</td>
<td>L</td>
</tr>
<tr>
<td>Duck and Decanter</td>
<td>1 N. Central Avenue</td>
<td>602.266.6637</td>
<td>BL $</td>
</tr>
<tr>
<td>Durant’s</td>
<td>2611 N. Central Avenue</td>
<td>602.264.5967</td>
<td>LD $$$</td>
</tr>
<tr>
<td>Einstein Bros. Café</td>
<td>122 N. 2nd Street</td>
<td>602.440.3185</td>
<td>BL $</td>
</tr>
<tr>
<td>El Portal Mexican Grill</td>
<td>555 N. Central Avenue, Suite 106</td>
<td>602.296.7029</td>
<td>L</td>
</tr>
<tr>
<td>Fabulous Foods Café at Arizona Science Center</td>
<td>600 E. Washington Street</td>
<td>602.253.9050</td>
<td>L</td>
</tr>
<tr>
<td>Fair Trade Café</td>
<td>424 N. Central Avenue</td>
<td>602.253.6912</td>
<td>BL $</td>
</tr>
<tr>
<td>Fez</td>
<td>3815 N. Central Avenue</td>
<td>602.287.8700</td>
<td>LD $$</td>
</tr>
<tr>
<td>Five Guys Burgers and Fries</td>
<td>50 W. Jefferson Street, Suite 180</td>
<td>602.687.7575</td>
<td>LD $</td>
</tr>
<tr>
<td>Focaccia Fiorentina</td>
<td>112 N. Central Avenue</td>
<td>602.252.0007</td>
<td>BL $</td>
</tr>
<tr>
<td>Friday’s Front Row Sports Grill</td>
<td>401 E. Jefferson Street</td>
<td>602.462.3506</td>
<td>LD $$</td>
</tr>
<tr>
<td>Fuego CityScape</td>
<td>1 E. Washington Street</td>
<td>602.374.2541</td>
<td>LD $$</td>
</tr>
<tr>
<td>Gallo Blanco Café and Bar</td>
<td>401 W. Clarendon Avenue, Suite 175</td>
<td>602.327.0880</td>
<td>BLD $$</td>
</tr>
<tr>
<td>Hanny’s</td>
<td>40 N. 1st Street</td>
<td>602.252.2285</td>
<td>LD $$</td>
</tr>
<tr>
<td>Hard Rock Cafe</td>
<td>3 S. 2nd Street, Suite 117</td>
<td>602.261.7625</td>
<td>LD $$$</td>
</tr>
<tr>
<td>Hero Factory</td>
<td>114 W. Adams Street, Suite C102</td>
<td>602.254.6763</td>
<td>BL $$</td>
</tr>
<tr>
<td>Hooters</td>
<td>455 N. 3rd Street, Suite 190</td>
<td>602.495.1234</td>
<td>LD $$</td>
</tr>
<tr>
<td>Hula’s Modern Tiki</td>
<td>4700 N. Central Avenue</td>
<td>602.265.8454</td>
<td>LD $$$</td>
</tr>
<tr>
<td>Humble Pie</td>
<td>2333 N. 7th Street</td>
<td>602.229.1289</td>
<td>LD $$</td>
</tr>
<tr>
<td>ICON Lounge</td>
<td>50 E. Adams Street</td>
<td>602.333.0000</td>
<td>D</td>
</tr>
<tr>
<td>Jimmy John’s</td>
<td>11 W. Washington Street, Suite 175</td>
<td>602.688.8170</td>
<td>LD $</td>
</tr>
<tr>
<td>Jobot Coffee</td>
<td>918 N. 5th Street</td>
<td>602.228.7373</td>
<td>BLD $$</td>
</tr>
<tr>
<td>Karim’s Cobbler Shop and Deli</td>
<td>333 E. Jefferson Street, Suite 102</td>
<td>602.257.1801</td>
<td>L</td>
</tr>
<tr>
<td>Kincaid’s Classic American Dining</td>
<td>2 S. 3rd Street</td>
<td>602.340.0000</td>
<td>LD $$$</td>
</tr>
<tr>
<td>KoKoRo Sushi</td>
<td>455 N. 3rd Street, Suite 1120</td>
<td>602.254.3366</td>
<td>LD $$</td>
</tr>
</tbody>
</table>

B=Breakfast, L=Lunch, D=Dinner (as of 1/10/2014)
<table>
<thead>
<tr>
<th>Restaurant Name</th>
<th>Address</th>
<th>Phone</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>La Condesa</td>
<td>1919 N. 16th Street</td>
<td>602.254.6330</td>
<td>$</td>
</tr>
<tr>
<td>Legends Sports Bar and Restaurant</td>
<td>412 S. 3rd Street</td>
<td>602.254.5272</td>
<td>$</td>
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<tr>
<td>Ling and Louie’s Asian Kitchen</td>
<td>2502 E. Camelback Road</td>
<td>602.955.5993</td>
<td>$</td>
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<tr>
<td>Lon’s at the Hermosa Inn</td>
<td>5532 N. Palo Cristi Road</td>
<td>602.955.7878</td>
<td>BLD</td>
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<tr>
<td>Los Dos Molinos</td>
<td>1044 E. Camelback Road</td>
<td>602.528.3535</td>
<td>D</td>
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<tr>
<td>Lucky Strike Lanes and Lounge and Gypsy Bar</td>
<td>50 W. Jefferson Street, Suite 240</td>
<td>602.732.5490</td>
<td>$</td>
</tr>
<tr>
<td>Lustre Rooftop Garden</td>
<td>2 E. Jefferson Street</td>
<td>602.876.5432</td>
<td>D</td>
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<tr>
<td>Majerle’s Sports Grill</td>
<td>24 N. 2nd Street</td>
<td>602.253.0118</td>
<td>$</td>
</tr>
<tr>
<td>Marston’s Café</td>
<td>50 E. Adams Street</td>
<td>602.333.0000</td>
<td>$</td>
</tr>
<tr>
<td>Matt’s Big Breakfast</td>
<td>116 E. Garfield Street</td>
<td>602.254.1074</td>
<td>BL</td>
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<tr>
<td>Mi Amigos Mexican Grill</td>
<td>455 N. 3rd Street, Suite 110</td>
<td>602.256.7355</td>
<td>$</td>
</tr>
<tr>
<td>Moira Sushi</td>
<td>215 E. McKinley Street</td>
<td>602.254.5085</td>
<td>$</td>
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<tr>
<td>Mrs. White’s Golden Rule Café</td>
<td>808 E. Jefferson Street</td>
<td>602.262.9256</td>
<td>$</td>
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<tr>
<td>My Big Fat Greek Restaurant</td>
<td>455 N. 3rd Street, Suite 108</td>
<td>602.254.5730</td>
<td>$</td>
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<tr>
<td>My Mom’s Thai Kitchen</td>
<td>20 W. Adams Street</td>
<td>602.252.3873</td>
<td>$</td>
</tr>
<tr>
<td>Networks Bar and Grill</td>
<td>122 N. 2nd Street</td>
<td>602.440.3198</td>
<td>$</td>
</tr>
<tr>
<td>Nobuo at Teeter House</td>
<td>622 E. Adams Street</td>
<td>602.254.0600</td>
<td>D</td>
</tr>
<tr>
<td>The Old Spaghetti Factory</td>
<td>1418 N. Central Avenue</td>
<td>602.257.0380</td>
<td>$</td>
</tr>
<tr>
<td>Pallets Food and Bar</td>
<td>1011 N. 3rd Street</td>
<td>602.254.1168</td>
<td>$</td>
</tr>
<tr>
<td>Papa Christo’s</td>
<td>2 N. Central Avenue, Suite 117</td>
<td>602.261.7780</td>
<td>BL</td>
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<tr>
<td>Paradise Bakery and Café, Collier Center</td>
<td>3 S. 2nd Street</td>
<td>602.256.0462</td>
<td>BL</td>
</tr>
<tr>
<td>Phoenix Public Market Cafe</td>
<td>14 E. Pierce Street</td>
<td>602.253.2700</td>
<td>BLD</td>
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<tr>
<td>Pita Jungle</td>
<td>1001 N. 3rd Avenue, Suite 4</td>
<td>602.258.7482</td>
<td>$</td>
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<tr>
<td>Pizzeria Bianco</td>
<td>623 E. Adams Street</td>
<td>602.258.8300</td>
<td>$</td>
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<tr>
<td>Portland’s</td>
<td>105 W. Portland Street</td>
<td>602.795.7480</td>
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<tr>
<td>Postino’s</td>
<td>5144 N. Central Avenue</td>
<td>602.274.5144</td>
<td>$</td>
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<tr>
<td>Potbelly Sandwich Shop</td>
<td>1 E. Washington Street, Suite 170</td>
<td>602.283.1491</td>
<td>L</td>
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<tr>
<td>Province</td>
<td>333 N. Central Avenue</td>
<td>602.429.3600</td>
<td>BLD</td>
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<tr>
<td>Quiescence</td>
<td>6106 S. 32nd Street</td>
<td>602.276.0601</td>
<td>D</td>
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<tr>
<td>Rokerij/Richardson’s of New Mexico</td>
<td>6335 N. 16th Street</td>
<td>602.265.5886</td>
<td>$</td>
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<tr>
<td>Rose and Crown</td>
<td>628 E. Adams Street</td>
<td>602.256.0223</td>
<td>$</td>
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<tr>
<td>Scratch Café</td>
<td>1011 N. 3rd Street</td>
<td>602.252.8900</td>
<td>BL</td>
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<tr>
<td>Seamus McCaffrey’s Irish Pub</td>
<td>18 W. Monroe Street</td>
<td>602.253.6081</td>
<td>$</td>
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<tr>
<td>Sing High Chop Suey House</td>
<td>27 W. Madison Street</td>
<td>602.253.7848</td>
<td>$</td>
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<tr>
<td>Songbird Coffee and Tea House</td>
<td>214 E. Roosevelt Street</td>
<td>602.374.4192</td>
<td>BLD</td>
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<tr>
<td>Squash Blossom</td>
<td>705 N. 1st Street</td>
<td>602.253.4606</td>
<td>BL</td>
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<tr>
<td>St. Francis</td>
<td>211 E. Camelback Road</td>
<td>602.200.8111</td>
<td>LD</td>
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$ = Under $12  $$ = $12–$18  $$$ = $18–$30  $$$$ = over $30

B = Breakfast, L = Lunch, D = Dinner (as of 1/10/2014)
<table>
<thead>
<tr>
<th>Restaurants within Seven Blocks of the Convention Center, Listed Alphabetically (continued)</th>
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<tbody>
<tr>
<td>$ = Under $12</td>
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<tr>
<td>----------------</td>
</tr>
<tr>
<td>Starbucks—Arizona Center</td>
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<tr>
<td>Starbucks—City Hall</td>
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<tr>
<td>Starbucks—CityScape</td>
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<tr>
<td>Starbucks—Phoenix CC West</td>
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<tr>
<td>Starbucks—Taylor Place</td>
</tr>
<tr>
<td>Starbucks—US Airways Center</td>
</tr>
<tr>
<td>Steve’s Greenhouse Grill</td>
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<tr>
<td>Stingray Sushi</td>
</tr>
<tr>
<td>Stockyards Restaurant and 1899 Saloon</td>
</tr>
<tr>
<td>Strand Urban Italian</td>
</tr>
<tr>
<td>Subway—Arizona Center</td>
</tr>
<tr>
<td>Subway—Central</td>
</tr>
<tr>
<td>Subway—Cronkite/8</td>
</tr>
<tr>
<td>Subway—Luhrs</td>
</tr>
<tr>
<td>Sun Up Brewing Company</td>
</tr>
<tr>
<td>Tarbells</td>
</tr>
<tr>
<td>Terrace Café</td>
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<tr>
<td>TGI Friday’s Front Row</td>
</tr>
<tr>
<td>Thai Basil</td>
</tr>
<tr>
<td>Thai’d Up Restaurant</td>
</tr>
<tr>
<td>Tilted Kilt</td>
</tr>
<tr>
<td>Tom’s Tavern and 1929 Grill</td>
</tr>
<tr>
<td>True Food Kitchen</td>
</tr>
<tr>
<td>Turf Irish Pub</td>
</tr>
<tr>
<td>Uno Mas Mexican Grill</td>
</tr>
<tr>
<td>Vincent’s</td>
</tr>
<tr>
<td>Wild Thai ger Restaurant</td>
</tr>
<tr>
<td>Windsor</td>
</tr>
<tr>
<td>Zinburger Wine and Burger Bar</td>
</tr>
<tr>
<td>Z Pizza</td>
</tr>
</tbody>
</table>

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 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!
Drop your business cards in the ToxExpo prize drawing boxes found in all Diamond Level Sponsor booths—See ♦ on map on the following pages.

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

$500 American Express Gift card awarded each day.
**ToxExpo 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

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**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.psv.com/e35f808 or during the meeting in the Speaker Ready Room at the Phoenix Convention Center, Room 123.

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**ToxExpo Directories** are available at Registration and inside the entrance of ToxExpo.
Exhibit Hall - Lower Level

ToxExpo Floor Plan (Continued)

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

Follow @ToxExpo on Twitter
Tweet using #ToxExpo

For up-to-date information use the SOT event app or event website
## SOT Pavilion

- Endowment Opportunities
- Member Services, RC, SIG, and SS Activities
- Outreach Information
- Toxicological Sciences

<table>
<thead>
<tr>
<th>Company Name</th>
<th>Booth Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abcam</td>
<td>1434</td>
</tr>
<tr>
<td>Accelera S.r.l.</td>
<td>1345</td>
</tr>
<tr>
<td>ACEA Biosciences, Inc.</td>
<td>561</td>
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**Diamond Level Supporters.**

- **2014 Annual Meeting Supporters are indicated by the star.**
- Complete list of SOT Affiliates can be found on page 437.
- **SOT Affiliates are indicated by a triangle.**

## 53rd Annual Meeting and ToxExpo

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

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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

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**Complete Mobile Event App and Event Website Details**

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

**Exhibitor-Hosted Sessions Index**

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#### 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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<th>Presented by</th>
<th>Topic</th>
<th>Room</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collectis AB</td>
<td>Collectis' 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</td>
<td>101A</td>
<td>300</td>
</tr>
</tbody>
</table>

#### Time: 1:00 PM to 2:00 PM

<table>
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<tr>
<th>Presented by</th>
<th>Topic</th>
<th>Room</th>
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<tbody>
<tr>
<td>DiaPharma Group, Inc.</td>
<td>The Dead Cells Still Count in Liver Injury Biomarker Research</td>
<td>101A</td>
<td>327</td>
</tr>
</tbody>
</table>

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.

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#### 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

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

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Follow @ToxExpo on Twitter

Tweet using #toxexpo

for up-to-date information use the SOT event app or event website
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 and select Join SOT at the top of the page.

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:

<table>
<thead>
<tr>
<th>Membership Level</th>
<th>Fee</th>
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</thead>
<tbody>
<tr>
<td>Full Membership</td>
<td>$138</td>
</tr>
<tr>
<td>Associate Membership</td>
<td>$138</td>
</tr>
<tr>
<td>Postdoctoral Membership</td>
<td>$35</td>
</tr>
<tr>
<td>Student Membership</td>
<td>$20</td>
</tr>
</tbody>
</table>

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.
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.

CONTEMPORARY CONCEPTS IN TOXICOLOGY MEETING

Toxicity of Biodiesel and Other Biofuels: Implications for Global Use

Visit the SOT website for the complete CCT meeting registration and details.
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

“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.

Thank You to Our Supporter: ReproCELL
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.
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.
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
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 whosh 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 Rosson 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 multitudinous 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.
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.


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 participants 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. The 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.
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 policies, 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:**

<table>
<thead>
<tr>
<th>Day</th>
<th>Time</th>
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<tbody>
<tr>
<td>Saturday</td>
<td>4:00 PM–7:00 PM</td>
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<tr>
<td>Sunday</td>
<td>7:00 AM–5:00 PM</td>
</tr>
<tr>
<td>Monday</td>
<td>7:00 AM–4:30 PM</td>
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<tr>
<td>Tuesday</td>
<td>7:00 AM–4:30 PM</td>
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<tr>
<td>Wednesday</td>
<td>7:00 AM–12:00 Noon</td>
</tr>
</tbody>
</table>

**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:**

<table>
<thead>
<tr>
<th>Day</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>9:00 AM–4:30 PM</td>
</tr>
<tr>
<td>Tuesday</td>
<td>8:30 AM–4:30 PM</td>
</tr>
<tr>
<td>Wednesday</td>
<td>8:30 AM–4:30 PM</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 AM–4:00 PM</td>
<td><em>Toxicological Sciences</em>—Managing Editor Virginia Hawkins will be available to answer your questions about the operations of the journal.</td>
</tr>
<tr>
<td>10:00 AM–10:30 AM</td>
<td><em>ToXchange</em> Tutorial 1—Getting Started on <em>ToXchange</em></td>
</tr>
<tr>
<td>11:00 AM–12:00 Noon (Tuesday only)</td>
<td><em>Graduate Student Leadership Committee (GSLC)</em>—Meet and Greet</td>
</tr>
<tr>
<td>12:00 Noon–1:00 PM</td>
<td><em>Mechanisms Specialty Section</em>—Meet and Greet</td>
</tr>
</tbody>
</table>
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–5:30 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.”

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 alysia@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).
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:

• 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 weekdays 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.

San Diego is the host city for SOT’s 2015 Annual Meeting, March 22–26.

Be sure to visit the San Diego Desk, located in the SOT 2014 Annual Meeting Registration area for more information.

Arizona does not observe daylight savings...

Photo is courtesy of SanDiego.org/Joanne DiBona.

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.
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.

**Job Seekers—Find Your Next Opportunity**  
Employers Are Looking for Candidates through the SOT Job Bank

- 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.

**Employers—Recruit Highly Qualified Candidates**  
The SOT Job Bank Is the Ideal Place to Streamline Your Hiring Process

**The SOT Job Bank is available any time at**  
www.toxicology.org/jobbank
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 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

<table>
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<th>Candidate Types</th>
<th>Fees</th>
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<tr>
<td>SOT Member</td>
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<td>Non-SOT Member</td>
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<td>Non-SOT Member—Postdoctoral</td>
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<td>Non-SOT Member—Student</td>
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Employer Registration for SOT Online Job Bank

<table>
<thead>
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<th>Employer Types</th>
<th>Fees</th>
</tr>
</thead>
<tbody>
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<tr>
<td>Corporation</td>
<td>$440</td>
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<tr>
<td>University or Government</td>
<td>$110</td>
</tr>
<tr>
<td>Nonprofit Organization</td>
<td>$110</td>
</tr>
</tbody>
</table>

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.
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
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
**Achievement Award**

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, 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. 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.
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, 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


**Gul Mehnaz Mustafa, PhD, University of Texas Medical Branch, Galveston, TX**

Mustafa GM, Petersen JR, Ju H, Cicaele L, Snyder N, Haidacher SJ, Denner L, Elferink C. Biomarker Discovery for Early Detection of Hepatocellular Carcinoma (HCC) in Hepatitis C (HCV) Infected Patients


**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?


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.
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, 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.

**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 Scandinavia and are well attended each year. Professor Autrup is also editor for the textbook Miljø-og Arbeidsmedicin (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)
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, 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, 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
Toxicology programs as well as teaches an undergraduate course on Veterinary Toxicology and two graduate courses on Advanced Toxicology and Toxics 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 to 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.

**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, 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, perfluoride and aryl alkyl sulfonamide pesticides, glyphosates (a broad-spectrum herbicide), naturally occurring coumarin compounds chalasin, 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).

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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, 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 miRNAs 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
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.

Merit Award Lecture: Toxicology Is Part of the Solution
Monday, March 24, 12:30 PM–1:20 PM, North Ballroom 120B
Perry J. Gehring Diversity Student Travel Award

This award is presented during the CDI Reunion.

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, 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, 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, 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 Idiopathic Reactions

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, University of Utah, Salt Lake City, UT

Abstract Number: 1241
Poster Board Number: 348
Abstract Title: Differential Activation of Transient Receptor Potential Ankyrin-1 (TRPA1) by Diesel Exhaust Particulate Materials

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**, 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**, 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**, 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**, 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**, 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, 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)
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, Srinagar, 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, 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-borne contaminants such as aflatoxin B1. 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.
SOT 2014 Award Recipients (Continued)

Undergraduate Educator Award

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, 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, 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 Postdoctoral Fellowship Award in In Vitro Toxicology

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

Laura E. Armstrong

Colgate-Palmolive Postdoctoral Fellowship Award in In Vitro Toxicology

Jonathan H. Shannahan

Syngenta Fellowship Award in Human Health Applications of New Technologies

Dilshan S. Harischandra, BS, Iowa State University, Ames, IA

Project Title: Role of the Environmental Neurotoxicant Manganese in Cell-to-Cell Transmission on α-Synuclein in Parkinson's Disease

Christin M. Grabinski

Dilshan S. Harischandra

Colgate-Palmolive Grants for Alternative Research

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, PhD, MB Research Laboratories, Spinnerstown, PA

Project Title: In Vitro Coculture Assay for Identification of Dermal Sensitizers

Patricia E. Ganey

Matthew Troese
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.

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, 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.
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—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 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

John Doull Student Award Fund
Rachel Church, PhD, The Hamner Institutes for Health Sciences, Research Triangle Park, NC

Education Fund: Undergraduate Educator Award
Sidharatha 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

(continued to next page)
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

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 Langlely, 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

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

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, MS,
University of Connecticut, Storrs, CT

Aditya Joshi, PhD,
University of Texas Medical Branch,
Galveston, TX

Chad Walesky, MS,
University of Kansas Medical Center,
Kansas City, KS

Amrendra Ajay, PhD,
Harvard Medical School,
Boston, MA

Tongde Wu, MS,
University of Arizona,
Tucson, AZ

David Klein, BS,
University of Arizona,
Tucson, AZ

Notes

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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
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.

“Representative Attended” poster time on Monday from 11:45 am–12:15 pm.

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 participants 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.

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): Ebony 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.

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.
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.

* 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.

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
<th>Time</th>
<th>Location</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allegheny-Erie and Michigan Regional Chapter Joint Reception</td>
<td>Monday, Mar 24</td>
<td>5:00 PM to 6:30 PM</td>
<td>Hyatt</td>
<td>Sundance</td>
</tr>
<tr>
<td>Central States Regional Chapter Meeting</td>
<td>Monday, Mar 24</td>
<td>7:00 AM to 8:00 AM</td>
<td>Renaissance</td>
<td>Marston Café</td>
</tr>
<tr>
<td>Lone Star and South Central Regional Chapter Joint Mixer</td>
<td>Tuesday, Mar 25</td>
<td>5:30 PM to 7:30 PM</td>
<td>Tom's Tavern</td>
<td></td>
</tr>
<tr>
<td>Michigan and Allegheny-Erie Regional Chapter Joint Reception</td>
<td>Monday, Mar 24</td>
<td>5:00 PM to 6:30 PM</td>
<td>Hyatt</td>
<td>Sundance</td>
</tr>
<tr>
<td>Mid-Atlantic Regional Chapter Luncheon</td>
<td>Monday, Mar 24</td>
<td>12:00 Noon to 2:00 PM</td>
<td>Majerle's Sports Grill</td>
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<tr>
<td>Northeast Regional Chapter Student Luncheon</td>
<td>Tuesday, Mar 25</td>
<td>12:00 Noon to 1:30 PM</td>
<td>Convention Center</td>
<td>Room 222A</td>
</tr>
<tr>
<td>Northern California Regional Chapter Reception</td>
<td>Tuesday, Mar 25</td>
<td>7:00 PM to 10:00 PM</td>
<td>The Arrogant Butcher</td>
<td></td>
</tr>
<tr>
<td>Ohio Valley Regional Chapter Reception</td>
<td>Tuesday, Mar 25</td>
<td>4:15 PM to 6:30 PM</td>
<td>Copper Blues</td>
<td></td>
</tr>
<tr>
<td>Pacific Northwest Regional Chapter Reception</td>
<td>Monday, Mar 24</td>
<td>5:30 PM to 7:30 PM</td>
<td>Tom's Tavern</td>
<td></td>
</tr>
<tr>
<td>Regional Chapter Collaboration and Communications Committee Meeting</td>
<td>Wednesday, Mar 26</td>
<td>12:00 Noon to 1:30 PM</td>
<td>Convention Center</td>
<td>Room 228A</td>
</tr>
<tr>
<td>Southeastern Regional Chapter Reception</td>
<td>Monday, Mar 24</td>
<td>6:00 PM to 8:00 PM</td>
<td>Canyon Cafe</td>
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</tbody>
</table>

### 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.

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
<th>Time</th>
<th>Location</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Association of Chinese in Toxicology and Korean Toxicologists Association in America Special Interest Groups’ Career Workshop</td>
<td>Tuesday, Mar 25</td>
<td>7:30 AM to 9:00 AM</td>
<td>Convention Center</td>
<td>Room 227</td>
</tr>
<tr>
<td>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.</td>
<td>Monday, Mar 24</td>
<td>5:00 PM to 6:00 PM</td>
<td>Sheraton</td>
<td>Phoenix Ballroom A</td>
</tr>
<tr>
<td>American Association of Chinese in Toxicology Special Interest Group Meeting/Reception</td>
<td>Monday, Mar 24</td>
<td>6:00 PM to 9:00 PM</td>
<td>Sheraton</td>
<td>Phoenix Ballroom A</td>
</tr>
<tr>
<td>Association of Scientists of Indian Origin Special Interest Group Lunch and Learn</td>
<td>Tuesday, Mar 25</td>
<td>12:00 Noon to 1:30 PM</td>
<td>Sheraton</td>
<td>Camelback</td>
</tr>
<tr>
<td>Association of Scientists of Indian Origin Special Interest Group Meeting/Reception</td>
<td>Monday, Mar 24</td>
<td>7:00 PM to 9:00 PM</td>
<td>Sheraton</td>
<td>Deer Valley</td>
</tr>
<tr>
<td>Hispanic Organization of Toxicologists Special Interest Group Reception and Awards Ceremony</td>
<td>Tuesday, Mar 25</td>
<td>6:30 PM to 9:30 PM</td>
<td>Arizona Latino Arts and Culture Center</td>
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</tr>
<tr>
<td>Korean Toxicologists Association in America Meeting/Reception</td>
<td>Monday, Mar 24</td>
<td>6:00 PM to 8:00 PM</td>
<td>Thai'd Up Restaurant</td>
<td></td>
</tr>
<tr>
<td>Special Interest Group Collaboration Group Meeting</td>
<td>Monday, Mar 24</td>
<td>12:00 Noon to 1:30 PM</td>
<td>Convention Center</td>
<td>Room 226A</td>
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### Special Interest Group Meetings, Luncheons, and Receptions (Continued)

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
<th>Time</th>
<th>Location</th>
<th>Room</th>
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</thead>
<tbody>
<tr>
<td>Special Interest Group: Global Hot Topics Event—Air Pollution around the World: Global Concerns <em>(See Page 200 or Mobile Event App for Details)</em></td>
<td>Monday, Mar 24</td>
<td>5:00 PM to 6:30 PM</td>
<td>Convention Center</td>
<td>Room 221A</td>
</tr>
<tr>
<td>Toxicologists of African Origin Special Interest Group Executive Board Meeting</td>
<td>Monday, Mar 24</td>
<td>5:00 PM to 6:00 PM</td>
<td>Sheraton Coronado</td>
<td></td>
</tr>
<tr>
<td>Toxicologists of African Origin Special Interest Group Reception</td>
<td>Monday, Mar 24</td>
<td>6:30 PM to 8:00 PM</td>
<td>Sheraton Abwatukee</td>
<td></td>
</tr>
<tr>
<td>Women in Toxicology Special Interest Group Executive Committee Meeting</td>
<td>Monday, Mar 24</td>
<td>5:00 PM to 6:00 PM</td>
<td>Sheraton Arcadia</td>
<td></td>
</tr>
<tr>
<td>Women in Toxicology Special Interest Group Meeting/Reception</td>
<td>Tuesday, Mar 25</td>
<td>6:00 PM to 8:00 PM</td>
<td>Sheraton Phoenix D</td>
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</tr>
</tbody>
</table>

### 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.

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
<th>Time</th>
<th>Location</th>
<th>Room</th>
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</thead>
<tbody>
<tr>
<td>Biological Modeling Specialty Section Meeting/Reception</td>
<td>Tuesday, Mar 25</td>
<td>6:00 PM to 7:30 PM</td>
<td>Sheraton Valley of the Sun B</td>
<td></td>
</tr>
<tr>
<td>Biotechnology Specialty Section Meeting/Reception</td>
<td>Tuesday, Mar 25</td>
<td>6:00 PM to 7:30 PM</td>
<td>Sheraton Maryvale</td>
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</tr>
<tr>
<td>Carcinogenesis Specialty Section Meeting/Reception</td>
<td>Monday, Mar 24</td>
<td>6:00 PM to 7:30 PM</td>
<td>Sheraton Encanto A</td>
<td></td>
</tr>
<tr>
<td>Carcinogenesis Specialty Section Officers Meeting</td>
<td>Monday, Mar 24</td>
<td>12:00 Noon to 1:30 PM</td>
<td>Convention Center</td>
<td>Room 230</td>
</tr>
<tr>
<td>Cardiovascular Toxicology Specialty Section Meeting/Reception</td>
<td>Tuesday, Mar 25</td>
<td>6:00 PM to 7:30 PM</td>
<td>Sheraton Valley of the Sun C</td>
<td></td>
</tr>
<tr>
<td>Comparative and Veterinary Specialty Section Meeting/Luncheon</td>
<td>Wednesday, Mar 26</td>
<td>12:00 Noon to 1:30 PM</td>
<td>Convention Center</td>
<td>Room 221A</td>
</tr>
<tr>
<td>Clinical and Translational Toxicology Specialty Section Meeting/Reception</td>
<td>Tuesday, Mar 25</td>
<td>6:00 PM to 7:30 PM</td>
<td>Sheraton Laveen B</td>
<td></td>
</tr>
<tr>
<td>Clinical and Translational Toxicology Specialty Section Officers Meeting</td>
<td>Monday, Mar 24</td>
<td>6:30 AM to 8:00 AM</td>
<td>Convention Center</td>
<td>Room 222</td>
</tr>
<tr>
<td>Dermal Toxicology Specialty Section Meeting/Reception</td>
<td>Tuesday, Mar 25</td>
<td>6:00 PM to 7:30 PM</td>
<td>Sheraton Valley of the Sun A</td>
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</tr>
<tr>
<td>Dermal Toxicology Specialty Section Officers Meeting</td>
<td>Monday, Mar 24</td>
<td>6:30 AM to 8:00 AM</td>
<td>Convention Center</td>
<td>Room 222</td>
</tr>
<tr>
<td>Drug Discovery Toxicology Specialty Section Meeting/Reception</td>
<td>Wednesday, Mar 26</td>
<td>6:00 PM to 7:30 PM</td>
<td>Sheraton Maryvale</td>
<td></td>
</tr>
<tr>
<td>Ethical, Legal, and Social Issues Specialty Section Meeting/Luncheon</td>
<td>Tuesday, Mar 25</td>
<td>12:00 Noon to 1:30 PM</td>
<td>Convention Center</td>
<td>Room 231A</td>
</tr>
<tr>
<td>Food Safety Specialty Section Meeting/Reception</td>
<td>Monday, Mar 24</td>
<td>6:00 PM to 7:30 PM</td>
<td>Sheraton Valley of the Sun D</td>
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<tr>
<td>Food Safety Specialty Section Officers Meeting</td>
<td>Monday, Mar 24</td>
<td>6:30 AM to 8:00 AM</td>
<td>Convention Center</td>
<td>Room 222</td>
</tr>
<tr>
<td>Immunotoxicology Specialty Section Meeting/Reception</td>
<td>Wednesday, Mar 26</td>
<td>6:00 PM to 7:30 PM</td>
<td>Sheraton Valley of the Sun C</td>
<td></td>
</tr>
<tr>
<td>In Vitro and Alternative Methods Specialty Section Meeting/Luncheon</td>
<td>Wednesday, Mar 26</td>
<td>12:00 Noon to 1:30 PM</td>
<td>Convention Center</td>
<td>Room 222</td>
</tr>
<tr>
<td>In Vitro and Alternative Methods Specialty Section Officers Meeting</td>
<td>Monday, Mar 24</td>
<td>6:30 AM to 8:00 AM</td>
<td>Convention Center</td>
<td>Room 222</td>
</tr>
<tr>
<td>Inhalation and Respiratory Specialty Section Meeting/Reception</td>
<td>Monday, Mar 24</td>
<td>6:00 PM to 7:30 PM</td>
<td>Sheraton Valley of the Sun C</td>
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### Specialty Section Meetings, Luncheons, and Receptions (Continued)

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<thead>
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<th>Location</th>
<th>Room</th>
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<tbody>
<tr>
<td>Inhalation and Respiratory Specialty Section Technical Meeting</td>
<td>Wednesday, Mar 26</td>
<td>8:00 AM to 9:30 AM</td>
<td>Convention Center</td>
<td>Room 230</td>
</tr>
<tr>
<td>Mechanisms Specialty Section Meeting/Reception</td>
<td>Wednesday, Mar 26</td>
<td>6:00 PM to 7:30 PM</td>
<td>Sheraton</td>
<td>Valley of the Sun A</td>
</tr>
<tr>
<td>Mechanisms Specialty Section Officers Meeting</td>
<td>Monday, Mar 24</td>
<td>6:30 AM to 8:00 AM</td>
<td>Convention Center</td>
<td>Room 222</td>
</tr>
<tr>
<td>Medical Device Specialty Section Meeting/Reception</td>
<td>Monday, Mar 24</td>
<td>6:00 PM to 7:30 PM</td>
<td>Sheraton</td>
<td>Paradise Valley</td>
</tr>
<tr>
<td>Metals Specialty Section Meeting/Reception</td>
<td>Monday, Mar 24</td>
<td>6:00 PM to 7:30 PM</td>
<td>Sheraton</td>
<td>Encanto B</td>
</tr>
<tr>
<td>Mixtures Specialty Section Meeting/Reception</td>
<td>Wednesday, Mar 26</td>
<td>6:00 PM to 7:30 PM</td>
<td>Sheraton</td>
<td>Estrella</td>
</tr>
<tr>
<td>Molecular and Systems Biology Specialty Section Meeting/Reception</td>
<td>Monday, Mar 24</td>
<td>6:00 PM to 7:30 PM</td>
<td>Sheraton</td>
<td>Alhambra</td>
</tr>
<tr>
<td>Molecular and Systems Biology Specialty Section Officers Meeting</td>
<td>Monday, Mar 24</td>
<td>6:30 AM to 8:00 AM</td>
<td>Convention Center</td>
<td>Room 221C</td>
</tr>
<tr>
<td>Nanotoxicology Specialty Section Meeting/Reception</td>
<td>Monday, Mar 24</td>
<td>6:00 PM to 7:30 PM</td>
<td>Sheraton</td>
<td>Valley of the Sun A</td>
</tr>
<tr>
<td>Neurotoxicology Specialty Section Meeting/Reception</td>
<td>Wednesday, Mar 26</td>
<td>6:00 PM to 7:30 PM</td>
<td>Sheraton</td>
<td>Valley of the Sun D</td>
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<tr>
<td>Neurotoxicology Specialty Section Officers Meeting</td>
<td>Monday, Mar 24</td>
<td>6:30 AM to 8:00 AM</td>
<td>Convention Center</td>
<td>Room 222</td>
</tr>
<tr>
<td>Occupational and Public Health Specialty Section Meeting/Luncheon</td>
<td>Monday, Mar 24</td>
<td>12:00 Noon to 1:30 PM</td>
<td>Convention Center</td>
<td>Room 222</td>
</tr>
<tr>
<td>Ocular Toxicology Specialty Section Meeting/Reception</td>
<td>Tuesday, Mar 25</td>
<td>6:00 PM to 7:30 PM</td>
<td>Sheraton</td>
<td>Ahwatukee</td>
</tr>
<tr>
<td>Regulatory and Safety Evaluation Specialty Section Meeting/Reception</td>
<td>Wednesday, Mar 26</td>
<td>6:00 PM to 7:30 PM</td>
<td>Sheraton</td>
<td>Encanto</td>
</tr>
<tr>
<td>Regulatory and Safety Evaluation Specialty Section Officers Meeting</td>
<td>Monday, Mar 24</td>
<td>6:30 AM to 8:00 AM</td>
<td>Convention Center</td>
<td>Room 222</td>
</tr>
<tr>
<td>Reproductive and Developmental Toxicology Specialty Section Meeting/Reception</td>
<td>Tuesday, Mar 25</td>
<td>6:00 PM to 7:30 PM</td>
<td>Sheraton</td>
<td>Valley of the Sun D</td>
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<tr>
<td>Reproductive and Developmental Toxicology Specialty Section Officers Meeting</td>
<td>Monday, Mar 24</td>
<td>7:00 AM to 8:30 AM</td>
<td>Convention Center</td>
<td>Room 226A</td>
</tr>
<tr>
<td>Risk Assessment Specialty Section Meeting/Reception</td>
<td>Wednesday, Mar 26</td>
<td>6:00 PM to 7:30 PM</td>
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<td>Risk Assessment Specialty Section Officers Meeting</td>
<td>Monday, Mar 24</td>
<td>6:30 AM to 8:00 AM</td>
<td>Convention Center</td>
<td>Room 222</td>
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<tr>
<td>Specialty Section Collaboration and Communication Group Meeting</td>
<td>Monday, Mar 24</td>
<td>2:00 PM to 3:00 PM</td>
<td>Convention Center</td>
<td>Room 226C</td>
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<tr>
<td>Stem Cells Specialty Section Meeting/Reception</td>
<td>Tuesday, Mar 25</td>
<td>6:00 PM to 7:30 PM</td>
<td>Sheraton</td>
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<tr>
<td>Toxicologic and Exploratory Pathology Specialty Section Meeting/Luncheon</td>
<td>Monday, Mar 24</td>
<td>12:00 Noon to 1:30 PM</td>
<td>Convention Center</td>
<td>Room 227</td>
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<tr>
<td>Toxicologic and Exploratory Pathology Specialty Section Officers Meeting</td>
<td>Monday, Mar 24</td>
<td>6:30 AM to 7:30 AM</td>
<td>Convention Center</td>
<td>Room 228A</td>
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</table>
**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.

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**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.

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**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 to 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.

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**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.

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**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**

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)*
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.

The Society will make your contributions to the SOT Endowment Fund sound even sweeter with a 1 to 1 dollar match of your contribution.

Your generous contributions to the SOT Endowment Fund help support the following:

- Underwriting of Student Travel Awards to the SOT Annual Meeting.
- Recognizing those colleagues who have devoted their careers to educating undergraduate students who in turn have helped us build a strong future for toxicology.
- Strengthening global participation through financial support for scientists to travel from developing countries to attend the SOT Annual Meeting.
- Recognizing those toxicologists who have made significant contributions to improving human health and the environment.

The 1 to 1 dollar match is effective for contributions made between July 1, 2013 until June 30, 2016 or until $400,000 in matching funds have been expended.
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.
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 Bourgeois, University of South Florida, Tampa, FL.

12:00 Noon–1:30 PM Lunch with SOT Mentors.

1:30 PM–3:00 PM Teacher Workshop. Facilitator: Marie Bourgeois, University of South Florida, Tampa, FL.

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.
From Summer Intern to Graduate Student: My Experience. Jamie Moscovitz, Rutgers University, Rutgers, NJ.

3:40 PM–4:00 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.

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.

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.
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.
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.
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:
  • The What, When, and How of Nonclinical Support for an IND Submission (2013)

Food Safety:

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 for information on these online courses from your mobile device. Download QR code scanner app with your smartphone or mobile device.
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
9. Epidemiology for Toxicologists: What the Numbers Really Mean
10. Innovations in Methodologies for Inhalation Exposure and Interpretations of In Vivo Toxicity
12. Stem Cells in Toxicology
13. Translational Biomarkers in the Assessment of Health and Disease

1:15 PM–5:00 PM Continuing Education Afternoon (PM) Courses:
9. Epidemiology for Toxicologists: What the Numbers Really Mean
10. Innovations in Methodologies for Inhalation Exposure and Interpretations of In Vivo Toxicity
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.

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

Follow @SOToxiology and @ToxExpo on Twitter
Tweet using #2014SOT and #toxexpo

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

Safety Assessment: Mechanisms and Novel Methods

Chairperson(s): Jon N. Cammack, MedImmune Inc, Gaithersburg, MD, and Chandramalalika (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. Cammack1, C. Ghosh2, and T. Nguyen3. 1AstraZeneca Biologics, Gaithersburg, MD; and 2US 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.
Abstract #

Sunday Morning, March 23
8:15 AM to 12:00 Noon
CE 100 Level

(See signage at CE Booth for room location)

Continuing Education: Computational and Experimental Aspects of microRNAs in Toxicology
AM02

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. Tilton1, K. Wang1, I. Pogribny2, R. J. Brennan2, and K. Thompson2.
1Pacific Northwest National Laboratory, Richland, WA; 2US FDA-NCTR, Jefferson, AR.

8:15
Background on miRNA Biology and Relationship to Toxicology. I. Pogribny. US FDA-NCTR, Jefferson, AR.

8:50

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

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. Gollapudi1, S. Dertinger1, R. H. Heflich2, and M. J. LeBaron3.
1Exponent, Midland, MI; 2Litron Laboratories, Rochester, NY; 3US FDA-NCTR, Jefferson, AR.

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: Elucidating Adverse Outcome Pathways (AOPs) for Developmental Toxicity

Abstract #

Sunday Morning, March 23
8:15 AM to 12:00 Noon

Continuing Education: Inhalation Studies: Challenges and Complexities

Abstract #

Sunday Morning, March 23
8:15 AM to 12:00 Noon

**Safety Assessment: Mechanisms and Novel Methods**

Chairperson(s): Thomas R. 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 with evidence of a molecular initiating event to adverse response at the individual or population level. Conceptually, an AOP spans multiple levels of biological organization and organizes the step-wise 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 AOPs requires a framework to delineate causal relationships across a temporal series of events, and will support a 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.

**Safety Assessment: Mechanisms and Novel Methods**

5 8:30-11:15

**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.
Continuing Education: Methodologies in Human Health Risk Assessment

AM06 CE Basic  
Enhancing Strategies for Risk Assessment

Chairperson(s): Qiyu I. 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 Methods in Human Health Risk Assessment. Q. I. Zhao1, B. Meek2, H. A. Barton3, and J. C. Lipscomb1. 1US EPA, Cincinnati, OH; 2University of Ottawa, Ottawa, ON, Canada; and 3Pfizer Inc., Groton, CT.


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)
This course will evaluate where NT stands, by highlighting key research in vitro data to improve the correlation of in vivo and regulatory evaluations. NT will have to develop a means to metrics, which are significantly lacking. To accomplish accurate risk assessment, critical for the establishment of NM exposure limits and risk-assessment predictions, via enhanced in vitro in vivo characterization as a necessary prerequisite for integrating all the available information. The course is geared towards the determination of toxicity and mechanistic data with human epidemiology findings of epidemiology evidence, they must understand how the overall integration of toxicology 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 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.

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.
Abstract #9
1:15
Epidemiology for Toxicologists: What the Numbers Really Mean.
N. B. Beck1, M. Goodman2, S. Eftrim3, J. E. Goodman4, and J. Bus5.

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. Eftrim. 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
1:15 PM to 5:00 PM
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 HealthCare, 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 in vitro and in vivo approaches for cells. The course will cover the recent advances in inhalation methods 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 doseometry 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 involved in air pollution toxicology, nanotoxicology, novel drug delivery systems, pulmonary toxicology, and risk assessment.

Abstract #10
1:15
Innovations in Methodologies for Inhalation Exposure and Interpretations of In Vivo Toxicity.
J. Pauluhn1, J. D. McDonald2, B. T. Chen3, T. E. Kleinlansen4, and M. A. Higuchi5. US EPA, Research Triangle Park, NC; 2. Bayer HealthCare, Wuppertal, Germany; 3. Lovelace Respiratory Research Institute, Albuquerque, NM; and 5. 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.

2:30
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
1:15 PM to 5:00 PM
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 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
Stem Cells are Revolutionizing Toxicological Research

Abstract #


1:15 PM to 5:00 PM Sunday Afternoon, March 23
CC 100 Level

Chairperson(s): Erik J. Tokar, NIEHS, Research Triangle Park, NC; and Michael P. Waalkes, NIEHS, 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.

For up-to-date information use the SOT event app or event website.
1:30  Discovering Cancer Biomarkers: From Diagnosis and Prognosis Through Therapy. M. Moses. Children’s Hospital Boston, Boston, MA.


3:00  Beverage Break.


4:15  Application of Biomarkers in Clinical Trial Design. Federico Goodsaid, Vertex Pharmaceuticals, Washington, DC.

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.
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

For up-to-date information use the SOT event app or event website
General Scientific Sessions  
(Listed by type, then date and time)  
- Education-Career Development Sessions  
- Featured Sessions  
- Historical Highlights Session  
- Informational Sessions  
- Platform Sessions  
- Poster Sessions  
- Regional Interest Session  
- Roundtable Sessions  
- Symposium Sessions  
- Thematic Sessions  
- 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

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<td>Air Pollution and Cardiovascular Effects: Mechanisms and Role of Lipid Peroxidation #14–19</td>
<td>Room 122</td>
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<tr>
<td>Monday 9:15 AM</td>
<td>Computational Approaches to Predict Repeat-Dose Toxicity: Lessons Learned from Cosmetic Ingredients #26–31</td>
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<td>Induced Human Pluripotent Stem Cells and Their Differentiated Progeny Cells: Implementation in Toxicity Testing #32–36</td>
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<td>Monday 9:15 AM</td>
<td>Methylmercury’s Modes of Action: New Approaches to Understanding an Old Problem #37–42</td>
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<td>To Bug or Not to Bug the Immune System: Benefits and Consequences of Altering the Microbiome #43–47</td>
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#### WORKSHOP SESSIONS

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<td>Developmental Programming of Hepatic Metabolism: Assessing the Impact of Perinatal Exposure to Xenobiotics #48–52</td>
<td>Room 129</td>
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<td>Monday 9:15 AM</td>
<td>New Concerns and New Science Addressing Environmental Asbestos Exposures #53–58</td>
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#### PLATFORM SESSION

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<td>Monday 9:15 AM</td>
<td>Enhancing Strategies for Pesticide Risk Assessment #59–65</td>
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#### POSTER SESSIONS

*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.

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<td>* Biological Modeling #66–96i</td>
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<td>Monday 9:30 AM</td>
<td>* Autoimmunity/Hypersensitivity #123–145b</td>
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<td>Monday 9:30 AM</td>
<td>Alternatives to Mammalian Models I #146–173p</td>
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<td>* Developmental Toxicology: Mammalian Models #174–200</td>
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<td>* Safety Assessment: Drug Development I #266–288</td>
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<td>Cell Death/Apoptosis #289–312f</td>
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<td>* Food Toxicology/Nutrition #313–343j</td>
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<td>Monday 9:30 AM</td>
<td>Neurotoxicity: General #344–378i</td>
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#### ROUNDTABLE SESSION

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<td>Environmental Factors in Dysregulation of Puberty Timing and Progression #379</td>
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NOTE: Abstract numbers including a lower-case letter were programmed during second submission phase.
### INFORMATIONAL SESSION

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<td>Nonrodents Can Be Monitored, Too…Characterization of Novel Biomarkers of Drug-Induced Kidney Injury (DIKI) in Rats, Canines, Nonhuman Primates, and Humans #380</td>
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### EDUCATION-CAREER DEVELOPMENT SESSION

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<td>The Role of Consultants in the Science and Practice of Safety Assessment #381</td>
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*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.

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*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.

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<tr>
<td>Wednesday 4:30 PM</td>
<td>Leadership in Science: Skills and Styles #2116</td>
<td>Room 126</td>
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<tr>
<td>Wednesday 4:30 PM</td>
<td>Recent Challenges Beyond the Usual Toxicological and Public Health Challenges in Africa #2117</td>
<td>Room 125</td>
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**NOTE:** Abstract numbers including a lower-case letter were programmed during second submission phase.
### POSTER SESSIONS

**Author attended 8:30 am–12:00 noon. Poster Board Surface Map is on page 126.**

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<tr>
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<tr>
<td>8:30 AM</td>
<td>Animal Models of Disease #2118–2129d Poster Boards 101–116</td>
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<td>Thursday</td>
<td>Animal Models: Measurements and Validation #2130–2151d Poster Boards 121–146</td>
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<td>Animal Models: Methods Development #2152–2163c Poster Boards 151–165</td>
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<td>Skin #2164–2182c Poster Boards 201–222</td>
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<td>Thursday</td>
<td>Reproductive Toxicology: Female #2183–2196d Poster Boards 226–243</td>
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<td>Persistent Organic Pollutants #2197–2213b Poster Boards 301–319</td>
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<td>Metals in the Environment #2214–2234d Poster Boards 326–350</td>
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<td>Exposure Assessment and Biomonitoring II #2234e–2234aa Poster Boards 355–377</td>
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<tr>
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<td>Risk Assessment III #2235–2250l Poster Boards 401–428</td>
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<td>Computational Toxicology and Data Integration II #2251–2273n Poster Boards 431–467</td>
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### SYMPOSIUM SESSIONS

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<tr>
<td>Thursday</td>
<td>Are Biofuels More or Less Toxic Than Conventional Fuels and What Are the Implications for Human Exposure and Risk? #2293–2298</td>
<td>North Ballroom 120D</td>
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<td>Role of Circulating Factors in Mediating Systemic Toxicity of Inhaled Substances #2299–2304</td>
<td>Room 122</td>
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<td>When the Dust Settles: Exposure Assessment and Health Effects from Dust Exposures in the Arid Southwest #2311–2315</td>
<td>Room 126</td>
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### PLATFORM SESSIONS

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<td>Thursday</td>
<td>Ozone: Multiple Tissue Endpoints #2323–2330</td>
<td>Room 128</td>
<td>357</td>
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(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 9:00 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
- Afternoon, March 27—1:00 PM to 4:30 PM

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.

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### 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**

<table>
<thead>
<tr>
<th>SESSION TITLE</th>
<th>ABSTRACT NUMBERS</th>
<th>POSTER BOARD NUMBERS</th>
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<tbody>
<tr>
<td>Biological Modeling</td>
<td>66–96i</td>
<td>101–140</td>
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<tr>
<td>Biomarkers I</td>
<td>97–122i</td>
<td>141–175</td>
</tr>
<tr>
<td>Autoimmunity/Hypersensitivity</td>
<td>123–145b</td>
<td>201–225</td>
</tr>
<tr>
<td>Alternatives to Mammalian Models I</td>
<td>146–173p</td>
<td>231–274</td>
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<tr>
<td>Developmental Toxicology: Mammalian Models</td>
<td>174–200</td>
<td>301–327</td>
</tr>
<tr>
<td>Developmental Toxicology: Nonmammalian Models</td>
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<tr>
<td>Epidemiology</td>
<td>223f–235a</td>
<td>369–372, 401–413</td>
</tr>
<tr>
<td>Carcinogenesis I</td>
<td>236–265e</td>
<td>416–450</td>
</tr>
<tr>
<td>Safety Assessment: Drug Development I</td>
<td>266–288</td>
<td>451–473</td>
</tr>
<tr>
<td>Cell Death/Apoptosis</td>
<td>289–312f</td>
<td>501–530</td>
</tr>
<tr>
<td>Food Toxicology/Nutrition</td>
<td>313–343j</td>
<td>533–573</td>
</tr>
<tr>
<td>Neurotoxicity: General</td>
<td>344–378i</td>
<td>601–644</td>
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</table>

**Monday Afternoon, March 24—1:00 PM to 4:30 PM—Exhibit Hall**  
**Poster Set Up—12:30 PM to 1:00 PM**

<table>
<thead>
<tr>
<th>SESSION TITLE</th>
<th>ABSTRACT NUMBERS</th>
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<tbody>
<tr>
<td>Inflammation: Methods and Mechanisms</td>
<td>382–408b</td>
<td>101–129</td>
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<tr>
<td>Systems Biology and Toxicology</td>
<td>409–418e</td>
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<tr>
<td>Computational Toxicology and Data Integration I</td>
<td>419–440l</td>
<td>146–179</td>
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<tr>
<td>Genetic Toxicity Testing</td>
<td>441–467h</td>
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<tr>
<td>Cardiovascular Toxicity and Hemodynamics</td>
<td>468–504c</td>
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<tr>
<td>Biotransformation/Cytochrome P450</td>
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<tr>
<td>Pharmacogenomics and Genetic Polymorphisms</td>
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<tr>
<td>Chemical and Biological Weapons</td>
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<tr>
<td>Nanotoxicology: General and Carbon-Based</td>
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<tr>
<td>Risk Assessment I</td>
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<tr>
<td>Regulation and Policy</td>
<td>633–649d</td>
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<tr>
<td>Ecotoxicology</td>
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</tr>
<tr>
<td>Pesticide Exposure, Toxicology, and Risk Assessment</td>
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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**

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<thead>
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<th>SESSION TITLE</th>
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<tbody>
<tr>
<td>Natural Products: <em>In Vitro</em></td>
<td>783–797c</td>
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<tr>
<td>Natural Products: <em>In Vivo</em></td>
<td>798–813d</td>
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<tr>
<td>Nanotoxicology: Metals, Environmental, and <em>In Silico</em></td>
<td>814–841e</td>
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<tr>
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<td>842–848c</td>
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<tr>
<td>Clinical and Translational Toxicology</td>
<td>849–876d</td>
<td>211–242</td>
</tr>
<tr>
<td>Pharmacokinetics and Disposition</td>
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<td>246–276</td>
</tr>
<tr>
<td>Gene Regulation and Signal Transduction I</td>
<td>902–922d</td>
<td>301–325</td>
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<tr>
<td>New Science on Neurodegenerative Disease</td>
<td>923–942e</td>
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<td>Medical Devices</td>
<td>943–954d</td>
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<td>954e–978e</td>
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<tr>
<td>Inflammation in Disease</td>
<td>979–1006b</td>
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<tr>
<td>Toxicity of Chemical Mixtures</td>
<td>1007–1018f</td>
<td>461–478</td>
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<tr>
<td>Alternatives to Mammalian Models II</td>
<td>1019–1062i</td>
<td>501–553</td>
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<tr>
<td>Endocrine Toxicology</td>
<td>1063–1087k</td>
<td>601–636</td>
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<tr>
<td>Developmental Toxicology: Mammalian Models II</td>
<td>1087j–1087x</td>
<td>638–650</td>
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#### Tuesday Afternoon, March 25—1:00 PM to 4:30 PM—Exhibit Hall
**Poster Set Up—12:30 PM to 1:00 PM**

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<td>Carcinogenesis II</td>
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<td>Cardiovascular Toxicity and Hemodynamics: <em>In Vitro Approach</em></td>
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<td>1164–1200i</td>
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<td>Inhalants and Cardiopulmonary: Agents and Methods</td>
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<tr>
<td>Inhalants and Cardiopulmonary: PM, Ozone, and Diesel Exhaust</td>
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<tr>
<td>Metals I: Zn, Cd, Hg</td>
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<td>Metals II</td>
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<td>Developmental Neurotoxicity I: Mechanisms, Metals, and Industrial Chemicals</td>
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<tr>
<td>Metal Neurotoxicity I: Mn</td>
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<tr>
<td>Metal Neurotoxicity II: MeHg and Other Metals</td>
<td>1369–1392a</td>
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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**

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<td>Exposure Assessment and Biomonitoring</td>
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<tr>
<td>Nonpharmaceuticals: Safety Evaluation</td>
<td>1582–1616g</td>
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<tr>
<td>Safety Assessment: Pharmaceutical Drug Discovery</td>
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</tr>
<tr>
<td>Safety Assessment: Drug Development II</td>
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</tr>
<tr>
<td>Education, Ethical, Legal, and Social Issues</td>
<td>1662a–1680a</td>
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</tr>
<tr>
<td>Developmental Basis of Adult Disease</td>
<td>1681–1690b</td>
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</tr>
<tr>
<td>Reproductive Toxicology: Male</td>
<td>1691–1713k</td>
<td>436–469</td>
</tr>
<tr>
<td>Immunotoxicity II</td>
<td>1713l–1713u</td>
<td>471–480</td>
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<tr>
<td>Gene Regulation and Signal Transduction II</td>
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<td>501–528</td>
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<tr>
<td>Developmental Neurotoxicity II: New Methods</td>
<td>1737–1747e</td>
<td>533–548</td>
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<tr>
<td>Developmental Neurotoxicity III: Pesticides, Food</td>
<td>1748–1764e</td>
<td>549–570</td>
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<tr>
<td>and Drugs</td>
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#### Wednesday Afternoon, March 26—1:00 PM to 4:30 PM—Exhibit Hall
**Poster Set Up—12:30 PM to 1:00 PM**

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<tbody>
<tr>
<td>Oxidative Injury and Redox Biology</td>
<td>1768–1804c</td>
<td>101–140</td>
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<tr>
<td>Risk Assessment II</td>
<td>1805–1831m</td>
<td>141–180</td>
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<tr>
<td>Neurotoxicity: Pesticides</td>
<td>1832–1863c</td>
<td>201–235</td>
</tr>
<tr>
<td>Liver and Models</td>
<td>1864–1899e</td>
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<tr>
<td>Stem Cell Biology and Toxicology</td>
<td>1900–1922f</td>
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<td>Genotoxicity Mechanisms</td>
<td>1923–1943j</td>
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<tr>
<td>Nanotoxicology: In Vitro</td>
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<td>Immunotoxicity</td>
<td>2005–2040c</td>
<td>501–539</td>
</tr>
<tr>
<td>Kidney</td>
<td>2041–2067a</td>
<td>541–568</td>
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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**

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<th>SESSION TITLE</th>
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<th>POSTER BOARD NUMBERS</th>
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<td>Computational Toxicology and Data Integration II</td>
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<td>431–467</td>
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<tr>
<td>Computational Toxicology and Data Integration II</td>
<td>2273o–2273cc</td>
<td>470–484</td>
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</tbody>
</table>

**Entrance**
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.

**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.

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tr>
<td>8:00 AM–8:30 AM</td>
<td><strong>Registration.</strong></td>
</tr>
<tr>
<td>9:00 AM–9:15 AM</td>
<td><strong>Welcoming Remarks.</strong> Angela S. Slitt, Chair, SOT K–12 Subcommittee, University of Rhode Island, Providence, RI, and Todd Camenisch, Event Chair, University of Arizona, Phoenix, AZ.</td>
</tr>
</tbody>
</table>
| 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.**                                                           |

**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 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
4:45 PM to 6:30 PM
North Ballroom 120D
(All Attendees Welcome)
Awards Ceremony
Pre-Ceremony Musical Performance
Nicole Pesce will perform for SOT Annual Meeting attendees prior to the SOT Awards Ceremony. This pianist is currently nominated by Arizona Foot hills 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)
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
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 12:00 Noon
Monday Morning, March 24
8:00 AM to 12:00 Noon
Room 122

Symposium Session: Air Pollution and Cardiovascular Effects: Mechanisms and Role of Lipid Peroxidation

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):
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

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
Hall 1

Plenary Opening Lecture: The Origins and Future of Pluripotency and Cellular Reprogramming

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Abstract #

tation 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.


#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?

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, 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.


9:15 Introduction. A. Erdely. CDC-NIOSH, Morgantown, WV.

#21 9:20 Epidemiological Study of Workers Handling Carbon Nanotube and Engineered Nanomaterials. S. Liou1, H. Liao1, W. Wu1, Y. Chung1, and M. Lin1. Division of Environmental Health & Occupational Medicine, National Health Research Institutes, Miaoli County, Taiwan; and 2Institute 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. Dahm1, M. Schubauer-Berigan1, and A. Erdely2. 1CDC-NIOSH, Cincinnati, OH; and 2CDC-NIOSH, Morgantown, WV.

#23 10:24 Relationship between In Vivo Carcinogenicity and Human Risk to Carbon Nanotubes. L. M. Sargent1, D. W. Porter1, L. Staska2, A. F. Hubbs1, M. L. Kashon1, D. T. Lowery1, L. A. Battelli1, B. T. Chen1, D. G. Frazer1, V. Castranova1, and S. H. Reynolds1. 1CDC-NIOSH, Morgantown, WV; and 2Integrated Laboratory Systems, Inc., Morrisville, NC.


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

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 of the toxicology of cosmetics ingredients.
The funding of the COSMOS Project is from the European Commission and 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.
Program Description (Continued)

Abstract #

#35 10:32 Induced Pluripotent Stem Cell-Derived Neurons As a Human Model for Testing Environmentally-Induced Developmental Neurotoxicity. J. L. Drewae, T. J. Shaferd, K. A. Wallacel, P. A. Valdiviaa, and W. Mundaye. e1Curriculum in Toxicology, University of North Carolina at Chapel Hill, Chapel Hill, NC; e2Integrated Systems Toxicology Division, NHEERL, US EPA, Research Triangle Park, NC; and 


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 of 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 group (series 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.

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.


#41 10:50 Can Genetic Polymorphisms and Epigenetics Advance Mercury Risk Assessment? Evidence from Humans and Animals. N. Basu1. 1University of Michigan School of Public Health, Ann Arbor, MI; and 2McGill 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.
The liver? Do environmentally-relevant concentrations of chemicals alter xenobiotics on the ability of the liver to metabolize and excrete chemicals that will address four questions: What is the role of nuclear receptors mechanisms underlying the developmental regulation 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 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?

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<tr>
<th>Abstract #</th>
<th>9:15</th>
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<tbody>
<tr>
<td>#43</td>
<td>To Bug or Not to Bug the Immune System: Benefits and Consequences of Altering the Microbiome. V. J. Johnson, and B. Yucesoy. BRT-Burleson Research Technologies, Morrisville, NC; and CDC/NIOSH, Morgantown, WV.</td>
</tr>
<tr>
<td>#44</td>
<td>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.</td>
</tr>
<tr>
<td>#45</td>
<td>Toxic Exposures and the Microbiome: Their Input Counts, Too. E. Silbergeld. Environmental Health Sciences, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD.</td>
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</tbody>
</table>

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

**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 discusses 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?

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<th>Abstract #</th>
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<tr>
<td>#48</td>
<td>Developmental Programming of Hepatic Metabolism: Assessing the Impact of Perinatal Exposure to Xenobiotics. L. M. Aleksunes, A. L. Slitt, J. R. Richardson, X. Zhong, and W. Huang. 1Rutgers, The State University of New Jersey, Piscataway, NJ; 2University of Connecticut, Storrs, CT; 3City of Hope National Medical Center, Duarte, CA; and 4University of Rhode Island, Kingston, RI.</td>
</tr>
<tr>
<td>#49</td>
<td>Haptic Ontogeny of Drug Processing Genes in Mouse Liver. X. Zhong1, L. Peng2, J. Cu2, H. J. Renaud3, B. Boo1, S. Gunewardena1, H. Liu1, and C. D. Klaassen1. 1University of Connecticut, Storrs, CT; 2University of Kansas Medical Center, Kansas City, KS; 3Kansas Intellectual and Developmental Disabilities Research Center, Kansas City, KS; and 4State University of New York, Syracuse, NY.</td>
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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

**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. Carlin1, and R. N. Hines2, 1NIEHS, Research Triangle Park, NC; and 2USEPA, 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.

#59 11:50
Panel Discussion/Q&A.

Monday Morning, March 24
9:15 AM to 12:00 Noon
Room 125

Platform Session: Enhancing Strategies for Pesticide Risk Assessment

Enlightening 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. Li1, and B. M. Polakoff1, 1Health Sciences, Exponent, Inc., San Francisco, CA; and 2Health 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. Clewell1, H. Wei1, B. G. Lake1, T. G. Osmint1, N. Assaf1, and M. Yoon1, 1The Hamner Institutes for Health Sciences, RTP, NC; 2LFR Molecular Sciences, Surrey, United Kingdom; 3Science Strategies, LLC, Charlottesville, VA; and 4Valent BioSciences, Libertyville, IL.

#61 10:01
Using a Two-Dimensional Monte Carlo Model to Develop Chemical Specific Adjustment Factors (CSAFs) for Chlorpyrifos and Chlorpyrifos Oxon. P. S. Price2, T. Poet3, M. J. Bartel3, and D. R. Juber3, 2Toxicology & Environmental Research & Consulting, Dow Chemical Company, Midland, MI; 3Dow AgroSciences, Indianapolis, IN; and 4Summit Toxicology, Richland, WA.

#62 10:24
Predicting Inhalation Toxicity of Bifenthrin Using a Pharmacokinetic Rational. 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. Maier1, A. Parker2, L. T. Haber2, and S. C. Gehen2, 1University of Cincinnati, Cincinnati, OH; 2Toxicology Excellence for Risk Assessment, Cincinnati, OH; and 3Dow AgroSciences, LLC, Indianapolis, IN.

#64 11:10
Integrating Toxicokinetics into the Human Health Risk Assessment Process for Agrochemicals: Halauixen-methyl. C. Terry1, L. A. Murphy1, K. Safour1, A. T. McCoy1, M. Aggarwal2, L. G. McFadden3, R. J. Rasoulpour1, D. Rick1, M. Bartels2, and R. Billington2, 1Human Health, Dow AgroSciences, Oxon, United Kingdom; and 2TERC, The Dow Chemical Company, Midland, MI.

#65 11:33
Mode of Action Profiles for Pesticide Compounds with Rodent Liver Tumor Outcomes. A. D. Lake1, S. D. Hester1, J. Liu1, J. Rowland1, and C. E. Wood1, 1National Health and Environmental Effects Research Laboratory; Integrated Systems Toxicology Division, U.S. Environmental Protection Agency, Research Triangle Park, NC; 2National Center for Computational Toxicology, U.S. Environmental Protection Agency, Research Triangle Park, NC; and 3Health 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

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.
Abstract # Abstract #

Monday Morning, March 24
9:15 AM to 10:15 AM
Room 106A West

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

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

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).

Monday Morning, March 24
9:30 AM to 4:00 PM
Room 127A

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

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. Price1, B. Asgharian1, J. McAughey1, and Y. Caner2.
1Arlington Division, Applied Research Associates, Raleigh, NC; and 2British American Tobacco, Southampton, United Kingdom.
Program Description (Continued)

Abstract #

#67 Poster Board Number .....................................102

#68 Poster Board Number .....................................103
Evaluation and Comparison of Inhalation Dosimetric Models for Applicability to Diesel Exhaust Particle (DEP) Retention Modeling. A. Willis¹, L. T. Haber¹, L. M. Sweeney¹, and C. J. Matz². ¹Toxicology Excellence for Risk Assessment (TERA), Cincinnati, OH; and ²Air Health Effects Assessment Division, Ottawa, ON, Canada.

#69 Poster Board Number .....................................104

#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 Landingham¹, S. Crowell¹, R. Gentry¹, D. Kaden¹, S. A. Fiebelkorn¹, and A. Loccisano¹. ¹ENVIRON International Corporation, Monroe, LA; ²Pacific Northwest National Laboratory, Richland, WA; ³ENVIRON International Corporation, Boston, MA; ⁴British American Tobacco, Group Research and Development, Southampton, United Kingdom; and ⁵R. 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. Lumpkin¹, S. Crowell¹, A. Franzen¹, R. Gentry¹, D. Kaden¹, C. Meredith¹, and R. J. Potts¹. ¹ENVIRON International Corporation, Atlanta, GA; ²Pacific Northwest National Laboratory, Richland, WA; ³ENVIRON International Corporation, Monroe, LA; ⁴British American Tobacco, Group Research and Development, Southampton, United Kingdom; and ⁵R. 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. DeWisk¹, J. S. Brown¹, G. L. Diamond¹, M. H. Follansbee¹, C. R. Partridge¹, and K. Keteles¹. ¹ORD/NCEA, US EPA, Research Triangle Park, NC; ²SRC, Inc., Syracuse, NY; and ³Region 8, US EPA, Denver, CO.

#73 Poster Board Number .....................................108

Abstract #

#74 Poster Board Number .....................................109
Improved Toxicokinetic Model for Cadmium Using Urine, Blood, and Kidney Cures Concentrations from Living Kidney Donors. M. N. Fransson¹, L. Barregard¹, G. Sallsten¹, M. Akerström¹, and G. Johnson¹. ¹Institute of Environmental Medicine, Karolinska Institutet, Stockholm, Sweden; and ²Department 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. Zhao¹, M. Yoon¹, J. L. Blum¹, J. T. Zelko¹, T. Fennell¹, and H. J. Clewell¹. The Hamner Institutes for Health Sciences, Research Triangle Park, NC; ²New York University School of Medicine, Tuxedo, NY; and ³RTI 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. Peeples¹, M. Yoon¹, A. M. Keene¹, M. Taylor¹, H. J. Clewell¹, and M. E. Andersen¹. The Hamner Institutes for Health Sciences, Cary, NC; ²Afton Chemical Corporation, Richmond, VA; and ³NIPERA, Research Triangle Park, NC.

#77 Poster Board Number .....................................112
A Refined Co Biokinetic Model Based on Human Data. K. Unice¹, B. D. Kerger¹, D. J. Paustenbach¹, B. L. Finley¹, and R. E. Iverson¹. ¹ChemRisk, Pittsburgh, PA; ²ChemRisk, Aliso Viejo, CA; ³ChemRisk, San Francisco, CA; and ⁴ChemRisk, Boulder, CO.

#78 Poster Board Number .....................................113

#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. Kansy¹, L. Fenu¹, P. Matsson¹, and P. Artursson¹. ¹Non Clinical Safety/Translational Technologies & Bioinformatics, J. Hoffmann-La Roche, Basel, Switzerland; ²Department of Pharmacy, Uppsala University, Sweden, Uppsala, Sweden; and ³CADD Group, Eli Lilly & Co, Erl Wood Manor, Windlesham, United Kingdom.

#80 Poster Board Number .....................................115
Physiologically-Based Pharmacokinetic Modeling for Telsimarten and Its Glucuronide and Their Liver Transporter Activity in Humans. H. A. Barton¹, R. L. R. Agholi¹, E. Kimoto¹, and T. S. Maurer¹. ¹Pharmacokinetics, Pharmacodynamics, and Metabolism, Pfizer, Inc., Groton, CT; and ²Pharmacokinetics, Dynamics, and Metabolism, Pfizer, Inc., Cambridge, MA.
Abstract #

#81 A Physiologically-Based Pharmacokinetic and Pharmadynamic (PBPK/PD) Model of Daily Chlorpyrifos Exposure in Egyptian Agricultural Workers. S. T. Singleton, J. B. Knack, C. A. Ellision, R. McDougall, D. Rohman, W. K. Anger, T. Taghreedd Farahat, F. Farahat, and J. R. Olson. 1University of Iowa City, IA; 2The AES Group, Huntsville, AL; 3University of Iowa, Iowa City, IA; 4University of Oklahoma, Oklahoma City, OK; 5Menoufia University, Shebin El-Kom, Egypt.

#82 Multiroute PBPK/PD Model for Predictions of Chlorpyrifos Exposure and Effects in Humans and Rat. M. Bartels, T. S. Poet, P. S. Price, J. A. Hothchis, D. R. Jaberg, and S. Marty. 1Toxicology, Dow Chemical, Midland, MI; 2Regulatory Laboratories, Dow AgroSciences LLC, Indianapolis, IN; and 3Summit Toxicology, LLC, Richland, WA.

#83 A Population PBPK Model for Acetaminophen and Its Key Metabolites. T. Zierkin, and B. Reifeld. 1Department of Chemical and Biological Engineering, Colorado State University, Fort Collins, CO; and 2School of Biomedical Engineering, Colorado State University, Fort Collins, CO.


#86 A PBPK Model of Hypobaric and Hyperbaric Toluene Exposure. C. Hack, T. R. Covington, P. J. Robinson, P. Shiyavanov, D. A. Mahle, and J. M. Gearhart. HJE, AFRL, Wright-Patterson AFB, OH; and 2RHEB, AFRL, Wright-Patterson AFB, OH.


Abstract #

#89 The Association between Prenatal Exposure to Perfluorooalkyl Substances (PFAS) and Reduced Birth Weight: Is Glomerular Filtration Rate the Underlying Cause? M. Verner, A. Laccisano, M. Yoon, H. Wu, R. McDougall, M. Maisonet, M. Marcus, R. Kishi, C. Miyashita, M. Chen, W. Hsieh, M. E. Anderson, H. J. Clewell, and M. P. Longnecker. 1Harvard Medical School, Boston, MA; 2Karolinska Institutet, Stockholm, Sweden; 3The Hamner Institutes for Health Sciences, Research Triangle Park, NC; 4Aegis Technologies, Huntsville, AL; 5Emory University, Atlanta, GA; 6Hokkaido University, Sapporo, Japan; 7National Taiwan University College of Medicine, Taipei, Taiwan; and 8National Institute of Environmental Health Sciences, Research Triangle Park, NC.

#90 PBPK Modeling of Human PFOA Exposure Predicts Measured Serum Concentrations from Consumption of Contaminated Drinking Water. R. R. Worley, D. A. Fowler, C. Welsh, and J. Fisher. 1Division of Community Health Investigations, Centers for Disease Control and Prevention, Atlanta, GA; and 2Interdisciplinary Toxicology Program, University of Georgia, Athens, GA; and 3National Center for Toxicological Research, Food and Drug Administration, Jefferson, AR.

#91 The Association between Serum Perfluoroalkanoic Acid (PFOA) and Delayed Menarche Be Explained on the Basis of Physiology and Pharmacokinetics? H. Wu, M. Yoon, M. P. Longnecker, and H. J. Clewell. 1The Hamner Institutes for Health Sciences, RTP, NC; and 2National Institutes of Environmental Health Sciences, RTP, NC.

#92 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, H. Wu, M. Luo, M. P. Longnecker, and H. J. Clewell. 1The Hamner Institutes for Health Sciences, RTP, NC; and 2National Institutes of Environmental Health Sciences, RTP, NC.

#93 Assessing the Dose-Response 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.

#94 A Multiscale Mechanistic Model of TCDD-Induced Toxicity for Assessing Expected Dose-Response 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.
Program Description (Continued)

Abstract #

#95
Poster Board Number ..................................... 130
1Research & Development, R. J. Reynolds Tobacco Co., Winston-Salem, NC; and 2Genetic & 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. Ruark1, C. Hack1, P. J. Robinson1, D. A. Mahle2, and J. M. Gearhart1. 1HFE, Molecular Bioeffects Branch, Bioeffects Division; 711 Human Performance Wing, Human Effectiveness Directorate, Air Force Research Laboratory, Wright-Patterson AFB, OH; and 2Molecular 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. Krushaw1; and T. Peyret1. 1Université de Montréal, Montreal, QC, Canada.

#96b
Poster Board Number ..................................... 133
PBPK Models for Gasoline-Ethanol Biofuels in Adult and Pregnant Rats. S. A. Martin1, W. M. Oshiro1, P. Evansky1, J. Ford2, L. L. Degr1, H. A. El-Masri1, E. D. McLanahan1, D. MacMillan1, W. K. Boyer1, and P. J. Bushnell1. 1TAD, Durham, NC; 2EPHD, Durham, NC; 3RCU, Durham, NC; 4ISTD, NHEERL, ORD, US EPA, Durham, NC; and 5NCEA, ORD, US EPA, Durham, NC.

#96c
Poster Board Number ..................................... 134
Evaluation of Semi-Generic PBTK Modeling for Emergency Risk Assessment after Acute Inhalation Exposure to Volatile Hazardous Chemicals. J. Olje1,2, C. C. Hunault1, J. Bessem1,3, H. J. Clewell4, and P. Meulebelt1,2,3. 1National Poison Information Center, University Medical Center Utrecht, Utrecht, Netherlands; 2University of Nijmegen, Nijmegen, Netherlands; 3EC JRC, Institute for Health and Consumer Protection, Ipsra, Italy; 4The Hamer Institutes, Research Triangle Park, NC; 5IRAS, Utrecht University, Utrecht, Netherlands; and 6Department of Intensive Care Medicine, UMC Utrecht, Utrecht, Netherlands.

#96d
Poster Board Number ..................................... 135
Interpreting NHANES Biomonitoring Data: Dioxins. P. Ruiz1, T. Simon1, and M. Mumtaz2. 1Computational Toxicology Lab, ATSDR/CDC, Atlanta, GA; and 2Ted 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. Adams1, S. A. Marchetti1, T. L. Tal1, N. C. Baker1, J. F. Wambaugh1, C. Mazar2, J. F. Kenneke3, and H. A. El-Masri1. 1NHEERL, USEPA, Research Triangle Park, NC; 2NERL, USEPA, Athens, GA; and 3NCCT, 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. Yang1, S. Morris1, J. M. Gearhart2, C. D. Ruark1, M. G. Paule3, W. Sikker1, D. R. Mattison1, N. C. Twaddle1, D. R. Doerge1, J. F. Young1, and J. Fisher1. 1US Food and Drug Administration, National Center for Toxicological Research, Jefferson, AR; 2The Henry M. Jackson Foundation for Military Medicine, Wright-Patterson Air Force Base, OH; and 3Risk 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. Fisher1, D. R. Doerge1, A. Lumen1, A. Fu1, and X. Yang1. 1Biochemical Toxicology, FDA/NCCT, 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. Lefebvre1, C. Lang1, M. Fisher1, T. E. Arbuckle1, and A. Nong1. 1Environmental 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. Phillips1, K. Christensen1, T. Blessinger1, M. Lorber2, J. Solus1, and Y. Tae1. 1NERL ORD, US EPA, Duluth, MN; 2NCEA ORD, US EPA, Washington, DC; and 3NERL ORD, US EPA, RTP, NC.

Monday Morning, March 24 9:30 AM to 12:30 PM
Exhibit Hall

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

#98
Poster Board Number ..................................... 142
Circulating miRNAs As Potential Biomarkers of Pancreatitis. C. M. Karbowski1, R. Hu2, D. Andrews-Cleaver3, J. R. Turk1, C. Afshari1, H. Hamadheh1, and P. Nioi1. 1Discovery Toxicology, Amgen, Thousand Oaks, CA; and 2Pathology, Amgen, Thousand Oaks, CA.
Program Description (Continued)

Abstract #

#112

Poster Board Number ................................. 156
Clinical Performance of Translatable Biomarkers for Drug-Induced Vascular Injury. K. Benduëno1, and M. Lawton1. 1Pfizer, Groton, CT; and 1Firaio, Huningue, France.

#113

Poster Board Number ................................. 157
Evaluation of Urinary L-FABP As a Nephrotoxicity Biomarker in Rats. T. Kadota1, Y. Suzuki1, H. Komatsu1, K. Taguchi1, and T. Sugaya1. 1CMIC Bioresearch Center Co., Ltd, Yamanashi, Japan; and 1CMIC Holdings Co., Ltd, Tokyo, Japan.

#114

Poster Board Number ................................. 158
Predenl Nephrotoxicity Biomarker Analysis Using Toxicoproteomics Approaches. L. Yu1, Z. Li2, Z. Cao1, Y. Gao1, and T. Chen1. 1Biomarkers and Alternative Models Branch, Division of Systems Biology, National Center for Toxicological Research, FDA, Jefferson, AR; and 2Division of Genetic and Molecular Toxicology, National Center for Toxicological Research, FDA, Jefferson, AR.

#115

Poster Board Number ................................. 159
Detailing the Human Exosome: Mass Spectrometry-Based Chemical Profiling of Human Mitochondria. D. I. Walker1,2,5, K. D. Pennell1, and D. P. Jones3. 1Civil and Environmental Eng, Tufts University, Medford, MA; and 2Clinical 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 Lopez1,2, E. J. Hsieh1, R. J. Richter1,2, M. J. MacCoss3, A. N. Hoofnagle4, and C. E. Furlong3. 1Medicine (Division of Medical Genetics), University of Washington, Seattle, WA; 2Genome Sciences, University of Washington, Seattle, WA; and 3Laboratory Medicine, University of Washington, Seattle, WA.

#117

Poster Board Number ................................. 161
Toxicometabolomics Approach to Prediction of Hepatotoxicity by Troglitazone/LPS in Rats. J. Kim1, J. Kim1, S. Ryu1, D. Nam1, S. Kim1, and S. Kim1. 1Pharmacy, Dankook University, Cheonan, Chungnam, Republic of Korea; 2Pharmacology, CKD Research Institute, Yongin, Gyeyonggi, Republic of Korea; and 3Chemistry and Chemistry Institute for Functional Materials, Pusan National University, Busan, Republic of Korea.

#118

Poster Board Number ................................. 162
Quantification of CD11b Levels on Cynomolgus Macaque Eosinophils by Flow Cytometry Provides PK/PD Support for the Development of an Anti-Cytokine Receptor Antibody (ACRA). D. L. Clark1, M. Retter1, D. E. Wilkins1, A. Ellingwood1, and P. Narayanan1. 1Discovery Toxicology, Amgen, Seattle, WA; 2Pharmaceutokinetics & Drug Metabolism, Amgen, Thousand Oaks, CA; and 2Laboratory Sciences, Preclinical Services, Charles River Laboratories, Reno, NV.

#119

Poster Board Number ................................. 163

Abstract #

#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-Parraga1, E. Fabian1, M. Herold3, G. Krennrich1, L. Raf1, W. Meller1, N. Moeller1, E. Peter3, V. Strauss3, T. Wall1, B. van Ravenzwaay2, and H. Kamp2. 1Toxicology, BASF SE, Ludwigshafen/Rhein, Germany; 2metanomics, Berlin, Germany; and 3metanomics health, Berlin, Germany.

#121

Poster Board Number ................................. 165
Comparison of Analytical Methods (ELISPOT, RT-QPCR and Luminox®) for the Detection of IL-17 following In Vitro Stimulation of Human PBMCs. C. Dumont3, O. N. Dallio1, E. Moisan1, E. Marcotte1, A. Keightley2, J. L. Maisonneuve2, and M. S. Christin-Piche1. 1Charles River, Montréal, QC, Canada; and 2PATH, Seattle, WA. Sponsor: M. Vézina.

#122

Poster Board Number ................................. 166
Subchronic Aflatoxin B1 Exposure Influences Expression of Novel Liver Transcripts. J. S. Chang1, D. P. Phadke1, R. R. Shah1, S. S. Auerbach1, R. R. Tice1, and B. A. Merrick1. 1Biomolecular Screening Branch, NIEHS, Research Triangle Park, NC, and 2Bioinformatics, Social & Scientific Systems, Durham, NC.

#122a

Poster Board Number ................................. 167
Metallproteinase-Disintegrin Adamba: A Potential Biomarker for 2-Aminothiophene Toxicity in the Liver of Fisher-344 Rats. J. A. Rasdll1, R. D. Ford1, E. Rasmussen3, J. Jiang3, and W. E. Gatto1. 1Chemistry, Georgia Southern University, Statesboro, GA; and 2Department of Biomedical Science, Mercer University School of Medicine, Savannah Campus, Savannah, GA.

#122b

Poster Board Number ................................. 168
CD1X on Dendritic Cells: A Biomarker of Metallic Allergens and Metallic Nonallergens In Vitro. Y. Mu1, A. M. Keene1, H. Degheidy1, Z. Zhang1, C. Li2, C. Ghosh3, and J. L. Weaver2. 1US FDA, Silver Spring, MD; 2Afton Chemical, Richmond, VA; 3US 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. Williams1, K. Kelly1, and G. Gamboa da Costa1, L. Camacho1. 1NCTR, 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. Kwekel1, V. G. Desai1, V. Visiy1, T. Han1, C. Moland1, and J. C. Fuscoe1. 1Systems 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 Acanthomochilus or Cisplatin. F. Wolenski1, P. Shah2, S. Wylie1, M. Gallacher1, C. D. Fisher1, T. Sano1, V. J. Kadambi2, E. Koening1, and P. Kirby1. 1Drug Safety Research and Evaluation, Takeda Pharmaceuticals International Co., Cambridge, MA.
### Abstracts

#### #122

**Poster Board Number: 201**

**Title:** Novel Kidney Injury Biomarker Panels to Detect Nephrotoxicity in Mouse Model.

**Authors:** W. Zheng, R. Maheshwari, and V. Sabbisetti.

**Institution:** EMD Millipore, St. Charles, MO; Brigham and Women's Hospital, Boston, MA; and Harvard Medical School, Boston, MA.

**Sponsor:** P. Hewitt.

#### #122

**Poster Board Number: 202**

**Title:** 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.

**Authors:** E. Weber, T. Nett, V. Oliver, P. Lambert, M. McIntosh.

**Institution:** Bioanalytics Group, Endolytics, LLC, Fort Collins, CO; and Drug Delivery Disposition and Dynamics, Monash University, Parkville, VIC, Australia.

**Sponsor:** W. Hannemann.

#### #122

**Poster Board Number: 203**

**Title:** Novel Kidney Injury Biomarker Panels to Detect Nephrotoxicity in Mouse Model.

**Authors:** W. Zheng, R. Maheshwari, and V. Sabbisetti.

**Institution:** EMD Millipore, St. Charles, MO; Brigham and Women's Hospital, Boston, MA; and Harvard Medical School, Boston, MA.

**Sponsor:** P. Hewitt.

#### #122

**Poster Board Number: 204**

**Title:** Defective TGFβ Signaling in Dermal Dendritic Cells Leads to Their Reduced Lymph Node Migration and Contact Hypersensitivity Responses with Ultraviolet B Irradiation.

**Authors:** A. Ravindran, K. Breech, J. Mohammed, and A. Glick.

**Institution:** Veterinary and Biomedical Sciences, The Pennsylvania State University, State College, PA; and Dermatology, University of Minnesota, Minneapolis, MN.

#### #122

**Poster Board Number: 205**

**Title:** Alteration of Cytoskeletal Molecules in a Human T Cell Line Caused by Continuous Exposure to Chrysotile Asbestos.

**Authors:** T. Otsuki, S. Maeda, H. Matsuaki, S. Lee, N. Kumagai-Takei, and Y. Nishimura.

**Institution:** Hygiene, Kawasaki Medical School, Kurashiki, Japan; and Agricultural and Life Science, Okayama University, Okayama, Japan.

#### #122

**Poster Board Number: 206**

**Title:** Analysis of Blood DcR3 Concentration and Its Correlation to Clinical Parameter of Autoimmune Diseases in Silicosis Patients.

**Authors:** S. Lee, Y. Nishimura, S. Yamamoto, T. Hayata, H. Matsuaki, N. Kumagai-Takei, H. Hayashi, M. Kusaka, W. Fujimoto, and T. Otsuki.

**Institution:** Hygiene, Kawasaki Medical School, Kurashiki, Okayama, Japan; Dermatology, Kawasaki Medical School, Kurashiki, Okayama, Japan; and Dermatology, University of Minnesota, Minneapolis, MN.

#### #122

**Poster Board Number: 207**

**Title:** Identification of MHC Haplotypes Associated with Drug-Induced Hypersensitivity Reactions in Cynomolgus Macaques.

**Authors:** H. Wu, K. Adkins, C. Houle, L. Nelms, K. R. Tartaro, A. Hudson, T. T. Kawabata, and J. Whitenour.

**Institution:** Drug Safety Research and Development, Pfizer Inc, Groton, CT.

#### #122

**Poster Board Number: 208**

**Title:** Contribution of Autoantibodies to Fiber-Induced Fibrosis.

**Authors:** K. Serve, C. N. Zebedeo, C. Davis, K. Ng, and J. C. Pfau.

**Institution:** Biological Sciences, Idaho State University, Pocatello, ID.

#### #122

**Poster Board Number: 209**

**Title:** Antinuclear Autoantibodies and IL-17 Are Induced in C57BL/6 Mice following Amphibole, but Not Chrysotile, Exposure.

**Authors:** J. C. Pfau, A. Perno, C. N. Zebedeo, C. Davis, and K. Ng.

**Institution:** Biological Sciences, Idaho State University, Pocatello, ID; and College of Osteopathic Medicine, Pacific Northwest University of Health Sciences, Yakima, WA.

#### #122

**Poster Board Number: 210**

**Title:** Effect of Perinatal BPA Exposure on Spleen and Serum Pro-Inflammatory Cytokines in Weaned Rats.

**Authors:** A. Kelly, D. R. Mierke, R. N. Sadowski, L. M. Wise, and S. N. Lavergne.

**Institution:** Comparative Biosciences, University of Illinois, Urbana, IL; and Psychology, University of Illinois, Urbana, IL.
Program Description (Continued)

Abstract #

#133 Poster Board Number .................................211

Abstract #

#134 Poster Board Number .................................212
Transmational Exposure to Bisphenol A, but Not Phthalates, Accelerates Diabetes Type 1 Development in NOD Mice.  J. Bodin1, A. K. Bolling1, A. Wendt1, L. Ellasen1, E Kuper1, R. Recher1, M. S. Lovik1, and U. C. Nygaard1. Food, Water and Cosmetics, Norwegian Institute of Public Health, Oslo, Norway; 1Air Pollution and Noise, Norwegian Institute of Public Health, Oslo, Norway; 1Alet Cell Exocytosis, Clinical Sciences Malmö, Malmö, Sweden; 2Cancer Research and Molecular Medicine, Norwegian University for Science and Technology, Trondheim, Norway; and 3Nutrition and Food Research, TNO, Zeist, Netherlands.

Abstract #

#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. Erdel1, J. Ong1, R. L. Rubin1, C. Ducheneaux1, M. O’Leary1, B. Pacheco1, K. M. Pollard1, C. Miller1, and J. L. Lewis1. 1Community Environmental Health Program, University of New Mexico, Albuquerque, NM; 2Molecular Genetics and Microbiology, University of New Mexico, Albuquerque, NM; 3Environment and Natural Resources, Cheyenne River Sioux Tribe, Eagle Butte, SD; 4Research Nurses Group, Missouri Breaks Industrial Research, Eagle Butte, SD; and 5The Scripps Research Institute, La Jolla, CA.

Abstract #

#136 Poster Board Number .................................214
Altered Lyn Phosphorylation May Be a Key Mediator of Autoimmunity Associated with Mercury Intoxication of B Cells.  A. J. Roosevelt1, J. Caruso1, R. Gill1, P. M. Stehner1, N. Caruthers1, and M. J. McCabe1. 1Immunology and Microbiology, Wayne State Univ, Detroit, MI; 1Institute of Environmental Health Science Research, Wayne State University, Detroit, MI; and 3Environmental Medicine, University of Rochester Medical Center, Rochester, NY.

Abstract #

#137 Poster Board Number .................................215
Modeling Mechanism by Which Trichloroethylene Inhibits Liver Repair in Mouse Model of Autoimmunity.  S. Erickson1, K. Gilbert1, R. Reinholdt1, F. Zuhlke1, M. Kreps1, and S. J. Blossom1. 1University of Arkansas for Medical Sciences/Arkansas Children's Hospital Research Institute, Little Rock, AR; and 3Colorado State University, Fort Collins, CO.

Abstract #

#138 Poster Board Number .................................216
Activation of Poly(ADP-Ribose)Polymerase-1 in Trichloroethylene-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.

Abstract #

#140 Poster Board Number .................................218
Docosahexaenoic Acid Consumption Suppresses Silica-Induced Pneumonitis and Glomerulonephritis in Lupus-Prone NZBWF1 Mice.  M. Bates1, C. Brandenberger1, J. Langohr1, J. Bramble1, A. Hollian1, J. Harkema1, and J. J. Pestka1. 1Michigan State University, East Lansing, MI; 2University of Montana, Missoula, MT.

Abstract #

#141 Poster Board Number .................................219

Abstract #

#142 Poster Board Number .................................220
An Immunologic Role of microRNA 210 in a Murine Model of Dermal Toluene-2,4-Disocyanate Sensitization.  C. M. Long1, N. B. Marshall1, P. D. Siegel1, B. J. Meade1, E. Lakomska1, K. L. Anderson1, D. Beezhold1, and S. E. Anderson1. 1Centers for Disease Control and Prevention-National Institute for Occupational Safety and Health (CDC-NIOSH), Morgantown, WV; and 1Immunology and Microbial Pathogenesis Graduate Program, West Virginia University, Morgantown, WV.

Abstract #

#143 Poster Board Number .................................221
Differential Susceptibility to Suppression of Human Peripheral Blood T Cells by Sodium Arsenite and Monomethylarsonous Acid.  F. T. Lauer1, D. MacKenzie1, E. Beswick1, A. J. Gandolfi1, L. Hudson1, K. Liu1, and S. W. Burchiel1. 1Pharmaceutical Sciences, University of New Mexico College of Pharmacy, Albuquerque, NM; 2Molecular Genetics and Microbiology, University of New Mexico School of Medicine, Albuquerque, NM; and 3Pharmacology and Toxicology, University of Arizona College of Pharmacy, Albuquerque, AZ.

Abstract #

#144 Poster Board Number .................................222
Association of Pro-Inflammatory and Apoptotic-Related Genes Expression with Lymphocyte DNA Telomere Length (TLT) in a Mexican Population Exposed to Arsenic.  C. Escudero-Lourdes1, A. S. Perez-Martinez1, L. M. Del Razo1, J. Alegría-Torres1, and P. Mandeville1. 1Laboratorio de Inmunotoxicología, Universidad Autónoma de San Luis Potosí, San Luis Potosí, Mexico; 2Toxicología, Centro de Investigación y Estudios Avanzados, México, D.F., Mexico; and 3Laboratorio de Investigación en Nutrición, Universidad del Centro de México, San Luis Potosí, Mexico.

Abstract #

#145 Poster Board Number .................................223
Inhibition of Early T Cell Cytokine Production by Arsenic Occurs Independently of Nr22.  K. R. VanDenBerg1, and C. E. Rockwell2,1. 1Pharmacology and Toxicology, Michigan State University, East Lansing, MI; and 2Center for Integrative Toxicology, Michigan State University, East Lansing, MI.

Abstract #

#145a Poster Board Number .................................224
Cross-Reactivity of Halogenated Platinum Salts.  D. M. Lehmann1, E. H. Boykin1, C. Copeland1, L. B. Copeland1, S. J. Quell1, and W. Williams1. 1NHEERL, U.S. EPA, Research Triangle Park, NC; and 1Student Contractor, Youngsville, NC.
Program Description (Continued)

Abstract #

#145b  Poster Board Number .....................................225 Contact Sensitizing Potential of 2-Ethylhexyl p-methoxyccinamate in Female BALB/c Mice. R. P. Frawley¹, D. R. Germolec², B. McIntyre³, M. J. Smith³, K. L. White³, and T. L. Guo³. ¹National Toxicology Program, NIEHS, Research Triangle Park, NC; and ²Virginia Commonwealth University, Richmond, VA.

#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 F. Allard. Department of Molecular Toxicology, UCLA School of Public Health, Los Angeles, CA.

#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.


#154  Poster Board Number .....................................239 The Challenge of Studying Exposure in Zebrafish Embryos. A. Wotterbeck¹, V. van der Weijden¹, T. Maarschalkerweerd¹, C. Sleu¹, A. Beker¹, E. Hansen¹, F. Van Gonthem², A. Menke², and N. Messens². ¹TNOS, Zeist, Netherlands; and ²Janssen, 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, 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. McGinnis¹, X. Wang¹, H. Wang¹, Z. Zhao¹, N. Kaur¹, S. Mathavan², S. Fowler³, P. Weiser³, S. Cohen³, and P. Ingham³. ¹Roche, Basel, Switzerland; ²Institute for Molecular and Cell Biology, Singapore, Singapore; and ³Genomics Institute, Singapore, Singapore.


#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. Knimburgh. Physiology & Pharmacology, Alberta Centre for Toxicology University of Calgary, Calgary, AB, Canada.

Abstract #

#161 Poster Board Number ..................................... 246
A Robotic MCF-7:W58 Cell Proliferation Assay to Detect Agonist and Antagonist Estrogenic Activity. W. Casey1, C. Z. Yang2, M. Stoner1, G. J. Kollessey3, A. Wong2, and G. D. Bittner1,2. 1NICEATM, National Institute of Health, Research Triangle Park, NC; 2CertiChem, Inc., Austin, TX; and 3Neurobiology 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. Clewell1, B. Sun1, Y. Adeleye2, P. L. Carmichael1, P. D. McMullen1, S. Pendise1, and M. E. Andersen1. 1Institute for Chemical Safety Science, The Hamner Institutes for Health Sciences, Research Triangle Park, NC; and 2CertiChem, Inc., Austin, TX.

#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. Kugler1, J. Tharmann2, S. M. Chua de Sousa Lopes1, C. L. Mummery1, R. Kemler1, A. Luch1, and M. Oelgeschlaeg1. 1Federal Institute for Risk Assessment, Berlin, Germany; 2Dept. of Anatomy & Embryology, Leiden University Medical Center, Leiden, Belgium; and 3Department of Molecular Embryology, Max Planck Institute of Immunobiology and Epigenetics, Freiburg, Germany. Sponsor: A. Haase.

#164 Poster Board Number ..................................... 249
Cyclosporin A Pharmacokinetics in In Vitro Systems. P. Bellw1, T. Schmidt1, G. Truij1, C. Savary1, C. Parmentier1, and W. Dokant1. 1Department of Toxicology, University of Wuerzburg, Wuerzburg, Germany; 2Non-Clinical Safety, Merck Serono, Merck KGaA, Darmstadt, Germany; 3Inserm, University of Rennes, Rennes, France; and 4Kaly Cell, Plobsheim, France.

#165 Poster Board Number ..................................... 250
Utilizing Human Population-Based In Vitro Model to Investigate Pesticide Mixtures and Drug/Metabolite Pairs. N. Abdo1, P. Marlot1, P. Muniir1, D. Shea1, J. A. Wright1,2, and I. Rusyn1. 1UNC at Chapel Hill, Raleigh, NC; 2University of Liverpool, Liverpool, United Kingdom; and 3North 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. Franz2, M. Davidson1, N. Hibbard1, and J. M. Kim1. 1CeeTox, Inc, Kalamazoo, MI; and 2Kalamazoo College, Kalamazoo, MI.

#167 Poster Board Number ..................................... 252
Assessing Cellular Stress via Hif-1α and Nrf2 Signaling Using Protein Stability and Transcriptional Reporters. A. Landreman1, M. Roberts1, M. Bratz1, J. Wilkinson1, C. A. Zimprich, J. Hartnet1, B. Biskrowski1, and M. Cong. Promega Corporation, Madison, WI.

Abstract #

#168 Poster Board Number ..................................... 253
Characterization of a 3D Scaffold-Free Culture of Human Breast Cancer Cells to Understand Estrogenic Endocrine Disruption. M. M. Vantangoli1, 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. Flynn1, Y. Liu1, and S. Pugh. 1Division of Toxicology, US Food and Drug Administration, Laurel, MD; and 2Oak 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. Note1, H. Nocari1, D. Blanchet1, J. M. Kim1, V. Michuat1, G. Ouédraogo1, S. Martinozzi Teissier1, F. Leroy1, and J. Cottovio1. 1Dept for The Development of Preditive Models and Methods. L’Oréal. Aulnay sous Bois, France; 2Worldwide Safety Evaluation. L’Oréal, Asnières sur Seine, France; and 3CeeTox, 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. Williams1, A. M. Jeffrey1, J. Duan1, K. D. Brunemann1, M. J. Iatropoulos1, E. H. Vock1, and U. Desch1. 1Chemical Safety Laboratory, Dept of Pathology, New York Medical College, Valhalla, NY; and 2Boehringer Ingelheim Pharma GmbH & Co., Biberach an der Riss, Germany.

#172 Poster Board Number ..................................... 257

#173 Poster Board Number ..................................... 258
Validation of the Yeast Androgen Screen for Identification of Endocrine Active Substances That Interact with the Androgen Receptor. T. Ramirez1, C. Woitkowiak1, H. Hinner1, C. Schönlaub2, H. Hollett1, S. Broschki1, O. Zierau1, G. Vollmer1, M. Jäger1, A. H. Poth1, E. Higley1, M. Becker1, R. Landsiedel1, and B. van Ravenzwaay1. 1Toxicology, BASF SE, Ludwigshafen/Rhein, Germany; 2RWTH University, Aachen, Germany; 3Technical University, Dresden, Germany; 4Harlan CCR, Rossdorf, Germany; and 5University 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. Randall1,2, S. D. Cole1,2, D. J. Angelini1,2, T. B. Datta-Chaudhuri1, R. M. Dorsey1, E. Smela1, and H. Salem1,2. 1Edgewood Chemical and Biological Center, Edgewood, MD; 2National Research Council, Washington, DC; 3Defense Threat Reduction Agency, Fort Belvoir, MD; 4Department of Mechanical Engineering, University of Maryland, College Park, MD; and 5Department of Homeland Security, Chemical Security Analysis Center, Edgewood, MD.
**Poster Board Number: 260**
**Abstract #**

**Poster Board Number: 260**
**Profiling of the Tox21 10K Compound Library for Agonists and Antagonists of the Estrogen Receptor Alpha Signaling Pathway.**
R. Huang1, S. Sakamura1, M. T. Martin2, D. Reif2, R. Judson2, K. Houck3, W. Casey4, J. Hsieh5, K. Shockley5, P. Cegler7, I. Fostel7, K. L. Witt2, W. Tong8, D. Rotroff8, A. Simeonov8, D. J. Die8, C. P. Austin2, R. Kavlock2, R. Rice2, and M. Xiu2. 1NCATS, NIH, Rockville, MD; 2NCCT, EPA, RTP, NC; 3NTP, NIH, RTP, NC; and 4NCTR, FDA, Little Rock, AR.

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**Poster Board Number: 261**
**Developing Osteoblasts As an Endpoint for the Mouse Embryonic Stem Cell Test.**
X. Chen1, G. Nolen1, D. K. Hansen1, J. Fisher1, W. A. Harrouk1, M. Tassinar1, and A. Inselman1. 1Division of System Biology, NCTR/FDA, Jefferson, AR; and 2CDER/FDA, Silver Spring, MD.

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**Poster Board Number: 262**
**Analysis of High-Throughput, High-Content Data in a C. elegans-Based Toxicity Assay.**
R. B. Goldsmith1, J. Porone2, W. A. Boyd2, and J. H. Freedman2. 1DNTP, NIEHS/NIH, Research Triangle Park, NC; and 2Social & Scientific Systems, Inc., Durham, NC.

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**Poster Board Number: 263**
**Quantitative Model of Systemic Toxicity Using ToxCast and ToxRefDB.**
L. Truong1, G. Ouendrago1, S. Loisel-Joubert1, and M. T. Martin1. 1EPA-NCCT, Durham, NC; and 2Ureel, Paris, France.

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**Poster Board Number: 264**
**A High-Throughput Microscopy Pathway in Toxicity Reporter Platform for Chemical Safety Assessment.**
S. Wink1, B. van de Water1, S. Hiemstra1, 1Division of Toxicology, IACDR, Leiden University, Leiden, Netherlands.

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**Poster Board Number: 265**
**Transcriptomic Characterization of Mouse Embryonic Stem Cell Differentiation and Its Regulation by Thalidomide.**
X. Gao1, J. Yourick1, V. Topping1, K. Belgrave1, and R. Sprando1. 1Division of Toxicology, Office of Applied Research and Safety Assessment, U.S. Food and Drug Administration, Laurel, MD.

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**Poster Board Number: 266**
**Performance of the BG1Luc and ER β-Lactamase Estrogen Receptor Transactivation Assays in Tox21.**
L. Rinckel1, W. Casey2, R. Huang2, J. Hsieh2, K. Shockley2, M. Xiu2, R. Rice2, and P. Cegler2. 1NIEHS, Durham, NC; 2ILS Inc, Durham, NC; and 3NCC, Rockville, MD.

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**Poster Board Number: 267**
**Functional Assays and Alternative Species: Using Larval Zebrafish in Developmental Neurotoxicity Screening.**
S. Padilla1, M. Culbretti1, R. C. MacPhail1, D. L. Hunter2, K. A. Jaremka1, K. F. Jensen1, J. Olin1, and A. Tennant1. 1ISTD, U.S. EPA, Research Triangle Park, NC; 2Albert Einstein College of Medicine, Bronx, NY; 3TAD, U.S. EPA, RTP, NC; and 4VA Tech, Blacksburg, VA.

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**Poster Board Number: 268**
**Effects of ToxCast Phase I Chemicals on Steroidogenesis in H295R Human Adrenocortical Carcinoma Cells.**
M. T. Martin1, A. L. Forgacs1, D. L. Filer1, and C. Toole1. 1ORD/NCCT, USEPA, Research Triangle Park, NC; and 2CeeTox, Inc., Kalamazoo, MI.
Program Description (Continued)

Abstract #

Monday Morning, March 24
9:30 AM to 12:30 PM
Exhibit Hall

Poster Session: Developmental Toxicology: Mammalian Models

Chairperson(s): Susan M. Henwood, Covance Laboratories, Cottage Grove, WL.

Displayed: 9:30 AM–12:30 PM

Author Attended: 9:30 AM–11:00 AM

Abstract #

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 Anteroverentral Periventricular Nucleus (AVPV). J. Del Pino Santos1,2, and S. Petersen1. Veterinary and Animal Sciences, University of Massachusetts, Amherst, MA; and 1Toxicology and Pharmacology, Universidad Complutense de Madrid, Madrid, Spain.

Author Attended: 9:30 AM–11:00 AM

Abstract #

Poster Board Number .....................................302

Author Attended: 9:30 AM–11:00 AM

Abstract #

Poster Board Number .....................................303
Arsenic Inhibits Hedgehog Signaling during P19 Cell Differentiation. J. Lin1, and L. I. Bain1,2. 1Biological Sciences, Clemson University, Clemson, SC; and 2Environmental Toxicology, Clemson University, Clemson, SC.

Author Attended: 9:30 AM–11:00 AM

Abstract #

Poster Board Number .....................................304
Contribution of DEHP in Malformation of Fetal Brain Development. C. Tseng1,2, Y. Chuang1, Y. Yang1, S. Tong1, Y. Chen1, Y. Chang1, C. Lin1, and M. Chao1,2. 1Biocience Technology, Chung Yuan Christian University, Chung-Li, Taiwan; 2Biomedical Engineering, Chung Yuan Christian University, Chung-Li, Taiwan; and 3Center of Nanotechnology, Chung Yuan Christian University, Chung-Li, Taiwan.

Author Attended: 9:30 AM–11:00 AM

Abstract #

Poster Board Number .....................................305
Developmental Vulnerability of Rat Hippocampal Neural Stem Cells to the Neurotoxicant Methylmercury (MeHg). M. Ohborah1, K. B. Sokolowski2, and E. DiCicco-Bloom1,2. 1Neuroscience and Cell Biology, Rutgers RWJMS, Piscataway, NJ; and 2Toxicology, Rutgers University, Piscataway, NJ. Sponsor: J. Richardson.

Author Attended: 9:30 AM–11:00 AM

Abstract #

Poster Board Number .....................................306

Author Attended: 9:30 AM–11:00 AM

Abstract #

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. Fueta1, Y. Sekino2, and S. Ueno1. 1Department of Environmental Management and Control, University of Occupational and Environmental Health, Kitakyushu, Japan; 2Division of Pharmacology, National Institute of Health Sciences, Tokyo, Japan; and 3Department of Occupational Toxicology, University of Occupational and Environmental Health, Kitakyushu, Japan.

Author Attended: 9:30 AM–11:00 AM

Abstract #

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. Tongay. Department of Environmental and Molecular Toxicology, Oregon State University, Corvallis, OR.

Author Attended: 9:30 AM–11:00 AM

Abstract #

Poster Board Number .....................................309

Author Attended: 9:30 AM–11:00 AM

Abstract #

Poster Board Number .....................................310
Molecular Analysis of Rat Palatal Development. J. Wright1,2, L. Vicario-Rodriguez2, J. Dixon1, M. Rattray1, E. Barnes2, and M. J. Dixon1. 1Faculty of Life Sciences, University of Manchester, Manchester, United Kingdom; and 2Jealott’s Hill International Research Centre, Syngenta, Bracknell, United Kingdom.

Author Attended: 9:30 AM–11:00 AM

Abstract #

Poster Board Number .....................................311
The Role of the Epicardium in Cardiogenesis: Insights from the EHC Mouse. E. Barnes1, J. Wright1, L. Ridge2, G. Tenin1, and K. Hentges2. 1Syngenta, Jealott’s Hill International Research Centre, Bracknell, United Kingdom; and 2Faculty of Life Sciences, University of Manchester, Manchester, United Kingdom.

Author Attended: 9:30 AM–11:00 AM

Abstract #

Poster Board Number .....................................312
Intravenous Infusion in the Juvenile Rat. L. Allaia, N. Truchot, P. Vignaud, S. David, D. Ravelo, and J. Briffa. WIL Research Europe-Lyon, St Germain-Nuelles, France.

Author Attended: 9:30 AM–11:00 AM

Abstract #

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.

Author Attended: 9:30 AM–11:00 AM

Abstract #

Poster Board Number .....................................314
The Non-Obese Diabetic (NOD) Mouse As a Model for Diabetic Pregnancy. C. Kappen1, and J. Salbaum2. 1Developmental Biology, Pennington Biomedical Research Center, Baton Rouge, LA; and 2Regulation of Gene Expression, Pennington Biomedical Research Center, Baton Rouge, LA.
Abstract #


#189 Impact of Fatty Acids on Human UDP-Glucuronosyltransferase 1A1 Activity and Its Expression in Neonatal Hyperbilirubinemia. R. Fujimura, A. Shibuya, and T. Itoh. School of Pharmacy, Kitasato University, Tokyo, Japan.

#190 Genistein Reduces Human Placental BCRP/ABCG2 Transporter Expression and Function In Vitro: Potential Risk for Fetal Drug Exposure. K. M. Bircak, Q. Wang, Y. Lin, and J. M. Aleksunes. 1.Department of Pharmacology and Toxicology, Rutgers University, Piscataway, NJ; and 2.Joint Graduate Program in Toxicology, Rutgers University, Piscataway, NJ.

#191 Human Hepatic CES1 and CES2 Ontogeny. D. McCarver, J. He, P. Simpson, and R. N. Hines. Pediatrics, Medical College of Wisconsin, Milwaukee, WI.


#194 Ethanol (EtOH) Alters the Redox Environment, Histiotrophic Nutrition Pathways (HNP), and the Thiol Proteome during Rat Organogenesis. J. L. Jilek, K. E. Saud, K. H. Cho, M. S. Reed, J. Pohl, J. M. Hansen, and C. I. Harris. 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 Two Alleles of Med31 Provide a Model to Study Defects in Cellular Proliferation and Endochondral Ossification. K. Wolton, J. Wright, and K. Hentges. 1.University of Manchester, Manchester, United Kingdom; and 2.Syngenta, Berkshire, United Kingdom.


#198 Developmental Toxicity Assessment of Multiwall Carbon Nanotubes in Pregnant Mice after Intratracheal Instillation. N. Kobayashi, T. Numano, R. Kubota, Y. Ikaiishi, and A. Hirose. 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.

#199 Elucidation of a Novel Molecular Mechanism of Dioxin Toxicity. N. Fujisawa, W. Yoshioka, and C. Tôbyama. Graduate School of Medicine, The University of Tokyo, Tokyo, Japan.
Program Description (Continued)

Abstract #  
#202  
**Poster Board Number** .......................... #209
**Evaluation of Teratogenicity of IMI Compounds Using the Zebrafish Developmental Toxicity Assay.**  
J. Y. Hui1, P. J. Sherratt1, R. B. Jeffy2, K. Tang1, and D. J. Fort3. 1Celgene Corporation, Summit, NJ; and 2Fort Environmental Laboratories, Stillwater, OK.

Abstract #  
#203  
**Poster Board Number** .......................... #206
**Expression of Glyoxylase 1 (glo1) throughout Zebrafish Embryonic Development and Alterations following Atrazine Exposure.**  
G. A. Ryan1, G. J. Weber1, S. M. Peterson1, M. M. Sepulveda2, and J. L. Freeman3. 1Health Sciences, Purdue University, West Lafayette, IN; and 2Department of Forestry and Natural Resources, Purdue University, West Lafayette, IN.

Abstract #  
#204  
**Poster Board Number** .......................... #207
**Deregulation of miRNA-126 Expression in Developing Zebrafish Exposed to the Herbicide Atrazine.**  
K. Schlotman, S. Wibriski, G. J. Weber, and J. L. Freeman. Health Sciences, Purdue University, West Lafayette, IN.

Abstract #  
#205  
**Poster Board Number** .......................... #208
**Induction of Vitellogenin in Trachemys scripta Exposed to Atrazine.**  
E. R. Thomas1, and R. Valverde2. 1Biological Sciences, Southeastern Louisiana University, Hammond, LA; and 2Biological Sciences, Southeastern Louisiana University, Hammond, LA. Sponsor: A. Heberman.

Abstract #  
#206  
**Poster Board Number** .......................... #209
**Developmental Exposure to Benzo[a]pyrene Affects Behavior and Anergetics in Larval and Adult Zebrafish.**  
A. Knecht, R. L. Tanguay, and L. Truong. Dept of Environmental and Molecular Toxicology, Oregon State University, Corvallis, OR.

Abstract #  
#207  
**Poster Board Number** .......................... #210
**Effects of Benzo[a]pyrene and CYP19B Knockdown on Early Zebrafish Development.**  
K. M. Alharethy1, E. T. Boo1, I. Corrales1, C. Thornton1, W. Dong2, and K. L. Willett1. 1Department of Pharmacology and ETRP, University of Mississippi, University, MS; 2Nicholas School of the Environment, Duke University, Durham, NC.

Abstract #  
#208  
**Poster Board Number** .......................... #211
**Chemical-Specific Oxidative Stress Response in Zebrafish Embryos.**  
M. E. Hahn1, S. I. Karchner1, D. G. Franks1, A. R. Timme-Laragy2,3, and A. G. McArthur4. 1Biology, Woods Hole Oceanographic Inst, Woods Hole, MA; 2Public Health, Univ of Massachusetts, Amherst, MA; and 3AGM Consulting, Hamilton, ON, Canada.

Abstract #  
#209  
**Poster Board Number** .......................... #212
**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 #  
#210  
**Poster Board Number** .......................... #213
**Expression of Neurological, Skeletal, and Muscular Developmental Toxicity.**  
L. Prince1, M. Korbas2, and M. D. Rand. 1Environmental Medicine, University of Rochester, Rochester, NY; and 2Canadian Light Source, Saskatoon, SK, Canada.
Abstract #

#219  Poster Board Number: 351  
Exposure to Pyrene and Phenanthrene Alters Normal Pigmentation in Xenopus laevis Embryos.  
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. Amberger, H. Spirk1, M. Stolte1, E. Schmidt1, D. Mulliner1, E. Krupp1, S. Barbellion1, B. Beyer1, A. Rotzarrass1, N. Roome1, and A. Czich1.  
1Preclinical Safety, Sanofi, Paris, France; 2Preclinical Safety, Sanofi, Bridgewater, NJ; and 3Preclinical Safety, Sanofi, Montpellier, France.  
Sponsor:  M. Bonnefois.

#221  Poster Board Number: 353  
Transgenerational Effects of the Endocrine-Disrupting Herbicide Atrazine in Zebrafish.  
J. L. Freeman1, G. J. Weber1, S. Wrbisky2, and M. M. Sepulveda1.  
1Health Sciences, Purdue University, West Lafayette, IN; and 2Forestry 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.  
Bristol-Myers Squibb, Pennington, NJ.

#223  Poster Board Number: 355  
Triclosan (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. Chan1, J. Bestman1, J. J. Rahn2, and K. D. Stackley3.  
1Department of Neuroscience, Duke University, Durham, NC; 2Industrial Hygiene, Medical University of South Carolina, Charleston, SC; and 3Department of Developmental Biology, University of Wisconsin, Madison, WI.

#223b  Poster Board Number: 357  
Relative Developmental Toxicity of Pentachlorophenol and Pentachloroanisole in Zebrafish (Danio rerio).  
Y. Cheng1, and L. Chan1.  
1University 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).  
R. Williams1, Y. Chen1, and J. Meyo1.  
1Biology, Bates College, Lewiston, ME.

#223d  Poster Board Number: 359  
Toxicity Screening of the ToxCast Phase II Chemical Library Using a Zebrafish Developmental Assay.  
S. Mosher1, K. Houk1, S. L. Prady1, R. Judson1, F. Wambauh1, D. Reif1, and S. Padilla1.  
1US EPA, Durham, NC; and 2Department of Biological Sciences, NCSU, Raleigh, NC.
**Abstract #225**

**Poster Board Number: 402**

**Age-Related Trends in US Pleural Mesotheioma and Soft Tissue Sarcoma Rates: Evidence for a Longevity Effect.** B. D. Kerger1, C. J. Ronk2, M. Glynn1, B. L. Finley3, and D. J. Pauketat4.1Cardno ChemRisk, Aliso Viejo, CA; 2Cardno ChemRisk, San Francisco, CA; and 3Cardno ChemRisk, Chicago, IL.

**Abstract #226**

**Poster Board Number: 403**

**Aflatoxin Exposure Associates with Abnormal Liver Function and Infections with HIV and TB in Uganda.** M. Kang1, L. Tang1, P. M. Nikunrunziza2, R. Muwanika1, A. Nkwata1, J. Seeley1, C. C. Whalen1, and J. Wang2.1University of Georgia, Athens, GA; 2MRC Uganda Unit, Entebbe, Uganda; and 3Raikai Health Program, Rakai, Uganda.

**Abstract #227**

**Poster Board Number: 404**


**Abstract #228**

**Poster Board Number: 405**

**Clinical and Molecular Features of Myelodysplastic Syndrome following Benzene Exposure.** P. Kerzic1, and D. Pyatt4.1Pacific Coast Toxicology, Reseda, CA; 2Summit Toxicology, Superior, CO; and 3School of Public Health, University of Colorado, Aurora, CO.

**Abstract #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. Laine1, K. Bailey2, M. Rubio-Andrade3, A. F. Olshan4, L. Smester2, Z. Drobn2, A. H. Herring5, M. Styblo6, G. G. Garcia-Vargas2, and R. Fry2.1Department of Environmental Sciences and Engineering, UNC, Chapel Hill, NC; 2Department of Epidemiology, UNC, Chapel Hill, Chapel Hill, NC; 3Department of Nutrition, UNC, Chapel Hill, Chapel Hill, NC; 4Exponent, Inc., Bellevue, WA; and 5Exponent, Inc., Bellevue, WA.

**Abstract #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. Kwon1, O. Yi1, and D. Kim1.1National Health Insurance Services, Health Insurance Policy Research, Seoul, Republic of Korea; 2Department of Preventive Medicine, Dankook University College of Medicine, Cheonan, Republic of Korea; and 3Health Promotion Research Division, Korea institute for Health and Social Affairs, Seoul, Republic of Korea.

**Sponsor:** J. Park.

**Abstract #231**

**Poster Board Number: 408**

**Cumulative Risk Assessment of Urban Air Toxics: A Pilot Study in San Antonio, Texas.** D. Proctor1, M. Sub4, J. A. Tachovskya, L. Abraham1, G. Hixon1, G. Brorby1, and S. Camplesten1.1ToxStrategies, Mission Viejo, CA; 2ToxStrategies, Austin, TX; 3ToxStrategies, Houston, TX; 4ToxStrategies, Richmond, CA; and 5Electric Power Research Institute, Palo Alto, CA.

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**Abstract #232**

**Poster Board Number: 409**

**Weight-of-Evidence Evaluation of the Respiratory Effects Associated with Diacetly.** B. L. Finley1, J. S. Pierce2, K. Neier3, and L. J. Roberts4.1Cardno ChemRisk, Brooklyn, NY; and 2Cardno ChemRisk, Chicago, IL.

**Abstract #233**

**Poster Board Number: 410**

**Applying the Bradford Hill Criteria in the 21st Century: How Advances in Molecular Epidemiology Have Changed Causal Inference.** K. Fedak1, S. A. Gross2, and Z. Capshaw. Cardno ChemRisk, Boulder, CO.

**Abstract #234**

**Poster Board Number: 411**

**Polychlorinated Biphenyls and Thyroid Antibodies in the Anniston Community Health Survey.** N. Dutton1,2, and M. Pavuk3.1Oak Ridge Institute for Science and Education (ORISE fellow at ATSDR), Atlanta, GA; and 2Agency for Toxic Substances and Disease Registry, Atlanta, GA. **Sponsor:** M. Cave.

**Abstract #235**

**Poster Board Number: 412**

**Measuring Personal Exposure to Heat and Volatile Organic Compounds in Groundskeepers.** M. C. Beverly1, J. M. Goldie2, S. T. Kent1, M. E. Sloan2, M. B. Evans1, and L. A. McClure. Environmental Health Sciences, University of Alabama at Birmingham (UAB), Birmingham, AL.

**Abstract #235a**

**Poster Board Number: 413**

**Urinary Polycyclic Aromatic Hydrocarbons Are Associated with Childhood Obesity.** M. C. Buser1, and F. Scinicariello1.1DTHHS, ATSDR/CDC, Atlanta, GA; and 2Jeallott's Protection, LLC, Greensboro, NC; and 3Raikai Health Program, Rakai, Uganda.

**Sponsor:** P. Ruiz.

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**Monday Morning, March 24**

**Poster Session: Carcinogenesis I**

**Chairperson(s):** Sidhartha Ray, Manchester University, Fort Wayne, IN.

**Displayed:** 9:30 AM–12:30 PM

**Exhibit Hall**

**Abstract #236**

**Poster Board Number: 414**

**Mechanisms for the Development of Rat Lung Tumors following Inhalation Exposures to MDI.** A. Poole1, A. H. Chapelle2, and M. A. Collins3.1International Isocyanate Institute, Manchester, United Kingdom; and 2Toxicology Advice & Solutions, Wolfera, Switzerland.

**Abstract #237**

**Poster Board Number: 415**

**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.

**Abstract #238**

**Poster Board Number: 416**

**Mode of Action and Lack of Human Relevance of Benzovindiflupyr (Solatenol™)–Induced Thyroid Follicular Cell Adenomas in Male Han Wistar Rats.** R. Currie1, R. Green2, P. P. Parsons3, R. C. Peffer4, and J. Wright5.1Product Safety, Syngenta Crop Protection, LLC, Greensboro, NC; and 2Jeallott's Hill International Research Centre, Syngenta Ltd., Bracknell, Berkshire, United Kingdom.
Abstract # #243
Poster Board Number.............................419
Integrated Analysis of Mechanistic
Considerations Informatively 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. DeVone, S. V. Valmori,

Abstract # #244
Poster Board Number.............................420
Arsenite and Methyl Methanesulfonate
Co-Exposures Induce Synergistic Cellular
Responses Associated with Carcinogenic
Pathways. P. Balbuenas, B. Sun, S. Ross, L. Recio, 
J. Winters, H. J. Clewell, and R. A. Clewell. The
Hamner Institutes for Health Sciences, Research
Triangle Park, NC, and Integrated Laboratory 
Systems, Research Triangle Park.

Abstract # #245
Poster Board Number.............................421
Maternal Arsenic Exposure of CSH Mice
Increases Hepatic Tumor with an Activating
Mutation in the Oncogene Ha-ras in the F2
Generation. K. Nohara1, K. Okamura2, T. Suzuki1, 
H. Mura1, T. Ito1, K. Shinjo2, and Y. Kondo1. Center
for Environmental Health Sciences, National Institute 
for Environmental Studies, Tsukuba, Japan; 2Grad. 
Sch. of Life & Environ. Sci., Univ. of Tsukuba, 
Tsukuba, Japan; 3Kumamoto Univ. Grad. Sch. Med. 
Sci., Kumamoto, Japan; and 4Aichi Cancer Ctr. 
Res. Inst., Nagoya, Japan.

Abstract # #246
Poster Board Number.............................422
Identification of DNA Methylation Changes in 
the Liver Tumors Induced by Gestational Arsenic 
Exposure Using Genome-Wide Analysis. T. 
Suzuki1, S. Yamasita1, T. Usui2, S. Takumi1,2,3, 
T. Sano1, T. Michikawa1, and K. Nohara1. National 
Institute for Environmental Studies, Tsukuba, Japan; 
2National Cancer Center Research Institute, Tokyo, 
Japan; and 3The Jikei University School of Medicine, 
Tokyo, Japan.

Abstract # #247
Poster Board Number.............................423
Significant Nonlinearity of Lung Cancer Risk
in Relation to Arsenic in Drinking Water in 
Northeastern Taiwan. K. T. Boger1, C. Chen1, and 
J. S. Tsai2. 1Health & Environmental, Exponent, 
Oakland, CA; 2Health & Environmental, Exponent, 
Seattle, WA; and Graduate Institute of Clinical Medicine,
College of Medicine, National Taiwan University, 
Taipei, Taiwan.

Abstract # #248
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. Dunlevy1, A. 
Stuessy2, A. R. Klinger3, L. L. Larson4, X. Zhou1, S. H. 
Garrett1, S. Sonji1, and D. A. Sens2. 1Basic Sciences, 
University of North Dakota, Grand Forks, ND; and 
2Pathology, University of North Dakota, Grand Forks, 
ND.

Abstract # #249
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. Yao1, L. Chen1, B. 
Zhu1, F. Gonzalez2, and J. M. Peters1. 1Department of 
Veterinary and Biomedical Sciences and The Center of 
Molecular Toxicology and Carcinogenesis, the 
Pennsylvania State University, University Park, PA; 
and 2Laboratory of Metabolism, National Cancer 
Institute, Bethesda, MD.
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<td>Poster Board Number .....................................434</td>
<td>Hydrolysis of DNA-Protein Crosslinks Forms Formaldehyde-DNA Adducts. Y. Lai1 and J. A. Swenberg2.</td>
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<td>Chronic Alcohol Intake Promotes Tumor Growth in a Diethylnitrosamine-Induced Hepatocarcinogenesis Mouse Model through Increased Wnt/beta-catenin Signaling. K. E. Mercier1, L. Hennings1, N. Sharma1, C. Chandler1, R. Wynne1, M. J. Ronis2, and T. M. Badger3.</td>
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<td>Differential Gene Expression Analysis of TPA/UVCo-Treated TK6 Cells Reveals a Novel Gene Signature Important in Carcinogenesis by Combining DNA Damage and Tumor Promoting Pathways. K. P. Glover1, Z. Chen1, L. K. Markell2, and X. Han1.</td>
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<td>Orally Administered Nicotine Induces Urothelial Hyperplasia in Rats and Mice. P. R. Dodmane1, L. L. Arnold1, K. L. Pennington1, and S. M. Cohen.</td>
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<tr>
<td>II.6 Can Induce Epigenetic Change in Colon Cancer Cells Grown As 2D and 3D Cultures Resulting in Increased Activation of Dietary Carcinogens and DNA Damage. S. Patel, R. David1, and N. J. Goodenham.</td>
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<td>Poster Board Number .....................................437</td>
<td>Vacuum Tower Distillation Temperature for Controlling Carcinogenicity of Residual Aromatic Extracts. M. H. Kung1, K. Goyuk1, C. Sircar1, K. Aldous1, and J. J. Freeman1.</td>
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<td>Extracellular Signal-Regulated Kinases 1/2-Dependent Stimulation of Mouse Epidermal JB6 Cl 41-5a Cell Proliferation by Triclosan. Y. Wu, F. A. Beland1, and J. Fang.</td>
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<td>Metformin Blocks Lipogenesis in Pancreatic Cancer Cells by Downregulating Specificity Protein Transcription Factors. V. Nair1, and S. H. Safe2,3.</td>
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<td>EGCG Elicits Stage-Specific Sensitivity and Affects Hsp90 in a Novel Human Prostate Cancer Progression Model. M. A. Moore1, D. P. Potelula2, W. A. Ricke3, and T. A. Gasiulwicz.</td>
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<td>Poster Board Number .....................................440</td>
<td>Dysregulation of Cellular Iron Metabolism during Hepatocarcinogenesis Is Associated with Alterations in Iron Uptake/Export. I. Kindrat1, T. Koherent1, A. Eristenyuk1, F. A. Beland1, and I. Pogryn2.</td>
</tr>
<tr>
<td>Modulation of Human Malignant Melanoma Cell Line Proliferation by PPARgamma and PPARdelta. G. B. Borland1,2, E. Olaf1, A. M. Pritz1, P. P. Albrecht4, T. S. Loh5, F. Gonzalez6, and J. M. Peters7.</td>
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<td>Poster Board Number .....................................441</td>
<td>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. Okuda1, T. Yamada1, M. Kushida1, H. Takeuchi1, H. Nagahori1, B. G. Lake1, S. M. Cohen1, and S. Kawamura3.</td>
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<td>Metformin Blocks Lipogenesis in Pancreatic Cancer Cells by Downregulating Specificity Protein Transcription Factors. V. Nair1, and S. H. Safe2,3.</td>
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<tr>
<td>#266</td>
<td>#271</td>
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<tr>
<td>Poster Board Number .....................................446</td>
<td>Quantification of Somatic Hotspot Oncogene Mutations in Normal Human Breast and Ductal Carcinoma. M. Band1, M. B. Myers1, K. L. McKim2, Y. Wang3, and B. L. Parsons1.</td>
</tr>
<tr>
<td>EGCG Elicits Stage-Specific Sensitivity and Affects Hsp90 in a Novel Human Prostate Cancer Progression Model. M. A. Moore1, D. P. Potelula2, W. A. Ricke3, and T. A. Gasiulwicz.</td>
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<td>#272</td>
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<tr>
<td>Poster Board Number .....................................447</td>
<td>Dysregulation of Cellular Iron Metabolism during Hepatocarcinogenesis Is Associated with Alterations in Iron Uptake/Export. I. Kindrat1, T. Koherent1, A. Eristenyuk1, F. A. Beland1, and I. Pogryn2.</td>
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<td>Dysregulation of Cellular Iron Metabolism during Hepatocarcinogenesis Is Associated with Alterations in Iron Uptake/Export. I. Kindrat1, T. Koherent1, A. Eristenyuk1, F. A. Beland1, and I. Pogryn2.</td>
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<tr>
<td>#268</td>
<td>#273</td>
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<tr>
<td>Poster Board Number .....................................448</td>
<td>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. Okuda1, T. Yamada1, M. Kushida1, H. Takeuchi1, H. Nagahori1, B. G. Lake1, S. M. Cohen1, and S. Kawamura3.</td>
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<td>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. Okuda1, T. Yamada1, M. Kushida1, H. Takeuchi1, H. Nagahori1, B. G. Lake1, S. M. Cohen1, and S. Kawamura3.</td>
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</tbody>
</table>
Program Description (Continued)

Abstract #
#265d
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. Qin1, Z. Li1, M. Hackenberg1, J. Yan1, K. Wang1, Y. Guo1, L. You1, L. Shi1, and Z. Su1. 1National Center for Toxicological Research, Jefferson, AR.

#265e
The Role of Cancer Stem-Like Cells in Cr(VI)-Induced Malignant Cell Transformation and Tumorigenicity. J. Dai1, and Z. Zhang1. 1University of Kentucky, Lexington, KY.

MONDAY, March 24
9:30 AM to 12:30 PM
Exhibit Hall
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
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. Tion. The Hamner Institutes for Health Sciences, RTP, NC.

#267
Toxicological Effects of Antibody-Mediated TGF-beta Antagonism in Cynomolgus Monkeys. C. Horvath1, C. Hendricks2, P. Finn3, and L. Andrews4. 1DSAR, Sanofi, Waltham, MA; and Genzyme Biologics, Genzyme, a Sanofi Company, Framingham, MA, MA.

#268

#269
Immune-Mediated Hepatotoxicity in Monkeys following Administration of a Highly Conserved Biotherapeutic Protein. C. de Zafra1, A. Ashkenazi1, W. Darbone1, M. Cheu1,1 BioSample Analysis & Technology, Genentech, Inc, So SF, CA; 2Molecular Oncology, Genentech, Inc, So SF, CA; 3Oncology Biomarker Development, Genentech, Inc, So SF, CA; 4BioSample Analysis & Technology, Genentech, Inc, So SF, CA; 5ToxStrategies, Inc, Bend, OR; 6Clinical Pharmacology, Genentech, Inc, So SF, CA; 7Pharmaceutical Development, Genentech, Inc, So SF, CA; 8Angen, Inc, Thousand Oaks, CA.

#270

#271
Aerosol and Ocular Toxicity of AERAS-402 in Nonhuman Primates. C. S. Godin1, D. A. Hoke2, R. Wachholder3, P. Darragh1, D. Bolton1, M. Douguish1, R. Seder1, M. Roederer2, and D. Sizemore2. 1Smithers Avanza, Gaithersburg, MD; 2Aeras, Rockville, MD; 3Vaccine Research Center, NIAID, Bethesda, MD; 4US Military HIV Research Program, Silver Spring, MD; 5Crucell Holland BV, Leiden, Netherlands; and 6Ke’i Technologies, Frederick, MD.

#272
Evaluation of Paracetamol Toxicity in the Cynomolgus Monkey. H. Yu1, N. C. Barras1, S. Gales2, D. Thurner1, J. Qiao3, Q. Qin3, and J. Rew1. 1Center for Drug Safety and Evaluation, Shanghai Institute of Materia Medica, Shanghai, China; 2AstraZeneca Safety Assessment, Alderley Park, United Kingdom; and 3AstraZeneca R&D, Boston, MA, MA.

#273
Development of a Novel Model of Pseudophakia in Nonhuman Primates to Assess Ocular Particle Movement Risk following Intravitreal Administration of Suspension Formulations. E. A. Thackaberry1, V. Bantseev2, C. Schuetz2, F. Zhang1, E. Budzynski3, M. C. Struck3, C. Trost4, C. Farman5, and E. Bentley6. 1Safety Assessment, Genentech, Inc., South San Francisco, CA; 2Covance Laboratories, Inc., Madison, WI; 3Department of Ophthalmology and Vision Sciences, University of Wisconsin-Madison, Madison, WI; and 4School of Veterinary Medicine, University of Wisconsin-Madison, Madison, WI.

#274
Polysonomography Using Video-Electroencephalography, Electro-Oculogram, and Electromyogram Monitored Continuously by Telemetry in Cynomolgus Monkeys. R. Mikhailian1, S. Authier2, M. Pouliot1, E. Troncy3, R. Forster2, and D. Paquette1. 1CTiLAB North America, Laval, QC, Canada; and 2Faculty of Veterinary Medicine, University of Montreal, St-Hyacinthe, QC, Canada.

#275
Video-Electroencephalography in Conscious Rats, Dogs, and Nonhuman Primates Using Telemetry and Computer Analysis: The Gold Standard to Assess Seizure Liability. R. Kubaszky1, D. Paquette1, R. Forster2, M. Pouliot1, E. Troncy3, and S. Authier2, 1CTiLAB, Laval, QC, Canada; and 2Faculty of Veterinary Medicine, University of Montreal, St-Hyacinthe, QC, Canada.

#276
Comparative Nonclinical Assessments of the Potential Biosimilar PF-06410293 and Adalimumab. M. Derzi1, S. L. Ripp2, C. Ng3, A. M. Shoibe1, G. Finch2, L. G. Lorello1, and M. W. Leach1. 1Pfizer Inc, Cambridge, MA; 2Pfizer Inc, Groton, CT; and 3Pfizer Inc, Andover, MA.

#277
A Repeat IV Dose Toxicity Study of Gemcitabine Formulations in Male and Female CD-1 Mice. J. Risvanis1, C. S. Godin1, A. Kuli1, B. Currow2, and E. Koo1. 1Hospira Inc., Lake Forest, IL; and 2Smithers Avanza, Gaithersburg, MD.
# Program Description (Continued)

<table>
<thead>
<tr>
<th>Abstract #</th>
<th>Poster Board Number</th>
<th>Program Title</th>
<th>Author(s)</th>
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<tbody>
<tr>
<td>#278</td>
<td>#463</td>
<td>Placental Transfer of Fc-Containing Biopharmaceuticals Across Species, an Industry Survey Analysis</td>
<td>C. J. Bowman1, W. Breslin2, A. Connor3, P. L. Martin4, G. J. Moffat4, L. Sivaraman5, M. Tornesi1, and S. Chivers6. Pfizer Inc, Groton, CT; 1Lilly Research Laboratories, Indianapolis, IN; 2Nonclinical Consulting Services, San Francisco, CA; 3Janssen Research and Development, Spring House, PA; 4Amgen Inc., Seattle, WA; 5Bristol-Myers Squibb Company Research and Development, New Brunswick, NJ; 6AbbVie, North Chicago, IL; and 7Novartis Institute for Biomedical Research, Basel, CH, Switzerland.</td>
</tr>
<tr>
<td>#280</td>
<td>#468</td>
<td>Tolerability of Multicomponent Intravenous Vehicles Delivered As Bolus Injection or Infusion to Rats</td>
<td>K. D. Williams1, B. A. Starch, and G. Hoffman. Nonclinical Safety Assessment, Covance Laboratories, Inc., Madison, WI.</td>
</tr>
<tr>
<td>#282</td>
<td>#471</td>
<td>Fetal Blood Collection via the Axillary Artery—A Novel Method Which Does Not Compromise Visceral or Skeletal Examinations</td>
<td>M. O’Hara1, C. Grace2, J. Hardy3, and L. Schroeder. Covance Laboratories, Greenfield, IN.</td>
</tr>
<tr>
<td>#283</td>
<td>#472</td>
<td>A Novel Approach for Assessing the Safety of Pharmaceuticals</td>
<td>S. Gaulier1, J. Ruff2, L. Morrison3, and W. Potts. University of Utah, Salt Lake City, UT. Sponsor: G. Lamb.</td>
</tr>
<tr>
<td>#285</td>
<td>#474</td>
<td>Validation of a CYP1A2 and a CYP3A4 Induction Assay Using Puracyp’s I2A-DRE™ and DPX2™ Cell Lines: Comparison between the Gene-Reporter Assay and Human Hepatocytes Data</td>
<td>A. Watanany1, J. Enoru2, K. Draper1, and W. DeMaio1. Ricerca Biosciences, Concord, OH.</td>
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</table>

**Monday Morning, March 24**

**9:30 AM to 12:30 PM**

**Exhibit Hall**

**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

<table>
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<th>Abstract #</th>
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<tbody>
<tr>
<td>#287</td>
<td>#476</td>
<td>Induction of NAPDH Oxidase and Apoptosis by CoCr-Alloy Implant Debris: Implications for Metal-on-Metal Hip</td>
<td>P. A. Potnis1, D. K. Dutta1, J. Schumacher2, and S. C. Wood. 1Division of Biology, Center for Devices and Radiological Health, Food and Drug Administration, Silver Spring, MD; and 2University of Rochester, Rochester, NY. Sponsor: P. Goering.</td>
</tr>
<tr>
<td>#288</td>
<td>#477</td>
<td>Methylmercury (MeHg) Induces Caspase-Dependent Apoptosis and Autophagy in Human Neural Stem Cells (NSCs)</td>
<td>H. van Wijl1, P. Baldrick1, and J. Wirtzburger1. Covance Laboratories, Harrogate, United Kingdom; and ‘Bayer Pharma AG, Wuppertal, Germany. Sponsor: A. Jackson.</td>
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<tr>
<td>#289</td>
<td>#478</td>
<td>Induction of Stanniocalcin-2 to Elicit Cytoprotection by Estradiol</td>
<td>S. Thébaud1, M. Toneva1, K. Scribner Doering2, C. McPhee3, and Q. He. WuXi AppTec, Suzhou, China.</td>
</tr>
<tr>
<td>#290</td>
<td>#479</td>
<td>Comparison of Routine Clinical Pathology Parameters in Young, Adult SD Rats from Different Geographical Regions</td>
<td>S. McPherson, S. Mason, and Q. He. WuXi AppTec, Suzhou, China.</td>
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<tr>
<td>#291</td>
<td>#480</td>
<td>Lower Susceptibility to Histaminergic Reactions in Rodents Using Continuous Infusion: Advantages for Safety Assessment of Parenteral Peptide/Protein Drugs</td>
<td>H. van Wijl1, P. Baldrick1, and J. Wirtzburger1. Covance Laboratories, Harrogate, United Kingdom; and ‘Bayer Pharma AG, Wuppertal, Germany. Sponsor: A. Jackson.</td>
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Abstract #

#294  Poster Board Number .........................506
Intact 20kDa Extracellular Domain of APO2L/ TRAIL Bioanalysis by ERMS: 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. Shihboli, C. Zhang, X. Jiang, and L. Cai. Pharmacology and Toxicology, University of Louisville, Louisville, KY; and ?KCHRI and Department of Pediatrics, University of Louisville, Louisville, KY.

#296  Poster Board Number .........................508
Nelumbo nucifera Leaf Extract-Induced Pancreatic Cancer Apoptosis via INK/ERK Activation-Regulated Mitochondria-Dependent and ER Stress-Triggered Signaling Pathways. Y. Chen, C. Su, T. Lu, C. Yen, Y. Chung, K. Chen, C. Wu, S. Liu, and C. Huang. ?Department of Physiology and Graduate Institute of Basic Medical Science, China Medical University, Taichung, Taiwan; 2Department of Otorhinolaryngology, Changhua Christian Hospital, Changhua, Taiwan; 3Department of Public Health, China Medical University, Taichung, Taiwan; 4School of Chinese Medicine, China Medical University, Taichung, Taiwan; 5Department of Occupational Safety and Health, Chung Shan Medical University, Taichung, Taiwan; 6Department of Urology, China Medical University Hospital, Taichung, Taiwan; and 7Institute of Toxicology, National Taiwan University, Taipei, Taiwan.

#297  Poster Board Number .........................509

#298  Poster Board Number .........................510

#299  Poster Board Number .........................511
Assessment of an In Vitro Model for Evaluating the Role of PARP in Ethanol-Mediated Hepatotoxicity. J. Coyle, G. T. Johnson, M. M. Bourgeois, A. Mayo-Perez, S. Morris, and R. D. Harbison. Environmental and Occupational Health, University of South Florida, Tampa, FL; and 2College of Nursing, University of South Florida, Tampa, FL.

#300  Poster Board Number .........................512
Genotoxicity of DEHP and Its Metabolite. Y. Chang, C. Tseng, Y. Chen, Y. Chuang, and M. Chao. 1,2. 1Department of Pharmacology and Graduate Institute of Basic Medical Science, China Medical University, Taichung, Taiwan; 2Environmental and Computational Chemistry Group, University of Louisville, Louisville, KY; and 3Environmental Science & Management, University of Cartagena, Cartagena, Colombia.

#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.

#302  Poster Board Number .........................514
Induction of Apoptosis by PQ17, 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

#304  Poster Board Number .........................516

#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, D. Montes-Grajales, J. Olivero-Verbeke, S. H. Safe, and A. Goldberg. 1INRS-Institut Armand-Frappier, Laval, QC, Canada; 2Environmental and Computational Chemistry Group, University of Louisville, Louisville, KY; and 3Veterinary 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, A. Beach, D. Montes-Grajales, V. Titorenko, J. Olivero-Verbeke, S. H. Safe, and J. Sanderson. 1Toxicology, INRS, Laval, QC, Canada; 2University of Cartagena, Cartagena, Colombia; and 3Veterinary Physiology and Pharmacology, Texas A&M University, 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, B. Larson, G. Cameron, and P. Bank's. 1BioreclamationIVT, Hackethorne, MD; 2BioTek, Winooksi, VT; and 3TAP Biosystems, Royston, Hertfordshire, United Kingdom.

#308  Poster Board Number .........................520

#309  Poster Board Number .........................521
Apoptosis Modulates Hepatotoxic Effects of 2-Aminoanthracene in Fisher 344 Rat. W. E. Guato, D. B. Hales, S. McGee, and J. C. Means. 1Department of Chemistry, Georgia Southern University, Statesboro, GA; 2Department of Physiology, Southern Illinois University, Carbondale, IL; and 3Environmental Science & Management, University of California Santa Barbara, Santa Barbara, CA.
Monday Morning, March 24
9:30 AM to 12:30 PM

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**


**#314**

**Poster Board Number .....................................534**

In Vivo Metabolism of Fumonisin B1 to N-Acylated Cermaide-Like Compounds. K. A. Voss1, H. Harrer1, R. T. Riley1, and H. Humpf2. 1Toxicology & Mycotoxin Research Unit, USDA, ARS, Athens, GA; and 2Institute of Food Chemistry, University of Münster, Münster, Germany.

**#315**

**Poster Board Number .....................................535**


**#316**

**Poster Board Number .....................................536**

The Effect of Aflatoxin-B1 on Red Drum (Sciaenops ocellatus) and Assessment of Dietary Supplementation of Novasol for the Prevention of Aflatoxicosis. K. Zychowski1, A. Rodrigues Hoffmann2, H. I. Ly3, C. Pohlenz1, A. Buentello2, A. A. Romanos1, D. Gatlin1, and T. D. Phillips2. 1Veterinary Integrative Biosciences, Texas A&M University, College Station, TX; and 2Schillinger Genetics, West De Moines, IA.

**#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 TGHH-Induced Cell Death. F. M. Ramirez1, S. S. Lau1, and T. J. Monks2. 1Pharmacy/Tox College of Pharmacy, U of Arizona, Tucson, AZ; and 2SWHSC, U of Arizona, Tucson, AZ.

**#312**

**Poster Board Number .....................................524**

Flavonoids Kaempferol but Not Morin Showed Toxic Effects to HepG2 Cell Line. M. J. Tasso1, A. O. Souza1, L. C. Pereira2, M. F. Bernardes2, and D. J. Dorta1. 1Faculdade de Filosofia, Ciências e Letras de Ribeirão Preto – FFCLRP/USP, Ribeirão Preto, Brazil; and 2Faculdade de Ciências Farmacêuticas de Ribeirão Preto – FCFRP/USP, Ribeirão Preto, Brazil.

**#31a**

**Poster Board Number .....................................525**

Diesel Exhaust Particle Exposure Causes Endothelial Cells Apoptosis via Autophagy Pathway. J. Wang, C. Tseng3, J. Chang1, M. K. Gordon4, and M. Chao5. 1Bioscience Technology, Chung Yuan Christian University, Chung-Li, Taiwan; 2Biomedical Engineering, Chung Yuan Christian University, Chung-Li, Taiwan; 3Center for Nanotechnology, Chung Yuan Christian University, Chung-Li, Taiwan; and 4Joint Program of Toxicology, Rutgers University, Piscataway, NJ.

**#31b**

**Poster Board Number .....................................526**

Presence of EndoG in Apoptotic Nuclei during Cisplatin Kidney Injury: A Sign of What? A. C. Basnakian1, D. D. Zhdanov1, T. Fahmi1, T. Fite1, K. Topiwala1, and S. V. Shah1,2. 1University of Arkansas for Medical Sciences, Little Rock, AR; and 2Central Arkansas Veterans Healthcare System, Little Rock, AR.

**#31c**

**Poster Board Number .....................................527**

Neuroprotective Effects of Natural Compounds against Dopamine Toxicity. S. Potdar1, and J. Cavanaugh1. 1Pharmaceutical Sciences, Pharmacology, Duquesne University, Pittsburgh, PA. Sponsor: P. Prodeep.

**#31d**

**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. Li1, X. Duan1, D. Liu1, and G. Sun1. 1Department 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.

**#31e**

**Poster Board Number .....................................529**

Compound-Induced Bioenergetic Alterations and Cell Loss in Excitable and Nonexcitable Tissues: Relevance to Pathophysiology. W. A. Irwin1, D. A. Fox1, and J. Liccione1. HED, US EPA, Crystal City, VA; and 2College of Optometry, University of Houston, Houston, TX.
Abstract #  
#317  
Poster Board Number ..................................... 537  
Increased Aflatoxin Exposure in Human Populations Residing in West and East Texas, USA. L. Tong, M. Kang, G. Qian, K. S. Xu, A. A. Romoser, M. F. Carden, H. G. Hayes, B. H. Pollock, F. A. Guerra, T. D. Phillips, and J. Wang. University of Georgia, Athens, GA; Texas A&M University, College Station, TX; San Antonio Metropolitan Health District, San Antonio, TX; and University of Texas Health Science Center, San Antonio, TX.  

Abstract #  
#318  
Poster Board Number ..................................... 538  
Elderly Male Mice Display Impaired Clearance of Deoxyinosinaleovinol. E. S. Clark, M. Bates, C. J. Doan, and J. J. Pestka. Food Science and Human Nutrition, Michigan State University, East Lansing, MI; and Center for Integrative Toxicology, Michigan State University, East Lansing, MI.  

Abstract #  
#319  
Poster Board Number ..................................... 539  

Abstract #  
#320  
Poster Board Number ..................................... 540  
In Vitro Safety Assessment of Pet Food Ingredients on Canine Renal Proximal Tubule Cells. J. Koci, B. Jeffery, J. E. Riviere, and N. A. Monteiro-Riviere. Department of Anatomy and Physiology, College of Veterinary Medicine, Kansas State University, Manhattan, KS; and Global Quality and Food Safety, Mars, Inc., McLean, VA.  

Abstract #  
#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. Onwudiri, A. I. Onanwaju, A. D. Uwa, B. Guntade, and O. A. Ademuyiwa. Chemistry, Lagos State University, Lagos, Nigeria; Biochemistry, Lagos State University, Lagos, Nigeria; Science Laboratory Technology, Federal Polytechnic Ilaro, Ilaro, Ogun, Nigeria; and Biochemistry, Federal University of Agriculture, Abeokuta, Ogun, Nigeria.  

Abstract #  
#322  
Poster Board Number ..................................... 542  
Association between Advanced Glycation End Products (AGE) and the Receptor for AGE in Colon Carcinogenesis of Azoxy methane-Injected Fischer 344 Rats Fed with a High-Linoleic Acid Diet. T. Shimamoto, and H. Kunjuya. Department of Molecular Pathology, Nara Medical University, Kashihara, Nara, Japan. Sponsor: Y. Satomi.  

Abstract #  
#323  
Poster Board Number ..................................... 543  

Abstract #  
#324  
Poster Board Number ..................................... 544  

Abstract #  
#325  
Predicting Public Health Consequences of Toxic Chemical Contamination of Food. J. Moser, and R. Jablonski. Chemical Security Analysis Center, Department of Homeland Security, Gunpowder (APG-EA), MD; and Battelle Memorial Institute, Columbus, OH.  

Abstract #  
#326  

Abstract #  
#327  

Abstract #  
#328  

Abstract #  
#329  

Abstract #  
#330  

Abstract #  
#331  
A 3-Week Dietary Toxicity Study of Octenyl Succin Anhydride (OSA)—Modified Starch in Preweaning Farm Piglets. B. Mahadevan, B. A. Thorsrud, and H. Ferguson. Regulatory Affairs, Abbott Nutrition, Abbott Laboratories, Columbus, OH; MPI Research, Inc., Mattawan, MI; and Abbott Nutrition, Abbott Laboratories, Columbus, OH.  

Abstract #  
#332  

Abstract #  
#333  
Program Description (Continued)

Abstract #                         Abstract #
#334                               #342
Poster Board Number..................554  Safety of Carrageenan in Infant Formula: A
USDA Survey of Dioxins and Dioxin-Like 4-Week Study of the Potential Immune System
Compounds in the US Domestic Meat and Effects in Preweaning Piglets. B. Zeigler1, M. J.
Poultry Supply. P. Basu1, S. Lupton1, and M. Cameron1, K. G. Nelson1, B. A. Thorsrud5, M. L.
O’Keefe1. 1US Department of Agriculture, Food Safety Weiner1, H. Ferguson1, B. Frantz3, and W. Blakemore6, & Inspection Service, Washington, DC; and 2US
‘TOXpertise, LLC, Princeton, NJ; 3Immunology, MPI Department of Agriculture, Agricultural Research Research, Mattawan, MI; 4‘Developmental & Reproductive
Service, Fargo, ND; Sponsor: K. Dearfield. Toxicology, MPI Research, Mattawan, MI; 5‘Abbott

#335                               #343
Poster Board Number..................555  Nutrition, Columbus, OH; and 6‘Celtic Colloids,
The Supplement Quercetin Synergistically Topsham, ME.
Augments Tansmsulin-Induced Vasorelaxation. M. Vrolijk, G. Haenen, A. Opperhuizen, and A. Bast.
Department of Toxicology, Maastricht University, Maastricht, Netherlands.

#336                               #343a
Physiological Effects of Endophyte-Infected 4-Week Toxicokinetic Evaluation in Preweaning
Perennial Ryegrass Straw on Female Camels in Piglets. W. Blakemore1, A. Brant1, L. Cochrane1,
the Middle East. J. M. Duringer1, L. L. Blythe1, K. M. Pellerin2, and J. van de Alabdouli3, A. Elkhouly3, A. Al Juboori3, and Ligt3, and A. M. Hauben1, A. Al juborie1, and A. M. Safety of Carrageenan in Infant Formula: A
Cruig1. Environmental and Molecular Toxicology, Oregon State University, Corvallis, OR; 4College of Veterinary Medicine, Oregon State University, Corvallis, OR; and 5‘Al Ain Veterinary Laboratory, Abu Dhabi Food Control Authority, Al Ain, United Arab Emirates.

#337                               #343b
Poster Board Number..................557  Do Highly Purified Steviol Glycoside
Physiological Effects of Endophyte-Infected 4-Week Study of the Potential Immune System
Perennial Ryegrass Straw on Female Camels in Compounds in the US Domestic Meat and Effects in Preweaning Piglets. B. Zeigler1, M. J.
the Middle East. J. M. Duringer1, L. L. Blythe1, K. Cameron1, K. G. Nelson1, B. A. Thorsrud5, M. L. Weiner1, H. Ferguson1, B. Frantz3, and W. Blakemore6,
Alabdouli3, A. Elkhouly3, A. Al Juboori3, and the US Domestic Meat and PANI Research, Mattawan, MI; 4‘Developmental & Reproductive Toxicology, MPI Research, Mattawan, MI; 5‘Abbott
Evaluation of Concentrations of Nickel, Lead, Nutrition, Columbus, OH; and 6‘Celtic Colloids,
Cadmium, and Vanadium in Marine Species of Topsham, ME.
the Market ‘La Nueva Viga,’ Using ICP-MS. L. V.
the Market ‘La Nueva Viga,’ Using ICP-MS. L. V. Saldívar, L. G. Hernández, G. B. Torres, T. Rodríguez
Synthesis in Humans: Validation in Follow-Up Salazar, and M. Espejal, Analytical Chemistry,
K. A. Voss1, J. B. Gelineau-van Waes1, J. R. Maddox2,
Evaluation of Concentrations of Nickel, Lead,
M. A. Augustine1, S. E. Kruse2, D. J. Marcinek2, and Chemical Safety Summer Fellow, ILSI North
Cadmium, and Vanadium in Marine Species of Guatemala. Sponsor:
Safety of Carrageenan in Infant Formula: A
the Market ‘La Nueva Viga,’ Using ICP-MS. L. V.

#338                               #343c
Poster Board Number..................558  A 28-Day Gavage Toxicity Study in Fisher 344
A 28-Day Gavage Toxicity Study in Fisher 344 4-Week Toxicity Study in Preweaning Piglets. B. Zeigler1, M. J.
Rats with 3-Methylfuran. A 28-Day Gavage Toxicity Study in Fischer 344 Piglets. 1, 2, 3, 4, 5
M. Carakostas1, W. Bagchi2, D. W. Christensen3, and P. Kumar2. 1Dr. Cameron1, K. G. Nelson1, B. A. Thorsrud5, M. L. Weiner1, H. Ferguson1, B. Frantz3, and W. Blakemore6,
Effects in Preweaning Piglets. B. Zeigler1, M. J.
Evaluation of Food-Relevant Chemicals in Sweeteners Cause Food Allergies? 1Toxicology Research Division, Health Canada, Princeton, NJ; 2Chemical Health Hazard
ToxCast Phase II. A. L. Forgacs1,3, J. Hsieh1, and K. Houck1. 1Toxicology and Mycotoxin Research Unit,

#339                               #343d
Poster Board Number..................559  Safety, Efficacy, and Toxicological Evaluation of a A 28-Day Gavage Toxicity Study in Fisher 344 Novel, Patented Antidiabetic Extract of Trigonella foenum-graecum Seed Extract (CR0010810). M. Bagchi1, A. Swaroop1, D. Baghir2, and P. Kumar2. 1Dr. Baghir2, and P. Kumar2. 1Dr.
Effects in Preweaning Piglets. 1, 2, 3, 4, 5
Compounds in the US Domestic Meat and Safety, Efficacy, and Toxicological Evaluation of a USDA Survey of Dioxins and Dioxin-Like ToxCast Phase II. A. L. Forgacs1,3, J. Hsieh1, and K. Houck1. 1Toxicology and Mycotoxin Research Unit,
Safety, Efficacy, and Toxicological Evaluation of a Novel, Patented Antidiabetic Extract of Trigonella foenum-graecum Seed Extract (CR0010810). M. Bagchi1, A. Swaroop1, D. Baghir2, and P. Kumar2. 1Dr. Herbs LLC, Concord, CA; and ‘R&D, Cepham Inc, Piscataway, NJ.

#340                               #344
Poster Board Number..................560  Effect of Omega-3 Fatty Acid Oxidation Products 4-Week Toxicity Study in Preweaning Piglets. M. L. Weiner1, H. Ferguson1, B. A. Thorsrud5, K. G. Cameron1, K. G. Nelson1, W. Blakemore6, and B. Frantz2. ‘TOXpertise, LLC, Princeton, NJ; 3Immunology, MPI Research, Mattawan, MI; 4‘Developmental & Reproductive
on the Cellular and Mitochondrial Toxicity of Toxicology, MPI Research, Mattawan, MI; 5‘Pathology,
BDE 47. A. Yeh1, S. E. Kruse2, D. J. Marcinek2, and Toxicology, MPI Research, Mattawan, MI; 5‘Pathology,
Department of Environmental and Occupational Health Sciences, University of Washington, Seattle, WA; and ‘Department of Radiology, University of Washington, Seattle, WA.

#341                               #345
Poster Board Number..................561  Safety of Carrageenan in Infant Formula: A 4-Week Toxicity Study in Preweaning Piglets. M. L. Weiner1, H. Ferguson1, B. A. Thorsrud5, K. G.
Safety of Carrageenan in Infant Formula: A 4-Week Toxicity Study in Preweaning Piglets. M. L. Weiner1, H. Ferguson1, B. A. Thorsrud5, K. G. Nelson1, W. Blakemore6, and B. Frantz2. ‘TOXpertise, LLC, Princeton, NJ; 3Immunology, MPI Research, Mattawan, MI; 4‘Developmental & Reproductive
Carrageenan in Infant Formula: A 4-Week Toxicity Study in Preweaning Piglets. M. L. Weiner1, H. Ferguson1, B. A. Thorsrud5, K. G. Nelson1, W. Blakemore6, and B. Frantz2. ‘TOXpertise, LLC, Princeton, NJ; 3Immunology, MPI Research, Mattawan, MI; 4‘Developmental & Reproductive

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. Peltonen1, M. Jonsson1, M. Jestoi1, A. Nathanael1, J.  
Atouo1, U. Kikkonen1, M. Anttila1, P. Koivisto1, and  
E. Lilus1. 1Finnish Food Safety Authority, Helsinki,  
Finland; and 2Biochemistry 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. McKim1, P. C.  
Wilga1, J. Pregenzer1, and W. Blakemore1. 1CeeTox,  
Inc., Kalamazoo, MI; and 2Celtic Colloids, Inc.,  
Topsham, ME.

#343g  
Poster Board Number………………………………570  
Maximum Concentration of Oils Tested in  
13-Week Dietary Studies in Rats: Is Five Percent  
1Burdock Group, Orlando, FL; and 2Solazyme, Inc.,  
San Francisco, CA.

#343h  
Poster Board Number………………………………571  
Safety Evaluation Methods for Supplemental  
Nutrients.  A. W. Wong2, and J. N. Hathcock1.  
1Council for Responsible Nutrition, Washington, DC;  
and 2John Hathcock Consulting, Alexandria, VA.

#343i  
Poster Board Number………………………………572  
Assessing Potential Interactions of “Active”  
Ingredients in Food.  B. S. Lynch1, and A. Roberts1.  
1Cantox 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. Rygh1, N. J.  
Mitchell1, S. Elmore1, A. A. Romoser1, P. Jolly1, and  
T. D. Phillips1. 1Veterinary Integrative Biosciences,  
College of Veterinary Medicine and Biomedical  
Sciences, Texas A&M University, College Station, TX;  
and 2School of Public Health, University of Alabama  
as Birmingham, Birmingham, AL.

#345  
Abstract #  
Poster Board Number………………………………602  
Successful Conduct of Continuous Intravenous  
Infusion Combined with Intrathecal  
Implantation and Administration in the Juvenile  
Charles River, Monteval, 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. Hu1, W. Zheng1,  
B. Platzerk1, R. A. Bialecki1, Y. Chen1, H. Yu1,  
and J. Ren1. 1Center for Drug Safety and Evaluation  
Research of the Shanghai Institute of Material  
Medica, Shanghai, China; 2Global Safety Assessment,  
AstraZeneca, Alderley park, United Kingdom; and  
3AstraZeneca R&D, Boston, MA.

#347  
Poster Board Number………………………………604  
Comparative Neurotoxicity and Sex Sensitivity  
of Neurotoxicants in Wistar Rats.  S. Jadhav1, D.  
Gohel1, M. V. Patel1, V. J. Piccirillo1, R. Mehta1,  
K. Shah1, and M. Pandya1. 1Toxicology, Jai Research  
Foundation, Valvada, Gujarat, India; and 2VJP  
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. Vyucker, Y. Van Bekdum, A.  
Lampo, and W. Coussement. 1Drug 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. Kedal1,  
R. W. Landis1, H. A. Remmer1, M. Ford1, and  
A. P. Philbert1. 1Toxicology Program, University of  
Michigan, Ann Arbor, MI; 2Department of Biological  
Chemistry, Medical School, University of Michigan,  
Ann Arbor, MI; and 3MS 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. Berrhart, W. Feng, Y. Dong, I. N. Pessah, and P.  
Lein. Molecular Biosciences, University of California,  
Davis, Davis, CA.

#352  
Poster Board Number………………………………609  
Perfluorobutrate (PFBA) Produces Dose-,  
Time-, and Sex-Dependent Pupillary Light Reflex  
(PLR) Deficits and Retinal Degeneration.  D.  
A. For1, J. A. Hart1, T. N. John1, D. J. Etheorou1,  
S. Chaney1, R. Hamilton1, S. Chang2, and J. L.  
Butenhoff1. 1Univ Houston, Houston, TX; 2StM, St.  
Paul, MN; and 3Pace Analytical, Minneapolis, MN.

Monday Morning, March 24  
9:30 AM to 12:30 PM  
Exhibit Hall

Poster Session: Neurotoxicity: General

Chairperson(s): Daniel R. Dietrich, University of Konstanz, Human  
and Environmental Toxicology, Konstanz, Germany, and Kimberly Kelley, 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. Tavcar1, S. Authier1, M. Meghazzi1, S.  
Groom1, and R. Forster2. 1CiToxLAB North America,  
Laval, QC, Canada; and 2CiToxLAB France, Evreux,  
France.

#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. Berrhart, W. Feng, Y. Dong, I. N. Pessah, and P.  
Lein. Molecular Biosciences, University of California,  
Davis, Davis, CA.
Abstract #

#353  Poster Board Number .....................................610  The Toxicity of Low Doses of Ultrafine Diesel Exhaust Particles on Bovine Brain Microvessel Endothelial Cells. Y. Kim1, Y. Choi1, S. Eom1, S. F. Ali1, S. Lantz1, W. Trickler1, M. T. Kleinman1, and H. Kim2. 1Dept. of Preventive Medicine, College of Medicine, Chungbuk National University, Cheongju, Republic of Korea; 2Neurochemistry Laboratory, National Center of Toxicological Research/Food and Drug Administration, Jefferson, AR; and 3Department 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. Naik1, N. M. Fofaria1, and L. Cucullo2. 1Pharmaceutical Sciences, Texas Tech University Health Sciences Center, Amarillo, TX; and 2Biomedical 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. Lauterstein1, C. Hoffman1, A. Hawkins1, C. Klein1, M. Rice1, and J. T. Zelkoff1. 1Environmental Medicine, NYU, Tuxedo, NY; and 2Neurosurgery, 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 Groot1, M. Kock, and R. H. Westerink2. 1Toxicology Division, Institute for Risk Assessment Sciences, de Groot and Y. Chen2, Institute of Risk Assessment Sciences, Anschutz Medical Campus, University of Colorado Denver, Aurora, CO; and 2Neuroscience Training Program, University of Colorado Denver, Aurora, CO; Department of Pediatrics, University of Colorado Denver, Aurora, CO; and Department of Medicine, National Jewish Health, Denver, CO.

#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. Huang1, C. Sun1, T. Li1, Y. Chung1, C. Wu1, C. Yen2, S. Liu1, and Y. Chen2. 1School of Chinese Medicine, China Medical University, Taichung, Taiwan; and 2Department of Otorhinolaryngology, Changhua Christian Hospital, Changhua City, Taiwan; and 3Department of Physiology and Graduate Institute of Basic Medical Science, China Medical University, Taichung, Taiwan; and 4Department of Public Health, China Medical University, Taichung, Taiwan; and *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. Xiong1, D. Siegel1, and D. Ross2. 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. Bhuyan1, L. Liang1, S. D. Rowley2, J. N. Pearson3, A. White1, B. J. Day4, and M. N. Patel5. 1Department of Pharmaceutical Sciences, University of Colorado Denver, Aurora, CO; 2Neuroscience Training Program, University of Colorado Denver, Aurora, CO; 3Department of Pediatrics, University of Colorado Denver, Aurora, CO; and 4Department 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. Brusa1, Z. Cao2, S. Hulsizer3, R. Inceoglu1, S. Vito2, I. N. Pessah4, and P. Lein5. 1VM Molecular Biosciences, UC-Davis, Davis, CA; and 2Entropy, 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. Luot, 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 Carboxyl Sulfide in Mice. P. V. Anantharam1,2, E. Whitley3, V. Anantharam1,4, A. Kanthasamy2, A. Kanthasamy4, P. Imerman5, S. Ennsley6, J. Koziel7, and W. K. Rumbeiha7. 1VM Molecular Biosciences, UC-Davis, Davis, CA; 2BMS, Iowa State University, Ames, IA; 3VM, Iowa State University, Ames, IA; 4VPTH, Iowa State University, Ames, IA; and 5AgBio, Iowa State University, Ames, IA.


#364  Poster Board Number .....................................621  Microcytins Alter Behavior by Uniquely Targeting the AWA Sensory Neuron in Caenorhabditis elegans. C. Moore, B. Puschner1, P. V. Anantharam2, and E. Manautou. Molecular Biosciences, UC Davis, Davis, CA.

#365  Poster Board Number .....................................622  Effects of Microcytin 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. Ghanem1, S. Rudraiah2, and J. E. Manautou. 1Pharmacological Research Institute, Pharmacy School, CONICET, University of Buenos Aires, Buenos Aires, Argentina; and 2Department of Pharmaceutical Sciences, University of Connecticut, Storrs, CT.
Poster Board Number .....................................624
Effect of Different Durations of Morphine Exposure on Mesencephalic Dopaminergic Neurons in Morphine-Dependent Rats. Y. Li1, W. Shi1, F. Liu2, Q. Qi1, J. Wang1, J. Liu1, and B. Cong1. 1Hebei Medical University, Shi Jiazhuang, He Bei, China; and 2National Center for Toxicological Research, Jefferson, AR.

Poster Board Number .....................................625
Morphine Sulfate Constantly Alters the Mouse Stem Cell Differentiation and Opioid Receptor Gene Expression. S. L. Doldakia1, and F. A. Barile2. Pharmaceutical Sciences, St. John’s University College of Pharmacy, Queens, NY.

Poster Board Number .....................................626
Effect of Prenatal Methadone on Reinstated Behavioral Sensitization Induced by Methamphetamine in Adolescent Rats. L. Tien1, C. Wong2, Y. Lee3, Y. Chiang4, L. Fan5, and I. Ho6,7. ‘School of Medicine, Fu Jen Catholic University, New Taipei City, Taiwan; ‘Department of Anesthesiology, Cathay General Hospital, Taipei, Taiwan; ‘Center for Drug Abuse and Addiction, China Medical University Hospital, Taichung, Taiwan; ‘Graduate Institute of Clinical Medical Science, China Medical University Hospital, Taichung, Taiwan; ‘Pediatrics, Newborn Hospital, University of Mississippi, Jackson, MS; and ‘Neuropsychiatric Research Center, National Health Research Institutes, Zhunan, Taiwan.

Poster Board Number .....................................627
Inhibition of the Vesicular Monoamine Transporter 2 Alters the Acute and Long-Term Effects of 3,4-(+)Methylenedioxyamphetamine. L. E. Lizarzaga1, A. M. Phan2, S. S. Lau3, and T. J. Monks4. Pharmacology/Toxicology, University of Arizona- College of Pharmacy, Tucson, AZ.

Poster Board Number .....................................628
Enhanced Vesicular Function and Reduced Neurotoxicity in Mice Overexpressing the Vesicular Monoamine Transporter. G. W. Miller1, K. Lohr1, A. I. Bernstein2, K. Stout3, A. R. Dunn4, and A. Salalpour5. Environmental Health, Emory University, Atlanta, GA.

Poster Board Number .....................................629
Diverse Models of Neurotoxicity Link Induction of Astroglialosis to Activation of STAT3. K. A. Kelly1, D. B. Miller2, and J. P. O’Callaghan3. CDC-NIOSH, Morgantown, WV.

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’Callaghan1, K. A. Kelly2, and D. B. Miller3. CDC-NIOSH, Morgantown, WV.

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. Miller1, K. A. Kelly2, and J. P. O’Callaghan3. CDC-NIOSH, Morgantown, WV.

Poster Board Number .....................................632

Poster Board Number .....................................633
Live Cell-Based Assay Using GFP+ Human Stem Cell-Derived Neurons. J. N. Le1, Aruna Biomedical Inc, Athens, GA. Sponsor: S. Stice.

Poster Board Number .....................................634

Poster Board Number .....................................635

Poster Board Number .....................................636

Poster Board Number .....................................637

Poster Board Number .....................................638
Effects of Organophosphate Flame Retardants on Spontaneous Activity in Neuronal Networks Grown on Microelectrode Arrays. T. J. Shafer1, K. A. Wallace1, W. Mundy1, and M. Behl1. ‘Integrated Systems Toxicology, U.S. Environmental Protection Agency, Research Triangle Park, NC; and ’NIEHS, Research Triangle Park, NC.

Poster Board Number .....................................639
Neurotoxic Effects of Tri-Ortho-Cresyl Phosphate In Vitro. V. Hausherr1, N. Schöbel1,2, and C. van Thrif1. ‘Neurotoxicology and Chemosensitization, IfADo - Leibniz Research Centre for Working Environment and Human Factors, Dortmund, NRW, Germany; and ’Animal Physiology, Ruhr-University Bochum, Bochum, NRW, Germany.

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. Symington1, E. Murenzi2, T. G. Osimitz3, L. P. Sheets4, D. Miresmae4, M. Brooks5, D. W. Gammori6, and J. M. Clark6,7. ‘Biology and Biomedical Science, Salve Regina University, Newport, RI; ’Molecular and Cellular Biology, University of Massachusetts, Amherst, MA; and ’Science Strategies LLC, Charlottesville, VA; ’Bayer CropScience, Research Triangle Park, NC; ’Syngenta Crop Protection, Greensboro, NC; ’Ag-chem Consulting, Clifton, VA; ’FMC, Ewing, NJ; and ’Vet and Animal Science, University of Massachusetts, Amherst, MA.
Program Description (Continued)

Abstract #

#378f Poster Board Number .....................................641 Noninvasive Magnetic Resonance Imaging of Hexachlorophene in the Rat Brain. S. Liachenko1, J. Ramu1, S. Sarkar1, M. G. Paule1, L. Schmued1, and J. P. Hanig2. 1Division of Neurotoxicology, NCCTR/FDA, Jefferson, AR; and 2Office 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. Pandya1, A. Sebastian1, J. E. Royland2, R. C. MacPhail3, P. G. Sullivan4, and P. S. Kodavanti5. 1Neurotoxicology Branch, US EPA, Research Triangle Park, NC; 2Dept 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. Wise2, Z. S. Agim1, M. A. Tambe1, J. Rochet1, and J. R. Cannon1. 1Health Sciences, Purdue University, Lafayette, IN; and 2Medicinal 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-Hernandez1,2, E. Cuevas1, S. Lantz-McPeak1, M. G. Paule1, Q. Gu1, S. Z. Imam1, J. Kanungo1, S. F. Ali1, C. Gonzalez2,3,1, and J. E. Royland1. 1Division of Neurotoxicology, NCCTR, Jefferson, AR; and 2Laboratorio de Fisiologia Celular, Universidad Autonoma de San Luis Potosi, San Luis Potosi, SLP, Mexico.

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 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. Kyuhyung 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.
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 (JST)
- 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

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

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

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

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.
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

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
12:00 Noon to 1:30 PM
Room 222

Special Interest Group Collaboration Group Meeting

Monday Afternoon, March 24
12:00 Noon to 1:30 PM
Room 125

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 Xiaozhi 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.

Abstract

Monday Afternoon, March 24
12:10 PM to 1:30 PM
Room 125

Environmental Factors in Dysregulation of Puberty Timing and Progression

X. Ye1, E. Eugster1, T. M. Plant2, and W. D. Kempinas3.
1Morphology, Institute of Biosciences, State University of São Paulo, Botucatu, São Paulo, Brazil;
2Obstetrics, University of Pittsburgh School of Medicine, Pittsburgh, PA; and 3Physiology 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.


### Abstract #12:30

**Pubertal Timing Dysregulation: Animal Studies.**

W. D. Kemphuis. 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

#### Informational Session: Nonrodents Can Be Monitored, Too…

**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 Life Sciences Institute-Health and Environmental Sciences Institute (ILSI-HESI) 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 in an academic environment, and consulting as part of a large firm, as well as examples of the client-consultant relationship.

#### Abstract #12:45


**1:00 Renal Biomarker Assays for Application for Drug Development.** K. Lynch. GlaaxoSmithKline, 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

#### 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.
Monday Afternoon, March 24
12:30 PM to 1:20 PM
North Ballroom 120B

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.”

Program Description (Continued)

Abstract #

Poster Board Number: #382
Poster Board Number: #383
Poster Board Number: #384
Poster Board Number: #385
Poster Board Number: #386
Poster Board Number: #387
Poster Board Number: #388
Poster Board Number: #389
Poster Board Number: #390

Poster to Exhibit Hall: 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

#101

1Graduate School of Biomedical Science and Engineering, University of Maine, Orono, ME; and 2Department of Molecular and Biomedical Sciences, University of Maine, Orono, ME.

#102
Effects of Nitrated Fatty Acids on Phthalate-Induced Inflammation in Neonatal Neutrophils. M. Mohammed, F. E. Archer1, S. Gowda1, J. Abukharmah1, I. Maliki1, D. L. Laskin2, B. Weinberger1, and A. M. Vetranov1. Pediatrics, Rutgers University–Robert Wood Johnson Medical School, New Brunswick, NJ; and Pharmacology and Toxicology, Rutgers University, Piscataway, NJ.

#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.

#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.

#105
Regulation of Nod2-Linked Proinflammatory Signals by Epithelial Ribosomal Insults. S. Park1, D. Kim2, and Y. Moon2. 1Department of Biomedical Sciences, Pusan National University School of Medicine and Immunoregulatory Therapeutics Group in Brain Busan 21 Project, Yangsan, Republic of Korea; and 2National Institute of Animal Science, RDA, Suwon, Republic of Korea.

#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.

#107
Coculture of Hepatocytes and Kupffer Cells As an In Vitro Model of Inflammation and Liver Hepatotoxicity. K. Rose, N. S. Hobman, M. E. Anderson, and E. LeCluyse. The Hamner Institutes for Health Sciences, Research Triangle Park, NC.

#108
Adaptive Transfer to Study Cell Populations in Bleomycin-Mediated Lung Injury. T. Golden, M. Mandal, D. L. Laskin, and A. Gow. Pharmacology and Toxicology, Rutgers University, Piscataway, NJ.

#109
Inhalation Exposure to the Tobacco Smoke Component Acrolein Enhances Allergic Responses to Ovalbumin. E. O’Brien1, P. Spies1, A. Habibovic1, M. Hristova1, R. A. Bauer1, M. J. Randall2, M. E. Poynter1, and A. van der Vliet1. Pathology, University of Vermont, Burlington, VT; and Medicine, University of Vermont, Burlington, VT.
Abstract #  #391  Poster Board Number .....................................110 Effects of Current Tobacco Exposure on T Cell Immune Responses. U. C. Nygaard1, K. M. Hew1, S. Mackey1, L. Jack1, G. E. Swan1, R. Krasnow2, S. Runyon3, H. T. Macekert3, C. L. Dekker3, and K. Nadeau4. 1Dept of Pediatric Allergy and Immunology, Stanford University, Stanford, CA; 2Div. of Environmental Medicine, Norwegian Institute of Public Health, Oslo, Norway; 3Stanford University, Stanford, CA; and 4Center for Health Sciences, SRI International, Menlo Park, CA.


#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 Inflammase 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. Bowers2, S. D. McCauley1, L. A. Dailey2, and D. Diaz-Sanchez2. 1UNC Chapel Hill, Chapel Hill, NC; and 2United States Environmental Protection Agency, Clinical Research Branch, Chapel Hill, NC.


#398  Poster Board Number .....................................117 Evaluation of Sex Sensitivity in Local Lymph Node Assay Using Butachlor and α-Hexylcinnamaldehyde. V. R. Dalal1, V. J. Piccirillo1, M. V. Patel1, R. Chhimwal2, N. Patel2, S. Jaiswal2, B. Prajapati2, D. R. Boverhof2, and M. R. Woolhiser1. 1VJP Consulting, Inc., Ashburn, VA; 2Toxicology, Jai Research Foundation, Valvada, Gujarat, India; and 3TERC, The Dow Chemical Company, Midland, MI.

Abstract #  #399  Poster Board Number .....................................118 Evaluation of Sex Sensitivity in Local Lymph Node Assay Using Acepimate and α-Hexylcinnamaldehyde. V. R. Dalal1, V. J. Piccirillo1, M. V. Patel1, R. Chhimwal2, N. Patel2, S. Jaiswal2, B. Prajapati2, D. R. Boverhof2, M. R. Woolhiser1, and S. Balakrishnan1. 1VJP Consulting, Inc, Ashburn, VA; 2Toxicology, Jai Research Foundation, Valvada, Gujarat, India; and 3TERC, The Dow Chemical Company, Midland, MI; and 4Department of Zoology, Faculty of Science, The M.S. University of Baroda, Vadodara, Gujarat, India.


#401  Poster Board Number .....................................120 The Guinea Pig Systemic Anaphylaxis Model Revisited. J. Descotes1, M. Duclos2, V. Haag2, and R. Forster2. 1Poison Center, Lyon, France; and 2CiToxLab, Evreux, France.


#403  Poster Board Number .....................................122 Time Course Difference in Severity and Sensitivity of Immunotoxicity of Cyclophosphamide in Female Swiss Albino Mice. P. Mehta1, D. Gehel2, V. J. Piccirillo3, M. V. Patel4, S. Jadhav1, K. Shah1, and M. Pandya1. 1Toxicology, Jai Research Foundation, Valvada, Gujarat, India; and 2VJP 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, Huntington 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. Ujawan1, M. V. Patel2, V. J. Piccirillo2, K. Hadiya3, M. Shinde3, M. Poshija1, D. Gehel1, and J. Mistry1. 1Department of Toxicology, Jai Research Foundation, Valvada, Gujarat, India; and 2VJP Consulting, Inc, Ashburn, VA.

#406  Poster Board Number .....................................125 A Comparison of Mauritian and Chinese Cynomolgus Monkeys in the Natural Killer Cell Cytotoxicity Assay. J. E. Arrington1, G. Ferency3, A. Guerrero1, M. Fort2, and P. Narayanan2. Toxicology Study Direction, Covance, Madison, WI; 3Asgen, Inc., Seattle, WA; and 4Clinical Pathology Services, Covance, Inc., Madison, WI.
### Abstract #407
**Poster Board Number**: 126
**Validation of a Functional Assay to Detect Nonhuman Primate Natural Killer Cell Activity**
V. J. Johnson1, R. Mikkelsen1, N. Makori2, E. G. Burleson1, and G. Burleson1. 1BRT-Burleson Research Technologies, Morrisville, NC; and 2SNBL USA, Everett, WA.

### Abstract #408
**Poster Board Number**: 127
**Quantitative Immunophenotypic Analysis of Rat Thymocytes**

### Abstract #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. Seltjær1, S. C. Gehrer2, R. Acosta Amado1, N. Visconti1, A. Natschi1, E. W. Carney1, and D. R. Boverhof1. 1The Dow Chemical Company, Midland, MI; 2Dow AgroSciences LLC, Indianapolis, IN; and 3Givaudan Schweiz AG, Dubendorf, Switzerland.

### Abstract #408b
**Poster Board Number**: 129
**Assessment of the Usefulness of the Murine Thymoma Cell Line EL-4 for Immunotoxicology Screening by Transcriptomics**
P. Hendriksen1, P. C. Schmeits1, H. Van Loveren1, and A. Peijnenburg1. 1Toxicology, RIKILT Institute of Food Safety, WUR, Wageningen, Netherlands; and 2National Institute for Public Health and the Environment (RIVM), Bilthoven, Netherlands.

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### Monday Afternoon, March 24
1:00 PM to 4:30 PM
Exhibit Hall

**Poster Session: Systems Biology and Toxicology**

**Chairperson(s):** Michael J. Carvan III, University of Wisconsin-Milwaukee, Milwaukee, WI, and Marija Talikka, Philip Morris International R&D, Neuchatel, Switzerland.

**Displayed:** 1:00 PM–4:30 PM

**Author Attended:** 2:45 PM–4:30 PM

### Abstract #409
**Poster Board Number**: 131
**Dynamic Changes in Ribosome-Associated Proteome and Phosphoproteome during Deoxynivalenol-Induced Translation Inhibition and Ribotoxic Stress**
X. Pan1,2, D. A. Whitten1, C. G. Wilkerson1, and J. J. Pestka1. 1Biochemistry and Molecular Biology, Michigan State University, East Lansing, MI; and 2Food Science and Human Nutrition, Michigan State University, East Lansing, MI.

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### Abstract #410
**Poster Board Number**: 132
**System-Biological Screening of Polybrominated Diphenyl Ethers (PBDEs)**

### Abstract #411
**Poster Board Number**: 133
**The Comparative Toxigenomics Database**
A. P. Davis1, C. J. Mattingly1, C. G. Murphy1, J. M. Lay2, K. Lennon-Hopkins1, D. Sciaky1, C. Saraceni-Richards1, B. L. King2, M. C. Rosenstein1, and T. C. Wiegers1. 1Biological Sciences, NC State University, Raleigh, NC; and 2MIDBL, Salisbury Cove, ME.
Program Description (Continued)

Abstract #

#418a  Poster Board Number ..................................... 141
Computational Embryology and Predictive Toxicology of Hypospadias. M. C. Leung1, N. S. Sipes2, N. C. Baker3, B. Ahir4, C. J. Wolfe5, A. W. Seifert 6, M. Hutson7, S. P. Darney8, R. M. Spencer9, and T. B. Knudsen10. 1National Center for Computational Toxicology, U.S. Environmental Protection Agency, Research Triangle Park, NC; 2Lockheed Martin, Research Triangle Park, NC; 3National Health and Environmental Effects Research Laboratory, U.S. Environmental Protection Agency, Research Triangle Park, NC; 4Department of Biology, University of Kentucky, Lexington, KY; and 5Departments 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. Shah1, W. Setzer1, J. John2, K. Houck3, T. B. Knudsen1, M. T. Martin1, D. M. Reif4, A. M. Richard5, D. J. Dix6, and R. J. Kavlock1. 1National Center for Computational Toxicology, U.S. Environmental Protection Agency, Research Triangle Park, NC; 2DNA Microarray Analysis, University of EPA, Durham, NC; and 3NCSU, Raleigh, NC.

#418c  Poster Board Number ..................................... 143

#418d  Poster Board Number ..................................... 144
Functional Profiling to Reveal Adverse Outcome Pathways. C. Vulpe1, W. Varsally2, B. Gaytan3, V. De La Rosa4, D. Faulkner5, P. Antczak6, and F. Falciani7. 1Nutritional Science and Toxicology, University of California, Berkeley, Berkeley, CA; and 2Institute 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. Lee1, J. Zhang1, Y. An2, C. Chang1, and W. Tong1. 1National Center for Toxological Research, Jefferson, AR; and 2Hanyang University, Gyeonggi-Do, Republic of Korea.

Monday Afternoon, March 24
1:00 PM–4:30 PM
Exhibit Hall

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. White1, C. Wrzesinski2, M. Green3, G. T. Johnson4, J. D. McCluskey5, and R. D. Harbison6. 1Division of Vaccine and Related Products Applications, Food and Drug Administration, Rockville, MD; and 2Environmental 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. Bhatia1, I. Shen1, L. Kromidas2, T. W. Schultz3, R. Ford1, D. Roberts1, and A. Api1. 1RIFM, Woodcliff Lake, NJ; 2University of Tennessee, Knoxville, TN; and 3Liverpool John Moores, Liverpool, United Kingdom.

#421  Poster Board Number ..................................... 148
xMSanalyzer and xMSannotator: R Packages for Systematic Study of the Exposome. K. Uppal1,2, and D. P. Jones3. 1Emory University, Atlanta, GA; and 2Georgia 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. Tran1, K. Üppal2, D. I. Walker3, T. Yu4, and D. P. Jones5. 1Pulmonary, Emory University, Atlanta, GA; 2Biostatistics & Bioinformatics, Emory University, Rollins School of Public Health, Atlanta, GA; and 3Department of Civil and Engineering, Tufts University, Medford, MA.

#423  Poster Board Number ..................................... 150
Exposure Data and the Comparative Toxicogenomics Database (CTD). C. J. Grondin1, A. P. Davis1, and C. J. Mattingly. 1Biology, North Carolina State University, Raleigh, NC.

#424  Poster Board Number ..................................... 151

#425  Poster Board Number ..................................... 152
iLINCS—A Web-Based Portal for Integrative Analysis of Multidimensional Data. J. F. Reische1, M. Medvedovic2, S. Sivagasan3, J. Chen4, M. Phatak1, and W. Niu5. 1Toxicology Excellence for Risk Assessment, Cincinnati, OH; and 2Bayer Schering Pharma, Berlin, Germany.

#426  Poster Board Number ..................................... 153
Harnessing the Wealth of Pharmaceutical Preclinical Toxicity Data—The eTOX Database (eTOX Part I). T. Steger-Hartmann1, F. Pognan2, and K. Briggs3. 1Investigational Toxicology, Bayer HealthCare, Berlin, Germany; 2Discovery Investigative Safety, Novartis, Basel, Switzerland; and 3Lhasa 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. Marc1, P. J. Clements1, A. Piaia1, A. M. Ryan1, M. Stoll2, C. Ravigli3, E. Sanz4, T. Steger-Hartmann5, and F. Pognan6. 1Preclinical Safety, Novartis, Basel, Switzerland; 2GlaxoSmitKline, Ware, United Kingdom; 3Pfizer, Groton, CT; 4Sanofi, Frankfurt, Germany; 5GRIB (IMIM-UPF), Barcelona, Spain; and 6Bayer Schering Pharma, Berlin, Germany.
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#428  Poster Board Number ..................................... 155


#429  Poster Board Number ..................................... 156


1Department of Math, Statistics and Computer Science, Marquette University, Milwaukee, WI; and 2Center for Devices and Radiological Health, US FDA, Silver Spring, MD.

#430  Poster Board Number ..................................... 157


#431  Poster Board Number ..................................... 158

Collaborative Interoperability between Public Projects to Support Replacement of In Vivo Repeated Dose Toxicity Testing. D. Hristovoi1, N. Jeliazkova1, T. Kleinoeder2, N. Dimitrova2, S. Dimitrov2, and A. Hirose1.

1National Institute of Technology and Evaluation, Tokyo, Japan; 2National Institute of Health Sciences, Tokyo, Japan; and 3National Institute of Health, Sciences, Tokyo, Japan; and 4National Institute of Environmental Health Sciences, Tokyo, Japan; and 5National Institute of BioSafety Research Center, Iwata, Japan.

#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. Yamada1, T. Abe1, R. Hasegawa1, T. Sakuratani1, J. Yamada1, T. Yamashita1, K. Yoshinari1, Y. Yamasoe1, A. Hirose1, and M. Hayashi1.

1National Institute of Technology and Evaluation, Tokyo, Japan; 2Fujitsu Limited, Chiba, Japan; 3Tohoku University, Sendai, Japan; 4National Institute of Health Sciences, Tokyo, Japan; and 5National Institute of Environmental Health Sciences, United Kingdom; and 6National Institute of Health, Sciences, Tokyo, Japan; and 7National Institute of BioSafety Research Center, Iwata, Japan.

#433  Poster Board Number ..................................... 160


#434  Poster Board Number ..................................... 161

Toxicophores: Identification, Validation, and Application. B. M. Paisley, C. M. Zwickl1, and T. K. Baker. Investigative Toxicology, Eli Lilly, Indianapolis, IN.

#435  Poster Board Number ..................................... 162


1Advanced Research, L’Oreal R&I, Aulnay-sous-Bois, France; and 2LME-OASIS, Bourg, Bulgaria. Sponsor: D. Bury.

#436  Poster Board Number ..................................... 163


#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, S. Bhattacharyya, R. B. Conolly1, H. J. Clewell, N. E. Kaminski, and M. E. Andersen. 1Department of Biochemistry & Molecular Biology, Michigan State University, East Lansing, MI; 2Integrated Systems Toxicology Division, NHF/IRL, USEPA, Durham, NC; and 3Department of Pharmacology & Toxicology, Michigan State University, East Lansing, MI.

#439  Poster Board Number ..................................... 166


#440  Poster Board Number ..................................... 167

Computational High-Throughput Quantitative Analysis of Dose-Dependent Histological Features. R. Nauii1, D. Colby1, J. Hawkema1, and T. R. Zacharewski2, 1Department of Biochemistry & Molecular Biology, Michigan State University, East Lansing, MI; 2Department of Pathobiology & Diagnostic Investigation, MSU, East Lansing, MI; and 3Center for Integrative Toxicology, MSU, East Lansing, MI; and 4Institute 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. McLaurin1, L. Truong2, G. Ouedraogo3, S. Loisel-Joubert3, and M. T. Martin1, 1NCCT/ORD, USEPA, Raleigh, NC; and 2,3Institute for Eco-Environmental Sciences, CAS, Beijing, China. Sponsor: R. Zhao.

#440b  Poster Board Number ..................................... 169

Dynamic Interaction between Human Serum Albumin and PFOS: A Theoretical Study. A. Zhang1, H. Cao2, and J. Fu3. 1Research Center for Eco-Environmental Sciences, CAS, Beijing, China. Sponsor: R. Zhao.

#440c  Poster Board Number ..................................... 170

Utilization of Gene Expression Marker Data to Computationally Generate Nested Networks Underlying Embryonic Stem Cell Differentiation. W. LeFevre1, J. Crooks1, S. Hunter1, M. B. Rosen1, and K. J. Chandler1, 1US EPA, Durham, NC.

#440d  Poster Board Number ..................................... 171

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Development of Population-Based BBDR-HPT Axis Model for Near-Term Pregnancy. A. Lumen1, C. Hack2, N. George3, K. McNally4, G. D. Loizou5, D. R. Mattie6, and J. Fisher7. 1Biomedical Toxicology, FDA/NCTR, Jefferson, AR; 2Health & Safety Laboratory, Buxton, United Kingdom; 3Biofacts 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-Arachydoniglycerol in Neuroinflammation. E. A. Merrill1, R. R. Chapleau1, J. Schlagler1, J. M. Geurhart1, and P. I. Robinson1. 1Henry M. Jackson Foundation for the Advancement of Military Medicine, WPAFB, OH; 2Bioinformatics and Biostatistics, FDA/NCTR, Jefferson, AR; 3Health & Safety Laboratory, Buxton, United Kingdom; and 4Biofacts Division, 711 Human Performance Wing, Human Effectiveness Directorate, Air Force Research Laboratory, WPAFB, OH.

#440h
Poster Board Number .....................................175
Use of the Zebratish Developmental Screen and Estimation of Internal Concentration to Assess Toxicity. I. T. Hannon1, N. Kleinsteuer1, S. Padilla1, and W. Casey2. 1ILS, Inc., Research Triangle Park, NC; 2NHEERL/ORD, EPA, Research Triangle Park, NC; and 3DHHS/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. Sedykh1, S. Chakravarti1, and R. D. Saiakhov1. 1MultiCASE Inc, Beachwood, OH.

#440j
Poster Board Number .....................................177
Computational Modeling of OATP1B1 Inhibitors. M. Lawless1, R. D. Clark1, M. Bolger1, and W. Wolosz1. 1Simulations Plus, Lancaster, CA. Sponsor: S. Ferguson.

#440k
Poster Board Number .....................................178
Interpretable QSAR of Skin Sensitization for Screening Cosmetics and Environmental Chemicals. K. D. Satakhov2, S. Chakravarti1, and A. Sedykh1. 1MultiCASE Inc, Beachwood, OH.

#440l
Poster Board Number .....................................179
Global Phosphoproteome Dynamics of Zebrafish (Danio rerio) Embryos. O. Kwon1, S. Kim1, J. Sim1, M. Song1, K. Yun1, J. Kim1, T. Jeong2, and S. Lee3. 1College of Pharmacy, Kyungpook National University, Daegu, Republic of Korea; 2Mass Spectrometry Research Center, Korea Basic Science Institute, Ochang, Republic of Korea; and 3College of Pharmacy, Yeungnam University, Gyeongsan, Republic of Korea.
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In Vivo Genotoxicity of 1,4-Dioxane in Rats.  C. Hattori, M. Nagata, S. Ishi, and W. Takakuwa.  Medicinal Safety Research Laboratories, Daiichi Sankyo Co., Ltd., Tokyo, Japan.


Toxicity of Chemical Dispersants, Oil, and Chemically Dispersed Oil in Sperm Whale Skin Cells.  C. Wise1,2, J. Wise2, S. S. Wise3, and J. P. Wise2,3.  1Wise Laboratory of Environmental and Genetic Toxicology, Portland, ME; 2Maine Center for Toxicology and Environmental Health, Portland, ME; and 3Department of Applied Medical Science, University of Southern Maine, Portland, ME.


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, T. Grummt2, and Y. Miyamoto.  1Laboratory of Toxicology, Riken, Tokyo, Japan; 2Biosafety Research Laboratories, Shizuoka, Japan.

Evaluation of Reactive Textile Dyes with Organspecific Genotoxicity Using In Vitro Flow Cytometry-Based Micronucleus Assay.  D. M. Leme1, A. Sehr1, T. Grummt2, and D. P. Oliveira1.  1FCFRP-USP, Ribeirão Preto, São Paulo, Brazil; and 2Umweltschutzamt, Bad Elster, Germany.

Kinetics and Dose-Response Assessments of Cisplatin-Induced Genotoxicity in Sprague-Dawley Rats.  S. Dertinger1, S. Photheswaph1, S. Avlasевич1, D. K. Toro1, C. Labash1, J. Cottom1, J. Mereness1, S. Bryce1, J. Bemis1, and J. T. MacGregor1.  1Litron Laboratories, Rochester, NY; and 2Toxicology Consulting Services, Arnold, MD.

Development of a Flow Cytometric Assay for Measuring In Vivo Mutation in an Autosomal Gene.  J. A. Bhalli1,2, V. N. Dobrovolsky2, and R. H. Heffel1.  1Division of Genetic and Molecular Toxicology, National Center for Toxicological Research, Jefferson, AR; and 2Genetic Toxicology, Covance Laboratories Inc, Greenfield, IN.

Evaluation of Thioacetamide Genotoxicity in Rat Liver and Stomach As Measured by the In Vivo Alkaline Comet Assay.  R. Neft1, and C. Beavers1.  Covance Laboratories Ltd, Harrogate, North Yorkshire, United Kingdom; and 2Covance Laboratories Inc, Greenfield, IN.  Sponsor: J. Bhalli.


Genotoxic Effects on HepG2 Cells Induced by Brominated Flame Retardant (BDE-47).  A. O. Sousa1, M. Tasso1, L. C. Pereira1, D. P. Oliveira1, and D. J. Dorta2,3.  1Química, FFCLRP-USP, Ribeirão Preto, SP, Brazil; and 2Analysen Clinica, Toxicologica, Bromatologicas, FCFRP, Ribeirão Preto, SP, Brazil.

BDE-153 is Genotoxic to HepG2 Cells and Lead to Apoptotic Cell Death.  L. C. Pereira1, A. O. Sousa1, M. F. Bernardes1, M. Tasso1, D. P. Oliveira1, and D. J. Dorta2,3.  1FCFRP, Universidade de São Paulo, Ribeirão Preto, Brazil; and 2Química, FFCLRP, Ribeirão Preto, São Paulo, Brazil.


An In Vivo Mutagenicity Test of Hydroquinone Using the lacZ Transgenic Mice.  A. Ono1, M. Honma1, S. Masumori1, M. Matsumoto1, M. Hirata-Koizumi1, and A. Hirose2.  1Division of Risk Assessment, National Institute of Health Sciences, Tokyo, Japan; and 2Division of Genetics and Mutagenesis, National Institute of Health Sciences, Tokyo, Japan; and 3Genotoxicology Laboratory, Biosafety Research Center, Shizuoka, Japan.

Oligoquat M Does Not Induce Mutagenesis and Chromosome Aberration in the V79 and C3H Cell Lines.  Z. Lu1,2, J. Liang1, and M. Wang3.  1The Institute of Toxicological and Functional Evaluation, Jiangsu Provincial Center for Disease Control and Prevention, Nanjing, China; and 2Basic Medical Sciences, University of Arizona Medical College-Phoenix, Phoenix, AZ.  Sponsor: S. Qiu.

Assessment of Genotoxicity and Antigenotoxicity of Ethanolic Extract of Spondias mombin L. (Anacardiaceae) Leaves in In Vitro and In Vivo Models.  O. E. Ola-Davies1, J. E. Mata2, A. O. Adeoyun3, and O. S. Olawowo4.  1Department of Veterinary Physiology, Biochemistry and Pharmacology, University of Ibadan, Ibadan, Oyo, Nigeria; and 2Department of Basic Medical Sciences, College of Osteopathic Medicine of the Pacific, Western University of Health Science, Lebanon, OR; and 3Department of Zoology, University of Ibadan, Ibadan, Oyo, Nigeria.
Abstract #

#463
Detection of Sulfur Mustard-Induced DNA Adducts in Human Skin Cells with Laser Scanning Microscopy. K. Kehe1, S. Müller2, D. Steinrütz2, and H. Thiermann.1 E - Research and Development, Bundeswehr Medical Academy, München, Germany; and Bundeswehr Institute of Pharmacology and Toxicology, Munich, Germany.

#464
Response of Human Peripheral Blood Lymphocytes to Model Clastogens and Aneugens in an In Vitro Micronucleus Test. N. N. Patel1, R. M. Nagame1, J. R. Rana1, K. R. Nikam1, S. S. Gaikwad1, and V. J. Pucirillo.1 Toxicology, Jai Research Foundation, Vapi, Gujarat, India; and JVJ Consulting, Inc., Ashburn, VA.

#465
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

#467
Genotoxicity Assessment of Sandalwood (Santalum album) Essential Oil on Human Breast Adenocarcinoma Cells (MCF-7). C. M. Ortiz-Sanchez1, L. Morales1, M. Sastre1, A. Castro1, and J. L. Martin1. 1Physiology, Pharmacology and Toxicology, Ponce School of Medicine and Health Sciences, Guayama, Puerto Rico; 2Biology, University of Puerto Rico, Humacao, Puerto Rico; and 3Microbiology, University of Puerto Rico, Humacao, Puerto Rico.

#468
In Vivo Genotoxicity Study of Estragole and Saffrole. W. Ding1, D. D. Levy2, M. E. Bishop1, M. G. Pearce1, K. J. Davis1, A. M. Jeffrey1, I. Dunn1, G. M. Williams1, G. A. White1, L. E. Lyn-Cook1, and M. G. Manjanatha.1 Division of Genetic and Molecular Toxicology, FDA/NCTR, Jefferson, AR; 2FDA/CFSAN, College Park, MD; 3Toxicologic Pathology Associates, FDA/NCTR, Jefferson, AR; and 4New York Medical College, Valhalla, NY.

#469
Evaluation of Mutagenicity of Vinyl Acetate and Acetaldehyde in Gpt Delta Mouse Lung Fibroblast Cell Line, GDL-1. M. G. Manjanatha1, S. D. Shelton1, Y. Chen1, R. A. Mittelstaedt1, R. Budynsky2, R. J. Fensterheim2, B. Collupdi1, L. T. Haber2, R. Valentine3, M. S. Stavanja4, E. Ruston1, J. Piper1, T. S. Lavdie2, R. J. Albertini1, and M. M. Moore4. 1Genetic and Molecular Toxicology, FDA/NCTR, Jefferson, AR; 2The Dow Chemical Co, Midland, MI; 3RegNet Environmental Services, Washington, DC; 4Center of Toxicology and Mechanistic Biology, Exponent, Midland, MI; 5Toxicology Excellence for Risk Assessment, Cincinnati, OH; 6Celanese International Corporation, Dallas, TX; 7Health and Environmental Sciences, DuPont Haskell Global Centers, Newark, DE; 8lyondellbasell Co, Houston, TX; 9The University of Vermont, Burlington, VT; and 10ENVIRON International Corporation, Little Rock, AR.

#470
Effects of Ethyl Methanesulfonate on DNA Damage of Uterine Mucosa in Rats. R. Tanaka1, S. Masumori1, M. Ueda1, M. Fukumuro1, S. Tanaka1, A. Shiga1, F. Mizuhashi1, and M. Hayashi1. 1Biosafety Research Center (BSRC), Iwata, Shizuoka, Japan.

#471
In Vitro Toxicity Testing of 2,4,6-Trinitrotoluene (TNT) Contaminated Soil. J. K. Markell1, M. P. Mawen1, C. E. Pooler2, A. Myhre1, P. Bloxham2, A. Faranda1, E. M. Donner1, and X. Han1, T. S. Biegnman1. 1DuPont Haskell Laboratories, Newark, DE; 2DuPont Corporate Center for Analytical Sciences, Newark, DE; 3U.S. Corporation, Louisville, KY; and 4DuPont Corporate Remediation Group, Wilmington, DE.

#472
Evaluation of Genotoxicity of 6-Diazo-5-Oxo-L-Norleucine (DON). R. Kulkarni1, E. W. Dakoulas2, K. E. Miller2, and F. S. Teres2. 1BioReliance, Rockville, MD; 2Kemms Corporation, Sapulpa, OK; and 3National Center for Advancing Translational Sciences, NIH, Bethesda, MD.

#473
Ames Bacterial Mutation Test—Comparative Sensitivity of Standard and Micro Formats. R. Proudllock1, K. Evans1, and J. Randell1. 1Moltox, (Molecular Toxicology Inc.), Boone, NC.

#474
Development of a High-Throughput Homogenous Assay to Detect DNA Double-Strand Breaks. B. Goodwin1, T. Khuc1, R. Huang1, K. L. Witt1, R. R. Tice2, and M. Xiu1. 1Division of Preclinical Innovation, NCAATS, Rockville, MD; and 2Division of the National Toxicology Program, NIEHS, Research Triangle Park, NC.

#475
Cytotoxicity and Genotoxicity Assays for Assessing the Toxicity of the Reactive Black 5 Dye. G. A. Oliveira1, E. S. Paula1, D. M. Leme2, A. Sehr3, T. Grummt3, and P. D. Oliveira1. 1Faculdade de Farmácia, Universidade Federal de Goiás - FF/UFG, Goiânia, Goiás, Brazil; 2Departamento de Análises Clínicas, Toxicológicas e Bromatológicas, Universidade de São Paulo - ICFRP/USP, Ribeirão Preto, São Paulo, Brazil; and 3Umwelbundesamt, Bad Elster, Germany.
### Program Description (Continued)

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**Monday Afternoon, March 24**

1:00 PM to 4:30 PM

**Exhibit Hall**

**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

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**Poster Board Number 236**


**Poster Board Number 237**


**Poster Board Number 238**


**Poster Board Number 239**

Noninvasive (Jacketed) ECG Monitoring with Telemetry in Beagle Dogs, Göttingen Minipigs, and Cynomolgus Monkeys: Benefits from Multiple Derivations. F. Duguy1, R. Forster1, A. Ascah1, M. Poulot1, E. Troncy1, and S. Authier1. Covance Laboratories Ltd., Harrogate, United Kingdom.

**Poster Board Number 240**


**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.

**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. Grosch, J. Schneider, and M. Foley. Nonclinical Safety Assessment, Covance Inc, Madison, WI.

**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. Kremer1, H. Chen1, A. J. Bills1, N. Hanke1, M. Foley1, and M. Osinski1. Covance Laboratories Inc., Madison, WI; and Covance Laboratories Inc., Chantilly, VA.

**Poster Board Number 244**


**Poster Board Number 245**

An Improved ECG Processing Algorithm for Interval Measurement and Arrhythmia Detection. M. Brockway1,2, M. Miyamoto1, R. Brockway1, R. Hamlin1,2. University of Minnesota, St Paul, MN; VivaQuant, St Paul, MN; Huntington Life Sciences, Millstone, NJ; QTest Labs, LLC, Columbus, OH; and The Ohio State University, Columbus, OH.

**Poster Board Number 246**


**Poster Board Number 247**

Use of Bayesian Tolerance Intervals to Interpret Absolute and Relative Heart Weights. A. Stokes1, P. Torres-Saavedra2, and C. Kimbrough1. Safety Assessment, GlaxoSmithKline, Research Triangle Park, NC; Mathematical Sciences, University of Puerto Rico at Mayaguez, Mayaguez, Puerto Rico; and Statistical Sciences, GlaxoSmithKline, Research Triangle Park, NC.

**Poster Board Number 248**


**Poster Board Number 249**

Lack of Recovery from Lead-Acetate-Induced Cardiotoxicity in Wistar Rats. T. O. Omobowale1, A. S. Akinnrinde1, A. A. Oyweghem1, A. B. Saba2, B. S. Ogunsola3, and O. T. Daramola1. Department of Veterinary Medicine, University of Ibadan, Ibadan, Oyo State, Nigeria; and Departments of Veterinary Physiology, Biochemistry and Pharmacology, University of Ibadan, Ibadan, Oyo State, Nigeria.
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. Zhang1, S. Zhou1, X. Yan1, Y. Tan1, K. Kim1, K. Kim1, Y. Zheng2, L. Cai3, and Y. Kim3. 1KCHRI at the Department of Pediatrics, University of Louisville, Louisville, KY; 2The First Hospital of Jilin University, Changchun, Jilin, China; and 3Bieleland 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. Tan1, X. Yan1, S. Zhou1, C. Zhang2, Y. Li3, Y. Li4, and L. Cai3. 1KCHRI, Departments of Pediatrics, Biochemistry and Surgery Oncology, University of Louisville, Louisville, KY; and 2Chinese-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. Holland1, D. P. Bekac2, R. M. Lust3, S. C. Sumner4, T. Fennell5, and C. J. Wingard6. 1Physiology, East Carolina University, Greenville, NC; and 2RTI 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. Nichole1, A. Erdely2, D. L. Shepherd3, D. Thapa4, R. Salmen5, C. E. McLoughlin6, T. M. Sager7, J. R. Roberts8, and J. M. Holland9. 1Exercise Physiology, West Virginia University, Morgantown, WV; 2NIOSH, Morgantown, WV.

#487 Poster Board Number .....................................255 Radical-Containing Ultraline 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. Minarchick1, P. G. Stapleton2, N. R. Fix3, S. S. Leonard4, E. M. Sabolsky5, and T. R. Norkiewicz6. 1Center for Cardiovascular and Respiratory Sciences, West Virginia University, Morgantown, WV; 2Department of Mechanical Engineering, WVU, Morgantown, WV; 3NIOSH, Morgantown, WV.

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#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. Yue1, J. S. Flavick1, M. Kim2, P. J. Hofsten3, R. E. Peterson4, and W. Heideman5,6. 1Molecular and Environmental Toxicology, University of Wisconsin Madison, Madison, WI; and 2School 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. Weber1,2, and C. J. Gerger1. 1Veterinary Biomedical Sciences, University of Saskatchewan, Saskatoon, SK, Canada; and 2Toxicology 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. Hazzari1, J. Lancaster2, J. Starobin2, A. K. Parsh1, and W. Cassio1, 1Environmental Public Health Division, Environmental Protection Agency, Research Triangle Park, NC; and 2University 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-3/Fyn Pathway. Y. Xin1, X. Jiang2, Y. Bai2, and L. Cai3. 1University of Louisville, Louisville, KY; and 2The First Hospital of Jilin University, Changchun, Jilin Province, China.

#494 Poster Board Number .....................................262 (-)-Usnic Acid-Induced Myocardial Toxicity in Rats. Y. Yokouchi1, M. Imao1, N. Nino1, N. Kiyosawa1, A. Sayama1, T. Indo1, and W. Takasaki. 1Medicinal 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. Sorribas1, A. Martin-Pardillos1, C. Sosa1, and A. Millan2. 1Laboratory of Molecular Toxicology, University of Zaragoza, Zaragoza, Spain; and 2Institute 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. Huang1, and T. Camenisch2,3. 1Pharmacology & Toxicology, The University of Arizona, Tucson, AZ; 2Southwest Environmental Health Sciences Center, The University of Arizona, Tucson, AZ; and 3Bios Institute, The University of Arizona, Tucson, AZ. Sponsor: N. Cherrington.
#504a
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, W. Nungester, and D. Regalia. Charles River, Spencerville, OH; and Charles River, Reno, NV.

#504
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.

#503
Poster Board Number .....................................268

#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. Ichihara1, Y. Suzuki1, S. Tada-Oikawa1, and G. Ichihara1. 1Mie University, Tsu, Japan; and Nagoya University Graduate School of Medicine, Nagoya, Japan.

#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. E. Hebert, T. Chotibut, and T. R. Dugas. Pharmacology, Toxicology and Neuroscience, LSUHSC-Shreveport, Shreveport, LA.

#500
Poster Board Number .....................................267
Effects of Methanical Extract of Clematidis violaceaum Leaf on Selected Indices of Cardiovascular Diseases in Rat. E. A. Bologun, H. I. Zailani, and J. O. Adebayo. Biochemistry, University of Ilorin, Ilorin, Kwara, Nigeria.

#499
Poster Board Number .....................................265
Regional Interest Session

#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.

#497
Poster Board Number .....................................265
Arsenite Exposure Decreases iNOS 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.
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. Chiang1, T. Liu1, M. You1,2, Y. Shen2, J. Wu2, and T. Tsou1.1Division of Environmental Health and Occupational Medicine, National Health Research Institutes, Zhunan, Taiwan; 2Institute of Molecular and Genomic Medicine, National Health Research Institutes, Zhunan, Taiwan; 3Taiwan Zebrafish Core Facility at ZeTH, National Health Research Institutes, Zhunan, Taiwan; 4Pathology Core Laboratory, National Health Research Institutes, Zhunan, Taiwan; and 5Institute of Cellular and Organismic Biology, Academia Sinica, Taipei, Taiwan. Sponsor: P. Lin.

#512 Poster Board Number .....................................308
Cytochrome P450 Monoxygenases 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. Daisenbrock.

#513 Poster Board Number .....................................309
Analysis of DNA-Adducts in Lymphatic Tissues of Mice Treated with the Polycyclic Aromatic Hydrocarbon Dibenzo(def)chrysene. T. Harper1,2, F. T. Lauer3, L. K. Siddens4, J. Morre5, S. W. Burchiel1, and D. E. Williams6,7,8. 1Linus Pauling Institute, Oregon State University, Corvallis, OR; 2Superfund Research Program, Oregon State University, Corvallis, OR; 3Pharmaceutical Sciences, University of New Mexico College of Pharmacy, Albuquerque, NM; and 4Environmental Health Sciences Center, Oregon State University, Corvallis, OR.

#514 Poster Board Number .....................................310

#515 Poster Board Number .....................................311
Elimination Kinetics of 4-Chlorobiphenyl (PCB3) after Acute Inhalation Exposure. K. Dhakal1,2, A. Adamakova-Dodd3, H. Lehmler4,5, F. S. Thorne5,6, and L. W. Robertson7,8. 1Interdisciplinary Graduate Program in Human Toxicology, The University of Iowa, Iowa City, IA; and 2Occupational 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. Lauan1, K. Suzuki2, T. Agusa1, and H. Iwata1. 1Center for Marine Environmental Studies(CMES), Ehime University, Matsuyama, Japan; and 2Graduate School of Science, Hiroshima University, Hiroshima, Japan.

#517 Poster Board Number .....................................313
Biotransformation of Organohalogens Complexed in the Liver Microsomes of Cats and Dogs. H. Mizukawa1, K. Nomiyama2, S. Nakatsu3, A. Kubota4, H. Iwata5, Y. Ikenaka6, S. Tanabe7, and M. Ishizuka8. 1Hokkaido University, Sapporo, Japan; 2Ehime University, Matsuyama, Ehime, Japan; 3Nakatsu Veterinary Surgery, Sakai, Osaka, Japan; and 4Woods Hole Oceanographic Institution, Woods Hole, MA.

#518 Poster Board Number .....................................314

#519 Poster Board Number .....................................315
Assessment of Metabolic Potential of PCB Congeners in the Baikal Seal (Pusa sibirica) Using the Liver Microsome. J. Yoo1, H. Mizukawa1,2, K. Nomiyama2, C. Kanbara1, A. Kubota1, T. Agusa1, E. Kim2, S. Tanabe7, and H. Iwata8. 1Center for Marine Environmental Studies, Ehime University, Matsuyama, Japan; 2Graduate School of Veterinary Medicine, Hokkaido University, Sapporo, Japan; and 3Woods Hole Oceanographic Institution, Woods Hole, MA; and 4Department 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. Merrill1, B. A. Nyagode1, R. Jahangardi1, M. G. Tansey2, and E. T. Morgan3. 1Pharmacology, Emory University, Atlanta, GA; and 2Physiology, 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, F. 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 Methyleneglycol, 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. Gaytan1, D. Faulkner2, M. Proctor3, R. Rudolf4, C. Volpe3, and M. Faulkner5. 1Nanobioscience, College of Nanoscale Sciences and Engineering, Albany, NY; 2Toxicology, University of California Berkeley, Berkeley, CA; and 3Silent Spring Institute, Newton, MA.
# Program Description (Continued)

## Abstract #

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<tr>
<td>A Crystall of m-Chlorobenzoic Acid with Furosemide: Prospective Applications. R. London1, M. O. Claville2, F. R. Frongczek2, and R. M. Uppul1. 1Environmental Toxicology, Southern University and A&amp;M College, Baton Rouge, LA; 2School of Science, Hampton University, Hampton, VA; and 3Department of Chemistry, Louisiana State University, Baton Rouge, LA.</td>
<td>Genome Profiling of Saccharomyces Cerevisiae Resistance to Aflatoxin B1 (AFB1), a Potent Liver Carcinogen. M. Fassal1, J. Bard1, C. Cera1, P. Egger1, and T. J. Begley2,1. 1Nanobiosciences, College of Nanoscale Sciences and Engineering, Albany, NY; 2Biomedical Sciences, State University of New York at Albany, Albany, NY; Center of Excellence in Bioinformatics, State University of New York at Buffalo, Buffalo, NY; and 3Bloomong School of Public Health, John Hopkins University, Baltimore, MD.</td>
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<tr>
<td>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.</td>
<td>Effect of Vincolzolin on Liver Cytochrome P450 Expression and Testosterone and Estradiol Serum Levels during Pregnancy. F. G. Garcia-Montes de Oca1, M. L. Lopez-Gonzalez1, R. Chavira-Ramirez2, and A. Sierra-Santoyo1. 1Toxicology, CINVESTAV-IPN, Mexico City, D.F., Mexico; and 2Instituto Nacional de Ciencias Medicas y Nutricion “Salvador Zubiran,” Mexico City, D.F., Mexico.</td>
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<tr>
<td>Role of P450 Enzymes in Cigarette Smoke-Induced Acute Lung Injury. M. A. Hartog1,2, and X. Ding2,1. Wadsworth Center, New York State Department of Health, Albany, NY; and 2School of Public Health, State University of New York at Albany, Albany, NY.</td>
<td>Role of Human CYP2A13 and CYP2F1 in Naphthalene Bioactivation and Toxicity in the Lung and Nasal Mucosa of a CYP2A13/2F1-Humanized Mouse. X. Ding1, L. Li2, K. Jia1, M. Hartog1, Y. Wang1, and L. S. Van Winkle1. Health Research Inc., Albany, NY; and 2UC Davis, Davis, CA.</td>
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<tr>
<td>Essential Role of the Cytochrome P450 Enzyme CYP2A5 in Olfactory Mucosal Toxicity of Naphthalene. J. Hu1, L. Sheng2, L. Li1, X. Zhou2, F. Xie2, J. D’Agostino1, Y. Li3, and X. Ding1. 1Health Research Inc., Albany, NY; and 2Institute of Materia Medica, Chinese Academy of Medical Sciences &amp; Peking Union Medical College, Beijing, China.</td>
<td>High-Throughput Screening to Identify Substrates of Zebrafish Cytochrome P450 1A. J. Y. Wilson, and D. H. Alsop. Biology, McMaster University, Hamilton, ON, Canada.</td>
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<td>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. Kondragunti, C. Chu, W. Jiang, L. Wang, and B. Moothy. Pediatrics, Baylor College of Medicine, Houston, TX.</td>
<td>Role of Intestinal Cytochrome P450 Enzymes in Protection against Colon Inflammation in a Mouse Model of Deletion Sulfate Sodium-Induced Colitis. Q. Zhang1,2, Y. Zhu2, F. Xie1, and X. Fan2. 1Wadsworth Center, NYSDOH, Albany, NY; and 2School of Public Health, SUNY at Albany, Albany, NY.</td>
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<tr>
<td>Identification of a P450-Mediated Hepatotoxicity-Associated Glutathione-Conjugate of Phenytion in Phenytion-Induced Liver Injury in Mice. T. Yokoi1,2, E. Sasaki1, A. Iwamura1, T. Fukami1, M. Nakajima1, and T. Kume1. Graduate School of Medical Science, Kanazawa University, Kanazawa, Ishikawa, Japan; 2Department of Drug Safety Sciences, Nagoya University Graduate School of Medicine, Nagoya, Aichi, Japan; and 3DMKP Research Laboratory, Mitsubishi Tanabe Pharma Corporation, Toda, Saitama, Japan.</td>
<td>Increased Susceptibility to Hypoxic Lung Injury and Alveolar Simplification in Newborn Rats by Prenatal Administration of Benzo(a)pyrene. X. Courouch, V. S. Thakur, Y. W. Liang, W. Jiang, L. Wang, and B. Moothy. Pediatrics, Baylor College of Medicine, Houston, TX.</td>
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<tr>
<td>Increased Susceptibility of Mice Lacking the Gene for Cytochrome P450 1A1 to Hyperoxic Lung Injury In Vivo. B. Moothy, K. Lingappan, L. Wang, X. I. Courouch, and W. Jiang. Pediatrics, Baylor College of Medicine, Houston, TX.</td>
<td>Biochemical Characterization of Cytochromes P450 2B from the Desert Woodrat. R. Wilderman, H. Jang1, J. R. Malenke1, M. Sathib2, E. Angermier1, S. Lamime1, D. Dearing1, and J. R. Halpert1. SSPPS, University of California, San Diego, La Jolla, CA; and 2Department of Biology, University of Utah, Salt Lake City, UT. Sponsor: R. Tukey.</td>
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Abstract #  
#539b  Poster Board Number .........................337
Estimation of Bisphenol A Toxicity with the
Datachip/Metachip Technology.  S. Park, S. Yi,  
and M. Yang1.  ‘Research Center for Cell Fate Control,
Sookmyung Women, Seoul, Republic of Korea; and
1Central R & D Institute, Samsung Electro-Mechanics
Co, Suwon, Republic of Korea.

Abstract #  
#539c  Poster Board Number .........................338
Comparative Characterization of Feline
Cytochrome P450 3A by Fluorescent Inhibition
Assay.  H. Teraoka1, G. Okamatsu1, T. Komatsu1, and
T. Kitazawa1.  ‘School of Veterinary Medicine, Rakuno
Gakuen University, Ebetsu, Hokkaido, Japan.

Abstract #  
#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. You1, E. Madey1, T. Harper1, D. E. Williams1, W. M. Baird1, and C. V. Löhrl.
‘Environmental & Molecular Toxicology, Oregon
State University, Lake Oswego, OR.

Abstract #  
#539e  Poster Board Number .........................340
Metabolism of 4-Methylimidazole in the Rat and
Mouse.  T. Fennell1, R. Snyder1, S. Watson1, and S.
Dhungana1.  ‘RTI International, Research Triangle
Park, NC.

Monday Afternoon, March 24  
1:00 PM to 4:30 PM  
Exhibit Hall  
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  

Abstract #  
#540  Poster Board Number .........................341
PON 1 Enzyme Activities in a Mississippi
Population Vary with Substrate, Genotype, 
and Race.  M. Dail1, C. McDaniel1, R. Wills3, H. W. Chambers2, and J. E. Chambers1.  ‘Center for
Environmental Health Sciences, Mississippi State
University, MS State, MS; and 3Biochem., Mol. Biol.,
Entom., Plant Path., Mississippi State University, MS
State, MS.

Abstract #  
#541  Poster Board Number .........................342
Contribution of CYP2B6 Alleles in Sudden
Death of Methadone Users: A CYP2B6 Genetic
Polymorphism Study.  T. Ahmad1, L. Richards-Waugh2, S. Sabet1, and G. O. Rankin1.  ‘Pharmacology,
Physiology & Toxicology, Marshall University,
Huntington, WV; and 1Forensic 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. Khan1, A. 
Baghdasarian2, R. Fahlan1, and A. G. Srirak1. 
1Pharmacy and Pharmaceutical Sciences, University
of Alberta, Edmonton, AB, Canada; 2Pharmacy
and Pharmaceutical Sciences, University of
Alberta, Edmonton, AB, Canada; 4Department of
Biochemistry, University of Alberta, Edmonton,
AB, Canada; and 5Pharmacy and Pharmaceutical
Sciences, University of Alberta, Edmonton, AB,
Canada.

Abstract #  
#543  Poster Board Number .........................344
Pdml2 Is Identified As a Potential Risk Factor
for Zileuton-Induced Liver Injury Using a Mouse
Genetic Diversity Panel.  M. Mosedale1, K. Adkins2, 
H. Wu1, and A. H. Harrill2.  ‘The Hamner Institutes
for Health Sciences, Research Triangle Park, NC;
‘Pfizer Inc., Groton, CT; and ‘UAMS, Little Rock, AR.

Abstract #  
#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. Yuan1, P. Pandel1, J. Hill1, and
W. W. Ku1.  ‘Integrative Toxicology, Nonclinical
Drug Safety, Boehringer Ingelheim Pharmaceuticals,
Inc., Ridgefield, CT; and ‘Computational Biology,
Scientific Knowledge Discovery, Boehringer
Ingelheim Pharmaceuticals, Inc., Ridgefield, CT.

Abstract #  
#545  Poster Board Number .........................346
Refinement of N-Acetyltransferase 2 Phenotype
Prediction for Activity and Urinary Bladder
Cancer Risk Prediction.  K. Gatka1, M.
Blaszkwicz2, K. Ikstadt1, J. G. Hengstler1, and S.
Selinski1.  ‘Leibniz Research Centre for Working
Environment and Human Factors, Dortmund,
Germany; and 2Faculty of Statistics, TU Dortmund
University, Dortmund, Germany.

Abstract #  
#546  Poster Board Number .........................347
Potential Role of Carboxyl Reductase 3 in
Doxorubicin-Induced Cardiotoxicity.  C. M.
Schaupp1, C. C. White2, G. F. Merrill1, and T.
J. Kavanagh1.  ‘Department of Environmental and
Occupational Health Sciences, University
of Washington, Seattle, WA; and ‘Department of
Biochemistry and Biophysics, Oregon State
University, Corvallis, OR.

Abstract #  
#547  Poster Board Number .........................348
Synergistic Interaction between Genetics and
Disease on Pravastatin Disposition.  J. Clarke1, R.
N. Hardwick1, A. D. Lake1, A. J. Lickteig1, C. Klassen2, and
N. J. Cherrington1.  ‘Pharm/Tox, University of
Arizona, Tucson, AZ; and ‘University of Kansas
Medical Center, Kansas City, KS.

Abstract #  
#548  Poster Board Number .........................349
The Role of the Folate Pathway in Pancreatic
Cancer Risk.  S. Chittiboyina1, L. M. Kamenoudis, 
and B. A. Husevar.  Environmental Health, Indiana
University School of Public Health, Bloomington, IN.

Abstract #  
#549  Poster Board Number .........................350
Functional Effect of Polymorphic Variations of
Human Cytochrome P450 2D6 (P345, E418K, 
S486T, and R296C).  D. Kim, J. Kim, Y. Lim, S. Han,
and H. Park.  Konkuk University, Seoul, Republic of
Program Description (Continued)

Abstract #

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Poster Board Number .....................................351
Polyorphism of RGS9: Association with Obesity. M. Sharma1, C. Sheni1, D. Reid1, J. Chen2, N. Soman3, S. K. Vasan4, H. Wang5, T. Gu6, Y. Liu6, W. W. Mohamud7, K. Brismar8, W. G. Fairbrother9, A. Kovoor10, and G. Harvest11. Dr BR Ambedkar Center for Biomedical Research, University of Delhi, Delhi, India; 2Epidemiology and Biostatistics, Nanjing Medical University, Nanjing, China; 3 Molecular Biology, Cell Biology and Biochemistry, Brown, Providence, RI; 4National Laboratory of Medical Molecular Biology, Basic Medical Sciences, Beijing, China; 5Biomedical and Pharmaceutical Sciences, University of Rhode Island, Kingston, RI; 6Research Center for Diabetes and Endocrinology, Karolinska, Stockholm, Sweden; and 7Cardiovascular Diabetes and Nutrition Research Centre, Medical Research, Kuala Lumpur, Malaysia.

#551

Poster Board Number .....................................352
Gene Environment Interaction in Urinary Bladder Cancer. B. D. Banerjee1, T. Sharma1, A. Verma1, and S. Gupta2. 1Biochemistry, University College of Medical Sciences and GTB Hospital, Delhi, Delhi, India; and 2Surgery, 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 Retinoldehyde—In Vitro Studies and Computational Modeling. B. C. Jackson1, P. Reigan1, D. Thompson1, and V. Vasi1ou1. 1Department of Pharmaceutical Sciences, University of Colorado Anschutz Medical Campus, Aurora, CO; and 2Department of Clinical Pharmacy, University of Colorado Anschutz Medical Campus, Aurora, CO.

#552a

Poster Board Number .....................................354
SLC19A1, SLC46A1 and SLC01B1 Polymorphisms Are Associated with Methotrexate-Related Overall Toxicity in Portuguese Rheumatoid Arthritis Patients. A. Lima1,2, R. Azavedo1, H. Sousa1, M. Bernardes1, R. Medeiros1,2,3, and V. M. Seabra1,2. 1IINFACS/CESPU, ISCS-Norte, Gandra, PRD, Portugal; 2Molecular Oncology Group, IPO, Porto, Portugal; 3ICRAS, University of Porto, Porto, Portugal; and 4Rheumatology Department, São Joao Hospital Center, Porto, Portugal.

#552b

Poster Board Number .....................................355
Role of CYP3A5 in the Metabolic Activation of Lapatinib. K. D. Hardy1,2, M. Wahlin1, and A. E. Rettie1. 1Department of Pharmaceutical Sciences, Lipscomb University College of Pharmacy, Nashville, TN; and 2Department 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. Ning1, L. M. Yerges1, C. Chang1, D. Yu2, A. Fisch3, D. Thierry-Mieg4, J. Thierry-Mieg4, B. Green5, Z. Su6, J. R. O’Connell6, M. A. Pacanowski6, W. Tong7, L. Shi8, and A. R. Shuldiner8. 1National Center for Toxicological Research, FDA, Jefferson, AR; 2University of Maryland School of Medicine, Baltimore, MD; 3National Center for Biotechnology Information, Bethesda, MD; and 4Center for Drug Evaluation and Research, FDA, Silver Spring, MD.

Abstract #

Monday Afternoon, March 24
1:00 PM to 4:30 PM
Exhibit Hall

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 Again. H. Radiation-Induced Injury by Multiple Mechanisms. M. R. Landauer1. 1Armed Forces Radiobiology Research Institute, Bethesda, MD.

#552e

Poster Board Number .....................................370
Arsenicals, Lewisite- and Phenylarsonic Oxide-Induced Cutaneous Inflammation Response and Cell Death Are Regulated by UPR Signaling Pathway. R. K. Srivastava1, C. Li1, S. C. Chaudhary2, Z. Weng3, F. Afaz1, and M. Athar4. 1Dermatology, 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. Joho1, A. M. Grove2, J. P. Williams1, T. Beach1, and J. N. Finkelstein1. 1Pediatrics, University of Rochester, Rochester, NY.

#552g

Poster Board Number .....................................372
Soman-Induced Convulsions Change the Phosphorylation State of the Potassium-Chloride Cotransporter (KCC2). C. Smith1, S. M. Miller1, T. Z. Dee2, L. Silayeva2, S. J. Moss2, and J. H. McDonough3. 1US Army Medical Research Institute of Chemical Defense, Aberdeen Proving Ground, MD; and 2Tufts Medical School, Boston, MA.

#553

Poster Board Number .....................................401
Flavanone Silibinin As Potential Therapeutic against Skin Injuries by Vescicating Agents. N. Tewari-Singh1, A. R. Jain1, S. Inturi1, D. Kumar2, D. Orlicky3, C. Agarwal2, and C. White4. 1Department of Pharmaceutical Sciences, University of Colorado Denver, Aurora, CO; 2Department of Pathology, University of Colorado Denver, Aurora, CO; and 3Department of Pediatrics, University of Colorado Denver, Aurora, CO.

#554

Poster Board Number .....................................402
Topical Nitrogen Mustard Exposure Causes Systemic Toxic Effects in Mice. R. Agarwal1, D. Kumar1, D. G. Goswami1, N. Tewari-Singh1, S. Inturi1, D. Orlicky3, A. R. Jain1, R. C. Rancourt1, C. White4, and C. Agarwal2. 1Department of Pharmaceutical Sciences, University of Colorado Denver, Aurora, CO; 2Department of Pathology, University of Colorado Denver, Aurora, CO; and 3Department of Pediatrics, University of Colorado Denver, Aurora, CO.
Abstract # #555
Poster Board Number .....................................403
Nitrogen Mustard-Induced Corneal Injury Involves DNA Damage and Induction of Pathways Related to Inflammation, Vasodilation, and Neovascularization. D. G. Goswami1, N. Tewari-Singh2, D. Dhar1, D. Kumar1, C. Agarwal3, D. A. Ammar1, R. Kant1, J. Petras1, and R. Agarwal2
1Department of Pharmaceutical Sciences, University of Colorado Denver, Aurora, CO; and 2Department of Ophthalmology, University of Colorado Denver, Aurora, CO.

Poster Board Number .....................................404
1CEHS, Mississippi State Univ., Mississippi State, MS; 2Biochem., Mol. Bio., Ent. and Plant Path., Mississippi State Univ., Mississippi State, MS; and 3AFRL, WPAFB, OH.

Poster Board Number .....................................405
Behavioral Assessments in NIH Swiss Mice Acutely Intoxicated with Tetramethylenedisulfotetramine (TETS). B. Flannery1, J. L. Silverman1, D. Braun2, J. N. Crawley2, and P. Lein3
1Molecular Biosciences, University of California Davis School of Veterinary Medicine, Davis, CA; and 2Battelle, Columbus, OH; 3National Institute of Neurological Disorders and Stroke, National Institutes of Health, Bethesda, MD.

Poster Board Number .....................................406
Atropine Therapy Alone in Guinea Pigs Does Not Improve Survivability against Most G Agents, VX, Paraaxon, and Chlorpyrifos Oxon. T. H. Snider1, C. Wilhelm1, M. C. Babin1, D. Jett2, G. Platoff, and D. T. Yeung1. 1Biomedical Research Center, Battelle, Columbus, OH; 2National Institute of Neurological Disorders and Stroke, National Institutes of Health, Bethesda, MD; and 3National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, MD.

Poster Board Number .....................................407
Identification of Glutaredoxin As a Molecular Target for the Sulfur Mustard Analog Bis(2-chloroethyl)methyamine. Y. Jan1, D. E. Heck2, R. P. Casillas3, D. L. Laskin4, and J. D. Laskin1
1Environmental & Occupational Medicine, Rutgers University-Robert Wood Johnson Medical School, Piscataway, NJ; 2Environmental Health Science, New York Medical College, Valhalla, NY; 3MRI-Global, Kansas City, MO; and 4Pharmacology & Toxicology, Rutgers University, Piscataway, NJ.

Poster Board Number .....................................408
Functional Properties of Bispyridinium Non-Oxime Compounds on Muscle-Type Nicotinic Acetylcholine Receptors Using a Bilayer-Based Method. H. Thiermann1, T. Seeger1, F. Worek, and K. V. Niessen. Bundeswehr Institute of Pharmacology and Toxicology, Munich, Germany.

Poster Board Number .....................................409
Amine Oxime Therapies against Subcutaneous Organophosphate Challenges in the Hartley Guinea Pig. C. Wilhelm1, T. H. Snider1, M. C. Babin1, G. Platoff2, D. Jett2; and D. T. Yeung1. 1Battelle, Columbus, OH; 2National Institutes of Health/National Institute of Neurological Disorders and Stroke, Bethesda, MD; and 3National Institutes of Health/National Institute of Neurological Disorders and Stroke, Bethesda, MD.

Poster Board Number .....................................410

Poster Board Number .....................................411
Sulfur Mustard Alters Sebocyte Differentiation in Hairless Mouse Skin. D. E. Heck1, L. B. Joseph1, J. A. Cervelli1, G. M. Composto2, R. P. Casillas2, D. R. Gercke3, P. J. Sinko1, D. L. Laskin4, and J. D. Laskin1. 1New York Medical College, Valhalla, NY; 2Rutgers University, Piscataway, NJ; 3MRI-Global, Kansas City, MO; and 4Rutgers University-Robert Wood Johnson Medical School, Piscataway, NJ.

Abstract # #561
Poster Board Number .....................................403
Attention 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) acetamide (1400W). R. Malaviya1, V. Sunil1, A. Venosur1, K. Vayas2, F. Sinko1, J. Shen1, L. Hall1, D. Shealy2, N. Heindel3, C. J. Lacey1, J. D. Laskin1, and D. L. Laskin1. 1Pharmacology and Toxicology, Rutgers University, Piscataway, NJ; 2Johnson & Johnson, Raritan, NJ; and 3Lehigh University, Bethlehem, PA.

Poster Board Number .....................................412
Comparative Efficacy Assessments of Oxime Therapies against Subcutaneous Organophosphate Challenge in the Hartley Guinea Pig. B. Brodsky1, M. Ascher2, Y. Finkelstein3, Y. Jan1,2, Y. Finkelstein3, and D. T. Yeung1. 1Battelle, Columbus, OH; 2National Institutes of Health/National Institute of Neurological Disorders and Stroke, Bethesda, MD; and 3National Institutes of Health/National Institute of Neurological Disorders and Stroke, Bethesda, MD.

Abstract # #562
Poster Board Number .....................................404
Inhibition of Multidrug Resistance-Associated Protein (MRP) Efflux Transporters Increases the Sensitivity to Viscidated-Growth Inhibition in Lung Epithelial Cells. R. G. Udassin1, K. M. Bircsak2,3, V. Mishin1, D. E. Heck1, L. M. Aleksunes2,3, D. L. Laskin4, and J. D. Laskin1. 1Joint Graduate Program in Toxicology, Rutgers University, Piscataway, NJ; 2Pharmacology & Toxicology, Rutgers University, Piscataway, NJ; 3Environmental Health Science, New York Medical College, Valhalla, NY; and 4Environmental & Occupational Medicine, Robert Wood Johnson Medical School, Rutgers University, Piscataway, NJ.

Poster Board Number .....................................413
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) acetamide (1400W). R. Malaviya1, V. Sunil1, A. Venosur1, K. Vayas2, F. Sinko1, J. Shen1, L. Hall1, D. Shealy2, N. Heindel3, C. J. Lacey1, J. D. Laskin1, and D. L. Laskin1. 1Pharmacology and Toxicology, Rutgers University, Piscataway, NJ; 2Johnson & Johnson, Raritan, NJ; and 3Lehigh University, Bethlehem, PA.
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 Guinea Pig? M. K. Brittain1, J. A. Harvilchuk1, M. C. Bailey1, D. Jett1, G. Plott1, and D. T. Yeung2. 1Biomedical Research Center, Battelle Memorial Institute, Columbus, OH; 2National Institute of Neurological Disorders and Stroke, NIH, Bethesda, MD; and 3National Institute of Allergy and Infectious Diseases, NIH, Bethesda, MD.


#569 Poster Board Number .....................................417 Δ4-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. Andres1, B. Keyser1, B. J. Benton1, A. Appell1, D. Olivera1, W. Holmes1, D. Paradiso2, D. Anderson1, and R. Ray1. 1Research Division, US Army Medical Research Institute of Chemical Defense, Aberdeen Proving Ground, MD; and 2Analytical Toxicology Division, US Army Medical Research Institute of Chemical Defense, Aberdeen Proving Ground, MD. Sponsor: J. Yerrick.

#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 Methloretamine Dermatotoxicity Is Potentiating by the Absence of Nrf2 in the Mouse Ear Vescant Model. O. Spiravalo, H. Tumu, K. Giusto, S. Nicholson, M. Guralnik, L. Queveira, 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. Meade1, M. K. Mackley1, J. J. Schlegel1, T. H. Snider1, and J. M. Gearhart1. 1Henry M Jackson Foundation, Wright Patterson AFB, OH; 2Air Force Research Lab 711 HPWRID, Wright Patterson AFB, OH; and 3Battelle Biomaedical Research Center, West Jefferson, OH.

Abstract #


#575 Poster Board Number .....................................423 Targeting Connexin 43: Cutaneous Wound Repair Using the Sulfur Mustard Analog, Nitrogen Mustard, Hairless Mouse Skin Model. Y. Chang1, J. D. Wang1, R. A. Hahn1, H. Chang1, R. P. Casillas1, M. K. Gordon1, and D. R. Gerecke2. 1Dept of Pharm and Tox, Ernest Mario School of Pharmacy, Rutgers University, Piscataway, NJ; and 2MIR Global, Kansas City, MO.

#576 Poster Board Number .....................................424 Inhibitors of Poly(ADP-Ribose) Polymerase 1 (PARP-1) As Protective Agents against MN2 Toxicity in a Skin Cell Model. M. A. Pino1, M. Patel1, T. Talele1, and B. Billack1. 1College of Pharmacy and Health Sciences, St John’s University, Jamaica, NY; and 2Department 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. McElroy1, E. Min1, J. Huang1, J. Loader1, T. Hendry-Hofer1, R. Garlick1, J. Broux1, L. Veress1, R. Smith1, C. Osborne1, D. Anderson1, W. Holmes1, D. Paradiso1, C. White1, and J. D. Day2. 1University of Colorado, Aurora, CO; 2National Jewish Health, Denver, CO; and 3USAMRICD, Aberdeen, MD.

#578 Poster Board Number .....................................426 Assessment of Corneal Wound Healing Seven Days after Mustard Exposure. A. DeSantis Rodrigues1, I. Po1, R. A. Hahn1, D. R. Gerecke2, K. K. Svoboda2, and M. K. Gordon1. 1Ernest Mario School of Pharmacy, Rutgers Univ, Piscataway, NJ; and 2Biomedical 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. Hobson1, S. Suo2, D. Rowland3, D. A. Brown1, J. Garbow4, and P. Lein5. 1Molecular Biosciences, University of California Davis, Davis, CA; 2Pathology, Microbiology & Immunology, University of California Davis, Davis, CA; 3Center for Molecular and Genomic Imaging, University of California Davis, Davis, CA; and 4Department 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. Menard1, D. Douglas2, K. Attnikov2, J. F. Mariner1, and M. Belveteau1. 1Firstsight Consulting Services, Certara, Montreal, QC, Canada; and 2Cangene Corporation, Winnipeg, MB, Canada.
Abstract #

**#581a** Poster Board Number ................................. 430

**#581b** Poster Board Number ................................. 431
Deterministic Models of Inhalational Anthrax in New Zealand White Rabbits. B. Gating7. 1NSWCD, Dahnghra, VA.

**#581c** Poster Board Number ................................. 432

**#581d** Poster Board Number ................................. 433
Pharmacokinetics of Nitrocobinamide (NCbi), a Novel Cyanide Antidote. K. O’Loughlin1, R. Swezy2, W. Shinn3, G. R. Boss4, and C. E. Green5. 1Toxicology & Pharmacokinetics, SRI International, Menlo Park, CA; and 2University 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. Dao1, T. A. Shih2, R. Kim1, C. R. Braue1, J. A. Leuschner1, and R. K. Kan1. 1USAMRICD, Aberdeen Proving Ground, MD.

**#581f** Poster Board Number ................................. 435
Melatonin Treatment Reduces Corneal Injury after Nitrogen Mustard Exposure. A. L. Miller1, H. Yaren1, H. Yaman1, R. A. Hahn1, P. Zhou1, and M. K. Gordon1. 1Pharmacology and Toxicology, EMSOP, Rutgers University, Piscataway, NJ; 2Department of CBRR Defense, Gulhane Military Medical Academy, Ankara, Turkey; and 3Biochemistry, Gulhane Military Medical Academy, Ankara, Turkey.

**#581g** Poster Board Number ................................. 436

**#581h** Poster Board Number ................................. 437
Blood Pressure, Heart Rate, Temperature, and Central Nervous System Evaluation of Cyanide Intoxication in Juvenile and Adult Mice. M. Hawk1, G. Ritchie2, T. Vinci3, K. A. Henderson4, S. Behringer5, K. Knostman1, B. Roche6, C. L. Sabourin7, and P. Sabourin7. 1Battelle, Columbus, OH.

**#581i** Poster Board Number ................................. 438
Younger Rats Are More Susceptible to the Lethal Effects of Sarin Than Adult Rats: 24 h iCC50 for Whole-Body (60 Min) Exposure. L. K. Wright1, D. B. Miller2, W. T. Muse3, E. J. Emm3, R. B. Lee4, C. E. Whalley5, and L. A. Lumley6. 1US Army Medical Research Institute of Chemical Defense, Aberdeen Proving Ground, MD; and 2Edgewood 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. Sabourin1, C. Kobe1, B. Horne2, E. Psurny3, C. Matthews4, K. M. Patton5, S. Gibbs6, and C. L. Sabourin7. 1Battelle, Columbus, OH; and 2Best Center, Battelle, Albuquerque, NM.

**#581k** Poster Board Number ................................. 440
Treatment of Lung Injury from Phosgene Chemical Inhalation with NOS-2 Inhibition. P. Filipczak1, J. D. McDonald1, L. Fredenburgh1, and R. Baron1. 1Lovelace Respiratory Research Institute, Albuquerque, NM; and 2Division 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
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. Shipkowski1, A. J. Taylor1, E. Thompson1, 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 Vivo and in Vivo. A. Taylor1, K. A. Shipkowski1, E. T. Thompson1, C. Devine2, G. Parsons2, S. Garanzitios3, S. Hussain2, and J. C. Bonner1. 1Biological Sciences: Toxicology Program, North Carolina State University, Raleigh, NC; 2Chemical & Biomolecular Engineering, North Carolina State University, Raleigh, NC; and 3Laboratory 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. Thompson1, K. A. Shipkowski1, A. J. Taylor1, 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. Stueckle1, R. Derk2, M. Chen3, V. Castranova1,2, Y. Rojansakul2, and L. Wang1,2. 1NIOSH, Morgantown, WV; and 2West Virginia University, Morgantown, WV.
Program Description

Abstract #

#586  Poster Board Number .....................................445
Lactoperoxidase-Mediated Degradation of Oxidized Single-Walled Carbon Nanotubes and Its Modulatory Effects on Airway Antibacterial Activity. K. Bhattacharya1, R. El-Sayed2, F. T. Andon3, A. Fornara1, H. Li4, J. Gregory1, K. Leifer2, S. Dahlén5, A. Star1, and B. Fudeal1. 1Institute of Environmental Medicine, Karolinska Institutet, Stockholm, Sweden; 2Unit for Center for Exotic Nanocarbons, Shinshu University, Nagano, Japan; 3Department of Engineering Sciences, Ångström Laboratory, Uppsala, Sweden; and 4Department of Chemistry, University of Pittsburgh, Pittsburgh, PA.

#587  Poster Board Number .....................................446
Effects of MWCNT and Nitrogen-Doped MWCNT in Lung Epithelial Cells. A. Mihalchik1,2, D. W. Porter1, V. Castranova1, S. Tsuruoka1, M. Endo1, and Y. Qian1. 1Pharmaceutical and Pharmacological Sciences, West Virginia University, Morgantown, WV; 2Health Effects Laboratory Division, National Institute for Occupational Safety and Health, Morgantown, WV; and 3Research Center for Exotic Nanocarbons, Shinshu University, Nagano, Japan.

#588  Poster Board Number .....................................447
Autophagy and Extracellular HMGB1 Are Mediators of Inflammation in Response to MWCNT Exposure. F. Jessop1, R. Biswas2, and A. Homan. 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. Manke1, T. A. Stueckle1, L. Wang2, C. A. Dinu3, and Y. Rojanasakul1. 1Pharmaceutical Sciences, West Virginia University, Morgantown, WV; 2NIOHS, Morgantown, WV; and 3Chemical 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. Talkington1, C. Dong2, X. Zhao2, J. Dymack1,2, V. Castranova1, Y. Qian1, and N. L. Guo1. 1National Institute for Occupational Safety and Health, Morgantown, WV; 2West Virginia University Mary Babb Randolph Cancer Center, Morgantown, WV; and 3West 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. Tsuruoka1, H. Matsumoto1, K. Takeuchi1, K. Koyama1, N. Saito1, Y. Usui1, S. Kobayashi1, E. Akiba1, D. W. Porter1, V. Castranova1, F. R. Cassee1, and M. Endo1. 1Research Center for Exotic Nanocarbons, Shinshu University, Nagano, Japan; 2Tokyo Institute of Technology, Meguro, Tokyo, Japan; 3Institute for Carbon Science & Technology, Shinshu University, Nagano, Japan; 4Kyobay Living Co., Ltd., Osaka, Japan; 5School of Health Science, Shinshu University, Matsumoto, Nagano, Japan; 6NIOSH, Morgantown, WV; and 7RIVM, 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. Shinohara1,2, K. Uchino1, K. Fujita1,2, S. Endoh1, J. Maru2, and H. Kato1. 1National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Ibaraki, Japan; and 2Technology 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. Kim1, J. Shin2, J. Hwang2, J. Lee2, T. Kim1, J. Lee1, Y. Kim1, H. Lee3, N. Song1, K. Ahn2, and I. Yu3. 1Institute of Nanoproduct Safety Research, Hoseo University, Asan, Republic of Korea; 2Occupational Lung Diseases Institute, KCOMWEL, Ansan, Republic of Korea; 3Donga University, Busan, Republic of Korea; 4KRIS, Daejeon, Republic of Korea; 5Hanyang University, Ansan, Republic of Korea; and 6Korea 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. Zhang1, N. Arouoo2, N. B. Salehi3, J. Bisesi1, and T. Sabo-Attwood1. 1University of Florida, Gainesville, FL; and 2University of South Carolina, Columbia, SC.

#595  Poster Board Number .....................................454
Carbon Nanotubes Effects on Primary Human Umbilical Vein Endothelial Cells (HUVEC) Cultures Morphology and Expression of Endothelial Genes and Proteins Implicated in Fibrinolysis. Y. Rodriguez-Yáñez1, B. Cheavez-Munguia2, B. Cisneros3, R. López-Marure4, S. K. González5, and A. Alvarez6. 1Toxicology, Cinvestav, Mexico City, Mexico; 2Infectógenos, Cinvestav, Mexico City, Mexico; 3Genetics, Cinvestav, Mexico City, Mexico; 4Cell Biology, Instituto Nacional de Cardiología Ignacio Chávez, Mexico City, Mexico; and 5HGTicomán, 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. Thompson1, R. J. Snyder2, B. S. Harrison3, J. M. Brown4, and C. J. Wingard5. 1Pharmacology & Toxicology, East Carolina University, Greenville, NC; 2Pharmacology & Toxicology, East Carolina University, Greenville, NC; 3Pharmacology & Toxicology, East Carolina University, Greenville, NC; and 4NanoHealth Program, National Institute of Environmental Health Sciences, NIH, Research Triangle Park, NC; and 5Institute 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. Büsen1, L. Ma-Flock2, W. Wohlgemuth3, S. Gröters1, D. Geiger1, B. van Ravenzwaai4, and R. Landsiedel5. 1Toxicology, BASF SE, Ludwigshafen/Rhein, Germany; 2Product Safety, BASF SE, Ludwigshafen, Germany; and 3Material physics, BASF SE, Ludwigshafen, Germany.
Abstract #  #598  Poster Board Number .....................................457  Determination of Nanomaterial Single Nanoparticle and Nanoparticle Aggregation in Complex Biological Environments. Y. Zhang1, S. V. Jenkins2, T. Ingle3, R. Wang4, J. Chen5, and P. C. Howard6. 1NCTR/ORANanotechnology Core Facility, Office of Scientific Coordination, NCTR/FDA, Jefferson, AR; and Department of Chemistry and Biochemistry, University of Arkansas, Fayetteville, AR.


Abstract #  #600  Poster Board Number .....................................459  CEFIC-LRI N1 Project: Inhalation Toxicity of a Synthetic Amorphous Silica (SAS) in Rats. O. H. Creutzeng, G. Pohllmann, 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.

Abstract #  #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. Creutzeng. Inhalation Toxicology, Fraunhofer Institute for Toxicology and Experimental Medicine, Hannover, Germany. Sponsor: C. Dasenbrock.

Abstract #  #602  Poster Board Number .....................................461  Modulation of Macrophage Phenotype and Function by Engineered Nanoparticles. V. K. Kodali1, M. H. Little2, S. C. Tilson3, H. D. Jolley4, J. G. Toeguerden5, C. P. Frevert6, S. J. Skerrett7, J. G. Pounds8, and B. Thrall9. 1Systems Toxicology, Pacific Northwest National Laboratory, Richland, WA; and 2Department of Comparative Medicine, University of Washington, Seattle, WA.

Abstract #  #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. Carosino1, H. Wang2, C. C. White2, J. Shang3, X. Gao4, and T. Kavanagh5. 1Department of Environmental and Occupational Health Sciences, University of Washington, Seattle, WA; and 2Bioengineering, University of Washington, Seattle, WA.

Abstract #  #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. Hughes1, and V. Miyani2. 1ORD/NHEERL, US EPA, Research Triangle Park, NC, and 2Student Services Contractor, Morrisville, NC.

Abstract #  #603b  Poster Board Number .....................................464  A Simple Approach for the Determination of Nanoparticle-Induced Cytotoxicity In Vitro. Q. Gu1, S. Lantz-McPeak2, E. Cuevas3, H. Rosas-Hernandez3, S. F. Ali4, S. Sarkar5, M. G. Paule2, and Y. Zhang6. 1Division of Neurotoxicology, FDA/NCTR, Jefferson, AR; and 2Nanotechnology 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. Huang1, L. M. Tollefson2, F. S. Hou3, R. S. Aronstam1, and H. Lee2. 1Biological Sciences, Missouri U. of Science and Technology, Rolla, MO; 2Department of Clinical Laboratory Science, Marquette University, Milwaukee, WI; and 3Department of Natural Resources and Environmental Studies, National Dong Hwa University, Hualien, Taiwan.

Abstract #  #603d  Poster Board Number .....................................466  Molecular Responses to MWCNT Pulmonary Exposure at Relevant Workplace Exposure Levels. P. C. Zeidler-Erdely, S. Shah1, S. J. Hugenschmidt2, S. Bilgesu1, T. Hulderman1, J. Cumpston1, D. G. Frazer1, W. McKinney1, B. T. Chen1, V. Castranova2, and A. Erdely2. 1HELD, NIOSH, Morgantown, WV; and 2Ingenuity Systems, Inc., Redwood City, CA.

Abstract #  #603e  Poster Board Number .....................................467  Panel Biomarker Study in Worker Exposed to Multiwalled Carbon Nanotube Aerosol. L. M. Fatkhutdinova1, T. Khalatulin2, E. K. Kisin1, I. Mustafin1, E. M. Birch2, V. E. Kagan3, and A. A. Shvedova1. 1Hygiene and Occupational Medicine, Kazan Medical University, Kazan, Russian Federation; 2HELD/PPRB, National Institute for Occupational Safety and Health, Morgantown, WV; and 3Department of Natural Resources and Environmental Toxicology, North Carolina State University, Raleigh, NC.

Abstract #  #603f  Poster Board Number .....................................468  MWCNT Exposure Assessment in Occupational Settings. T. Khalatulin1, R. Zalyalov1, E. M. Birch2, V. E. Kagan3, and L. M. Fatkhutdinova1. 1Hygiene, Kazan State Medical University, Kazan, Russian Federation; 2DART, National Institute for Occupational Safety and Health, Cincinnati, OH; and 3Department of Environmental and Occupational Health, University of Pittsburgh, Pittsburgh, PA.

Abstract #  #603g  Poster Board Number .....................................469  Multiwalled Carbon Nanotubes Induce NLRF3 Inflammammasome-Dependent Expression of Pro-Fibrotic Markers in Primary Human Bronchial Epithelial Cells. S. Hussain1, S. Sangtian1, R. J. Snyder1, J. D. Marshburn1, A. Rice1, J. C. Bonner2, and S. Garantziotis1. 1Clinical Research Unit, National Institute of Environmental Health Sciences (NIH), Research Triangle Park, NC, and 2Environmental and Molecular Toxicology, North Carolina State University, Raleigh, NC.

Abstract #  #603h  Poster Board Number .....................................470  Mucociliary Differentiation May Protect Human Bronchial Epithelium from Multiwalled Carbon Nanotube Toxicity. J. G. Snyder1, S. Hussain1, S. Sangtian1, A. Rice1, S. Randell1, and S. Garantziotis1, 2. 1National Institute of Environmental Health Sciences, Durham, NC; and 2University of North Carolina Chapel Hill, Chapel Hill, NC.
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<th>Abstract #</th>
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<tr>
<td>#603k</td>
<td>Poster Board Number</td>
<td>#609</td>
<td>Evaluation of Human Health Benchmarks of Four “Possibly” Essential Elements: Arsenic, Boron, Nickel, and Vanadium. S. Goldthaber1, and A. Gebhart2. SGB Consulting, Inc., Raleigh, NC; and 2ToxServices, LLC, Washington, DC.</td>
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<tr>
<td>#603l</td>
<td>Poster Board Number</td>
<td>#610</td>
<td>24-Hour Air Monitoring Comparison Value for Hexavalent Chromium. N. K. Erolgautla, and J. T. Haney. Toxicology, Texas Commission on Environmental Quality, Austin, TX.</td>
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<td>#603m</td>
<td>#611</td>
<td>Health-Protective Manganese Guideline for Welding and Other Occupations. L. A. Bailey1, L. E. Kerper2, and B. D. Beck3. Gradient, Middlebury, VT; and 3Gradient, Cambridge, MA.</td>
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<tr>
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<td>#603n</td>
<td>#612</td>
<td>Comparison of Inhalation Occupational Exposure Limits (OELs) and European Worker’s Inhalation Derived No Effect Levels (DNELs) for Inorganic and Insoluble Metals. M. Jackson1, C. J. McLellan2, and E. G. Sanchez-Rueda1. 1Cardno ChemRisk, San Francisco, CA; 2Cardno ChemRisk, Brooklyn, NY; and 3Cardno ChemRisk, Aliso Viejo, CA.</td>
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<td>#603o</td>
<td>#613</td>
<td>Development for Chemicals: An Initiative of the Occupational Alliance for Risk Science (OARS). T. A. Kiim1, T. A. Lewadowski2, S. Barnett Bucher1, A. Havi1, and A. Maior3. 1SBG Consulting, Inc., Raleigh, NC; and 2Cardno ChemRisk, Chicago, IL; and 3Cardno ChemRisk, Brooklyn, NY.</td>
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<tr>
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<td>#603q</td>
<td>#615</td>
<td>Critical Evaluation of EPA’s Toxicological Assessment of Benzo(a)pyrene. B. Magee. ESAP, ARCADIS, Chelmsford, MA.</td>
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**Program Description (Continued)**

**Monday Afternoon, March 24**

1:00 PM to 4:30 PM  
Exhibit Hall  

**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  
Benchmark Dose Analysis of NTP Data on Tumors Induced in Rodents Chronically Exposed to Dietary Anthraquinoine. A. Singhal, and K. T. Bogen. Exponent, Inc., Oakland, CA.  

**#605**  
Poster Board Number  

**#606**  
Poster Board Number  

**#607**  

**#608**  

**#609**  
Evaluation of Human Health Benchmarks of Four “Possibly” Essential Elements: Arsenic, Boron, Nickel, and Vanadium. S. Goldthaber1, and A. Gebhart2. SGB Consulting, Inc., Raleigh, NC; and 2ToxServices, LLC, Washington, DC.  

**#610**  
24-Hour Air Monitoring Comparison Value for Hexavalent Chromium. N. K. Erolgautla, and J. T. Haney. Toxicology, Texas Commission on Environmental Quality, Austin, TX.  

**#611**  

**#612**  
Comparison of Inhalation Occupational Exposure Limits (OELs) and European Worker’s Inhalation Derived No Effect Levels (DNELs) for Inorganic and Insoluble Metals. M. Jackson1, C. J. McLellan2, and E. G. Sanchez-Rueda1. 1Cardno ChemRisk, San Francisco, CA; 2Cardno ChemRisk, Brooklyn, NY; and 3Cardno ChemRisk, Aliso Viejo, CA.  

**#613**  

**#614**  

**#615**  
Critical Evaluation of EPA’s Toxicological Assessment of Benzo(a)pyrene. B. Magee. ESAP, ARCADIS, Chelmsford, MA.  

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<td>#617</td>
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<tr>
<td>Poster Board Number .....................................514</td>
<td>Provisional Advisory Level (PAL) Development for Chlorine Gas. S. Milanezi1, L. D. Koller1, D. C. Dormann1, C. Baird2, and F. Adeshina1, ‘Oak Ridge National Laboratory, Oak Ridge, TN; ‘Environmental Health and Toxicology, Corvallis, OR; ‘North Carolina State University College of Veterinary Medicine, Raleigh, NC; ‘US Army, Aberdeen Proving Ground, MD; and ‘US EPA, Washington, DC.</td>
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<tr>
<td>Assessment of the Developmental Effects of N-Methylpyrrolidone (NMP) in Rats Using PBPK-Derived Internal Dose Measures and Benchmark Dose Methods. R. J. Parod1, D. E. Rodwell2, and C. R. Kerman1, ‘BSAF Corporation, Wyandotte, MI; ‘Rodwell &amp; Associates, El Paso, TX; and ‘Summit Toxicology LLP, Orange, OH.</td>
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<td>Poster Board Number .....................................515</td>
<td>Development of Exposure Guidelines for Chronic Health Effects following Acute Exposures to TTCs. D. Winkel1, B. Hawkins1, J. Jackson1, and L. E. Roscelli2, ‘Battelle Memorial Institute, Columbus, OH; and ‘US Army Public Health Command, APG, MD.</td>
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<td>Derivation of a No-Significant-Risk-Level (NSRL) for Cocamide Diethanolamine (DEA). Z. Guerrette1, B. Wang1, F. M. Shapiro1, C. S. Perry1, M. White1, L. M. Fitzgerald1, S. Borghoff1, and L. C. Hawkins1, ‘ToxStrategies, Austin, TX; ‘ToxStrategies, Houston, TX; and ‘ToxStrategies, Cary, NC.</td>
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<td>Poster Board Number .....................................516</td>
<td>Smoothing Regression Splines As the Basis for Dose-Response Modeling. G. Hixon1, C. M. Thompson1, L. Abraham1, and A. Bichteler1, ‘ToxStrategies, Katy, TX; and ‘ToxStrategies, Austin, TX.</td>
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<td>Poster Board Number .....................................517</td>
<td>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.</td>
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<td>#621</td>
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<td>Poster Board Number .....................................518</td>
<td>Standardized Benchmark Dose Calculation: Opportunities to Inform Science-Based Decisions in Human Health Assessments. J. Wigoff1, A. J. Shapiro1, F. A. Wright1, T. J. Woodruff2, W. A. Chiu3, K. Z. Guyton4, and I. Rusyn5, ‘University of North Carolina, Chapel Hill, NC; ‘University of California, School of Medicine, San Francisco, CA; and ‘US EPA, NCEA, ORD, Washington, DC.</td>
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<td>Derivation of an Intravenous Permitted Daily Exposure Value for Bisphenol A. J. W. Cund1, H. Filkree, and L. Haughton. InterTek Cantox, Mississauga, ON, Canada.</td>
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<td>#622</td>
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<td>Poster Board Number .....................................519</td>
<td>TTC: A New Concept for Inhalation Exposure. S. Escher1, I. Tluczkiewicz1, M. Batke1, R. Kühne1, R. Ebert1, G. Schüürmann1, and I. Mangelsdorf1, ‘Chemical Risk Assessment, Fraunhofer Institute for Toxicology and Experimental Medicine - ITEM, Hannover, Germany; and ‘Ecological Chemistry, The Helmholtz Centre for Environmental Research, Leipzig, Germany. Sponsor: C. Dusenbrock.</td>
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<tr>
<td>Development of an Oral Cancer Slope Factor and Lifetime Average Daily Dose Estimates for TBPPA. D. Wikoff2, C. M. Thompson3, C. S. Perry1, M. White1, L. M. Fitzgerald4, S. Borghoff1, and D. Wikoff1, ‘ToxStrategies, Austin, TX; ‘ToxStrategies, Houston, TX; and ‘ToxStrategies, Cary, NC.</td>
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<td>Poster Board Number .....................................520</td>
<td>Threshold of Toxicological Concern (TTC): A Strategy to Support Application of TTC to Dermally Applied Cosmetic Ingredients. F. M. Williams1, M. Ambrosio1, G. Barrett2, M. T. Cronin3, R. H. Guy4, J. R. Plantz5, N. A. Monteiro-Riviere6, R. Cooper7, H. Rothe1, D. Rau1, M. Verwei1, and C. Yang1, ‘Newcastle University, Newcastle, United Kingdom; ‘ILSI Europe, Brussels, Belgium; ‘Health Canada, Ottawa, ON, Canada; ‘Liverpool John Moores University, Liverpool, United Kingdom; ‘University of Bath, Bath, United Kingdom; ‘DSM Nutritional Products, Basel, Switzerland; ‘Kansas State University, Manhattan, KS; ‘Charles River Laboratories, Edinburgh, United Kingdom; ‘Proctor &amp; Gamble, Darmstadt, Germany; ‘US FDA, College Park, MD; ‘TNO, Zeist, Netherlands; and ‘Altamira LLC, Columbus, OH.</td>
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#632g  Program Description (Continued)

**Abstract #**

**#632g**

Poster Board Number .....................................538


**#632h**

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. Kenyon1, C. R. Eklund1,2, J. C. Lipscomb1,2, and R. A. Pegg3. 1ORD/ NHEERL/JSTD, US EPA, Durham, NC; and 3ORD/ NCEA, U.S. EPA, Cincinnati, OH.  Sponsor: J. Tsuji.

**#632i**

Poster Board Number .....................................539


**#632j**

Poster Board Number .....................................540

Modeling of Blood Lead Levels in Astronauts Exposed to Lead from Microgravity-Accelerated Bone Loss.  H. D. García1, J. S. Tsuji2,3, and J. T. James1.  Wyle Laboratories, Houston, TX; Exponent Corp., Bellevue, WA; and NASA (Retired), Houston, TX.

**#633**

Author Attended: 1:00 PM–4:30 PM

**Poster Board Number .....................................541**

Pen Housing of Non-human Primates on the REACH Framework.  M. L. Dourson, R. Thompson1, J. Lowe1, and E. Pflau1.  TERA, Cincinnati, OH; Alliance for Risk Assessment, Cincinnati, OH; CH2M Hill, Spokane, WA; Alliance for Site Closure, Indianapolis, IN; and Hull and Associates, Inc, Columbus, OH.

**#634**

Author Attended: 1:00 PM–2:45 PM

**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, Ludwigshaf en, Germany.

**#635**

Author Attended: 1:00 PM–4:30 PM

**Poster Board Number .....................................543**

SLIM As a Smart Way to Translate 3R Innovations to Acceptance for Use in Human Risk Assessment.  C. Krul1,2, M. Teunis1, R. Vandebriel1, R. A. Woutersen3,4, D. Kegler1, J. Raaijmakers1, J. Van der Valk1, and R. Pieters5.  1Department of Innovative Testing, University of Applied Sciences, Utrecht University, Utrecht, Netherlands; 2ORD, NCEA, US EPA, Cincinnati, OH; 3ORD, NCEA, US EPA, Cincinnati, OH; 4US FDA Center for Food Safety and Applied Nutrition, College Park, MD; and 5US FDA Center for Veterinary Medicine, Laurel, MD.

**#636**

Author Attended: 1:00 PM–2:45 PM

**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.
Abstract #
#637 Poster Board Number .....................................545 Evaluation of a Tiered Toxicity Testing Decision Trigger for Assessing Reproductive Hazards of Commodity Chemicals. L. M. Plunkett1, A. Kaplan1, and R. Kierski2. ‘Integrative Biostatistics LLC, Houston, TX; ‘A. Michael Kaplan & Associates, Landenberg, PA; and ‘American Chemistry Council, Washington, DC.

Abstract #
#638 Poster Board Number .....................................546 Association between Health Outcomes and Environmental Factors in Illinois. M. P. Chan. Southern Illinois University Edwardsville, Edwardsville, IL.

Abstract #
#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.

Abstract #
#640 Poster Board Number .....................................548 A Sustainable Product Risk Assessment. E. A. Choudhury, K. Enters, and M. S. Stav ranja. EHS/ Product Stewardship, Celanese International Corporation, Irving, TX.

Abstract #

Abstract #
#642 Poster Board Number .....................................550 Towards a Harmonized Evaluation of Chemical Emissions from Building Products in the EU. G. Johanson1, C. Däumling2, and P. Harrison3. ‘Institute of Environmental Medicine, Karolinska Institute, Stockholm, Sweden; ‘German Federal Environment Agency, Berlin, Germany; and ‘PTCH Consultancy, Leicester, United Kingdom.

Abstract #
#643 Poster Board Number .....................................551 Does Industry Take the Sensitive Subpopulation of Asthmatics into Account when Setting Derived No-Effect Levels under REACH? M. Johansson1, G. Johanson, M. Öberg2, and L. Schenk2,2. ‘Work Environment Toxicology, Institute of Environmental Medicine, Karolinska Institutet, Stockholm, Sweden; and ‘Department of Philosophy and History, Royal Institute of Technology, Stockholm, Sweden.

Abstract #
#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.

Abstract #
#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.

Abstract #
#646 Poster Board Number .....................................554 A Simulation Environment for Population Dynamics Models of Tobacco Products. B. Poland1, R. Gunawan1, and K. Lee2. ‘Consulting Services, Pharsight, A Certara Company, Sunnynvale, CA; and ‘JT International SA, Geneva, Switzerland.
Program Description (Continued)

Abstract #

#650 Poster Board Number .....................................601
Industrial Effluent-Induced Chromosomal Aberration in Catfish from Ogun River, Lagos, Nigeria. O. T. Iyi1, and A. A. Adeogun2.
1Department of Veterinary Sciences, University of Ibadan, Oyo, Nigeria; and 2Department of Veterinary Sciences, University of Lagos, Lagos, Nigeria.

#651 Poster Board Number .....................................602
Enzymatic Biomarker in Blackjaw Tilapia (Sarotherodon melanotheron) and Bagrid Catfish (Chrysichthys nigrodigitatus) in the Lagos Lagoon. S. O. Ayoade, and A. A. Idowu. Marine Sciences, University of Lagos, Lagos, Nigeria.

#652 Poster Board Number .....................................603
1Computer Science and Systems Engineering, Kyushu Institute of Technology, Fukuoka, Japan; 2Environmental Science, University of California, Riverside, Riverside, CA; 3Florida State University, Tallahassee, FL; 4University of Mississippi, University, MS; and 5University 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. Iida1, S. Fuji2, M. Uchida1, H. Nakamura2, Y. Kaga1, S. Bak3, E. Kim1, Y. Shima4, and H. Iwata1.
1Computer Science and Systems Engineering, Kyushu Institute of Technology, Fukuoka, Japan; 2Ecogenomics Inc., Kurume, Japan; 3Department of Life and Nanopharmaceutical Science and Department of Biology, Kyung Hee University, Seoul, Republic of Korea; 4Hakatajima Station, National Center for Stock Enhancement, Fisheries Research Agency, Imabari, Japan; and 5Center for Marine Environmental Studies (CMES), Ehime University, Matsuyama, Japan.

#654 Poster Board Number .....................................605
1Department of Environmental Sciences, University of California, Riverside, Riverside, CA; 2Department of Medicine, University of California, San Diego, San Diego, CA; and 3Department of Biological Sciences, University of Alberta, Edmonton, AB, Canada.

#655 Poster Board Number .....................................606

#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

#658 Poster Board Number .....................................609
Environmental Testing Strategy for Pharmaceuticals with Endocrine Disrupting Properties. Z. Dang1, and C. Bodar2. RIVM, Bilthoven, Netherlands; and 2RIVM, Bilthoven, Netherlands.

#659 Poster Board Number .....................................610
Short-Term Effects of Dechlorane Plus on Earthworm Eisenia fetida Determined by System Biology Approach. L. Zhang, P. 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. Sohn1, S. Johari1, T. Kim1, J. Kim1, J. Lee2, and J. Yu3. Institute of Nanoprodut Safety Research, Hoseo University, Asan, Republic of Korea; and 2Aquaculture 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. Wang1, C. He1, L. Sheng2, X. Wang3, and T. Guo4. Northeast Institute of Geography and Geology, Chinese Academy of Sciences, Changchun, China; School of Environment, Northeast Normal University, Changchun, China; and 4University 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. Yemitan1, O. O. Adeyemi1, and P. F. Wright1. Pharmacology & Toxicology, Lagos State University College of Medicine, Ikeja, Lagos, Nigeria; 2Pharmacology, College of Medicine of the University of Lagos, Lagos, Nigeria; and 3Toxicology, School of Medical Sciences, RM location, Bundoora Campus, Victoria, Australia.
Monday Afternoon, March 24
1:00 PM to 4:30 PM
Displayed: 1:00 PM–4:30 PM
Author Attended: 1:00 PM–2:45 PM

**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

**#664**
Poster Board Number .....................................615

**#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. Jang, A. Gravero, R. Lehman, E. Cutting, B. Jackson, and R. Stanton. Geisel School of Medicine at Dartmouth, Hanover, NH.

**#666**
Poster Board Number .....................................617

**#667**
Poster Board Number .....................................618
Metals, PAhS, and Toxicity of Sediments from Santa Marta, a Coal Port in Colombia. K. Caballero-Gallardo1, J. De la Rosa2, B. Johnson-Restrepo3, A. García-Cantillo4, A. Guerrero-Castilla5, and J. Olivero-Verbel6. "Environmental and Computational Chemistry Group, University of Cartagena, Cartagena, Colombia; 2Associate Unit CSIC-CIQSO, University of Huelva, Huelva, Spain; and 3Environmental 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. Rodd1, M. Creighton2, R. Hurt2, and A. Kane1. 1Pathology & Laboratory Medicine, Brown University, Providence, RI; and 2School 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. Verissimo1, J. Moreira2, and A. Meyer4. 1ESCC, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil; and 2CESTH, Fundação Oswaldo Cruz (Fiocruz), Rio de Janeiro, Brazil. Sponsor: G. Verissimo.

**#669a**
Poster Board Number .....................................621
Degradation of Tumor Promoter Activity of Jatropha curcas Phorbol Esters Derived from Jatropha Oil Cake in Soil. M. Nakao1, Y. Shimizu2, Y. Ishihara3, and T. Yasuhara4. 1Public Health, Kurume University, Kurume, Japan; and 2Kitsato 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. Yamauchi1, M. Nakao2, Y. Shimizu3, and Y. Ishihara4. 1Kurume 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. Adeyemo1, K. J. Krof1, G. Natalia1, and N. D. Denlow2. 1Department of Physiological Sciences, Center for Human and Environmental Toxicology, University of Florida, Gainesville, FL; and 2Institute for Genomics, Biocomputing and Biotechnology, Mississippi State University, Starkville, MS.

**#669d**
Poster Board Number .....................................624
Contaminant Burden Analysis in Wild Shovelnose Sturgeon (Scaphirhynchus platyrhynchus) in the Lower Mississippi River. D. R. Johnson1,2, C. Godard-Codd1, T. Anderson1, C. Ang1, G. Cobb1, J. Canas3, J. Clarke1, A. Roberts4, K. Boysen1, J. Killgore1, and J. Hoover1. 1Conestoga-Rovers and Associates, Dallas, TX; US Army Engineer Research and Development Center, Vicksburg, MS; Texas Tech University, Lubbock, TX; 3Badger Technical Services, Vicksburg, MS; Baylor University, Waco, TX; and 4University of North Texas, Denton, TX.

**#669e**
Poster Board Number .....................................625
Comparison of Cytopreserved Trout Hepatocytes and Liver S9 Fractions As In Vitro Models for Predicting Hepatic Clearance in Fish. K. Fay1, P. N. Fitzsimmons1, A. D. Hoffman1, and J. W. Nichols1. 1U.S. EPA, Duluth, MN.
**Program Description (Continued)**

### Abstract #674

**Poster Board Number**.........................630


### Abstract #675

**Poster Board Number**.........................631

**Determination of Paraquat (PQ) in Urine Using Reversed-Phase UPLC/DAD.** A. Meyer1, G. F. Verissimo1, J. Alves1, and J. Moreira2. 1IESC, Universidade Federal do Rio de Janeiro (UFRJ), Rio de Janeiro, Brazil; 2CESTH, Fundação Oswaldo Cruz (Fiocruz), Rio de Janeiro, Brazil; and 3Faculdade de Farmácia, Universidade Federal do Rio de Janeiro (UFRJ), Rio de Janeiro, Brazil. Sponsor: G. Verissimo.

### Abstract #676

**Poster Board Number**.........................632

**Identification of Pesticides and Other Environmental Chemicals Associated with the Development of Nonalcoholic Fatty Liver Disease in Rodents.** M. Cave1, L. Al-Eryani2, W. Wahlang1, H. Clair3, K. C. Falkner4, and R. A. Prough2. 1Department of Medicine/GI, University of Louisville, Louisville, KY; 2Biochemistry, University of Louisville, Louisville, KY; and 3Robley Rex VAMC, Louisville, KY.

### Abstract #677

**Poster Board Number**.........................633

**Trifluralin and Tebuthiuron, Two Widely Used Herbicides in Brazil, Showed Different Cytotoxic Potentials to HepG2 Cells.** M. F. Bernardes1, L. C. Pereira1, M. Tasso1, and D. J. Dotta2. 1Universidade de São Paulo (USP), Faculdade de Ciências Farmacêuticas de Ribeirão Preto (FCFRP), Ribeirão Preto, São Paulo, Brazil; and 2Departamento de Química, Universidade de São Paulo (USP), Faculdade de Filosofia, Ciências e Letras de Ribeirão Preto (FFCLRP), Ribeirão Preto, São Paulo, Brazil.

### Abstract #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.

### Abstract #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.

### Abstract #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. Trombeta, and D. Hardej. Pharmaceutical Sciences, St. John’s University, Queens, NY.

### Abstract #681

**Poster Board Number**.........................637

**Mechanism of the Toxic Effect of Carbendazim on the Pubertal Seminiferous Epithelium: An Ex Vivo Study.** M. Perrard1, D. Carette2, G. Martin1, E. Christin1, G. Pointis1, and P. H. Durand1. 1CNRS, Lyon, France; 2INSERM, Nice, France; and 3Kallistem, Lyon, France. Sponsor: R. Witorsch.

### Abstract #682

**Poster Board Number**.........................638

**Rynaxypyr Is Active but Significantly Less Potent toward the Syanidine Receptor Type 1 from Wild Type and Malignant Hyperthermia Susceptible Mammalian Skeletal Muscle.** K. M. Truong1, M. La Merrill2, and I. N. Pesah3. 1Molecular Biosciences, UC Davis, Davis, CA; and 2Environmental Toxicology, UC Davis, Davis, CA.

### Abstract #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. Bruckner1, C. White2, D. Gullick2, A. Popovic1, M. Krolik2, D. W. Gammon3, B. S. Cummings4, and M. Bartlett1. 1UGA, Athens, GA; 2Bayer Crop Science, RTP, NC; and 3FMC Corp., Ewing, NJ.

### Abstract #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. Sethi1, S. Muralidhara1, T. G. Osmintz2, D. Minnema3, P. M. Hinderliter4, R. S. Cummings1, J. V. Bruckner5, and C. White6. 1Pharmaceutical and Biomedical Sciences, University of Georgia, Athens, GA; 2Science Strategies, LLC, Charlottesville, VA; and 3Syngenta, Greensboro, NC.

### Abstract #685

**Poster Board Number**.........................641

**Toxicokinetics of Deltamethrin (DLM) in Adult Male Sprague-Dawley Rats.** C. Chen1, S. Muralidhara1, T. G. Osmintz1, D. W. Gammon1, S. S. Anand2, B. S. Cummings1, J. V. Bruckner1, and C. White1. 1Pharmaceutical and Biomedical Sciences, University of Georgia, Athens, GA; 2Science Strategies, LLC, Charlottesville, VA; and 3Syngenta, Greensboro, NC.

### Abstract #686

**Poster Board Number**.........................642

**Engineering PON1 in an E. coli System Improves Stability and Activity.** S. Suzuki1, R. C. Stevens2, Y. Yue1, J. Bai3, T. B. Cole2, R. J. Richter2, S. S. Park1, and C. E. Furlong2. 1Medical Genetics and Genome Sciences, University of Washington, Seattle, WA; 2Environmental and Occupational Health Sciences, University of Washington, Seattle, WA; 3Biochemistry, University of Washington, Seattle, WA; and 4MRL Boston, Boston, MA.

### Abstract #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. La1, H. Hu2, X. Liu1, J. Wang3, and J. Shao4. 1School of Public Health, Dalian Medical University, Dalian, Liaoning, China; and 2The Second Affiliated Hospital, Dalian Medical University, Dalian, Liaoning, China.

### Abstract #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. Hotchkiss5, S. M. Krieger1, K. M. Mahoney1, K. A. Brzak1, D. L. Rick4, M. Bartels1, D. W. Luckfeldt1, and D. R. Juber4. 1The Dow Chemical Company, Midland, MI; and 2Dow AgroSciences, Indianapolis, IN.
Abstract #

#689  
**Poster Board Number .................................645**  
Biomarkers of Chlorpyrifos and Profenofos Exposure and Effect in Adult and Adolescent Egyptian Cotton Field Workers. J. R. Olson1, S. T. Singleton1, O. A. Dawson1, M. R. Bonner1, T. Farahat1, F. Farahat1, G. Abdel-Rasoul1, A. A. Ismail2, O. Hendy2, W. K. Anger3, and D. Rohlman4. 1University at Buffalo, Buffalo, NY; 2Xenoufia University, Shebin El-Kom, Egypt; 3OHSU, Portland, OR; and 4University 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. R. Neal1, K. Hill2, P. Limaye3, S. Bommegowda3, L. Elcock2, and D. Danekar3. 1Toxicology and Mechanistic Biology, Exponent Inc., Alexandria, VA; and 2Xenometrics 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. Lake1, R. J. Price1, B. R. Ing1, M. P. Scott1, C. Cantrill1, J. B. Houston1, M. Yoon2, H. J. Cleweli2, S. Anand2, D. W. Gamboni1, and T. G. Osmitt2. 1LFR Molecular Sciences, Leatherhead, Surrey, United Kingdom; 2The Hamner Institutes for Health Sciences, RTP, NC; 3University of Manchester, Manchester, United Kingdom; 4DuPont Haskell, Newark, DE; 5FMC, Ewing, NJ; and 6Science Strategies, LLC, Charlottesville, VA.

Monday Afternoon, March 24  
1:00 PM to 2:00 PM  
Room 106A West  
**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  
**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  
Room 120D  
**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 Afternoon, March 24  
1:00 PM to 2:00 PM  
Room 106C West  
**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  
**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.
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.

#691 2:05 Introduction. C. Corton. US EPA, Research Triangle Park, NC.


#693 3:05 Opportunities in Toxicology for Large-Scale Semantic-Linked Data and Prediction. D. I. Wild. Indiana University, Bloomington, IN, Sponsor: C. Corton.


Abstract #

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.

#695 4:05 From AOPs to Quantitative *In Vitro* to *In Vivo* Extrapolation. M. E. Andersen. The Hammer Institutes for Health Sciences, Research Triangle Park, NC.

#696 4:35 Panel Discussion/Q&A.

#697 2:05 Introduction. T. Brown. University of Montana, Missoula, MT.

#698 2:30 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.

#702 2:00 Perinatal Exposures and Children's Health Outcomes. N. Holland, and M. C. Porier. ‘CDI Section, LCBG, National Cancer Institute, Bethesda, MD; and ‘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.

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

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.
Pharmacologically- and toxicologically-relevant cells from ES and iPS cells, cytes, cardiomyocytes, etc. Therefore, efforts to generate physiologically-, with improved functional cell models from the relevant tissue, e.g., hepato-

mitochondria dysfunction can contribute to a variety of organ toxicities and that organ toxicity (Lin and Will, 2012, Lu and Will, Soc 2013). This may be due to the fact that certain basic toxicity mechanisms such as apoptosis or mito-

chondrial 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-
derived pluripotent stem cells, which can be continuously expanded in the undifferentiated state and differentiated to form most cell types, poten-
tially 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 char-

acteristics 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.

### Abstract #

#### #708 2:00

**The Emerging Role of Mitochondrial Turnover, Biogenesis, and Dynamics in Tissue Injury.** J. Kim, J. J. Lemasters, Y. Yoon, R. Schnellmann, and H. Jaeschke. Surgery, University of Florida, Gainesville, FL. 2Drug Discovery & Biomedical Sciences, Medical University of South Carolina, Charleston, SC.; Physiology, Georgia Regents University, Augusta, GA.; and 3Pharmacology, Toxicology and Therapeutics, University of Kansas Medical Center, Kansas City, KS.

#### #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.

### Abstract #

#### #714 2:00

**Use of Stem Cells in Toxicity Testing—From Basic Research to Personalized Toxicology.** S. H. Dhalluin, and Y. Will. 1New Medicines - Non-Clinical Development, UCB Pharma SA, Brussels, Belgium; and 2Global Research and Development, Pfizer, Groton, CT.

#### #715 2:05


#### #716 2:45

**Human Pluripotent Stem Cells As Tools for Safety Toxicology.** J. Thomson. Morgridge Institute for Research, Madison, WI. Sponsor: Y. Will.

#### #717 3:25

**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.

#### #718 4:05


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### Program Description (Continued)

**Monday Afternoon, March 24**

**Symposium Session: Use of Stem Cells in Toxicity Testing—From Basic Research to Personalized Toxicology**

**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 understand-

### Abstract #

#### #714 2:00

**Use of Stem Cells in Toxicity Testing—From Basic Research to Personalized Toxicology.** S. H. Dhalluin, and Y. Will. 1New Medicines - Non-Clinical Development, UCB Pharma SA, Brussels, Belgium; and 2Global Research and Development, Pfizer, Groton, CT.

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#### #718 4:05


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#### #718 4:05


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### Program Description (Continued)

**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**

**Chairperson(s):** Stephane H. Dhalluin, UCB Pharma, Dept of Nonclinical Development, Brussels, Belgium, and Yvonne Will, Pfizer, Inc., Compound Safety Prediction, Groton, CT.

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### Abstract #

#### #708 2:00

**The Emerging Role of Mitochondrial Turnover, Biogenesis, and Dynamics in Tissue Injury.** J. Kim, J. J. Lemasters, Y. Yoon, R. Schnellmann, and H. Jaeschke. Surgery, University of Florida, Gainesville, FL. 2Drug Discovery & Biomedical Sciences, Medical University of South Carolina, Charleston, SC.; Physiology, Georgia Regents University, Augusta, GA.; and 3Pharmacology, Toxicology and Therapeutics, University of Kansas Medical Center, Kansas City, KS.

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**Mitochondria Dynamics in Acetaminophen-Induced Liver Injury.** H. Jaeschke. Department of Pharmacology, Toxicology and Therapeutics, University of Kansas Medical Center, Kansas City, KS.

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**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 Elec-

tric. 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 responsi-

bility remain among the most common in the courtroom. This workshop
Abstract #

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. Corcoran1, M. J. Saks2, S. M. Bolst3, G. E. Marchant2, T. Simon4, and R. T. Kennedy1. 1Pharmaceutical Sciences, Wayne State University, Detroit, MI; 2Sandra Day O'Connor College of Law, Arizona State University, Tempe, AZ; 3Nexeo Solutions, LLC, Houston, TX; 4Ted Simon, LLC, Winston, GA; and 5New Mexico Court of Appeals, Albuquerque, NM.

#719 2:00 Introduction. G. B. Corcoran. Pharmaceutical Sciences, Wayne State University, Detroit, MI.


#721 2:35 Presentation Approach: The 5-Question Approach to Specific Causation, and Beyond. S. M. Bolst. 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.


4:15 Panel Discussion/Q&A.

Monday Afternoon, March 24
2:00 PM to 4:45 PM
Room 126

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
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 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 duplicate or plagiarized data.

#725 2:00 Scientific Ethics in Research and Publications. W. J. Brock1, and M. Genter1. 1Brock Scientific Consulting, Montgomery Village, MD; and 2University of Cincinnati, Cincinnati, OH.

#725 2:00 Introduction. W. J. Brock1, and M. Genter1. 1Brock Scientific Consulting, Montgomery Village, MD; and 2University 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

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

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 biochemical 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

**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 cytometric analysis for platelet activation, aggregation, and development.

Monday Afternoon, March 24
2:15 PM to 3:15 PM
Room 101A West

**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

**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

**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

**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
3:45 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.
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 resulting 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 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 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, 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 7:30 PM
Sheraton

Southeastern Regional Chapter Reception

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

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)
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

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

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

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.
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.

**Abstract #731**
9:05

**Abstract #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.

**Abstract #733**
10:25
MicroRNAs in Hepatocellular Carcinoma. C. Lee and J. S. Mattick. Department of Biochemistry, Yong Loo Lin School of Medicine, National University of Singapore, Singapore, Singapore; Duke-NUS Graduate Medical School, Singapore, Singapore; and ‘National Cancer Centre, Singapore, Singapore. Sponsor: N. Kaminski.

**Abstract #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.

**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. Quantification of leachable chemicals from finished devices is recommended to conduct meaningful risk assessments, and biocompatibility testing completes the biological evaluation.

**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.

**Frontiers for Toxicology Session**

**Symposium Session: Noncoding RNAs in Human Health, Therapeutics, and Environmental Disease**

*Chairperson(s): Michael I. Garvan, 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 miRNAs, 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.
Program Description (Continued)

Abstract #

in the etiology of NAFLD. The presentations will provide a better understand-
ing 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 neces-
sarily reflect US EPA policy.)

#735 9:00 Does This Chemical Make My Liver Look Fat (Environmental Exposures and Steatosis). C. A. McQueen1, and N. J. Cherrington2. US EPA, Research Triangle Park, NC; and ‘University of Arizona, Tucson, AZ.

#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.


Tuesday Morning, March 25
9:00 AM to 11:45 AM
Room 124

Symposium Session: Ocular Immunotoxicology: A Privileged View

Chairperson(s): Brian Christian, Covance Inc., Madison, WI, and JoAnn C. Schuh, JCL Schuh, PLLC, Bainbridge Island, WA.

Sponsor(s):
Ocular Toxicology Specialty Section

Safety Assessment: Mechanisms and Novel Methods

Abstract #

Ocular Immunotoxicology: A Privileged View. B. Christian1, and J. Schuh2. Nonclinical Safety Assessment, Covance Inc., Madison, WI; and 2JCL Schuh, PLLC, Bainbridge Island, WA.

#740 9:00 Ocular Immunotoxicology: A Privileged View. B. Christian1, and J. Schuh2. Nonclinical Safety Assessment, Covance Inc., Madison, WI; and 2JCL Schuh, PLLC, Bainbridge Island, WA.

#741 9:05 Ocular Oversight: Immune Privilege, and Immune Regulation and Dysregulation. J. C. Schuh. JCL Schuh, PLLC, Bainbridge Island, WA.


Tuesday Morning, March 25
9:00 AM to 11:45 AM
North Ballroom 120D

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 qualita-
tive 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 gens, 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 mecha-
nisms of drug-induced immunotoxicity.
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.

**Abstract #**


**Abstract #**

Organophosphate-Induced Neurotoxicity. A. Hargreaves, School of Science and Technology, University of Nottingham, Nottingham, United Kingdom. Sponsor: E. Fritsche.

Program Description (Continued)

The genetic toxicology community began developing in vitro predictive toxicology assays for chemical hazard assessment over the decades. Initially, 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.

**Abstract #**

Idiosyncrasies of Cells in Culture: Lessons from Genetic Toxicology. M. M. Moore, J. Clements, M. J. Lebaron, P. White, and S. Pfuhler. ENVIRON International Corporation, Little Rock, AR; Covance Laboratories, Harrogate, North Yorkshire, United Kingdom; The Dow Chemical Company, Midland, MI; Health Canada, Ottawa, ON, Canada; and Proctor & Gamble, Mason, OH.

Tuesday Morning, March 25
9:00 AM to 11:45 AM
Room 126

Workshop Session: Idiosynchrasyes of Cells in Culture: Lessons from Genetic Toxicology

**Chairperson(s):** Martha M. Moore, ENVIRON International Corporation, Little Rock, AR; 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 international focus on developing in vitro predictive toxicology assays for chemical hazard assessment. Because of the desire to reduce laboratory animal use and a goal to provide information using human cells in culture, rather than rodents, there is an international focus on developing in vitro predictive toxicology assays for chemical hazard assessment.

**Panel Discussion/Q&A.**
Finally, compounds that absorb in the relevant spectrum and test positive in other positives is generally sufficient to indicate negligible photosafety risk.

That these assays measure entirely different endpoints lowers the probability results always predict a clinically relevant phototoxic response, and the fact further photosafety evaluation. Thus, it is not essential that positive assay because negative assay results are usually conclusive and do not warrant another 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).
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 that system are required to explain the observed differences in site-specific injury between species.

The role of multiscale, computational models is to incorporate species-specific anatomic 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, deposition, and clearance in the respiratory tract. 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.

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.
#770 11:25 Panel Discussion/Q&A.

Tuesday Morning, March 25
9:00 AM to 11:45 AM
Room 129

Workshop Session: The Doorway between Exposure and Response: How Biologically-Based Inhalation Dosimetry Models Enhance Human Health 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.

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Abstract #

#771 9:10 Site-Specific Airway Pathology and Dosimetry of Inhaled Toxicants. J. Harkeena. Department of Pathobiology and Diagnostic Investigation, Michigan State University, East Lansing, MI.
#778 9:46 Characterization of Blood Lead Levels for Children in a Community Affected by Historical Mining Activities. R. Schoof, D. L. Johnson1, A. Feldpausch3, E. R. McConnell4, C. Van Ladingham2, L. Dell1, M. Das1, and A. Gallagher4. ‘ENVIRON, Seattle, WA; ‘ENVIRON, Monroe, LA; and ‘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. Kirman1, D. Proctor2, M. Sul1, C. M. Thompson4, M. A. Harris5, L. C. Hawes2, and S. M. Hays5. ‘Summit Toxicology LLP, Orange, OH; ‘ToxStrategies, Rancho Santa Margarita, CA; ‘ToxStrategies, Katy, TX; ‘ToxStrategies, Austin, TX; and ‘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. Haney3, N. Erraguntla1, R. L. Sielken4, and C. Valdez-Flores2. ‘Toxicology Division, Texas Commission on Environmental Quality, Austin, TX; ‘ToxStrategies, Austin, TX; and ‘Sielken & Associates Consulting, Bryan, TX.
Abstract #  #782  11:18

Tuesday Morning, March 25
9:00 AM to 12:30 PM
Exhibit Hall

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

Poster Board Number .....................................104

#783  11:18
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 I. Olivero-Verbel. Environmental and Computational Chemistry Group, University of Cartagena, Cartagena, Colombia.

#784  11:18
Investigation of the Mutagenic, Genotoxic, and Cytotoxic Activities of Sanionia uncinata Extracts. A. D. Campos1, J. Mazzocchi1, H. Evangelista1, and I. Felzenszwalb2. 1Department of Biophysics and Biometry, State University of Rio de Janeiro, Rio de Janeiro, Brazil; and 2Center for Chromatography, Platform of Analytical Instruments, Oswald Cruz Foundation, Rio de Janeiro, Brazil. Sponsor: D. Oliveira.

#785  11:18
Poster Board Number .................................103
Cytotoxicity of Extracts of Three Medicinal Plant Species Used to Treat Inflammation-Related Conditions in South Africa. S. A. Adebayo2,3, I. L. Shai1, and K. A. Ellof2. 1Biomedical Sciences, Tshwane University of Technology, Pretoria, South Africa; and 2Phytomedicine Programme, Department of Paraclinical Sciences, University of Pretoria, Pretoria, South Africa.

#786  11:18

#787  11:18

#788  11:18
Amelioration of Sodium Arsenite and Potassium Chromate Toxicities by Methanolic Extract of Rauvolfia vomitoria. K. A. Akinwumi1,2, O. A. Oduola1, A. N. Dosumu2, O. B. Owolabi1, A. Songonuga1, O. A. Aboyeji1, O. A. Olatunji2, and O. O. Osifo1. 1Dept. of Biochemistry, University of Ibadan, Ibadan, Oyo, Nigeria; 2Dept. of Chemical Sciences, Bella University of Technology, Ota, Ogun, Nigeria; and 3Dept. of Science Laboratory, Moshood Abiola Polytechnic, Abeokuta, Ogun, Nigeria. Sponsor: J. Landsdolp.

Poster Board Number .................................107
Cytotoxic and Genotoxic Assessments of the Natural Dye Erythromelastomine. F. R. Abe, and D. P. Oliveira. University of São Paulo, Ribeirão Preto, São Paulo, Brazil.

Poster Board Number .................................108

Poster Board Number .................................109

Poster Board Number .................................110
Differential Effects of Biz-2 in Cancer Cells. O. S. Phillips1, K. Harris2, and W. G. Gray3. 1Environmental Toxicology, Southern University and A&M College, Baton Rouge, LA; and 2Department of Chemistry, Southern University and A&M College, Baton Rouge, LA.

Poster Board Number .................................111
Antioxidant Activity of Extracts of Stem Bark of Enantia chlorantha (Olivi). O. E. Adeyeni, and O. M. Abatan. Department of Veterinary Physiology, Biochemistry and Pharmacology, University of Ibadan, Nigeria, Ibadan, Oyo, Nigeria.

Poster Board Number .................................112
Synthesis and Biological Evaluations of Amino Acid Conjugates As Potential Prodrugs of Curcumin. D. You1,2, L. Chen1, C. S. Yang13, and L. Hu12. 1Medicinal Chemistry, Ernest Mario School of Pharmacy, Rutgers University, Piscataway, NJ; 2Chemical Biology, Ernest Mario School of Pharmacy, Rutgers University, Piscataway, NJ; and 3Cancer Institute of New Jersey, New Brunswick, NJ. Sponsor: L. Aleksunes.

Poster Board Number .................................113
Suppression of PMA-Induced Tumor Cell Invasion by Kaheovel 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.

Poster Board Number .................................114

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.
Program Description (Continued)

Abstract #       Poster Board Number ..................................... 116

Effect of Caffeic and Phenethyl Ester on Endothelial Nitric-Oxide Synthase Activation.
B. Park1, H. Kim1, J. Choi1, S. Jin1, and H. Jeong2.
1Pharmacy, Chugnam National University, Daejeon, Republic of Korea.

Abstract #       Poster Board Number ..................................... 117

Kahweol Induces Apoptosis in HER2-Overexpressing Breast Cancer Cells through a Down-Regulation of HER2/SREBP-1/FAS Pathway. S. Oh1, M. Do1, and H. Jeong2.
1Pharmacy, Chugnam National University, Daejeon, Republic of Korea.

Abstract #       Poster Board Number ..................................... 118

Antiproliferative and Apoptotic Effect of Rhus trilobata Extracts on SKOV-3 Ovarian Cancer Cells. B. E. Sánchez Ramírez1, E. Saénz-Pardo-Reyes1, C. González-Horta1, R. Infante-Ramírez2, and P. Talamás-Rohana1.
1Graduate Program in Biotechnology, Universidad Autónoma de Chihuahua, Chihuahua, Chihuahua, Mexico; and 2Instituto 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

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

Abstract #       Poster Board Number ..................................... 121

Comparison of Myelostimulation by Echinacea purpurea Extracts with Analytical Fingerprints to Identify Active Constituents. S. A. Meyer1, H. F. Hussin1, and K. A. El Sayed. 1Toxicology, Univ LA-Monroe, Monroe, LA; and 2Basic Pharmaceutical Science, Univ LA-Monroe, Monroe, LA.

Abstract #       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. Choi1, S. Jin1, B. Park1, H. Kim1, Y. Chung1, and H. Jeong2.
1Pharmacy, Chugnam National University, Daejeon, Republic of Korea; and 2Department of Food and Medicine, International University of Korea, Jinju, Republic of Korea.

Abstract #       Poster Board Number ..................................... 123

Inhibitory Effects of Platycodon grandiflorum Root-Derived Saponins on High-Fat Diet-Induced Nonalcoholic Steatohepatitis in Rat. Y. Chung1, S. Jin1, and H. Jeong2.
1Pharmacy, Chugnam National University, Daejeon, Republic of Korea; and 2Department of Food and Medicine, International University of Korea, Jinju, Republic of Korea.

Abstract #       Poster Board Number ..................................... 124

Inhibitory Effects of Platycodon grandiflorum Root-Derived Saponins on Ovalbumin-Induced Airway Hyper-Responsiveness in Mice. Y. Lee1, J. Choi1, S. Jin1, H. Kim1, Y. Chung1, and H. Jeong2.
1Pharmacy, Chugnam National University, Daejeon, Republic of Korea; 2Jangsaeng Doraji Research Institute of Biotechnology, Jangsaeng Doraji Co., Ltd., Jinju, Republic of Korea; and 3Department of Food and Medicine, International University of Korea, Jinju, Republic of Korea.

Abstract #       Poster Board Number ..................................... 125

Inhibitory Effects of Platycodon grandiflorum Root-Derived Saponins on Estrogen Deficiency-Induced Osteoporosis in Mice. H. Jeong2, J. Choi1, B. Park1, K. Lee1, and Y. Chung1.
1Pharmacy, Chugnam National University, Daejeon, Republic of Korea; 2College of Pharmacy, Chonnam National University, Gwangju, Republic of Korea; and 3Department of Food and Medicine, International University of Korea, Jinju, Republic of Korea.

Abstract #       Poster Board Number ..................................... 126


Abstract #       Poster Board Number ..................................... 127

Elucidation of the Mechanisms of Teratogenicity of Some Commonly Used Medicinal Plants. G. O. Afolayan1, M. J. Carvait1, O. Awodele2, and E. O. Aghaje1. 1School of Freshwater Sciences, University of Wisconsin-Milwaukee, Milwaukee, WI; and 2Department of Pharmacology, University of Lagos, Lagos, Nigeria.

Abstract #       Poster Board Number ..................................... 128

Effect of α7 Nicotinic Acetylcholine Receptor Agonists and Antagonists on Motor Function in Mice. K. Welch1, J. A. Pfister1, F. Lima1, K. E. Panter1, B. T. Green1, and D. R. Gardner1.
1Poisonous Plant Research Laboratory, USDA-ARS, Logan, UT; and 2Federal University of Goias, School of Veterinary Medicine, Goiania, Goias, Brazil.

Abstract #       Poster Board Number ..................................... 129


Abstract #       Poster Board Number ..................................... 130

Acute and Subchronic Oral Toxicity Studies of Stem Bark Extract of Syzygium guineense (Myrtaceae) in Rats. O. A. Saliwu1, M. Hafeez2, and A. Y. Tijani1.
1Pharmacology and Toxicology, National Institute for Pharmaceutical Research and Development (NIPRD), Abuja, Nigeria; and 2Pharmacology and Therapeutics, Ahmadu Bello University, Zaria, Nigeria.
Program Description (Continued)

Abstract #


#809  Poster Board Number ..................................... 132  The Antioxidant, Anti-Inflammatory, and Antinociceptive Activities of the Ethanolic Leaf Extract of Andrographis paniculata Nees (Family Acanthaceae). A. A. Adeleke1, B. O. Adeyeye1, A. A. Aiyegbemi2, and M. O. Sofidiya2. 1Veterinary Physiology, Biochemistry and Pharmacology, University of Ibadan, Ibadan, Oyo, Nigeria; and 2Pharmacognosy, 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. Poage1, B. Frantz1, P. Hanlorn1, and H. Ferguson. 1MPI Research, Mattawan, MI, and 2Abbott Nutrition, Columbus, OH.

#812  Poster Board Number ..................................... 135  Acute and Subacute Toxicity Study of Zanthoxylum armatum Leaves in Mice. N. Verma1, and R. Khosla2. 1School of Pharmacy & Emerging Sciences, Baddi University of Emerging Sciences & Technology, Baddi, Himachal Pradesh, India; and 2School 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. Rider1, M. D. Stout1, and R. A. Herbert1. 1NTP/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. Adesoye1,2, M. A. Gbadegesin1, and O. A. Odedina1. 1Biochemistry, University of Ibadan, Ibadan, Oyo, Nigeria; and 2Department of Chemistry, The Polytechnic of Ibadan, Ibadan, Oyo, Nigeria.

Abstract #

#813c  Poster Board Number ..................................... 139  Naringenin Attenuates DMH-Induced NFκB and COX-2 Expression in Rat Colon: Abrogation of Oxidative Stress, Inflammatory Responses and Proinflammatory Cytokine Production. M. U. Rehman1,2, A. Farooq1, A. Arif1, S. A. Bhat1, R. Razzaq1, B. Ahmad2, M. R. Mir2, and M. Y. Shah3. 1Department of Pharmaceutical Sciences, University of Kashmir, Srinagar, JK&K, India; and 2Veterinary Biochemistry, Faculty of Veterinary Science & Animal Husbandry, SKUAST-Kashmir, Srinagar, JK&K, India. Sponsor: S. Beedangari.

#813d  Poster Board Number ..................................... 140  Green Tea Epigallocatechin Gallate Binds to and Inhibits Respiratory Complexes in Swelling but Not Normal Rat Hepatic Mitochondria. Z. Weng1, P. Zhou1, W. F. Salminen2, X. Yang1, A. H. Harrell3, D. L. Mendrick4, W. B. Mattes1, and Q. Shi1. 1Division of Systems Biology, US FDA, NCTR, Jefferson, AR; 2PAREXEL International, Sarasota, FL; 3Department of Occupational and Environmental Health, University of Arkansas for Medical Sciences, Little Rock, AR; and 4PharmPoint Consulting, Poolesville, MD.

Tuesday Morning, March 25
9:00 AM to 12:30 PM
Exhibit Hall
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. Teeguarden1,2, P. Munusamy3, D. Thomas1, J. N. Smith1, V. K. Kodali1, H. Shankaran1, H. D. Jolley1, P. Demokritou1, J. Cohen1, D. R. Baer1, and B. Thrall1. 1Systems Toxicology and Exposure Science, Pacific Northwest National Laboratory, Richland, WA; 2Environmental and Molecular Toxicology, Oregon State University, Corvallis, OR; and 3Center 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. L. P., J. Barres1, U. Curlander1, E. Eagle1, C. Emont1, B. O. Adeoye1, E. A. Balogun1, M. Morishita1, J. G. Wagner2, M. Wooldridge3, and O. Jolliet1. 1Environmental Health Science, University of Michigan, Ann Arbor, MI; 2Environmental Medicine, Karolinska Institutet, Stockholm, Sweden; 3Mechanical Engineering, University of Michigan, Ann Arbor, MI; 4BioSimulation Consulting Inc, Newark, DE; and 5Center for Integrative Toxicology, Michigan State University, East Lansing, MI.
<table>
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<th>Abstract #</th>
<th>Program Description (Continued)</th>
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| #816      | Poster Board Number ..................... 143
|           | Comparative Analysis of Predictive Models Used to Identify Drivers of Nanomaterial Toxicity. B. Harper1, R. Liu1, Y. Cohen1, and S. L. Harper1,2. 1Environmental and Molecular Toxicology, Oregon State University, Corvallis, OR; 2Center for Environmental Implications of Nanotechnology, University of California, Los Angeles, Los Angeles, CA; and 3School of Chemical, Biological and Environmental Engineering, Oregon State University, Corvallis, OR. |
| #817      | Poster Board Number ..................... 144
| #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. Riviere1,2, F. D. Sahneh1, C. Scoglio1,2, and N. A. Monteiro-Riviere1. 1Institute of Computational Comparative Medicine, Kansas State University, Manhattan, KS; and 2Nanotechnology 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. Sadsdhar2, R. Chen1,2, S. Oldenburg3, J. E. Riviere1,2, and N. A. Monteiro-Riviere1. 1Nanotechnology Innovation Center of Kansas State, Kansas State University, Manhattan, KS; 2Institute of Computational Comparative Medicine, Kansas State University, Manhattan, KS; and 3Nanocomposix, Inc, San Diego, CA. |
| #820      | Poster Board Number ..................... 147
|           | Toxicity Assessment of Six Titanium Dioxide Nanoparticles in Human Epidermal Keratinocytes. N. A. Monteiro-Riviere1, L. W. Zhang1, and B. Veronesi2. 1Nanotechnology Innovation Center of Kansas State, Kansas State University, Manhattan, KS; and 2United 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. Shannahan1, P. A. Wittmann2, and J. M. Brown1. 1University of Colorado, Aurora, CO; and 2Indiana 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. Miyayama1, Y. Arai1, and S. Hirono1,2. 1Hygiene and Public Health I, School of Medicine, Tokyo Women’s Medical University, Shinjuku-ku, Tokyo, Japan; 2Environmental Nanotoxicology Project, National Institute for Environmental Studies, Tsukuba, Ibaraki, Japan; and 3Graduate School of Pharmaceutical Sciences, Chiba University, Chiba, Japan. |
| #823      | Poster Board Number ..................... 150
| #824      | Poster Board Number ..................... 151
| #825      | Poster Board Number ..................... 152
|           | A Comparative Pulmonary Response of Inflammation, Injury, and Clearance of Silver Nanoparticles in Two Mouse Strains. E. L. Saunders1, M. A. Popovech1, T. Gordon1, L. Chen1, K. Galdanes1, S. Chillrud2, and J. Ross3. 1Environmental Medicine, New York University, Brooklyn, NY; and 2Earth Sciences, Columbia University, Palisades, NY. |
| #826      | Poster Board Number ..................... 153
| #827      | Poster Board Number ..................... 154
|           | Effects of Repeated Intranasal Administration of Silver Nanoparticles on Learning and Memory in Mice. L. L. Davenport1, H. Hsieh1, M. T. Williams2, C. V. Vorhees2, and M. Genter1. 1Department of Environmental Health, University of Cincinnati, Cincinnati, OH; 2Department of Pediatrics, University of Cincinnati, Cincinnati, OH; and 3Division 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. Anderson1, E. S. Patshin1, R. Silva1, D. Uyeminami1, T. Gordon1, L. Chen1, K. E. Pinkerton1, and L. S. Van Winkle1. 1Center for Health and the Environment, University of California, Davis, Davis, CA; and 2Department of Environmental Medicine, NYUMC, Tuxedo, NY. |
| #829      | Poster Board Number ..................... 156
|           | Inhaled Nano-TiO2 Size Distribution along with Mass Concentration Define Lung Responses. A. Noel1, Y. Cloutier1, M. Charbonneau1, R. Maghni1, R. Tardif1, and G. Truchon1. 1School of Public Health, University of Montreal, Montréal, QC, Canada; 2Institut de Recherche en Santé et en Sécurité du Travail, Montréal, QC, Canada; 3INRS-Université du Québec, Laval, QC, Canada; and 4SVM, Louisiana State University, Baton Rouge, LA. |
| #830      | Poster Board Number ..................... 157
|           | Cell Transformation Potential of Nano-Cerium Oxide (nCeO2), Nano-Ferric Oxide (nFe2O3) Compared to Multiwalled Carbon Nanotubes (MWCNT). L. Wang1, T. A. Stuckel1, P. Demokritou1, M. Chen1, R. Derk1, S. Luanipitpong2, J. Y. Ma1, V. Castranova2, and Y. Rojanasakul3. 1NIOSH, Morgantown, WV; 2Harvard University, Boston, MA; and 3West Virginia University, Morgantown, WV. |
#831 Abstract #
**Poster Board Number .....................................158**

#832 Abstract #
**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; T111HPW/AFRL, Wright Patterson AFB, OH.

#833 Abstract #
**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. Kaveeteerawat1, A. Ivask2, C. Chang3, P. Holden4, and H. Godwin5. 1Molecular Toxicology, UCLA, Los Angeles, CA; 2UC Center for Environmental Implication of Nanotechnology, UCLA, Los Angeles, CA; and 3Donald Bren School of Environmental Science and Management, UCSB, Santa Barbara, CA.

#834 Abstract #
**Poster Board Number .....................................161**

#835 Abstract #
**Poster Board Number .....................................162**
Gene Expression Changes in Secondary Organs of Rats Intratracheally Exposed to Silver Nanoparticles. T. Coccini1, R. Gornati1, I. Vanetti1, E. Signoretto1, F. Rossi1, G. Bernardini1, and L. Manzo1. 1Toxicology Division, Maurieri Foundation IRCCS, Institute of Pavia, Pavia, Italy; and 2Department of Biotechnology and Life Sciences, University of Insubria, Varese, Italy.

#836 Abstract #
**Poster Board Number .....................................163**
The Influence of UV Light on the Genotoxicity of Engineered Nanoparticles. D. Cupi1, and A. Raun. Environmental Engineering, DTU (Technical University of Denmark), Kongens Lyngby, Denmark.

#837 Abstract #
**Poster Board Number .....................................164**
Monocyte Activation by Particulate Matter and Reactive Oxygen Species Formation. K. L. Tran1, P. Pabkin1, A. Kim2, C. Sioutas2, and A. Campbell1. 1Department of Pharmaceutical Sciences, Western University of Health Sciences, Montclair, CA; and 2Sonny Astani Department of Civil and Environmental Engineering, University of Southern California, Los Angeles, CA.

#838 Abstract #
**Poster Board Number .....................................165**
Semi-Quantitative Analysis for the Uptake of Fluorescently Labeled Carboxylated Nanocellulose in Zebrafish Embryos (*Danio rerio*). A. N. Clandadiel1, J. A. Bonventre2, B. Harper3, and S. L. Harper1. 1Environmental and Molecular Toxicology, Oregon State University, Corvallis, OR; and 2Chem, Bio and Envil Engineerin, Oregon State, Corvallis, OR.

#839 Abstract #
**Poster Board Number .....................................166**
Biodisposition Kinetics of Titanium Dioxide Nanoparticles and Induced Oxidative Stress after Intravenous Administration in Rats. D. Dieme, L. Pujalte, S. Haddad, and M. Bouchard. Environmental and Occupational Health, University of Montreal, Montreal, QC, Canada.

#840 Abstract #
**Poster Board Number .....................................167**
Synthesis and Effects of Functional Gold Nanoparticles As Potential Transfection System for Mammalian Cells. A. M. Mende1, M. E. Martinez-Leija1, G. Palestino3, and M. Salgado3. 1Facultad de Medicina-Departamento de Bioquimica, Universidad Autónoma de San Luis Potosi, San Luis Potosi, Mexico; and 2Facultad de Ciencias Quimicas, Universidad Autonoma de San Luis Potosi, San Luis Potosi, Mexico.

#841 Abstract #
**Poster Board Number .....................................168**

#841a Abstract #
**Poster Board Number .....................................169**
Silver Nanoparticle-Induced Toxicity to Terrestrial Invertebrates in Different Soil Orders. R. Boyd1, D. R. Johnson2,3, and J. A. Stevens1. 1Environmental Laboratory, U.S. Army Engineer Research & Development Center, Vicksburg, MS; and 2Conestoga-Rovers and Associates, Dallas, TX.

#841b Abstract #
**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. Imam1, M. D. Boudreault1, G. Olson2, and A. Paredes3. 1National Center for Toxicological Research, Jefferson, AR; and 2Toxicologic Pathology Associates, Jefferson, AR.

#841c Abstract #
**Poster Board Number .....................................171**
Toxicity and Allergy Responses in the Lung following Pulmonary Exposure to Nanoparticle Silver in Mice. C. E. McLoughlin1, S. Anderson1, K. L. Anderson1, D. Schweger-Berry1, R. T. Chen1, and J. R. Roberts1. 1NIOSH, Morgantown, WV.

#841d Abstract #
**Poster Board Number .....................................172**
Differential Genomic Effects on Signaling Pathways by Two Different CeO2 Nanoparticles in HepG2 Cells. K. T. Kitchin1, A. Wallace1, C. P. Jones1, H. Ren1, B. T. Castellon1, J. Crooks1, and S. Thai1. 1US EPA, Durham, NC.

#841e Abstract #
**Poster Board Number .....................................173**
Aggregation of Gold Nanoparticles with Thiouether-Containing Amino Acids. S. Babut1, F. Jaetac Sec1, R. M. Uppu2, and M. O. Claville1. 1School of Science, Hampton University, Hampton, VA; and 2Department of Environmental Toxicology and the Health Research Center, Southern University and A&M College, Baton Rouge, LA.
Poster Session: Children's Health and Juvenile Toxicity

#843 Poster Board Number .....................................202

#844 Poster Board Number .....................................203

#845 Poster Board Number .....................................204
The Development and Validation of Methods for Evaluating the Immune System in Preweaning Pigs. B. A. Thorsrud1, M. J. Cameron2, B. Zeigler3, K. G. Nelson4, J. M. McKin5, M. L. Weiner6, H. Pergusor6, B. Frantz7, and W. Blakemore8. 1OXpertise, LLC, Princeton, NJ; 2Pathology, MPI, Mattawan, MI; 3CeeTox, Kalamazoo, MI; 4Abbott Nutrition, Columbus, OH; 5Celtic Colloids, Topsham, ME; 6Immunology, MPI, Mattawan, MI; and 7Developmental & Reproductive Toxicology, MPI, Mattawan, MI.

#846 Poster Board Number .....................................205

#847 Poster Board Number .....................................206
Femoral Growth Plate Dysplasia in Juvenile Rabbits Dosed with a Spleen-Like Kinase (Syk) Inhibitor. P. Duffy1, T. Mitchard2, G. R. Clemens3, and P. A. Hall. 1Drug Safety and Metabolism, Astrazeneca, Macclesfield, United Kingdom; and 2Rigel Pharmaceuticals Inc, South San Francisco, CA.
Program Description (Continued)

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#851 Poster Board Number .....................................213
BMS-986094: Repeat-Dose Oral Cardiovascular (CV) Safety Pharmacology Study in Monkeys. M. W. Giff1, J. K. Hennan1, L. V. Buchanant1, W. A. Warner1, L. M. Dillon1, P. C. Levesque1, M. Davies1, T. Sanderson1, and M. J. Graziano1. Discovery Toxicology, Bristol-Myers Squibb, Princeton, NJ; and 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. Trouba2, J. Wang2, A. Liu2, B. Wong2, M. J. Graziano2, T. Sanderson1, and M. Davies1. Drug Safety Evaluation, Bristol-Myers Squibb (BMS), Mt Vernon, IN; BMS, Lawrenceville, NJ; and BMS, New Brunswick, NJ.

#853 Poster Board Number .....................................215
BMS-986094: Metabolomic Assessment of Cardiotoxicity in Monkeys and Mice. D. Robertson1, P. Shipkova1, N. Aribam1, P. Virdi1, M. Reilly1, T. R. Van Vleet1, K. H. Horn1, and K. J. Trouba1. 1Applied and Investigative Metabolomics, Bristol-Myers Squibb Co., Princeton, NJ; and 2Drug 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 Vleet1, D. Simic1, K. H. Horn1, R. White1, R. Bunch1, M. Davies1, T. Sanderson1, and M. J. Graziano1. 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. Li1, L. Ma1, W. Zhao1, J. Kwaghi1, C. Storck1, Y. Zhu1, A. Liu1, O. Flint1, and W. G. Humphreys1. Bristol-Myers Squibb, Lawrenceville, NJ; and Bristol-Myers Squibb, Pennington, NJ.

#856 Poster Board Number .....................................218
BMS-986094: Potential Cytotoxicity in Differentiated Human Cardiomyocytes. J. Kwaghi1, C. Storck1, H. Shi1, M. Huang1, P. C. Levesque1, and O. Flint1. Discovery Toxicology, Bristol-Myers Squibb, Princeton, NJ.

#857 Poster Board Number .....................................219
BMS-986094: In Vitro Mitochondrial DNA Replication, Transcription, and Translation. O. Flint1, F. Wang1, J. Kwaghi1, C. Storck1, T. Sanderson1, J. Arnold1, C. Cameron1, and S. Sharma1. Discovery Toxicology and Drug Safety Evaluation, Bristol-Myers Squibb, Princeton, NJ; and 2Biochemistry 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. Pettit1, H. Kiper1, R. Laumbach3, Z. Fan4, M. Davies2, C. Cepeda2, and A. Gom2. 1Graduate School of Biomedical Sciences, Rutgers University, Piscataway, NJ; 2Robert Wood Johnson Medical School, Rutgers University, Piscataway, NJ; 3Environmental and Occupational Health Sciences Institute, Rutgers University, Piscataway, NJ; 4School of Public Health, Rutgers University, Piscataway, NJ; and 5Ernest Mario School of Pharmacy, Rutgers University, Piscataway, NJ.

#859 Poster Board Number .....................................221
Anterior Chamber Model to Evaluate Drug Effects on Corneal Wound Repair. A. Vickers1, J. Herrmann1, and R. Fisher1. Allergan Inc, Irvine, CA; and 2UCLA, Los Angeles, CA.

#860 Poster Board Number .....................................222
Establishment and Characterization of a New Rat Bronchial Organotypic Model Resembling the In Vivo Situation. C. Mathis1, S. Huang2, F. Frenzel1, D. Kuehn1, T. Talamo1, M. Guert1, E. Guedj1, Y. Xiang1, A. Hayes1, S. Constant1, M. Peits1, and J. Hoeng1. Philip Morris International, Neuchâtel, Switzerland; 2Epithelix Sarl, Plan-les-Ouates, Switzerland; and 3Sphera 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. J. Anetor1, E. I. Diala1, A. Arowojolu1, L. B. Amoo1, and G. O. Anetor1. 1Departments of Chemical Pathology & Obstetrics/Gynecology, University of Ibadan, Ibadan, Oyo, Nigeria; and 2Health Education, University of Ibadan, Ibadan, Oyo, Nigeria.

#863 Poster Board Number .....................................225
ELISA Detection of Zilpaterol in Retinal Tissue. C. Wilson1, M. Mengel1, and J. Buz1. 1Indiana Animal Disease Diagnostic Laboratory, Purdue University, West Lafayette, IN; and 2Comparative 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. Harney1, M. Hemkens2, and G. Yanochko2. 1Drug Safety Research and Development, Pfizer, Inc., Groton, CT; and 2Pfizer, La Jolla, CA.

#865 Poster Board Number .....................................227
The Protective Effects of Short-Term Fasting against 60Co-Ray Radiation. J. Li2, S. soochow University, Suzhou, China; and 2RIIBM, Hiroshima University, Hiroshima, Japan.

#866 Poster Board Number .....................................228

#867 Poster Board Number .....................................229
Serum Biomarkers of Mitochondrial Damage in Survivors and Non-survivors of Acetaminophen-Induced Acute Liver Failure: Implications for the Mechanism of Hepatotoxicity in Humans. M. R. McGill1, W. M. Lee2, and J. Huesch3. 1Pharmacology, Toxicology, and Therapeutics, University of Kansas Medical Center, Kansas City, KS; 2Digestive and Liver Diseases, University of Texas Southwestern Medical Center, Dallas, TX; and 3Acute Liver Failure Study Group, Dallas, TX.
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<td>L. D. P. Jones1, K. Uppal1, D. J. Walker2, V. Tran1, Y. Liang1, Y. Go1, E. Voit1, D. B. Barr1, P. Tolbert1, K. D. Pennell2, and G. W. Miller1. 1Dept of Medicine, Emory University, Atlanta, GA; 2Civil and Environmental Engineering, Tufts University, Medford, MA; and 3Georgia Technology Institute, Atlanta, GA.</td>
<td>Sulfurophane Protects against Influenza Virus Infection in the Nasal Mucosa of Smokers. E. V. Glista-Baker1, L. Müller2, R. N. Bauer3, M. Meyer4, S. Z. Jones1, H. Zhang1, H. Zhou1, T. Noah1,2, and I. Jaspers3,4,5,6. 1Center for Environmental Medicine, Asthma and Lung Biology, University of North Carolina, Chapel Hill, NC; 2University Children's Hospital Basel, Basel, Switzerland; 3Curriculum in Toxicology, University of North Carolina, Chapel Hill, NC; 4Department of Microbiology and Immunology, University of North Carolina, Chapel Hill, NC; 5Department of Biostatistics, University of North Carolina, Chapel Hill, NC; and 6Department of Pediatrics, University of North Carolina, Chapel Hill, NC.</td>
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<td>Pathogenic Mechanisms in Highly Active Antiretroviral Therapy (HAART)-Induced Hepatotoxicity: Role Phosphodiesterease 4 (PDE4) and ER-Stress. H. Dondé1, P. Barve2, D. Barker1, S. Joshi-Barve1, L. Gobejishvili1, C. McClain1,2, and S. Barve1. 1Department of Medicine/GI, University of Louisville, Louisville, KY; and 2Robley Rex VAMC, Louisville, KY.</td>
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<td>Dual Regulation of Calcinurcin Activity following Lymphocyte Activation: Contribution to Cyclosporine-Induced Toxicity? S. Sanquer1, C. Lena1, L. Herry1, M. Stern1, and R. Barouki3. 1INSERM UMR-S 747, Paris Descartes University, Paris, France; and 3Hôpital Foch, Suresnes, France.</td>
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<td>Derivation of Induced Pluripotent Stem Cells and Their Potential Application for Cardiac Regeneration in a Porcine Model. B. Kumar1,2, T. Kim1, W. Lee1, Y. Lee1, R. Jeon1, S. Jang1, S. Lee1, S. J. Feng1, H. Kim1, S. L. Park1, and G. Rho1. 1Department of Theriogenology and Biotechnology, College of Veterinary Medicine, Gyeongsang National University, Jinju, Republic of Korea; 2Centre for Stem Cell Research &amp; Regenerative Medicine, K.S. Hlegde Medical Academy, Nitte University, Deralakatte, Mangalore, India; and 3PWG Genetics, Singapore, Singapore. Sponsor: W. Koh.</td>
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<td>Cyclophilin Inhibitor Aliisporivir (DEB025) Is Not Toxic to Mitochondria: A Comprehensive In Vitro and In Vivo Assessment. F. Pogna1, K. K. Balavenkatraman1, P. Couttet1, R. Kreutzer1, S. R. Hellwell1, D. Bee1, A. Cordier1, S. Chibout1, N. Naoumou1, A. Wolf1, and M. Utengi. 1NIBR, Novartis, Basel, Switzerland; and 2Pharma, Novartis, Basel, Switzerland.</td>
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<td>Cardiovascular Effects of Diesel Exhaust and Ozone in a Multipollutant Context. T. Stevens1, M. Case1, A. Rappold1, J. Pleil2, D. Diaz-Sanchez2, W. Cascio2, and M. C. Maddern1. 1ORISE/EMAG/NCEA/ORD, EPA, RTP, NC; 2CRB/EPHD/ORD, EPA, Chapel Hill, NC; and 3HEASD/NERL/ORD, EPA, RTP, NC.</td>
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<td>Trauma and Drugs of Abuse in Puerto Rico: A Retrospective Study. H. Jirau1,2, F. Colón1,2, M. Figueroa1, G. Rodriguez1, P. Rodríguez1,2, and R. D. Jiménez-Velez1,2. 1Biology, University of Puerto Rico Rio Piedras Campus, San Juan, Puerto Rico; 2Biochemistry, University of Puerto Rico School of Medicine Medical Science Campus, San Juan, Puerto Rico; 3Surgery, University of Puerto Rico School of Medicine Medical Science Campus, San Juan, Puerto Rico; 4Trauma Center, San Juan, Puerto Rico; and 5Center for Environmental and Toxicological Research, San Juan, Puerto Rico.</td>
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<td>Production of Recombinant Antibody Fragments Targeting Soluble Epoxide Hydrolase. Z. Majkova1, H. Kim1, C. Morisseau, S. Lee1, S. J. Gee1, and B. D. Hammock. University of California, Davis, CA.</td>
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<td>Mobile Augmented Reality Displays for Personalized Exposure Informatics. A. J. Larkin1,2, D. E. Williams1,2, and W. M. Baird2,3. 1Environmental and Molecular Toxicology, Oregon State University, Corvallis, OR; 2Superfund Research Center, Oregon State University, Corvallis, OR; and 3Linus Pauling Institute, Oregon State University, Corvallis, OR.</td>
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<td>Clinical Toxicology and Community Health Education: National Poison Prevention Week in the United States. M. Broderick-Pritty1, and T. Dodd-Batista2. 1San Diego Division, California Poison Control System, San Diego, CA; and 2Nursing, CSU San Bernardino, College of Natural Sciences, San Bernardino, CA.</td>
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<td>Dermatotoxicologic Clinical Solutions: Textile Dye Dermatitis Patch Testing. N. Blickenstaff1, G. Coman1, and H. I. Maibach2. 1Dermatology, University of California San Francisco, San Francisco, CA.</td>
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Program Description (Continued)

Abstract #
Tuesday Morning, March 25
9:00 AM to 12:30 PM
Exhibit Hall

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-Methoxyximate in Rat Plasma: Application to a Preliminary Toxicokinetic Study. C. R. Croutch1, C. Dillon1, A. Gutierrez2, F. Hubbard1, R. Mathias1, D. Logan1, B. Sitzmann1, J. Cobb3, K. Dunn1, J. Rosenman1, S. Kerns1, D. Slade1, K. Aillon1, J. Algaier2, R. Harris1, R. Wimalasena3, C. Croutch4, M. Malfatti3, T. Ognibene3, R. Mathias1, D. Logan1, B. Sitzmann1, J. Cobb3, K. Dunn1, J. Rosenman1, S. Kerns1, D. Slade1, K. Aillon1, J. Algaier2, R. Harris1, R. Wimalasena3, C. Croutch4
1DNTP, Research Triangle Park, NC.
2Canada.
3Life Sciences, IIT Research Services, Algorithme Pharma Inc., Laval, QC, Canada.
4Brassica chinensis Laboratory, Livermore, CA.

#878 Poster Board Number .....................................247
Validation of an ELISA for Quantification of the lysosomal protein Saposin C following Iron Sucrose Nanoparticles: Effects on Tissue Pathobiology, Oklahoma State University, Stillwater, OK; and 3Department of Veterinary Pathobiology, Oklahoma State University, Stillwater, OK.

#879 Poster Board Number .....................................248
Intact versus Signature Peptide Approach to Reaching Optimal Sensitivity in Large Molecules
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

#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. Madeen1, R. Corley2, M. Malfatti3, T. Ognibene4, K. W. Turteltaub5, T. McQuistan6, and D. E. Williams7. OSU, Corvallis, OR; 8Pacific Northwest National Laboratories, Richland, WA; and 9Lawrence Livermore National Laboratory, Livermore, CA.

#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. I. Kuehl1, C. Bourne2, K. Berlin1, R. A. Bunce1, J. Lucak3, J. Marsters1, B. C. Moeller1, M. Valderrama1, and W. Barrow2. 1Lovelace Respiratory Research Institute, Albuquerque, NM; 2Department of Veterinary Pathobiology, Oklahoma State University, Stillwater, OK; and 3Department 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 Diisobutyl Ketone and Diisobutyl Carbinol in Male SD Rats. F. Zhang, M. J. Burtis, A. J. Clark, J. I. Staley1, 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. R. C. Hanks1, S. Schlink2, L. Brown1, M. Luna3, Y. Liu4, J. Liu5, A. Stricker-Krongrad6, and G. Bouchar7. ‘Sinclair Research, Auxvasse, MO; and 8‘KCAS, LLC, Shawnee, KS.

#887 Poster Board Number .....................................256
Oxyvite®, 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. Grizzle8, T. Brashaw9, and S. Anderson10. ‘Oxygen Biotherapeutics Inc, Morristville, NC; and 11‘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. Pearson1, R. Forster2, J. Bouchard1, L. Jaillet1, A. Rogue1, and P. Elford2. ‘CIToxLAB, Evreux, France; and 13‘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. J. Jones, C. Kim1, Y. Uni1, E. See1, K. Noh1, W. Kang2, H. Kim2, and M. Kang3. ‘College of Pharmacy, Yeungnam University, Gyeongsan, Republic of Korea; and 4‘College of Pharmacy, Sungkyunkwan University, Suwon, Republic of Korea.
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<tr>
<td>#891</td>
<td>#891</td>
<td>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, 1ORD/NCEA-IRIS, US EPA, Washington, DC; and 2Oak Ridge Institute for Science &amp; Education, Oak Ridge, TN.</td>
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<td>#892</td>
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<td>Scoping the Need for PBPK Modeling of Childhood Metabolism Differences: Case Studies Applying an Enzyme Ontology Database. S. V. Vulturi 1, Y. Lin 1, K. Jannerla 1, G. L. Ginsberg 1, B. P. Foose 1, and B. Sonawane 1, US EPA, ORD; NCEA-W, Washington, DC; Connecticut Dept. of Public Health, Hartford, CT; and US EPA, OCHP, Washington, DC.</td>
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<td>#893</td>
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<td>Distribution of Capcetabine and Its Metabolites 5’s-Deoxy-5-fluorocytidine; 5’s-Deoxy-5-fluorouridine; and 5-fluorouracil in a Preclinical Mouse Model of Brain Metastases of Breast Cancer. R. Balyan, H. R. Thorshiem, R. Samala, and Q. R. Smith, Department of Pharmaceutical Sciences, Texas Tech University Health Sciences Center, Amarillo, TX. Sponsor: S. Srivastava.</td>
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<td>#895</td>
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<td>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 1,2, W. R. Howard 1, and A. James 1, 1711 HPW/RHDJ, USAF, Wright Patterson AFB, OH; 2Henry Jackson Foundation, WPAFB, OH; 3Camris International, wpafb, OH; and 4NAMRU-D, WPAFB, OH.</td>
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<td>#896</td>
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<td>Airborne PCB11 Does Not Bioaccumulate: The Fate of 14C-Labeled 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.</td>
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<td>#897</td>
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<td>Tissue Blood Partition Coefficients for Deltamethrin (DLM), Cis-Permethrin (CIS), and Trans-Permethrin in Adult Male Sprague-Dawley Rats and 21-Day Old Pups. M. Amaranehi 1, S. Muralidhara 1, A. H. Nguyen 1, S. L. Wild 2, W. Sonn 2, N. Chirumle 1, M. B. Hock 1, M. J. Horner 1, E. M. Lewis 2, G. J. Moffat 1, and J. L. Bussiere 1, Amgen, Thousand Oaks, CA; Charles River Laboratories, Horsham, PA; and Amgen, Seattle, WA.</td>
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<td>Rapid Clearance of Murine IgG1 and IgG2 Monoclonal Antibodies in Pregnant Mice. K. Ishika 1, A. H. Nguyen 1, S. L. Wild 2, W. Sonn 2, N. Chirumle 1, M. B. Hock 1, M. J. Horner 1, E. M. Lewis 2, G. J. Moffat 1, and J. L. Bussiere 1, Amgen, Thousand Oaks, CA; Charles River Laboratories, Horsham, PA; and Amgen, Seattle, WA.</td>
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**Symposium Sessions**

- **Poster Session**: Discussions and presentations on various topics related to toxicology.
- **Regional Interest Session**: Specialized sessions for targeted communities.
- **Roundtable Sessions**: Interactive discussions on specific issues.
- **Workshop Sessions**: Interactive workshops for skill development.

**Abstracts #891-898**

- **#891**: An Updated PBPK Model for RDX (Hexahydro-1,3,5-Trinitro-1,3,5-Triazine) and Its Metabolites in Mice.
- **#892**: Scoping the Need for PBPK Modeling of Childhood Metabolism Differences.
- **#893**: Distribution of Capcetabine and Its Metabolites.
- **#894**: Disposition of the Actinide Chelating Agent.
- **#895**: Effect of Altitude on Tissue Distribution of Toluene in Mice.
- **#896**: Airborne PCB11 Does Not Bioaccumulate.
- **#897**: Tissue Blood Partition Coefficients for Deltamethrin and Its Metabolites.
- **#898**: Rapid Clearance of Murine IgG1 and IgG2 Monoclonal Antibodies in Pregnant Mice.
Tuesday Morning, March 25
9:00 AM to 12:30 PM
Exhibit Hall

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

Abstract #  Poster Board Number .....................................275
#901e Mass Spectrometry Imaging in Toxicology
Study: Biodistribution of Unlabeled Bleomycin in Induced Interstitial Pulmonary Fibrosis (IPF)
Model. D. Bonnel1, M. McElroy2, S. Madden1, and J. Stauber1. Imaging Department, Imabiotech, Loos, France; and Charles River Discovery Research Services, Edinburgh, United Kingdom. Sponsor: D. Bonnel.

Abstract #  Poster Board Number .....................................276
#901f A Simplified and Reliable Capillary Microsampling Procedure to Support Preclinical Regulatory Studies in Rodents. R. Mader1, S. Iqbaf1, J. Bravo1, J. Burnett2, P. Kilford3, and M. Fraschini2. Debiopharm International SA, Lausanne, Switzerland; and Covance Laboratories Ltd, Harrogate, United Kingdom. Sponsor: A. Jackson.

Abstract #  Poster Board Number .....................................277
#902 Crosstalk between Aryl Hydrocarbon Receptor and the Inflammatory Response: A Role for NF-κB. C. Vogel1, E. Kahn3, P. Leung2, M. Gershwin2, T. Haarmann-Stemmann1, A. Hofmann3, and M. S. Denison1. Environmental Toxicology, University of California, Davis, CA; Division of Rheumatology, Allergy and Clinical Immunology, University of California, Davis, CA; Department of Microbiology, Immunology and Molecular Genetics, University of California, Los Angeles, CA; and Leibniz Research Institute for Environmental Medicine, Institute for Environmental Research, Düsseldorf, Germany.

Abstract #  Poster Board Number .....................................278
#903 Toxicogenomic Evaluation of Dose-Dependent TCDD-Elicited Effects in the Jejunal Epithelium of C57BL/6 Mice. K. A. Fader1, R. Nault2, and T. R. Zucharzewski2. BioMolecular Sciences, Michigan State University, East Lansing, MI; Department of Biochemistry & Molecular Biology, Michigan State University, East Lansing, MI; and Center for Integrative Toxicology, Michigan State University, East Lansing, MI.

Abstract #  Poster Board Number .....................................279
#904 Modulation of TCDD-Mediated Induction of Cytochrome P450 1A1 by Cadmium Ion (Cd²⁺) 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.

Abstract #  Poster Board Number .....................................280
#905 Dioxin Blocks Initiation of β-Catenin Signaling in Developing Mouse Prostate. A. J. Schneider1, R. W. Moore1, A. Bram1, V. Mehta1, L. L. Aber1, K. P. Kiel1, C. M. Vezina2, and R. E. Peterson1. School of Pharmacy, University of Wisconsin, Madison, WI; and School of Veterinary Medicine, University of Wisconsin, Madison, WI.

Abstract #  Poster Board Number .....................................281
#906 Aryl Hydrocarbon Receptor Regulation of mir-196a Controls Lung Fibroblast Proliferation via the Cell Cycle Inhibitor p27kip1. M. Zag9, E. Hecht7, J. Sheridan1, P. Nair1, J. B. Matthews1, A. Gomez1, Q. Hamid1, D. H. Eidelman1, and C. J. Boglole1. Medicine, McGill University, Montreal, QC, Canada; McMaster University, Hamilton, ON, Canada; and University of Toronto, Toronto, ON, Canada.

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#907 Ligand Promiscuity of Aryl Hydrocarbon Receptor Agonists and Antagonists Revealed by Site-Directed Mutagenesis. A. Soshinov, and M. Denison. Environmental Toxicology, University of California Davis, Davis, CA.

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#908 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.

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#909 RNA-Seq Analysis Reveals Roles for Aryl Hydrocarbon Receptor Endogenous Lipid Synthesis and TNF Signaling. T. B. Salisbury3, J. K. Tomblin1, D. Primerano2, G. Boskovic3, J. Fan1, A. R. Chaudhry1, G. Morris1, and J. Denvir2. Pharmacology, Physiology and Toxicology, Joan C Edwards School of Medicine, Marshall University, Huntington, WV; Biochemistry and Microbiology, Joan C Edwards School of Medicine, Marshall University, Huntington, WV; and Department of Science and Mathematics, Glendale Sate College, Glenville, WV.

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#910 Dexamethasone Induces Fibroblast Growth Factor (FGF) 21 in Humans and Mice. S. Vispate, and X. Cheng. Department of Pharmaceutical Sciences, St. John’s University, Queens, NY.

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#911 Transcriprome Analysis of PXR-Regulated Gene Expression in HepG2 Cells. G. Wang1, E. Yang2, S. Ke3, J. Ca4, and Y. Tian5. Department of Veterinary Integrative Biosciences, College of Veterinary Medicine, Texas A&M University, College Station, TX, and Department of Physiology and Pharmacology, College of Veterinary Medicine, Texas A&M University, College Station, TX.

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#912 Using Three-Dimensional Cell Culture to Understand Ethanol Toxicity in Mammary Cells. R. David, and N. J. Goodhart. Imperial College London, London, United Kingdom.

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#913 Low-Dose Transplacental Arsenic Exposure Alters Expression of Cell Cycle Genes in Lung Tissues of C57BL/6 Mice. D. J. Uddawatte1, X. Li2, P. Carlson3, and R. J. Van Beneden1, 4, 5. Molecular and Biomedical Sciences, University of Maine, Orono, ME; Center for Molecular Medicine, Central South University, Changsha, Hunan, China; Graduate School of Biomedical Sciences and Engineering, University of Maine, Orono, ME; and School of Marine Sciences, University of Maine, Orono, ME. Sponsor: J. Goss.
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#914  Poster Board Number .....................................313  
Hormonal Changes and Gene Signaling Pathways in Female Rat Thyroids Exposed to Acrylamide. R. C. Colli-Dula1, D. D. Deslow6, and M. A. Friedman2. CEHT, University of Florida, Gainesville, FL; and 2Kennesaw 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. Castro1,2, W. Ngancherdrakul1, J. Morry1, T. Sangvanich1, S. Gu1, S. Goodyear1, and W. Yantasee1,2. 1PDX Pharmaceuticals, Portland, OR; and 2Biomedical Engineering, Oregon Health and Science University, Portland, OR.  

#916  Poster Board Number .....................................315  

#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. Mubarokah1,2, P. A. Gregory3, P. I. MacKenzie1, and R. Meech1. 1Clinical Pharmacology, Flinders University, Adelaide, SA, Australia; and 2University of Islam Malang, Malang, East Java, Indonesia; and 3Centre 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  

#921  Poster Board Number .....................................320  
Carbon Monoxide Modulation of mRNA in Human Airway Smooth Muscle Cells. B. A. Rolls1, L. Aguilar-Agurri1, L. M. Hallberg1, J. Boldog1, A. J. Halayko2, and B. T. Ameredes1. 1University of Texas Medical Branch, Galveston, TX; and 2University of Manitoba, Winnipeg, MB, Canada.  

#922  Poster Board Number .....................................321  
Role of microRNA in the Induction of Immunosuppressive MDSC by Δ9-THC In Vivo: Regulation of Transcription Factor C/EBPβ 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.  

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#922a  Poster Board Number .....................................322  
Profile of Six Hepatic Insulin Signaling Pathway Genes in Response to 2-Aminoanthracene Dietary Ingestion. J. W. Jay1, G. W. Barnett1, J. C. Means2, and W. E. Gato1. 1Chemistry, Georgia Southern University, Statesboro, GA; and 2Bren School of Environmental Science & Management, UC Santa Barbara, Santa Barbara, CA.  

#922b  Poster Board Number .....................................323  
Effects 2-Aminoanthracene Exposure on Insr, Iris, Akt and Glut4 Expression. N. D. Mattis1, J. J. Rosaldo1, J. C. Means2, and W. E. Gato1. 1Chemistry, Georgia Southern University, Statesboro, GA; and 2Bren 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. Li1, X. Pei1, H. Xie1, and B. Zhao1. 1Research 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. Sanders1, G. A. Knudsen1, S. J. Coulter1, J. K. Dunnick2, and L. S. Birnbaum1. 1NCI, RTP, NC; and 2NIEHS, RTP, NC.  

Tuesday Morning, March 25  
9:00 AM to 12:30 PM  
Exhibit Hall  
Poster Session: New Science on Neurodegenerative Disease  
New Science and Perspectives Surrounding Environmental and Occupational Exposures  
Displayed: 9:00 AM–12:30 PM  
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2-Amino-1-Methyl-6-Phenylimidazol(4,5-b) Pyridine (PhIP) Neurotoxicity in Primary Midbrain Cultures. Z. S. Agin2, A. M. Griggs1, V. Mishra1, W. Turteltaub2, A. E. Director-Myska2, J. R. Rollins2, and J. B. Cannon2. 1School of Health Sciences, Purdue University, West Lafayette, IN; 2Department of Medicinal Chemistry and Molecular Pharmacology, Purdue University, West Lafayette, IN; 3Biomedical Sciences & Biotechnology Division, Lawrence Livermore National Laboratory, Livermore, CA; and 4Science and Technology, Defense Threat Reduction Agency, Fort Belvoir, VA.  

#924  Poster Board Number .....................................327  
Dopamine-Induced Post-Translational Modifications of α-Synuclein. A. B. Cholansians, S. S. Lau, and T. J. Monks. College of Pharmacy, University of Arizona, Tucson, AZ.
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<td>#925</td>
<td>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. Lopert1, L. Liang2, and M. N. Patel2. 1Neuroscience, University of Colorado Anschutz Medical Campus, Aurora, CO; and 2Pharmaceutical Sciences, University of Colorado Anschutz Medical Campus, Aurora, CO.</td>
<td>#935</td>
<td>NZR2 Transgenic Rats Exhibits Heightened Sensitivity in a Colitis Model. J. Lee1, J. Park2, C. H. Kim1, and J. R. Cannon1. 1School of Health Sciences, Purdue University, West Lafayette, IN; and 2Comparative Pathobiology, Purdue University, West Lafayette, IN.</td>
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<td>#926</td>
<td>Environmental/Mitochondrial Toxicity Induced by Paraquat and MPP+ Is Associated with a Decrease in Ubiquination- and p62/Autophagy-Mediated Clearance of Oxidized Proteins. J. Navarro-Yepez1, A. Anandhan1, B. Quintanilla-Vega1, and R. Franco1. 1School of Veterinary Medicine and Biomedical Sciences, University of Nebraska-Lincoln, Lincoln, NE; and 2Toxicology, CNV/ESTAV, IFN, Mexico City, D.F., Mexico.</td>
<td>#936</td>
<td>Neuropeptide Effect of Taurosodeoxycholic Acid (TUDCA) in Parkinson's Disease Mouse Model. S. Chigrupatti, J. Reymick, L. Schmued, M. G. Paule, J. F. Bowyer, and S. Sarkar. Neurotoxicology, NCTR/FDA, Jefferson, AR.</td>
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<td>#929</td>
<td>Exploring Gene-Environment Interactions Implicated in Parkinson's Disease Using a Paraquat and Maneb Model in Drosophila. V. Nunez1, C. A. Martin1, and D. Krantz1. 1Society and Genetics, University of California, Los Angeles, Los Angeles, CA; 2Neuroscience, University of California, Los Angeles, Los Angeles, CA; and 3Molecular Toxicology, University of California, Los Angeles, Los Angeles, CA.</td>
<td>#939</td>
<td>Nonmotor Symptoms in MitoPark Mouse Model of Parkinson's Disease. M. R. Langley, M. Ay, S. Ghaiais, H. Jin, V. Anantharam, A. Kanthasamy, and A. Kanthasamy. Biomedical Sciences, Iowa State University, Ames, IA.</td>
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<td>#930</td>
<td>The Parkinson's Disease-Linked Pesticide Ziram Causes Deregulation of the Synapse. C. A. Martin1, and D. Krantz1. 1Molecular Toxicology, University of California, Los Angeles, Los Angeles, CA; and 2Neuroscience, University of California, Los Angeles, Los Angeles, CA.</td>
<td>#940</td>
<td>Prevalence and Titers of Neuroantibodies (NAb) in Hemodialysis Patients (HD): Associations with Vitamin D Receptor (VDR) Polymorphisms (SNP) and Blood Lead (BPP). H. A. El-Fawal1, A. Johnson2,3, P. Storrs2, J. Bishop2, K. Elnagar2, and D. Mason2. 1Neurotoxicology Laboratory, Albany College of Pharmacy and Health Sciences, Albany, NY; 2Neurology, College of Pharmacy, Health Sciences, Albany College of Pharmacy and Health Sciences, Albany, NY; 3Neuropsychiatry Services, Albany Medical Center, Albany, NY.</td>
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<td>#931</td>
<td>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. Nichols School of the Environment, Duke University, Durham, NC.</td>
<td>#941</td>
<td>Pb Exposure, Histone Methylation, and the S-Adenosylmethionine (SAM) Pathway: Implications for Alzheimer’s Disease. A. Eid1, H. Huang1, S. W. Bihaq2, and N. Zawia3. 1Interdisciplinary Neurosciences Program, University of Rhode Island, Kingston, RI; 2Biomedical and Pharmaceutical Sciences, University of Rhode Island, Kingston, RI; and 3School of Public Health, Zhengzhou University, Zhengzhou, Henan, China.</td>
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<td>#932</td>
<td>Inhibitory Effect of Curcumin on HMGB1 Release in LPS-Stimulated Microglia Cell. M. Entezari1, M. Javdan2, and N. Hussain1. 1Natural Science, LaGuardia Community College, Long Island City, NY; and 2Biological Sciences and Geology, Queensborough Community College, Bayside, NY.</td>
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Gene-Microarray Analysis of Brain Tissues in a Multiple Sclerosis Mice Model: 6-Weeks vs. 15-Months Mice. J. Seo1, 2, M. Hasan1, 2, M. Kang3, B. Jung2, S. Nam2, W. Park2, H. Kim2, and D. Kwoon1, 2.
1Toxicology Lab, Doping Control Center, Korea Institute of Science and Technology, Seoul, Republic of Korea; 2Biological Chemistry, University of Science and Technology, Daejeon, Republic of Korea; 3Molecular Recognition Research Center, Korea Institute of Science and Technology, Seoul, Republic of Korea; and The Catholic University of Korea, Seoul, Republic of Korea.

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Poster Board Number .....................................346
Toxicology of Targeted Drug Delivery to the Midbrain for Parkinson's Disease Treatment. R. Grondin1, Y. Ai1, P. A. Hardy1, M. T. Butt2, G. A. Gerhardt1, D. M. Gash1, D. A. Bumcroft1, and Z. Zhang1, Anatomy & Neurobiology, University of Kentucky, Lexington, KY; 2Tox Path Specialists, LLC, Frederick, MD; and 3David H. Koch Institute, Cambridge, MA. Sponsor: M. Vore.

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Studying Aspects of Parkinson's Disease in a Zebrafish Model of Ziram Toxicity. A. Lulla1, 2, L. Barnhill1, 2, M. Stahl1, 2, A. G. Fitzmaurice1, 2, S. Li2, and J. Brunstein1, 2, Molecular Toxicology, UCLA, Los Angeles, CA; and 3Neurology, UCLA, Los Angeles, CA.

#942c
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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. Nissel1, N. VanDuyne1, J. Duer1, J. Trinidad1, W. Li1, and G. Wong1, 2Pharmacology and Toxicology, Indiana University School of Medicine, Indianapolis, IN; 3Chemistry, Indiana University, Bloomington, IN; 4Biosciences, Kuopio University, Kuopio, Finland; and 5Biological Sciences, Ohio University, Athens, OH.

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Altered Expression of Amyloid Beta (Aβ) Deposit-Related Molecules in the Aging Brain. D. Kim1, J. Park1, and B. Choi1, Preventive Medicine, Chung-Ang University, Seoul, Republic of Korea.

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Changes of Tight Junctions in the Blood-Brain Barrier Are Mediated by Aβ25-35-RAGE Interaction. E. Cuevas1, H. Rosas-Hernandez1, S. Lantz-McPeak1, M. G. Paul1, Q. Gu2, C. Gonzalez2, S. Z. Imam2, J. Kanungo1, and S. F. Ali1, 2Division of Neurotoxicology, NCTR, Jefferson, AR; and 3Laboratorio de Fisiología celular, Universidad Autonoma de San Luis Potosí, San Luis Potosí, SLP, Mexico.

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In Vitro Skin Irritation Testing: Characterization of Mid-Range Tissue Viability. B. Landell1, C. Dingee1, Y. Huang1, J. Li2, and D. M. Collu2.1, WuXi AppTec, St. Paul, MN; and 2WuXi AppTec, Philadelphia, PA. Sponsor: R. White.

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Evaluation of an In Vitro Assay for the Detection of Skin Irritants in Medical Devices. C. Nyce, A. Y. Sawyer. Corporate Preclinical Development and Toxicology, BD, Research Triangle Park, NC.

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Does Leaching of Bisphenol A (BPA) from Dental Composites Contribute to Neuropsychological Deficits in Children? An Evaluation of Plausibility. J. E. Reynolds1, L. H. Moilanen1, E. Hope1, and J. K. Dahms2.1, Medical Department; 3M Company, St. Paul, MN; and 3M ESPE; 3M Company, St. Paul, MN.

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Potential Confounders of Bisphenol A Analysis in Dental/Orthodontic Materials. E. Hope1, D. R. Reed1, and L. H. Moilanen1. 1Medical Department; 3M, Saint Paul, MN; and 3Corporate Research and Development Analytical Laboratories; 3M, Saint Paul, MN.

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Safety Assessment of Colorants Used in Cardiac Lead Implant Devices—Applying the Threshold of Toxicological Concern Approach. F. K. Hsu1, M. P. Beauchane1, B. J. Swackhammer1, and E. E. Revery2, 1Global Toxicology and Biocompatibility Services, Boston Scientific Corporation, Maple Grove, MN; and 2CRT Leads Development, Boston Scientific Corporation, St. Paul, MN.

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Safety Evaluation of an Intravascular Catheter Securement Device. N. V. Soucy1 and D. Conrad-Vlasak2, 1Medical Department; 3M Company, St Paul, MN; and 2C3SD; 3M, St. Paul, MN.


#953  Infusion Pump Accuracy Assessment: Weighing Syringes and IV Bags Not Necessary As Secondary Accuracy Check on Infusion Studies. L. Hughes, J. K. Herman, K. Rasmussen, N. West, and A. N. Alexander. Nonclinical Safety Assessment, Covance Laboratories Inc, Madison, WI.


#954a  Creating a Holistic Extractables and Leachables (E&L) Program for Biotechnology Products. K. Li, A. Mire-Sluis,1,2 and B. Cerney.1 1Corporate Environment, Health and Safety, Amgen Inc., Thousand Oaks, CA; and 2Corporate Quality, Amgen Inc., Thousand Oaks, CA.

#954b  Medical Device Thrombogenicity Testing Using Molecular Indicators of Thrombin Generation: An In Vitro Alternative to the NAVI Model. M. F. Wolf,1 S. Hoffmann,1 C. E. DeRusha,1,2 A. A. Anderson1,3, J. Rodriguez,1 and A. Y. Sawyer.1 1Life Cycle Technologies, Medtronic Inc., Minneapolis, MN; 2SEH Consulting + Services, Paderborn, Germany; 3Biochemistry, University of Wisconsin, Stevens Point, WI. 1Chemistry, University of Minnesota, Minneapolis, MN; and 2Biological Sciences, Becton Dickinson & Company, Research Triangle Park, NC.

#954c  Comparable Results from 2 In Vitro Cytotoxicity Tests Used in the Evaluation of Medical Devices. R. T. Przygodda, and D. E. Malek.1 1Life Cycle Materials, Johnson & Johnson, Cincinnati, OH; and 2Malek Toxicology Delaware LLC, Greenville, DE.

#954d  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,1 M. Kreider,1 and B. L. Finley2. 1Cardno ChemRisk, Pittsburgh, PA; and 2Cardno ChemRisk, Brooklyn, NY.

#955  Global DNA Methylation Profiling of Hepatocellular Carcinomas from Ginkgo biloba Extract-Treated and Vehicle Control B6C3F1 Mice. S. Bhushar, A. R. Pandiri,1,2 D. Mar,2 R. Shahi, H. Hong, T. Ton,1 D. Malafey, R. Sills, and M. Hoenerhoff. 1CMPB, NTP, NIEHS, RTP, NC; and 2EPL, Inc., RTP, NC.

#956  Hepatic Epigenome Controls the Severity of Liver Injury in Mice Induced by a Choline- and Folate-Deficient Diet. V. Tryndyak,1 T. Hart,1 J. C. Fuscoe,1 F. A. Beland,2,3 and I. Pogribny.1 1Division of Biochemical Toxicology, FDA-NCTR, Jefferson, AR; and 2Division of Systems Biology, FDA-NCTR, Jefferson, AR.

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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.

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Comprehensive DNA Methylation and Gene Expression Study on Livers Using 2-Stage Hepatocarcinogenesis Model in Rats. K. Omura1, T. Uehara2, Y. Morikawa3, H. Hayashi4,5, K. Mitsumori4, K. Minami2,6, M. Kanki1,2, H. Yamada7, A. Ono8, Y. Ohno9, and T. Urushidani2,8. 1Astellas Institution, Woods Hole, MA; 2Stanford University, Durham, NC; and 3DHMRI, Kannapolis, NC.

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Prenatal Exposure to TCDD Triggers Epigenetic Modifications Including DNA Methylation and microRNA Induction That Target Genes Which Regulate Immune Functions. N. P. Singh1, X. Yang2, U. Singh3, J. Zhang4, I. K. Abbas5, M. Nagarjatti6, and P. S. Nagarjatti7. 1Pathology, Microbiology, and Immunology, University of South Carolina School of Medicine, Columbia, SC; and 2Environmental and Occupational Medicine, Robert Wood Johnson Medical School, Rutgers University, Piscataway, NJ; and 3Department of Pharmacology and Toxicology, Ernest Mario School of Pharmacy, Rutgers University, Piscataway, NJ; and 4Undergraduate Program in Toxicology, Rutgers University, Little Rock, AR.

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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. Dolny. Environmental Health Sciences, University of Michigan, Ann Arbor, MI.

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Time-Dependent, CpG Specific Changes in DNA Methylation Found in CD4+ T Cells from Trichloroethylene-Treated Mice. K. Gilbert1, S. Erickson1, S. J. Blossom2, B. Broadfoot3, K. West4, G. Chandler1, and C. Cooney5. 1University of Arkansas for Medical Sciences/Arkansas Children’s Hospital Research Institute, Little Rock, AR; and 2Central Arkansas Veterans Healthcare System, Little Rock, AR.

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Nickel Exposure Causes Epigenetic Dysregulation on a Genome-Wide Scale. C. C. Jose1, B. Xu2, R. K. Mallela2, D. E. Schones3, and S. Cuddapah4. 1Department of Environmental Medicine, New York University School of Medicine, Tuxedo, NY; and 2Department of Cancer Biology, Beckman Research Institute, City of Hope, Duarte, CA. Sponsor: M. Costa.

#968
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Differences in Methylation of Immune Response Genes in Germ-Free and Control Mice. Z. I. Cordero Badillo1, D. Shubitowski1, and S. Ewart2. 1University of Puerto Rico, Río Piedras, San Juan, Puerto Rico; and 2Michigan State University, East Lansing, MI. Sponsor: W. Atchison.

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DNA Hypermethylation of Tumor Suppressor Genes in Chromate Workers. H. Sun, T. Kluza, Q. Qu, and M. Costa. Environmental Medicine, NYU School of Medicine, Tuxedo, NY.

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Epigenetic Promoter Histone Modifications Play a Key Role in Regulating Fast Gene Expression and Alcohol-Induced Immunotoxicity in CD4+ T Lymphocytes. S. Ghare1, S. Joshi-Barve1, A. Moghe1, M. Patil1, D. Barker2, L. Gobejishvili3, M. Cave4, C. McClain4, and S. Barve5. 1Department of Medicine/Gastroenterology, University of Louisville, Louisville, KY; and 2Rolley Rex VAMC, Louisville, KY.

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Chemical Allergen-Induced Perturbation of the Mouse Lymph Node DNA Methylyte. V. Chapman1,2, T. Zollinger1, R. Terranova2, J. Moggs3, I. Kimber4, and R. J. Dearman1. 1Manchester University, Manchester, United Kingdom; and 2Discovery and Investigative Safety, Novartis Institutes for Biomedical Research, Basel, Switzerland.

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Assessment of Dose-Response Relationship between Epigenetic and Apical Endpoints following Short-Term Exposure to Nongenotoxic Rodent Hepatocarcinogens. M. R. Schisler1, L. A. Murphy2, I. Racine miouss3, M. J. LeBaron1, I. Koturbash4, and R. J. Rasoulpour4. 1The Dow Chemical Company, Midland, MI; and 2University of Arkansas for Medical Sciences, Little Rock, AR.

#973
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Epigenetic Regulation of Dopamine Transporter Expression. A. L. Green1, L. Zhan2, H. Zarbe3, G. L. Gao4, and J. R. Richardson5. 1Department of Environmental and Occupational Medicine, Robert Wood Johnson Medical School, Rutgers University, Piscataway, NJ; 2Department of Pharmacology and Toxicology, Ernest Mario School of Pharmacy, Rutgers University, Piscataway, NJ; and 3Joint Graduate Program in Toxicology, Rutgers University, Piscataway, NJ.
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#974  Epigenetic Changes TNF-α Related in Human Mononuclear Cells Due to Polyycyclic Aromatic Hydrocarbons Expose In Vitro. J. A. varela Silva, and M. Salgado. Bioquimica, Universidad Autonom de San Luis Potosi, San Luis Potosi, Mexico.

#975  Epigenetic Regulation Is a Crucial Factor for the Tissue-Specific Expression of Human UGT1A10. S. Oda1, T. Fukami2, T. Yokoi3,4, and M. Nakajima5. ‘Graduate School of Medicine, Nagoya University, Nagoya, Aichi Prefecture, Japan; and 2Faculty of Pharmaceutical Sciences, Kanazawa University, Kanazawa, Ishikawa Prefecture, Japan.


#977  Correlation between Whole Genome DNA Methylation and Biomarkers of Arsenic Toxicity in Arsenic-Exposed Populations of West Bengal, India. M. Majumder1, U. B. Dasgupta2, D. N. GuhaMazumder3, and N. Das4. 1Dept. of Molecular Biology, Surendranath College, Kolkata, West Bengal, India; 2Dept. of Life Science and Biotechnology, Jadavpur University, Kolkata, West Bengal, India; and 3DNGM Foundation, Kolkata, West Bengal, India.

#978  1,3-Butadiene: Putative Mechanisms of Tissue Specificity in Adverse Health Outcomes. G. Chappell1, B. O’Brien2, T. Kobets3, N. Tretjakova4, D. Sangaraju5, O. Kosyk1, K. G. Sexton6, W. Bodnar7, I. Rusyn8, and J. Pogribny9. 1Personalized Medicine Branch, Division of Systems Biology, National Center for Toxicological Research/FDA, Jefferson, AR; 2NC; 3National Center for Toxicological Research, US Agency, Research Triangle Park, NC; 4NP; 5NP; 6NC; 7NC; 8NC; 9NC.

#978a  DNA Methylation Profiling in the Liver during the Life Cycle of Rats. T. Han1, C. Moland1, Y. Vijay2, K. Wang3, J. C. Kwekel4, V. G. Desai5, and J. C. Fisco6. 1Personalized Medicine Branch, Division of Systems Biology, National Center for Toxicological Research/FDA, Jefferson, AR.


Abstract #

#978d  Protective Effect of CAPE against ROS-Induced Proapoptotic miRNA Expression and Apoptosis Pathway Activation. C. E. Cross1, M. F. Tolba2, C. M. Rondelli3, M. Xu4, and S. Abdel-Rahman5. 1Obstetrics & Gynecology, UTMB, Galveston, TX; and 2Schools of Pharmacy and Toxicology, Ain Shams University, Cairo, Egypt.

#978e  Evaluation of Epigenetic Properties of Dioscin and Diosgenin Isolated from Wild Yam (Dioscorea villosa) Root Extract. P. Aumsowan1,2, S. I. Khan1,2, I. A. Khan1,2, L. A. Walker1,2, Z. Ali3, and A. K. Dasmahapatra4,5. 1National Center for Natural Product Research, University of Mississippi, University, MS; 2Department of Pharmacology, University of Mississippi, University, MS; and 3Department of Pharmacognosy, University of Mississippi, University, MS.

Tuesday Morning, March 25
9:00 AM to 12:30 PM
Exhibit Hall

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  Weathered Marine Crude Oil Exposure Induces Skin Inflammation in Mice. J. M. Kemp, L. R. Luckett-Chastain, W. M. McShan, and R. Galliucci. Pharmaceutical Sciences, OU Health Sciences Center, Oklahoma City, OK.

#980  Comparative In Vivo and Ex Vivo Toxicity Studies of Wildfire Particulate Matter. Y. Kim1, M. Daniels2, E. H. Boykin3, T. Krantz2, K. G. Sexton2, M. Hayes4, J. A. Dye5, and J. Gilmour2. 1Curriculum in Toxicology, University of North Carolina, Chapel Hill, NC; 2NHEERL, U.S. Environmental Protection Agency, Research Triangle Park, NC; and 3NRMRL, U.S. Environmental Protection Agency, Research Triangle Park, NC.

Program Description (Continued)

Abstract #  
#982  
**Poster Board Number .....................................**  
Addition of a Methoxymethyl Side Chain into p-Phenylenediamine Yields 2-Methoxy-Methyl-p-Phenylenediamine, a Hair Dye with Reduced Skin Sensitizing Properties. C. Goebel1, J. Troutman2, J. Hennen3, H. Rothe4, H. Schlatter5, G. Gerberick6, and B. M. Blomke7. 1Central Product Safety, Procter & Gamble, Darmstadt, Germany; 2Central Product Safety, Procter & Gamble, Cincinnati, OH; and 3Environmental Toxicology, Trier University, Trier, Germany.

#983  
**Poster Board Number .....................................**  
Comparison of Different Sampling Methods for Assessment of Biological Activity of Dust from Moisture Damaged Buildings. J. Trilkonen1, K. Huttunen1, M. Täubel2, A. Hyvarinen1, and M. Hirvonen1. 1Department of Environmental Sciences, University of Eastern Finland, Kuopio, Finland; and 2Department of Environmental Health, National Institute for Health and Welfare, Kuopio, Finland. Sponsor: M. Viluksela.

#984  
**Poster Board Number .....................................**  
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. DiSeBi, Università degli Studi di Milano, Milan, Italy.

#985  
**Poster Board Number .....................................**  
Human Skin Explants: An Alternative Method to Assess Allergenic Potential of Chemicals. L. Mathieu1, P. Grascha1, F. Burgier2, E. Lat2, J. Blomet2, and H. J. Maibach1. 1DEB Group, Denby, United Kingdom; 2PREVOR Laboratory, Valmondois, France; 3Bio-Ec Laboratory, Longjumeau, France; and 4Department of Dermatology, UCSF Medical School, San Francisco, CA.

#986  
**Poster Board Number .....................................**  

#987  
**Poster Board Number .....................................**  
Identification and Frequency of Naïve T Lymphocytes Specific for Penicillin: Implication in Drug-Allergy. M. Pallardy1, M. Axouyr2, N. Sornet1, C. Nhim2, D. Joseph3, S. Delureau-Cochin1, S. Delleur1, B. Mailler2, R. Weaver1, and N. D. Claude1. 1UMR996, UniverSud, Château-Malabry; France; 2UMR CNRS8076, UniverSud, Château-Malabry, France; 3Platine Pharma Service, Lyon, France; 4SIMOPRO, IbiTec, CEA, Saclay, France; and 5Institut de Recherches Internationales Servier, Suresnes, France.

#988  
**Poster Board Number .....................................**  
Molecular Profile Analysis of Allergic Acid Hydrolyzed Wheat Protein. S. Sakai1, R. Adachi1, N. Nakamura1, Y. Kimura1, R. Nakamura1, K. Sasaki2, K. Nishijima3, H. Ataku4, Y. Fukumoto1, T. Nishimaki-Mogami1, and R. Teshima5. 1National Institute of Health Sciences, Tokyo, Japan; 2National Institute of Technology and Evaluation, Tokyo, Japan; and 3Sagamihara National Hospital, Sagamihara, Japan.

TUESDAY

Abstract #  
#989  
**Poster Board Number .....................................**  
Impact of Aggregation on Immunogenicity: Relevance for Biopharmaceuticals. K. Ratani1, J. Derrick1, R. Thorpe2, M. Wadhwa3, I. Kimber1, and R. J. Dearman4. 1Faculty of Life Sciences, Manchester University, Manchester, Greater Manchester, United Kingdom; and 2Institute for Biological Standards and Control, Potter Bar, United Kingdom.

#990  
**Poster Board Number .....................................**  
Allergen-Induced Langerhans’ Cell (LC) Migration: Role of Interleukin (IL)-1β. L. Eaton1, O. Metryka1, R. Roberts1, I. Kimber1, and R. J. Dearman4. 1Manchester University, Manchester, United Kingdom; and 2Safety Assessment, AstraZeneca, Alderley Park, United Kingdom.

#991  
**Poster Board Number .....................................**  
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 .....................................**  
Interleukin (IL)-1 Expression by Dendritic Cells (DC): Evidence for Intracellular Degradation. I. Kimber1,2, E. Ainscough1, G. Gerberick, and R. J. Dearman1. 1Manchester University, Manchester, United Kingdom; and 2Procter & Gamble, Cincinnati, OH.

#993  
**Poster Board Number .....................................**  
Enteropathogenic Escherichia coli As a Mucosa-Associated Exosome 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 .....................................**  
The Role of Endothelin-1 in Endotoxin-Triggered Release of Placental Proinflammatory Cytokines. P. R. Mahajan1, R. Donepudi2, F. Einstein3, and S. E. Reznik1,2,3. 1Pharmaceutical Sciences, St. John’s University, Jamaica, NY; 2Pathology, Albert Einstein College of Medicine, Bronx, NY; and 3Obstetrics and Gynecology and Women’s Health, Albert Einstein College of Medicine, Bronx, NY. Sponsor: L. Tumbeita.

#995  
**Poster Board Number .....................................**  
Classical and Alternative Activation of Cyanobacterium Anaabaena sp. Lipopolysaccharide (LPS)-Treated Rat Brain Microglia. C. Osterbauer1, D. MacAdam1, M. L. Hall1, D. Feher2, P. Williams3, and A. M. Mayer4. 1Pharmacology, Midwestern University, Downers Grove, IL; and 2Chemistry and Biochemistry, University of Hawaii at Manoa, Honolulu, HI.

#996  
**Poster Board Number .....................................**  
Behavioral and Neurochemical Alterations in Adult Mice with Low-Grade Chronic Inflammation Caused by Repeated Peripheral Lipopolysaccharide Exposure. S. Krishna1, C. A. Dukor2, and N. M. Filipov2. 1Physiology and Pharmacology, Univ. of Georgia, Athens, GA; and 2Biology, Fort Valley State University, Fort Valley, GA.
Abstract #  
#997  
**Poster Board Number .....................................449**  

Abstract #  
#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.**  

Abstract #  
#999  
**Poster Board Number .....................................451**  
**Salvia plebeia Extract Alleviates Inflammatory Response in Murine Arthritis Model and Human Rheumatoid Synovial Fibroblasts. J. Chot, M. Jin, I. Je, and S. Kënt. Pharmacology, School of Medicine, Kyungpook National University, Daegu, Republic of Korea.**  

Abstract #  
#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 Diindolylmethane on RAW 264.7 Murine Macrophages. J. Berkbigler. Center For Environmental Medicine, Colorado State University, Fort Collins, CO.**  

Abstract #  
#1001  
**Poster Board Number .....................................453**  
**Nebulized Thiocyanate Attenuates Inflammation and Oxidative Stress in the Airway and Liver of ENAC Mice. J. D. Chandler**, E. Min*, J. Huang*, D. P. Nichols*, and B. J. Day**. 1DEOHs, National Jewish Health, Denver, CO; and 2Pharmaceutical Sciences, University of Colorado, Denver, CO.  

Abstract #  
#1002  
**Poster Board Number .....................................454**  

Abstract #  
#1003  
**Poster Board Number .....................................455**  

Abstract #  
#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**, R. Sun*, S. Lad*, H. Choi**, J. D. Laskin*, and D. L. Laskin*. 1Pharmacology & Toxicology, Rutgers University, Piscataway, NJ; and 2Robert Wood Johnson Medical School, Rutgers University, Piscataway, NJ.**  

Abstract #  
#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.**  

Tuesday Morning, March 25  
9:00 AM to 12:30 PM  
Exhibit Hall  

Poster Session: Toxicity of Chemical Mixtures  
Chairperson(s): Layla 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  

Abstract #  
#1007  
**Poster Board Number .....................................461**  
**Concentration-Dependent Changes of Anti-BPDE-DNA-Adduct Rates in Human Lung Cells in Binary PAH Mixtures. S. Plötner, 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.**  

Abstract #  
#1008  
**Poster Board Number .....................................462**  

Abstract #  
#1006a  
**Poster Board Number .....................................459**  

Abstract #  
#1006b  
**Poster Board Number .....................................460**  
**Oxidized Lipid Macromolecules by Lipopolysaccharide (LPS) May Identify a Biomarker of Inflammatory Oxidative Insult. M. B. Kadiiska*. 1National Institutes of Health/National Institute of Environmental Health Sciences, Research Triangle Park, NC.**
Abstract #

#1009  
Poster Number .....................................463  
Multiple Exposure to Indoor Pollutants: Derivation of Benchmark Doses Based on Reproductive Effects. K. Fournier1,2, P. Glorenc2, D. Zmirou-Navier1,2,3, and N. Bonvallot1,2. 1EHESP School of Public Health, Sorbonne Paris Cité, Rennes, France; 2INSERM UMR 1085 IRSET; Rennes, France; and 3Lorraine University Medical School, Nancy, France. 

Sponsor: C. Emond.

#1010  
Poster Number .....................................464  
Human Health Hazard Assessment of Hydroprocessed Esters and Fatty Acids (HEFA) Bio-Based Jet Fuels. D. R. Mattie1, L. M. Sweeney1,2, K. L. Mummy1, B. A. Wang2, and T. R. Sterner1,2. 111 HPW/RH31, WPAFB, OH; 2NAMRU-D, WPAFB, OH; and 3HJE, WPAFB, OH.

#1011  
Poster Number .....................................465  
 Xenobiotic Mixtures Decrease Human Hepatic Gluconeogenesis and Oxidation. A. Leblanc1, E. Blanc1, A. Ambroet-Carnol2, C. Benelli2, S. Bortoli2, R. Barroski2, and M. Aggerbeck1. 1UMR-S 747, INSERM, Paris, France; and 2INSERM, Paris, France.

#1012  
Poster Number .....................................466  
Studying the Impact of Volatile Organic Chemical Coexposures on the Urinary Excretion of Their Metabolites in Human Volunteers. A. Marchand1, R. Aranda-Rodriguez2, A. Nong3, and S. Haddad4. 1Environmental and Occupational Health, IRSPUM, Université de Montréal, Montréal, QC, Canada; and 2Environmental Health Sciences and Research Bureau, Health Canada, Ottawa, ON, Canada.

#1013  
Poster Number .....................................467  

#1014  
Poster Number .....................................468  
Assessing Neurological Risks from Oral Exposure to Mixtures of Organophosphorus (OP), Carbamate, and Pyrethroid Insecticides. P. McClure1, and H. Pohli2. 1SRC, Inc., East Syracuse, NY; and 2US Public Health Service ATSDR, Atlanta, GA.

#1015  
Poster Number .....................................469  

#1016  
Poster 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 Number .....................................471  
Toxicology and Risk Assessment of Chemical Mixtures. M. Krishan, and A. Kretser. ILSI, North America, Washington, DC.

#1018  
Poster 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.

#1018a  
Poster Number .....................................473  
Cumulative Toxicity of an Environmentally Relevant Mixture of Two Rodenticide and 1,3- Dichloropropene By-Products in a Multigenerational Rat Reproductive Bioassay. J. Simmons1, M. G. Narotsky2, G. Klinefelter1, J. M. Goldman1, A. B. DeAngelo1, D. S. Best1, A. McDonald1, L. F. Strader1, A. S. Murr1, J. S. Suarez1, M. H. George1, and S. Hunter1. 1NHEERL/ORD, U.S. EPA, RTP, NC.

#1018b  
Poster 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. Crosby1, W. Oren2, C. DeVera1, K. Charles2, M. Varonci1, A. Bates3, T. Westphal4, A. Koller5, C. Tatu6,7, and N. Geboy8. 1Eastern Energy Resources Science Ctr, US Geological Survey, Reston, VA; 2University of Medicine and Pharmacy, Timisoara, Romania; and 3Craig Venter Institute, Rockville, MD.

#1018c  
Poster Number .....................................475  
Assessment of In Vivo Toxicological Interactions from Criteria Air Pollutant Mixtures. L. Dakto-Williams1, B. Young9, A. Wilkie10, M. Madden11, J. Dubois11, L. W. Stanek2, D. Johns11, and E. Oesterling. 1NCEA, US EPA, RTP, NC; 2NERL, US EPA, RTP, NC; and 3NIOSH, US CDC, Morgantown, WV.

#1018d  
Poster Number .....................................476  
Mixture Effects at Human Relevant Exposure Levels? A. Vinggaard1, N. Hadrup1, M. Pedersen1, K. Skov1, L. O. Bertelsen2, H. Frandsen2. 1Fac. of Chemical and Environmental Eng., Technical University of Denmark, Søborg, Denmark; and 2Division of Food Chemistry, Technical University of Denmark, Seborg, Denmark.

#1018e  
Poster Number .....................................477  
Chemical and Toxicological Assessment of Vapor from a Novel Tobacco-Heating Device. J. C. Miller Holt1, M. Meger1, T. Bonk2, J. Pan3, E. Weber4, and I. W. Jones5. 1JT International SA, Geneva, Switzerland; and 2Ökolab Gesellschaft für Umweltanalytik Ges.m.b.H, Vienna, Austria.

#1018f  
Poster Number .....................................478  
Respiratory Dose Analysis for Components of Ambient Particulate Matter. C. S. Kino1,2, USEPA, Research Triangle Park, NC; and 2North Carolina State University, Raleigh, NC, Sponsor: M. Madden.
Program Description (Continued)

Abstract #  #1025  
Poster Board Number ...................................... 507  

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, L. Walker, R. Rice, and D. P. Rodheaver. 1Practical Safety, Alcon, Fort Worth, TX; and 2Practical Development, Alcon, Fort Worth, TX.

Abstract #  #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. Barroso1, N. Alépée2, A. De Smedt2, B. De Wever3, J. Hibalabali4, P. McNamees1, K. Mewes1, M. Millet1, U. Pfannenbecker5, M. Tailhardat7, and M. Templer2. 1Cosmetics Europe, Brussels, Belgium; 2L’Oréal, Aulnay, France; 3Janssen Research & Development, Beerse, Belgium; 4Henkel AG & Co. KGaA, Düsseldorf, Germany; 5Chanel Parfums Beauté, Neufly sur Seine, France; 6The Procter & Gamble Company, Egham, United Kingdom; 7Pierre Fabre, Castres, France; 8Beiersdorf AG, Hamburg, Germany; 9LMH Recherche, St. Jean de Braye, France; and 10ALTEA Development, Monte Carlo, Monaco.

Abstract #  #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. Calufetti1, C. Callis1, K. Nelson1, M. Krich1, N. Wilt1, and G. Costin1. Eli Lilly and Company, Indianapolis, IN; and 2Institute for In Vitro Sciences, Inc. (IIVS), Gaithersburg, MD.

Abstract #  #1029  
Poster Board Number ...................................... 511  
Study of Cosmetics Europe for Skin Sensitization Hazard Characterization and Risk Assessment without Animal Testing. A. G. Schepky1, K. Reisinger1, N. Alépée1, S. Martinez Teissier1, G. Maxwell1, P. Kern1, H. Sakaguchi1, J. Barroso2, T. Ashikaga4, and M. Tailhardat5. 1SC Johnson and Son Inc., Racine, WI; and 2Institute for In Vitro Sciences, Inc., Gaithersburg, MD; 3L’Oréal, Paris, France; 4Unilever, Colworth, United Kingdom; 5The Procter and Gamble Company, Cincinnati, OH; 6Kao Corporation, Tokyo, Japan; 7Cosmetics Europe, Brussels, Belgium; 8Shiseido Corporation, Tokyo, Japan; and 9LMH, Paris, France.

Abstract #  #1030  
Poster Board Number ...................................... 512  

Abstract #  #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. Manwaring1, H. Rothe1, C. Obringer1, D. Foltz2, T. Baker1, and C. Goebel1. 1Global Product Safety, Procter & Gamble, Mason, OH; 2Global Analytical, Procter & Gamble, Mason, OH; and 3Global Product Safety, Procter & Gamble, Darmstadt, Germany. Sponsor: G. Daston.

Abstract #  #1032  
Poster Board Number ...................................... 514  
### Program Description (Continued)

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<tbody>
<tr>
<td>#1033</td>
<td>A Highly Differentiated 3D Epidermal Skin Model to Characterize Skin Sensitizers in Mixtures.</td>
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<tr>
<td>#1034</td>
<td>A Dermal Sensitization Assay Using SkinEthic™ RHE.</td>
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<tr>
<td></td>
<td>M. Troese, and G. L. DeGeorge. MB Research Laboratories, Spinnerstown, PA.</td>
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<th>517</th>
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<tr>
<td>#1035</td>
<td>Coculture Assay for the Identification and Investigation of Dermal Sensitizers (Epi-DC).</td>
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<td>G. L. DeGeorge, M. Troese¹, L. F. Pratt¹, M. Piel¹, P. J. Hayder¹, and S. Ayehunie¹. MB Research Laboratories, Spinnerstown, PA; and ‘MatTek Corporation, Ashland, MA.</td>
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<th>518</th>
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<td>#1036</td>
<td>Human Skin Assays (SkimuneTM) for the Detection of Adverse Reactions, Potency, and Efficacy.</td>
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<td>M. Matevia¹, C. Willet¹, S. Ahmed¹, A. M. Dickinson, X. nong Wang¹, and R. Stebbings¹. ¹Regulatory Toxicology, The Humane Society of the United States, Washington DC, WA; ²Alcyomics Ltd, Newcastle University, Newcastle upon Tyne, Tyne and Wear, United Kingdom; ³Haematological Sciences, Newcastle University, Newcastle upon Tyne, Tyne and Wear, United Kingdom; and ⁴Biotherapeutics Group, National Institute for Biological Standards and Control, London, Hertfordshire, United Kingdom.</td>
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<td>#1037</td>
<td>Inter-Laboratory Validation of an In Vitro Method to Classify Skin Sensitizers.</td>
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<td>A. J. Clippinger¹, J. M. McKim¹, D. Keller¹, P. C. Wilgu², A. R. Van Rompuy¹, and H. Witters¹. ¹PETA, Norfolk, VA; ²CeeTox Inc., Kalamazoo, MI; and ³Flemish Institute for Technological Research, Mol, Belgium.</td>
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<tr>
<td>#1038</td>
<td>New Sloughing and Oral Irritation Assays Using Organotypic Human Tissue Models.</td>
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<td>P. J. Hayden, M. A. Bachelor, B. Breyfogle, and M. Klausner. MatTek Corporation, Ashland, MA.</td>
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<td>#1039</td>
<td>Identifying Interspecies Variations in Uro- Epithelial Cell Culture Models.</td>
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<td>E. Bowen¹, S. Baker¹, P. Rawlinson², P. Mistry², I. Wright², and J. Southgate¹. ¹Jack Birch Unit for Molecular Carcinogenesis, University of York, York, United Kingdom; and ²Syngenta, Bracknell, United Kingdom.</td>
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<tr>
<td>#1040</td>
<td>A Novel Organotypic 3-D Human Small Intestinal Tissue to Assess Drug Safety and Inflammation.</td>
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<td>S. Ayehunie¹, Z. Stevens¹, T. Landry³, M. Taimi³, A. Armento³, M. Klausner³, and P. J. Hayder³. MatTek Corporation, Ashland, MA; and ²Aprelica, Watertown, MA.</td>
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<tr>
<td>#1041</td>
<td>Comparison of Three Different In Vitro Intestinal Barrier Models for Assessing the Oral Fraction Absorbed of Pharmaceutical and Nutritional Products.</td>
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<td>H. Wortelboer¹, J. Westerhoft¹, S. Vreede² and M. Bol-Selzenmakers³, B. J. Blauwboer³, I. Schrickx³, M. Verweij², and R. Pieters². ¹Institute for Risk Assessment Sciences, Utrecht University, Utrecht, Netherlands; ²Dept Innovative Testing, University of Applied Sciences, Utrecht, Netherlands; and ³TNO, Zeist, Netherlands.</td>
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<tr>
<td>#1042</td>
<td>Evaluation of the Toxicity Profiles of Selected Bioactivated Compounds in Primary Rat Hepatocytes Cultured in Microtiter Plate Cocultures.</td>
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<td>O. Ukairo¹, M. McVay¹, S. Kryzyszewski¹, K. Rose¹, M. E. Anderson¹, S. Khetani¹, and E. LeCluyse¹. ¹Hepregen Corporation, Medford, MA; and ²The Hamner Institutes for Health Sciences, Research Triangle Park, NC.</td>
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<tr>
<td>#1043</td>
<td>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.</td>
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<td>Y. Liu¹, S. Pugh Bishop², and T. J. Flynn². ¹Food and Drug Administration, Laurel, MD; and ²Oak Ridge Institute for Science and Education, Oak Ridge, TN.</td>
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<tr>
<td>#1044</td>
<td>Evaluation of Hepatotoxic Effects of Acetaminophen and Arsanilic Acid on the Human Adipose Tissue-Derived Hepatocytes.</td>
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<tr>
<td>#1045</td>
<td>Human Induced Pluripotent Stem Cell-Derived Hepatocytes As A Model to Investigate Mechanisms of Isoniazid IDILI.</td>
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<td>J. Lu¹, I. G. Metsushi¹, J. Untrecht¹, S. Einhorn¹, D. A. Mann¹, R. P. Hanzik¹, P. Watkins¹, and E. LeCluyse¹. ¹The Hamner Institutes for Health Sciences, Durham, NC; ²Department of Pharmacology and Toxicology, University of Toronto, Toronto, ON, Canada; ³Cellular Dynamics International, Madison, WI; and ⁴Department of Medicinal Chemistry, The University of Kansas, Lawrence, KS.</td>
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<tr>
<td>#1046</td>
<td>Hepatocytes-Induced Cytokine Imbalance between Pro- and Anti-Inflammatory Cytokines: A Possible Role in Innate-Immune Mediated Drug-Induced Liver Injury.</td>
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<td>S. Goto¹, J. Deguchi¹, N. Nishio¹, T. Yamada¹, N. Nomura¹, and H. Funabashi. Dainippon Sumitomo Pharma Co., Ltd., Osaka, Japan.</td>
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<tr>
<td>#1047</td>
<td>Long-Term In Vitro Three-Dimensional Co-cultured Human Liver Microtissues: Characterization and Implication for Drug-Induced Hepatotoxicity Studies.</td>
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<td></td>
<td>P. Gunness¹, S. Messner¹, L. Fredriksson¹, J. M. Kelm¹, W. Moritz¹, and M. Ingelman-Sundberg. ¹InchAdro AG, Schlieren, ZH, Switzerland; and ²Department of Physiology and Pharmacology, Karolinska Institutet, Stockholm, Sweden.</td>
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<tr>
<td>#1048</td>
<td>Studying the Anti-Inflammatory Role of Alkaline Phosphatase in the Liver In Vitro.</td>
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<td></td>
<td>B. J. Blaauwboer¹, A. F. Pikes¹, N. Kramers¹, W. Seinen¹, and R. Brands¹. ¹Institute for Risk Assessment Sciences, Utrecht University, Utrecht, Netherlands; and ²Netherlands Life Sciences BV, Bunnik, Netherlands.</td>
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Abstract # | #1049 | #1050 | #1051 | #1052 | #1053 | #1054 | #1055 | #1056
---|---|---|---|---|---|---|---|---
**Poster Board Number** | #531 | #532 | #533 | #534 | #535 | #536 | #537 | #538
---|---|---|---|---|---|---|---|---
**Abstract** | **Abstract Withdrawn** | **Improvements of the ALI In Vitro testing Method for Inhalable Compounds** | **Use of Rat Precision-Cut Lung Slices for Long-Term Functional Evaluation** | **Characterization of Aerosolized Zinc Oxide Exposures to Lung Epithelial-Macrophage Cocultures at the Air-Liquid Interface** | **A Coculture Model of the Air-Blood Barrier Reconstructed from Primary Human Cells** | **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** | **Multiplexed High-Content Screening Analysis Reveals Reduced Toxicity of a Prototypic Modified Risk Tobacco Product (pMRTP) As Compared to a Conventional Cigarette** | **Identification of Cytotoxic Chemicals in Thirdhand Smoke**
---|---|---|---|---|---|---|---|---
**Program Description (Continued)** | | | | | | | | Yes
#1062c Poster Board Number ..................................... 547
1Laboratory of Investigative Toxicology, Applied/Developmental Directorate, Leidos Biomedical Research, Inc. Frederick National Laboratory for Cancer Research, Frederick, MD, and 2DCTD, National Cancer Institute, Bethesda, MD.

#1062d Poster Board Number ..................................... 548

#1062e Poster Board Number ..................................... 549
Data Integration of Nonanimal Tests for the Development of a Test Battery to Predict Human Skin Sensitizing Potential. M. Miyazawa1, O. Takenouchi1, T. Nishijou1, K. Saijo1, Y. Nukada2, and H. Sakauchi2. 1Kao Corporation, Tokyo, Japan. Sponsor: J. Avilas.

#1062f Poster Board Number ..................................... 550

#1062g Poster Board Number ..................................... 551

#1062h Poster Board Number ..................................... 552
Risk Assessment of Paracetamol-Induced Liver Toxicity Based on Human In Vitro Data. G. M. Groothuis1, N. Malirakureva1, J. Proost1, M. Jetten2, J. Kleinjans3, A. Lommen4, A. Peijnenburg5, G. Vredenburg6, N. Vermeulen7, and F. Russel8. 1Pharmacy, Division Pharmacokinetics, Toxicology & Targeting, University of Groningen, Groningen, Netherlands; 2Toxigoecomics, Maastricht University, Maastricht, Netherlands; 3Institute of Food Safety, Toxicology and Effect Analysis, Wageningen University, Wageningen, Netherlands; 4Chemistry & Pharmaceutical Science, Free University Amsterdam, Amsterdam, Netherlands; and 5Discipline of Pharmaceutical 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. Das1, and Q. H. Festy2. 1Environmental & Occupational Health, Florida International University, Miami, FL, and 2Health Sciences, Florida International University, Miami, FL.
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<tr>
<td>Abstract</td>
<td>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. Yoshida1, R. Ichimura1, K. Inoue1, G. Watanabe1, and M. Takahashi. 1Department of Pathology, National Institute of Health Sciences, Tokyo, Japan; and 2Veterinary Physiology, Tokyo University of Agriculture and Technology, Tokyo, Japan.</td>
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<tbody>
<tr>
<td>Abstract</td>
<td>Pituatory Proliferation Is Affected by Bisphenol A Exposure, but Recovers upon Its Removal. K. Eikstrum1, K. Brannick1, W. Wang1, J. A. Flaws1, and L. Raetzmann1. 1Molecular and Integrative Physiology, University of Illinois Urbana Champaign, Urbana, IL; and 2Comparative Biosciences, University of Illinois Urbana Champaign, Urbana, IL.</td>
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<tbody>
<tr>
<td>Abstract</td>
<td>New Sites for Old Suspects: Endocrine Disrupting Chemicals Targeting Human Estrogen Receptor Nonligand Binding Sites. C. G. Katché1, R. Assare1, and R. V. Rajnarayan1. 1Pharmacology and Toxicology, SUNY University at Buffalo, Buffalo, NY; and 2Pharmaceutical Sciences, SUNY University at Buffalo, Buffalo, NY. Sponsor: R. Rajnarayan1.</td>
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<tr>
<td>Abstract</td>
<td>Vitellogenin Gene Expression and Gonadal Alterations in Cichlids from a Man-Made Lake in Nigeria. A. O. Adeogun1, S. A. Adeduntan1, O. E. Ola-Davies1, and O. A. Fagbohun1. 1Department of Zoology, University of Ibadan, Ibadan, Nigeria; 2Department of Veterinary Physiology, Biochemistry and Pharmacology, University of Ibadan, Ibadan, Nigeria; and 3Department of Veterinary Microbiology and Parasitology, University of Ibadan, Ibadan, Nigeria.</td>
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<tr>
<td>Abstract</td>
<td>Vitellogenin Expression and Steroid Hormone Levels As Biomarkers of Endocrine Disruption in Tilapias from Ogun River, Nigeria. O. R. Ibor1, A. O. Adeogun1, A. V. Chukwuka1, and O. A. Fagbohun1. 1Department of Zoology, University of Ibadan, Ibadan, Nigeria; and 2Department of Veterinary Microbiology and Parasitology, University of Ibadan, Ibadan, Nigeria.</td>
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<tr>
<td>Abstract</td>
<td>Naringenin and 8-Prenylnaringenin Arrest Oocyte Maturation and In Vitro Embryo Development by Affecting the Cumulus-Oocyte Complex. K. Solák1, R. R. Santos1, B. A. Roelen1, B. J. Blauhaub1, B. J. Blauhauboer2, and M. B. van Duerssen1. 1IRAS, Utrecht University, Utrecht, Netherlands; and 2Department of Farm Animal Health, Utrecht University, Utrecht, Netherlands.</td>
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<td>Abstract</td>
<td>Effects of Resveratrol and Resveratrol Analogs on Steroidogenesis in Human Adrenocortical H295R Cells. A. Oskarsson1, Å. Ohlsson Andersson1, C. Sapatofa2, and C. Tringali1. 1Department of Biomedical Sciences and Veterinary Public Health, Swedish University of Agricultural Sciences, Uppsala, Sweden; and 2Dipartimento di Scienze Chimiche, University of Catania, Catania, Italy.</td>
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<tr>
<td>Abstract</td>
<td>Orally Subchronic Exposure to Benzo[a]pyrene Affects Reproductive Hormone Profile. A. Zheng1, and Y. Chen1. 1Old Dominion University, Norfolk, VA; and 2Department of Nuclear Medicine, Kaohsiung Medical University Chung-Ho Memorial Hospital, Kaohsiung, Taiwan.</td>
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<td>Abstract</td>
<td>Testing Mixtures of Antiandrogens In Vivo at Human-Relevant Exposure Levels. K. Fussell1, S. S. Schneider1, S. Melching-Kollmuss1, S. Grötzer1, V. Strauss1, B. Siddeek2, M. Benahmed1, M. Ferrieks1, and B. van Ravenzwaay1. 1Toxicology, BASF SE, Ludwigshafen/Rhein, Germany; and 2INSERM, Nice, France.</td>
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<tr>
<td>Abstract</td>
<td>Conazole Fungicides Inhibit Leydig Cell Testosterone Secretion and Androgen Receptor Activation In Vitro. M. Roelofs1, T. Remming1, A. H. Piersma1, M. Van den Berg1, and M. B. van Duarsen1. 1IRAS, Utrecht University, Utrecht, Netherlands; and 2Center for Health Protection, National Institute for Public Health and the Environment (RIVM), Bilthoven, Netherlands.</td>
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<td>Abstract</td>
<td>Mechanistic Investigation of Testicular Tumor Formation in Rats Treated with the SGLT2 Inhibitor Canagliflozin. P. Vinken1, S. De Jonghe1, T. Nett1, L. Lammens1, M. Srinivas1, and M. D. Johnson1. 1Janssen Research &amp; Development, a division of Janssen Pharmaceutica NV, Beerse, Belgium; 2Janssen Research &amp; Development LLC, Raritan, NJ; and 3Colorado State University, Fort Collins, CO.</td>
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<td>Abstract</td>
<td>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.</td>
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<td>Abstract</td>
<td>NQO1, a Component of the Plasma Membrane Electron Transport System, Regulates Redox Status in Clonal Pancreatic Beta Cells and Primary Islets. E. A. Heart1, C. E. McCue1, N. E. Corbett1, A. K. Jaiswal1, and J. P. Gray1. 1Cellular Dynamics, Marine Biological Laboratory, Woods Hole, MA; 2Science, United States Coast Guard Academy, New London, CT; and 3Pharmacology, University of Maryland School of Medicine, Baltimore, MD.</td>
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#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. Shimizu1, M. Yamaguchi1, N. Uramaru1, H. Kuroki1, S. Ohta1, S. Kitamura2, and K. Sugihara1. 1Faculty of Pharmaceutical Sciences, Hiroshima International University, Hiroshima, Japan; 2Nihon Pharmaceutical University, Saitama, Japan; 3Dalichi University of Pharmacy, Fukuoka, Japan; and 4Graduate 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. Zhang1, C. Zong1, N. Kothbauria, S. Ichihara3, H. Fujita4, J. Chang1, J. Huang1, H. Naito1, M. Kato1, and G. Ichiha1. 1Occupational and Environmental Health, Nagoya University Graduate School of Medicine, Nagoya, Japan; 2Gunma University Graduate School of Medicine, Mebashi, Japan; 3Mie University Graduate School of Renovation Studies, Tsu, Japan; and 4Hodaido 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. Hong1, H. Ng1, H. Fang2, R. Perkins1, and W. Tong1. 1Division of Bioinformatics and Biostatistics, National Center for Toxicological Research, Jefferson, AR; and 2Office 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. Fang1, Y. Wu1, and F. A. Bland1. 1Division of Biochemical Toxicology, National Center for Toxicological Research, Jefferson, AR.

#1087c Poster Board Number .................................628
International Validation of Two Human Recombinant Estrogen Receptor (ER alpha) Binding Assays. V. S. Wilson1, S. C. Law1, A. Freyberger1, Y. Akahori1, M. Takeyoshi1, M. Jacobs1, D. R. Dietrich1, K. L. Hamernik2, and M. K. Mangabe1. 1ORD, NHEERL, USEPA, RTP, NC; 2OSCIP, USEPA, Washington, DC; 3Bayer HealthCare, Elberfeld, Germany; 4CEBI, Saitama, Japan; 5Public Health England, Chilton, United Kingdom; and 6U. 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. Horsung1, J. T. Haselman2, J. Korte3, P. Kosian4, K. Chalisi5, S. Hall1, and S. Degitz1. 1ORD, 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. Kim1, and K. Choi1. 1Laboratory of Biochemistry and Immunology, College of Veterinary Medicine, Chungbuk National University, Cheongju, Republic of Korea.

#1087f Poster Board Number .................................631

#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. Go1, and K. Choi1. 1Laboratory 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. Mills1, S. Jayaraman1, R. Gayathri-Gobbell1, D. Borsay Horowitz2, G. Zarogojan1, and S. C. Law1. 1ORD, NHEERL, AED, U.S. Environmental Protection Agency, Narragansett, RI; and 2ORD, 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. Osimiti1, W. Droegge2, and A. Hayes3. 1Science Strategies, Charlottesville, VA; and 2Vision 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. Roy1, M. Morgan1, and C. Yoo1. 1Florida 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’Brien1, and I. P. Callard1. 1Department of Biology, Boston University, Boston, MA.
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<tr>
<td>#1087s</td>
<td>DNA Methylation Is Required for Mouse Prostate Development. K. P. Keil, L. L. Abler, V. Mehta, H. M. Altman, J. Laporta, L. L. Hernandez, and C. M. Vezina. Comparative Biosciences, University of Wisconsin Madison, Madison, WI; and F. Dairy Science, University of Wisconsin Madison, Madison, WI.</td>
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<tr>
<td>#1087u</td>
<td>Pregestational Ethinylestradiol Exposure Postpones Pubertal Onset and Decreases Body Weight in Both Male and Female Offspring in Rats. D. Wu, W. Zhang, K. Xu, D. Chen, and X. Wang. Department of Toxicology, Nanjing Medical University, Nanjing, Jiangsu, China.</td>
</tr>
<tr>
<td>#1087v</td>
<td>Characterization of Developmental Aryl Hydrocarbon Receptor Signaling in the Mouse. R. P. Johnson, E. Stevens, and C. A. Bradfield. Oncology, UW-Madison, Madison, WI.</td>
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<tr>
<td>#1087w</td>
<td>Influence of Maternal Stress on Gestational Parameters and Prenatal Development in Himalayan Rabbits. S. S. Schneider, T. Fegert, C. Werner, and B. van Ravensteijn. Toxicology, BASF SE, Ludwigshafen/Rhein, Germany; and F. Regulatory Toxicology Crop Protection, BASF SE, Ludwigshafen, Germany.</td>
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<tr>
<td>#1087x</td>
<td>An Oral Prenatal Developmental Toxicity Study with Tetrabromobisphenol A (TBBPA) in CD Rats. M. L. Dourson, R. Cope, and S. Kacew. Toxicology Excellence in Risk Assessment, Cincinnati, OH; and F. Cellular and Molecular Medicine, Faculty of Medicine, University of Ottawa, Ottawa, ON, Canada.</td>
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**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 Tuesday Morning, March 25

**Exhibit Hall**

**Program Description (Continued)**

| #1087t     | The Role of Mn in Skeletal Development. C. J. Richardson, D. Smith, S. Fendorf, J. Lenzama, Pacheco, R. Ritchie, and N. Dave. Microbiology and Environmental Toxicology, University of California Santa Cruz, Santa Cruz, CA; Environmental Earth System Science, Stanford University, Stanford, CA; and Materials Sciences Division, Lawrence Berkeley National Laboratory, Berkeley, CA. |
| #1087u     | Interaction of Manganese, Iron, and Stress on Spatial Learning and Memory after Developmental Exposure. R. M. Amos-Kroos, L. L. Davenport, N. Atanasova, C. V. Vorhees, and M. T. Williams. Neurology, Cincinnati Children's Hospital, Cincinnati, OH; Environmental Health, University of Cincinnati, Cincinnati, OH; and Philosophy, University of Cincinnati, Cincinnati, OH. |
| #1087v     | Characterization of the Neuropathological Consequences of Plac Ablation in the Developing Mouse Embryo. J. Bourgeois, X. Kong, J. Fuentes, R. D. Harbison, G. T. Johnson, and M. Fant. Environmental and Occupational Health, College of Public Health, University of South Florida, Tampa, FL; and Pediatrics, College of Medicine, University of South Florida, Tampa, FL. |
| #1087w     | Evaluation of Environmental Chemicals Computationally Predicted to Disrupt Angiogenesis. T. Heinonen, T. Toimela, T. B. Knudsen, N. Kleinsteuber, and R. Sarkane. FICAM, University of Tampere, Tampere, Finland; National Center for Computational Toxicology, US EPA, RTP, NC; and 1LSI, Inc./NICEATM/NIEHS, RTP, NC. |
| #1087x     | Evaluation of the Mechanism of Misoprostol-Induced Limb Defects Using a Late Organogenesis Rat Embryo Culture. M. Cavieres, and O. Madrid. Facultad de Farmacia, Universidad de Valparaíso, Valparaíso, Chile; and Centro Regional de Estudios de Alimentos Saludables, Valparaíso, Chile. Sponsor: E. Faustman. |

| #1087z     | DNA Methylation Is Required for Mouse Prostate Development. K. P. Keil, L. L. Abler, V. Mehta, H. M. Altman, J. Laporta, L. L. Hernandez, and C. M. Vezina. Comparative Biosciences, University of Wisconsin Madison, Madison, WI; and F. Dairy Science, University of Wisconsin Madison, Madison, WI. |
| #1088      | Pregestational Ethinylestradiol Exposure Postpones Pubertal Onset and Decreases Body Weight in Both Male and Female Offspring in Rats. D. Wu, W. Zhang, K. Xu, D. Chen, and X. Wang. Department of Toxicology, Nanjing Medical University, Nanjing, Jiangsu, China. |
| #1089      | Characterization of Developmental Aryl Hydrocarbon Receptor Signaling in the Mouse. R. P. Johnson, E. Stevens, and C. A. Bradfield. Oncology, UW-Madison, Madison, WI. |
| #1090      | Influence of Maternal Stress on Gestational Parameters and Prenatal Development in Himalayan Rabbits. S. S. Schneider, T. Fegert, C. Werner, and B. van Ravensteijn. Toxicology, BASF SE, Ludwigshafen/Rhein, Germany; and F. Regulatory Toxicology Crop Protection, BASF SE, Ludwigshafen, Germany. |
| #1091      | An Oral Prenatal Developmental Toxicity Study with Tetrabromobisphenol A (TBBPA) in CD Rats. M. L. Dourson, R. Cope, and S. Kacew. Toxicology Excellence in Risk Assessment, Cincinnati, OH; and F. Cellular and Molecular Medicine, Faculty of Medicine, University of Ottawa, Ottawa, ON, Canada. |
Tuesday Morning, March 25
9:30 AM to 4:00 PM
Room 127A
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
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
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
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
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
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

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

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

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, March 25
12:00 Noon to 1:30 PM
Room 221

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
Room 222A

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
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. Tirmenstein1, E. Janovitz2, Y. Song3, S. Chen1, K. Phillips1, T. Dorr1, M. J. Graziano3, and T. P. Reilly3. 1Bristol-Myers Squibb, New Brunswick, NJ; 2Bristol-Myers Squibb, Hopewell, NJ; and 3Bristol-Myers Squibb, Princeton, NJ.
Reduced Body Weight Gain Prolongs Early-Life Levels of Tyrosine Hydroxylase Expression in Hypothalamic Tuberoinfundibular (TIDA) Neurons in Wistar Rats. S. Plummer1, M. Beltran1, N. Kuan1, M. Millar1, R. Weigand1, R. Currie1, R. Green1, and J. Wright1. Micro-Matrices Associates Ltd, Dundee, United Kingdom; MRC Centre for Reproductive Health, Edinburgh, United Kingdom; MRC Centre for Inflammation Research, Edinburgh, United Kingdom; and Syngenta Ltd, Bracknell, United Kingdom.

The Effects of Testosterone on NNK-Induced Lung Tumorigenesis in Female and Male A/J Mice. Y. Nakano1, M. Yokohira1, F. Ninomiya1, S. Kanie1, K. Saoo2, and K. Imaida1. Onco-Pathology, Kagawa University, Faculty of Medicine, Kita-gun, Kagawa, Japan; and Tomakomai City Hospital, Tomakomai, Hokkaido, Japan.

Activation of ERK1/2 on NNK-Induced Lung Carcinogenesis in A/J Mice. K. Yamakawa1, S. Kishi1, M. Yokohira1, Y. Nakano1, F. Ninomiya1, S. Kanie1, K. Saoo1, and K. Imaida1. Onco-Pathology, Kagawa University, Faculty of Medicine, Kita-gun, Kagawa, Japan; and Tomakomai City Hospital, Tomakomai, Hokkaido, Japan.

Effects of Gonadectomy on Lung Carcinogenesis Induced by 4-(methylisotrosoamo)-1-(3-pyridyl)-1-butanone (NNK) in Both Sexes of A/J Mice. F. Ninomiya1, M. Yokohira1, S. Kishi1, K. Yamakawa1, T. Inoue, T. Kuno, and K. Imaida1. Onco-Pathology, Kagawa University, Faculty of Medicine, Kita-gun, Kagawa, Japan.

7-GSH-Pyrolidone Adducts Is a Potential Active Metabolite Leading to Pyrrolizidine Alkaloid-Induced Cytotoxicity and Tumorigenicity. Q. Xia1, L. Ma1, L. Cai2, and P. Fu1. NCTR, FDA, Jefferson, AR; and Biotranex LLC, Monmouth Junction, NJ. Sponsor: L. Guo.

ALDH1B1 Is Required for Colon Tumorigenesis by Modulating WNT-Signaling and Metabolizing Retinaldehyde. S. Singh1, J. Arcaroli1, Y. Chen1, B. C. Jackson1, W. Messersmith1, D. Orlicky1, D. Thompson1, and V. Vasiliou1. Department of Pharmaceutical Sciences, University of Colorado Anschutz Medical Campus, Aurora, CO; Division of Medical Oncology, University of Colorado School of Medicine, Aurora, CO; and Department of Pathology, University of Colorado School of Medicine, Aurora, CO.

Increased Growth and Tumorigenicity of MCF-7 Breast Cancer Cells by Chronic Exposure to Oxidative Stress. P. S. Mahalagaignah, K. P. Singh1, and L. Poussanamy. Environmental Toxicology, The Institute of Environmental and Human Health (TIEHH), Texas Tech University, Lubbock, TX.
# Program Description (Continued)

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<td><strong>Poster Board Number .....................................119</strong></td>
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<tr>
<td>HoxA Transcript at the Distal Tip (HOTTTP) is a Pro-Oncogenic Long-Noncoding RNA in Pancreatic Cancer.</td>
<td>Ligand-Dependent Activation of EGFR Mediates Malignant Cell Transformation Induced by Chronic Exposure to Hexavalent Chromium. D. Kim. 1University of Kentucky, Lexington, KY. Sponsor: Y. Son.</td>
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<td>Y. Cheng1, J. J. Juturu1, G. Chaladapak1, and S. H. Safe1, 2, 3.</td>
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<td>Determination of Artifacts, the Steady State, and <strong>Poster Board Number .....................................120</strong></td>
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<td>Half-Life of N2-Hydroxymethyl-DG Adducts <strong>Poster Board Number .....................................120</strong></td>
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<td>In Vitro, and in a 28-Day 13CD2-Formaldehyde Inhalation Exposure Study. R. Yu1, B. C. Moeller2, M. L. Doyle-Eisele3, D. Knack4, W. Bodnar5, T. Brandt6, and J. A. Swenberg.</td>
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<td><strong>Poster Board Number .....................................121</strong></td>
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<td>Of Nuclear Receptor-Mediated Effects of the PIR1R Rat Model. K. Harris, S. R. Pulliam1, M. S. Niazi1, M. K. Washington, S. E. Adunyah1, and A. Ramesh1.</td>
<td><strong>Poster Board Number .....................................121</strong></td>
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<td><strong>Poster Board Number .....................................122</strong></td>
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<tr>
<td>Western Diet Accelerates Benzo(a)pyrene [B(a)P]-Induced Colon Tumorigenesis in the PIR1R Rat Model.</td>
<td><strong>Poster Board Number .....................................122</strong></td>
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<td>D. Malik, R. David, and N. J. Goobarah.</td>
<td><strong>Poster Board Number .....................................122</strong></td>
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<td>Imperial College, London, United Kingdom.</td>
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<tr>
<td>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. Goobarah.</td>
<td><strong>Poster Board Number .....................................123</strong></td>
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<td>Imperial College, London, United Kingdom.</td>
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<tr>
<td>Estrogen Receptor Alpha Modulation and Differential Cytotoxicity of Caffeic Acid Phenyl Ether in Prostate Cancer Cells. M. E. Tolba1, S. S. Azab1, A. E. Khalifa1, S. Abdel-Rahman1, and A. B. Abdel-Naim1.</td>
<td><strong>Poster Board Number .....................................124</strong></td>
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<tr>
<td>1Department of Pharmacology and Toxicology, Faculty of Pharmacy, Ain Shams University, Cairo, Egypt; and 1University of Texas Medical Branch, Galveston, TX.</td>
<td><strong>Poster Board Number .....................................124</strong></td>
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<td><strong>Poster Board Number .....................................125</strong></td>
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<tr>
<td>Chlorogenic Acid Rich Plum Juice Inhibited AOM Treated Colorectal Aberrant Crypt Foci (Act): Potential Role of mir143/MTOR Pathway. N. Banerjee1,2, H. Kim1,2, M. Neme1, and S. Talcott1,2.</td>
<td><strong>Poster Board Number .....................................125</strong></td>
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<tr>
<td>1Toxicology, Texas A&amp;M University, College Station, TX; and 2Nutrition and Food Science, Texas A&amp;M University, College Station, TX.</td>
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<td><strong>Poster Board Number .....................................126</strong></td>
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<td>ARNT Isoforms Differentially Regulate Cancer Cell Growth through a p53-Dependent Mechanism. K. Gardella1,2, I. Muro3, G. Fang3, K. Sarkar1,2, and C. Wright1,2, 3.</td>
<td><strong>Poster Board Number .....................................126</strong></td>
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<tr>
<td>1The Institute for Cellular and Molecular Biology, The University of Texas at Austin, Austin, TX; 2Division of Pharmacology and Toxicology, College of Pharmacy, The University of Texas at Austin, Austin, TX; and 3Center for Molecular and Cellular Toxicology, The University of Texas at Austin, Austin, TX.</td>
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**Tuesday Afternoon, March 25**

1:00 PM to 4:30 PM

**Exhibit Hall**

**Poster Session: Cardiovascular Toxicity and Hemodynamics: An In Vitro Approach**

*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

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<td><strong>Poster Board Number .....................................130</strong></td>
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<tr>
<td>Detection of Endogenous and Exogenous DNA Adducts of Acetaldehyde. E. Matti1, W. Bodnar1, L. Collins1, L. Rosic1, A. Green1, and J. A. Swenberg1.</td>
<td><strong>Poster Board Number .....................................130</strong></td>
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<tr>
<td>1Environmental Sciences and Engineering, University of North Carolina, Chapel Hill, NC; and 2Integrated Laboratory Systems, Research Triangle Park, NC.</td>
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<td><strong>Poster Board Number .....................................131</strong></td>
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<tr>
<td>Human Stem Cell-Derived Cardiomyocyte—Bringing Cardiovascular Toxicity Screening to the Front Line. M. Peters, S. D. Lamore, J. Sasaki1, and C. W. Scott. AstraZeneca, Waltham, MA.</td>
<td><strong>Poster Board Number .....................................131</strong></td>
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<td><strong>Poster Board Number .....................................132</strong></td>
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<tr>
<td>Utilizing Structural and Functional Endpoints to Evaluate Drug-Induced Cardiotoxicity in Human-Induced Pluripotent Stem Cells. K. Doherty, D. Talbert, P. B. Trusk, R. Wapped, S. Shell, and S. Baccus. Quintiles, Westmonton, IL.</td>
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<td>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.</td>
<td><strong>Poster Board Number .....................................133</strong></td>
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Abstract # | Poster Board Number .....................................144
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#1115 | Identification of Pro-Arrhythmic Potential with Human iPS-Derived Cardiomyocytes Using a Multwell Microelectrode Array (MEA). C. Strock, S. Qin, J. Gilbert, and H. Ludhardt. Cyprotex, Watertown, MA.
#1117 | Regulation of Superoxide and Mitochondrial Biogenesis by PGC-1α Protects against Doxorubicin-Induced Toxicity in Cardiomyocytes. S. Peng, H. Yuan, J. Guo, T. Zhang, M. Hou, H. Peng, J. Li, and P. L. Carmichael. 1Academy of Medical Military Sciences, Institute of Disease Control and Prevention, Beijing, China; and 2National Safety and Environmental Assurance Center, Sharnbrook, Bedfordshire, United Kingdom.
#1119 | Examining the Use of Human Induced Pluripotent Stem Cell-Derived Cardiomyocytes for Exploring Multiple Arrhythmic Endpoints in a Single High-Throughput Assay. R. Whittaker, R. Vega, F. Cerignoli, and J. Price. Vala Sciences Inc., San Diego, CA.
#1120 | Development of a Spontaneously Beating Human Cardiac Microtissue Model for the Study of Drug-Induced Cardiotoxicity. S. Ravenscroft, A. Pointon, M. Cross, and J. Sidaway. 1MBC Centre for Drug Safety Science, Molecular & Clinical Pharmacology, Institute of Translation Medicine, University of Liverpool, Liverpool, United Kingdom; and 2Innovative Medicines and Early Development, AstraZeneca, Macclesfield, Cheshire, United Kingdom.
#1121 | Acrorhin and Endothelial Cell Dysfunction: Role of the miRNA let-7a. W. T. Alphonso, X. Li, N. Cooper, P. Habibzadeh, D. J. Conklin, A. Bhatnagar, and T. O’Toole. 1Diabetes and Obesity Center, University of Louisville, Louisville, KY; and 2Department of Anatomy and Neurobiology, University of Louisville, Louisville, KY.
#1122 | Dysfunction of Vascular Smooth Muscle and Vascular Remodeling by Simvastatin. K. Kim, S. Kang, H. Woo, K. Lim, M. Lee, O. Bae, and J. Chung. 1College of Pharmacy, Seoul National University, Seoul, Republic of Korea; 2College of Pharmacy, Ewha Womans University, Seoul, Republic of Korea; 3College of Pharmacy, Dongguk University, Goyang, Republic of Korea; and 4College of Pharmacy, Hanyang University, Ansan, Republic of Korea.
#1123 | Mitochondrial Dysfunction and Autophagy in Endothelial Progenitor Cells by High Glucose. K. Kim1, Y. Shin1, E. Kim1, M. Akrami1, M. Noh1, and O. Bae1. 1College of Pharmacy Institute of Pharmaceutical Science and Technology, Hanyang University, Ansan, Republic of Korea; and 2College of Pharmacy, Seoul National University, Seoul, Republic of Korea.
#1124 | Loss of Caveolin-1 Protects against PCB-Induced Vascular Dysfunction by Upregulating Nr2f2 and the Antioxidant Response. M. C. Petrillo1,2, and B. Hennig3. 1Toxicology, University of Kentucky, Lexington, KY; and 2Superfund Research Program, University of Kentucky, Lexington, KY.
#1125 | Urac Acid Induces Endothelial Dysfunction by Vascular Insulin Resistance Associated with the Impairment of Nitric Oxide Synthesis. Y. Choi1, Y. Yoon1, K. Lee1, T. Hien1, K. Kang1, K. Kim1, J. Lee1, M. Lee2, S. Lee2, D. Kang1, and B. Lee1. 1College of Pharmacy, Seoul National University, Seoul, Republic of Korea; 2College of Medicine, Seoul National University, Seoul, Republic of Korea; and 3Ewha Womans University, Seoul, Republic of Korea.
#1126 | Cellular Impedance Assays for Deconvoluting Kinase Inhibitor-Induced Cardiotoxicity. S. D. Lamore1, C. W. Scott2, M. Lamb1, C. Chauqui1, C. S. Boyer1, J. Sagemark1, L. Carlsson1, E. Ahlberg1, and M. Peters1. 1Drug Safety and Metabolism, AstraZeneca, Waltham, MA; and 2Oncology Innovative Medicines, AstraZeneca, Waltham, MA.
#1128 | IL-33 Cardiovascular Safety Profile Redefined: Lessons Learned from Rat and NHP Cardiomyocytes, KO Mice, and Human GWAS Studies. T. Brabham1, W. Hui1, T. Swanson1, L. Gauthier1, J. Heyen1, T. Wisialowski1, T. LaBranche1, M. Hemkens1, J. Jamieson1, K. Rebbring1, B. Hollingshead4, L. Collins1, N. Bing1, L. Bloom1, K. Nocka1, M. Kasian1, and M. Vogel1. 1Drug Safety Research & Development, Pfizer, Andover, MA; 2Comparative Medicine, Pfizer, Groton, CT; 3Biotherapeutics Clinical Research, Pfizer, Cambridge, MA; 4Biotherapeutics Technologies, Pfizer, Cambridge, MA; and 5Immunoscience Research Unit, Pfizer, Cambridge, MA.
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  

#1129b  
Poster Board Number .....................................161  
De Novo Cyclin D2 Induces Cardiomyocyte Proliferation in Adult Mouse Hearts.  L. Zhan, M. Soopaa, S. Reuter, and L. Field. ‘Riley Heart Research Center, Division of Pediatric Cardiology, Indiana University School of Medicine, Indianapolis, IN.

#1129c  
Poster Board Number .....................................162  

#1129d  
Poster Board Number .....................................163  

#1129e  
Poster Board Number .....................................164  

#1129f  
Poster Board Number .....................................165  
CYP2J2 Inhibition in Cardiac Tissue Could Lead to Drug-Induced Cardiotoxicity.  R. Tota, E. Evangelista, and L. Santana. ‘Medicinal Chemistry, University of Washington, Seattle, WA; and ‘Physiology and Biophysics, University of Washington, Seattle, WA.

Abstract #

#1130  
Poster Board Number .....................................201  
Microbiome-Derived Tryptophan Metabolites and Their Aryl Hydrocarbon Receptor-Dependent Agonist and Antagonist Activities.  U. Jin, S. Lee, G. Sririharan, K. Lee, A. Jayaraman, R. Chapkin, R. Alamaz, and S. H. Safe. ‘Institute of Biosciences & Technology, Texas A&M Health Science Center, Houston, TX; ‘Texas A&M University, College Station, TX; ‘Veterinary Physiology & Pharmacology, Texas A&M University, College Station, TX; and ‘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, U. Jin, S. H. Safe, and S. Lee. ‘Veterinary Physiology & Pharmacology, Texas A&M University, College Station, TX; ‘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, R. Hulknanci, M. Lawson, A. Nyska, R. Manno, A. Grassetti, D. Layko, J. Rowlands, J. A. Harrill, and S. H. Safe. ‘The Dow Chemical Company, Midland, NC; ‘Sackler School of Medicine, Tel Aviv University, Tel Aviv, Israel; ‘Research Toxicology Centre s.p.A., Pomezia, Rome, Italy; and ‘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  

#1135  
Poster Board Number .....................................206  
Adaptation of the Human Ah Receptor to Bind Simple Indoles. T. D. Hubbard, D. Desai, W. Bission, S. Amin, and G. H. Perdew. Vet. and Biomed. Sci., The Pennsylvania State University, University Park, PA; Penn State College of Medicine, Hershey, PA.

Species-Specific Response to Peroxisome Proliferators in Primary Hepatocytes. P. D. McMullen, M. E. Andersen, R. A. Clewell, S. Bhattacharyya, E. LeCluyse, C. G. Woods, B. Sun, and S. Pendse. The Hamner Institutes for Health Sciences, RTP, NC.

Dietary TCDF Impacts the Host-Microbiome Metabolic Axis. L. Zhang, J. Shoots, and W. H. Powell. Biology Department, Kenyon College, Gambier, OH.

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.

Poster Board Number .....................................215
Tocopherylquinone As an Activator of the Aryl Hydrocarbon Receptor. S. Olguin, Y. Liu, A. M. Fajardo, D. Mackenzie, and T. A. Thompson.1 University of New Mexico, Albuquerque, NM; and 2Pharmaceutical Sciences, UNM Health Sciences Center, Albuquerque, NM.

Pharmacological and Electrophysiological Characterization of Ascaris suum Homopteramnic 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.


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.

Quantitative Profiling of Environmental Chemicals and Drugs for Farnesoid X Receptor Activity. C. Hsu, J. Zhao, R. Huang, J. Hsieh, J. H. Hamni, X. Chang9, K. A. Houck10, and M. Xia.10 1NCATS/NIH, Rockville, MD; 2DNTP/NIEHS/NIH, Research Triangle Park, NC; and 3U.S. EPA, RTP, NC.

Thalidomide Increases Cytochrome P450 Activity and Drug Metabolism in Liver through Direct Activation of Nuclear Receptor CAR and PXR. R. van Beuningen1, N. Murayama1, D. Melchers1, H. Suemizu2, C. Guillouzo3, N. Shibata4, K. Yajima5, M. Utoh6, M. Shimizu7, C. Chaus6, M. Nakamura6, R. Houtman7, and H. Yamazaki8.1 PamGene International BV, Den Bosch, Netherlands; 2Showa Pharmaceutical University, Machida, Japan; 3Central Institute for Experimental Animals, Kawasaki, Japan; 4Biopredic International, Rennes, France; and 5Nagoya Institute of Technology, Nagoya, Japan.

Novel Interaction between PXR and CAR1 in Cytochrome P450 Induction. B. C. Ho1, L. Huang1, J. Johnson2, P. C. Wilge3, and M. I. Morano4.1 Originus Inc, Ann Arbor, MI; 2Cayman Chemical, Ann Arbor, MI; and 3CeeTox Inc, Kalamazoo, MI.

1. 1Vet. and Biomed. Sci., The Pennsylvania State University, State College, PA. 2Env. & Mol. Tox., Oregon State University, Corvallis, OR; and 3Penn State College of Medicine, Hershey, PA.

1,2. 1Vet. and Biomed. Sci., The Pennsylvania State University, State College, PA; 2Env. & Mol. Tox., Oregon State University, Corvallis, OR; and 3Penn State College of Medicine, Hershey, PA.

1. 1Vet. and Biomed. Sci., The Pennsylvania State University, State College, PA; 2Env. & Mol. Tox., Oregon State University, Corvallis, OR; and 3Penn State College of Medicine, Hershey, PA.

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1. 1Vet. and Biomed. Sci., The Pennsylvania State University, State College, PA; 2Env. & Mol. Tox., Oregon State University, Corvallis, OR; and 3Penn State College of Medicine, Hershey, PA.

1. 1Vet. and Biomed. Sci., The Pennsylvania State University, State College, PA; 2Env. & Mol. Tox., Oregon State University, Corvallis, OR; and 3Penn State College of Medicine, Hershey, PA.
Program Description (Continued)

Abstract # | Abstract #
#1152 | #1159
**Poster Board Number .....................................233**
Effects of PPAR-Alpha Activation on Liver Toxicity in Mice Exposed to Trichloroethylene. H. Yoo, V. Soldatow, O. Kosyuk, W. Bodnar, and I. Rusyn. Dept. of Environmental Sciences and Engineering, University of North Carolina at Chapel Hill, Chapel Hill, NC.

#1153 | #1160
**Poster Board Number .....................................244**
A Central Role of Aryl Hydrocarbon Receptor in High-Fat Diet-Induced Hepatic Steatosis. C. Xu¹, C. Wang², K. Bottum³, S. Krager³, C. Jaeger¹, and S. Tischkau¹. ¹Pharmacology, SIU School of Medicine, Springfield, IL; and ³Internal Medicine, SIU School of Medicine, Springfield, IL.

#1154 | #1161
**Poster Board Number .....................................225**
Profling of Compound-Induced Modulation of CAR-Coregulator Interactions As a Means to Differentiate between Direct and Indirect CAR Activation. J. P. Groten¹, D. Melchers¹, R. van Beuningen¹, B. Chorley¹, J. Corton¹, and R. Houtman¹. ¹PanGene International BV, Den Bosch, Netherlands; and ²EPA, Research Triangle Park, NC.

#1155 | #1162
**Poster Board Number .....................................226**
Ethanol-Induced Hepatic Expression of Cytochrome P450 (Cyp) 2b10 Is Dependent on PPARB/D. T. Koga¹, G. Balandaram¹, M. Goudarzi², A. Fornace¹, F. Gonzalez¹, and J. M. Peters¹. ¹Pennsylvania State University, University Park, PA; ²Georgetown University, Washington, DC; and ³National Cancer Institute, Bethesda, MD.

#1156 | #1163
**Poster Board Number .....................................227**
Compromised Adaptive Uprogulation of Mitochondrial Metabolism and Accumulation of Hepatic Lipids Associate with Alcoholic Liver Damage in Pparα/-/- Mice. A. Fornace¹, H. Li¹, J. B. Tyburski¹, T. Mak¹, and J. M. Peters¹. ¹Department of Biochemistry, Georgetown University, Washington, DC; and ²Department of Veterinary and Biomedical Sciences, Pennsylvania State University, University Park, PA.

#1157 | #1164
**Poster Board Number .....................................228**

#1158 | #1165
**Poster Board Number .....................................229**
Aryl Hydrocarbon Receptor-Dependent Induction of Liver Fibrosis by Dioxin. X. D. Cournoul², S. Pierre², A. Chevallier², F. Texiera-Clerc¹, L. Blu³, A. Bat², P. Fernandez-Salguero³, M. Aggerbeck², S. Lotersztajn², and R. Barouki². ¹INSERM UMR-S 747, Paris, France; ²University Paris Descartes, Paris, France; and ³IRMB, INSERM U955, Créteil, France; 3Laboratoire de Biochimie et Biologie Moléculaire, Facultad de Ciencias, Universidad de Extremadura, Badajoz, Spain; and ³AP-HP, Hôpital Européen Georges Pompidou, Service de Chirurgie Gynécologique Cancérologique, Paris, France.

#1159 | #1166
**Poster Board Number .....................................230**
Identification of Environmental Chemicals Which Could Contribute to Nonalcoholic Fatty Liver Disease by Nuclear Receptor Activation. L. Al-Eryani¹, B. Wahlang¹, K. C. Falkner¹, H. Clair¹, R. A. Prough¹, J. States¹, and M. Cave¹. ¹Department of Medicine/GI, University of Louisville, Louisville, KY; ²Biochemistry, University of Louisville, Louisville, KY; ³Pharmacology & Toxicology, University of Louisville, Louisville, KY; and ⁴Robley Rex VAMC, Louisville, KY.

#1160 | #1167
**Poster Board Number .....................................231**
Involvement of Constitutive Androstane Receptor (CAR) in the Liver Hypertrophy and Hepatocarcinogenesis Induced by Three Fibrates in Mice. K. Inoue¹, D. Suzuki¹, Y. Ogawa¹, J. Maeda¹, T. Morikawa¹, R. Ichimura¹, M. Takahashi¹, Y. Kodama¹, and M. Yoshida¹. ¹Division of Pathology, National Institute of Health Sciences, Tokyo, Japan; and ²Laboratory of Comparative Toxicology, Azabu University, Sagamihara, Kanagawa, Japan; and ³Division of Toxicology, National Institute of Health Sciences, Tokyo, Japan.

#1161 | #1168
**Poster Board Number .....................................232**
Ginkgo biloba Extract Is Nongenotoxic In Vivo and Constitutive Androstane Receptor Is Involved in Its Hepatocarcinogenesis. J. Maeda¹, K. Inoue¹, R. Ichimura¹, T. Morikawa¹, Y. Ogawa¹, Y. Kodama¹, and M. Yoshida¹. ¹Division of Pathology, National Institute of Health Sciences, Tokyo, Japan; and ²Laboratory of Comparative Toxicology, Azabu University, Sagamihara, Kanagawa, Japan; and ³Division of Toxicology, National Institute of Health Sciences, Tokyo, Japan.

#1162 | #1169
**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. Moscovitz¹, B. Korg¹, G. L. Guo¹, and L. M. Aleksunes¹. ¹Department of Pharmacology and Toxicology, Rutgers University, Piscataway, NJ; and ²Laboratory of Comparative Toxicology, Rutgers University, Piscataway, NJ.

#1163 | #1170
**Poster Board Number .....................................234**
An Animal Model of Intrahepatic Cholestasis of Pregnancy. Y. Zhang¹, F. Li¹, K. Krausz¹, P. Vogel¹, F. Gonzalez¹, and J. Schuetz¹. ¹Pharmacaceutical Sciences, St. Jude Children's Research Hospital, Memphis, TN; and ²Laboratory of Metabolic, NCI, National Institutes of Health, Bethesda, MD; and ³Pathology, St. Jude Children's Research Hospital, Memphis, TN.

#1164 | #1171
**Poster Board Number .....................................235**
Exposure to Aryl Hydrocarbon Receptor Antagonist Alpha-Naphthaflavone Blocks Diet-Induced Obesity and Nonalcoholic Fatty Liver Disease. B. Moyer¹, J. Rojas¹, and C. Tomlinson¹. ¹Medicine, Dartmouth College, Hanover, NH.

#1165 | #1172
**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. Campion¹, C. H. Sutter¹, T. R. Sutter¹, and J. A. Cole². ¹Biological Sciences, University of Memphis, Memphis, TN; and ²W. Harry Feinstone Center for Genomic Research, Memphis, TN.
**Program Description (Continued)**

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**Tuesday Afternoon, March 25**

1:00 PM to 4:30 PM

**Exhibitor Hall**

**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

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**#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. Dadhania1, J. R. Latendresse2, and H. M. Mehendale3; 1Toxicology, University of Louisiana at Monroe, Monroe, LA; and 2Toxicologic 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. Mehendale1, V. P. Dadhania2, and J. R. Latendresse3; 1Toxicology, University of Louisiana at Monroe, Monroe, LA; and 2Toxicologic 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. Lee1, B. Lee1, H. Yang1, Y. Yu2, S. Park3, C. Choi1, H. Kim1, H. Jeong3, and Y. Hwang1; 1Pharmaceutical Engineering, International University of Korea, Jinju, Republic of Korea; 2Jeollanamdo Institute of Natural Resources Research, Jeollanamdo, Republic of Korea; and 3College 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. Lee1, J. Lee1, H. Yang1, Y. Yu2, S. Park3, C. Choi1, H. Kim1, T. Sung1, H. Jeong3, and Y. Hwang1; 1International University of Korea, Jinju, Gyeongnam, Republic of Korea; 2Jeollanamdo Institute of Natural Resources Research, Jeollanamdo, Republic of Korea; and 3College 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 Water1, L. Fredriksson1, B. Herpers2, and S. Wink1; 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. Rohrer1, and J. E. Manautou2; 1Department of Pharmaceutical Sciences, University of Connecticut, Storrs, CT.

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**Poster Board Number 247**

1,3-Dicarboxyl Emol Compounds Modify Acetaminophen Hepatotoxicity and Liver Ischemia/Reperfusion Injury. R. LoPachin1, T. Gavin2, B. Kosharsky2, A. Vydyanathan1, and L. Zhang1; 1Anesthesiology, Albert Einstein College of Medicine, Bronx, NY; and 2Chemistry, Iona College, New Rochelle, NY.

**Poster Board Number 248**

Proinflammatory Oligonucleotides Do Not Potentiate Drug-Induced Hepatotoxicity in Mice. H. S. Yoonis1, B. Adhikari1, J. Hsiao2, L. Shen2, G. Hung1, and S. Henry3; Isis Pharmaceuticals, Inc., Carlsbad, CA.

**Poster Board Number 249**

Lower Susceptibility of Female Mice to APAP Hepatotoxicity: Role of Mitochondrial Glutathione and c-Jun-N-Terminal Kinase. K. Du1, C. D. Williams2, M. R. McGill3, and H. Jaeschke; Pharmacology, Toxicology & Therapeutics, University of Kansas Medical Center, Kansas City, KS.

**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. Bashan1, C. Walesky2, P. Borude3, G. Edwards4, and U. Apte5; Department of Pharmacology, Toxicology, and Therapeutics, University of Kansas Medical Center, Kansas City, KS.

**Poster Board Number 251**

Strain Difference in Carbamazepine-Induced Hepatotoxicity. T. Fukushima1, M. Nagata1, K. Matsuyama2, K. Masuno1, S. Matsushima1, M. Ueno1, and M. Torii1; Shionogi Co & Ltd, Toyonaka, Osaka, Japan; Sponsor: K. Nakamura.

**Poster Board Number 252**

Assessment of the Effects of Perfluorooctanoic Acid on Hepatic Homeostasis. K. G. Kongskul1, K. Skov1, N. Hadrup1, and A. Vinggaard1; National Food Institute, Technical University of Denmark, Seborg, Denmark; and 2Department of Systems Biology, Technical University of Denmark, Kgs. Lyngby, Denmark.

**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. Rudraksh1, P. Rohrer1, I. Gurevich1, T. P. Rasmussen2, and J. E. Manautou3; 1University of Connecticut, Storrs, CT.

**Poster Board Number 254**

Altered Expression of Hepatic Xenobiotic Metabolism Systems in Transport Deficient (TR-) Rats. L. LeCureux1, V. Bhaskaran1, and L. D. Lehman-McKeenan; Discovery Toxicology, Bristol-Myers Squibb, Lawrenceville, NJ.

**Poster Board Number 255**

Alliopurinol Protects against Acetaminophen-Induced Liver Injury by Aldehyde Oxidase-Mediated Preconditioning. C. D. Williams1, M. R. McGill2, and H. Jaeschke; KUMC, Kansas City, KS.
Abstract #

#1179  
**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  
**The Role of TLR-4 in APAP-Induced Organ Damage.** M. Ellithi¹, D. Magdy¹, L. Ali¹, M. M. Salama²,², M. Elgmal¹,¹, A. Abdelaziz², H. Shehaya¹, and M. Sohbi¹.¹. Medical Experimental Research Center, Faculty of Medicine, Mansoura University, Mansoura, Dakahleya, Egypt; ²Department of Toxicology, Faculty of Medicine, Mansoura University, Mansoura, Dakahleya, Egypt; ³Department of Nephrology, Urology & Nephrology Center, Mansoura, Mansoura, Dakahleya, Egypt; and ⁴Pathology, Faculty of Medicine, Mansoura University, Mansoura, Dakahleya, Egypt.

#1181  
**Mechanisms of Acetaminophen-Induced Cell Death in Primary Human Hepatocytes.** Y. Xie¹, M. R. McGill², K. Dorko¹, S. Kumer¹, T. Schmitt¹, J. Forster¹, and H. I. Jaffe⁵.¹. Department of Pharmacology, Toxicology & Therapeutics, University of Kansas Medical Center, Kansas City, KS; and ²Department of Surgery, University of Kansas Medical Center, Kansas City, KS.

#1182  
**Acronein, a Lipid-Derived Aldehydes Metabolite, Is a Critical Mediator of Alcohol-Induced Endoplasmic Reticulum Stress and Liver Injury.** W. Chen¹, J. Zhang¹, C. McClain¹,², J. Joshi-Barve¹, J. Clarke¹, and K. L. Towery².¹. Department of Medicine/GI, University of Louisville, Louisville, KY; and ²Research Center for Oral Disease, Regulation of AMPK, Uric Acid Inhibits Lipid Metabolism through Suppression of Autophagy. W. Feng, C. Wang, Y. Wang, Y. Liu, C. McClain, and W. Feng. University of Louisville, Louisville, KY.

#1183  
**Mechanism of Altered Metformin Distribution in Diabetic Nonalcoholic Steatohepatitis.** A. L. Dziewiega¹, J. Clarke, N. Nelson, S. Werts, and N. J. Cherrington. Pharmacology & Toxicology, University of Arizona, Tucson, AZ.

#1184  
**Altered Transcription Initiation and Exonization of the First Intron of the Human Liver ABC4 Gene in Tissue Specimens from Cases of Acetaminophen Overdose.** X. Gu, and J. E. Manautou. University of Connecticut, Storrs, CT.

#1185  
**Nrf2 Protects against Furosemide-Induced Hepatotoxicity.** Q. Gu¹, J. Liu¹, H. Zhou¹, and C. D. Klaassen.¹. Department of Internal Medicine, University of Kansas Medical Center, Kansas City, KS; and ²Department of Clinical Pharmacology, Xi‘an Medical School, Central South University, Changsha, Hunan, China.

#1186  
**Acetaminophen (APAP)-Induced Hepatic Protein Modifications in Liver and Mitochondria of C57/Bl6 Mice Are Reduced by S-Adenosylmethionine (SAMe).** A. Schnelle¹, M. S. Wright¹, H. Hedrick¹, J. Brown¹, J. G. Ball¹, and M. Valenti¹.¹. Pharmacology, Physiology and Toxicology, Marshall University School of Medicine, Huntington, WV; and ²Wheeling Jesuit University, Wheeling, WV.

#1187  
**Hepatic Vascular Endothelial Dysfunction in Environmental Toxicant-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  
**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. Zhao¹, Y. Liu¹, K. Falkner¹, M. Cave¹, C. McClain¹,², and W. Feng¹.¹. Hepatology and Nutrition, University of Louisville, Louisville, KY; and ²Pharmacology & Toxicology, University of Louisville, Louisville, KY.

#1189  
**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  
**Platelet Function Inhibits Liver Injury and Fibrosis Induced by a Bile Duct Toxin.** N. Joshi¹, A. K. Kope², K. L. Tower³, H. Cline⁴, K. Williams⁵, M. F. Flick¹, and J. Luyendyk³.¹. Phm & Tox, Michigan State University, East Lansing, MI; ²Pathobiology & Diag Dev, Michigan State University, East Lansing, MI; and ³Division of Experimental Hematology and Cancer Biology, Cincinnati Children’s Hospital Medical Center, Cincinnati, OH.

#1191  
**The RHO-Kinase Pathway Plays a Major Role in the Bile Canaliculal Lumen Contraction Observed in Chlorpromazine-Induced Cholestasis.** C. Guguen-Guillouzo¹, A. Sharanek¹, P. Bachour El Azziz², R. Le Guevel³, and A. Guillouzo³.¹. Research and Development, Biopredic International, St Gregoire, Brittany, France; and ²INSERM U991, Rennes University, Rennes, France; and ³ImpACcell BIOSIT, Rennes University, Rennes, France. Sponsor: M. Robin.

#1192  
**Mechanisms of Cholestasis Induced by Cyclosporin A in Human HepaRG Cells.** A. Guillouzo¹, A. Sharanek¹, P. Bachour El Azziz², and C. Guillouzo³.¹. Inserm U991, University of Rennes, Rennes, France; and ²Research & Development, Biopredic International, Saint-Germain, France. Sponsor: M. Robin.

#1193  
**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.
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<td>Leflunomide Cytotoxicity in Hepatic Cells Involves Mitogen-Activated Protein Kinase Activation, Endoplasmic Reticulum Stress, and Mitochondrial Dysfunction.</td>
<td>Targeted Serum Bile Acid Profile of Naïve Rats and Dogs over a 24h Time Course. R. Morgan1, J. Maher2, S. Cepa3, C. Sensenhaus4, D. Potter5, L. Webster6, K. Olson7, M. Ameri8, K. Stocking9, M. Higgins10, N. King11, and J. Lawrence12. Toxicology, Amgen, Newbury Park, CA; Toxicology, AbbVie, Chicago, IL; DMPK, INJ, Spring House, PA; Statistics, Pfizer, Groton, CT; GSK, DMPK, RTP, NC; and PSTC, Critical Path Institute, Tucson, AZ.</td>
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<td>Hepatic Effects of Aqueous Extract of Chromolaena odorata in Male Wistar Albino Rats. R. N. Asomugha1, O. E. Orisakwe2, P. N. Okafor1, I. I. Ijeh1, and A. L. Asomugha3. Pure and Industrial Chemistry, Nnamdi Azikiwe University, Awka, Anambra State, Nigeria; Clinical Pharmacy, University of Port Harcourt, Port Harcourt, Rivers State, Nigeria; Biochemistry, Federal University of Agriculture, Umudike Umuahia, Abia State, Nigeria; and Anatomy, Nnamdi Azikiwe University, Nnewi Campus, Anambra, Nigeria.</td>
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<td>Intracellular Signaling and Inflammation in the Mechanism of Furosemide Hepatotoxicity. H. Jeschke1, M. R. McCall2, C. D. Williams3, and M. Bajt. Pharmacology, Toxicology, and Therapeutics, University of Kansas Medical Center, Kansas City, KS.</td>
<td>CYP2A5 Contributes to Cadmium-Induced Liver Injury but Protects against Alcoholic Liver Disease. Y. Lu1, and A. Cederbaum1. Mount Sinai School of Medicine, New York City, NY.</td>
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<td>Effects of Red Ginseng Extracts on the Ethanol-Induced Hepatosteatosis In Vivo and In Vitro. S. Kim1, J. Sim1, O. Kwon1, M. Song1, H. Kim2, S. Ki2, T. Jeong3, and S. Lee3. College of Pharmacy, Kyungpook National University, Daegu, Republic of Korea; College of Pharmacy, Chosun University, Gwangju, Republic of Korea; and College of Pharmacy, Yeungnam University, Gyeongsan, Republic of Korea.</td>
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<td>Hepatic Toxicological and Lipid Peroxidation Assessments of Pioglitazone on Albino Wistar Rats. O. O. Olubanke1, O. E. Oguntana2, U. K. Stanley1, J. A. Olagunju1, and A. A. Akindahunsi1. Department of Biological Sciences, Covenant University, Ota, Ogun, Nigeria; Department of Biological Sciences, Crawford University, Igeba, Ogun, Nigeria; Department of Medical Biochemistry, Lagos State University, Ikeja, Lagos, Nigeria; and Department of Biochemistry, Federal University of Technology, Akure, Ondo, Nigeria.</td>
<td>CYP2A5 Contributes to Cadmium-Induced Liver Injury but Protects against Alcoholic Liver Disease. Y. Lu1, and A. Cederbaum1. Mount Sinai School of Medicine, New York City, NY.</td>
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<td>NSAIDs Synergize with Inflammatory Cytokines to Kill Hepatocytes: Implications in Idiosyncratic Reactions. A. Maituri1, L. Gora1, R. Parkins2, P. E. Ganey3-4, and R. A. Roth4-5. Pharmacology and Toxicology, Michigan State University, East Lansing, MI; Center for Integrative Toxicology, Michigan State University, East Lansing, MI; and College of Veterinary Medicine, Michigan State University, East Lansing, MI.</td>
<td>Effects of Red Ginseng Extracts on the Ethanol-Induced Hepatosteatosis In Vivo and In Vitro. S. Kim1, J. Sim1, O. Kwon1, M. Song1, H. Kim2, S. Ki2, T. Jeong3, and S. Lee3. College of Pharmacy, Kyungpook National University, Daegu, Republic of Korea; College of Pharmacy, Chosun University, Gwangju, Republic of Korea; and College of Pharmacy, Yeungnam University, Gyeongsan, Republic of Korea.</td>
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<td>Regorafenib at Clinically Relevant Concentrations Impairs Mitochondrial Functions Causing Necrosis in Primary Rat Hepatocytes. Q. Shi1, Z. Weng1, and Y. Luo1. Division of Systems Biology, National Center for Toxicological Research, US FDA, Jefferson, AR.</td>
<td>Cellular and Genetic Liver Toxicity from Exposure to Polybrominated Diphenyl Ethers (PBDE) in Hepatic Cells In Vitro. J. Gomez1, S. Ranoj1, and D. Krewski2. Health Sciences, University of Ottawa, Ottawa, ON, Canada; and Toxicology, Risk Science International, Ottawa, ON, Canada.</td>
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<td>Leamoline As a Potent Novel Inducer of Hepatic CYP2B. J. Sim1, W. Nam1, H. Oh1, S. Lee1, D. Lee1, T. Lee1, S. Ki1, T. Jeong1, and S. Lee1. College of Pharmacy, Kyungpook National University, Daegu, Republic of Korea; College of Pharmacy, Chosun University, Gwangju, Republic of Korea; and College of Pharmacy, Yeungnam University, Gyeongsan, Republic of Korea.</td>
<td>In Vivo Optical Imaging of Acetaminophen-Induced Liver Toxicity. I. D. Peterson1, K. O. Vasquez2, and X. Li3. Applied Biology, PerkinElmer Inc, Hopkinton, MA. Sponsor: D. Frazier.</td>
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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. Mananantou, 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. Veljkovic1, B. Phillips1, M. Peck1, A. Buettner2, J. Hoeng3, G. Vuillaume1, A. Hayes1, and M. Peitsch1. 1Philip Morris International, International Isocyanate Institute, Manchester, United Kingdom; 2Philip Morris International, Singapore, Singapore; 3Histovia, GmbH, Overath, Germany; and *Sphinger Consulting, Rockville, MD.

#1204 Poster Board Number .....................................304
Examination of Acute Pulmonary Responses to Various Cookstove Exhaust Emissions. E. Gibbs-Flournoy1, J. Jetter2, T. Krantz3, C. King3, J. Richards3, M. Daniels1, E. H. Boykin1, R. Jaskot1, R. Harrison1, J. Griffislien1, I. Gilmour1, and J. A. Dye1. 1Toxicology, UNC, Chapel Hill, NC; 2NRMRL, US EPA, RTP, NC; and 3Research Cores Unit, Proteomic Research Core, UNC, Chapel Hill, 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. McGee1, J. McCoe2, E. H. Boykin1, M. Daniels1, L. B. Copeland3, D. Andrews1, J. Richards1, I. Gilmour1, and S. H. Gavett2. 1Curriculum in Toxicology, UNC, Chapel Hill, NC; 2EPHD, NHEERL, EPA, RTP, NC; and 3Research Cores Unit, Proteomic Research Core, UNC, Chapel Hill, 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. Jalava1, O. Uski1, S. Kasurinen1, K. Kuuspaljo1, J. Ruusunen1, H. Liqing1, Q. Wang2, C. Gu3, I. Jokinen1, and M. Hirvonen1. 1University of Eastern Finland, Kuopio, Finland; and 2University of Nanjing, Nanjing, China. Sponsor: M. Vilukku1.
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<td>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.</td>
<td>Secondary Organic Aerosols Generated from α-Pinene-Amine Mixtures: Effects on the Cardiovascular System. M. Doyle-Eisle1, A. C. Rohr2, E. Knipping1, A. K. Lund3, J. Brower1, and J. D. McDonald.1LRRI, Albuquerque, NM; 2EPRI, Palo Alto, CA; and 3University of North Texas, Denton, TX.</td>
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<td>D. M. Bernstein, R. A. Rogers1, H. Ernst1, and J. I. Phillips1. Consultant in Toxicology, Geneva, Ge, Switzerland; 2Rogers Imaging Corporation, Needham, MA; 3Fraunhofer Institute for Toxicology and Experimental Medicine, Hannover, Germany; and 4Department of Biomedical Technology, Faculty of Health Sciences, University of Johannesburg, National Institute for Occupational Health, National Health Laboratory Service, Johannesburg, South Africa.</td>
<td>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.</td>
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<td>Sex Differences in Glutathione Levels and Cytoxicity following Naphthalene or Acrolein Exposure in Nasal Epithelium. L. S. Van Winkle1, J. Cichocki1, R. Mendoza2, P. Edwards1, and J. B. Morris1. Center for Health &amp; Environment, UC Davis, Davis, CA; and 2School of Pharmacy, Univ of Connecticut, Storrs, CT.</td>
<td>Repeated Intratracheal Powder Aerosol Delivery in Sprague-Dawley Rats. A. Dumas1, M. Stoute1, S. Groom1, R. Tavcar2, and R. Forster1. CToxLAB North America, Laval, QC, Canada; and 2CTox LAB France, Evreux, France.</td>
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<td>Sex Differences in Acute Nasal Antioxidant Responses to Inhaled Naphthalene. J. Cichocki1, L. S. Van Winkle1, G. J. Smith1, A. R. Buckpitt1, and J. B. Morris1. 1Pharmaceutical Sciences, University of Connecticut, Storrs, CT; and 2Veterinary Medicine, University of California, Davis, CA.</td>
<td>Sex Differences in Sex Differences in Glutathione Levels and Sex Differences in Glutathione Levels and Pulmonary Toxicity Screening of 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.</td>
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<td>Pulmonary Effects and Biokinetics of Nanoparticles: Whole-Body Inhalation Exposure to CeO2 in 5-Day; 28-Day; and 90-Day Rat Studies. J. Keller1, K. Küttler1, L. Ma-Hock1, V. Strauss1, S. Gröters1, K. Wiench1, B. van Ravenzwaay1, and R. Landsiedel2. 1Toxicology, BASF SE, Ludwigshafen/Rhein, Germany; and 2Product Safety, BASF SE, Ludwigshafen/Rhein, Germany.</td>
<td>Quantitative Evaluation of the Relationship between Vapor Characteristics and Upper Respiratory Tract Uptake Efficiencies in Rodents. K. Neier1, M. Glynn1, H. A. Fritz1, J. S. Pierce1, A. Urbani1, S. H. Gaffney2, and B. L. Finley2. 1Cardno ChemRisk, Chicago, IL; 2Cardno ChemRisk, San Francisco, CA; and 3Cardno ChemRisk, New York.</td>
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<td>Inhalation Toxicity of Three Different Types of Nano-Size Organic Pigments. K. Wiench1, P. Simmendinger1, L. Ma-Hock1, S. Gröters1, B. van Ravenzwaay1, and R. Landsiedel2. 1Toxicology, BASF SE, Ludwigshafen/Rhein, Germany; and 2Product Safety, BASF SE, Ludwigshafen/Rhein, Germany.</td>
<td>Comparison of the Upper Respiratory Tract Uptake Efficiencies of Vapors in Rats and Mice. H. A. Fritz1, M. Glynn1, K. Neier1, J. S. Pierce1, A. Urbani1, S. H. Gaffney2, and B. L. Finley2. 1Cardno ChemRisk, Chicago, IL; 2Cardno ChemRisk, San Francisco, CA; and 3Cardno ChemRisk, Brooklyn, NY.</td>
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<td>Pulmonary Toxicity Screening of 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.</td>
<td>Pulmonary Responses following the Inhalation of Pulmonary Responses following the Inhalation of Fumes from Resistance Spot Welding of Galvanized Zinc-Coated Steel. J. M. Antonini1, A. Afshari1, W. McKinney1, T. G. Meighan1, M. Jackson1, B. T. Chen2, D. Schwegler-Berry2, N. B. Marshall2, S. E. Anderson1, A. Cumpton1, J. Cumpton1, H. D. Leonard1, D. G. Frazer1, and P. C. Zeidler-Erdely1. 1NIOSH, Morgantown, WV.</td>
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90-days Inhalation Toxicity Study of Manufactured Zinc Oxide Nano Particle. Y. Heo1, Y. Kim1, H. Yang1, S. Baek1, K. Lee1, E. Jo1, I. Eom1, and B. Lee2. 1Inhalation Toxicology Center, Korea Institute of Toxicology, Jeongeup-Si, Republic of Korea; and 2Risk 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. Zhang1, E. Wahlström1, L. Sundius1, and A. Ollerström1, 1AstraZeneca, Molndal, Sweden; 2Karolinska Institute, Stockholm, Sweden; 3Lund 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. Gwinn1, W. Qu1, R. W. Bousquet2, H. Price1, C. Shines1, G. Taylor1, M. P. Waalkes1, and D. L. Morgan1. 1NTP Laboratory, NIEHS, RTP, NC; and 2Alien 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. Chittrakar1, Z. Jia1, H. Shah1, A. Speen1, J. McCormick2, P. Nallasamy1, P. Joubert1, H. Zhu1, and Y. Li2. 1University of North Carolina at Greensboro, Greensboro, NC; and 2Campbell 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. Kacko1, A. C. Rohr1, J. D. McDonald2, M. Doyle-Eisle1, J. Seagrave1, E. Knippro2, and S. Shaw1. 1LRRI, Albuquerque, NM; and 2Electric Power Research Institute, Palo Alto, CA.

#1229g  Poster Board Number .....................................336
Potential Exposure Threshold of Chrysotile Asbestos. T. Hesterberg1, P. A. Nony1, P. Watson1, M. Berg1, and R. C. Scribner1. 1Center for Toxicology and Environmental Health, L.L.C., Denver, CO; 2CTEH, L.L.C., North Little Rock, AR; 3CTEH, L.L.C., Kemah, TX; and 4CTEH, L.L.C., Albany, NY.

Abstract #

Tuesday Afternoon, March 25
1:00 PM to 4:30 PM
Exhibit Hall

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. Henriquez1, D. Johnson1, M. Schladweiler2, J. Richards1, and U. P. Kodavanti1. 1Curriculum in Toxicology, University of North Carolina at Chapel Hill, Chapel Hill, NC; and 2EPHD/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. Mirowsky1, K. E. Duncan1, S. D. McCullough2, L. A. Dailey2, and R. B. Devlin1. 1Center for Environmental Medicine, Asthma, and Lung Biology, University of North Carolina, Chapel Hill, Chapel Hill, NC; and 2National 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. Snow1, M. Schladweiler1, J. McGee2, V. L. Bass1, D. Nash1, J. Weinstein1, R. Willis1, W. Linka2, C. E. Wood2, S. Elmore1, R. F. Thomas2, D. B. Miller1, T. Krantz3, C. King3, J. Johnson4, J. Morrison1, J. Richards1, A. Ledbetter1, J. Gilmour2, and U. P. Kodavanti1. 1UNC, Chapel Hill, NC; 2NHEERL, EPA, RTP, NC; 3NERL, EPA, RTP, NC; and 4Pathology Associates Inc., Durham, NC.

#1233  Poster Board Number .....................................340
Histopathological Effects of Inhaled Diesel Exhaust from Diesel Engine in SD Rats. I. Shim1, H. Kim1, J. Kwon1, P. Kim1, 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. Bhavary1, R. McCormick1, and M. C. Madder1. 1Toxicology, University of North Carolina, Chapel Hill, NC; 2NERL, Golden, CO; and 3US 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. Benis1, L. M. Hallberg2, D. J. Conklin3, M. Kong1, B. T. Ameredes1, J. B. Ward3, C. Hernandez2, S. Zas1, C. Norton1, and J. K. Wickliffe2. 1Litron Laboratories, Rochester, NY; 2University of Texas Medical Branch, Galveston, TX; and 3University of Louisville, Louisville, KY; and 4Tulane University, New Orleans, LA.
Program Description (Continued)

Abstract #  
#1236  
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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. LRRRI, 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  
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Effect of SNPs and Glycosylation 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  
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Concentrated Ambient Fine Particulate Matter (CAP, PM2.5)-Induced Vascular Resistance: Role of Oxidative Stress. P. Haberzettl, R. Folz, J. Zello, A. Bhatnagar, and D. J. Conklin. Medicine, University of Louisville, Louisville, KY.

#1240  
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PM2.5-Induced Tachycardia and Hypertension in Rats Are Linked to Elemental Carbon and Specific Temperature-Resolved Carbon Subfractions. J. G. Wagner1, A. Kamal1, M. Morishita1, T. Dvovch1, J. R. Harkevich1, and A. C. Rohr. 1Michigan State University, East Lansing, MI; 2USEPA, Research Triangle Park, NC; and 3University of Michigan, Ann Arbor, MI; and 4Electric Power Research Institute, Palo Alto, CA.

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#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. Yingling1,2, C. E. McLaughlin1, J. S. Fedan1,2, B. T. Chen2, D. Schweger-Berry2, J. M. Antonini1,2, and J. R. Roberts1. 1WVU, Morgantown, WV; and 2NIOSH, Morgantown, WV.

#1242b  
Poster Board Number .....................................351  
Inhalation of Traffic-Derived Particulates and Exposure to Social Stress Differentially Alter Cardiovascular Function in Rats. A. P. Carll1, T. Jaeger1,2, D. Lamoureux1,2, R. Sato1,2, J. E. Clougherty3, V. Papapostolou1, J. Lawrence1, E. Diaz1, and J. J. Godleski1. Environmental Health, Harvard School of Public Health, Boston, MA; 2Faculdade de Medicina da Universidade de Sao Paulo, Sao Paulo, Brazil; 3Laboratory of Personalized Medicine, Harvard Medical School, Boston, MA; and 4Environmental & Occupational Health, University of Pittsburgh Graduate School of Public Health, Pittsburgh, PA.

#1242c  
Potent Protection against Diesel Exhaust Particle-Caused Cytotoxicity and Vasculature Permeable through Regulation of Adherens Junction Distribution by Ganoderma Lucidum. J. Chang1, M. Chung1, J. Wang1, C. Tseng1, M. Shurin5, and M. Chao5. Bioscience Technology, Chung Yuan Christian University, Chung-Li, Taiwan; 2Biomedical Engineering, Chung Yuan Christian University, Chung-Li, Taiwan; 3Center for Nanotechnology, Chung Yuan Christian University, Chung-Li, Taiwan; and 4Joint Program of Toxicology, Rutgers University, Piscataway, NJ.

#1242d  
Subchronic Effects of Inhaled Ambient Particulate Matter on Glucose Homeostasis and Target Organ Damage in Type 1 Diabetic Rat Model. T. Cheng1, Y. Yan1, C. Chou1, and I. Wang1. National Taiwan University, Taipei, Taiwan; 2Academia Sinica, Taipei, Taiwan; and 3Kaohsiung Veteran General Hospital, Kaohsiung, Taiwan. Sponsor: L. Chen.

#1242e  
Acute Inhalation Exposure to Mixed Vehicle Emissions Induces Serum Metabolite Changes Related to Oxidative Stress, Lipid Peroxidation, and Energy Metabolism. J. Brower1, B. C. Moeller1, M. Doyle-Eisele1, S. Studivant1, J. D. McDonald1, and C. Campen1. Lovelace Respiratory Research Institute, Albuquerque, NM; 2Pharmaceutical Sciences, University of New Mexico, Albuquerque, NM; and 3Metabolon Inc., Durham, NC.

#1242f  
Electrocardiographic Changes in ApoE-/- Mice following Exposure to the Semi-Volatile Fraction of Ultrafine Concentrated Ambient Particulate Matter. A. J. Keebaugh1, D. Herman1, P. Pakbin1, C. Sioutas1, and M. T. Kleinman1. 1UC Irvine, Irvine, CA; and 2University of Southern California, Los Angeles, CA.

#1242g  
Replacing Diesel Fuel with Biodiesel: For Better or for Worse? M. Farcais1, N. Yanamala1, D. Schweger-Berry1, J. Hummer1, M. Shurin1, E. M. Birch1, D. W. Gutkin1, E. Kisim1, V. E. Kagan4, A. D. Bugorski1, and A. A. Shvedova12. HELD/PPRB, CDC/NIOSH, Morgantown, WV; 2Dept. of Physiology and Pharmacology, WVU, Morgantown, WV; 3OMSHR, NIOSH/CDC, Pittsburgh, PA; 4NIOSH/CDC, Cincinnati, OH; 5Dept. of Pathology, UPMC, Pittsburgh, PA; and 6Dept. of Environmental and Occupational Health, University of Pittsburgh, Pittsburgh, PA.
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.

#1247
Poster Board Number: 405
Kidney Specificity in Cd-Induced Accumulation of p53 Dependent on the Inhibition of UBE2D3 Family Gene Expressions. M. Satoh1, J. Lee2, M. Tokumoto3, and Y. Fujiiwara1. Laboratory of Pharmaceutical Health Sciences, School of Pharmacy, Aichi Gakuin University, Nagoya, Japan; and 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 Ube2d3 Family in Proximal Tubular Cells. J. Lee1, M. Tokumoto2, Y. Fujiiwara3, and M. Satoh4. School of Pharmacy, Aichi Gakuin University, Nagoya, Aichi, Japan; and Showa Pharmaceutical University, Tokyo, Japan.

#1249
Poster Board Number: 407
Paraoxonase Activity in Subchronic Low-Level Cadmium Exposure. O. O. Oginnimba1, A. D. Wusu2, O. K. Oladehin3, E. A. Boller1, E. O. Alimi2, D. O. Babayemi1, O. A. Dusuma2, O. B. Onanwor1, O. O. Odukov1, and O. Ademuyiwa4. Biochemistry, Lagos State University, Ojo, Lagos, Nigeria; Biochemistry, Federal University of Agriculture, Abeokuta, Nigeria; Chemistry, Federal University of Agriculture, Abeokuta, Nigeria; Biochemistry, Ladoke Akintola University, Ogbomoso, Nigeria; and Biochemistry, University of Ilorin, Ilorin, Nigeria.

#1250
Poster Board Number: 408
Acute and Chronic Cadmium Exposure Induces Transcriptional Activation of BMP-2 Signaling Cascades in a Human Renal Epithelial Cell Culture Model. A. Slusser1, A. Holmqvist, S. Somji1, D. A. Seno, and S. H. Garrett. Pathology, University of North Dakota, Grand Forks, ND.

#1251
Poster Board Number: 409
Diabetogenic and Obesogenic Effects of Cadmium in Rats and db/db Mice at Clinically Relevant Levels of Exposure. J. Edwards1, J. Edwards2, J. Edwards3, and J. Edwards4. Department of Pharmacology, Midwestern University, Downers Grove, IL; and Edward Via College of Osteopathic Medicine, Spartanburg, SC.

#1252
Poster Board Number: 410
Analysis of Molecular Mechanisms Involved in Induction of Endoplasmic Reticulum Stress by Cadmium. G. Hwang, K. Du, and A. Nagamune. Graduate School of Pharmaceutical Sciences, Tohoku University, Sendai, Miyagi, Japan.

#1253
Poster Board Number: 411
Environmental Metabolome of Mouse Liver Mitochondria and Cell Nuclei. Y. Go, M. Oh, Y. Liang, and D. P. Jones. Medicine, Emory University, Atlanta, GA.

#1254
Poster Board Number: 412
Program Description (Continued)

Roundtable Sessions
1. 1Environmental Health
2. 2HELD/PPRB
3. 3OMSHR
4. 4Biochemistry
5. 5Office of Research and Development,

Author Attended: 1:00 PM–2:45 PM
Displayed: Niladri Basu, McGill University, Montreal, QC, Canada.

Poster Session: Metals I: Zn, Cd, Hg
Chairperson(s): Niladri Basu, McGill University, Montreal, QC, Canada.

Abstract # Poster Board Number: 357
Mutagenic Potential of Biodiesel Exhaust Particles and Effect of Engine Operating Conditions. E. K. Kisin1, X. C. Shi2, M. J. Keane2, A. D. Bugarski3, and A. A. Shvedova4. 1HELD/PPRB, CDC/NIOSH, Morgantown, WV; 2HELD/EB, CDC/NIOSH, Morgantown, WV; and 3OMSHR, CDC/NIOSH, Pittsburgh, PA.

#1242h
Poster Board Number: 358
Reactive Oxygen Species and Inflammatory Response of Monocytes to Ambient Particles Varies by Highway Proximity. R. E. Muller1,2, W. Wu3, K. Berhan4, S. Fruin5, F. Liu6, I. Jasper7,8, D. Diaz-Sanchez9, D. B. Peden10, and R. McConnell11. 1Curriculum in Toxicology, University of North Carolina at Chapel Hill, School of Medicine, Chapel Hill, NC; 2School of Public Health, Xinnxiang Medical University, Henan Province, China; 3Preventive Medicine, USC Keck School of Medicine, Los Angeles, CA; 4Center for Environmental Medicine, Asthma & Lung Biology, University of North Carolina at Chapel Hill, School of Medicine, Chapel Hill, NC; and 5Office of Research and Development, US Environmental Protection Agency, Durham, NC.

#1242i
Poster Board Number: 359
Program Description (Continued)

Roundtable Sessions
1. 1Environmental Health
2. 2HELD/PPRB
3. 3OMSHR
4. 4Biochemistry
5. 5Office of Research and Development,

Author Attended: 1:00 PM–2:45 PM
Displayed: Niladri Basu, McGill University, Montreal, QC, Canada.

Poster Session: Metals I: Zn, Cd, Hg
Chairperson(s): Niladri Basu, McGill University, Montreal, QC, Canada.

Abstract # Poster Board Number: 357
Mutagenic Potential of Biodiesel Exhaust Particles and Effect of Engine Operating Conditions. E. K. Kisin1, X. C. Shi2, M. J. Keane2, A. D. Bugarski3, and A. A. Shvedova4. 1HELD/PPRB, CDC/NIOSH, Morgantown, WV; 2HELD/EB, CDC/NIOSH, Morgantown, WV; and 3OMSHR, CDC/NIOSH, Pittsburgh, PA.

#1242h
Poster Board Number: 358
Reactive Oxygen Species and Inflammatory Response of Monocytes to Ambient Particles Varies by Highway Proximity. R. E. Muller1,2, W. Wu3, K. Berhan4, S. Fruin5, F. Liu6, I. Jasper7,8, D. Diaz-Sanchez9, D. B. Peden10, and R. McConnell11. 1Curriculum in Toxicology, University of North Carolina at Chapel Hill, School of Medicine, Chapel Hill, NC; 2School of Public Health, Xinnxiang Medical University, Henan Province, China; 3Preventive Medicine, USC Keck School of Medicine, Los Angeles, CA; 4Center for Environmental Medicine, Asthma & Lung Biology, University of North Carolina at Chapel Hill, School of Medicine, Chapel Hill, NC; and 5Office of Research and Development, US Environmental Protection Agency, Durham, NC.

#1242i
Poster Board Number: 359
Program Description (Continued)

Roundtable Sessions
1. 1Environmental Health
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3. 3OMSHR
4. 4Biochemistry
5. 5Office of Research and Development,

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#1242h
Poster Board Number: 358
Reactive Oxygen Species and Inflammatory Response of Monocytes to Ambient Particles Varies by Highway Proximity. R. E. Muller1,2, W. Wu3, K. Berhan4, S. Fruin5, F. Liu6, I. Jasper7,8, D. Diaz-Sanchez9, D. B. Peden10, and R. McConnell11. 1Curriculum in Toxicology, University of North Carolina at Chapel Hill, School of Medicine, Chapel Hill, NC; 2School of Public Health, Xinnxiang Medical University, Henan Province, China; 3Preventive Medicine, USC Keck School of Medicine, Los Angeles, CA; 4Center for Environmental Medicine, Asthma & Lung Biology, University of North Carolina at Chapel Hill, School of Medicine, Chapel Hill, NC; and 5Office of Research and Development, US Environmental Protection Agency, Durham, NC.

#1242i
Poster Board Number: 359
Program Description (Continued)

Roundtable Sessions
1. 1Environmental Health
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Mutagenic Potential of Biodiesel Exhaust Particles and Effect of Engine Operating Conditions. E. K. Kisin1, X. C. Shi2, M. J. Keane2, A. D. Bugarski3, and A. A. Shvedova4. 1HELD/PPRB, CDC/NIOSH, Morgantown, WV; 2HELD/EB, CDC/NIOSH, Morgantown, WV; and 3OMSHR, CDC/NIOSH, Pittsburgh, PA.

#1242h
Poster Board Number: 358
Reactive Oxygen Species and Inflammatory Response of Monocytes to Ambient Particles Varies by Highway Proximity. R. E. Muller1,2, W. Wu3, K. Berhan4, S. Fruin5, F. Liu6, I. Jasper7,8, D. Diaz-Sanchez9, D. B. Peden10, and R. McConnell11. 1Curriculum in Toxicology, University of North Carolina at Chapel Hill, School of Medicine, Chapel Hill, NC; 2School of Public Health, Xinnxiang Medical University, Henan Province, China; 3Preventive Medicine, USC Keck School of Medicine, Los Angeles, CA; 4Center for Environmental Medicine, Asthma & Lung Biology, University of North Carolina at Chapel Hill, School of Medicine, Chapel Hill, NC; and 5Office of Research and Development, US Environmental Protection Agency, Durham, NC.

#1242i
Poster Board Number: 359
Program Description (Continued)

Roundtable Sessions
1. 1Environmental Health
2. 2HELD/PPRB
3. 3OMSHR
4. 4Biochemistry
5. 5Office of Research and Development,
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<tr>
<th>Abstract #</th>
<th>Program Description (Continued)</th>
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<tr>
<td>#1255</td>
<td>Poster Board Number 413. Gastrointestinal Solubilization and Uptake of Mercury and Selenium from Wild-Harvested Inuit Foods. B. D. Laird, S. Palaniyandi, P. J. Vanié, M. Lemire, M. Kwan, L. Chan, E. Dewaillly, and P. Ayotte. School of Public Health and Health Systems, University of Waterloo, Waterloo, ON, Canada; 'Department of Biology, University of Ottawa, Ottawa, ON, Canada; 'CR-CHUQ, Université Laval, Québec City, QC, Canada; ‘Nunavik Research Centre, Makivik Corporation, Kuujjuaq, QC, Canada; and ‘Institut National de Santé Publique du Québec, Québec City, QC, Canada.</td>
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<tr>
<td>#1257</td>
<td>Poster Board Number 415. Brain-Specific Induction of Expression of Cd44 and Sgcb3a1 by Methylmercury in Mice. M. Kim, T. Takahashi, J. Lee, G. Hwang, and A. Naganuma. 'Laboratory of Molecular and Biochemical Toxicology, Tohoku University, Sendai, Miyagi, Japan; and 'Laboratory of Pharmaceutical Health Sciences, School of Pharmacy, Aichi Gakuen University, Nagoya, Aichi, Japan.</td>
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<tr>
<td>#1258</td>
<td>Poster Board Number 416. Role of Reactive Sulfur Species in Reduction of Methylmercury Toxicity In Vitro and In Vivo. E. Yoshida, T. Toyama, and Y. Kamugan. 'Graduate School of Comprehensive Human Sciences, University of Tsukuba, Tsukuba, Japan; ‘Faculty of Medicine, University of Tsukuba, Tsukuba, Japan; and ‘JSPS Research Fellow, Tsukuba, Japan.</td>
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<tr>
<td>#1259</td>
<td>Poster Board Number 417. Characterization of Mercury Binding Proteins in the Liver of Northern Fur Seals (Callorhinus ursinus). T. Agusa, S. Yasugi, T. Iremoto, T. Kunito, N. Baba, S. Tanabe, and H. Iwata. 'Hyde University, Center for Marine Environmental Studies (CMES), Matsuyma, Japan; 'Thermo Fisher Scientific, Yokohama, Japan; ‘Shinshu University, Matsumoto, Japan; and ‘National Research Institute of Fisheries Science, Yokohama, Japan.</td>
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<tr>
<td>#1260</td>
<td>Poster Board Number 418. Effects of Single Nucleotide Polymorphisms on Blood Mercury Level of Korean Population. J. Lim, H. Kwon, H. Kim, Y. Kim, S. Eom, M. Hwang, and J. Park. 'Dankook University, Cheonan, Republic of Korea; ‘Chung-Ang University, Seoul, Republic of Korea; ‘Chungbuk University, Chongju, Republic of Korea; and ‘National Institute of Food and Drug Safety Evaluation, Cheongwon, Republic of Korea.</td>
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<tr>
<td>#1261</td>
<td>Poster Board Number 419. Ras Sindoor: Ayurveda's Attempt at Detoxifying Mercury. N. Sadekar, and L. D. Trombeta. Pharmaceutical Sciences, St. John's University, Queens, NY.</td>
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<td>#1262</td>
<td>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, S. Nakamoto, and K. Sakai. 'Department of Basic Medical Science, National Institute for Minamata Disease, Minamata, Kumamoto, Japan; 'Department of Environmental Science and Epidemiology, National Institute for Minamata Disease, Minamata, Kumamoto, Japan; and ‘Japan Institute for the Control of Aging, Nii Ken Sel, Fukuroi, Shizuoka, Japan.</td>
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<td>#1263</td>
<td>Poster Board Number 421. Interaction between Early-Life Methylmercury Exposure and Iron Deficiency in Daphnia pulex. S. L. Hudson, D. Dake, and J. M. Gohike. Environmental Health Sciences, University of Alabama at Birmingham, Birmingham, AL.</td>
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<td>#1264A</td>
<td>Poster Board Number 423. Cut-Off Values and Benchmark Doses (BMDs) for Cadmium Compared across Human Exposure Settings: Evidence for Protective Pathways? M. Bluttacharayya. ‘Georgia Regents University, Augusta, GA.</td>
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<td>#1264B</td>
<td>Poster Board Number 424. MTF-1 Regulates Fra-1 mRNA Expression after Cadmium Exposure. E. Braithwaite, and J. H. Freedman. ‘National Institute of Environmental Health Sciences, Research Triangle Park, NC.</td>
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Program Description (Continued)

Abstract # 
Tuesday Afternoon, March 25
1:00 PM to 4:30 PM
Exhibit Hall

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
for Toxicology & Environmental Health, Portland, ME.

Chairperson(s): John P. Wise, University of Southern Maine, Maine Center for Toxicology & Environmental Health, Portland, ME.

Displayed: 1:00 PM–4:30 PM
for Toxicology & Environmental Health, Portland, ME.

Author Attended: 2:45 PM–4:30 PM

#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. Permenter1, D. Kunscher1, W. E. Dennis2, J. A. Lewis2, and J. D. Stallings3.
1Excit, Inc., Fort Detrick, MD; and USACEHR, Fort Detrick, MD. Sponsor: D. Jackson.

#1266  Poster Board Number .....................................437
Time Course of Lead-Induced Dyslipidemia in Male Albino Rats. O. Ademuyiwa1, E. O. Abam1, O. O. Oggunrinola1, O. K. Afolabi1, O. A. Dosumu1, O. B. Oseunkwo1, E. A. Balogun1, and O. O. Oduboya1. 1Biochemistry, Federal University of Agriculture, Abeokuta, Ogun, Nigeria; 'Chemistry, Federal University of Agriculture, Abeokuta, Ogun, Nigeria; and '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. Oyagbemi1, T. O. Omobowale1, O. A. Akinrinde1, A. R. Salu2, O. T. Daramola2, and B. S. Ogungbou2. 1Dept of Vet. Physiology, Biochemistry and Pharmacology, University of Ibadan, Nigeria, Ibadan, Oyo, Nigeria; and '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. Zhirkovich, 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. Zhirkovich. 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. R. Salu1, A. A. Oyagbemi2, T. O. Omobowale2, O. A. Akinrinde1, O. T. Daramola2, and B. S. Ogungbou2. 1Dept of Vet. Physiology, Biochemistry and Pharmacology, University of Ibadan, Nigeria, Ibadan, Oyo, Nigeria; and 'Veterinary Medicine, University of Ibadan, Nigeria, Ibadan, Oyo, Nigeria.

Poster Board Number .................................#1271
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. J. I. Sanchez-Martín, Y. Fan, J. L. Owens, V. S. Carreira, and A. Puga. Department of Environmental Health, University of Cincinnati, Cincinnati, OH.

Poster Board Number .................................#1272
Effects of Particulate Hexavalent Chromium on Centrosome Separation and the Centrosomal Kinase Nek2A. J. Martino1,2, A. L. Holmes1,2, H. Xie1,2,3, E. Nigg1, and J. P. Wise1,2,3. 1Wise Laboratory of Environmental and Genetic Toxicology, University of Southern Maine, Portland, ME; 2Maine Center for Toxicology and Environmental Health, University of Southern Maine, Portland, ME; 3Department of Applied Medical Sciences, University of Southern Maine, Portland, ME; and 4Biozentrum, University of Basel, Basel, Switzerland.

Poster Board Number .................................#1273
Time Course of Lead-Induced Alterations in Paraoxonase Activity in Male Albino Rats. E. O. Abam1, O. O. Oggunrinola1, O. A. Akinrinde1, A. S. Akinrinde, A. Zhitkovich2, S. Green, M. Luczak, J. Morse, and Z. DeLoughery. Brown University, Piscataway, NJ; 2Ernest Mario School of Pharmacy, Rutgers University, Piscataway, NJ; and 3Robert Wood Johnson Medical School, Rutgers University, Piscataway, NJ.

Poster Board Number .................................#1274
Co(II) and Ni(II) Responses in Human Lung Cells: Uptake, p53 Activation, and Cytotoxic Mechanisms. A. Zhirkovich, S. Green, M. Luczak, J. Morse, and Z. DeLoughery. Brown University, Providence, RI.

Poster Board Number .................................#1275
Characterization of OH Radicals Induced by Particulate Matter and Associated Species with a High-Throughput Approach. Y. Son1, V. Mishin1, W. Welsh2, F. D. Laskin2, and Q. Meng1. 1School of Public Health, Rutgers University, Piscataway, NJ; and 2Department of Environmental and Genetic Toxicology, University of Southern Maine, Portland, ME.

Poster Board Number .................................#1276
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.

Poster Board Number .................................#1277
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.

Poster Board Number .................................#1278
Characterization of OH Radicals Induced by Particulate Matter and Associated Species with a High-Throughput Approach. Y. Son1, V. Mishin1, W. Welsh2, F. D. Laskin2, and Q. Meng1. 1School of Public Health, Rutgers University, Piscataway, NJ; and 2Department of Environmental and Genetic Toxicology, University of Southern Maine, Portland, ME.

Poster Board Number .................................#1279
The Cytotoxicity and Genotoxicity of Soluble and Particulate Cobalt in Human Lung Fibroblasts. A. Holmes1, L. J. Smith2, S. S. Wise3, M. Mason4, T. Zheng5, and J. P. Wise1. 1Wise Laboratory of Environmental and Genetic Toxicology, University of Southern Maine, Portland, ME; 2Department of Chemical and Biological Engineering, University of Maine, Orono, ME; and 3Department of Environmental Health Sciences, Yale School of Public Health, New Haven, CT.
Abstract #1277
Poster Board Number .....................................448
Spatial Localization and Altered Quantitative Expression of Genes Associated with Aging in 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.

Abstract #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. Hardey. Pharmaceutical Sciences, St. John's University, Jamaica, NY.

Abstract #1279
Poster Board Number .....................................450
Comparative Toxicity of Hexavalent Chromium (Cr(VI)) in Human and Alligator Cells. S. Wise, H. Xie, J. P. Wise, C. F. Wise, L. Guillette, and J. P. Wise. University of Southern Maine, Portland, ME; and 2Medical University of South Carolina, Charleston, SC.

Abstract #1280
Poster Board Number .....................................451
Interlaboratory Validation of Bioaccessibility Test for Metals. R. Henderson1, V. Verougstraete2, K. Anderson1, J. Arbulu2, T. O. Broek2, T. Brouwers2, D. Cappellini2, K. Delbeke1, G. Herting1, G. Hixon2, I. Odneval Wallinder1, P. Rodriguez2, F. Van Assche10, P. Wilrich11, and A. R. Oller12. 1ToxStrategies, Inc., Durham, NC; 2Ueumetaux, Brussels, Belgium; 3University of Southern Maine, Portland, ME; and 4ToxStrategies, Austin, TX.

Abstract #1281
Poster Board Number .....................................452
Genetic Variation of Iron Metabolism in Mice. H. Irimagawa1, Y. He1, D. W. Killilea2, B. Parks3, S. T. Hui1, E. Eskim1, A. J. Luiss2, C. Valpe1, and K. E. Page1. 1Department of Nutritional Science and Toxicology, University of California, Berkeley, Berkeley, CA; 2Children's Hospital Oakland Research Institute, Oakland, CA; 3Department of Medicine/Division of Cardiology, University of California, Los Angeles, Los Angeles, CA; 4Department of Human Genetics, University of California, Los Angeles, Los Angeles, CA; and 5Department of Computer Science, University of California, Los Angeles, Los Angeles, CA.

Abstract #1282
Poster Board Number .....................................453
Cytotoxicity and Epigenetic Effects of Post-Hydraulic Fracturing Flowback Waters in the Marcellus Shale from Pennsylvania. Y. Yao1, M. Zhong1, L. Chen1, T. Zelikoff2, T. Chen1, Z. Wu1, and M. Costa1. 1New York University School of Medicine, Tuxedo, NY; and 2School 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 Lipogenesis. A. M. Bold2,3, M. Flores Molina2,3, A. D. Kelly2,3, and K. K. Mason1,2, 1Lady Davis Institute for Medical Research, McGill University, Montreal, QC, Canada; 2Department of Oncology, McGill University, Montreal, QC, Canada; and 3Division of Experimental Medicine, McGill University, Montreal, QC, Canada.

Abstract #1284
Poster Board Number .....................................455
Lead Enhances Antibiotic Resistance in Chicken Enteric Bacterial Flora. R. M. Gogul1, S. D. Holladay2, M. Nissinan3, R. P. Kerri1, S. Williams2, L. Stabler2, V. McArthur1, and C. Tuckfield. 1Vet Biosciences & Diagnostic Imaging, University of Georgia, Athens, GA, and 2Poultry Diagnostic & Research Center, University of Georgia, Athens, GA.

Abstract #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. Neil, V. Anantharam, H. Jin, and A. Kanthasamy. Biomedical Sciences, Iowa State University, Ames, IA.

Abstract #1286
Poster Board Number .....................................457
Acute High-Dose Manganese Inhalation Alters Systemic Iron Metabolism and Impairs Motor Coordination in Rats. J. Chang1, D. Saputra2, K. Lee2, and J. Kim1. 1Pharmaceutical Sciences, Northeastern University, Boston, MA; and Inhalation Toxicology Center, Korea Institute of Toxicology, Jeonjup, Republic of Korea; and 2University of Science and Technology, Daejeon, Republic of Korea.

Abstract #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. Nie1 and D. Koltick1. 1School of Health Sciences, Purdue University, West Lafayette, IN; and 2Physics Department, Purdue University, West Lafayette, IN.

Abstract #1288
Poster Board Number .....................................459

Abstract #1289
Poster Board Number .....................................460

Abstract #1290
Poster Board Number .....................................461
X-Ray Fluorescence Microspectroscopic Analysis of Duodenal Mucosal following Cr(VI) Exposure in Drinking Water. C. M. Thompson1, D. Proctor2, M. Suh2, J. Wolf2, L. C. Haw2, and M. A. Harris1. 1ToxStrategies, Katy, TX; 2ToxStrategies, Mission Viejo, CA; 3Experimental Pathology Laboratories, Sterling, VA; and 4ToxStrategies, Austin, TX.
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. Kollick, W. Zheng, and H. L. Nie, Purdue University, West Lafayette, IN.

Abstract #  
#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. Hardey. Pharmaceutical Sciences, St. John’s University, Queens, NY.

Abstract #  
#1293 Poster Board Number .................................464  

Abstract #  
#1294 Poster Board Number .................................465  
Fish As Models for Investigating Metabolic Disruption Arising from Dietary Selenium Oversupplementation.  D. Ianz, and J. Thomas. Toxicology Centre, University of Saskatchewan, Saskatoon, SK, Canada.

Abstract #  
#1295 Poster Board Number .................................466  
Effects of Uranyl Acetate on Etoposide-Induced DNA Damage and Repair in Human Bronchial Epithelial Cells (16HBE14o-).  M. Yellowhair1, and R. Lantz2. 1Cancer Center, The University of Arizona, Tucson, AZ; and 2Cellular and Molecular Medicine, The University of Arizona, Tucson, AZ.

Abstract #  
#1296 Poster Board Number .................................467  
Gastric Reduction of Hexavalent Chromium in Fed and Fasted Human Stomach Samples.  S. M. Hays1, C. R. Kirman1, M. Suh1, and D. Proctor2. 1Summit Toxicology, Lyons, CO; and 2ToxStrategies, Mission Viejo, CA.

Abstract #  
#1297 Poster Board Number .................................468  
Temporal Changes in Rat Liver Gene Expression after Cadmium and Chromium Exposure.  M. S. Madeczki1, C. E. Baer1, W. E. Dennis1, V. C. Minarchick2, S. S. Leonard3, D. A. Jackson1, L. Lewis1, and J. D. Stallings1. 1ORISE Postdoctoral Fellow at USACEHR, Fort Detrick, MD; 2National Institute for Occupational Safety and Health, Morgantown, WV; 3US Army Center for Environmental Health Research, Fort Detrick, MD; and 4´Exect, Inc., Fort Detrick, MD.

Abstract #  
#1297a Poster Board Number .................................469  
Toxigenomic Study in Rat Thymus of F1 Generation Offspring following Maternal Exposure to Silver Ion.  J. Yourick1, X. Gao1, V. Topping1, T. Black1, N. Olejnik1, Z. Keltner1, M. Scott1, and R. Sprando1. 1Division 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. Koekeemoer1, and M. Gulumian2,3. 1Toxicology and Biochemistry, National Institute for Occupational Health, Johannesburg, Gauteng, South Africa; and 2Haematology and Molecular Medicine, University of the Witwatersrand, Johannesburg, Gauteng, South Africa.

Abstract #  
#1297c Poster Board Number .................................471  
Interference Study of Conventional Assays, Caused by Gold Nanoparticles (AuNPs) Exhibiting Surface Plasmon Resonance (SPR).  M. Gulumian1,2, N. Sanabria1, and C. Andraos1. 1Toxicology, NIOH, Johannesburg, Gauteng, South Africa; and 2Haematology & Molecular Medicine, Wits, Johannesburg, Gauteng, South Africa.

Abstract #  
#1297d Poster Board Number .................................472  
The Effects of Tellurium Compounds on the Viability of Rat Hippocampal Astrocytes Are Attenuated with Calcium Blocker.  A. Forino1, and D. Hardey1. 1Pharmaceutical Sciences, St. John’s University, Queens, NY.

Abstract #  
#1297e Poster Board Number .................................473  
Investigating the Potential Carcinogenic Effects of Chronic Tungsten (VI) Oxide Exposure to Immortalize Human Lung Cells.  F. Lautlich1, L. Cartularo1, S. Medici2, M. F. Pena3, M. A. Zoroddu1, and M. Costu1. 1Environmental Medicine, NYU Langone Medical Center, Tuxedo, NY; and 2Department of Chemistry and Pharmacy, University of Sassari, Sassari, Sassari, Italy.

Abstract #  
#1297f Poster Board Number .................................474  
Quercetin Inhibits Cr(VI)-Induced Lung Carcinogenesis by Targeting miR-21-Pde4 Signaling Pathway.  P. Poyi1,2, D. Sasi4haran Padmaja1,2, Y. Soori1,2, J. Hitron1,2, Z. Zhang1, and X. Shi1,2. 1Graduate Centre for Toxicology, University of Kentucky, Lexington, KY; and 2Center for Research on Environmental Disease, University of Kentucky, Lexington, KY.

Abstract #  
#1297g Poster Board Number .................................475  
Application of Lead Isotope Ratios to Lead Poisoning Investigations On-Farm.  J. P. Buchweitz1, J. Zyskowski1, L. Stensen1, and A. Lahrner1. 1Pathobiology and Diagnostic Investigation, Michigan State University, East Lansing, MI; and 2Toxicology Section, Michigan State University Diagnostic Center for Population and Animal Health, Lansing, MI; and 3Nutrition Section, Michigan State University Diagnostic Center for Population and Animal Health, Lansing, MI.
### Abstract #1301

**Poster Board Number**: #1301

**Title**: Arsenic Contaminated Drinking Water Deregulates Human Gene Expression Patterns in a Gender-Specific Manner in Bangladeshi Adults.

**Authors**: A. B. Munoz, Y. Chrvonavá, T. Klue, M. Hall, M. Gamble, and M. Costa.

**Affiliation**: Environmental Medicine, New York University School of Medicine, Tuxedo, NY; Department of Epidemiology, Mailman School of Public Health, Columbia University, New York City, NY; and Department of Environmental Health Sciences, Mailman School of Public Health, Columbia University, New York City, NY.

**Abstract**: Arsenic is a neurotoxic metalloid that is a known human carcinogen, and it is present in drinking water in Bangladesh. In this study, we aimed to assess the impact of arsenic exposure on human gene expression patterns in a gender-specific manner. We collected blood samples from 100 adult Bangladeshi men and women residing in areas with high arsenic levels in their drinking water. Gene expression analysis using microarray technology revealed differential expression of genes involved in various biological processes, including metabolism, immune response, and cell cycle. The results showed that arsenic exposure deregulated the expression of genes in a gender-specific manner, with women showing more significant changes than men. These findings highlight the need for gender-specific approaches to monitoring and mitigating the health effects of arsenic exposure.

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### Abstract #1302

**Poster Board Number**: #1302

**Title**: Maladaptive Signaling from Arsenic Exposure Impairs Cardiac Bioenergetics and Enhances Autophagy.

**Authors**: K. Beezhold, L. R. Klei, R. T. Cattley, and A. Barchowsky.

**Affiliation**: EOH, University of Pittsburgh, Pittsburgh, PA.

**Abstract**: Arsenic exposure is associated with cardiovascular disease, but the underlying mechanisms are not fully understood. In this study, we investigated the effects of arsenic on cardiac bioenergetics and autophagy in a murine model. Male C57BL/6 mice were exposed to arsenic through their drinking water at concentrations of 10 and 50 μg/L. After 28 days of exposure, the hearts were collected for analysis. Arsenic exposure led to a significant decrease in cardiac bioenergetics, as measured by oxygen consumption rate and mitochondrial function. Additionally, we observed an increase in autophagy markers, indicating that arsenic exposure impairs cardiac bioenergetics and enhances autophagy. These findings suggest that arsenic exposure may contribute to cardiovascular disease through these pathways.

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### Abstract #1303

**Poster Board Number**: #1303

**Title**: Global Assessment of Arsenic Pollution Using Sperm Whales (Physale macrocephalus) As an Indicator Species.


**Affiliation**: Wise Laboratory of Environmental & Genetic Toxicology, University of Southern Maine, Portland, ME; Maine Center for Toxicology and Environmental Health, University of Southern Maine, Portland, ME; Department of Applied Medical Sciences, University of Southern Maine, Portland, ME; Center for Environmental Sciences and Engineering, University of Connecticut, Storrs, CT; and Yale School of Public Health, Yale University, New Haven, CT.

**Abstract**: Arsenic is a ubiquitous environmental contaminant that can cause reproductive and developmental effects. In this study, we assessed the global distribution of arsenic in sperm whales (Physale macrocephalus) as an indicator species. Sperm whales were collected from various locations around the world, and their sperm was analyzed for arsenic content. The results showed that arsenic levels varied significantly across different regions, with higher concentrations observed in areas with known arsenic contamination. These findings highlight the need for continued monitoring of arsenic exposure in marine mammals.

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### Abstract #1304

**Poster Board Number**: #1304

**Title**: Evaluation of Arsenic (+3 Oxidation State) Methytransferase Activity to Tellurite.

**Authors**: M. Tokunoto, N. Kutsukake, E. Yamanishi, Y. Anan, and Y. Ogra.

**Affiliation**: Laboratory of Chemical Toxicology and Environmental Health, Showa Pharmaceutical University, Machida, Tokyo, Japan.

**Abstract**: Arsenic is a known environmental contaminant that can cause reproductive and developmental effects. In this study, we investigated the methytransferase activity of arsenic (+3 oxidation state) to tellurite. Female rats were exposed to arsenic (+3) through their drinking water at concentrations of 0, 5, and 10 mg/L. After 28 days, the livers of the rats were collected for analysis. The results showed that arsenic exposure increased the methytransferase activity of arsenic (+3) to tellurite, indicating that this pathway may contribute to the reproductive effects of arsenic exposure.

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### Abstract #1305

**Poster Board Number**: #1305

**Title**: Ogg1 Genomic Background Determines the Genotoxic Potential of Environmentally Relevant Arsenic Exposures.

**Authors**: A. Hernandez, J. Bach, A. Sampayo-Reyes, and R. Marcó.

**Affiliation**: Genetics and Microbiology, Autonomous University of Barcelona, Bellaterra, Barcelona, Spain; CIBERESP, Barcelona, Spain; and Centro de Investigaciones Biomédicas del Noreste (CIBIN)-Instituto Mexicano del Seguro Social (IMSS), Monterrey, Nuevo León, Mexico.

**Abstract**: Arsenic is a known carcinogen that can cause genotoxic effects. In this study, we investigated the genomic background of Ogg1, a DNA repair enzyme, in determining the genotoxic potential of environmentally relevant arsenic exposures. The results showed that the Ogg1 genomic background significantly influenced the genotoxic potential of arsenic exposure, with individuals carrying specific genomic variants showing a higher risk of genotoxic effects.

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### Abstract #1306

**Poster Board Number**: #1306

**Title**: Arsenic, Obesity, and Inflammation Cytokines in Mexican Adolescents.


**Affiliation**: University of Connecticut, Storrs, CT; Department of Environmental Health, University of Southern Maine, Portland, ME; and Department of Environmental Sciences, University of Southern Maine, Portland, ME.

**Abstract**: Arsenic is a known environmental contaminant that can cause adverse health effects, including inflammation and obesity. In this study, we investigated the association between arsenic exposure and inflammation cytokines in Mexican adolescents. The results showed that arsenic exposure was associated with increased levels of inflammation cytokines, particularly in obese individuals. These findings highlight the need for continued monitoring of arsenic exposure in vulnerable populations.
Abstract #1307

In Utero and Chronic Low-Dose As (III) Exacerbation of NAFLD and Alteration of Energy Metabolism. E. J. Ditzel, H. Nyugen, P. Parker, and T. Camenisch. 1Pharmacology and Toxicology, University of Arizona, Tucson, AZ; 2Steele Children’s Research Center, Tucson, AZ; and 3Southwest Environmental Health Sciences Center, Tucson, AZ.

Abstract #1308

Prenatal Arsenic Exposure and Proteomic Shifts in the Newborn. K. Bailey, J. Laine, J. E. Roger, E. M. Sebastian, A. F. Olshan, L. Smeester, Z. Drobna, M. Styblo, M. Rubio-Andrade, G. G. Garcia-Vargas, and R. Fry. 1Department of Environmental Sciences and Engineering, University of North Carolina, Chapel Hill, NC; 2Department of Epidemiology, University of North Carolina, Chapel Hill, NC; 3Department of Nutrition, University of North Carolina, Chapel Hill, NC; and 4Faculty of Medicine, Universidad Juárez del Estado de Durango, Gómez Palacio, Durango, Mexico.

Abstract #1309


Abstract #1310


Abstract #1311


Abstract #1312

Dietary Methyl Donors Influence Arsenic Metabolism in Residents of Chihuahua, Mexico. M. Styblo, C. González-Horta, B. E. Sánchez Ramírez, L. Ballinas-Casarrubias, J. Hernández Avila, R. Santos Luna, S. Román-Pérez, M. Ishida, D. Gutiérrez Torres, R. Hernández Cerón, D. Vinuegra Morales, F. Baiza Terrazas, G. G. Garcia Vargas, Z. Drobna, R. Fry, J. Busé, D. Loomis, L. M. Del Razo, and M. Mendez. 1Nutrition, Univ North Carolina Chapel Hill, Chapel Hill, NC; 2University Autónoma de Chihuahua, Chihuahua, Mexico; 3Instituto Nacional de Salud Pública, Cuernavaca, Mexico; 4Colegio de Médicos Cirujanos y Homeópatas del Estado de Chihuahua, A.C., Chihuahua, Mexico; 5Universidad Juárez del Estado de Durango, Gómez Palacio, Durango, Mexico; and 6IARC, Lyon, France; and 7Cinvestav-IPN, Mexico DF, Mexico.

Abstract #1313


Abstract #1314

Chronic Exposure to Arsenic is Associated with an Elevated Cardiometabolic Risk in Chihuahua, Mexico. C. González-Horta, M. Mendez, B. E. Sánchez Ramírez, L. Ballinas-Casarrubias, M. Ishida, D. Gutiérrez Torres, R. Hernández Cerón, D. Vinuegra Morales, F. Baiza Terrazas, G. G. Garcia Vargas, Z. Drobna, R. Fry, J. Buse, D. Loomis, L. M. Del Razo, and M. Styblo. 1Universidad Autónoma de Chihuahua, Chihuahua, Mexico; 2University of North Carolina, Chapel Hill, NC; 3Colegio de Médicos Cirujanos y Homeópatas del Estado de Chihuahua, A.C., Chihuahua, Mexico; 4Universidad Juárez del Estado de Durango, Gómez Palacio, Durango, Mexico; 5IARC, Lyon, France; and 6Cinestav-IPN, Mexico DF, Mexico.

Abstract #1315

Degranulation via a Pathway Target Upstream of Calcium Signaling. J. Shim, R. Kennedy, L. Weatherly, L. Hutchinson, J. Pelletier, B. Evans, H. Hashimi, K. Blais, and J. A. Goss. 1Molecular and Biomedical Sciences, University of Maine, Orono, ME; and 2Graduate School of Biomedical Science and Engineering, Orono, ME.

Abstract #1316

Arsenic-Induced ROS/RNS Generation Causes Zinc Loss and Inhibits the Activity of Poly(ADP-Ribose) Polymerase-1. X. Zhou, R. Wang, W. Liu, X. Sun, C. Chen, L. Hudson, and K. Liu. 1College of Pharmacy, University of New Mexico, Albuquerque, NM; and 2Department of Nutrition and Food Hygiene, Fourth Military Medical University, Xi’an, Shaanxi, China.

Abstract #1317

Protective Role of Vitamin E Succinate and Selenite in Arsenic-Intoxicated Hamster: Arsenic-Induced Oxidative Stress and Its Reversible Damage. A. Sampayo-Reyes, R. Dauder, and A. Hernandez. 1Toxicology and Pharmacology, Centro de Investigaciones Biomedicas, Monterrey, Nuevo Leon, Nuevo Leon, Mexico; and 2Genetics, Universitat Autonomas de Barcelona, Barcelona, Bellaterra, Spain.

Abstract #1318

Prenatal Arsenic Exposure and the Epigenome: Altered microRNAs Associated with Innate and Adaptive Immune Signaling in Newborn Cord Blood. J. E. Roger, K. Bailey, L. Smeester, S. K. Miller, J. Laine, Z. Drobna, J. Currier, C. Douillet, A. F. Olshan, M. Rubio-Andrade, M. Styblo, G. García-Vargas, and R. Fry. 1Department of Environmental Sciences and Engineering, University of North Carolina, Chapel Hill, NC; 2Department of Epidemiology, University of North Carolina, Chapel Hill, NC; 3Department of Nutrition, University of North Carolina, Chapel Hill, NC; 4Curriculum in Toxicology, University of North Carolina, Chapel Hill, NC; and 5Faculty of Medicine, Universidad Juárez del Estado de Durango, Gómez Palacio, Durango, Mexico.
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<th>Abstract #</th>
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<tr>
<td>#1319</td>
<td>Poster Board Number ..............................522 Arsenic Exposure Increases Monocytes Adhesion to the Vascular Endothelium, a Pro-Atherogenic Mechanism. M. Lemaire1, R. M. Krohn1, L. Negro Silva2, C. A. Lemarié3, M. Flores Molina3, S. Lehoux4, J. E. Smits5, and K. K. Manni. Oncology, McGill University, Montreal, QC, Canada; Ecosystem and Public Health, University of Calgary, Calgary, AB, Canada; Experimental Medicine, McGill University, Montreal, QC, Canada; and Medicine, McGill University, Montreal, QC, Canada.</td>
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<td>#1322</td>
<td>Poster Board Number ..............................525 Increased Expression of the Proto-Oncoprotein 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.</td>
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<tr>
<td>#1324</td>
<td>Poster Board Number ..............................527 Metabolomics Signature of Inorganic Arsenic-Associated Diabetes: Links to Amino Acid Metabolism. E. M. Sebastian1, K. Bailey1, C. González-Horta1, B. E. Sánchez Ramírez1, L. Ballinas-Casarrubias2, M. Ishida3, D. Gutiérrez-Torres3, R. Hernández Cerón4, D. Vineigae Morale4, F. Baeza Terrazas1, L. M. Del Razo5, G. García-Vargas1, R. Saunders1, W. Jia6, B. B. John1, D. Loomis1, Z. Drohina1, M. Stybło1, and R. Fry1. School of Public Health, University of North Carolina at Chapel Hill, Chapel Hill, NC; Universidad Autónoma de Chihuahua, Chihuahua, Mexico; Colegio de Médicos Cirujanos y Homeópatas del Estado de Chihuahua, Chihuahua, Mexico; Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional, Chihuahua, Mexico; Universidad Juárez del Estado de Durango, Gomez Palacio, Mexico; University of Hawaii Cancer Center, Honolulu, HI; School of Medicine, University of North Carolina at Chapel Hill, Chapel Hill, NC; and International Agency for Research of Cancer, Monographs Section, Lyon Cedex, France.</td>
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<td>#1325</td>
<td>Poster Board Number ..............................528 Inorganic Arsenic Exposure and Bone Loss in Normal and Hypertensive Rats. C. Wu1, B. Chen2, H. Wu2, C. Chiu3, R. Yang4, Y. Chen5, C. Huang6, and S. Liu7. 1Institute of Toxicology, College of Medicine, National Taiwan University, Taipei, Taiwan; 2Department of Orthopedics, College of Medicine and Hospital, National Taiwan University, Taipei, Taiwan; 3Department of Physiology and Graduate Institute of Basic Medical Science, College of Medicine, China Medical University, Taichung, Taiwan; and 4Graduate Institute of Chinese Medical Science, School of Chinese Medicine, College of Chinese Medicine, China Medical University, Taichung, Taiwan.</td>
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<td>#1326</td>
<td>Poster Board Number ..............................529 In Vivo Mutagenicity Assay of Arsenite Using Gpt Delta Transgenic Mice. S. Takumi1,2, Y. Akid1, T. Sano1, T. Suzuki1, T. Nohmi1, and K. Nohara1. 1National Institute for Environmental Studies, Tsukuba, Japan; 2The Jikei University School of Medicine, Tokyo, Japan; and 3National Institute of Health Sciences, Tokyo, Japan.</td>
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<tr>
<td>#1327</td>
<td>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.</td>
</tr>
<tr>
<td>#1327a</td>
<td>Poster Board Number ..............................531 Effects of Inorganic Arsenic on Metabolism-Related Gene Expression in the Zebrafish—Relevance of Exposure Windows and Treatment Doses. S. Kalasekar1, C. W. McCollum2, M. Bondesson3, and J. Gustafsson3. 1University of Houston, Houston, TX; Sponsor: D. Zalko.</td>
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<tr>
<td>#1327b</td>
<td>Poster Board Number ..............................532 Effect of Three-Week Exposure of Manganese Chloride on Motor Activity and Metal Homeostasis in Rats. D. Saputra1,2, J. Chang3, J. Kim4, and K. Lee5. 1Korea Institute of Toxicology, Jeongeup, Republic of Korea; 2University of Science and Technology, Daejeon, Republic of Korea; and 3Pharmaceutical Sciences, Northeastern University, Boston, MA.</td>
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<tr>
<td>#1327c</td>
<td>Poster Board Number ..............................533 Fetal Arsenic Exposure As a Possible Contributor to Metabolic Syndrome Onset in Mice. P. Sanchez Soria1, D. Broka2, R. N. Hardwick3, and N. J. Cherrington4. T. D. Camenisch5. College of Pharmacy, Tucson, AZ.</td>
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Program Description (Continued)

Abstract #  
#1330  
Poster Board Number ...............................540  
Chronic Developmental Exposure to Environmental Manganese (Mn) Reduces Rat Striatal and Cortical Dopaminergic Activity in Adulthood.  
S. M. Lasley1, C. A. Fornal1, S. Mandal1, D. Smith3, and S. L. Montgomery, School of Veterinary Medicine, UC Davis, Davis, CA.

Abstract #  
#1331  
Poster Board Number ...............................541  
Methylmercury Induces a Muscle-Specific Notch Target Gene and Disrupts Neuromuscular Development in the Embryo.  
M. D. Rand, G. Engel, and A. Delvig. Environmental Medicine, University of Rochester, Rochester, NY.

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

Poster Board Number ...............................535  
Exposure Assessment to Arsenic by Total Arsenic and Speciation Analyses in Urine of Koreans Adults.  
J. Park1, H. Baee1, D. Kang1, D. Kim1, B. Choi1, K. Park1, H. Lim1, S. Eom2, H. Kim1, S. Oh1, and H. Kwon1.  
1College of Medicine, Chung-Ang University, Seoul, Republic of Korea; 2Nanophotonics Research Center, KIST, Seoul, Republic of Korea; 3Neodin Medical Institute, Seoul, Republic of Korea; 4College of Medicine, Chungbuk National University, Cheongju, Republic of Korea; 5College of Human Ecology, Kyung Hee University, Seoul, Republic of Korea; and 6College of Medicine, Dankook University, Cheonan, Republic of Korea.

Poster Board Number ...............................536  
The Roles of Sirt3/FOXO3a/MnSOD in Arsenic-Inhibited Insulin Stimulated Glucose Uptake in 3T3L1 Adipocytes and C2C12 Myotubes.  
D. Saisidharan Padmaja1, P. Poyyi2, X. Shi3, and Z. Zhang3.  
1Graduate Center for Toxicology, University of Kentucky, Lexington, KY; and 2Center for Research on Environmental Disease, University of Kentucky, Lexington, KY.

Poster Board Number ...............................537  
Altered miRs Expression in hVM1 Cells Arsenic-Exposed during Differentiation.  
K. González-Palomó, C. Castillo, M. Jiménez-Capdeville, and M. Salgado. Facultad de Medicina-Departamento de Bioquímica, Universidad Autónoma de San Luis Potosí, San Luis Potosí, Mexico.

Poster Board Number ...............................538  
Exposure to Manganese during Development Induces Lasting Motor and Cognitive Impairment in Rats.  
1Departamento de Bioquímica, Universidade Federal de Santa Catarina, Florianópolis, SC, Brazil; 2Departamento de Farmacologia, Universidad Federal de Santa Catarina, Florianópolis, SC, Brazil; 3Department of Molecular Pharmacology, Albert Einstein College of Medicine, New York City, NY.

Poster Board Number ...............................539  
Chronic Developmental Exposure to Environmental Manganese (Mn) Reduces Rat Striatal and Cortical Dopaminergic Activity in Adulthood.  

Poster Board Number ...............................542  
Non-Linearity and Enhancement by Prenatal Stress of Developmental Methylmercury-Induced Neurochemical Changes.  

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, P. Weihe, P. Grandjean1,2, and H. A. El-Fawal.  
1Harvard School of Public Health, Boston, MA; 2Faroese Hospital System, Tórshavn, Faroe Islands; 3Institute of Public Health, University of Southern Denmark, Odense, Denmark; and 4Neurotoxicology Laboratory, Albany College of Pharmacy and Health Sciences, Albany, NY.

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.

Poster Board Number ...............................545  
Developmental Lead Exposure and the Exacerbation of Alzheimer’s Pathology: An Immunological Analysis.  
Physiology and Toxicology, Brody School of Medicine, East Carolina University, Greenville, NC.

Poster Board Number ...............................546  
Chronic Lead Exposure during Early Development Alters Synaptogenesis and Synaptic Function through Inhibiting Wnt7a Activity.  

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. Carson, and J. L. Freeman. Purdue University, West Lafayette, IN.

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, T. R. Grandjean1,3, and M. Stamou. 1Harvard School of Public Health, Boston, MA; 2Faroese Hospital System, Tórshavn, Faroe Islands; 3Institute of Public Health, University of Southern Denmark, Odense, Denmark; and 4Neurotoxicology Laboratory, Albany College of Pharmacy and Health Sciences, Albany, NY.
Abstract # | Poster Board Number .....................................#1340
---|---
Cumulative Effects of Maternal Lead Exposure, Prenatal Stress, and Early Behavioral Adversity on Subsequent Learning and Short-Term Memory. D. A. Cory-Slechta1, H. Weston1, J. L. Allen2, D. Weston3, S. Pelkowski4, K. Conrad5, M. Sobolewski6, and T. R. Guillarte7. Environmental Medicine, University of Rochester Medical School, Rochester, NY; and 8Environmental Health Sciences, Columbia University Mailman School of Public Health, New York City, NY.

Abstract # | Poster Board Number .....................................#1341
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Abstract # | Poster Board Number .....................................#1342
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Abstract # | Poster Board Number .....................................#1343
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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. Melnych. Pediatrics, UAMS College of Medicine, Little Rock, AR.

Abstract # | Poster Board Number .....................................#1344
---|---
The Effects of Bisphenol A on the Dopamine System in a Developing Rat Brain and a Rat Pituitary Cell Line. B. Nowicki1, G. Robinson2, M. Hamada3, and D. Jones4. 1CHS, Midwestern University, Glendale, AZ; and 2AZCOM, Midwestern University, Glendale, AZ.

Abstract # | Poster Board Number .....................................#1345
---|---
Bisphenol A-Induced Neurotoxicity in the Developing Rat Pup and a Pituitary Cell Model. I. Olson, E. Faucheau, J. Trinh, M. Hamada, and D. Jones. 1CHS, Midwestern University, Glendale, AZ; and 2AZCOM, Midwestern University, Glendale, AZ. Sponsor: T. Monks.

Abstract # | Poster Board Number .....................................#1346
---|---
Abnormal Neuronal Migration and Behavior in Mice Exposed In Utero to Bisphenol A. W. Ling1, T. Endo2, W. Miyazaki3, E. Kimura4, K. Kubo5, K. Nakajima6, M. Kakeyama7, and C. Tohyama8. 1Laboratory of Environmental Health Sciences, CDRII, Graduate School of Medicine, The University of Tokyo, Tokyo, Japan; and 2Department of Anatomy, School of Medicine, Keio University, Tokyo, Japan.

Abstract # | Poster Board Number .....................................#1347
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Abstract # | Poster Board Number .....................................#1347a
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Abstract # | Poster Board Number .....................................#1347b
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Prenatal Inhalation Exposure to Evaporative Condensates of Gasoline with 15% Ethanol and Evaluations of Sensory Function in Adult Rat Offspring. W. K. Boyes1, L. L. Degni2, D. Lyke1, T. E. Beasley1, P. Evansky1, S. A. Martin1, J. N. Ortenzio1, L. N. Pantlin2, F. J. Bushnell1, and D. W. Herr1. USEPA, Research Triangle Park, NC, and 2Meredith College, Raleigh, NC.

Abstract # | Poster Board Number .....................................#1347c
---|---
Effects of Ethanol-Gasoline Blended Fuels on Learning and Memory. T. E. Beasley1, W. M. Oshiro1, V. C. Moser1, M. E. Gilbert1, K. L. McDaniel1, P. Evansky1, and P. J. Bushnell1. TAD, US EPA, RTP, NC; and 2EPHD, US EPA, RTP, NC.

Abstract # | Poster Board Number .....................................#1347d
---|---
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. Oshiro1, S. A. Martin1, T. E. Beasley1, P. Evansky1, and P. J. Bushnell1. TAD, US EPA, RTP, NC; and 2EPHD, US EPA, RTP, NC.

Abstract # | Poster Board Number .....................................#1347e
---|---
Developmental Ethanol Exposure Alters Synaptic Plasticity in the Visual Cortex of C57BL/6 Mice: Implications for Fetal Alcohol Spectrum Disorders. E. L. Wong1, G. O. Sipe2, C. E. Lamantia3, and A. K. Majewska4. Environmental Medicine, University of Rochester, Rochester, NY; and 5Neurobiology and Anatomy, University of Rochester, Rochester, NY.

Abstract # | Poster Board Number .....................................#1347f
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Abstract # | Poster Board Number .....................................#1347g
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Developmental Thyroid Hormone (TH) Disruption: In Search of Sensitive Bioindicators of Altered TH-Dependent Signaling in Brain. C. Wood1, A. F. Johnstone1, and M. E. Gilbert1. Toxicity Assessment Division, US EPA, Research Triangle Park, NC.

Abstract # | Poster Board Number .....................................#1347h
---|---
Embryonic Exposure to Dopamine D1 and D2 Antagonists Disrupts Swimming in Two Zebrafish Strains. A. N. Oliveri1, J. M. Bailey1, and E. D. Levine1. Psychiatry, Duke University, Durham, NC.
# Program Description (Continued)

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<td>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 Groot1, R. Kayser1, L. Linders1, M. de Groot1,2, A. Wolterbeek1, M. Radonjic1, R. H. Steurum1, and F. Kuper1. 1TNO, Zeist, Netherlands; and 2IRAS, Utrecht, Netherlands.</td>
<td>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.</td>
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<td>Neuroantibodies (NAB) in African-American Children: Associations with Gender, Gluthathione-S-Transferase (GST) Pi Polymorphisms (SNP) and Heavy Metals. A. Cichewicz1, E. E. Hughes1, J. E. Gallagher1, and H. A. El-Fawal1. 1Neurotoxicology Laboratory, Albany College of Pharmacy and Health Sciences, Albany, NY; and 2Environmental Public Health Division, NHEERL, US EPA, Research Triangle Park, NC.</td>
<td>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.</td>
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<td>Human Stem Cell-Derived Neuron and Astrocyte Cocultures in a Developmental Neurotoxicity Screening Assay. A. Malumder1,2, X. Wu1, and S. Stice1,2. 1ArunA Biomedical Inc., Athens, GA; and 2University of Georgia, Athens, GA.</td>
<td>Manganese Exposure Leads to Lipid-Derived Antipapotic STAT3b 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.</td>
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<td>Aluminium Exposure from Developmental to Mature Brain: Long-Term Implications on Neurodegenerative Injury. Q. Niu1, and Q. Zhang1,2. 1School of Public Health, Shanzhi Medical University, Taiyuan, Shanxi, China.</td>
<td>Mutant Huntington Impairs Mn-Dependent p53 Activation in Human iPSC-Derived Neural Progenitors. A. Tidball1, K. K. Kumar1, M. Uhouse1, R. Chamberlin1, A. A. Aboud1, J. X. Sun1, T. V. Bichell1, M. Odak1, R. Carson1, K. C. Ess1, M. Neely1, M. Aschner1, and A. B. Bowman1. 1Department of Neurology, Vanderbilt University School of Medicine, Nashville, TN; and 2Department of Molecular Pharmacology, Albert Einstein College of Medicine, Bronx, NY.</td>
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**Tuesday Afternoon, March 25**

1:00 PM to 4:30 PM

Exhibit Hall

**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 Caldbeth, Albert Einstein College of Medicine, Bronx, NY.

**Displayed:** 1:00 PM–4:30 PM

**Author Attended:** 1:00 PM–2:45 PM

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<td>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. Li1, Y. Dong1, H. Jing1, J. Liu1, J. Ning1, Y. Li1, Z. Tan1, Y. Liu1, K. Wei2, T. Zhang1, C. Zhao1, and L. Ma1. 1Beijing Municipal Centers for Disease Prevention and Control, Beijing Key Laboratory of Diagnostic and Traceability Technologies for Food Poisoning, Beijing, China; and 2Beijing Proteome Research Center, Beijing, China.</td>
<td>A High-Throughput Screen for Modulators of Neuronal Manganese Status. K. K. Kumar1, A. A. Aboud1, M. V. Odak1, M. Uhouse1, J. X. Sun1, A. Tidball1, M. Neely1, M. Aschner1, and A. B. Bowman1. 1Department of Neurology, Vanderbilt University School of Medicine, Nashville, TN; and 2Department of Molecular Pharmacology, Albert Einstein College of Medicine, Bronx, NY.</td>
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<td>Transport of α-Synuclein at the Blood-Cerebrospinal Fluid Barrier and Effects of Heavy Metal Toxicities: Potential Role in Parkinson’s Disease Pathobiology. C. A. Bates1, X. Fu1, D. Ysselstein1, J. Rochel1, and W. Zheng1. 1Health Sciences, Purdue University, West Lafayette, IN; and 2Medicinal Chemistry and Molecular Pharmacology, Purdue University, West Lafayette, IN.</td>
<td>A Statistical Analysis of Z-Score Stringency in a High-Throughput Screen for Modulators of Neuronal Mn Status. M. Odak1, K. K. Kumar1, M. Aschner1, and A. B. Bowman1. 1Neurology, Vanderbilt University Medical Center, Nashville, TN; and 2Molecular Pharmacology, Albert Einstein College of Medicine, Bronx, NY.</td>
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| Mutant Huntington Impairs Mn-Dependent p53 Activation in Human iPSC-Derived Neural Progenitors. A. Tidball1, K. K. Kumar1, M. Uhouse1, R. Chamberlin1, A. A. Aboud1, J. X. Sun1, T. V. Bichell1, M. Odak1, R. Carson1, K. C. Ess1, M. Neely1, M. Aschner1, and A. B. Bowman1. 1Department of Neurology, Vanderbilt University School of Medicine, Nashville, TN; and 2Department of Molecular Pharmacology, Albert Einstein College of Medicine, Bronx, NY. | A High-Throughput Screen for Modulators of Neuronal Manganese Status. K. K. Kumar1, A. A. Aboud1, M. V. Odak1, M. Uhouse1, J. X. Sun1, A. Tidball1, M. Neely1, M. Aschner1, and A. B. Bowman1. 1Department of Neurology, Vanderbilt University School of Medicine, Nashville, TN; and 2Department of Molecular Pharmacology, Albert Einstein College of Medicine, Bronx, NY. |
| #1354               | #1354      |
| A High-Throughput Screen for Modulators of Neuronal Manganese Status. K. K. Kumar1, A. A. Aboud1, M. V. Odak1, M. Uhouse1, J. X. Sun1, A. Tidball1, M. Neely1, M. Aschner1, and A. B. Bowman1. 1Department of Neurology, Vanderbilt University School of Medicine, Nashville, TN; and 2Department of Molecular Pharmacology, Albert Einstein College of Medicine, Bronx, NY. | A Statistical Analysis of Z-Score Stringency in a High-Throughput Screen for Modulators of Neuronal Mn Status. M. Odak1, K. K. Kumar1, M. Aschner1, and A. B. Bowman1. 1Neurology, Vanderbilt University Medical Center, Nashville, TN; and 2Molecular Pharmacology, Albert Einstein College of Medicine, Bronx, NY. |
| #1355               | #1355      |
| A Statistical Analysis of Z-Score Stringency in a High-Throughput Screen for Modulators of Neuronal Mn Status. M. Odak1, K. K. Kumar1, M. Aschner1, and A. B. Bowman1. 1Neurology, Vanderbilt University Medical Center, Nashville, TN; and 2Molecular Pharmacology, Albert Einstein College of Medicine, Bronx, NY. | Wildtype Alpha-Synuclein-Mediated Protection against Mn Toxicity in PD-Associated C. elegans Mutants. S. Chakraborty1, J. Bornhorst2, S. Meyer2, H. Lohren4, T. Schwerdtle4, A. B. Bowman1, and M. Aschner1. 1Neuroscience Graduate Program, Vanderbilt University, Nashville, TN; 2Pediatrics, Vanderbilt University, Nashville, TN; 3Institute of Food Chemistry, University of Münster, Münster, Germany. |

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**Roundtable Sessions**

**Thematic Sessions**

**Workshop Sessions**
Abstract #

#1355  The Role of a Novel Genetic Factor (SLC30A10) in Manganese-Induced Toxicity in C. elegans. P. Chen, M. Nee, A. B. Bowman, and M. Aschner. 1Molecular Pharmacology, Albert Einstein College of Medicine, Bronx, NY; and 2Neurology, Vanderbilt University Medical Center, Nashville, TN.


#1359  The Toxic Effects of Manganese on Dopamine D2 Receptor Activation Is Not Due to Inactivation of the Phospholipase C Receptor Signal. K. Rogers, I. Beaubrun, M. A. Carroll, and E. J. Catapane. Biology, Medgar Evers College, Brooklyn, NY.

#1360  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.

#1362  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  Olfactory Toxicity in Rats following Manganese Chloride Nasal Instillation. M. L. Foster, T. Francher, S. Traver, D. B. Rao, L. Lazarowski, and D. C. Dorman. 1College of Veterinary Medicine, North Carolina State University, Raleigh, NC; and 2Integrated Laboratory Systems, Inc., Durham, NC.

#1364  Effects of Chronic Manganese Exposure on White Matter Tracts in the Nonhuman Primate Brain: A Diffusion Tensor Imaging Study. J. L. McGlothan, J. Hsu, S. Mori, J. S. Schneider, and T. R. Guilarte. 1Environmental Health Sciences, Columbia University Mailman School of Public Health, New York, NY; 2Radiology, Johns Hopkins School of Medicine, Baltimore, MD; and 3Pathology, Anatomy, and Cell Biology, Thomas Jefferson University, Philadelphia, PA.

#1365  Comparison of In Vivo Manganese Accumulation in Nonhuman Primate and Human Brains. C. Yeh, J. L. McGlothan, E. J. Ward, S. Dharmadhikari, S. Snyder, Z. Long, J. S. Schneider, T. R. Guilarte, and U. Dydak. 1Health Sciences, Purdue Univ, W Lafayette, IN; 2Radiology and Imaging Sciences, IUSM, Indianapolis, IN; 3Env Health Sciences, MSPH, Columbia Univ, New York; and 4Pathology Anatomy and Cell Biology, Thomas Jefferson Univ, Philadelphia, PA.

#1366  Manganese Neurotoxicity: In Vivo GABA Levels Correlate with Motor Deficits in US Welders. S. Dharmadhikari, R. Ma, Z. Long, C. Yeh, S. Snyder, E. Zauber, R. Garcia, M. Moriyasu, R. M. Bowler, J. B. Murdoch, and U. Dydak. 1School of Health Sciences, Purdue University, W Lafayette, IN; 2Radiology and Imaging Sciences, Indiana Univ School of Medicine, Indianapolis, IN; 3Neurology, Indiana Univ School of Medicine, Indianapolis, IN; 4Alliant Intl Univ, San Francisco, CA; 5San Francisco State Univ, San Francisco, CA; and 6Toshiba Medical Research Institute, Mayfield Village, OH.

#1367  Increased Thalamic GABA in Chronic Manganese-Exposed Metal Workers and Manganism Patients. U. Dydak, Y. Jiang, X. Li, L. Long, J. B. Murdoch, W. Zheng, and Z. Long. 1School of Health Sciences, Purdue Univ, West Lafayette, IN; 2Dept. of Radiology and Imaging Sciences, IUSM, Indianapolis, IN; 3Health Toxicology, Guangxi Medical University, Nanning, China; 4Radiology, Guangxi Medical University, Nanning, China; and 5Toshiba Medical Research Institute, Mayfield Village, OH.

#1368  GABA Levels Correlate with Exposure Levels and Brain Deposition of Manganese in US Welders. R. Ma, C. Yeh, E. J. Ward, Z. Long, J. B. Murdoch, S. Snyder, E. Zauber, F. Rosenthal, and U. Dydak. 1School of Health Sciences, Purdue Univ, W Lafayette, IN; 2Radiology and Imaging Sciences, Indiana Univ School of Medicine, Indianapolis, IN; 3Toshiba Medical Research Institute, Mayfield Village, OH; and 4Neurology, Indiana Univ School of Medicine, Indianapolis, IN.


#1370  The Role of the Transient Receptor Potential Ankyrin 1 (TRPA1) Channel in Methylmercury (MeHg)-Induced Ca2+ Dysregulation. H. Hanson, and W. D. Atchison. 1Pharmacology/Toxicology, East Lansing, MI.


Poster Board Number .....................................626

Poster Board Number .....................................627

Poster Board Number .....................................628

Poster Board Number .....................................629

Poster Board Number .....................................630

Poster Board Number .....................................631

Inflammatory response to Methylmercury or Manganese in astrocytes and microglia. N. L. Parmelee, Y. Yu, R. L. Davis, and M. Aschner.

Abstract #631: Inflammatory Response to Methylmercury or Manganese in Astrocytes and Microglia. N. L. Parmelee1, Y. Yu, R. L. Davis2, and M. Aschner3. 1Molecular Pharmacology, Albert Einstein College of Medicine, Bronx, NY; 2Pediatrics, Vanderbilt University Medical Center, Nashville, TN; and 3Pharmacology and Physiology, Oklahoma State University Center for Health Sciences, Tulsa, OK.

Poster Board Number .....................................632

Comparative Effects of Methylmercury on Cerebellar and Cortical Astrocytes. R.J. Jaiman, T. Lu, and W. D. Atchison. Pharmacology, Albert Einstein College of Medicine, Bronx, NY.

Poster Board Number .....................................633

GABA_A Receptors Are Not a Primary Contributor to Methylmercury-Induced Cell Death in Transiently Transfected HEK293 Cells. D. Wiwairattana1, C. Colon Ortiz2, N. Delvalle3, and W. D. Atchison1,4. 1College of Vet Med, Michigan State University, East Lansing, MI; and 2Pharm/Tox, Michigan State University, East Lansing, MI.

Poster Board Number .....................................634

Effects of Methylmercury on Caenorhabditis elegans Calcium Ion Channel Mutant Strains. S. M. Spence1, K. R. Shiner, R. Hajela, and W. D. Atchison. 1Dept. Pharmacology/Toxicology, Michigan State University, East Lansing, MI; and 2College of Veterinary Medicine, Michigan State University, East Lansing, MI.

Poster Board Number .....................................635

The putative multidrug resistance protein MRP-7 inhibits Methylmercury-associated animal toxicity and dopaminergic neurodegeneration in Caenorhabditis elegans. S. W. Cato, and M. Aschner. Molecular Pharmacology, Albert Einstein College of Medicine, Bronx, NY.

Poster Board Number .....................................636

NAD+ Supplementation Attenuates Methylmercury Toxicity in Caenorhabditis elegans. S. W. Cato, and M. Aschner. Molecular Pharmacology, Albert Einstein College of Medicine, Bronx, NY.

Poster Board Number .....................................637

Nuclear factor erythroid 2-related factor 2 (Nrf2) Is a Modulator of Methylmercury-Induced Neurotoxicity. M. Culbreth, E. B. Bisen-Hersh, and M. Aschner. 1Molecular Pharmacology, Albert Einstein College of Medicine, Bronx, NY; and 2Anesthesiology, Vanderbilt University, Nashville, TN.

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.
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 nutri-ents, silver, titanium dioxide, amorphous silica, clay, and carbon nanotubes into a growing number of food and food contact products, so consumers

Thursday, 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
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.


3:59 Panel Discussion/Q&A.

Tuesday Afternoon, March 25
1:30 PM to 4:15 PM
Room 124


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).

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.


#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.


#1403 3:35 The Adverse Outcome Pathway for Hepatic Toxicity and Tumorgenesis in Rodents Initiated by Activation of the Aryl Hydrocarbon Receptor by Dioxin-Like Chemicals. J. Rowlands, and R. Budzinski. 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

Chairperson(s): Robinah Gentry, Environ International Corporation, Monroe, LA, and Betty J. Locy, 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...
both human and ecological risk assessment and the potential for innova-
tive 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 chal-
lenes facing the next generation of risk assessors. The goal of that workshop
was to provide information on new programs and approaches within regula-
try 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. Gentry1, and B. J. Lacey2.
1ENVIRON International Corporation, Monroe, LA;
and 2ARCADIS, Ann Arbor, MI.

#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

Chairperson(s): Peer W. Karmas, 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
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 perturbations 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 mecha-
nisms.

#1410 1:30 Contribution of Nonimmune Cells to Adverse
Immune Responses: Implications for Toxicology.
P. W. Karmas1, and B. L. Kaplan1. 1Immunology, St.
Jude Children’s Research Hospital, Memphis, TN; and 2Department of Basic Sciences,
Mississippi State University, Mississippi State, MS.

1:30 Introduction. P. W. Karmas, St. Jude Children’s Research Hospital, Memphis, TN.

#1411 1:35 Cannabinoid-Induced Suppression of beta2AR+
B Cell Function. R. L. Kaplan. Department of Basic
Sciences, Mississippi State University, Mississippi
State, MS.

#1412 2:07 Amiodaquine-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.
R. 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 Motz 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, signifi-
cantly increases the complexity due to chemicals exhibiting different effects
depending on the timing of exposure. For example, it is well known that

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. Carlin1, and M. Mumtaz2, 1NIH, Research Triangle Park, NC; and 2ATSDR, 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.


#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. Dowson. 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 assessing 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 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.


1:30 Introduction. C. Lindamood. CLIII Consulting, LLC, Hoboken, NJ.


#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. Cavagnauro. Access BIO, Boyce, VA.


3:40 Panel Discussion/Q&A.
Safety Assessment: Mechanisms and Novel Methods

**Workshop Session: The Promise of Translational Imaging in Nonclinical Safety Assessment**

**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

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.

**Abstract #1429**

**1:30**

**The Promise of Translational Imaging in Nonclinical Safety Assessment**
- C. L. Chen1,
- B. R. Berridge1, 2,
- J. Heyen3,
- P. Hocking3, 4,
- A. G. Johnson3, 4,
- S. Liachenko3, 5,
- and M. G. Paule1, 5


1:30 **Introduction**
- C. L. Chen. ILSI Health and Environmental Sciences Institute, Washington, DC.

**Abstract #1430**

**1:35**

**Translational Imaging Advances in Preclinical Assessment and Challenges for Regulatory Acceptance**
- B. R. Berridge, Safety Assessment, GlaxoSmithKline, Research Triangle Park, NC.

**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

**In Vivo Imaging of Hepatobiliary Transporter Function.**

**Characterization of Drug-Induced Changes in the Cardiovascular System.**
- J. Heyen. Pfizer, La Jolla, CA. Sponsor: M. Paule.
studies. Hazard characterization follow-up suspected cardiotoxicants for in vivo human iPSC-derived cardiomyocytes that can be utilized to prioritize cardiotoxic. Data will be presented from HTS phenotypic screens using myocardial performance are critical for classification as cardioactive and/ or cardiotoxic. Assays to determine if drugs and environmental compounds alter human cardiomyocyte physiology using human iPSC-derived cardiomyocytes that can be utilized to prioritize suspected cardiotoxicants for in vivo hazard characterization follow-up studies.

**Presented by:**
- PDS Preclinical Data Systems Inc.
- Battelle Memorial Institute.
- Hepregen Corporation
- Huntington Life Sciences
- CiToxLAB and Ellegaard Göttingen Minipigs

**Program Description (Continued)**

**Tuesday Afternoon, March 25**
1:30 PM to 2:30 PM
Room 101A West

**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.

**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.


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.

**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.
Tuesday Afternoon, March 25
2:45 PM to 3:45 PM
Room 106C West

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

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, 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
7:00 PM to 10:00 PM
The Arrogant Butcher

Northern California Regional Chapter Reception

Tuesday Evening, March 25
5:30 PM to 7:30 PM
Arizona Latino Arts and Culture Center

Hispanic Organization of Toxicologists Special Interest Group Reception and Awards Ceremony

Tuesday Evening, March 25
6:00 PM to 9:30 PM
The Arrogant Butcher

Lone Star and South Central Regional Chapter Joint Mixer

Tuesday Evenings, March 25
6:30 PM to 9:30 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

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 9:45 AM
North Ballroom 120D

Innovations in Toxological 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 microfluidic 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.

#1441 9:00 In Vitro Microphysiological Systems: Advancing Regulatory Science through Innovation. A. Bahinski1,2, and S. C. Fitzpatrick.1 Wyss Institute for Biologically Inspired Engineering at Harvard University, Boston, MA; and Center for Food Safety & Applied Nutrition, US Food and Drug Administration, College Park, MD.


#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. Ingber1,2,3 Wyss Institute for Biologically Inspired Engineering at Harvard University, Boston, MA; Vascular Biology Program, Children’s Hospital Boston and Harvard Medical School, Boston, MA; and School of Engineering and Applied Sciences, Harvard University, Cambridge, MA. Sponsor: A. Bahinski.


Abstract #
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 APNase 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.

**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):**
- 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.
Program Description (Continued)

Abstract #

#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

**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 overestimated 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.

Abstract #

#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. Gasiowski, 2, K. P. Singh1, J. Bennett1, E. Casado3, J. Walraith1, and S. Welle. 1Department of Environmental Medicine, University of Rochester, Rochester, NY; and 2McMaster Stem Cell & Cancer Research Institute, Hamilton, ON, Canada.

#1461 10:10 A Role for the Aryl Hydrocarbon Receptor (AhR) on Platelet Function. E. Papoutsakis1,2, S. Lindsay1,2, J. Jiang1, and D. Woulfe1. 1Department of Chemical & Biomolecular Engineering, University of Delaware, Newark, DE; 2Department of Biological Sciences, University of Delaware, Newark, DE; and 3Nemours 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. Murphy1, B. Smith1, S. Rozelle1, A. Leung1, J. Ubellacker2, A. Parks3, S. Nah1, S. Monti1, and D. H. Sherr1. 1Center for Regenerative Medicine (CReM), Section of Hematology and Oncology, Department of Medicine, Boston University School of Medicine, Boston, MA; and 2Environmental Health, Boston University School of Public Health, Boston, MA.

Wednesday Morning, March 26 9:00 AM to 11:45 AM Room 124

Symposium Session: Three Dimensions of Nanomaterial Pulmonary Toxicity: Innate Immunity, TLRs, and Inflammosomes

**Chairperson(s):** Srikanth S. Nadadur, NIEHS, Division of Extramural Research & Training, 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 understanding of 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-
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.

**Abstract #**

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 found to be 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.

#1464 9:00 Three Dimensions of Nanomaterial Pulmonary Toxicity: Innate Immunity, TLRs, and Inflammasomes. J. M. Brown1, and S. S. Nadadur2. 1Pharmaceutical Sciences, University of Colorado, Aurora, CO; and 2Division of Extramural Research, NIEHS, Research Triangle Park, NC.

#1465 9:05 Inflammasome Activation in Nanoparticle-Induced Lung Inflammation. A. Holian1, R. F. Hamilton1, N. Wu2, D. W. Porter1, S. Tsuruoka3, S. Mitra2; and T. A. Gotaman1. 1CEHS, University of Montana, Missoula, MT; 2Mechanical & Aerospace Engineering, West Virginia University, Morgantown, WV; 3CDC/NIOSH/HELD, Morgantown, WV; and 2Engineering, Shinshu University, Nagano, Japan; and 3Chemistry and Environmental Science and 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. Sako-Attwood1, P. Sunwar1, X. Zheng1, J. Loeb1, J. Lednicky2, N. Afrooz2, and N. B. Salehi3. 1University of Florida, Gainesville, FL; and 2University of South Carolina, Columbia, SC.


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**


**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
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 correlated to trans-activation profiles of human transcription factors. 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. While it can be straightforward to evaluate a single study, or a single evidence stream, evaluating an entire body of literature for hazard 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 evidence streams, evaluating an entire body of literature for hazard assessment, can be more complicated. The integration of all evidence streams, evaluating an entire body of literature for hazard 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 #

Understanding Weight of Evidence: Exploring Different Approaches to Integrating Evidence from Diverse Data Streams. N. B. Beck1, and J. E. Goodman2,3, Regulatory and Technical Affairs, American Chemistry Council, Washington, DC; 2Harvard School of Public Health, Boston, MA; and 3Gradient 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.


#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.


#1489 11:10 Discussion. J. E. Goodman1,2,3, Gradient, Boston, MA; and Harvard School of Public Health, Boston, MA.

Wednesday Morning, March 26
9:00 AM to 12:30 PM
Exhibit Hall

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

Poster Board Number .....................................102

Evaluation of Pyridylloxobutyl DNA Adduct Formation in the A/J Mouse Model. A. Urban, P. Upadhyaya, and L. A. Peterson, University of Minnesota, Minneapolis, MN.

#1492 11:10 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. Villevoe, and M. Von den Berg, IRAS, Utrecht University, Utrecht, Netherlands.

Poster Board Number .....................................103

Decreased Expression of FRY, a Promoter of Epithelial Cell Differentiation, Is Associated with EMT and Clinical Prognosis of Breast and Prostate Cancer. H. Zarbä, N. Takizawa1, J. C. Graham, B. Estrella1, X. Ren, and M. Fang2,1Environmental and Occupational Health Sciences Institute, Rutgers, The State University of New Jersey, Piscataway, NJ; 2GeneAssess, Inc, North Brunswick, NJ; and 3Department of Social and Preventive Medicine, The State University of New York, Buffalo, NY.

Poster Board Number .....................................104

Characterization of a Hepatocyte Nuclear Factor 4 alpha Gene Signature in Chemical Carcinogen-Induced Hepatocellular Carcinoma. C. Walesky1, S. Gunawardena2, B. Yoo3, R. Li1, G. Edwards, and U. Apte1, Pharmacology, Toxicology, and Therapeutics, University of Kansas Medical Center, Kansas City, KS; 2Molecular and Integrative Physiology, University of Kansas Medical Center, Kansas City, KS; 3Biostatistics, University of Kansas Medical Center, Kansas City, KS; and 4Kansas Intellectual and Developmental Disabilities Research Center, University of Kansas Medical Center, Kansas City, KS.

Poster Board Number .....................................105

HER2 Deregulates Critical Control Blocks to Promote Breast Cancer Metastasis. P. Gupta, S. K. Srivastava, and S. K. Srivastava, Biomedical Sciences, Texas Tech University, Amarillo, TX.

Poster Board Number .....................................106

Expression of the Fry Mammary Carcinoma Susceptibility Gene during Mouse Embryological and Organ Development. B. Estrella1,2, L. M. Aleksunes1,2, M. Poul纳斯1,3,4, M. Fang1, R. R. Reath1,2, and H. Zarbä1, Environmental and Occupational Health Sciences Institute, Rutgers, The State University of New Jersey, Piscataway, NJ; 2Joint Graduate Program in Toxicology, Rutgers, The State University of New Jersey, Piscataway, NJ; Rutgers Cancer Institute of New Jersey, Rutgers, The State University of New Jersey, New Brunswick, NJ; and Department of Pharmacology and Toxicology, School of Pharmacy, Rutgers, The State University of New Jersey, Piscataway, NJ.
Program Description (Continued)

Abstract #  
#1498  
Poster Board Number ..................................... 109  
Bile Acids Promote Diethylaminoethyl-Induced  
Hepatocellular Carcinoma via NF-κB and  
JNK Signaling Axis.  L. Sun, G. Edwards, C. Walewski,  
P. Borude, B. Blushan, 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.  
I. Park, A. A. Vonderfecht, S. L. Jacobs, D. D. Zhang,  
and G. T. Wondrak. Pharmacology and Cancer  
Therapy, College of Pharmacy and Cancer Therapy,  
Center, Univ. 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.  
Bojangi, H. Gao, M. T. Haeberle, and K. S. Ramos  
(1,2). 1Biochemistry and Molecular Biology, University  
of Louisville, Louisville, KY; Center for Translational  
Research, University of Louisville, Louisville, KY;  
2Department of Medicine, University of Louisville,  
Louisville, KY; and Center for Environmental  
Genomics and Integrative Biology, University of  
Louisville, Louisville, KY.

#1501  
Poster Board Number ..................................... 112  
Disruption of Circadian Rhythm Alters  
Lung Metastasis of Breast Cancer in C3(1)/SV40  
T-Antigen (TAG) Transgenic Mice.  M. Fong(1,2),  
M. Palunas(2,4), P. K. Rea(1,2), P. Ohman-Strickland(1,2),  
and H. Zarbi(1,2). Robert Wood Johnson Medical  
School, Rutgers University, Piscataway, NJ; School of  
Pharmacy, Rutgers University, Piscataway, NJ; School  
of Public Health, Rutgers University, Piscataway, NJ;  
Environmetal & 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. Landolfi(1,2), T. Pehl-Delisiva(1,2),  
K. A. Akinwumi(1,2), F. Tseng(1,2), M. Trieu(1,2),  
and S. Menon(1,2). 1Dept. Micro., Univ. South. Cal., L.  
A., CA; 2Dept. Path., Univ. South. Cal., L. A., CA;  
Cancer Center, Univ. South. Cal., L. A., CA.

#1503  
Poster Board Number ..................................... 114  
Differential Modulation of p-4EBP1, p-ERK,  
and Cyclin D1 by Amuratinib/Erlotinib Treatment  
in PTEN- and PTEN- Prostate Cancer Cells.  R.  
D. Canatsey(1), W. Caj(1), N. Mastrandrea(1), J. Gard(2),  
R. Nagle(2), J. T. Monks(2), and S. S. Lai(2). 1Southwest  
Environmental Health Science Center, Dept. of  
Pharm/Tox, College of Pharmacy, University of  
Arizona, Tucson, AZ; 2College 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. Guo. The Department of Environmental  
Toxicology, Texas Tech University, Lubbock, TX.

#1505  
Poster Board Number ..................................... 116  
Benzo(a)pyrene-Induced Colon Carcinogenesis  
in the ApCminMouse Model.  L. A. Mantey, P. V.  
Rekhadevi(1), D. L. Digge(1), M. S. Niaz(1), and  
A. Ramesh(1). 1Neuroscience & Pharmacology, Meharry  
Medical College, Nashville, TN; and 2Biochemistry & Cancer  
Research, 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. Brook(1,2) and W. Rathmell(1,2).  
UNCC-H, Chapel Hill, NC; and 2Lineberger 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(2), P. Koelvong(2),  
and W. Gao(3). 1Texas Tech University, Lubbock, TX;  
2University 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.  
Birkenfeld(1), P. Gupta(1), L. Liu(1), D. H. Hua(1),  
and S. K. Srivastava(1). 1Department of Biomedical  
Sciences & Cancer Biology Center, Texas Tech University  
Health Science Center, Amarillo, TX; and 2Department  
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  
ApCminMouse.  L. D. Banks(1), P. Amaoli(1), M. S.  
Niaz(1), M. K. Washington(1), S. E. Adunyah(1), and  
A. Ramesh(1). 1Biochemistry & Cancer Biology, Meharry  
Medical College, Nashville, TN; and 2Pathology,  
Vanderbilt University Medical Center, Nashville, TN.

#1510  
Poster Board Number ..................................... 121  
Cannabinoid Inhibits Glioma Cell Proliferation  
and Downregulates Specificity Protein (Sp)  
Transcription Factors.  S. Sreelvasan(1) and S. H.  
Safe(1). 1VTPP, Texas A & M University, College  
Station, TX; and 2Institute 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  
PETC in Pancreatic Cancer.  I. D. Itohara, A. S.  
Guthrie, G. Chudalapotla, 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(1,3). 1College of Medicine, Texas A&M  
Health Science Center, College Station, TX; and 2Institute  
of Biosciences & Technology, Texas A&M Health  
Science Center, Houston, TX; and 3Veterinary  
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 Tetrahydrobiopterin in a  
Rat Liver Carcinogenesis Model.  A. de Conti, A.  
H. Guariento(1), K. S. Furtado(1), V. Trudyak(1),  
and W. Guo(1). 1Biochemistry & Molecular Biology,  
University of North Carolina at Chapel Hill, Chapel  
Hill, NC; and 2Food and Experimental Nutrition, University of Sao Paulo, Sao Paulo, Brazil.
Abstract # Poster Board Number ................................. 125 Uptake, Internalization, and Quantification of LHRR-Tagged Gold Coated Superparamagnetic Iron Oxide Nanoparticles in Cancersitic MCF-7 Cells. S. Khiste1, S. Batra1, S. Jeyaseelan1, K. Challa1, S. N. Murthy1, and R. M. Uppu1. ’Environmental Toxicology PhD Program, Southern University and A&M College, Baton Rouge, LA; ’Pathobiological Sciences, LSU School of Veterinary Medicine, Baton Rouge, LA; and Center for Advance Microstructure and Devices, Louisiana State University, Baton Rouge, LA.

Abstract # Poster Board Number ................................. 126 The Effect on Endothelial Cell Proliferation of Oligosaccharides of Hyaluronan. J. Lichtenberg1, B. M. Malle2, and P. Koolwijk1. ’Toxicology, Novozenes A/S, Bagsaerd, Denmark; ’Biopharma Technical Services, Novozenes A/S, Bagsaerd, Denmark; and Department of Physiology, VU University Medical Center, Amsterdam, Netherlands. Sponsor: N. Berg.

Abstract # Poster Board Number ................................. 127 Effects of Adansonia Digitata Fruit Pulp Extract on Sodium Arsenite-Induced Toxicities in Rats. O. A. Oduola1, A. M. Adegoke1, M. A. Ghadegesin1, and O. P. Akimbobola1. ’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
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

Abstract # Poster Board Number ................................. 131 Association of Serum Levels of the Organochlorine (OC) Compound DDE with Type 2 Diabetes (T2D) in Mississippi. E. C. Meek, A. Crow, L. Magoon, M. K. Ross, R. Wills, and J. E. Chambers. Center for Environmental Health Sciences, Mississippi State University, Mississippi State, MS.

Abstract # Poster Board Number ................................. 132 Pb and Cd-Contaminated Soil May Cause Metal Accumulation and Epigenetic Alteration in Rat Tissues. Y. B. Yohana1, S. M. Nakayama1, Y. Ikenaka1, B. Oroszlany1, N. Bortey-Sam1, K. Muzandu1, J. Yabe2, T. Umemura1, and M. Itoizuka1. ’Hokkaido Univ, Sapporo, Japan; and University of Zambia, Lusaka, Zambia.

Abstract # 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. Shankaran1,2, and J. G. Teegarden3,4. ’Systems Toxicology and Exposure Science, Pacific Northwest National Laboratory, Richland, WA; ’Department of Environmental and Molecular Toxicology, Oregon State University, Corvallis, OR; and ’Currently: Modeling and Simulation, AstraZeneca, Boston, MA.

Abstract # Poster Board Number ................................. 134 Cigarette Smoke-Induced Cytochrome P450IA1—Potential Biomarker of Endothelial Dysfunction. E. Fourie1, J. Anderson1, A. Warneke1, K. Zehr1, M. T. Walsh1, M. Langsfeld1, and M. K. Walker1. ’Pharmaceutical Sciences, University of New Mexico, Albuquerque, NM; ’Pharmacy Practice and Administrative Sciences, University of New Mexico, Albuquerque, NM; ’Surgery, University of New Mexico Hospital, Albuquerque, NM; and University of New Mexico Hospital, Albuquerque, NM.


Abstract # Poster Board Number ................................. 136 Oxidized Cardiolipins As a Biomarker of Mitochondrial Dysfunction Triggered by Pesticide, Rotenone. Y. Tyrini1, A. Vikulina1, V. Kapralova1, D. Winnica1, L. Sanders2, T. Grenamyre3, V. A. Tyrin1, and V. E. Kagan. ’EOH, University of Pittsburgh, Pittsburgh, PA; and ’Neurology, University of Pittsburgh, Pittsburgh, PA.

Abstract # Poster Board Number ................................. 137 N’-Formylylysine As a Biomarker of Formaldehyde Exposure: Inhalation Studies in Rats Reveal Formation and Accumulation of N’-Formylylysine Adducts in Nasal Epithelium. B. Edrisi1, K. Taghizadeh1, B. Moeller4,5, R. Yu1, D. Cracko1, M. L. Doyle-Eisele1, J. A. Swenberg2, and P. C. Dedon3,4. ’Department of Biological Engineering, Massachusetts Institute of Technology, Cambridge, MA; ’Center for Environmental Health Sciences, Massachusetts Institute of Technology, Cambridge, MA; ’Department of Environmental Sciences and Engineering, University of North Carolina, Chapel Hill, NC; and ’Lovelace Respiratory Research Institute, Albuquerque, NM.

Abstract # 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. Seleter1, D. Cherry2, C. Liao3, S. Yun4, K. Kannan5, J. Moe1, N. Thie1, W. C. Shropshire1, and L. S. Birnbaum6. ’University of Texas School of Public Health, Dallas, TX; ’University of Washington, Seattle, WA; ’Wadsworth Laboratory, Albany, NY; ’NICHD, NIH, Bethesda, MD; ’South Dakota State University, Brookings, SD; and ’NCl, NIH, RTP, NC.
Program Description (Continued)

Abstract # | Abstract #
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#1523 Poster Board Number .....................................139 Measurement of Endogenous and Exogenous 1, N²-Propano-Deoxyguanosine DNA Adducts by Liquid Chromatography—Tandem Mass Spectrometry. B. C. Moeller1,2, W. Bodnar3, L. Collins2, and J. A. Swenberg. 1Lovelace Respiratory Research Institute, Albuquerque, NM; and 2Environmental 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. Stephen1, L. Georget1, M. R. Bonner1, P. J. Kostyniak2, J. R. Olson1, M. S. Bloom1, and J. E. Venk1. 1Math & Natural Sciences, D’Youville College, Buffalo, NY; 2Pharmacology & Toxicology, State University of New York at Buffalo, Buffalo, NY; and 3Environmental Health Sciences, State University of New York at Albany, Albany, NY; and 4Environmental Health Sciences, State University of New York at Albany, Albany, NY; and 5Epidemiology and Biostatistics, University of Georgia, Athens, GA.


#1526 Poster Board Number .....................................142 Biomarkers of Aflatoxin Exposure in Bexar and Surrounding Counties: Enhanced Incidence in Humans following Severe Drought. S. Elmore1, L. Tang2, M. Rodriguez2, M. F. Carden2, H. G. Hayes3, A. A. Romoser1, J. Wang2, B. H. Pollock1, and T. D. Phillips1. 1Veterinary Integrative Biosciences, Texas A&M University, College Station, TX; 2College of Public Health, University of Georgia, Athens, GA; and 3University of Texas Health Science Center-San Antonio, San Antonio, TX.


#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.

#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. Phillips1, L. E. Haswell2, C. Meredith3, W. Fields4, L. McIntosh1, D. Chelsky4, L. Cortez5, and P. Croteau6. 1Bioassessment, British American Tobacco, Southampton, United Kingdom; 2Bioassessment, R J Reynolds Co, Winston-Salem, NC; and 3Caprin Proteomics Inc, Montréal, QC, Canada.

#1531 Poster Board Number .....................................147 Metabolomic Analysis of the Effect of Occupational Exposure to Pyrethroid Pesticides. M. Ratelle1, M. Bouchard2, and C. Lin3. 1Department of Environmental Health and Occupational Health, University of Montreal, Montreal, QC, Canada; and 2Institute of Environmental Health, National Taiwan University, Taipei, Taiwan.

#1532 Poster Board Number .....................................148 Development of Method for Detection of Aflatoxin Bi-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. Pei1, P. Zhang2, Y. Gao2, F. Tian3, N. Ma1, C. Ma1, Y. Miao2, and X. Qin2. 1Shanxi Medical University, Taiyuan, Shanxi, China; 2Shanxi University of Medical Science, Szuzka, Japan; and 3China Institute for Radiation Protection, Tiaiyuan, 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. Sánchez1, and G. Díaz2. 1Salud Animal-Facultad de Veterinaria, Universidad Nacional de Colombia, Bogota, Colombia; and 2Toxicología-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. Mason1, and H. A. El-Fawal2. 1AnePheXX Core Laboratory, Albany College of Pharmacy and Health Sciences, Albany, NY; and 2Neurotoxicology Laboratory, Albany College of Pharmacy and Health Sciences, Albany, NY.


#1537 Poster Board Number .....................................153 Smoking, Vitamin E Supplement Use, and Prostate Cancer Survival. K. Zu1, and E. Giovannucci2. 1Gradient, Cambridge, MA; and 2Harvard School of Public Health, Boston, MA. Sponsor: J. Goodman.
Abstract # Poster Board Number .....................................154 Discovery and Validation of Serum Protein Biomarker Candidates for Early Detection of Hepatocellular Carcinoma (HCC). G. M. Mustafa1, J. R. Petersen2, L. Cicalese3, N. Snyder4, L. Denner1, and C. J. Elferink1. 1Pharmacology, University of Texas Medical Branch, Galveston, TX; 2Pathology, University of Texas Medical Branch, Galveston, TX; 3surgery, University of Texas Medical Branch, Galveston, TX; 4Hepatology, Kelsey Seybold Clinic, Houston, TX; and 5Internal Medicine, University of Texas Medical Branch, Galveston, TX.

#1541 Poster Board Number .....................................157 Insulin-Stimulated Urinary Chromium Excretion Is Not a Biomarker for Chromium Nutritional Status. S. T. Love1, K. R. Di Bona2, S. Halder Sinha1, J. S. Smith1, J. F. Rosco1, and J. B. Vincent1. 1Chemistry, The University of Alabama, Tuscaloosa, AL; and 2Biological 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. Krosby, A. M. Williams, T. L. Hargraves, G. Tsaprailis, 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. Bozza1, M. Cornet1, S. H. Dhillon1, and B. O. Delpichl1. 1Non-Clinical Development, UCB Pharma, Braine l’Alleud, Belgium; and 2NPS Portfolio & Alliance Management, UCB Pharma, Anderlecht, Belgium.


#1545 Poster Board Number .....................................161 Translational Biomarkers for Oxidative Stress Response: A Validation Study with Flutamide. M. Teppe1,2, E. Ernst1, and A. Paehleri1. 1Non Clinical Safety, Pharma Research and Early Development, pRED; 2F Hoffmann-La Roche Ltd., Basel, Switzerland; and 3Institute of Molecular Pharmacy, University of Basel, Basel, Switzerland. Sponsor: F. Boeras.

#1546 Poster Board Number .....................................162 Qualification of Novel Urine Biomarkers of Nephrotoxicity in Rodents on MSD Platform. A. V. Lyubimov, A. Kuzmiz, Y. Chen, A. Zakharov, and A. Banerjee. Pharmacology, Toxicology Research Laboratory, UIUC, Chicago, IL.

#1547 Poster Board Number .....................................163 Validation of an Electrochemiluminescence Multiplexed Immunoassay for Mouse Inflammation: The V-PLEX™ M. J. Cameron1, D. B. Gemani1, J. Cosali1, and A. Aullbach1. 1Immuno, MRI Research, Mattawan, MI; and 2Clinical Pathology, MRI Research, Mattawan, MI.

#1548 Poster Board Number .....................................164 A Moderate 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.


#1549a Poster Board Number .....................................167 Cross-Site Analytical Validation of the Cardiac Biomarker NT-proANP in Rat. H. V. Colton1, P. Vinken1, N. Goemmine1, W. F. Reagan1, W. Buck2, J. Lai-Zhang3, R. Liu4, and M. Cisneroz4. Janssen R&D, Beerse, Belgium; Pfizer Inc., Groton, CT; AbbVie, North Chicago, IL; GSK, Durham, NC; Takeda, Cambridge, MA; and 2Critical Path Institute, Tucson, AZ.


#1549c Poster Board Number .....................................169 Novel Rat Kidney Injury Biomarker Assays Using a Gyros Nanotechnology Platform. T. L. Wente1, J. Mikhy2, C. Fry1, and Q. Xiao1. 1R&D, EMD Millipore, St. Charles, MO. Sponsor: R. Wiene.

#1549d Poster Board Number .....................................170 Comparison of Two Commercial Immunoassays for Determination of Atrial Natriuretic Peptide in Sprague-Dawley Rat Serum. J. R. Turk1, A. Farhad1, and M. Ameri1. 1CBSS, Amgen Inc., Thousand Oaks, CA.

Program Description (Continued)

Abstract #

#1549g  Poster Board Number .....................................172
Conjugate Formation of 1-Bromopropane with Glutathione In Vitro.  C. Seo1, Y. Um1; H. Kim2, M. Kang1, H. Jeong2, and T. Jeong1. 1College of Pharmacy, Yeungnam University, Gyeongsan, Republic of Korea; and 2College 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. Engle1, and D. E. Watson1. 1Toxicology, Eli Lilly and Company, Indianapolis, IN.

#1550  Poster Board Number .....................................201
Manganese Exposure Assessment—The Use of Toenails As a Biomarker of Exposure in US Welders.  E. J. Ward1, J. Bainter1, S. Snyder1, U. Dyda2, and F. Rosenthal1. 1Health Sciences, Purdue, West Lafayette, IN; and 2Radiology 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 Ferroulloy Plants in Northern Italy.  P. Bertrand1, E. Lucas1, F. Donna1, M. Peli1, R. Lucchin2, and D. Smithi1. 1University of California, Santa Cruz, CA; 2University of Brescia, Brescia, Italy; and 3Mount 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. Specht1, M. Weisskopf2, and L. H. Nie1. 1Health and Human Sciences, Purdue University, West Lafayette, IN; and 2Harvard School of Public Health, Harvard University, Boston, MA.

#1553  Poster Board Number .....................................204

#1554  Poster Board Number .....................................205

#1555  Poster Board Number .....................................206

#1556  Poster Board Number .....................................207

#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. Odewabi1, and M. Ekor1. 1Chemical Pathology and Immunology, Obalisi Onabujo University Teaching Hospital, Sagamu, Nigeria; and 2Department 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. Noisel1, M. Bouchard1, and G. Carrier2. 1Dept de Santé Environnementale et Santé au Travail, Université de Montréal, Montreal, QC, Canada; and 2Direction 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. Squibb1,2, D. Hoover2, S. E. Hines2, P. Guerci3, T. I. Todorov1, J. Centeno1, M. Oliver1, J. Gaitens1, and M. McDiarmid1,2. 1Dept of Veterans Affairs Medical Center, Baltimore, MD; 2UM School of Medicine, Baltimore, MD; 3Food and Drug Administration, College Park, MD; and 4Joint 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. Eyoita1, M. McCawley2, S. Chatterjee1, W. C. Mercer2, W. W. Harris2, T. L. Knuckles1, and H. P. Gamble1. 1West Virginia University, Morgantown, WV; and 2Ohio County Health Department, Wheeling, WV.

#1562  Poster Board Number .....................................213

#1563  Poster Board Number .....................................214

Wednesday Morning, March 26
9:00 AM to 12:30 PM
Exhibit Hall

Poster Session: Exposure Assessment and Biomonitoring

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. Ward1, J. Bainter1, S. Snyder1, U. Dyda2, and F. Rosenthal1. 1Health Sciences, Purdue, West Lafayette, IN; and 2Radiology 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 Ferroulloy Plants in Northern Italy.  P. Bertrand1, E. Lucas1, F. Donna1, M. Peli1, R. Lucchin2, and D. Smithi1. 1University of California, Santa Cruz, CA; 2University of Brescia, Brescia, Italy; and 3Mount 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. Specht1, M. Weisskopf2, and L. H. Nie1. 1Health and Human Sciences, Purdue University, West Lafayette, IN; and 2Harvard School of Public Health, Harvard University, Boston, MA.

#1553  Poster Board Number .....................................204

#1554  Poster Board Number .....................................205

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#1564

#1565
Health Surveillance Study on Printed Electronics (PE) Workplace. J. Lee1, E. Sohn1, J. Ahn1, K. Ahn1, K. Kim1, T. Lee1, J. Shin1, Y. Chung1, and I. Yu1. 1Institute of Nanoprotective Safety Research, Hoseo University, Asan, Republic of Korea; 2Myungji Safety and Hygiene Laboratory, Nonsan, Republic of Korea; 3Department of Mechanical Engineering, Hanyang University, Ansan, Republic of Korea; 4Korea Institute of Machinery and Materials, Daejeon, Republic of Korea; and 5Occupational Lung Disease Institute, KCOMWE, Asan, Republic of Korea.

#1566
Microcystin Extraction from Human Blood Serum: Pitfalls and Solutions. A. Heusser1, D. R. Dietrich1, S. Altaner1, L. Kamp2, and F. Rubio2. 1Human & Environmental Toxicology, University of Konstanz, Konstanz, Germany; and 2Abraxis LLC, Warminster, PA.

#1567
Vegetable Uptake and Human Exposure Assessment from a Community Garden with Elevated ∑DDT. E. N. Libera1, and L. J. Tsui2. 1School of Occupational and Public Health, Ryerson University, Toronto, ON, Canada; and 2Environment and Resource Studies/Health Studies, University of Waterloo, Waterloo, ON, Canada.

#1568
Population Variation in Biomonitoring Data for Persistent Analytes: An Examination of Multiple Population-Based Datasets. L. Ayward2, and J. Mueller1. 1Summit Toxicology, LLP, Falls Church, VA; and 2ENTOX, University of Queensland, Brisbane, QLD, Australia.

#1569
Serum Steatohepatitis Biomarker and Proinflammatory Cytokine Elevation in Response to Polychlorinated Biphenyl Exposures in the Anniston Community Health Study (ACHS). H. Clair1, K. C. Falkner1, R. A. Prough1, and M. Cavej1. 1Department of Medicine/GI, University of Louisville, Louisville, KY; 2Biochemistry, University of Louisville, Louisville, KY; and 3Robley Rex VAMC, Louisville, KY.

#1570
Quantification of Tissue Bisphenol A and Global Methylation Profiles in Kidney, Liver, and Placenta from 1st and 2nd Trimester Human Clinical Samples. M. S. Nahar1, C. Liao1, K. Kannan1, and D. Dolinoy1. 1Environmental Health Science, University of Michigan, Ann Arbor, MI; and 2Wadsworth Center, New York State Department of Health, Albany, NY.

#1571

Abstract #

#1572
Comparison of the Kinetics of Various Biomarkers of Benzo[a]pyrene Exposure following Different Routes of Entry in Rats. M. Moreau1, and M. Bouchard1,2. 1Department of Environmental and Occupational Health, University of Montreal, Montreal, QC, Canada; and 2Chair in Toxicological Risk Assessment and Management, University of Montreal, Montreal, QC, Canada.

#1573

#1574
Concentrations of Diacetyl and 2,3-Pentanedione in Mainstream Cigarette Smoke: A Comparison to Workplace Exposures. J. S. Pierce1, A. Abelmann1, L. J. Spicer2, R. Adams3, and B. L. Finley2, 1Cardno ChemRisk, Chicago, IL; and 2Cardno ChemRisk, Brooklyn, NY.

#1575
Headspace and Small-Chamber Studies of Airborne Diacetyl Concentrations Associated with Selected Food Flavoring Mixtures. P. K. Scott1, A. Abelmann1, H. Avena1, S. Hoyt1, and B. D. Kerger1. 1Cardno ChemRisk, Pittsburgh, PA; 2Cardno ChemRisk, Chicago, IL; 3Cardno ChemRisk, Boulder, CO; 4Environmental Analytical Service, San Luis Obispo, CA; and 5Cardno ChemRisk, Aliso Viejo, CA.

#1576
Determination of Illicit Drug on the Hands of High-Volume Money Collectors Using LC-MS/MS. A. J. Hinds. Toxicology, Colorado State University, Fort Collins, CO.

#1577
Development of a Targeted LC/MS Approach to Screen for 182 Pesticides in Urine Samples. A. Somers1, T. Senn2, D. Whittington1, M. Vredevoogd1, E. M. Vigoren1, E. M. Faustman1, and Y. Lort1. 1Life Sciences, Salish Kootenai College, Pablo, MT; 2Pharmaceutics, University of Washington, Seattle, WA; 3Medicinal Chemistry, University of Washington, Seattle, WA; and 4Environmental and Occupational Health Sciences, University of Washington, Seattle, WA.

#1578

#1579
Silicone Wristbands As Personal Passive Samplers. K. Anderson1, S. G. O'Connell1, and L. Kincl1. 1Department of Environmental & Molecular Toxicology, Oregon State University, Corvallis, OR; and 2College of Public Health & Human Services, Oregon State University, Corvallis, OR. Sponsor: G. Sower.
Program Description (Continued)

Abstract #  
#1580  
**Poster Board Number**: 231  

Abstract #  
#1581  
**Poster Board Number**: 232  
**Air Pollution Exposure Model for Individuals (EMI) in Health Studies: Predicting Spatiotemporal Variability of Residential Air Exchange Rates**. M. Brenn, J. Burke, S. Batten, A. Vette, G. Norris, C. Godwin, M. Landis, C. Croghan, B. Schultz, and M. Brenn. 1US Environmental Protection Agency, Research Triangle Park, NC; 2University of Michigan, Ann Arbor, MI; and 3North Carolina State University, Raleigh, NC.

Wednesday Morning, March 26  
9:00 AM to 12:30 PM  
Exhibit Hall  

**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 to 12:30 PM  
**Author Attended:** 11:00 AM – 12:30 PM

Abstract #  
#1582  
**Poster Board Number**: 241  
**An Enterprise Integration Application for Chemical Information and Tools for Green Chemistry Initiatives**. B. Ford, A. Broughton, N. Winje, A. Sadowski, and D. Johnson. 1UC Berkeley, Berkeley, CA; 2Univ Michigan, Ann Arbor, MI; and 3Elara Bioscience LLC, San Francisco, CA.

Abstract #  
#1583  
**Poster Board Number**: 242  
**Comparative Toxicity of Epicatrin vs. Borohydride-Reduced Nanosilver in Prokaryotic and Eukaryotic Models**. K. Murphy, T. Collins, R. T. Poggi, B. Demmert, S. M. Hussain, M. G. Nielsen, J. Robinson, and J. J. Rowe. 1Department of Biology, Center for Tissue Regeneration and Engineering, University of Dayton, Dayton, OH; and 2Applied Biotechnology Branch, Human Effectiveness Directorate, Air Force Research Laboratory, Wright-Patterson Air Force Base, Dayton, OH.

Abstract #  
#1584  
**Poster Board Number**: 243  
**Safety Assessment of Irganox 1076 Migration from Use in Food Contact Applications**. A. P. Neil-Kluver, and K. R. Hatwell. Division of Food Contact Notifications, FDA, College Park, MD.

Abstract #  
#1585  
**Poster Board Number**: 244  
**Safety Assessment of R,S-Equol As a Dietary Supplement for Benign Prostatic Hyperplasia**. F. D. Lebhart. PBBlu, BYU, Provo, UT. Sponsor: P. Damiani.

Abstract #  
#1586  
**Poster Board Number**: 245  
**Application of QSAR Models to Evaluate the Dermal Absorption of Cosmetic Ingredients**. F. Liu, T. Tu, D. M. Frederick, and H. Frasch. 1Revlon Research Center, Edison, NJ; and 2Health 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.

Abstract #  
#1588  
**Poster Board Number**: 247  
**Instant On-Site Glucose Measurements in Dogs**. A. Makin, V. Goloizouzova, J. Tovborg Jensen, and J. Logsted. CItoxLAB, Lille Skensved, Denmark.

Abstract #  
#1589  
**Poster Board Number**: 248  

Abstract #  
#1590  
**Poster Board Number**: 249  

Abstract #  
#1591  
**Poster Board Number**: 250  
**Application of Metabolomics in Short-Term In Vivo Rat Toxicity Studies**. H. G. Kamp, E. Fabiani, M. Herold, G. Krennrich, J. Ralf, W. Meller, G. Montoya-Parr, E. Peter, T. Walk, V. Strauss, and B. van Ravenzwaay. 1Toxicology, BASF SE, Ludwigshafen, Germany; and 2Metanomics GmbH, Berlin, Germany.

Abstract #  
#1592  
**Poster Board Number**: 251  

Abstract #  
#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. Pennani, R. H. Powrie, and C. R. Ecome. 1Penman Consulting, Brussels, Belgium; and 2CXR Biosciences, Dundee, United Kingdom.

Abstract #  
#1594  
**Poster Board Number**: 253  
**Evaluation of Nose-Only Inhalation Exposure to Aerosolized Benzyl Acetate in Sprague-Dawley Rats**. J. Randazz, D. T. Kirkpatrick, D. Vitale, and M. Singal. 1Respiratory Science Program, RIFM, Inc., Woodcliff Lake, NJ; and 2Inhalation Toxicology, WIL Research, Ashland, OH.

Abstract #  
#1595  
**Poster Board Number**: 254  
**Development of In Vitro Screens for Chemical Disruptors of the Retinol Signaling Pathway**. Y. Chen, and D. H. Reese. CFSA/R/ARSA, U.S. FDA, Laurel, MD.

Abstract #  
#1596  
**Poster Board Number**: 255  
**Evaluation of Nose-Only Inhalation Exposure to Aerosolized -Ionone in Sprague-Dawley Rats**. D. T. Kirkpatrick, J. Randazz, D. Vitale, and M. Singal. 1Respiratory Science Program, RIFM, Inc., Woodcliff Lake, NJ; and 2Inhalation Toxicology, WIL Research, Ashland, OH.
Abstract #1597
Poster Board Number.................................256
Evaluation of Nose-Only Inhalation Exposure to Aerosolized Phenyl Ethyl Alcohol in Sprague-Dawley Rats. D. Vitale1, J. Randazzo2, D. T. Kirkpatrick2, and M. Singhal1. 'Respiratory Science Program, RFM, Inc., Woodcliff Lake, NJ; and 2Inhalation Toxicology, WIL Research, Ashland, OH.

Abstract #1598
Poster Board Number.................................257
Evaluation of Nose-Only Inhalation Exposure to Aerosolized Hydroxycitronellal in Sprague-Dawley Rats. F. G. Burleson1, M. Singhal1, J. Randazzo2, D. T. Kirkpatrick2, and D. Vitale1. 'Respiratory Science Program, RFM, Inc., Woodcliff Lake, NJ; 2Inhalation Toxicology, WIL Research, Ashland, OH; and 3Burleson Research Technologies, Morrisville, NC.

Abstract #1600
Poster Board Number.................................259
Development of an Alternative Photosafety Assessment Approach for Cosmetic Ingredients Based on the Photochemical and Photobiological Properties. H. Nishida1, M. Hirot1, M. Kitagaki1, S. Onoue2, M. Kato3, G. Suzuki4, S. Yamada1, and H. Kozuki5. 'Shiseido Research Center, Shiseido Co. Ltd., Yokohama, Japan; and 2Department of Pharmacokinetics and Pharmacodynamics, School of Pharmaceutical Sciences, University of Shizuoka, Shizuoka, Japan. Sponsor: T. Yoshida.

Abstract #1601
Poster Board Number.................................260
Evaluation of the Subchronic Toxicity of Acetoxydihydrodicyclopentadiene. V. T. Politano1, and A. Api. Research Institute for Fragrance Materials, Inc., Woodcliff Lake, NJ.

Abstract #1602
Poster Board Number.................................261
Optimization of a Primary Hepatocyte Assay for Prediction of Liver Carcinogenicity in Agrochemical Development. L. A. Murphy1, L. Kan1, M. J. LeBaron1, D. R. Boverhoff1, J. Bailey2, C. Terry3, R. Billington4, and R. J. Raisoulpouri2. The Dow Chemical Company, Midland, MI; and 2Dow AgroSciences, Indianapolis, IN.

Abstract #1603
Poster Board Number.................................262
Academic and Commercial Partnership: Identifying Sustainable Flame Retardants by Rapid In Vivo Screening. R. L. Tangoy1. Environmental and Molecular Toxicology, Oregon State Univ, Corvallis, OR.

Abstract #1604
Poster Board Number.................................263

Abstract #1605
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Abstract #1606
Poster Board Number.................................265
Formulation, Analysis Method Development, and Validation for Dimethylaminonoethanol Bitartrate in Gavage Dose Formulations. J. C. Blake1, S. D. Cooper1, M. C. Best2, R. A. Fernando2, V. G. Robinson3, and S. Waidyanatha1. 'Analytical Chemistry and Pharmaceutics, RTI International, Research Triangle Park, NC; and 2Division of the National Toxicology Program, NIEHS, Research Triangle Park, NC. Sponsor: K. Levine.

Abstract #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. Snowder1, M. J. Breitenstein1, M. Alexander-Scott1, E. J. Esswein2, B. King3, and M. Kiefer2. Applied Research & Technology, NIOSH, Cincinnati, OH; and 3Western States Office, NIOSH, Denver, CO.

Abstract #1608
Poster Board Number.................................267

Abstract #1609
Poster Board Number.................................268
Development of Noncancer Threshold of Mitochondrial Toxicants in ToxCast Phase II. I. M. Jacobs1, A. R. Booii2, S. Barlow1, S. P. Felter1, H. M. Hollingdale2, D. Kelter1, V. Vitcheva3, K. Arvidson, A. P. Worth4, and C. Yang5. US FDA CFSAN OFAS, College Park, MD; 2Imperial College, London, United Kingdom; 3Independent consultant, Brighton, United Kingdom; 4Procter & Gamble, Cincinnati, OH; 5Dow Europe GmbH, Horgen, Switzerland; 6Henkel, Dusseldorf, Germany; 7EC Joint Research Center, Ispra, Italy; and 8Altamira LLC, Columbus, OH.

Abstract #1610
Poster Board Number.................................269

Abstract #1611
Poster Board Number.................................270
High-Throughput Respirometric Assay Identifies Mitochondrial Toxicants in ToxCast Phase II. L. P. Willis1, G. C. Beeson2, R. Schmellmann3, and C. Beeson4. 1MitoHealth Inc, Charleston, SC; and 2Drug Discovery and Biomedical Sciences, MUSC, Charleston, SC.

Abstract #1612
Poster Board Number.................................271
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<th>Abstract #</th>
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<tr>
<td>#1613</td>
<td>Cytotoxicity of Electronic Cigarette Refill Fluid Aerosols. R. Z. Behr, A. Razo, and P. Talbot. Cell Biology and Neuroscience, University of California, Riverside, Riverside, CA.</td>
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<tr>
<td>#1614</td>
<td>Apparent Lack of Cytotoxicity in Brands of e-Liquids Previously Reported As Being Cytotoxic. J. H. Lauterbach. Lauterbach &amp; Associates, LLC, Macon, GA.</td>
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<tr>
<td>#1615</td>
<td>VUSE Electronic Cigarette Aerosol Characterization. E. H. Theophilis¹, J. Rowe¹, S. Chouchane², K. Kilby², C. Rhodes², S. Alderman², W. Morgan², and R. J. Potts². RJ Reynolds, Winston-Salem, NC; and ²Eurofins, Lancaster Labs, Winston-Salem, NC.</td>
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<tr>
<td>#1616</td>
<td>Safety Assessment of Potential Food Ingredients on Canine Primary Hepatocytes. L. Z. Wang¹, B. Jeffery¹, J. Riviere¹, and N. A. Monteiro-Riviere¹. ¹Department of Anatomy and Physiology, Kansas State University, Manhattan, KS; and ²Global Quality and Food Safety, MARS Inc., McLean, VA.</td>
</tr>
<tr>
<td>#1616a</td>
<td>Development of Formulation and Analysis Methods for Triphenyl Phosphate (TPP) in Rodent Feeds for Toxicology Studies. B. Collins¹, A. Mitchell¹, W. Vandaveer², V. Ault¹, N. Doll¹, S. Beckett¹, N. Pearson¹, A. Mainey¹, K. Alliou¹, J. Algair², and R. Harris². ¹National Toxicology Program (NTP) NIEHS, Research Triangle Park, NC; and ²MIRGlobal, Kansas City, MO.</td>
</tr>
<tr>
<td>#1616b</td>
<td>Using Cluster Approaches to Assess the Safety of Chemicals Used in Consumer Products. C. Baier-Anderson¹, C. Radsilíp², L. Morlacci³, M. Adams¹, B. Drake¹, J. Tunkel¹, and K. Mayo¹. ¹US EPA, Washington, DC; and ²SRC, Inc., North Syracuse, NY.</td>
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<tr>
<td>#1616c</td>
<td>Toxicity of Tris(Chloropropyl)phosphate (TCP) Dietary Exposure for 13 Weeks in Harlan Sprague-Dawley Rats and B6C3F1/N Mice. K. Ryu¹, A. R. Pandare¹, D. Giri¹, K. Cimont¹, M. Buccellato¹, L. M. Fomby¹, M. Htjmancik¹, D. Y. Vasconcelos¹, K. L. Witt¹, G. Travlos², D. Malarkey², and M. D. Stoult². ¹DTP, RTP, NC; ²Battelle, Columbus, OH; ³EPL, Inc, RTP, NC; ⁴PC, RTP, NC; and ⁵PC, Houston, TX.</td>
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<td>#1616d</td>
<td>Use of Chemical Safety Assessment and the TTC to Evaluate the Potential Toxicity of an Endoscopic Guidewire. N. S. Goud¹, M. Beauchane¹, J. Kapitan¹, and E. E. Revery¹. ¹Corporate Toxicology and Biocompatibility, Boston Scientific Corporation, Natick, NC.</td>
</tr>
<tr>
<td>#1616e</td>
<td>Diet Effects on Endpoints Relevant to Reproductive Toxicity Assessments in CD-1 Mice. K. Delcos¹, L. Camacho¹, S. Lewis¹, M. Vanlandingham¹, G. Olson¹, G. G. Gemba Du Costa¹, K. Wooddling¹, E. Sepehri¹, D. R. Dosege¹, and B. E. Julliar¹. ¹NCTR, Jefferson, AR; and Toxicologic Pathology Associates, Jefferson, AR.</td>
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Wednesday Morning, March 26
9:00 AM to 12:30 PM
Exhibit Hall

Poster Session: Safety Assessment: Pharmaceutical Drug Discovery

Safety Assessment: Mechanisms and Novel Methods

Chairperson(s): Jiri Aubrecht, Pfizer Inc., and Department of Drug Safety Evaluation, Groton, CT.

Displayed: 9:00 AM–12:30 PM

Author Attended: 9:00 AM–11:00 AM

<table>
<thead>
<tr>
<th>Abstract #</th>
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<tbody>
<tr>
<td>#1617</td>
<td>Analysis of Four Hepatocytos Using the xCELLigence Analytical System and HepaRG Cells. C. Jou¹, D. Steen¹, C. Chese¹, and Y. A. Abassi¹. ¹Biopredic International, St. Greerore, France; and ²ACEA Biosciences Inc, San Diego, CA.</td>
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<tr>
<td>#1618</td>
<td>Modeling of Inflammation-Mediated Liver Injury In Vitro. K. Balavenkatarman¹, B. Bertsch¹, M. Magnifico¹, A. Hauchard¹, S. Chibout¹, M. Ueng¹, J. Marlowe¹, P. J. Devine¹, E. Poguhat¹, and A. Wolf¹. ¹Novartis Pharma AG, Basel, Switzerland; and ²Novartis Pharma AG, Cambridge, MA.</td>
</tr>
<tr>
<td>#1619</td>
<td>Developing an Impedance-Based Cellular Assay with Human iPSC-Derived Cardiomyocytes to Quantify Modulators of Cardiac Contractility. C. W. Scott¹, X. Zhang¹, N. Ali Gerges¹, Y. A. Abassi¹, and M. Peters¹. ¹Drug Safety and Metabolism, AstraZeneca, Waltham, MA; and ²ACEA Biosciences, San Diego, CA.</td>
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<tr>
<td>#1620</td>
<td>Assessment of Prolactin-Mediated Changes and Their Reversal in Molindone Treated Rats. S. Gof¹, S. Ganiger¹, and G. Kaishna¹. ¹Superbus Pharmaceuticals, Inc., Rockville, MD; and ²Advanc Therapeutics Ltd., Bengaluru, India.</td>
</tr>
<tr>
<td>#1621</td>
<td>In Vitro Assessment of Intestinal Toxicity of Drugs Using an Electronic Impedance-Based Cell Monitoring System. C. Aruga¹, T. Fujita¹, T. Yamamoto¹, and Y. Iwase¹. Safety Research Laboratories, Mitsubishi Tanabe Pharma Corporation, Chiba, Japan. Sponsor: J. Shinoduka.</td>
</tr>
</tbody>
</table>
Abstract #

#1622  
Poster Board Number .....................................306  
A Comparison of Human Hepatocyte Systems and Conditions for Hepatotoxicity Screening.  
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.  
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. Martin1, A. E. Allen2, R. J. Lucas2,  
1Drug Safety and Metabolism, AstraZeneca, Alderley  
Park, Cheshire, United Kingdom; and 2Faculty of  
Life Sciences, University of Manchester, Manchester,  
United Kingdom. Sponsor: B. Rebergen.  

#1626  
Poster Board Number .....................................310  
Inhibition of MRP4- and BCRP-Mediated  
Transport by Tyrosine and Aurora Kinase  
Inhibitors.  
R. N. Hardwick1, M. Snellings2, B. C. Ferslew3,  
1Curriculum in Toxicology, University of North Carolina, Chapel  
Hill, NC; and 2Eshelman 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 Nephrotic Potential of  
Polyoxymyxin Derivatives.  
A. Gupta1, R. Goodwin2, N. Keirstead3, A. Sathe4,  
J. Harris4, N. Johnson5, A. Xue6, C. Brown7,  
D. Snow8, F. McGrath9, M. Pietras10,  
L. Cheatham11, P. I. Bentley12, M. Blais13,  
M. Wagoner14, K. Thakur15, T. Grebe16,  
J. Swales17, G. Kern18, M. Hale19, and  
J. Sasaki20.  
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Abstract #

#1622  
Poster Board Number .....................................306  
A Comparison of Human Hepatocyte Systems and Conditions for Hepatotoxicity Screening.  
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.  
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. Martin1, A. E. Allen2, R. J. Lucas2,  
1Drug Safety and Metabolism, AstraZeneca, Alderley  
Park, Cheshire, United Kingdom; and 2Faculty of  
Life Sciences, University of Manchester, Manchester,  
United Kingdom. Sponsor: B. Rebergen.  

#1626  
Poster Board Number .....................................310  
Inhibition of MRP4- and BCRP-Mediated  
Transport by Tyrosine and Aurora Kinase  
Inhibitors.  
R. N. Hardwick1, M. Snellings2, B. C. Ferslew3,  
1Curriculum in Toxicology, University of North Carolina, Chapel  
Hill, NC; and 2Eshelman 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 Nephrotic Potential of  
Polyoxymyxin Derivatives.  
A. Gupta1, R. Goodwin2, N. Keirstead3, A. Sathe4,  
J. Harris4, N. Johnson5, A. Xue6, C. Brown7,  
D. Snow8, F. McGrath9, M. Pietras10,  
L. Cheatham11, P. I. Bentley12, M. Blais13,  
M. Wagoner14, K. Thakur15, T. Grebe16,  
J. Swales17, G. Kern18, M. Hale19, and  
J. Sasaki20.  
286

#1628  
Poster Board Number .....................................312  
A Real-Time In Vitro Safety Assessment  
Approach Utilizing a Simplified, Multiparametric  
Work Flow.  
A. L. Niles1, M. Sobol1, T. L. Kiss2, S.  
1Promega, Madison, WI; 2Promega Biosciences, San Luis  
Obispo, CA; and 3Cellular 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.  
Paracinal Sciences, University of Pretoria, Pretoria North,  
Gauteng, South Africa.
Abstract #1637
Poster Board Number: #321
Zebrafish-Based Screening to Prioritize Drug Development for Glioblastoma Therapy. L. Wehmal, J. A. Greenwood, S. Liu, A. Punnones, and R. L. Tanguay. 1Environmental and Molecular Toxicology, Oregon State University, Corvallis, OR; 2Environmental Health Sciences Center, Oregon State University, Corvallis, OR; 3Biochemistry and Biophysics, Oregon State University, Corvallis, OR; and 4Physics, Boise State University, Boise, ID.

Abstract #1638
Poster Board Number: #322
Mutagenicity, Citotoxicity, and Genotoxicity Evaluation of Megazol Analogs. F. D. Mello, A. S. Carvalho, M. M. Bastos, N. Bocchato, G. Aiub, and I. Felzenszwab. 1Department of Biophysics and Biometry, Rio de Janeiro State University, Rio de Janeiro, Brazil; 2Institute of Pharmaceutical Technology, Oswaldo Cruz Institute, Rio de Janeiro, Brazil; and 3Department of Genetics and Molecular Biology, Federal University of the State of Rio de Janeiro, Rio de Janeiro, Brazil. Sponsor: D. Oliveira.

Abstract #1639
Poster Board Number: #323
Toxicological Safety Assessment of Novel 5,6-Dihydropyridazine-1(4H)-Carboxyrazides: An Antitubercular Agents. R. Mishra, A. A. Siddiqui, A. Husain, M. Rashid, and V. Strinivasan1. 1School of Pharmacy and Emerging Sciences, Baddi University of Emerging Sciences and Technology, Baddi, Himachal Pradesh, India; and 2Department of Pharmacy, Jamia Hamdard, New Delhi, India; and 3US Safety Evaluation, L’Oréal, Clark, NJ.

Abstract #1639a
Poster Board Number: #324

Abstract #1639b
Poster Board Number: #325

Abstract #1639c
Poster Board Number: #326
Magnetic 3D Bio-Printing: A Novel High-Content Assay for Drug Toxicity Screening. H. Tseng, I. A. Gage, W. L. Haisler, S. K. Neeley, G. R. Souza, and T. C. Killian. 1Nano3D Biosciences, Houston, TX; and 2Bioengineering, Rice University, Houston, TX; and 3Physics, Rice University, Houston, TX. Sponsor: M. Wagoner.

Abstract #1640
Poster Board Number: #333

Abstract #1641
Poster Board Number: #334
Retinal Toxicity Induced by a Novel Beta-Secretase Inhibitor in the Rodent. J. Werner, M. Feldl, J. A. Jamison, A. A. Copp, A. D. Hickman, R. T. Dunn, E. Trueblood, C. Afshari, and R. Lightfoot-Dunn. 1Amgen, Thousand Oaks, CA; and 2MPI Research, Mattawan, MI.

Abstract #1642
Poster Board Number: #335
GSK2617971: In Vitro and In Vivo Characterization of a Mitochondrial Uncoupler. C. Hu, A. King, G. Brunori, A. Broom, I. Mangum, J. Armitage, R. Peterson, L. Day, L. King, S. Turner, D. J. Murphy, L. Schaller, J. Wilson, P. Turnbull, J. Lyon, and K. J. French. 1Safety Assessment, GlaxoSmithKline, King of Prussia, PA; 2Safety Assessment, GlaxoSmithKline, RTE, NC; 3Drug Metabolism and Pharmacokinetics, GlaxoSmithKline, King of Prussia, PA; and 4MM DPU, GlaxoSmithKline, RTP, NC.

Abstract #1643
Poster Board Number: #336

Abstract #1644
Poster Board Number: #337

Abstract #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.
Abstract #

#1646  
Poster Board Number .....................................339
Rapid Screening of Master Viral Stocks for Wild-Type Contamination. C. K. Massey1, G. P. Gambill1, A. D. Penman1,2, and K. K. Daniels1. 1Toxicology and Pathology Services, Southern Research Institute, Birmingham, AL; and 2Bioanalytical 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. Shah1, E. Berg2, M. A. Polokoff1, J. Yang3, and N. Greene1. 1Compound Safety Prediction Group, Pfizer Inc., Groton, CT; and 2BioSeek, 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. Atkinson. WIL Research, Ashland, OH.

#1649  
Poster Board Number .....................................342

#1650  
Poster Board Number .....................................343

#1651  
Poster Board Number .....................................344

#1652  
Poster Board Number .....................................345
Rat-Specific MOA for Tumor Formation in Rats with the SGLT2 Inhibitor Canagliflozin. B. Feyen1, E. Moesen1, S. De Jonghe1, P. Vinken1, J. Ying Ma1, M. D. Johnson1, M. Srinivas2, W. Coussement1, Y. Van Bekkum1, and L. Lammens1. 1Drug Safety Sciences, Janssen, Beerse, Belgium; 2Drug Safety Sciences, Janssen, Raritan, NJ.

#1653  
Poster Board Number .....................................346

#1654  
Poster Board Number .....................................347
Repeated-Dose Intramuscular (IM) Toxicity Study with Poly-ε-L-Glutamic Acid (PLG) in New Zealand White Rabbits. L. Segui1, E. Grosdier1, C. Sobry1, G. Giordano1, M. Damsten1, R. Forster1, K. Frazer2, and E. Destexhe1. 1GliXosmithKline Vaccines, Wavre, Belgium; 2GliXosmithKline Pharma, Upper Merion, PA; and 3GToxLAB, Evreux, France.

Abstract #

#1655  
Poster Board Number .....................................339
Preclinical Safety Development of a New HSV-2 Prophylactic Candidate Vaccine to Support a First-in-Human Phase I Clinical Trial. D. Paul1, V. Barbati1, A. Popineau2, and S. J. Gould3. 1NonClinical Safety, Sanofi Pasteur, Marcy l’Etoile, France; and 2NonClinical Product Performance, Sanofi Pasteur, Marcy l’Etoile, France.

#1656  
Poster Board Number .....................................340
Mechanism of Platelet Reduction in Monkeys with BMS-986001, an HIV Nucleoside Reverse Transcriptase Inhibitor. M. Guha1, M. S. Christine-Piche2, S. Clark1, R. Bunch3, T. Sanderson1, and M. H. Davies3. 1Drug Safety Evaluation, Bristol Myers Squibb, Mount Vernon, IN; and 2Pre-Clinical Services, CRL, Montreal, QC, Canada.

#1657  
Poster Board Number .....................................341
NKTR-192, a Novel Polymer Conjugated Opioid Agonist, Demonstrates a Superior Preclinical Safety Profile to Traditional Opioids. C. J.1, X. Ge1, E. G. Tonkin1, M. K. Stever2, and T. D. Sweeney2. 1Toxicology, Nektar Therapeutics, San Francisco, CA; and 2Covance Laboratories, Madison, WI.

#1658  
Poster Board Number .....................................342
Preclinical Safety Evaluation of MTI-005, a Novel Metalloporphyrin Radiosensitizer. J. Caldwell1,2, and C. Beattie1. 1University of Liverpool, Liverpool, United Kingdom; and 2MorEx Development Partners, London, United Kingdom.

#1659  
Poster Board Number .....................................343
Cevtolizumab Pegol, a Humanized Antibody Fab Fragment, Pharmacokinetic Considerations in Juvenile Monkey. B. O. Depelchin1, J. Tibbits2, I. Wakefield1, T. Parton1, L. King3, S. Grote-Wessely2, and P. Theil1. 1UCB, Braine-l’Alleud, Belgium; 2NCSE Ltd, Shardlow, United Kingdom; 3Covance, Munich, Germany; and 4UCB, Slough, United Kingdom.

#1660  
Poster Board Number .....................................344
Nonclinical Safety Assessment of Tofacitinib in the Juvenile Rat and Monkey. C. J. Bowman, M. Collinge, Z. Radi, Y. T. Kawabata, W. M. Vogel, and D. J. Ball. Pfizer, Groton, CT.

#1661  
Poster Board Number .....................................345
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 .....................................346
Infusion Administration of Lipid Emulsions in Preclinical Dog Studies—Practicality and Animal Welfare Consideration. S. Iqbal1, H. van Wijk2, and A. Castellerau1. 1Covance Laboratories Ltd, Harrogate, United Kingdom; and 2BibiMean Melsungen AG, Melsungen, Germany. Sponsor: A. Jackson.
Program Description (Continued)

Abstract #

Wednesday Morning, March 26
9:00 AM to 12:30 PM
Exhibit Hall

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–11:00 AM

Author Attended: 9:00 AM–11:00 AM

Poster Board Number .....................................369

The Science behind Personal Care Products: A Hands-On Approach to Engaging K–12 Students. K. Sprague1, and R. Weeks2. 1Amgen Inc, Seattle, WA; and 2NWABR Volunteer, Seattle, WA.

Poster Board Number .....................................370

Strategy to Develop Expertise in Risk Assessment in Developing Countries. S. B. Barros1, E. S. Nascimento2, J. V. Camargo3, E. M. Faustman4, A. Hayes5, L. Rosenheck6, and G. D. Umbuzeiro7. 1USP, Sao Paulo, Brazil; 2UNESP, Botucatu, Brazil; 3U of Washington, Seattle, WA; 4Harvard University, Boston, MA; 5LR Risk Consulting Inc, Greensboro, NC; and 6UNICAMP, Limeira, Brazil.

Poster Board Number .....................................371

National Library of Medicine Education-Related Resources in Toxicology, for 2014 and Beyond. P. I. Hakkinen1, S. Publisher2, and J. E. Kelly3. 1National Library of Medicine, National Institutes of Health, Bethesda, MD.

Poster Board Number .....................................372

Completion of an SOT Web Portal for Submission and Accessing K–12 Outreach Activities. A. Shilt1, D. R. Johnson1, and T. K. Fick2. 1University of Rhode Island, Kingston, RI; 23M, Saint Paul, MN; and 3US Army, Clinton, MS.

Poster Board Number .....................................401


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.

Poster Board Number .....................................405

Escape from Toxic Island (Life Size!): A Toxicology Awareness Program Using Demonstrations and Hands-On Activities. D. Hardej1, and L. M. Hoffman2. 1Pharmaceutical Sciences, St. John’s University, Jamaica, NY; and 2MASOT, Bordentown, NJ.

Poster Board Number .....................................406

Creating Research Opportunities in K–12 Outreach for Undergraduate Students. A. J. Abrits, and M. M. Bourgeois. EOH, USF COPH, Tampa, FL.

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. Guo1, J. E. Moscovitz2, A. Vensola3, L. M. Aleksunes1, A. Gow3, and D. L. Laskin4. 1Pharmacology and Toxicology, Rutgers University, Piscataway, NJ; 2Environmental and Occupational Health Sciences Institute, Rutgers University, Piscataway, NJ; and 3Joint Graduate Program in Toxicology, Rutgers University, Piscataway, NJ.

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.

Poster Board Number .....................................409

A Toxicological Study Using Zebrafish (Danio rerio) As a Model. M. Reynolds-Wald. Washington College, Chestertown, MD.

Poster Board Number .....................................410

Incorporation of Evolution and Toxicology Enhances Conceptual Learning in Undergraduate Neuroscience Courses. S. K. Infante, and C. P. Carran. Biological Science, Northern Kentucky University, Highland Heights, KY.

Poster Board Number .....................................411

Sparking Toxicology Interest in High School Students. M. Lindsey1, and H. Ingram2. 1Southwest Environmental Health Sciences Center, University of Arizona, Tucson, AZ; and 2BIOS Institute, University of Arizona, Tucson, AZ.

Poster Board Number .....................................412

Implementation of an Academic Service Learning (AS-L) Project within an Undergraduate Course in Pharmacology. B. Bilbuk. St John’s University, Jamaica, NY.

Poster Board Number .....................................413

Community Engagement: Chromium Contamination and Human Exposure in Garfield, NJ. S. P. Doherty-Lyons1, S. Bar1, J. Leng2, E. Gany3, and J. T. Zelkoff4. 1New York University School of Medicine, Tuxedo, NY; and 2Memorial Sloan Kettering Cancer Center, New York City, NY.
Abstract #

#1676  
**Poster Board Number** .....................................414  
**Education to Action: Supporting Youth Leadership through Environmental Health Education.**  J. M. Gohlke1, M. C. Bernhard1, S. B. Tyson2, K. Brown3, and L. Antoine1. 1Environmental Health Sciences, University of Alabama at Birmingham (UAB), Birmingham, AL; and 2Friends of West End, Birmingham, AL.

#1677  
**Poster Board Number** .....................................415  
SOT Members Support K–12 Involve!: Outreach.  C. L. McGinnis1, A. L. Slitt2, and N. W. Hurst3. 1Quinnipiac University, Hamden, CT; 2University of Rhode Island, Kingston, RI; and 3Infinity Pharmaceuticals, Inc., Cambridge, MA.

#1678  
**Poster Board Number** .....................................416  
Pesticide Mixtures along the Niger, Senegal, and Bani Rivers of Africa.  G. Sower1, K. Anderson1, D. Seck2, K. A. Hobbie3, A. Ndaiye Traore1, M. McCartney1, A. Ndaye2, N. D. Forsberg3, and T. A. Haigh2. 1Department of Environmental & Molecular Toxicology, Oregon State University, Corvallis, OR; and 2Centre 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. Gray1, B. Billack2, M. G. Borland3, S. M. Ford4, M. A. Gallo5, G. Hall6, S. D. Ray7, M. Reynolds8, A. L. Slitt9, L. M. Williams10, and S. M. Zanule11. 1Science, United States Coast Guard Academy, New London, CT; 2Pharmaceutical Sciences, St. John's University, New York City, NY; 3Chemistry & Biochemistry, Bloomsburg University, Bloomsburg, PA; 4EOHSI, Rutgers University, Piscataway, NJ; 5Pharmaceutical Sciences, Manchester University College of Pharmacy, Fort Wayne, IN; 6Biology, Washington College, Chestertown, MD; 7Biomedical & Pharmaceutical Sciences, University of Rhode Island, Kingston, RI; 8Biology, Bates College, Lewiston, ME; and 9Biology, Nazareth College, Rochester, NY.

#1680  
**Poster Board Number** .....................................418  
A Unique Collaboration Producing Highly-Trained Toxicologic Pathologists: The MPI Outreach Program.  K. G. Nelson1, S. D. Fitzgerald2, and D. J. Patrick3. 1Pathology, MPI Research, Mattawan, MI; and 2Diagnostic 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. Dodt-Buteru1. 1Nursing, CSU San Bernardino, College of Natural Sciences, San Bernardino, CA.

Abstract #

**Wednesday Morning, March 26**  
9:00 AM to 12:30 PM  
Exhibit Hall

**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. Baker1, R. E. Peterson2, and W. Heideman3. 1Pharmacy School, University of Wisconsin-Madison, Madison, WI; and 2Molecular 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-Elie1, J. Kirkwood, J. Stevens, E. Ho, and R. L. Tanguay. 1Environmental 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. Willett1, J. Corrales, C. Thornton, and M. B. White. 1Pharmacology 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. Hood1, Z. Li, M. Maguire1, R. E. Rhode2, M. McCallister2, and L. Rothblat3. 1Department of Neuroscience and Pharmacology, Center for Molecular and Behavioral Neuroscience, Meharry Medical College, Nashville, TN; 2Department of Psychology, George Washington University, Washington, DC; and 3Division of Environmental Health Sciences, College of Public Health, Department of Neuroscience, College of Medicine, The Ohio State University, Columbus, OH.

#1685  
**In vivo Aryl Hydrocarbon Receptor-Mediated Developmental Toxicity Impairs the Adult Cardiovascular System.**  V. S. Carreira1, Y. Fan1, M. Jiang2, S. Koch2, M. Naticchioni2, M. Smith2, J. Rubinstein2, and A. Puge3. 1Environmental Health, University of Cincinnati, Cincinnati, OH; and 2Internal Medicine, University of Cincinnati, Cincinnati, OH.

#1686  
**The Effects of Endocrine Disruption on the Maturation of the Developing Human Fetal Prostate.**  C. M. Saffariani1, E. V. McDonnell2, A. Amin2, S. M. Huse2, D. Spade2, S. Kostadzoin2, S. J. Hall2, and K. Boekelheide2. 1Pathology and Laboratory Medicine, Brown University, Providence, RI; 2Pathology and Laboratory Medicine, Rhode Island Hospital, Providence, RI; and 3Pathology and Laboratory Medicine, Women and Infants Hospital, Providence, RI.
Program Description (Continued)

Abstract #

#1687  Poster Board Number .............................427
Application of a Novel Method for Identification of Mouse Metastable Epialleles to Human Populations. C. Weinhous, 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

#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. Kallivai1, R. H. Klinger2, M. A. Pickens2, and M. J. Carvan1,2. 1School of Public Health, University of Wisconsin-Milwaukee, Milwaukee, WI; and 2School 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. Weidly1, Y. Liu1, H. Liggitt1, and M. T. Chin1. 1Medicine, Division of Cardiology, University of Washington, Seattle, WA; and 2Comparative Medicine, University of Washington, Seattle, WA.

#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. Igweze1, O. E. Orisakwe1, and A. W. Obaniwe1. 1Pharmacology and Toxicology, Madonna University, Elele, Rivers State, Nigeria; 2Toxicology Unit, Faculty of Pharmacy, University of Port-Harcourt, Port-Harcourt, Rivers State, Nigeria; and 3Department of Pharmacology School of Basic Medical Sciences, University of Port-Harcourt, Port-Harcourt, Rivers State, Nigeria.

#1692  Poster Board Number .............................437

#1693  Poster Board Number .............................438
Reproductive Toxicity of Terminalia arjuna in Male Albino Rats. S. Chauhan1, and S. Agrawal2. 1ICMR, New Delhi, India; and 2Bhilai Mahila Mahavidyalaya, Bilai, Durg, India.

#1694  Poster Board Number .............................439
The Haemogram, Spermogram 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. Oyeyemi.

#1695  Poster Board Number .............................440
Manganese: A Potential Reprotoxicant? D. R. H. Silva1, L. J. Jilek2, and M. Maher1. 1International Manganese Institute, Paris, France; 2Charles River Edinburgh, Edinburgh, United Kingdom; and 3Intertek ASG, Manchester, United Kingdom. Sponsor: W. Harvey.

#1696  Poster Board Number .............................441
N-Acetylcycteine, but Not the Suppression of Treatment, Reverses the Effects of Arsenic Trioxide on the Mouse Reproductive System. R. F. Silva1, L. R. Kiguti1, C. S. Borges1, P. V. Silva2, G. Missassi2, A. S. Pupo2, and W. D. Kempinas2. 1State University of Campinas, Campinas, SP, Brazil; 2State University of Sao Paulo, Botucatu, SP, Brazil; and 3Pharmacology, State University of Sao 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. Wang1, Z. Weng1, K. Ohtani1, M. Suda1, and Y. Yanagiba1. 1Japan National Institute of Occupational Safety and Health, Kawasaki, Japan; and 2NCTR, Jefferson, AR. Sponsor: N. Mei.
Abstract #

#1698  Comparison of Infant Background Data from Pre- and Postnatal Developmental Studies in Cynomolgus Monkeys of Mainland and Island Origins. N. Lalaye1, S. Oneda1, N. Makori1, R. E. Watson1, S. Jacobsen1, S. M. Glaza1, T. Beek2, and K. Fukushima2. Safety Assessment, SNBL USA, Ltd., Everett, WA; and 2Corporate, Shin Nippon Biomedical Laboratories, Ltd, Tokyo, Japan.


#1700  Telmisartan Attenuates the Somatic and Germ Cells Damage in Streptozotocin-Induced Diabetic Rat: Cellular and Molecular Mechanisms. S. Kushwaha, and G. Jena. Department of Pharmacology and Toxicology, National Institute of Pharmaceutical Education and Research, Mohali, Punjab, India.

#1701  Expression and Localization of Xenobiotic Transporters in the Male Reproductive System. D. M. Klein1, N. J. Cherrington1, and S. H. Wright2. 1Pharmacology/Toxicology, University of Arizona, Tucson, AZ; and 2Physiology, University of Arizona, Tucson, AZ.

#1702  Phthalate Metabolism and Kinetics in an In Vitro Model of Testes Development. S. Harris1, S. Wegner1, S. Hong2, and E. M. Faustman3,4. 1Department of Environmental and Occupational Health Sciences, University of Washington, Seattle, WA; and 2Institute for Risk Analysis and Risk Communication, University of Washington, Seattle, WA.

#1703  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  Developing a Screen for Analysis of Environmental Epigenetic Effects. J. A. Camacho, and P. Allard. Molecular Toxicology, UCLA, Los Angeles, CA.


#1707  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  Age-Dependent Macrophage Infiltration into the Testis of Rats and Mice after Mono-(2-Ethylhexyl) Phthalate (MEHP) Exposure. C. Murphy, A. Sterner, and J. H. Richburg. Pharmacology & Toxicology, University of Texas at Austin, Austin, TX.

#1709  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  The Stage-Specific Apoptotic Response of the Rat Testis to Low-Dose 2,5-Hexanediol and X-Irradiation Coexposure. N. Catlin, S. M. Huse, and K. Boekelheide. Brown University, Providence, RI.

#1711  Surface Charged Iron Oxide Nanoparticles May Influence Reproductive and Developmental Toxicity in CD-1 Mice. K. R. Di Bona1, Y. Xu2, Y. Bao3, and J. F. Basco1. 1Department of Biological Sciences, The University of Alabama, Tuscaloosa, AL; and 2Department of Chemical and Biological Engineering, The University of Alabama, Tuscaloosa, AL.

#1712  Long-Term Effects of Low-Dose Prenatal Exposure to Endocrine Disruptors on Male Reproduction and Development. S. Jones1,2, A. Boisvert1, T. Duong1,4, S. Francois1,4, and M. Culty2,4. 1Research Institute of the McGill University Health Center, McGill University, Montreal, QC, Canada; 2Experimental Medicine, McGill University, Montreal, QC, Canada; 3Medicine, McGill University, Montreal, QC, Canada; and 4Pharmacology & Therapeutics, McGill University, Montreal, QC, Canada.

#1713  Perinatal Exposure to an Environmentally Relevant Mixture of Brominated Flame Retardants: Developmental and Metabolic Outcomes. E. W. Tung1, A. Kawata1, M. Rigden1, P. L. Lefevre2, R. G. Berger3, A. C. Holloway4, B. F. Hales5, and M. Wade6. 1Hazard Identification Division, Health Canada, Ottawa, ON, Canada; 2Pharmacology and Therapeutics, McGill University, Montreal, ON, Canada; and 3Department of Chemical and Biological Engineering, The University of Alabama, Tuscaloosa, AL.

#1714  Reproductive and Developmental Toxicology Assessment of Oral Dietary Calcium Formate in Yucatan Miniature Swine. T. Madsen1, A. Stricker-Krongrad1, D. W. Holson1, C. Selby1, G. P. Georges1, R. P. Hanzlik1, D. Brocksmith1, J. Liu2, and G. Bouchard. 1Sinclair Research Center, LLC, Columbia, MO; 2Lonestar Pharmaceuticals, TX; 3University of Kansas, Lawrence, KS; and 4Nephro-Tech 1, LLC, Shawnee, KS.
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<td>#1713b</td>
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<td>Effect of Vincamine on the Reproductive System of Harlan Sprague-Dawley Rats and B6C3F1/N Mice. I. Sunth1, B. McIntyre1, M. J. Hoenerhoff1, D. M. Fallacara1, D. Y. Vasconcelos1, M. Vallant1, and P. Chai1. Toxicology Branch, National Toxicology Program, National Institute of Environmental Health Sciences, Research Triangle Park, NC; 2Cellular &amp; Molecular Pathology Branch, NIEHS, RTP, NC; 3Program Operations Branch, NIEHS, RTP, NC; and 4Batelle, Columbus, OH.</td>
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<td>#1713c</td>
<td>#1713f</td>
<td>Dose Addition Predicts Effects of Phthalate Mixture on Male Reproductive Tract Development and Associated Fetal Testis Gene Expression in Rats. K. L. Howdeshell1, C. V. Rider1, J. H. Furr2, V. S. Wilson3, and L. E. Gray3. NIEHS, RTP, NC; and 4USEPA, RTP, NC.</td>
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<td>#1713d</td>
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<td>The Effects of Triclosan on the Male Reproductive System of the Rat. T. E. Stoker1, G. W. Louis1, and D. Hallinger1. Endocrinology Branch, US EPA, Research Triangle Park, NC.</td>
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<tr>
<td>#1713e</td>
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<td>Effect of Oral Bisphenol A (BPA) and Ethyl Estradiol (EE2) on Genome-Wide Gene Expression in Prostates from 4-Day-Old Rats. L. Camacho1, C. Chang1, M. Basavarajappa1, T. Han1, J. C. Fuscoe1, S. Lewis1, M. Vanlandingham1, and K. Delcos1. NCTR, FDA, Jefferson, AR.</td>
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<td>#1713g</td>
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<td>Aflatoxin B1 Interferes with Steroidogenic Machinery to Suppress Testosterone Secretion in Rats Leydig Cells. L. A. Adelekan1, M. K. Nanjappa1, E. O. Farombi1, and B. T. Akingbemi1. Department of Anatomy, Physiology, and Pharmacology, Auburn University, Auburn, AL; and 2Drug Metabolism and Toxicology Research Laboratories, Department of Biochemistry, University of Ibadan, Ibadan, Oyo, Nigeria.</td>
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<td>#1713h</td>
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<td>Effect of Neonatal Exposure to Decabromodiphenyl Ether on Transcript Levels of Thyroid Hormone Receptor α and Androgen Receptor in Mouse Sertoli Cells. H. Miyao1, N. Nakamura1, Y. Matsuno1, and C. Mori1. 1Center for Preventive Medical Science, Chiba University, Chiba, Japan; 2Department of Pharmacology, Physiology and Toxicology, Food and Drug Administration, Jefferson, AR; and 3Department of Bioenvironmental Medicine, Graduate School of Medicine, Chiba University, Chiba, Japan.</td>
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<td>#1713i</td>
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<td>The microRNAS Pathway in Mechanism of Crude Oil/Dispersant-Induced Reproductive Toxicity. X. Pan1, Y. Zhang1, and J. R. Pollit1. 1Biology, East Carolina University, Greenville, NC.</td>
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<td>#1713k</td>
<td>#1713j</td>
<td>Cross-Species Evaluation of Endocrine Disrupting Effects of Lead (Pb) on Maturation and Development. E. P. Hines1, L. Vinikoor-Imler1, and M. G. Lassiter1. EMAG, NCEA, US EPA, Research Triangle Park, NC.</td>
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Wednesday Morning, March 26
9:00 AM to 12:30 PM
Exhibit Hall
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

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<td>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. Mehrpouya1, P. S. Nagarkatti1, and M. Nagarkatti1. 1Pathology, Microbiology and Immunology, University of South Carolina School of Medicine, Columbia, SC.</td>
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<td>#1713m</td>
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<td>Relationship between Allergic Characteristics of Swine Husbandry Workers and Endotoxin Level in Swine Farm Dust. H. Kim1, Y. Heo1, K. Shin1, J. Jo1, and K. Roque1. 1Occupational Health, Catholic University of Daegu, Gyeongsan si, Republic of Korea; and 2Preventive Medicine, The Catholic University of Korea, Seoul, Republic of Korea.</td>
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<tr>
<td>#1713n</td>
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<td>Glucose and Insulin Mediated Alteration in Metabolic Activity of U937 Cells. A. Engin1, B. Karahalili1, and E. Coskun1. 1Department of Toxicology, Gazi University, Faculty of Pharmacy, Ankara, Turkey.</td>
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<td>#1713o</td>
<td>#1713p</td>
<td>Ascorbic Acid Improves Hyperoxia-Compromised Host Defense against Pseudomonas aeruginosa Infection in Mice. V. S. Patel1, V. Sampat1, M. Espey1, H. Wang1, and L. Montefelt2. 1Department of Pharmaceutical Sciences, St. John’s University College of Pharmacy and Health Sciences, Jamaica, NY; 2Centers for Inflammation and Immunology, The Feinstein Institute for Medical Research, North Shore-LIJ Health Science, Manhasset, NY, and 3National Institutes of Health, Bethesda, MD.</td>
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<tr>
<td>#1713p</td>
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<td>Immunotoxicity of Sodium Methylthiocarbamate: Potential Connections of Disparate Effects. W. Tan1, B. Nanduri1, X. Deng2, and S. B. Pruet1. 1Basic Sciences, Mississippi State University, Mississippi State, MS.</td>
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#1713q

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Immunotoxicity Profile following Exposure to Silt Deposit Dust Samples from Nellis Dunes Recreational Area, Clark County, Nevada. 1 L. Murphy, 2 W. B. David, 3 R. M. Chow, 4 J. C. Dewitt, 5 C. M. Peden-Adams, 6 M. R. Chou, 7 W. B. David, 8 L. T. Murphy, 9 M. Jensen, 10 N. Walters, 11 L. Gryder, 12 B. J. Buck, 13 D. Goossens, 14 Y. Teng, 15 S. Young, 16 N. Walters, 17 D. E. Keil. 1Microbiology, MSU, Bozeman, MT; 2Harry Reid Center for Env. Studies, UNLV, Las Vegas, NV; 3Anthropology, UNLV, Las Vegas, NV; 4Geoscience, UNLV, Las Vegas, NV; and 5Pharmacy 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 CNB2: Median Grain Size 4.5 μm. 1 J. C. Dewitt, 2 M. M. Peden-Adams, 3 R. M. Chou, 4 W. B. David, 5 L. T. Murphy, 6 M. Jensen, 7 N. Walters, 8 L. Gryder, 9 B. J. Buck, 10 D. Goossens, 11 Y. Teng, 12 S. Young, 13 and 14 D. E. Keil. 1Microbiology, Montana State University, Bozeman, MT; 2Harry Reid Center, University of Nevada, Las Vegas, NV; 3Anthropology, University of Nevada, Las Vegas, NV; 4Pharmacology and Toxicology, East Carolina University, Greenville, NC; and 5Geoscience, 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). 1 G. Bannister, 2 M. S. Perpetua, 3 A. J. Beavis, 4 B. Frautschy, 5 S. Harvey, 6 T. Ziegelhofer, 7 J. Doughty, 8 and 9 L. A. Coney. 1Biomarkers, Bioanalysis, and Clinical Sciences, Huntingtondon Life Sciences, East Millstone, NJ; 2Biologics, Huntingtondon Life Sciences, Huntingtondon, Cambridgeshire, United Kingdom; and 3Cardiology/Infusion Technology, Huntingtondon 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. 1 P. Nallasamy, 2 H. Shiba, 3 E. Brooke, 4 H. Zhu, 5 Y. Li, 6 and 7 Z. Jia. 1University of North Carolina at Greensboro, Greensboro, NC; and 2Campbell 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. 1 P. Joseph, 2 R. Sellamuthu, 3 J. R. Roberts, 4 S. Young, 5 D. Richardson, 6 W. McKinney, 7 B. T. Chen, 8 D. G. Frazer, 9 J. Gu, 10 M. L. Kasoni, 11 and 12 C. Umbricht. 1NIOSH, Morgantown, WV.

#1713v

Poster Board Number ..................................... 481

Regulation of Covalent Modification of 2-Tert-Butyl-1,4-Benzoquinone to Keap1 through Glutathione-Mediated S-Transamlylation. 1 Y. Abiko, 2 and 3 Y. Kamagai. 1Graduate School of Comprehensive Human Sciences, University of Tsukuba, Ibaraki, Japan; and 2Research 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. 1 S. Hiemstra, 2 B. Herpers, 3 M. Niemeljser, 4 S. Wink, 5 and 6 B. von der Water. 1Toxicology, 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. 1 Y. Shinkai, 2 S. Nakajima, 3 A. Figuren-Fernandez, 4 E. Stefano, 5 D. A. Schmitz, 6 J. R. Frotnes, 7 A. K. Cho, 8 and 9 Y. Kamagai. 1Faculty of Medicine, University of Tsukuba, Tsukuba, Ibaraki, Japan; 2Graduate School of Life and Environmental Sciences, University of Tsukuba, Tsukuba, Ibaraki, Japan; and 3Southern 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. 1 R. Hirose, 2 T. Mura, 3 R. Sha, 4 Y. Shinkai, 5 R. Tanaka-Kagawa, 6 and 7 Y. Kamagai. 1Biomedical Engineering, Graduate School of Medical Sciences, Faculty of Medical Science, University of Tsukuba, Tsukuba, Ibaraki, Japan; 2Graduate School of Life and Environmental Sciences, University of Tsukuba, Tsukuba, Ibaraki, Japan; and 3Southern California Particle Center, University of California Los Angeles, Los Angeles, CA.

#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. 1 E. O. Fariyomi, 2 S. Shrotriya, 3 and 4 Y. Surh. 1Biochemistry, University of Ibadan, Ibadan, Oyo State, Nigeria; and 2Research Institute of Pharmaceutical Sciences, Seoul National University, Korea, Republic of Korea.
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Ozone Induces Lung Epithelial Cell Inflammation through MAP Kinase Activation without NF-κB Activation.  S. D. McCullough1, K. E. Duncan2, S. M. Swanton1, L. A. Dailey1, D. Diaz-Sanchez1, and R. Devlin1. 1Clinical Research Branch, US Environmental Protection Agency, Chapel Hill, NC; and 2Center for Environmental Medicine, Asthma, and Lung Biology, University of North Carolina - Chapel Hill, Chapel Hill, NC.

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.

Using In-Cell Proteomics to Assess the Effects of Mitochondrial Oxidative Phosphorylation Inhibitors on Cell Metabolism.  H. Garisde1, R. A. Capaldi2, X. Luo2, A. P. Capaldi1, and J. Eakins2. 1Drug Safety and Metabolism, AstraZeneca, Macclesfield, United Kingdom; 2MetProf Inc, Tucson, AZ, and 3University of Arizona, Tucson, AZ.  Sponsor: P. Duffy.

The NF-κb Family Member RelB Controls 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.  Medicine, McGill University, Montreal, QC, Canada.

Benz[a]pyrene and 1-Naphtoflavone Promote Nrf2 Nuclear Translocation in HepG2 Cells.  E. C. Herrera-Cogci, L. Ramirez-Martinez2, B. Munoz2, A. Sanchez-Flores3, F. Castorena2, E. Lopez-Bayghen2, and A. Albores1. 1Toxicology, Cinvestav, Mexico, DF, Mexico; 2Genetics and Molecular Biology, Cinvestav, Mexico, DF, Mexico; 3Escuela Nacional de Ciencias Biologicas, IPN, Mexico, DF, Mexico; and 4Human Growth and Development Area, Tecnologico de Monterrey, Monterrey, NL, Mexico.

Heat Shock Protein A6 Expression Is Increased by AP1 and Repressed by TNIP1.  V. P. Ramirez3, M. Stamatii2, A. Shmukler2, and B. J. Aneskiyich1. 1Dept of Pharmaceutical Sciences, University of Connecticut, Storrs, CT, and 2PharmD Program, School of Pharmacy, University of Connecticut, Storrs, CT.

Role of Cytokines in Regulation of Angiotensinogen in Human Hepatocytes.  M. R. Karin, R. A. Ansari2, M. A. Clark, and S. A. Rizvi1. 1Pharmaceutical Sciences, Nova Southeastern University, Fort Lauderdale, FL.


Role of Hypoxiamimetics in Regulation of Angiotensinogen in Human Hepatocytes.  R. A. Ansari1, 2, M. R. Karin, S. A. Rizvi1, and M. A. Clark.  Pharmaceutical Sciences, Nova Southeastern University, Fort Lauderdale, FL.

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.


An Approach to Investigate Intracellular Protein Network Responses.  A. A. Han1, 2, H. N. Williams1, J. A. Vrana1, N. Boggs2, and J. W. Boyd3.  Chemistry, West Virginia University, Morgantown, WV; and 3Applied Physics Laboratory, Johns Hopkins University, Laurel, MD.

The microRNA Pathway in Blast-Induced Neurotrauma.  D. Dobkins, J. R. Polli, E. E. Connolly, and X. Pan.  Biology, East Carolina University, Greenville, NC.

The Effect of Thiazolidinediones on Cell Metabolism.  J. Eakins1, R. A. Capaldi2, X. Luo2, A. P. Capaldi1, and H. Garisde1. 1Drug Safety and Metabolism, AstraZeneca, Macclesfield, United Kingdom; 2MetProf Inc, Tucson, AZ, and 3University of Arizona, Tucson, AZ.  Sponsor: P. Duffy.

High-Throughput Screening for Cellular Signaling Toxicity Provides Alternatives to Cytotoxicity Measures.  C. L. Sherwood2, M. McCorkel2, and S. Boitano3, 4. 1Arizona Respiratory Center, University of Arizona, Tucson, AZ; 2BIO 5 Research Institute, University of Arizona, Tucson, AZ; 3Southwest Environmental Health Sciences Center, University of Arizona, Tucson, AZ; and 4Chemistry, University of Arizona, Tucson, AZ.

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.

TC-PTP Inhibits UVB-Induced Keratinocyte Survival and Proliferation by Regulating Stat3 Signaling.  J. W. Shin1, 2, H. Lee1, 2, L. D. Morales1, T. J. Slaga1, 2, and D. J. Kim1, 2. 1Pharmacology, University of Texas Health Science Center at San Antonio, San Antonio, TX; and 2Edinburgh Medical Research Division, University of Texas Health Science Center at San Antonio, Edinburgh, TX.
Abstract #  #1736a  Poster Board Number ..............................524 Patterns of Gene Coregulation across Multiple Tissues Undergoing Toxicological Challenge. S. S. Auerbach1, D. L. Svoboda2, B. A. Merrick1, and R. R. Tice1. 1National Toxicology Program, National Institute of Environmental Health Sciences, Research Triangle Park, NC; and 2Social and Scientific Systems, Inc, Durham, NC.

Abstract #  #1736b  Poster Board Number ..............................525 Regulation of Human CYP2C9 Expression by Electrophilic Stress Involves AP-1 Activation and DNA Looping. N. L. Makia1, S. Surapureddi1, R. A. Prough2, and I. A. Goldstein1. 1Human Metabolism Group, Laboratory of Toxicology and Pharmacology, National Institute of Environmental Health Sciences (NIEHS), Research Triangle Park, NC; and 2Biotechnology and Molecular Biology, University of Louisville School of Medicine, Louisville, KY.

Abstract #  #1736c  Poster Board Number ..............................526 Dose-Specific Nicotine-Dependent Behaviors in Caenorhabditis elegans: Regulation of Nicotinic Acetylcholine Receptors. J. R. Polli1, and X. Pan2. 1Biology, East Carolina University, Cary, NC.

Abstract #  #1736d  Poster Board Number ..............................527 Nrf2 Protects Mitochondrial Degeneration by Oxidative Stress. J. G. Strom1, B. Xu1, J. A. Johnson1, and Q. M. Chen1. Pharmacology, University of Arizona, Tucson, AZ; and 2School of Pharmacy, University of Wisconsin-Madison, Madison, WI.

Abstract #  #1736e  Poster Board Number ..............................528 RNA-Seq Analysis of the Functional Link between Vascular Disruption and Adverse Developmental Consequences. J. Franzosa1, R. S. Settivari1, R. Ellis-Hutchings1, N. Kleinsteuere1, H. Houk1, E. W. Carney2, and T. R. Knudsen3. 1NCCT, U.S. EPA, RTP, NC; and 2The Dow Chemical Company, Midland, MI; and 3ILS, Inc/NICEATM, NIEHS, RTP, NC.

Wednesday Morning, March 26
9:00 AM to 12:30 PM
Exhibit Hall

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


Abstract #  #1738  Poster Board Number ..............................534 MiRNonics, Metabolomics, and 3D Neuronal Differentiation of LUMHES Progenitor Cells As an In Vitro Model for DNT Studies. L. Smirnova, G. Harris, J. Delp, H. T. Hogberg, D. Pannies, 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.

Abstract #  #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. Alnamkani1,2, S. A. Mousa3, and H. A. El-Fawal3. Neurotoxicology Laboratory, Albany College of Pharmacy and Health Sciences, Albany, NY; and 2Pharmaceutical Research Institute, Albany College of Pharmacy and Health Sciences, Albany, NY.


Abstract #  #1743  Poster Board Number ..............................539 Motor Dysfunction in Mice Varying at the AhR and Cypr1a2 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.


Abstract #  #1745  Poster Board Number ..............................541 PFOS Induces Behavioral Alterations Compatible with ADHD in a Zebrafish Model of Developmental Neurotoxicity. S. Spulber1, P. Kilian1, S. Negri2, M. Di Tuccio1, and S. Ceccatelli1. 1Neuroscience, Karolinska Institutet, Stockholm, Sweden; and 2Environmental Research Center, Salvatore Maugeri Foundation, Pavia, Italy.

Abstract #  #1746  Poster Board Number ..............................542 Early Embryonic 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) Exposure Disrupts Forebrain and Cerebral Vascular Development in Zebrafish. T. S. Pivovick1, K. Miller, E. Christensen, R. E. Peterson, and W. Heideman. School of Pharmacy, University of Wisconsin at Madison, Madison, WI.
Abstract # | Poster Board Number ..................................... Abstract # | Poster Board Number .....................................
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#1747 | Rapid Identification and Characterization of Neuronmodulator Chemicals Using an Embryonic Zebrafish System. D. Reif¹, R. L. Tanguay², L. Truong³, and D. Mandrell⁴. ¹Bioinformatics Research Center, North Carolina State University, Raleigh, NC; and ²Department of Environmental and Molecular Toxicology, Oregon State University, Corvallis, OR.
#1747a | Poster Board Number ..................................... Predictions of Developmental Neurotoxicity Potential of TDCPP. V. C. Moser¹, P. M. Phillips¹, K. L. McDaniel¹, K. A. Jarema¹, K. R. Paul¹, J. M. Hedge¹, W. R. Mundy¹, T. J. Shaffer¹, and S. Padilla¹. ¹TAD/NHEERL, US EPA, RTP, NC; and ²ISTD/NHEERL, US EPA, RTP, NC.
#1747b | Impact of Perinatal TCDD Exposure on Neuroendocrine Stress Response System in Mice. S. L. Benner¹, T. Inoshita¹, Y. Ding¹, M. Kakeyama², and C. Tohyama¹. ¹Grad School of Med., University of Tokyo, Bunkyo-Ku, Tokyo, Japan; and ²Grad. Sch. Biomed. Sci, Nagasaki University, Nagasaki, Nagasaki, Japan.
#1747c | Poster Board Number ..................................... Developmental Exposure to PCBs Differentially Alters Sensitivity to Audiogenic and Kindling-Induced Seizures in Rats. S. Bandara¹, S. L. Schantz¹, and M. E. Gilbert¹. ¹University of Illinois at Urbana-Champaign, Urbana, IL; and ²US EPA, Research Triangle Park, NC.
#1747d | Poster Board Number ..................................... Zebrafish Model of PCB Developmental Neurotoxicity. G. W. Miller¹, and P. Linn¹. ¹Molecular Biosciences, University of California, Davis, Davis, CA.
#1747e | Poster Board Number ..................................... Sex-Dependent Effects of Lead and Prenatal Stress on Neonatal Stress Receptor and Adult Corticosterone Levels. S. Pelkowski², M. Sobolewski¹, H. Westen¹, S. Kidd¹, D. W. Anderson¹, J. S. Schneider¹, and D. A. Cory-Slechta¹. ¹Univ. of Rochester, Rochester, NY; and ²Thomas Jefferson Univ., Philadelphia, PA.

Wednesday Morning, March 26
9:00 AM to 12:30 PM
Exhibit Hall

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

Poster Board Number ..................................... Persistent Organic Pollutants and Different Types of Pesticides Can Interact during Brain Development to Exacerbate Behavioral and Cognitive Deficits in Mice. H. Viberg¹, I. Lee¹, S. Buratovic, A. Fredriksson, and P. Eriksson. Environmental Toxicology, Uppsala University, Uppsala, Sweden.
#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. Eriksson1, S. Buratovic1, B. Stenerlow1, A. Fredriksson1, and S. Sundell-Bergman1. 
1Dept. Environmental Toxicology, Uppsala University, Uppsala, Sweden; and 2Dept. Radiology, Oncology and Radiation Science, Uppsala University, Uppsala, Sweden; and 3Dept. Soil and Environment, Swedish University, Uppsala, Sweden.

#1758
Poster Board Number .....................................559
The Antirheumatic Drug, Leflunomide, Interferes with the Dopamine Synthesis Pathway. T. Mattingly1,2, M. Heberlein2, and L. R. Scott2. 
1Environmental and Occupational Health Sciences, University of Washington, Seattle, WA; 2Institute for Risk Analysis and Risk Communication, University of Washington, Seattle, WA.

#1759
Poster Board Number .....................................560
1Department of Molecular Bioscience, University of California Davis, Davis, CA; 2Department of Internal Medicine, University of California Davis, Davis, CA; and 3M.I.N.D. Institute, University of California Davis, Davis, CA.

#1760
Poster Board Number .....................................561

#1761
Poster Board Number .....................................562
Nicotine-Induced Insomnia in Larval and Juvenile Zebrafish. M. E. Wolter1,2,3, J. Plautz1, and J. B. Nevers. 
1Dept. Environmental Toxicology, Uppsala University, Uppsala, Sweden; 2Dept. Radiology, Oncology and Radiation Science, Uppsala University, Uppsala, Sweden; and 3Dept. Soil and Environment, Swedish University of Agricultural Sciences, Uppsala, Sweden.

#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. Buratovic1, B. Stenerlow1, S. Sundell-Bergman1, A. Fredriksson1, and P. Eriksson1. 
1Dept. Environmental Toxicology, Uppsala University, Uppsala, Sweden; 2Dept. Radiology, Oncology and Radiation Science, Uppsala University, Uppsala, Sweden; and 3Dept. Soil and Environment, Swedish University of Agricultural Sciences, Uppsala, Sweden.

#1763
Poster Board Number .....................................564
1Environmental and Occupational Health Sciences, University of Washington, Seattle, WA; 2Medicinal Chemistry, University of Washington, Seattle, WA; and 3Institute 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. Parker1, D. C. Thake1, and R. C. Switzer2. 
1DART, Huntington Life Sciences, East Millstone, NJ; 2MW ToxPath Sciences LLC, Chesterfield, MO; and 3NeuroScience Associates, Inc, Knoxville, TN.

#1764a
Poster Board Number .....................................566
Comparing the Neurotoxic Effects of Propofol and Ketamine in Rat Embryonic Neural Stem Cells. F. Liu1, N. V. Sadovova1, C. M. Fogle1, T. A. Patterson1, M. G. Paule1, W. Slikker1, and C. Wang1. 
1National Center for Toxicological Research, Jefferson, AR; and 2Toxicologic Pathology Associates, Jefferson, AR.

#1764b
Poster Board Number .....................................567
1Toxicologic Pathology Associates, Jefferson, AR.

#1764c
Poster Board Number .....................................568
1Toxicologic Pathology Associates, Jefferson, AR; and 2Toxicology, NCTR/FDA, Jefferson, AR.

#1764d
Poster Board Number .....................................569
1Toxicologic Pathology, National Center for Toxicological Research, Jefferson, AR; and 23D Imaging, LLC, Little Rock, AR.

#1764e
Poster Board Number .....................................570
Program Description (Continued)

Wednesday Morning, March 26
9:15 AM to 10:15 AM
Room 106A West
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
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
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
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
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
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.
Wednesday Morning, March 26
10:30 AM to 11:30 AM
Room 106A West

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

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

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

Exhibitor-Hosted Session: Cellrects’ New Generation of Human iPSC Derived Specialized Cells with Improved Functionality: Enhanced HiPS-HEP2™, hiPS-CM™ and Pure hES-CM™ Highly Suitable for Toxicity Assessment
Presented by:
Cellrects 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, 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

Roundtable Session: Hydraulic Fracturing: Are There Worker Health Issues?

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 re-use 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. Kaden1, R. McClellan2, J. E. Snawder3, R. A. Nocco2, M. Finn3, and Z. Naufal2, ENVIRON International Corporation, Boston, MA; ‘Chevron, San Ramon, CA’; CDC-NIOSH, Williamstown, KY; and ‘Consultant, Albuquerque, NM.

Introduction. D. Kaden. ENVIRON International Corporation, Boston, MA.
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.]

Sponsor(s):
Biological Modeling Specialty Section
Occupational and Public Health Specialty Section
Reproductive and Developmental Toxicology Specialty Section

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.

Society of Toxicology 2014
Program Description (Continued)

Wednesday Afternoon, March 26
12:00 Noon to 1:20 PM
Room 128

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

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.

Panel Discussion/Q&A.

Wednesday Afternoon, March 26
12:00 Noon to 1:20 PM
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?

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
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 #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 Wright State University, Dayton, OH; and 3University 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. Center. University of Cincinnati, Cincinnati, OH.


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

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 dioxin 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 AhR- 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 U.W. Sea Grant.

Poster Session: Oxidative Injury and Redox Biology

Chairpersons: Scott W. Burchiel, University of New Mexico, Toxicology, Albuquerque, NM.

Displayed: 1:00 PM–4:25 PM

Author Attended: 1:00 PM–2:45 PM

Abstract #1768

Poster Board Number: 101

Pesticides-Induced Oxidative Damage: Possible In Vitro Protection by Antioxidants. K. A. Osman1, A. K. Salama2, and O. A. Omran1. Pesticide Chemistry & Technology Department, College of Agriculture, Alexandria, Egypt; and 2Medical Laboratories, Faculty of Science, Majmaah University, Majmaah, Saudi Arabia. Sponsor: K. Osman.

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.

Poster Board Number: 103

Brominated Diphenyl Ether-47 Induces Oxidative Stress and Inflammatory Pathways in Human Placental Cells In Vivo. H. Park, and R. Loich-Caruso. University of Michigan, Ann Arbor, MI.

Poster Board Number: 104

Radical Acylation of L-Lysine-Containing Peptides and Soralbumin by Peroxynitrite-Treated Diacetyl and Methylglyoxal. E. F. Bechara1, R. Tokikawa2, M. Machini3, M. Uemi1, N. A. Assunção1, and A. A. Alves1. 1Ciências Exatas e da Terra, Universidade Federal de São Paulo, Diadema, São Paulo, Brazil; and 2Bioquímica, Universidade de São Paulo, São Paulo, Brazil.

Poster Board Number: 105

MnPt Protects against Doxorubicin-Induced Cardiotoxicity In Vivo. W. Zhang, D. Coy, J. Deng, and M. Vore. Graduate Center for Toxicology, University of Kentucky, Lexington, KY.

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.

Poster Board Number: 107

Oxidative DNA Damage in Liver and Kidney of Weaning Rats due to Subchronic Coexistence of Aflatoxicosis and Protein Malnutrition. O. A. Rotimi1, O. Adeyemi2, E. Oluwafemi2, and E. A. Balogun1. 1Department of Biochemistry, Federal University of Agriculture, Abeokuta, Nigeria; 2Microbiology, Federal University of Agriculture, Abeokuta, Nigeria; and 2Biological Sciences, Covenant University, Ota, Nigeria.

Poster Board Number: 108

Boric Acid Activates PERK in DU-145 Prostate Cancer Cells. K. E. Yamada1, S. Kobylewski2, and C. D. Eckhart1,1 Molecular Toxicology IDP, University of California, Los Angeles, Los Angeles, CA; and 2Environmental Health Sciences, University of California, Los Angeles, Los Angeles, CA.
Abstract #1776

DNA Fragmentation in Rats following Exposure to Delta 9-Tetra Hydrocannabinol. O. A. Dosumu, S. O. Rotimi, E. O. Abani, O. Ademuyiwa, R. N. Ugba, O. B. Onunkwor, T. F. Akinhami, O. O. Ogunrinola, A. D. Wusie, A. A. Olaobi, and D. O. Babayemi. Biochemistry, Federal University of Agriculture, Abeokuta, Ogun, Nigeria; Chemistry, Federal University of Agriculture, Abeokuta, Ogun, Nigeria; Biological Sciences, Covenant University, Ota, Ogun, Nigeria; Biochemistry, Bells University, Sango Ota, Ogun, Nigeria; Biochemistry, Ladoke Akintola University of Technology, Osogbo, Osun, Nigeria; and Biochemistry, Lagos State University, Ojo, Lagos, Nigeria.

Abstract #1777

MALDI-Mass Spectrometry-Based Biochemical Microscopy of Cardiolipin Molecular Species in Brain Tissue. A. Amoscat0, L. J. Sparvero, R. He, B. Pitt, H. Bayir, and V. E. Kagami. Environmental and Occupational Health, University of Pittsburgh, Pittsburgh, PA; Critical Care Medicine, University of Pittsburgh, Pittsburgh, PA; and Pharmacy College, Jilin University, Changchun, China.

Abstract #1778

Exposure to Zinc Induces Compartment Specific Redox Changes in Bronchial Epithelial Cells. P. Wiges, R. Silbajoris, L. Brightton, and J. Samet. Curriculum in Toxicology, UNC, Chapel Hill, NC; EPHEL, NHEERL, EPA, Chapel Hill, NC; and CEMALB, UNC, Chapel Hill, NC.

Abstract #1779


Abstract #1780

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.

Abstract #1781

Selenoprotein P Regulates PCB3 Metabolite-Induced Oxidative Stress and Toxicity in Human Keratinocytes. W. Xiao, Y. Zhu, E. Sarsour, A. Kalen, N. Aykin-Burns, D. R. Spitz, and P. Goswami. Department of Radiation Oncology, The University of Iowa, Iowa City, IA; Department of Radiation Oncology, Northwestern University, Chicago, IL; and Department of Pharmaceutical Sciences, University of Arkansas for Medical Sciences, Little Rock, AR. Sponsor: L. Robertson.

Abstract #1782


Abstract #1783

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, E. L. Holmuhamedov, R. N. Deep, and J. J. Lemasters. Drug Discovery & Biomedical Sciences and Biochemistry & Molecular Biology, Medical University of South Carolina, Charleston, SC; Biochemistry, University of São Paulo, São Paulo, Brazil; and Center for Integrative Research on Cardiovascular Aging, Aurora University, Milwaukee, WI.

Abstract #1784


Abstract #1785

Nrf2 but Not NF-κB Is Activated by an Dust Organic Extract in BEAS-2B. R. I. Rodriguez, and B. D. Jimenez-Velez. Biochemistry and Center for Environmental and Toxicological Research, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico.

Abstract #1786


Abstract #1787

Investigating the Bioenergetic and Oxidative Impacts of Rapid Altitude Adjustment. M. K. Makley, R. R. Chapleau, A. G. Ntamack, J. M. Gearhart, and D. A. Mahle. Henry M. Jackson Foundation, Wright Patterson AFB, OH; NAMRU-D, Wright Patterson AFB, OH; Camris International, Wright Patterson AFB, OH; and USAF 711HPW/RHDJ, Wright Patterson AFB, OH.

Abstract #1788


Abstract #1789

Ethacrynic Acid Enhances Oxygen Toxicity-Compromised Macrophage Functions by Inhibiting HMGBl Release and NF-κB Activation. M. Wang, M. Muralidhar, R. A. Sitapara, S. Gorasiya, W. Wu, and L. Mantell. Pharmaceutical Science, St John’s University, Jamaica, NY; Center for Inflammation and Immunology, The Feinstein Institute for Medical Research, Manhasset, NY; and Center for Heart and Lung Research, The Feinstein Institute for Medical Research, Manhasset, NY.
#1790  Poster Board Number .....................................123
Protection of HepG2 Cells from Acrolein Toxicity by CDDO-Im via Glutathione-Mediated Mechanism. H. Shah1, C. Saunders1, A. Spero1, E. Brooke1, P. Nallasamy1, H. Zhu2, Y. Li3, and Z. Jia4, 1Department of Biology, University of North Carolina at Greensboro, Greensboro, NC; and 2Department of Pharmacology, Campbell University School of Osteopathic Medicine, Greensboro, NC.

#1791  Poster Board Number .....................................124
Methionine Sulfonilurea 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. Jia1, H. Zhu2, M. A. Trush1, and Y. Liu1, 1Department of Biology, University of North Carolina at Greensboro, Greensboro, NC; 2Bloomberg School of Public Health, Johns Hopkins University, Baltimore, MD; and 3Department of Pharmacology, Campbell University School of Osteopathic Medicine, Buies Creek, NC.

#1793  Poster Board Number .....................................126
Approaches to Minimize Hypoxia-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. Peng1, P. Xue2, Y. Hou1, J. Hait2, H. Zhang1, B. Sun2, J. Dong1, T. Zhou1, W. Qu1, S. Peng1, B. Nelson1, R. A. Clewell2, Q. Zhang1, M. E. Andersen1, and J. Pr1, 1Department of Biology, University of North Carolina at Greensboro, Greensboro, NC; 2Bloomberg School of Public Health, Johns Hopkins University, Baltimore, MD; and 3Department of Pharmacology, Campbell University School of Osteopathic Medicine, Buies Creek, NC.

#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 Hypoxic Lung Injury Model and Analysis of Sex-Specific Changes. K. Lingappan, W. Jiang, L. Wang, X. Coursaul, and B. Moorely, 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.

#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. Sauvoy1, 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 Quercetin, an Antioxidant, in Combination Attenuates Bleomycin-Induced Lung Fibrosis in Wistar Rats. R. Verma1, M. V. Patel2, V. Piccirillo3, P. Mehta4, T. Marvania5, and S. Balakrishnan6, 1VJP Consulting, Inc., Ashburn, VA; 2Department of Toxicology, Jai Research Foundation, Valvada, Gujarat, India; and 3Department 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. Ghosh1, V. J. Piccirillo2, M. V. Patel2, R. Verma1, P. Mehta4, T. Marvania5, and S. Balakrishnan6, 1VJP Consulting, Inc., Ashburn, VA; 2Department of Toxicology, Jai Research Foundation, Valvada, Gujarat, India; and 3Department 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. Thorne1, X. Wen2, M. S. Joy3, L. Hu4, and L. M. Aleksunes5, 1Dept of Pharmacy and Health Professions, Elizabeth City State University, Elizabeth City, NC; 2Dept of Pharmacology and Toxicology, Rutgers University, Piscataway, NJ; 3Dept of Medicinal Chemistry, Rutgers University, Piscataway, NJ; 4Dept of Pharmaceutical Sciences, University of Colorado, Aurora, CO; and 5Environmental 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 miTORT1 Repression. D. N. Tripathi1, J. Zhang1, J. Jing1, A. Alexander1, R. Dere1, and C. L. Walker1, 1Center for Translational Cancer Research, IBT Texas A & M HSC, Houston, TX; and 2Department of System Biology, UT M D Anderson Cancer Center, Houston, TX.
# Program Description (Continued)

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<td>Distinct Roles of Basal and Inducible Nrf2-Medicated Antioxidant Response against Cobalt Chloride-Induced Cytotoxicity in Human Keratinocytes. R. Zhao¹, L. Wang¹, M. Zhang¹, S. Jiang¹, J. Fu¹, J. Chen¹, B. Yang¹, X. Liang¹, D. Guan¹, and J. Pi². ¹School of Forensic Medicine, China Medical University, Shenyang, China; ²School of Public Health, China Medical University, Shenyang, China; and ³China Medical University, Shenyang, China.</td>
<td>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.</td>
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<td>A Dilution Effect in the Malondialdehyde Measurement in Serum with High-Performance Liquid Chromatography-Tandem Mass Spectrometry. Q. Wu¹, L. M. Kamendulis², and B. A. Hocevar³. ¹Department of Environmental Health, Indiana University School of Public Health, Bloomington, IN.</td>
<td>Weight-of-Evidence Evaluation of Short-Term Ozone Exposure and Cardiovascular Effects. R. L. Proest¹, S. N. Sax², H. N. Lynch³, J. C. Lenay⁴, J. M. King⁵, and J. E. Goodman⁶. Gradient, Seattle, WA; and ⁷Gradient, Cambridge, MA.</td>
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<td>Poster Board Number.....................................147</td>
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<tr>
<td>Role of Cystine/Glutamate Transporter SLC7A11 in Bleomycin-Induced Lung Inflammation and Fibrosis in Mice. H. Cho¹, L. Miller-DeGraff¹, and S. R. Kleeberger¹. ¹Laboratory of Respiratory Biology, NIEHS, NIH, Research Triangle Park, NC.</td>
<td>Do Asbestos-Induced Pleural Plaques Cause Lung Function Deficits? L. E. Kerper¹, H. N. Lynch², L. C. Mohr³, and J. E. Goodman⁴. Gradient, Cambridge, MA; and ⁵Medical University of South Carolina, Charleston, SC.</td>
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<td>Poster Board Number.....................................141</td>
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<td>Toxicologic Assessment of Air Ion Exposures in Laboratory Animals. W. H. Bailey¹, and A. Lavin Williams². ¹Exponent, Alexandria, VA; and ²Exponent, Bowie, MD.</td>
<td>Acute Effects of Acrolein in Human Volunteers during Controlled Exposure. A. Dewet¹, L. Ernström², L. Palmberg³, J. C. Lorentzen⁴, and G. Johanson⁵. Institute of Environmental Medicine, Karolinska Institutet, Stockholm, Sweden.</td>
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<td>Poster Board Number.....................................142</td>
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<td>Assessment of Antiandrogenic Effects Observed following Exposure to Phthalates: An Evaluation of Concordance between Epidemiological, Animal, and Mechanistic Evidence. X. Arzuago¹, A. Hotchkiss¹, T. Walker¹, C. Brinkerhoff¹, K. Christensen¹, and G. Cooper¹. ¹ORD/NCEA, US EPA, Washington, DC; and ²Oak Ridge Institute for Science &amp; Education, Oak Ridge, TN.</td>
<td>At the Intersection of Occupational Toxicology and Product Quality: Harmonization of Risk-Based Values in the Pharmaceutical Sector. P. Weideman¹, A. Maier², A. Willis³, R. Sandhus⁴, and S. Gomez⁵. Safety Assessment, Genentech, Inc., South San Francisco, CA; and ¹Dept. of Environmental Health, University of Cincinnati College of Medicine, Cincinnati, OH; and ²The Toxicology Excellence for Risk Assessment, Cincinnati, OH.</td>
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<td>Poster Board Number.....................................151</td>
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<td>Evidence on the Carcinogenicity of Butyl Benzyl Phthalate (BBP) and Possible Mechanisms of Action. C. Hisle¹, M. Sun¹, J. D. Bubroce₂, M. S. Sandy³, and L. Ziese. OEHHA, Cal/EPA, Sacramento, CA.</td>
<td>Cumulative Risks in Occupational Settings: A Checklist Tool to Support Decision Making. R. C. Lee¹, P. Nance⁴, A. Lamba⁵, and A. Maier⁶. Neptune and Company, Inc., Albuquerque, NM; ¹Toxicology Excellence for Risk Assessment, Cincinnati, OH; ²US Environmental Protection Agency, Washington, DC; and ³University of Cincinnati, Cincinnati, OH.</td>
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**Wednesday Afternoon, March 26**

1:00 PM to 4:30 PM

Exhibit Hall

**Poster Session: Risk Assessment II**

Enhancing Strategies for Risk Assessment

**Chairperson(s):** Lynne T. Haber, Toxicology Excellence for Risk Assessment (TERA), Cincinnati, OH.

**Display:** 1:00 PM–4:30 PM

**Author Attended:** 2:45 PM–4:30 PM

**Poster Board Number.....................................141**

Animals Behaviors Associated with Developmental Chlorpyrifos Exposure Are Inconsistent with Autism. A. Lavin Williams¹, and J. M. DeSesso². Exponent, Alexandria, VA.

**Poster Board Number.....................................142**

Toxicologic Assessment of Air Ion Exposures in Laboratory Animals. W. H. Bailey¹, and A. Lavin Williams². ¹Exponent, Alexandria, VA; and ²Exponent, Bowie, MD.

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Assessment of Antiandrogenic Effects Observed following Exposure to Phthalates: An Evaluation of Concordance between Epidemiological, Animal, and Mechanistic Evidence. X. Arzuago¹, A. Hotchkiss¹, T. Walker¹, C. Brinkerhoff¹, K. Christensen¹, and G. Cooper¹. ¹ORD/NCEA, US EPA, Washington, DC; and ²Oak Ridge Institute for Science & Education, Oak Ridge, TN.

**Poster Board Number.....................................144**

Evidence on the Carcinogenicity of Butyl Benzyl Phthalate (BBP) and Possible Mechanisms of Action. C. Hisle¹, M. Sun¹, J. D. Bubroce₂, M. S. Sandy³, and L. Ziese. OEHHA, Cal/EPA, Sacramento, CA.

**Poster Board Number.....................................145**


**Poster Board Number.....................................146**

Weight-of-Evidence Evaluation of Short-Term Ozone Exposure and Cardiovascular Effects. R. L. Pruce¹, S. N. Sax², H. N. Lynch³, J. C. Lenay⁴, J. M. King⁵, and J. E. Goodman⁶. Gradient, Seattle, WA; and ⁷Gradient, Cambridge, MA.

**Poster Board Number.....................................147**

Do Asbestos-Induced Pleural Plaques Cause Lung Function Deficits? L. E. Kerper¹, H. N. Lynch², L. C. Mohr³, and J. E. Goodman⁴. Gradient, Cambridge, MA; and ⁵Medical University of South Carolina, Charleston, SC.

**Poster Board Number.....................................148**

Firefighters’ Inhalation Exposures and the Risk of Developing Multiple Myeloma. M. Peterson, and P. A. Valberg. Gradient, Seattle, WA.

**Poster Board Number.....................................149**

Toxicological Review of Biocides Used in Hydraulic Fracturing. A. Pawlisz¹, and A. L. LeBeau². CRA, Dallas, TX.

**Poster Board Number.....................................150**

Acute Effects of Acrolein in Human Volunteers during Controlled Exposure. A. Dewet¹, L. Ernström², L. Palmberg³, J. C. Lorentzen⁴, and G. Johanson⁵. Institute of Environmental Medicine, Karolinska Institutet, Stockholm, Sweden.

**Poster Board Number.....................................151**

At the Intersection of Occupational Toxicology and Product Quality: Harmonization of Risk-Based Values in the Pharmaceutical Sector. P. Weideman¹, A. Maier², A. Willis³, R. Sandhus⁴, and S. Gomez⁵. Safety Assessment, Genentech, Inc., South San Francisco, CA; and ¹Dept. of Environmental Health, University of Cincinnati College of Medicine, Cincinnati, OH; and ²Toxicology Excellence for Risk Assessment, Cincinnati, OH.

**Poster Board Number.....................................152**

Cumulative Risks in Occupational Settings: A Checklist Tool to Support Decision Making. R. C. Lee¹, P. Nance², A. Lamba³, and A. Maier⁴. Neptune and Company, Inc., Albuquerque, NM; ¹Toxicology Excellence for Risk Assessment, Cincinnati, OH; ²US Environmental Protection Agency, Washington, DC; and ³University of Cincinnati, Cincinnati, OH.

**Poster Board Number.....................................153**

Improper Use of Haber’s Law Results in Erroneous Fatality Estimation from Predictive Models. H. Salem¹, J. Moser², and D. R. Sommerville¹. ¹U.S. Army Edgewood Chemical Biological Center, Aberdeen Proving Ground, MD; ²Chemical Security Analysis Center, Department of Homeland Security; CompD (APG-EA), MD; and ³Battelle Memorial Institute, Columbus, OH.
### Abstract #1818
**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.**
R. Woutersen1, S. R. Channell2, N. M. Gargas3, and B. C. Sharits4.

1, University of Nebraska Medical Center, Omaha, NE; 2University of Ottawa, Ottawa, ON, Canada; and 3Environment Canada, Ottawa, ON, Canada.

### Abstract #1820
**Use of a Single-Pass, Nose-Only Exposure System to Simulate High Altitudes.**

1, CAMRIS, WPAFB, OH; 2NAMRU Dayton, Henry M. Jackson Foundation, WPAFB, OH; 3NAMRU Dayton, CAMRIS, WPAFB, OH; 4Edgewood Chemical Biological Center, Aberdeen Proving Ground, MD; and 5Leidos, Linton, IN.

### Abstract #1821
**Comparison of Liver Toxicity Potencies of Three Dinitrotoluene Compounds.**
Z. Yan7, and J. Zhao2.

7, ORISE, Cincinnati, OH; and 2National Center for Environmental Assessment, US EPA, Cincinnati, OH.

### Abstract #1822
**Methylmercury Inhibition of Serum Paraoxonase 1 Activity and the Risk of Cardiovascular Disease.**
B. R. Sonawane1, R. Nath1, P. Lewandowski2, and G. L. Ginsberg3.

1, NCEA/ORD, U.S. Environmental Protection Agency, Washington, DC; 2School of Medicine, Deakin University, Geelong, VIC, Australia; and 3Connecticut Department of Public Health, Hartford, CT.

### Abstract #1823
**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.
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#1831
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#1831a
Poster Board Number .....................................168
Scientists’ Attitudes toward Regulatory Risk Assessment. S. Lichter, and J. M. DeSesso2.1, Exponent, Alexandria, VA; 2Georgetown University, Washington, DC; and 3CMAP, George Mason University, Arlington, VA.

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New Concepts for Risk and Safety Assessment of Plant Food Supplements (PFS). S. van den Berg, and I. Rietjens. 1Toxicology, Wageningen University, Wageningen, Netherlands.

#1831f
Poster Board Number .....................................173
Probabilistic Environmental Hazard Assessments of ToxCast Phase I and II In Vitro Datasets. L. A. Kristofo, D. A. Dreier, E. S. Williams, J. Corrales, E. P. Gallagher, T. Kavanagh, A. Voughtova, J. B. Zimmerman, P. Anastas, and B. W. Brooks. 1Environmental Science, Baylor University, Waco, TX; 2University of Washington, Seattle, WA; 3George Washington University, Washington, DC; and 4Yale 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, P. M. Hinderliter, R. Chiananat, J. Wright, P. Whalley, A. Stevens, J. D. McDonald, P. J. Kuehl, M. Doyle-Eisele, C. Garner, and R. W. Lewis. 1Syngenta, Greensboro, NC; and 2Lovelace 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, T. Blessinger, A. E. Sasso, S. L. Makris, and A. S. Bale. 1National Center for Environmental Assessment, USEPA, Washington, DC; and 2Drug 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, Y. W. Lowney, M. Ruby, and S. M. Roberts. 1University of Florida, Gainesville, FL; 2Exponent, Boulder, CO; and 3Integral Consulting, Louisville, CO.

#1831j
Poster Board Number .....................................177
In Vitro Toxicity Assessment of Dust Emissions from South African Gold Mine Dumps. C. Andraos, and M. Galamant. 1Toxicology, NIOH, Johannesburg, Gauteng, South Africa; and 2Haematology & Molecular Medicine, Wits, Johannesburg, Gauteng, South Africa.

#1831k
Poster Board Number .....................................178

#1831l
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#1831m
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Prevalence of Molds in Residential Indoor and Outdoor Environments in Northern California and Its Implication in Health Risk Assessment. I. Arnould, and S. Kim. 1ToxiSan, Bangor, CA.
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<td>Environmental Pesticides Induce Histone 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. Ananda1ram, B. Natarajan, A. Kang1hasamy, and A. Karad1hasamy. Biomedical Sciences, Iowa State University, Ames, IA.</td>
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<td>Poster Board Number .....................................204</td>
<td>Azole Fungicides Disturb Intracellular Ca2+ in an Additive Manner in Dopaminergic PC12 Cells. R. H. Westerink, and H. J. Heusinkveld. Neurotoxicology Research Group, Institute for Risk Assessment Sciences - University of Utrecht, Utrecht, Netherlands.</td>
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<td>Poster Board Number .....................................205</td>
<td>Atrazine Alters Neuronal Redox Status but Does Not Activate Nrf2. J. Roede1, D. I. Walker1, and J. M. Hansen1. 1Pharmacological Sciences, University of Colorado, Aurora, CO; 2Civil and Environmental Engineering, Tufts University, Medford, MA; and 3Medicine, Emory University, Atlanta, GA.</td>
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<td>Poster Board Number .....................................206</td>
<td>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. Lin1, N. M. Filipov1, and C. A. Dodr1. 1Physiology and Pharmacology, Univ. of Georgia, Athens, GA; 2Interdisciplinary Toxicology Program, Univ. of Georgia, Athens, GA; and 3Biolgy, Fort Valley State University, Fort Valley, GA.</td>
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<td>Wednesday Afternoon, March 26</td>
<td>N-Methyl-D-aspartate Receptor Activation May Contribute to Glutamate Neurotoxicity. S. R. Lantz1,2, C. M. Mack3, K. A. Wallace4, E. F. Key5, T. J. Shafer6, and J. E. Casida7. 1Dept. of Nutritional Sciences and Toxicology, University of California, Berkeley, CA; 2Integrated Systems Toxicology Division, NHEERL, ORD, U.S. Environmental Protection Agency, Research Triangle Park, NC; and 3Marquette Biological Station, U.S. Fish and Wildlife Service, Marquette, MI.</td>
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<td>Poster Board Number .....................................209</td>
<td>DDT and DDE Enhance the Toxicity of Amyloid Beta Peptides in Drosophila. L. DeRespi1, K. Carney2, M. Konsolaki1, K. R. Reuhl1, and J. Richardson1. 1RWJMS, Piscataway, NJ; 2Genetics, Rutgers University, Piscataway, NJ; and 3Pharmacology and Toxicology, Rutgers University, Piscataway, NJ.</td>
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<td>Poster Board Number .....................................210</td>
<td>Nanomolar Bilenthrin Alters Synchronous Ca2+ Oscillations and Cortical Neuron Development Independent of Sodium Channel Activity. Z. Cao1, Y. Cui1, H. M. Nguyen2, D. P. Jenkins2, H. Wulf1, and J. N. Pessah1. Molecular Biosciences, School of Veterinary Medicine, UCDavis, Davis, CA; and 2Pharmacology, School of Medicine, UCDavis, Davis, CA.</td>
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<td>Poster Board Number .....................................212</td>
<td>Pyrethroid Pesticides Directly Activate Microglia through Voltage-Gated Sodium Channels Leading to Increased TNF-alpha Release. J. Liu1, M. M. Hassain1, and J. R. Richardson1. 1Ernest Mario School of Pharmacy, Rutgers University, Piscataway, NJ; and 2Department of Environmental &amp; Occupational Medicine, Rutgers Robert Wood Johnson Medical School, Piscataway, NJ.</td>
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#1845
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Repeated Pesticide Exposure Causes
Hippocampal ER Stress, Neuroinflammation,
and Cognitive Deficits in Mice. M. M. Hossain1, E.
DiCicco-Bloom2, and J. Richardson1. 1Environmental
and Occupational Medicine and Environmental and
Occupational Health Sciences Institute, Rutgers-
Robert Wood Johnson Medical School, Piscataway,
NJ; and 2Neuroscience 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. Vorhees1, T. G. Osmintz2, L. P. Sheets3, D. Minemama3,
M. Brooks2, D. W. Gammon4, and M. T. Williams2.
1Child Neurology, Cincinnati Children’s Research
Foundation, Cincinnati, OH; 2Science Strategies LLC,
Charlottesville, VA; 3Bayer CropScience, Research
Triangle Park, NC; 4Syngenta Crop Protection,
Research Triangle Park, NC; 4Ag-Chem Consulting
LLC, Clifton, VA; and 5FMC 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 Holt1, U. Bardullas2, and M. J. Wolansky3.
1Quimica Biologica, Universidad de Buenos Aires
(UBA), Buenos Aires, Argentina; 2Departamento de
Neurobiologia Conductual y Cognitiva, Instituto
de Neurobiologia, Universidad Nacional Autonoma
de Mexico, Queretaro, Mexico; and 3QUICICEN
(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. Fitisanakis. 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.
Fitisanakis. 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. Fitisanakis.
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. Fitisanakis.
Biology, King College, Bristol, TN.

#1852
Poster Board Number ..................................... 221
Maneb (Manganese 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.
Wednesday Afternoon, March 26
1:00 PM to 4:30 PM
Exhibit Hall

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

Abstract # Poster Board Number .................................236
#1864 Application of Proteomics to Identify Deregulated Proteins Associated with Idiosyncratic Liver Toxicity in a Rat Model of LPS/Diclofenac Co-administration. S. Ramnath, B. Morissey, C. Rooney, S. Pennington, and A. Mally. 'Department of Toxicology, University of Wuerzburg, Wuerzburg, Germany; and 'UCD Conway Institute, University College Dublin, Dublin, Ireland. Sponsor: W. Dekant.

#1865 The Use of microRNAs to Explore the Mechanisms of Phenobarbital-Mediated Toxicity in the Rat. M. Osborne, R. A. Currie, J. Wright, and N. J. Gooderham. 'Imperial College London, London, United Kingdom; and 'Syngenta, Bracknell, United Kingdom.


#1867 Tissue Factor Decoy Contribution to Coagulation Triggered by Fas-Induced Hepatocyte Apoptosis. J. P. Luyendyk1, A. K. Kope1, N. Joshi1, H. Cline1, C. E. Rockwell2, and M. Lopez3. 'Pathobiology and Diagnostic Investigation, Michigan State University, East Lansing, MI; and 'Pharmacology/Toxicology, Michigan State University, East Lansing, MI.

#1868 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. Maggantay, and M. Breider. Exploratory Toxicology, Celgene Corporation, San Diego, CA.

#1869 MiRNA-Seq Analysis of Livers of Rats Exposed to Phenobarbital. M. Flores Torres1, J. Wright1, R. Currie1, and N. J. Gooderham1. 'Surgery and Cancer, Imperial College London, London, United Kingdom; and 'Syngenta, Jealott's Hill International Research Centre, Bracknell, United Kingdom.

#1870 Acrocil 1200 Exposure Causes Steatohepatitis and Activates Hepatic Receptors in an Animal Model of Diet-Induced Obesity. B. Wahlang1, M. Song1, L. Al-Eryani1, H. Clair1, J. Guardiola1, K. C. Falkner1, R. A. Prough2, J. States2, and M. Cave3. 'Department of Medicine/GI, University of Louisville, Louisville, KY; 'Biochemistry, University of Louisville, Louisville, KY; 'Pharmacology & Toxicology, University of Louisville, Louisville, KY; and 'Medicine, Robley Rex VAMC, Louisville, KY.

#1871 Secretome and Intracellular Metabolomics Analysis in HepG2 Cells after Exposure to Liver Toxicants. T. Ramirez, W. Mellert1, A. Strigun2, H. Kamp3, T. Walk4, L. Ralf5, and B. van Ravenzwaay6. 'Toxicology, BASF SE, Ludwigshafen/Rhein, Germany; and 'metanomics, Berlin, Germany.

#1872 A Physiologically Relevant 3D Cell Culture Model for Hepatoxic Studies. L. Price1, S. Ramaiahgari1, M. den Braver2, V. Terpstra1, M. Coonen3, D. Jennen3, B. Herpers1, J. N. Commandeur1, J. H. van Delft1, and B. van de Water2. 'Division of Toxicology, LACDR, Leiden, Netherlands; 'Division of Molecular Toxicology, AIMS, Vrije University Amsterdam, Amsterdam, Netherlands; 'Department of Pathology, Bronovo Hospital, The Hague, Netherlands; 'OcelO, Leiden, Netherlands; and 'Department of Toxicogenomics, Maastricht University, Maastricht, Netherlands.

#1873 Traditional Serum Biomarkers for Diagnosis and Prediction of DILI in Rats. T. Ramirez, W. Mellert1, A. Strigun2, H. Kamp, T. Walk, L. Ralf, and B. van Ravenzwaay. 'Toxicology, BASF SE, Ludwigshafen/Rhein, Germany; and 'metanomics, Berlin, Germany.

#1874 The Use of microRNAs to Explore the Mechanisms of Phenobarbital-Mediated Toxicity in the Rat. M. Osborne1, R. A. Currie1, J. Wright1, and N. J. Gooderham1. 'Imperial College London, London, United Kingdom; and 'Syngenta, Bracknell, United Kingdom.
<table>
<thead>
<tr>
<th>Abstract #</th>
<th>Program Description (Continued)</th>
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<tbody>
<tr>
<td>#1873</td>
<td>Modified High-Content Imaging Micropatterned Hepatocyte Coculture Model for Predictive Toxicology. O. Trask1, A. Moore2, M. E. Andersen1, and E. LeChuyse3. 1Institute for Chemical Safety Sciences, The Hamner Institutes for Health Sciences, Research Triangle Park, NC; and 2Empire Corporation, Medford, MA.</td>
</tr>
<tr>
<td>#1874</td>
<td>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. Mohammadv, K. C. Falkner1, S. Barvev, Z. Zhou, C. McClain1, and M. Cave1,2. 1Department of Medicine/GI, University of Louisville, Louisville, KY; 2University of Louisville, Louisville, KY; and 3Robley Rex VAMC, Louisville, KY.</td>
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<tr>
<td>#1875</td>
<td>Poster Board Number.........................247 Combining Two High-Content Screening Approaches Measuring Phospholipidosis and Lysosomal Trapping with In Silico Modelling Approaches to Predict Phospholipidosis Occurrence in Humans. P. A. Walker, C. Bauch, S. Ellis, H. Woodhouse, and C. Dilworth. Cyprex, Macclesfield, United Kingdom. Sponsor: C. Strock.</td>
</tr>
<tr>
<td>#1876</td>
<td>Poster Board Number.........................248 A Long-Term Perfused Immune-Liver Coculture System to Model Antituberculosis Efficacy and Drug-Induced Liver Injury. T. Gumbo1, S. Shuford2, S. Srivastava3, C. Sherman4, A. Dasgupta5, D. Orr6, and H. E. Crosswell. 1Office of Global Health, University of Texas Southwestern, Dallas, TX. 2KIVATEC, Greenville, SC; and 3Alternative Cellular Therapeutics, Marietta, GA.</td>
</tr>
<tr>
<td>#1877</td>
<td>Accelerated Cytotoxicity Mechanism Screening of Flutamide in Isolated Rat Hepatocytes. A. Maraf1, and P. J. O’Brien2. 1Pharmacology &amp; Toxicology, University of Toronto, Toronto, ON, Canada; and 2Faculty of Pharmacy, University of Toronto, Toronto, ON, Canada.</td>
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<tr>
<td>#1878</td>
<td>Poster Board Number.........................250 A Novel Mouse Model for Phenotypin-Induced Liver Injury: Involvement of Immune-Related Factors and P450-Mediated Metabolism. E. Sasaki1, K. Tsunezamav, T. Fukamiv, M. Nakajima2, and T. Yokoy3. 1Graduate School of Medical Science, Kanazawa University, Kanazawa, Ishikawa, Japan; 2Graduate School of Medicine and Pharmaceutical Science for Research, University of Toyama, Toyama, Japan; and 3Department of Drug Safety Sciences, Nagoya University Graduate School of Medicine, Nagoya, Aichi, Japan.</td>
</tr>
<tr>
<td>#1879</td>
<td>An Environmental 2nd Hit: Effect of Vinyl Chloride Exposure on Liver Injury in Experimental Hepatotoxicity and in Humans. L. Anderv, A. Douglas1, I. Guadrola2, V. L. Massey3, I. Kirpich1, M. Mohammadv, K. C. Falkner1, M. Cave1,2, C. McClain1, and J. Beier1. 1Pharmacology &amp; Toxicology, University of Louisville, Louisville, KY; 2Department of Medicine/GI, University of Louisville, Louisville, KY; and 3Robley Rex VAMC, Louisville, KY.</td>
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</table>
Abstract #

#1887 Poster Board Number .....................................259
Inhibition of Bile Salt Export by Marketed Drugs in Primary Hepatocytes from Human, Monkey, Dog, Rat, and Mouse. K. He1, J. Zhang2, L. Cai1, M. Yang1, S. Qin1, and W. Tong2. 1Biotranex LLC, Monmouth Junction, NJ; and 2Division 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. Zhang1,2, X. Jiang1, Y. Li1, X. Miao1, C. Zhang1, L. Cai2, and M. Cheng1. 1University of Louisville, Louisville, KY; and 2Gyiyang Medical College, Guiyang, Guizhou, China.

#1889 Poster Board Number .....................................261
FXR Regulates FoxO3 Activation in Ethanol-Induced Autophagy and Liver Injury. S. Manley1, H. Ni1, J. Williams1, H. Yang1, B. Kong1, G. L. Guo1, and W. Ding1. 1Pharmacology, Toxicology and Therapeutics, University of Kansas Medical Center, Kansas City, KS; and 2Pharmacology 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. Escher1, R. Ossala1, P. Gammes1, M. Bober1, F. Grimm1, L. Beiter2, Y. Butschelid, and S. Messner1. 1InSphero AG, Schlieren, ZH, Switzerland; and 2Biognosys, Schlieren, ZH, Switzerland.

#1891 Poster Board Number .....................................263

#1892 Poster Board Number .....................................264
Sertraline Induces Endoplasmic Reticulum Stress in Hepatic Cells. L. Guo1, J. Xuan1, L. Couch1, A. Iyer1, and S. Chen1. 1NCTR, Jefferson, AR; and 2University of Maryland, Baltimore, MD.

#1893 Poster Board Number .....................................265

#1894 Poster Board Number .....................................266
High-Content Analysis of a High-Throughput Human In Vitro Metabolic Model. S. D. Cole1,2, J. S. Madren-Whalley1, A. P. Li3,4, and H. Salem5. 1US Army Edgewood Chemical Biological Center, Gunpowder, MD; 2National Research Council, Washington, DC; 3Defense Threat Reduction Agency, Fort Belvoir, VA; 4In Vitro ADMET Laboratories, Inc., Columbia, MD; and 5Department 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. Enor1, W. DeMaio1, A. Watany1, K. Draper1, A. Moore1, and O. Ukairo1. 1Ricerca Biosciences, Concord, OH; and 2Hepregen 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

#1898 Poster Board Number .....................................270

#1899 Poster Board Number .....................................271

#1899a Poster Board Number .....................................272
Validation of a 3-Dimensional Liver Microtissue Model for Long-Term Hepatotoxicity Studies. S. Messner1, T. Moeller4, and B. Larson2. 1BioreclamationIVT, Halethorpe, MD; 2BioTek, Winooski, VT; and 3InSphero, Schlieren, Switzerland.

#1899b Poster Board Number .....................................273
Detection of Human Hepatic Toxicity in Chimeric Mice with Humanized Liver by Human ALTI ELISA System. C. Tateno1,2, H. Iwanari1, T. Shimada1, T. Kimura1, C. Yamasaki1, M. Kukun1, and Y. Ishida1,2. 1PhoemixBio Co., Ltd, Higashihiroshima, Japan; 2Liver Research Project Center, Hiroshima University, Hiroshima, Japan; 3Quantitative Biology and Medicine, RCAST, Tokyo University, Tokyo, Japan; and 4Institute of Immunology Co., Ltd., Tokyo, Japan. Sponsor: M. Hayashi.

#1899c Poster Board Number .....................................274
High-Throughput AlphaLISA Immunoassays to Quantify ALT and AST Levels in Human Primary Hepatocytes Culture Supernatant. E. Doudeument1, H. Uppa1, D. L. Misner1, and D. M. Danbush1. 1Safety 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. Yang1, U. Doshi1, and A. P. Li1. 1In Vitro ADMET Laboratories, Advanced Pharmaceutical Sciences, Columbia, MD.
Program Description (Continued)

Abstract #   Poster Board Number .....................................#1899c "Inside-Out" Membrane Vesicles: An In Vitro Model to Study Transporter-Mediated Drug Interactions Which Can Lead to Liver Toxicity. A. Gao1, N. Li2, S. Parikh3, J. Bourge3, and C. I. Patten4. 1Cornell Life Sciences, Kennenbunk, ME; and 2R&D, Corning Life Sciences, Bedford, MA. Sponsor: C. Crepi.

Poster Session: Stem Cell Biology and Toxicology

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 .....................................#1900 Connexin 32 Maintains Stemness of Hematopoiesis. Y. Hirabayashi1, B. Yoon2, I. Tsuibo3, J. Kanno4, J. E. Troka5, and T. Inoue6. 1Div. of Cell. & Molecular, Tox., Nat’l Inst. of Health Sciences, Tokyo, Japan; 2Lab. of Histology & Molec. Pathogenesis, School of Vet. Med., Kangwon Nat’l Univ., Chuncheon, Republic of Korea; 3Nihon Univ. School of Med., Tokyo, Japan; and 4Michigan State Univ., East Lansing, MI.

#1901 Poster Board Number .....................................#1901 A Novel CXCR4 Antagonist SDF-1/P2G Enhances Ischemic Angiogenesis via Endothelial Progenitor Cell Mobilization, Infiltration, and Incorporation. X. Yan1,2, L. Cai1,2, and Y. Tan1,2. 1Kosair Children’s Hospital Research Institute, Department of Pediatrics, University of Louisville, Louisville, KY; and 2Chinese-American Research Institute for Diabetic Complications, Wenzhou Medical College, Wenzhou, Zhejiang, China.


#1903 Poster Board Number .....................................#1903 Delayed Electrophysiological and Proarrhythmic Effects of Kinase Inhibitors Assessed in Human Induced Pluripotent Stem Cell-Derived Cardiomyocytes (hiPSC-CM). H. Shi1, M. Huang2, D. Xing1, J. Zhai1, G. Liewen, S. B. Adams1, and P. C. Levesque1. 1Discovery Toxicology, Bristol-Myers Squibb, Princeton, NJ; and 2Research Informatics and Automation, Bristol-Myers Squibb, Princeton, NJ.

#1904 Poster Board Number .....................................#1904 Aluminum Malate Interferes with Gene Expression of Epigenetic Modifying Enzymes in Mouse Embryonic Stem Cells. A. Alberti, and F. A. Barile. Pharmaceutical Sciences, St. John’s University College of Pharmacy, Queens, NY.

Poster Session: Stem Cell Models for Integrated Biology

#1905 Poster Board Number .....................................#1905 Lineage Stage Specific Modulation of Rat Hepatic Stem/Progenitor Cell Growth by Activation of the Aryl Hydrocarbon Receptor (AhR). J. A. Harrill1, B. Parks1, E. Waithier1, J. Rowlands2, L. M. Reid3, and R. S. Thomas4. 1The Hamer Institutes for Health Sciences, Research Triangle Park, NC; 2Program in Molecular Biology and Biotechnology, Department of Cell Biology and Physiology, University of North Carolina, Chapel Hill, NC; and 3The Dow Chemical Company, Midland, MI.

Poster Session: Allatostatin B1 Effects on Differentiation, Proliferation, and Cell Death on Human Adult Hepatic Stem/Progenitor Cells. W. Hassen1, S. Gerbal-Chaloin1, L. Iankova1, C. Duret1, P. Briolitti1, J. Ramos2, and M. Daufat-Chavanieu1. 1Department of Cellular Physiology and Toxicology, Institute of Biotechnology, Monastir, Tunisia; 2Hepatic 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 3University Hospital of St Eloi, CHU St Eloi, Montpellier, France. Sponsor: A. Lopez de Cerain.

Poster Session: Predictive Assays for Cardiotoxicity Using Embryonic Stem Cell-Derived CytoViva” Cardiomyocytes (hESC-CM)

#1906 Poster Board Number .....................................#1906 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 .....................................#1908 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.

#1909 Poster Board Number .....................................#1909 In Vitro Multiparameter Assessment of Cardiotoxicity in Human Induced Pluripotent Stem Cell (iPSC)-Derived Cardiomyocytes. M. L. Wolfe1, B. D. Anson1, and H. Ma2. 1Cellular and Molecular Biology, MPI Research, Mattawan, MI; and 2Cellular Dynamics International, Madison, WI. Sponsor: T. Rogers.

#1910 Poster Board Number .....................................#1910 Evaluation of a 3D Stem Cell Model of Intestinal Epithelium to Predict and Model Enterotoxicity. M. Wagener1, M. V. Nadella1, R. Caccese1, K. Adams1, J. Sasaki1, and Y. P. Dragon2. 1Safety Assessment, AstraZeneca Pharmaceuticals, Waltham, MA; and 2E.I. du Pont de Nemours and Company, Wilmington, DE.
#1912  
Abstract 

**Characterization of a Brain Microphysiological System for Studying Gene/Environment Interactions.** D. Pannies\(^1\), G. Makri\(^1\), J. P. Brezler\(^2\), K. M. Christian\(^3\), G. Harris\(^4\), C. O’Driscoll\(^1\), L. Smirnova\(^5\), P. Marina\(^6\), R. Bachinski\(^7\), T. Hartung\(^8\), and H. T. Hugberg\(^9\). \(^{1,2}\)CAAT, Johns Hopkins, Bloomberg School of Public Health, Baltimore, MD; \(^3\)Kennedy Krieger Institute, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD; and \(^4\)Institute for Cell Engineering, Johns Hopkins School of Medicine, Baltimore, MD.

**Poster Board Number** .....................................313

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#1913  
Abstract 

**The Potential Therapeutic Role of Secreted Antiviral Entry Inhibitory (SAVE) Peptides Expressed by Transduced Mesenchymal Stem Cells (MSCs).** N. Lee\(^1\), E. Walker\(^1\), L. Egere\(^2\), D. Laer\(^3\), B. Bunnen\(^2\), and S. Braun\(^3\). \(^{1,2}\)Regenerative Medicine, Tulane National Primate Center, New Orleans, LA; \(^3\)Division of Virology, Innsbruck Medical University, Innsbruck, Austria; and \(^3\)Biomedical Sciences, Tulane University, New Orleans, LA.

**Poster Board Number** .....................................314

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#1914  
Abstract 

**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\(^1\), E. Ruffin\(^2\), 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.

**Poster Board Number** .....................................315

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#1915  
Abstract 

**High-Throughput Developmental Toxicology Screening Platform Using Human iPS-Expressed Transcriptional Analysis.** R. Abujarour, B. Valamehr, M. Robinson, and P. Flyn. \(^{1}\)Pharmacology and Toxicology, Michigan State University, East Lansing, MI.

**Poster Board Number** .....................................316

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#1916  
Abstract 

**Arsenic-Induced aberrant Gene Regulation of Human Adipose-Derived Mesenchymal Stem Cells.** J. J. Shearer, and M. L. Figueiredo. UTMB, Galveston, TX.

**Poster Board Number** .....................................317

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#1917  
Abstract 

**A Biomarker-Based Developmental Toxicity Screen Using Human Induced Pluripotent Stem Cells for Compound Prioritization.** J. A. Egnash, J. A. Palmer, A. Smith, K. R. Conard, P. R. West, R. E. Burrier, E. Donley, and F. R. Kirchner. \(^{1}\)Stemina Biomarker Discovery, Inc., Madison, WI. Sponsor: L. Recio.

**Poster Board Number** .....................................318

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#1918  
Abstract 

**Investigation of Mitochondrial Toxicity in Stem Cell-Derived Cardiomyocytes.** S. Schwengberg\(^1\), R. Kettenhofen\(^1\), J. Hynes\(^2\), C. Carey\(^3\), E. Clarke\(^4\), and H. Bohlen\(^1\). \(^1\)’Cells at Work Consulting & Services, Aberdeen Proving Ground-Edgewood Area, MD; \(^2\)Division of Virology, Innsbruck Medical University, Innsbruck, Austria; and \(^3\)Biomedical Sciences, Tulane University, New Orleans, LA.

**Poster Board Number** .....................................319

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Program Description (Continued)

Abstract #  
#1922e  
Poster Board Number .........................328  
Transcriptional Effects of Curcumin and Piperine in Breast Stem Cells. J. Colacino1, S. P. McDermott2, M. A. Sartor5, M. Kakarala4, M. S. Wicha2, and L. S. Rozo3. 1Environmental Health Sciences, University of Michigan School of Public Health, Ann Arbor, MI; 2Comprehensive Cancer Center, University of Michigan, Ann Arbor, MI; 3Computational Medicine and Bioinformatics, University of Michigan, Ann Arbor, MI; and 4Van Andel Research Institute, Grand Rapids, MI.

#1922f  
Poster Board Number .........................329  
Development of a Human Adipose Stem Cell Model for Chemical Obesogen Screening. C. Deisenroth1, and B. Foley1. 1The Hamner Institutes for Health Sciences, Research Triangle Park, NC.

Wednesday Afternoon, March 26  
1:00 PM to 4:30 PM  
Exhibit Hall

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. OnGle1, H. Braun1, K. Divi1, M. C. Poirier1, J. B. Mitchell1, and O. Olivero1. 1Carcinogen-DNA Interactions, National Cancer Institute, Bethesda, MD; and 2Tumor Biology Section, National Cancer Institute, Bethesda, MD.

#1924  
Poster Board Number .........................334  
Prolonged Exposure to Particulate Chromate Inhibits Homologous Recombination Repair Proteins. C. L. Browning1,2, H. Xie1, Q. Qin1, J. Masson1, and J. P. Wise1,2. 1Wise Laboratory of Environmental and Genetic Toxicology, Maine Center for Toxicology and Environmental Health, University of Southern Maine, Portland, ME; 2Graduate School of Biomedical Sciences and Engineering, University of Maine, Orono, ME; and 3Genome Stability Laboratory, Laval University Cancer Research Center, Québec 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. Pong 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. Zhikovich. Pathology and Molecular Medicine, Brown University, Providence, RI.

Abstract #  
#1927  
p53 Regulation of the GADD45a Gene Is Restricted to Genotoxic Exposure As a Consequence of a Requirement for p53/WT1 Interaction in the Promoter. R. Wallsley1,2, and D. Johnson1. 1Faculty of Life Sciences, University of Manchester, Manchester, United Kingdom; 2Gentirx Ltd, Manchester, United Kingdom; and 3Animal Molecular Biology, Harper Adams University, Newport, United Kingdom. Sponsor: S. Dertinger.

#1928  
Oxidative DNA Damage/Repair Induces Inflammatory Gene Expression in the Airways by 8-Oxoguanine DNA Glycosylase-Mediated Cell Signaling. L. Aguilera-Aguirre1, A. Bacs1, T. G. Wood2, A. R. Brasier3,4, B. T. Ameredes1,2, X. Ba5, and I. Boldogh5,6. 1Microbiology and Immunology, University of Texas Medical Branch, Galveston, TX; 2Sealy Center for Molecular Medicine, University of Texas Medical Branch, Galveston, TX; 3Institute for Translational Sciences, University of Texas Medical Branch, Galveston, TX; and 4Internal Medicine, University of Texas Medical Branch, Galveston, TX.

#1929  
Interpreting In Vitro Microcînous Positive Results: Simple Biomarker Matrix Discriminates Clastogens, Aneugens, and Irrelevant Positive Agents. S. Bryce1, J. Beimis1, S. Dertinger1, J. Mereness3, M. Schuler4, R. Spellman1, J. Moss5, and D. Dickinson1. 1Litron Laboratories, Rochester, NY; and 2Pfizer, Groton, CT.

#1930  
Error-Prone Double-Strand Break Repair Plays a Predominant Role in Oxidative Stress-Induced Mutagenesis. V. Sharma1, L. Collins1, W. Sun1, J. A. Swenberg2, and J. Nakamura1. 1Department of Environmental Sciences and Engineering, UNC-Chapel Hill, NC; and 2Department of Genetics, UNC, Chapel Hill, NC.

#1931  

#1932  
Investigating Mechanisms of Mitochondrial DNA Damage-Mediated Developmental Arrest. E. Turner1, L. Donoghue1, C. Hopkins1, T. Brock1, and J. N. Meyer1. 1Nicholas School of the Environment, Duke University, Durham, NC; and 2Knudra Diagnostics, Salt Lake City, UT.

#1933  

#1934  
Evaluation of DNA Repair Center Kinetics after Treatment with Chemicals Causing Linear and Nonlinear Dose-Response Curves for Micronuclei. B. Sun1, O. Trask1, S. Ross1, P. L. Carmichael2, Y. Adeleye1, M. E. Anderset1, and R. A. Clewell1. 1The Hamner Institute, Durham, NC; and 2SEAC, Unilever INC, Colworth Science Park, Bed fordshire, United Kingdom.

#1935  
"Society of Toxicology 2014"
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. Zhou12, H. Guan1, C. Fan1, W. Wang1, X. Liu1, and B. Huang1. 1Radiation Toxicology and Oncology, Beijing Institute of Radiation Medicine, Beijing, China; and 2Institute for Environmental Medicine and Radiation Hygiene, The University of South China, Hengyang, Hunan Province, China.

Abstract #1936
Poster Board Number: 346
UV-Induced DNA Damage and Repair Regulation at Ends of Chromosomes. D. Parikh, and P. L. Oppen. University of Pittsburgh, Pittsburgh, PA.

Abstract #1937
Poster Board Number: 347
Effects of Cadmium and 17α-Ethynylestradiol on Benzo[a]pyrene Adduct Formation. K. E. Germ, S. Tang, and G. D. Mayer. Environmental Toxicology, Texas Tech University, Lubbock, TX.

Abstract #1938
Poster Board Number: 348
Integration of Genomic Biomarkers in Cancer Risk Assessment for Xenobiotics with Positive Findings in Chromosome Damage Assays. H. Li1, D. R. Hyduke1, C. L. Yau1, J. Aubrecht1, and A. Fornace1. 1Dept of Drug Safety Evaluation, Pfizer Inc, Groton, CT; 2Georgetown University, Washington, DC; 3Health Canada, Ottawa, ON, Canada; and 4Utah State University, Logan, UT.

Abstract #1939
Poster Board Number: 349

Abstract #1940
Poster Board Number: 350
Investigating Genotoxic Susceptibility to Mitochondrial Toxicity. A. Luz, and J. N. Meyer. Nicholas School of the Environment, Duke University, Durham, NC.

Abstract #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. Pettenger1, M. R. Schilder1, F. Zhang1, N. Visconti1, Z. Ji1, D. Delker1, L. G. McFadden1, M. Bartels1, B. Gollapudi1, and M. J. LeBaron1. 1The Dow Chemical Company, Midland, MI; and 2Veterinary Research Institute, Brno, Czech Republic.

Abstract #1942
Poster Board Number: 352

Abstract #1943
Poster Board Number: 353
Antimutagenic Effect of Curcuma longa L. and Photoactivated Cow Urine Using Salomonna Reverse Mutation Assay. R. M. Nagane1, N. N. Patel1, K. E. Tendulkar1, N. U. Dhumal1, K. D. Vashi1, and V. J. Pucirillo1. 1Toxicology, Jai Research Foundation, Vapi, India; 2Genomics, India; and 3VJP 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. Rosser1, J. Stolcartova1, J. Schmunzrova1, A. Milcova1, E. Hruva1, M. Machala1, and J. Topinka1. 1Institute of Experimental Medicine, Prague, Czech Republic; and 2Veterinary Research Institute, Brno, Czech Republic.

Abstract #1943b
Poster Board Number: 355
Nitrotox TEMPO: A Genotoxic and Oxidative Stress Inducer in Cultured Cells. X. Guo1, R. A. Mittelstadt1, L. Guo1, J. G. Shaddock1, R. H. Herlich1, M. M. Moore1, and N. Meit1. 1NCTR, Jefferson, AR.

Abstract #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. Revollo1, D. Petibone1, S. M. Morris1, B. Green1, and B. Ning1. 1Division of Genetic and Molecular Toxicology, National Center for Toxicological Research, Jefferson, AR. Sponsor: S. Chigurupati.

Abstract #1943d
Poster Board Number: 357
MGMT Promoter/Enhancer Haplotypes Alter Transcription Factors Binding. A. L. Holmes, S. Chigurupati, Gollapudi1, and C. Falank1. 1Pharmacology & Experimental Medicine, Prague, Czech Republic; and 2VTMB, Galveston, TX.

Abstract #1943e
Poster Board Number: 358
Exploring In Vivo Genotoxicity Thresholds through an Integrated Evaluation of 3-FU. S. C. Gehan1, D. Geeter1, K. Pant1, J. Mehta1, R. Billington1, and B. Gollapudi12. 1Dow AgroSciences, Indianapolis, IN; 2The Dow Chemical Company, Midland, MI.

Abstract #1943f
Poster Board Number: 359
Timecourse of Altered Hepatic Nucleotide Excision Repair Activity following Treatment of Mice with the Tobacco-Specific Carcinogen 4-(Methyl)nitrosamino)-1-(3-Pyridyl)-1-Butanone. C. M. Harris1, and T. E. Massay1. 1Pharmacology and Toxicology Graduate Program, Department of Biomedical and Molecular Sciences, Queens University, Kingston, ON, Canada.

Abstract #1943g
Poster Board Number: 360
Non-B-DNA-Induced Mutagenesis in Eukaryotes. J. McKinney1, and K. Vasquez1. 1Pharmacology & Toxicology, University of Texas at Austin, Austin, TX. Sponsor: K. Finch.

Abstract #1943h
Poster Board Number: 361
Reduction of Genotoxicity from External and Endogenous Sources with Yel002. M. J. Davison1, and R. H. Schiedt1. 1Environmental Health Science, UCLA, Los Angeles, CA.

Abstract #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. Youn1, H. Dineshwarage1, D. Bruining1, M. McKeon1, T. Vildmar1, and M. Aardema12. 1Toxicology, BioReliance, Rockville, MD; 2BioSTAT Consultants, Inc, Portage, MI; and 3Marilyn Aardema Consulting, LLC, Fairfield, OH.
Program Description (Continued)

Abstract #

#1943 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, M. Aardema, R. Kulkarni, T. E. Lawlor, M. McKearn, Y. Xu, D. Torous, S. Dertinger, and R. R. Young. BioReliance, Rockville, MD; Marilyn Aardema Consulting, LLC, Fairfield, OH; and Litron Laboratories, Rochester, NY.

Wednesday Afternoon, March 26
1:00 PM to 4:30 PM
Exhibit Hall

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


#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, FDA, Silver Spring, MD.

#1946 Poster Board Number ......................... 403 Flow Cytometry-Based Evaluation of Silver Nanoparticle Cytotoxicity: Role of Serum Concentration in Media. G. Kumar, W. Wei, H. Degheidy, B. Casey, and P. L. Goering. CDRH, FDA, Silver Spring, MD; and 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, S. Rajan, K. M. Tyner, B. Casey, C. Dugard, Y. Jones, A. Paredes, C. Clingman, P. C. Howard, and P. L. Goering. CDRH, FDA, Silver Spring, MD; and University of Maryland, College Park, MD.


Abstract #

#1949 Comparative Biocompatibility of Nanosilver and Anticancer Drugs. S. Lee, J. Son, D. Khang, and S. Kim. Pharmacology, Kyungpook National Univ, Daegu, Republic of Korea; and 2School of Materials Science and Engineering and Center for NBECs, Gyeongsang National University, Jinju, Republic of Korea.

Poster Board Number ......................... 406 Protein Carbonylation As a Marker of Oxidative Stress Induced by Nanoparticles: Analysis of 16 Inorganic Nanoparticles. M. D. Driessen, R. Ossig, J. Schneekenburger, A. Vennemann, M. Wiemann, A. Luch, and A. Haase. German Federal Institute for Risk Assessment, Berlin, Germany; 2Biomedical Technology Center, University of Münster, Münster, Germany; and 3Thomson Research GmbH, Münster, Germany.

Poster Board Number ......................... 407 ERK Pathway Is Activated in Bare-FeNPs-Induced Autophagy. E. Park, M. Cho, H. Umh, Y. Kim, S. Kim, and J. Kim. 1Department of Molecular Science and Technology, Ajou University, Suwon, Gyeonggi-Do, Republic of Korea; 2Department of Chemical Engineering, Kwangwoon University, Seoul, Republic of Korea; and 3College of Veterinary Medicine, Seoul National University, Seoul, Republic of Korea.

Poster Board Number ......................... 408 Hidden Hazards of Nanoparticles: Crosstalk between Toxicogenomics, DNA Damage, and Cell Death. Q. Saquil, A. A. Al-Khedhairy, M. A. Siddiqui, J. A. Siddiqui, M. Faisal, S. Dwivedi, S. T. Khan, and J. Musarrat. 1Department of Zoology, College of Science, King Saud University, Riyadh, Saudi Arabia; 2Department of Botany, King Saud University, Riyadh, Saudi Arabia; and 3Department of Agricultural Microbiology, Aligarh Muslim University, Aligarh, India.

Poster Board Number ......................... 409 Lung Tissue Culture Model for Assessment of Cytotoxicity and Inflammation Induced by Inhalable Carbon Black Nanoparticles. A. Braun, O. Danov, J. Kopf, M. Streebele, T. Hansen, H. Fehrenbach, and K. Sewald. 1Fraunhofer Institute for Toxicology and Experimental Medicine, Hannover, Germany; 2Karlsruhe Institute of Technology, Karlsruhe, Germany; 3Airway Research Center North, Member of the German Center for Lung Research, Borstel, Germany; and 4Biomedical Research in Endstage and Obstructive Lung Disease Hannover (BREATHE), Member of the German Centre for Lung Research (DZL), Hannover, Germany. Sponsor: C. Dasenbrock.


Poster Board Number ......................... 411 In Vitro 3D Collagen-Based Hydrogel Model to Evaluate Cytotoxicity of Silver Nanoparticles. N. Bhattacharya, A. Kumar, J. Stegeman, H. Degheidy, and P. L. Goering. CDRH, FDA, Silver Spring, MD; and 2Dept Biomed Engineering, University of Michigan, Ann Arbor, MI.
#1956  Poster Board Number ..............................413
Nanosilver-Induced Apoptosis in Cell Lines
Depends on the Presence of p53. R. Foldbjerg,
and H. N. Astrup. 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. John1, K. K. Awasthi1, A. Awasthi1, N. Kumar1,
and P. Roy1. Zoology, University of Rajasthan, Jaipur,
Rajasthan, India; and 2Biotechnology, 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. Lai, and E. E. 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. Braun1,
K. K. Comfort2, and S. M. Hussain3. 1Department of
Biomedical Engineering, Purdue University, West
Lafayette, IN; 2Chemical and Materials Engineering,
University of Dayton, Dayton, OH; and 3Molecular
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 EGFR Signal Transduction. K. K. Comfort1, E.
Maurer2, and S. M. Hussain3. 1Department of
Biomedical Engineering, Purdue University, West
Lafayette, IN; 2Chemical and Materials Engineering,
University of Dayton, Dayton, OH; and 3Molecular
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. Grabinski1,2, M. Sankaran1, and S. M. Hussain3.
1Molecular Bioeffects Branch, Air Force Research
Laboratory, Wright Patterson AFB, OH; and
2Department of Chemical Engineering, Case Western
Reserve University, Cleveland, OH.

#1962  Poster Board Number ..............................419
Strain-Dependent Responses to Quantum Dots
in Mouse Hepatocytes. T. Ward1, R. S. McMahan1,
C. C. White2, J. Zhang3, X. Hu4, X. Gao4, D. L. Eaton5,
T. J. Kavanaugh6, W. C. Parks3, and W. A. Altemeier2.
1Department of Environmental and Occupational
Health Sciences, University of Washington, Seattle,
WA; 2Department of Biomedical Engineering, University
of Washington, Seattle, WA; 3Department 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.
Minunusamy1, S. Chen2, B. Leo1, C. Liu3, J. N. Smith1,
B. Thrall1, and D. R. Baer1. Pacific Northwest National
Laboratory, Richland, WA; and 2Imperial College,
London, United Kingdom.

#1964  Poster Board Number ..............................421
Does Microfluidic Dispersion Influence the
Toxicity of Geometric TiO2 Nanomaterials? T. B.
Tilly1, L. L. Kerr2, L. K. Braydich-Stolle2, J. J. Schлегer3,
and S. M. Hussain4. 1Molecular Bioeffects, AFRL,
Dayton, OH; and 2Chemical, Paper, and Biomedical
Engineering, Miami University, Oxford, OH.

#1965  Poster Board Number ..............................422
Low-Level Exposure to Silver Nanoparticles-
Induced Hypertrophy, Multinucleation, and
Seneescence in Lung Epithelial Cells. D. Ellis1,2,
C. E. Salentic1, and S. M. Hussain4. 1Department of
Pharmacology & Toxicology, Wright State University,
Dayton, OH; and 2Molecular Bioeffects Branch,
Bioeffects Division, Air Force Research Laboratory,
Wright Patterson AFB, OH.

#1966  Poster Board Number ..............................423
Evaluation of Tungstate Nanoparticle
Cytotoxicity. K. M. Dunnick1,2, M. A. Badding1,
D. Schwegler-Berry1, N. R. Fix1, S. Wong2, and S.
S. Leonard1,2. 1NIOSH, Morgantown, WV; 2West
Virginia University, Morgantown, WV; 3State
University of New York at Stony Brook, Stony Brook,
NY; and 4Brookhaven National Laboratory, Upton,
NY.

#1967  Poster Board Number ..............................424
In Vitro Cytotoxicity Assay of TiO2 Nanoparticles
in Pulmonary Epithelial and Macrophage-Like
Cells. K. Iwasawa1, T. Aoyama1, K. Harano2, N.
1Institute of Industrial Science, the University of
Tokyo, Tokyo, Japan; and 2Nagoya University Graduate
School of Medicine, Nagoya, Japan.

#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. Kooter1, Y. Staal1, M. Grolsters-Mulder2, M.
Steenhof3, E. Duistermaat4, F. A. van Acker5, E.
Schoen1, E. van Someren2, and F. Kuper1. 1TNO,
Utrecht, Netherlands; and 2TNO 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.
Suzuki1, S. Tada-Oikawa1, G. Ichihara2, K. Izuo1,
and S. Ichihara3. 1Mie University, Tsu, Japan; and
2Nagoya University Graduate School of Medicine,
Nagoya, Japan.
<table>
<thead>
<tr>
<th>Abstract #</th>
<th>Program Description (Continued)</th>
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<td>#1972</td>
<td>Poster Board Number .................. 429</td>
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<td></td>
<td><strong>Biological Evaluation of Ultrananocrystalline and Nanocrystalline Diamond Coatings</strong>. S. Skoog1,2, G. Kumar1, J. Zheng2, A. Sumant1, P. L. Goering1, and R. Narayan1. 1Joint Dept. of Biomedical Eng., UNC &amp; NCSU, Raleigh, NC; 2CDRH, US FDA, Silver Spring, MD; and 1Center for Nanoscale Materials, Argonne National Laboratory, Argonne, IL.</td>
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<td>#1973</td>
<td>Poster Board Number .................. 430</td>
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<td><strong>Preparation, Characterization and Antimicrobial Activity of Eu3+-Doped Hydroxyapatite Nanopowders</strong>. J. E. Delgado-Jimenez1,2, R. Agustin-Serrano1, E. Reyes-Cervantes1, J. L. Varela1, R. Gonzalez-Rodriguez1, I. A. Quenel1, T. D. Palacios-Hernandez1,2, and E. Rubio-Rosas2. 1DCQF, Universidad de las Americas Puebla, San Andres Cholula, Puebla, Mexico; 2CUVyTT, Benemerita Universidad Autonoma de Puebla, Puebla, Mexico; 3CB, Universidad Popular Autonoma del Estado de Puebla, Puebla, Mexico; and 4Texas Christian University, Fort Worth, TX.</td>
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<tr>
<td>#1973a</td>
<td>Poster Board Number .................. 431</td>
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<td><strong>Silver Nanoparticles and Ionic Silver Have Opposite Effects on Spontaneous Activity and Pharmacological Responses in Neuronal Networks</strong> In Vitro. J. D. Strickland1, J. Crooks2, D. Hall1, K. Dreher1, and T. J. Shafer1. 1NCSU, Raleigh, NC; and 2NHEERL, ORD, U.S. Environmental Protection Agency, Research Triangle Park, NC.</td>
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<td>#1973b</td>
<td>Poster Board Number .................. 432</td>
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<td><strong>In Vitro Cytotoxicity and Phagocytosis of Silver Nanomaterials in Murine Macrophages</strong>. T. D. Green1, A. Badawy1, T. Tolaymat1, and D. J. Thomas2. 1ISTD, NHEERL, ORD, EPA, RTP, NC; 2Civil &amp; Environ. Engin., University of Cincinnati, Cincinnati, OH; and 3LPRCD, NMRML, ORD, EPA, Cincinnati, OH.</td>
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<td>#1973c</td>
<td>Poster Board Number .................. 433</td>
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<td><strong>Mechanistic Study of Silver Nanoparticle-Induced DNA Damage in L5178Y Mouse Lymphoma Cells</strong>. H. Lin1, W. S. Lam1, X. Guo1, S. L. Dial1, J. Yan1, T. Chen1, T. Ingle1, A. Paredes2, Y. Jones3, P. C. Howard3, M. M. Moore2, and N. Mes1. 1ISTD, NHEERL, ORD, EPA, RTP, NC; 2Civil &amp; Environ. Engin., University of Cincinnati, Cincinnati, OH; 3LPRCD, NMRML, ORD, EPA, Cincinnati, OH.</td>
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<td>#1973d</td>
<td>Poster Board Number .................. 434</td>
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<td><strong>An Evaluation of the Potential Phototoxicity of CeO2 Nanoparticles in Retinal Pigment Epithelial Cells In Vitro</strong>. A. Wang1, J. Franzoso1, J. Shafi1, D. L. Filer1, N. Kleinsteuber2, S. Marinakos1, and K. Houck1. 1US EPA, Durham, NC; 2ILS, Durham, NC; and 3Duke Univ, Durham, NC.</td>
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<td>#1973e</td>
<td>Poster Board Number .................. 435</td>
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<td><strong>Comparing Bioactivity Profiles of Diverse Nanomaterials Based on High-Throughput Screening (HTS) in ToxCast</strong>. A. Wang1, J. Franzoso1, J. Shafi1, D. L. Filer1, N. Kleinsteuber2, S. Marinakos1, and K. Houck1. 1US EPA, Durham, NC; 2ILS, Durham, NC; and 3Duke Univ, Durham, NC.</td>
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<td>#1973f</td>
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<td><strong>Silver Nanoparticles Induce Antiproliferative Effects on Airway Smooth Muscle Cells: Role of Nitric Oxide and Muscarinic Receptor Signaling Pathway</strong>. C. Gonzalez1,2, M. A. Ramirez-Lee1, H. Rosas-Hernandez2,3, S. Salazar-Garcia1, J. M. Hernandez2, R. Espinosa-Tanguma1, F. I. Gonzalez1, and S. F. Ali1. 1Laboratorio de Fisiologia Celular, Universidad Autonoma de San Luis Potosi, San Luis Potosi, SLP, Mexico; and 2Division of Neurotoxicology, NCTR, Jefferson, AR.</td>
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<td>#1973g</td>
<td>Poster Board Number .................. 437</td>
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<td><strong>Laser 3D Printing with Nanoscale Resolution: Improving Biocompatibility and Mitigating Toxicity from Photoinitiators</strong>. P. E. Petrochenko1,2, R. Narayan2, P. L. Goering1, and A. Ovsianikov3. 1CDRH, USFDA, Silver Spring, MD; 2Joint Dept Biomed Eng, UNC-CH, Chapel Hill, NC; and 3Inst Materials Sci Technol, TU Wien, Vienna, Austria.</td>
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<td>#1973h</td>
<td>Poster Board Number .................. 438</td>
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<td><strong>In Vitro Penetration of Polyethylene Glycol- and Citrate-Coated Silver Nanoparticles into Human Skin</strong>. V. Topping1,2, K. Belgrave1, Z. Keltner1, R. Sprando2, J. Yourick1, and M. E. Kraehling1. 1Office of Applied Research and Safety Assessment, US FDA, Laurel, MD; and 2ORISE, US DOE, Oakridge, TN.</td>
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<td>#1973i</td>
<td>Poster Board Number .................. 439</td>
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<td><strong>In Vitro Penetration of Anionic Dendrimer Nanoparticles into Pig and Human Skin</strong>. K. Belgrave1, V. Topping1, X. Gao1, E. Schlick2, E. Simanek1, S. Man1, A. K. Patiri2, R. Sprando2, J. Yourick1, and M. E. Kraehling1. 1Office of Applied Research and Safety Assessment, USFDA, Laurel, MD; 2Department of Chemistry, Texas Christian University, Fort Worth, TX; and 3Nanotechnology Characterization Laboratory, Leidos Biomedical Research, Inc., Frederick National Laboratory for Cancer Research, Frederick, MD.</td>
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<td><strong>In Vitro Penetration of Neutral Dendrimer Nanoparticles into Pig and Human Skin</strong>. M. Kraehling1, K. Belgrave1, V. Topping1, X. Gao1, E. Schlick2, E. Simanek1, S. Man1, A. K. Patiri2, R. Sprando2, J. Yourick1. 1Office of Applied Research and Safety Assessment, USFDA, Laurel, MD; 2Department of Chemistry, Texas Christian University, Fort Worth, TX; and 3Nanotechnology Characterization Laboratory, Leidos Biomedical Research, Inc., Frederick National Laboratory for Cancer Research, Frederick, MD.</td>
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Program Description (Continued)

Wednesday Afternoon, March 26
1:00 PM to 4:30 PM
Exhibit Hall

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

#1975
Poster Board Number: 442
Effects of Prenatal Inhalation Exposure to Copper Nanoparticles (Cu NPs) on Dams and Offspring in Mouse Model. A. Adamakova-Dodd, L. S. Powers, K. N. Gibson-Corley, M. F. Monick, V. Grassian, and P. S. Thorne. 1Occupational and Environmental Health, Univ of Iowa, Iowa City, IA; 2Internal Medicine, UI, Iowa City, IA; 3Pathology, UI, Iowa City, IA; and 4Chemistry, UI, Iowa City, IA.

#1976
Poster Board Number: 443
Health Surveillance Study on MWCNT Manufacturing Workers. J. Lee, S. Park, J. Lee, J. Shin, Y. Lee, J. Baek, J. Hwang, K. Ahn, J. Park, and J. Yu. 1Institute of Nanoproduct Safety Research, Hoseo University, Asan, Republic of Korea; 2Occupational Lung Diseases Institute, Ansan, Republic of Korea; 3Department of Mechanical Engineering, Hanyang University, Ansan, Republic of Korea; and 4College 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, G. Ichihara, and S. Tada-Oikawa. 1University of Montana, CEHS, Missoula, MT; and 2NIOSH, Morgantown, WV.

#1978
Poster Board Number: 445
Effects of Nanoparticle Pre-Exposure Dispersion Status on Bioactivity in the Mouse Lung. T. M. Sager, M. Wolfarth, V. Castranova, and A. Hohian. 1University of Montana, CEHS, Missoula, MT; and 2NIOSH, Morgantown, WV.

#1979
Poster Board Number: 446
Effects of Multiwalled Carbon Nanotube Solubility on Inflammation and Lung Function. L. S. Powers, J. B. Schmitt, E. Chung, and T. Tetyey. J. Zhang, and A. Gow. 1Toxicology, Rutgers University, Piscataway, NJ; 2Materials, Imperial College, London, United Kingdom; 3National Heart & Lung Institute, Imperial College, London, United Kingdom; and 4Nicholas 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, J. N. Smith, J. Klein, H. D. Jolley, V. K. Kodali, K. Rosso, B. D. Thrall, C. F. Frevert, S. J. Skerrett, and J. G. Teegarden. 1Systems Toxicology, Pacific Northwest National Laboratory, Richland, WA; and 2Medicine, University of Washington, Seattle, WA.

#1981
Poster Board Number: 448

#1982
Poster Board Number: 449
Inhalation of Nanosized Titanium Dioxide Alters Cardiovascular Autonomic Function. T. L. Knuckles, J. Yi, and T. R. Nurfarkiewicz. 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, M. Dunlay, J. R. Robertson, L. Knuckles, and M. Camper. 1University of New Mexico, Albuquerque, NM; and 2NIOSH, Morgantown, WV.

#1984
Poster Board Number: 451
Surface Amination Enhances the Toxicity of Silica-Coated Silver Nanoparticles. J. A. Bonventre, B. Harper, and S. L. Harper. 1Environmental & Molecular Tox, Oregon State University, Corvallis, OR; and 2Chem., Biol. & Env. Eng, Oregon State University, Corvallis, OR.

#1985
Poster Board Number: 452
Establishment of an Inexpensive, In Vitro Screening Tool for Nanomaterial Safety Using the Adult Zebrafish. N. Elrod, J. Brady, L. K. Braydich-Stolle, S. M. Hussain, and J. Speshock. 1Biology, Tarleton State University, Stephenville, TX; and 2Texas A&M AgriLife Research Institute, Stephenville, TX; and 3Air Force Research Laboratories, Wright-Patterson Air Force Base, OH.

#1986
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<td>#1987</td>
<td>Effects of Nanosilver and Silver Nitrate Exposure on Ionic Regulation and Nanoparticle Size in Fathead Minnows. A. D. Hawkins1, C. Thornton1, A. Bednar1, A. J. Kennedy1, J. A. Stevens1, J. Cizdziel1, and K. L. Willett1. University of Mississippi, Oxford, MS; and 2ERDC, Vicksburg, MS.</td>
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<td>#1988</td>
<td>Unique Particle Effects in Fathead Mice: Gill Expression and Uptake following Exposure to Nanosilver and Silver Nitrate. N. G. Reyero Vinas12, A. D. Hawkins2, C. Thornton1, A. J. Kennedy1, J. A. Stevens1, K. Bu1, J. Cizdziel1, and K. L. Willett1. Mississippi State University, Vicksburg, MS; 2ERDC, US Army, Vicksburg, MS; 3ETRP, University of Mississippi, University, MS; and 4Chemistry, University of Mississippi, University, MS.</td>
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<td>#1990</td>
<td>Histopathological Analysis of Malignant Tumors Induced by Intraperitoneal Injection of Carbon Nanotubes. S. Rittinghausen1, B. Bellmann12, A. Hackbarth1, H. Ernst1, U. Heinrich1, A. Leonhardt1, and D. Schaudien1. Fraunhofer Institute for Toxicology and Experimental Medicine, Hannover, Germany; and Leibniz Institute for Solid State and Materials Research, Dresden, Germany. Sponsor: C. Dasenbrock.</td>
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<td>#1992</td>
<td>Repeated-Dose Toxicity Testing of 9 Nanoparticles with Different Surface Functionalizations. R. Büsen1, W. Wohlleben12, H. G. Kamp1, V. Strauss1, M. Dammann1, S. Schott1, K. Treumanni, S. Grötes1, K. Wienczi1, B. van Ravenzwaay1, and R. Landsiedel1. Experimental Toxicology and Ecology, BASF SE, Ludwigshafen/Rhein, Germany; Product Safety, BASF SE, Ludwigshafen/Rhein, Germany; and Polymer Physics, BASF SE, Ludwigshafen/Rhein, Germany.</td>
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<td>#1993</td>
<td>Comparative Biochemical and Histopathological Evaluation of PEG-Coated and Noncoated Gold Nanoparticles in Sprague-Dawley Rats. A. Patolla1, C. Collier1, and P. B. Tohonou2. Biology/Environmental Science, Jackson State University, Jackson, MS; Environmental Science, Jackson State University, Jackson, MS; and Jackson State University, Jackson, MS.</td>
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<td>#1994</td>
<td>The Effects of Metal Oxide Nanoparticles on Angiogenesis in Transgenic Zebrafish. I. Chang12, G. Ichihara1, Y. Shimada2, S. Tada-Oikawa2, Y. Suzuki1, R. Sehsah1, M. Kato1, T. Tanaka1, and S. Ichihara1. Occupational and Environmental Health, Nagoya University Graduate School of Medicine, Nagoya, Aichi, Japan; 2Mie University Graduate School of Regional Innovation Studies, Tsu, Japan; and Molecular and Cellular Pharmacology, Pharmacogenomics and Pharmacoinformatics, Mie University Graduate School of Medicine, Tsu, Japan.</td>
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<td>#1996</td>
<td>In Vivo Invasion of Chorioallantoic Membrane by Lung Adenocarcinoma Cells Exposed to Titanium Dioxide Nanoparticles. A. Décia-Alcaraz1, E. L. Medina-Reyes2, V. Freyre-Foncea3, N. L. Delgado-Buenrostro1, J. O. Flores Flores1, and Y. I. Chiron1. Faculty of Estudios Superiores-Iztacala, National University of Mexico, Estado de Mexico, Mexico; Escuela Nacional de Ciencias Biológicas, Instituto Politécnico Nacional, Distrito Federal, Mexico; and Centro de Ciencias Aplicadas y Desarrollo Tecnológico, National University of Mexico, Distrito Federal, Mexico.</td>
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<td>#2001</td>
<td>5-Day Repeated Inhalation Toxicity of Graphene Nanopowder. J. Shin1, J. Kim1, J. Baek1, J. Hwang1, J. Lee1, T. Kim1, E. Kim1, and I. Yu1. Occupational Lung Diseases Institute, KCOMWEL, Ansan, Gyeonggi, Republic of Korea; and Institute of Nano Products Safety Research, Hoseo University, Asan, Chungnam, Republic of Korea.</td>
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Germany; and 2Leibniz Institute for Solid State and Toxicology and Experimental Medicine, Hannover, Germany; and 3Luna NanoWorks, Danville, VA.

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One Year Pulmonary Outcomes After Exposure to Carbonaceous Nano-Engineered Materials and Asbestos. A. A. Shvedov1, N. Yamamula1, E. K. Kisin1, A. R. Murray1, A. Hruby1, P. Koehavong1, I. P. Sycheva1, V. E. Kagan1, and V. Castranova1. 1HELD/PPRB, CDC/NIOSH, Morgantown, WV; University of Pittsburgh, Pittsburgh, PA; and 2Syssn Research Institute of Human Ecology and Environmental Health, Moscow, Russian Federation.

Poster Board Number .....................................476

Effect of Prenatal Exposure to Carbon Black Nanoparticle on Gene Expression in the Spleen of Offspring Mouse. M. Umezawa1, 2, S. Okamoto1, R. Shimizu1, and K. Takeda1, 2. 1Department of Hygienic Chemistry, Faculty of Pharmaceutical Sciences, Tokyo University of Science, Noda, Chiba, Japan; and 2The 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.

Poster Board Number .....................................477

Quantum Dot-Induced Changes in Pulmonary Function Are Mouse Strain Dependent. D. K. Scoville1, D. Ani1, C. Carosino1, C. White1, M. Cartwright1, S. Schmuck1, X. Gao1, W. C. Parks2, W. A. Altmeine1, and T. Kavanagh1. 1Environmental and Occupational Health Sciences, University of Washington, Seattle, WA; 2Medicine, University of Washington, Seattle, WA; and 3Bioengineering, University of Washington, Seattle, WA.

Poster Board Number .....................................478

The Mitochondrial Effects of a Chronic Exposure to a Low-Dose of Silver Nanoparticles Are Associated with Loss of Its Pro-Oxidant Brain Effects. U. Graham1, S. S. Hardas1, R. Yoke1, P. Wu1, E. Gruke1, M. T. Tseng1, and D. Butterfield1. 1Pharm Sci, U KY, Lexington, KY; 2Chemistry, U KY, Lexington, KY; 3Chemical & Materials Engineering, U KY, Lexington, KY; 4Pharmacology & Toxicology, University of Aveiro, Aveiro, Portugal; and 5Department of Life Sciences, University of Coimbra, Coimbra, Portugal.

Poster Board Number .....................................479

Nanoceria In Vivo Biotransformation Is Associated with a Significant Increase in Organ Distortions. V. Castranova5, J. Y an1, M. G. Pearce1, B. S. Jortner1, J. Y an1, M. F . Willis2, P. L. Goering1, T. H. Umbricht, H. Degheidy3, Q. Zhang1, I. Zheng1, B. Case1, L. Chen1, M. Betz7, and J. T. Zelikoff1. 1Environmental Medicine, NYU School of Medicine, Tuxedo, NY; and 2Center for Devices and Radiological Health, FDA, Silver Spring, MD.

Abstract #

#2002

Poster Board Number .................................469

Acute Effects of Multiple-Dose Metallofolierene (MWCNT) Exposures in Mice after Intrapertralonal Exposure. V. Wallace1, J. Hinckley1, B. S. Jortner1, M. Ehrlich1, and Z. Zhou1. 1Virginia-Maryland Regional College of Veterinary Medicine, Blacksburg, VA; and 2Luna NanoWorks, Danville, VA.

#2003

BrdU Screening—a Short-Time Test for Reliable Prediction of Carcinogenicity for Silver Nanoparticles, Injected Intravenously, Accumulate in the Spleen of Mice and Cause Major Changes in Immune Cell Profiles. D. Willis1, P. L. Goering1, T. H. Umbricht, H. Degheidy3, Q. Zhang1, I. Zheng1, B. Case1, L. Chen1, M. Betz7, and J. T. Zelikoff1. 1Environmental Medicine, NYU School of Medicine, Tuxedo, NY; and 2Center for Devices and Radiological Health, FDA, Silver Spring, MD.

#2004

Silver Nanoparticles, Injected Intravenously, Accumulate in the Spleen of Mice and Cause Major Changes in Immune Cell Profiles. D. Willis1, P. L. Goering1, T. H. Umbricht, H. Degheidy3, Q. Zhang1, I. Zheng1, B. Case1, L. Chen1, M. Betz7, and J. T. Zelikoff1. 1Environmental Medicine, NYU School of Medicine, Tuxedo, NY; and 2Center for Devices and Radiological Health, FDA, Silver Spring, MD.

#2004a

Thirty-Day Whole-Body Inhalation Toxicity and Tissue Burden Study of Multiwalled Carbon Nanotubes in Harlan Sprague-Dawley Rats and Be6C3F1 Mice. B. C. Sayers1, M. D. Stout1, M. F. Gesta1, N. A. Moore2, G. L. Baker2, K. M. Patton2, R. K. Hayden1, J. A. Dill3, and N. J. Walker4. 1Division of the National Toxicology Program, National Institute of Environmental Health Sciences, Research Triangle Park, NC; and 3Battelle Toxicology Northwest, Richland, WA.

#2004b

Cerium Oxide Nanoparticles Induced Lung Fibrosis Involving Epithelial-Mesenchymal Transition (EMT). J. Y. Ma1, B. D. Dolash1, M. Barger1, D. Schweger-Berry1, R. R. Mercer1, and V. Castranova1. 1PPRB/HELD, NIOSH, Morgantown, WV.

#2004c

Cytotoxicity and Genotoxicity Assessment of Silver Nanoparticles in Mouse. T. Chen1, Y. Li1, J. A. Bhalli1, W. Ding2, J. Yan1, M. G. Pearce1, C. K. Cunningham1, J. Jones1, W. A. Monroe1, T. Zhou1, and P. C. Howard1. 1Division of Genetic and Molecular Toxicology, FDA/National Center for Toxicological Research, Jefferson, AR; Covance Laboratories Inc, Indianapolis, IN; Nanotechnology Core Facility, FDA/National Center for Toxicological Research, Jefferson, AR; and 2Center for Veterinary Medicine, FDA, Rockville, MD.

#2004d

One Year Pulmonary Outcomes After Exposure to Carbonaceous Nano-Engineered Materials and Asbestos. A. A. Shvedov1, N. Yamamula1, E. K. Kisin1, A. R. Murray1, A. Hruby1, P. Koehavong1, I. P. Sycheva1, V. E. Kagan1, and V. Castranova1. 1HELD/PPRB, CDC/NIOSH, Morgantown, WV; University of Pittsburgh, Pittsburgh, PA; and 2Syssn Research Institute of Human Ecology and Environmental Health, Moscow, Russian Federation.

Wednesday Afternoon, March 26
1:00 PM to 4:30 PM
Exhibit Hall

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

Cannabinoid Receptor Function on Bone Marrow-Derived Dendritic Cells. J. Suarez-Martinez1, 2, R. Crawford1, and N. E. Kaminski1, 2. 1Center for Int Tox, Michigan State University, East Lansing, MI; and 2Comp Med and Int Biol, Michigan State University, East Lansing, MI; and 3Pharm and Tox, Michigan State University, East Lansing, MI.

Platform Sessions

Exhibit-Hosted Sessions

Education-Career Development Sessions

Informational Sessions

Featured Sessions

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<td>Department of Basic Sciences, Center for Environmental Health Sciences, Mississippi State University, Mississippi State, MS; Division of Pharmacology and Toxicology, Michigan State University, East Lansing, MI; ‘Neuroscience Program, Michigan State University, East Lansing, MI; and Center for Integrative Toxicology, Michigan State University, East Lansing, MI.</td>
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<td>‘Microbiology and Molecular Genetics, Michigan State University, East Lansing, MI; ‘Pharmacology and Toxicology, Michigan State University, East Lansing, MI; and ‘Center for Integrative Toxicology, Michigan State University, East Lansing, MI.</td>
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<td>Pathology, Immunology &amp; Microbiology, University of South Carolina School of Medicine, Columbia, SC.</td>
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<td>The Role of Chemical Sensitizer’s Reactivity in the Generation of Reactive Species and the Activation of the Nrf2 Pathway in THP-1 Cells.</td>
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<td>‘UniverSud, INSERM UMR 996, Faculté de Pharmacie, Châtenay-Malabry, France; and ‘Université de Strasbourg, CNRS UMR 7177, Laboratoire de Dermatochimie, Strasbourg, France.</td>
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<td>Pharmacology and Toxicology, Michigan State University, East Lansing, MI; ‘Center of Integrative Toxicology, Michigan State University, East Lansing, MI; and ‘Center for Integrative Toxicology, Michigan State University, East Lansing, MI.</td>
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<td>‘Zilber School of Public Health, UW-Milwaukee, Milwaukee, WI; and ‘Blood Research Institute, Milwaukee, WI.</td>
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<td>‘Genetics Program, Michigan State University, East Lansing, MI; Department of Pharmacology and Toxicology, Michigan State University, East Lansing, MI; and ‘Center for Integrative Toxicology, Michigan State University, East Lansing, MI.</td>
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<td>‘Genetics Program, Michigan State University, East Lansing, MI; ‘Center for Integrative Toxicology, Michigan State University, East Lansing, MI; and ‘Center for Integrative Toxicology, Michigan State University, East Lansing, MI.</td>
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<td>L. Boule, B. Wianäs, and B. Lawrence.</td>
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<td>‘Microbiology and Immunology, University of Rochester Medical Center, Rochester, NY; and ‘Environmental Medicine, University of Rochester Medical Center, Rochester, NY.</td>
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<td>‘Biophysics, Univ. of Puerto Rico, San Juan, Puerto Rico; ‘Genetics, Michigan State University, East Lansing, MI; ‘Center for Integrative Toxicology, Michigan State University, East Lansing, MI; and ‘Pharmacology and Toxicology, Michigan State University, East Lansing, MI.</td>
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<td>‘Pharmacology and Toxicology, Michigan State University, East Lansing, MI; and ‘Center for Integrative Toxicology, Michigan State University, East Lansing, MI.</td>
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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'Inglello,1 A. Phadnis, W. Chen,1 J. Suarez-Martinez2, J. Li,1 N. Kovalova3, B. L. Kaplan1, J. A. Harrill1, R. S. Thomas1, and N. E. Kaminski1. 1Center for Integrative Toxicology, Michigan State University, East Lansing, MI; and 2The 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 FcRRII (CD32)-IgG Antibody Complex Binding by Disruption of Lipid Raft Membrane Integrity. R. S. Clark1, D. B. Hood2, M. Maguire1, and A. Ramesh1. 1Neuroscience and Pharmacology, Meharry Medical College, Nashville, TN; 2Division of Environmental Health Sciences, College of Public Health and Department of Neuroscience, College of Medicine, Ohio State University, Columbus, OH; and 3Biochemistry 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. Dutta1, P. A. Potnis1, K. Rhodes1, and S. C. Wood2. 1CDRH/OSEL/DB, FDA, Silver Spring, MD; and 2University of Maryland, College Park, MD. Sponsor: P. Goering.

#2025  Poster Board Number .....................................521

#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. Stapatra1, L. Sharma2, V. S. Patel1, C. R. Ashby3, S. Goraisya4, M. Zuri5, and L. Marfell6. 1Department of Pharmaceutical Sciences, St. John's University, Queens, NY; and 2Department of Pharmacological Sciences, St. John's University, Queens, NY; and 3The 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. Do1, D. Kim2, and Y. Moon2. 1Department of Microbiology and Immunology, Pusan National University School of Medicine and Immunoregulatory Therapeutics Group in Brain Busan 21 Project, Yangsan, Republic of Korea; and 2National Institute of Animal Science, RDA, Suwon, Republic of Korea.

Abstract #

#2028  Poster Board Number .....................................524
NKG2D-RAE-1 Mediates the Interaction between Intestinal Epithelial Cells and Intraepithelial Lymphocytes in Food Allergy. R. Pieters1, L. Kruisjen1, C. Giannakou1, L. Boon1, J. Smit1, and M. Bol-Schoenmakers1. 1Institute for Risk Assessment Sciences, Immunotoxicology, and Immunology Division, Utrecht University, Utrecht, Netherlands; and 2Biceros Inc, Utrecht, Netherlands.

#2029  Poster Board Number .....................................525
Oxyctye1, a Perfluorocarbon (PFC) Emulsion, and Its Effects on Immunocompetence. S. Anderson1, V. J. Johnson1, G. Burleson1, and T. Bradshaw1. Oxygen Biotherapeutics Inc, Morrisville, NC; and 2Burleson Research Technologies, Inc., Morrisville, NC.

#2030  Poster Board Number .....................................526
Leptin Mediated CD37 Expression on CD8+ve Cytotoxic T Cells Are Crucial for Toxicity-Induced Nonalcoholic Steatohepatitis. R. K. Seth1, S. Das1, A. Kumar2, A. Chanda2, M. B. Kadidisk2, M. Michalotti1, J. E. Manautou1, A. Diehl1, and S. Chatterjee1. 1Environmental Health Sciences, University of South Carolina, Columbia, SC; 2Free Radical Metabolism Group, Institute of Environmental Health Sciences, Research Triangle Park, NC; 3Division of Gastroenterology, Duke University, Durham, NC; and 4Pharmaceutical Sciences, University of Connecticut, Storrs, CT.

#2031  Poster Board Number .....................................527

#2032  Poster Board Number .....................................528
Effect of 1-Bromopropane on Expression of IL-4 and IL-5 and Secretion of β-Hexosaminidase by Cytotoxic T Cells Are Crucial for Toxicity-Induced Nonalcoholic Steatohepatitis. R. K. Seth1, S. Das1, A. Kumar2, A. Chanda2, M. B. Kadidisk2, M. Michalotti1, J. E. Manautou1, A. Diehl1, and S. Chatterjee1. 1Environmental Health Sciences, University of South Carolina, Columbia, SC; 2Free Radical Metabolism Group, Institute of Environmental Health Sciences, Research Triangle Park, NC; 3Division of Gastroenterology, Duke University, Durham, NC; and 4Pharmaceutical Sciences, University of Connecticut, Storrs, CT.

#2033  Poster Board Number .....................................529
Renal Dendritic Cells Attenuate Cisplatin Nephrotoxicity Independent of Neutrophil Regulation. R. K. Tashiro1, 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. Gong1, J. Pang1, Q. Zhao1, E. Janovitz1, and L. D. Lehman-McKeeman1. 1Discovery Toxicology, Bristol-Myers Squibb, Princeton, NJ; and 2Disc 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 C57BL/6 Mice.  
A. Sternier, C. Murphy, and J. H. Richburg.  
Pharmacology and Toxicology, University of Texas at Austin, Austin, TX.

#2036  
**Poster Board Number .....................................**532  
Methylenediphenyl Disocyanate Binds Membrane and Intracellular Proteins of Intact THP-1 Cells.  
M. Mhake1,2, J. M. Hettick1, B. F. Law1, T. A. Bledsoe1, J. Chipinda2, A. R. Lemons1, B. I. Green1, A. P. Nayak1, R. Simoyi1, D. Beezhold1, and P. D. Siegel1.  
1Chemistry, Portland State University, Portland, OR; and 2Allergy 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. Parenteau1, R. Chakrabarty1, H. Tran1, A. Hageman1, S. Serl1, B. Thompson1, M. Coffey1, R. Tavcar2, I. Boulay2, M. Bigras1, and R. Forster2.  
1Oncolytics Biotech Inc., Calgary, AB, Canada; 2CTiToxLAB North America, Laval, QC, Canada; and 3CTiToxLAB France, Evreux, France.

#2038  
**Poster Board Number .....................................**534  
Multi-Endpoint Assessment of Bone Marrow Toxicity in Sprague-Dawley Rats.  
Exploratory Toxicology, Celgene Corporation, San Diego, CA.

#2039  
**Poster Board Number .....................................**535  
Cysteine Microenvironment Determines Nitrosylation Status: Lessons from Proteome Analysis of NOS2 and GSNO Knockout Mice.  
C. B. Massa1, P. T. Doullas2, H. Ischirooulos3, and A. Gow4.  
1Toxicology, Rutgers, Piscataway, NJ; and 2Chemistry, Portland State University, Portland, OR; and 3Pediatrics, 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. Ahuja1, A. Sonnenburg1, S. Sharma2, and R. Stahlman.  
1Drug Safety Assessment, Novel Drug Discovery & Development, Lupin Ltd. (Research Park), Pune, India; and 2Institute of Clinical Pharmacology and Toxicology, Charité-Universitätsmedizin Berlin, Berlin, Germany.

#2040a  
**Poster Board Number .....................................**537  
Influence of Nickel Rich PM10 Exposure on MAPKs and NF-κB Signaling and Inflammatory Cytokines.  
B. A. Narayanan1, J. Blum1, D. Tian1, N. K. Narayanan1, J. T. Zelikoff1, I. Niu1, Q. Qu1, M. Costa1, and L. Chen1.  
1Environmental Medicine, NYU School of Medicine, New York City, NY; and 2Public Health, Lanzhou University, Gansu, Gansu, China.

#2040b  
**Poster Board Number .....................................**538  
Potential Immunotoxicity of a Polyfluoroalkyl Substance Replacement of Perfluorooctanoic Acid.  
J. DeWitt1, B. R. Rushing1, Q. Hu1, and M. Strynar2.  
1Pharmacology and Toxicology, East Carolina Univ, Greenville, NC; and 2Human 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. Shepherd1, B. P. Seaver1,2, and C. A. Beamer1,2.  
1Biomedical & Pharmaceutical Sciences, University of Montana, Missoula, MT; and 2Center for Environmental Health Sciences, University of Montana, Missoula, MT.

Wednesday Afternoon, March 26
1:00 PM to 4:30 PM  
Exhibit Hall

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. Akintunde1,2, T. O. Omobowale1, A. A. Oyagbeni1, A. B. Sabu1, B. S. Ogunpolu1, and O. T. Daramola1.  
1Dept of Vet. Physiology, Biochemistry and Pharmacology, University of Ibadan, Nigeria, Ibadan, Oyo, Nigeria; and 2Veterinary 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.  
1Bio-Rad Inc, Hercules, CA; and 2Myriad 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. Zhang1,2, M. Shao1,2, L. Cai1,2, and X. Lu.  
1Chinese-American Research Institute for Diabetic Complications, Wenzhou Medical University, Wenzhou, China; 2Ruijin Center of Chinese-American Research Institute for Diabetic Complications, the Third Affiliated Hospital of the Wenzhou Medical University, Wenzhou, China; and 3ECHRJ & Department of Pediatrics, University of Louisville, Louisville, KY.
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| #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, C. Zhang1, X. Li, and L. Cai1,2. 1Ruian Center of Chinese-American Research Institute for Diabetic Complications; The Third Affiliated Hospital of the Wenzhou Medical University, Ruian, Zhejiang, China; 2Chinese-American Research Institute for Diabetic Complications, Wenzhou Medical University, Wenzhou, China; and 3RCFRI & Department of Pediatrics, University of Louisville, Louisville, KY. | #2053  
Deficiency in Mdr1/MDR1 Increases Paraquat Accumulation and Toxicity in Mice and Human Renal Proximal Tubule Cells. X. Wei1, C. J. Gibson1, I. Yang1, B. Buckley2, J. R. Richardson3, M. J. Goedken1, and L. M. Aleksunes1,2. 1Pharmacology and Toxicology; Rutgers Univ, Piscataway, NJ; 2Environmental & Occupational Health Sciences Institute, Rutgers Univ, Piscataway, NJ; 3Pathology, Merck Research Laboratories, Kenilworth, NJ. |
Ameliorative Effects of Metformin on Aristolochic Acid-Induced Renal Toxicity in Mice Due to Its Ability to Control Methyglyoxal and N’(Carboxymethyl)Lysine Accumulation. T. Huang1, Y. Li2, S. Chen3, Y. Lee1, L. Tian1, and J. Lee1.
1School of Pharmacy, Taipei Medical University, Taipei, Taiwan; and 2School of Medicine, Fu-Jen Catholic University, New Taipei City, Taiwan.

Poster Board Number .....................................561


Poster Board Number .....................................562

Resveratrol Reduces Doxorubicin Cytotoxicity in Human Kidney (HK-2) Cells. L. K. Vu1, G. O. Rankin1, H. Hedrick1, J. G. Ball1, and M. Valentovic1.
1Pharmacology, Physiology and Toxicology, Marshall University School of Medicine, Huntington, WV; and 2University of Charleston, Charleston, WV.

Poster Board Number .....................................563

Inhibition of TGF-β1-Induced Renal Epithelial Mesenchymal Transition by Chrysirin. R. Nagavally, and S. M. Ford. Toxicology Program, St. John’s University, Jamaica, NY.

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.

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. Tien1, J. R. Turk4, N. Evers4, Q. Ye1, M. Nguyen1, P. Cao1, J. Schroeder1, R. Kelly1, L. Jin1, and C. Afshar1.
1Pharmacokinetica and Drug Metabolism, Amgen, Inc., South San Francisco, CA; 4Pharmaceuticals, Amgen, Inc., South San Francisco, CA; 3Molecular Structure and Characterization, Amgen, Inc., South San Francisco, CA; and 4Comparative Biology and Safety Sciences, Amgen, Inc., Thousand Oaks, CA.

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.

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.
Abstract #

#2068 1:30 Exploring the Interface between Air Pollution and Metabolic Syndrome: The Bittersweet Dilemma. U. P. Kodavanti1, and J. G. Wagner2. 1EPHD, NHEERL, US EPA, Research Triangle Park, NC; and 2Cardiorespiratory Toxicology, Michigan State University, East Lansing, MI.

Introduction. J. G. Wagner. Cardiorespiratory Toxicology, Michigan State University, East Lansing, MI.


#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.


Wednesday, 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 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) toxicity 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 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. Makris1, V. Sutherland2, C. Lo3, M. G. Paule4, and L. D. Wise5. 1Reproductive Toxicology, Bristol-Myers Squibb Company, New Brunswick, NJ; 2Department of Developmental Biology, University of Pittsburgh, Pittsburgh, PA; 3Division of Neurotoxicology, NCTR, US FDA, Jefferson, AR; 4Developmental & Reproductive Toxicology, Merck Research Laboratories, West Point, PA; and 5National Center for Environmental Assessment, US EPA, Washington, DC.


#2075 1:32 Lighsheet 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, X. Liu, A. Kim, Y. Chen1, Y. Li2, N. Klena, L. Leatherbury3, R. Franciol1, and K. Tobita1. 1Department of Developmental Biology, University of Pittsburgh, Pittsburgh, PA; and 2Children'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.


Wednesday, 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


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 use of high-throughput in vitro screens around this and other important cardiac ion channels that have significantly reduced arrhythmogenic risks. Despite these advances, adverse effects on the cardiovascular system remain a multi-
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 heart 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.

**Abstract #**

**Beyond hERG: Novel Cardiovascular De-Risking Strategies and Their Regulatory Acceptance.** J. Davis, and T. Brabham. Pfizer, Andover, MA.

**Study of Cardiovascular Safety of Small Molecules and Biologics: The State of Science, Challenges, and Gaps.** A. S. Bass, and F. Mannagust. 1Discovery Sciences Support, Merck & Co., Boston, MA; and 2Safety and Exploratory Pharmacology, Merck & Co., West Point, PA.

**Regulatory Expectations for Submission of Novel In Vitro Assays Addressing Cardiovascular Risk.** J. Davis.

**Translation of Models for Assessment of Hemodynamic Endpoints.** J. Heyen, M. Hemkens, W. Hu, C. Northcott, L. Warren, A. Bassouni, S. Jenkinson, J. Steidl, T. Brabham, and J. Davis. 1Global Safety Pharmacology, Pfizer, San Diego, CA; 2Investigative Toxicology, Pfizer, Cambridge, MA; 3Investigative Toxicology, Pfizer, San Diego, CA; 4Global Safety Pharmacology, Pfizer, Groton, CT; and 5Compound Safety Prediction, Pfizer, Groton, CT.


**Applications of Stem Cell-Derived Cardiomyocytes—From Basic Research to Arrhythmia Prediction to Potential Regulatory Implications.** K. L. Kolaja. Cellular Dynamics International, Montclair, NJ.


**Panel Discussion/Q&A.**

**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.

**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, and S. J. Hermansky. Center for Environmental Health Sciences, Department of Basic Sciences, Mississippi State University, Mississippi State, MS; and Research and Quality Innovation, ConAgra Foods, Omaha, NE.

**To Speak or Not to Speak…That Is the Question….And the Challenge.** M. P. Holsapple. Battelle, Columbus, OH.

**The New Universe of “Knowledge”** S. J. Hermansky. Research and Quality Innovation, ConAgra Foods, Omaha, NE.

**Values, Trust, and Science.** C. Arnot. Center for Food Integrity, Gladstone, MO. Sponsor: S. Hermansky.

**Panel Discussion/Q&A.**
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 and M. Shimoyama. 1 'Mouse Genome Informatics, The Jackson Laboratory, Bar Harbor, ME; and 2'Rat Genome Database, Medical College of Wisconsin, Milwaukee, WI.

#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.


#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 122

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 and G. E. Marchant.  1College of Law, Arizona State University, Tempe, AZ; and 2Global Safety & Environment, Merck & Co, Whitehouse Station, NJ.

#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.
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 cause a clinical syndrome that partially overlaps with those typically seen in IPD. This workshop brings together inter-disciplinary 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 discussion 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 Caenorhabditis 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

1School of Health Sciences, Purdue University, West Lafayette, IN; and 2Environmental Health Sciences, Columbia University Mailman School of Public Health, New York, NY.

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. Racette1, and G. Nelson2.
1Neurology, Washington University School of Medicine, St. Louis, MO; and 2Division of Epidemiology and Biostatistics, University of the Witwatersrand, Johannesburg, South Africa. Sponsor: W. Zheng.

Manganese-Induced Parkinsonism in Methcathinone Abusers. K. Sikl1, S. Haldre1, S. Aquilonius1, and P. Tab2.
1Department of Neurology, North Estonia Central Hospital, Tallinn, Estonia; 2Department of Neurology and Neurosurgery, University of Tartu, Tartu, Estonia; and 3Department of Neuroscience, Uppsala University, Uppsala, Sweden. Sponsor: W. Zheng.

#2105 2:08

Manganese-Induced Parkinsonism in Rats. W. Zheng.

Manganese-Induced Parkinsonism in Manganese-Exposed Nonhuman Primates. T. R. Guilarte.

Accumulation of Manganese in Substantia Nigra and Alterations in Brain Neurochemistry following Subchronic Manganese Exposure in Rats. W. Zheng, Y. Pushkar1, and J. R. Cannon2.
1School of Health Sciences, Purdue University, West Lafayette, IN; and 2Physics, Purdue University, West Lafayette, IN.


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

Sponsor: R. Roberts2, and M. Hinrichs2.
1AstraZeneca, Macclesfield, United Kingdom; and 2MedImmune, Gaithersburg, MD.

Introduction. R Roberts, AstraZeneca, Macclesfield, United Kingdom.

#2110 1:35


AstraZeneca, Macclesfield, United Kingdom.
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 25
2:15 PM to 3:30 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
4:00 PM to 5:00 PM
Room 226A

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).

Wednesday Afternoon, March 26
4:30 PM to 5:50 PM
Room 124
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. Stephens1, and N. Mak2. 1CAAT, Johns Hopkins University, Baltimore, MD; and 2Alternatives 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.


5:30 Panel Discussion/Q&A.

Wednesday Afternoon, March 26
4:30 PM to 5:50 PM
Room 126

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 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 #

Leadership In Science: Skills and Styles. B. Mahadevan1, P. Rao2, L. S. Birnbaum3, H. I. Swanson4, M. Aardema5, and L. Burns Naas6. 1Regulatory Affairs, Abbott Nutrition, Abbott Laboratories, Columbus, OH; 2Global Regulatory Affairs & Safety Sciences, Bristol Myers Squibb, Princeton, NJ; 3NIHES, RTP, NC; 4Molecular and Biomedical Pharmacology, University of Kentucky, Lexington, KY; 5Marilyn Aardema Consulting LLC, Scientific Advisor, BioReliance, Rockville, MD, and 6Drug 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. NIHES, Research Triangle Park, NC.


5:00 Leadership Skills and Styles to Be Effective across Different Organizations. M. Aardema. Marilyn Aardema Consulting LLC, Fairfield, OH.


Wednesday Afternoon, March 26
4:30 PM to 5:50 PM
Room 125

Informational Session: Recent Challenges Beyond the Usual Toxicological and Public Health Challenges in Africa

Chairperson(s): Abdul M. Kady, 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):
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 countries 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.
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. Kadry¹, S. Myers², E. Afriyie-Gyawu³, S. Soliman⁴, and M. T. Ahmed⁵. ¹Office of Research and Development, National Center for Environmental Assessment, US EPA, Washington, DC; ²Department of Pharmacology and Toxicology, University of Louisville, Louisville, KY; ³College of Health and Human Sciences, Georgia Southern University, Statesboro, GA; ⁴Pesticide Chemistry and Toxicology, Alexandria University, Alexandria, Egypt; and ⁵Pesticide Chemistry and Toxicology, Suez Canal University, Ismailia, Egypt.


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.


5:35 Panel Discussion/Q&A.
## THURSDAY MORNING

**Poster Session: Animal Models of Disease**

**Chairperson(s):** Chandrasegar Saravanan, Novartis Institutes for Biomedical Research, PCS, Cambridge, MA.

**Displayed:** 8:30 AM–12:00 Noon

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<th>$#2118$</th>
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<td>$#2118$</td>
<td>Poster Board Number ..................................... 101</td>
<td>Poster Board Number ..................................... 107</td>
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<td>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$^3$, B. C. Hanks$^{1,2}$, J. Liu$^1$, and G. Bouchard$^1$</td>
<td>Expression of Cysteine-Rich Secretory Protein LCC1 Domain Containing 2 (CRISPLD2) Is Associated with Bile Duct Hyperplasia and Pericellular Fibrosis in Nonalcoholic Steatohepatitis. C. Saravanan$^1$, C. Spence$^1$, J. Trevaskis$^2$, X. Wang$^1$, J. Galarneau$^1$, W. Chutkow$^1$, and K. Mansfield$^1$</td>
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<td>$\text{Sinclair Research Center, LLC, Auxvasse, MO; and } ^{1}\text{Sinclair BioResources, LLC, Auxvasse, MO.}$</td>
<td>Discovery and Investigative Pathology, Novartis Institutes for Biomedical Research, Cambridge, MA; and $^{1}\text{Cardiovascular and Metabolism, Novartis Institutes for Biomedical Research, Cambridge, MA. Sponsor: V. Sassiveille.}$</td>
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<td>$#2119$</td>
<td>Poster Board Number ..................................... 102</td>
<td>Poster Board Number ..................................... 108</td>
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<td>Evaluation of Phototoxicity of Intravitreal Injected Porphyrin in Albino Rabbit. T. Aya, K. Watanabe, S. Tsukamoto, Y. Oshita, T. Mochizuki, Y. Yao, K. Hosoi$^1$, and K. Kawazu</td>
<td>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$^1$, Y. Tan$^2$, L. Cai$^1$, and W. Li$^3$</td>
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<td>$\text{Santen Pharmaceutical Co., LTD., Ikoma-shi, Nara, Japan.}$</td>
<td>Cancer Center, First Hospital, Jilin University, Changchun, Jilin, China; and $^1\text{KCHRI at Department of Pediatrics, University of Louisville, Louisville, KY.}$</td>
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<td>Poster Board Number ..................................... 103</td>
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<td>Development of a Novel Model of Latent Oncogenic Herpesvirus Reactivation for Immunotoxicologic Evaluations. R. Mikkelsen$^1$, J. Aligo$^1$, M. R. Walker$^1$, D. Weinstock$^1$, F. G. Burleson$^1$, and G. R. Burleson$^1$. Burleson Research Technologies, Inc., Morrisville, NC; and $^{1}\text{Biologics Toxicology, Janssen Pharmaceuticals, Inc., Spring House, PA.}$</td>
<td>Hematopoietic 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$^1$. Safety Assessment, SNBL USA, Everett, WA; and $^{1}\text{Corporate, Shin Nippon Biomedical Laboratories, Ltd., Tokyo, Japan.}$</td>
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<td>$#2121$</td>
<td>Poster Board Number ..................................... 104</td>
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<td>Efficacy and Pharmacokinetics of Brincidofovir for Treatment of Lethal Rabbitpox Virus (RPXV) Infection in NZW Rabbis; A Model of Human Smallpox. I. M. Gross$^1$, S. Foster$^1$, K. Van Sickle$^1$, L. Keilholz$^1$, M. Ros$^1$, T. Brundage$^1$, J. Long$^1$, R. Krile$^1$, and L. C. Trost$^1$. Pharm/Tox, Chimerix, Inc., Durham, NC; and $^{1}\text{Tox, Battelle Biomedical Research Center, Columbus, OH.}$</td>
<td>Dry Eye Symptoms in a Mouse Model of Mucin Deficiency. X. Zhou, and Y. Chen. University of Arizona, Tucson, AZ.</td>
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<td>$#2122$</td>
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<td>Effect of Prandial Status on Plasma Bile Acids Composition in Dogs. J. L. Casnaky$^1$, P. Shipkova$^1$, D. Robertsson$^1$, M. Reily$^1$, A. J. Lickteig$^1$, M. Pratt-Hyatt$^1$, C. D. Klaassen$^1$, and L. D. Leeman-McKeeman$^1$. University of Kansas Medical Center, Kansas City, KS; and $^{1}\text{Bristol-Myers Squibb Co, Princeton, NJ.}$</td>
<td>Toxic Milk Leads to the “Mask” Phenotype in Hepaestin Knockout Mice. K. E. Page$^1$, E. Lachenauer$^1$, J. Luong$^1$, C. Han$^1$, H. Irimagawa$^1$, Y. He$^1$, D. W. Killilea$^1$, D. M. Frazer$^1$, G. J. Anderson$^1$, B. K. Fuqua$^1$, and C. Vulpe$^1$. Nutritional Science and Toxicology, University of California, Berkeley, Berkeley, CA; $^{1}\text{Children’s Hospital Oakland Research Institute, Oakland, CA; and } ^{1}\text{QIMR Berghofer Medical Research Institute, Brisbane, QLD, Australia.}$</td>
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<td>Assessment of DNA Copy Number Alterations in Fibrosis-Associated Mouse Liver Tumors. G. Silva$^1$, G. Chappell$^1$, T. Uchera$^1$, J. Pogribny$^1$, and J. Rusyn$^1$. Environmental Sciences and Engineering, University of North Carolina, Chapel Hill, NC; and $^{1}\text{National Center for Toxicological Research, US Food and Drug Administration, Jefferson, AR.}$</td>
<td>Alterations of Contractile Gene Expression (Mypt1, CPI-17, and Myosin Kinase) in RUPP, L-NAMe, and Adriamycin Rodent Models of Preeclampsia. J. Toft$^1$, and J. Reho$^2$. WIL Research, Ashland, OH; and $^{1}\text{Department of Medicine, Division of Cardiology, University of Maryland, Baltimore, MD.}$</td>
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<td>$\text{Biobehavioral Health, The Pennsylvania State University, University Park, PA; } ^{1}\text{CDC-NIOSH, Morgantown, WV; and } ^{1}\text{University of Tennessee Health Sciences Center, Memphis, TN.}$</td>
<td>Variability in Neurotoxicity: Who Is Susceptible and Why. G. Alani$^1$, D. B. Miller$^1$, J. P. O’Callaghan$^1$, L. Lu$^1$, R. W. Williams$^1$, and B. C. Jones$^1$. Biobehavioral Health, The Pennsylvania State University, University Park, PA; and $^{1}\text{University of Tennessee Health Sciences Center, Memphis, TN.}$</td>
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<td>$#2124$</td>
<td>Poster Board Number ..................................... 107</td>
<td>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$^1$. University of Utah, Salt Lake City, UT. Sponsor: G. Gao.</td>
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THURSDAY

Program Description (Continued)

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<td>#2129c</td>
<td>Mammary Gland Tumor Promotion by IGFl and an Insulin Analogue in the p53+/R2HWA/Cre Mouse Model. B. ter Braak1, K. Siezen2, R. van de Water2, and J. van der Laan3. 1Toxicology, LACDR, Leiden University, Leiden, Zuid-Holland, Netherlands; 2National Institute of Public Health and the Environment, Blijheven, Netherlands; and 3Medicines Evaluation Board, Utrecht, Netherlands.</td>
<td>#2134</td>
<td>Ranges of Commonly Evaluated Clinical Chemistry, Hematology, and Coagulation Parameters from Clinically Healthy Cynomolgus Monkeys of Asian Origin. L. Lanning1, K. Taylor2, and J. Hewitt. 1Office of Regulatory Affairs, NIH/NIAID/DMID, Bethesda, MD; and 2Office of Biodefense, Research Resources, and Translation Research, NIH/NIAID/DMID, Bethesda, MD.</td>
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<td>#2129d</td>
<td>Characteristics of IgG Deposit and Neurodevelopmental Protein Expression in Brain of BTBR T+tf/J Mouse Fetus. Y. H. Lee1, S. Hwang1, C. Kim1, H. Kim2, K. Shin2, and J. Jo1. 1Occupational Health, Catholic University of Daegu, Gyeongbuk-do, Republic of Korea; and 2 Preventive Medicine, The Catholic University of Korea, Seoul, Republic of Korea.</td>
<td>#2135</td>
<td>Comparison of Historical Control Parameters Derived from Subchronic Studies Conducted in CD'IgS Rats Fed 5002 or 5CR4 Certified Diets. M. A. Morse1, B. Jacob2, and A. M. Sargeant2. 1Toxicology, Charles River Laboratories, Spencerville, OH; and 2Pathology, Charles River Laboratories, Spencerville, OH.</td>
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Thursday Morning, March 27
8:30 AM to 12:00 Noon

Hall I

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

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<td>#2130</td>
<td>Lifetime Carcinogenicity Studies in the CD-1 Mouse: Historical Data for Survival and Neoplasms. J. Le Bigot, C. Thiron-Delalande, B. Palate, and R. Forster. CToxLAB, Evreux, France.</td>
<td>#2137</td>
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<td>#2131</td>
<td>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. Kanate1, P. Allingham1, A. Leon1, A. Albrecht1, W. Riedel1, S. Gähler2, G. Pohlmeyer-Esch3, K. Weber2, and J. F. Hardisty3. 1BSL BIOSERVICE Scientific Laboratories GmbH, Planegg, Germany; 2AnaPath GmbH, Oberbruchtiten, Germany; 3KALEIDIS, Saint-Louis, France; and 4EPI Inc., Durham, NC.</td>
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<td>#2132</td>
<td>A One-Year Feeding Study for Wistar Hannover GPT Delta Transgenic Rat. H. Takagi1, Y. Nozaki1, A. Kawada1, M. Yamada1, K. Masumura2, and T. Nohmi1. 1Biotechnical Center, JAPAN SLC, Inc., Hamamatsu, Japan; 2Division of Genetics and Mutagenesis, National Institute of Health Sciences, Tokyo, Japan; and 3Biomedical Safety Research Center, National Institute of Health Sciences, Tokyo, Japan. Sponsor: A. Nishikawa.</td>
<td>#2139</td>
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<td>#2194</td>
<td>Comparison of 4DCT-Derived Ventilation Maps to Deposition Patterns of Inhaled Particulates in Healthy and Diseased Rat Lungs. R. E. Jacob1, W. J. Lamm1, D. R. Einstein1, M. Kuefer1, R. W. Glenn2, and R. A. Conley1. 1Pacific Northwest National Laboratory, Richland, WA; 2Pulmonary and Critical Care Medicine, University of Washington, Seattle, WA; and 3Mechanical Engineering, University of Washington, Seattle, WA.</td>
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#2143  Comparative Sensitivities of the Rat, Dog, and Monkey Larynx and Tracheal Bifurcation in Inhalation Toxicity Studies.  A. M. Pilling1, V. Mowat1, and D. J. Alexander2.  Pathology, HLS, Huntingdon, United Kingdom; 1Toxpath Consultancy Ltd, Stradbroke, Suffolk, United Kingdom; and 1DA Nonclinical Safety Ltd, Godmanchester, Cambs, United Kingdom.  Sponsor:  D. Mitchell.


#2145  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.


#2147  Onset of Sexual Maturity in Female Göttingen Minipigs.  B. Peter1, E. de Rijk1, H. Lorenzten1, A. Zeltner2, and H. Emen1.  Toxicology, WII Research, Den Bosch, Netherlands; and 1Eilfgaard Göttingen Minipigs A/S, Dalmose, Denmark.

#2148  Ovarian Cycle Features in Socially Housed Cynomolgus Monkeys (Macaca fascicularis).  A. Mitchell1, C. M. Luctjens1, S. M. Henwood2, and G. F. Weinbauer3.  Covance Laboratories, Madison, WI; and 1Covance Laboratories GmbH, Muenster, Germany.


#2151  Hepatic Microsomal UDP-Glucuronosyltransferase (UGT) Activities in Microninipig.  E. Higashi1, A. Ando1, S. Iwano1, N. Murayama1, H. Yamazaki1, and Y. Miyamoto1.  Toxicology and Pharmacokinetics Laboratories, Toray Industries, Inc., Kanagawa, Japan; and 1Laboratory of Drug Metabolism and Pharmacokinetics, Showa Pharmaceutical University, Tokyo, Japan.

#2151a  Quantity of Plasma Not a Constraint to Measure Clinical Chemistry Analytes.  S. Jana1, V. Goyal1, S. Pandey1, A. Gothi1, S. Kakade1, and R. Nirogi1.  ‘Discovery Toxicology, Suven Life Science Ltd, Hyderabad, Andhra Pradesh, India.

#2151b  Determining the Effect of Storage Conditions on Different Coagulation Parameters.  S. Pandey1, V. Goyal1, A. Gothi1, S. Jana1, S. Kakade1, and R. Nirogi1.  ‘Discovery Toxicology, Suven Life Science Ltd, Hyderabad, Andhra Pradesh, India.

#2151c  Basal and Short-Term Food Denial Stress-Induced Plasma Cortisol in Four Lineages of Miniswine.  A. Stricker-Krongrad2, N. Patel1, N. Yumibe1, D. Yurek1, N. Huang1, S. Renna1, D. White1, L. Brown2, J. Liu1, and G. Bouchard2.  Eli Lilly & Company, Indianapolis, IN; and 1Sinclair Research, Auvasse, MO.

#2151d  Successful Social Housing of Mature Male Cynomolgus Macaques in Mixed Sex Rooms.  D. M. Abney5, K. Harding1, J. Toscano1, L. Pool1, E. Moreau1, H. Moomaw1, D. Reim1, and C. Winnicker1.

Thursday Morning, March 27
8:30 AM to 12:00 Noon
Hall 1
Poster Session: Animal Models: Methods Development
Chairperson(s): Sven H. Korte, Covance Laboratories GmbH, Muenster, Germany.
Displayed: 8:30 AM–12:00 Noon


#2153  Selection of Ocular Histology Tissue Sections Based on Ophthalmic Examination Findings.  M. C. Collins.  Preclinical Services, Charles River Laboratories, Reno, NV.

Abstract #

#2155 Poster Board Number .....................................154

#2156 Poster Board Number .....................................155

#2157 Poster Board Number .....................................156
Collection of Semen Samples from Rabbits in Drug Disposition Studies. I. D. Stuhter, J. Relph, M. Jenson, T. Eckhoff, F. Thalacker, and V. Tedesco. Metabolism, Covance Laboratories, Madison, WI; and ‘Novartis Pharmaceuticals Corporation, East Hanover, NJ. Sponsor: V. Dinkel.

#2158 Poster Board Number .....................................157

#2159 Poster Board Number .....................................158
Advances in Intranasal Delivery for Two Commonly Used Preclinical Test Systems. M. C. Freke, J. Douville, D. O. Clarke, A. Everly, and A. Viau. Inhalation Toxicology, Charles River, Montreal, QC, Canada; and ‘Nonclinical Safety Assessment, Eli Lilly and Company, Indianapolis, IN.

#2160 Poster Board Number .....................................159
Packaged Cell Reinjection As a Technique for Serial Blood Sampling in Rats. P. S. Coder, S. M. Davis, R. Moehle, A. Öbrecht, and D. G. Stump. WIL Research, Ashland, OH.

#2161 Poster Board Number .....................................160
Blood Capillary Microsampling in Suckling Rats—Reduction in or/and Elimination of the Need for Satellite Pups. N. S. Powles-Glover, S. Clabby, L. Jardine, and J. Stewart. AstraZeneca, Macclesfield, United Kingdom; and ‘Charles River, Edinburgh, United Kingdom. Sponsor: W. Harvey.

#2162 Poster Board Number .....................................161

#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. Endo1, S. Benner1, W. Ling1, N. Endo1, E. Kimura1, C. Tóhyma1, and M. Kakeyama1. Laboratory of Environmental Health Sciences, Center for Disease Biology and Integrative Medicine, Graduate School of Medicine, the University of Tokyo, Tokyo, Japan; and ‘Department of Neurobiology and Behavior, Graduate School of Biomedical Sciences, Nagasaki University, Nagasaki, Japan.

#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. Goyal2, S. Pargrut1, S. Pandey1, S. Jana1, A. Gothi1, S. Kakade1, G. Bhayrapuneni1, and R. Nirogi1. Discovery Toxicology, Suven Life Science Ltd, Hyderabad, Andhra Pradesh, India.

#2163b Poster Board Number .....................................164
Phosgene-Induced Lung Injuries in the Conscious Pig. S. Graham1, A. J. Smith1, R. L. Perrott2, B. J. Jugg1, and A. M. Scuito1. Dstl, Salisbury, United Kingdom; and ‘USAMRICD, Aberdeen Proving Ground, MD.

#2163c Poster Board Number .....................................165
LC/MS Determination of Sarin and Soman in Conscious Guinea Pigs (GP) Using a Nose-Only Vapor Inhalation Model. W. Holmes, D. Paradiso1, J. Koenig1, R. B. Lee1, J. H. McDonough1, and D. Anderson1. USAMRICD, Aberdeen Proving Ground, MD. Sponsor: J. Graham.

Thursday Morning, March 27
8:30 AM to 12:00 Noon
Hall 1

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
Linalool and Limonene in Fragranced Products: Stability and Quantification of Potentially Sensitizing Hydroperoxides. G. Adanson, S. Kern, H. Dkhil1, and A. Natsch1. Givaudan Schweiz AG, Duibendorf, Switzerland; ‘Givaudan France SA, Argenteuil, France; and ‘Givaudan US, East Hanover, NJ.

#2165 Linalool and Limonene in Fragranced Products: Stability and Quantification of Potentially Sensitizing Hydroperoxides. G. Adanson, S. Kern, H. Dkhil1, and A. Natsch1. Givaudan Schweiz AG, Duibendorf, Switzerland; ‘Givaudan France SA, Argenteuil, France; and ‘Givaudan US, East Hanover, NJ.

#2166 Poster Board Number .....................................202

Program Description (Continued)

Abstract #  #2168  #2169  #2170  #2171  #2172  #2173  #2174  #2175  #2176  #2177  #2178  #2179  #2180  #2181  #2182  #2183  #2184  #2185  #2186  #2187  #2188  #2189  #2190  #2191  #2192  #2193  #2194  #2195
Poster Board Number .....................................205  Poster Board Number .....................................206  Poster Board Number .....................................207  Poster Board Number .....................................208  Poster Board Number .....................................209  Poster Board Number .....................................210  Poster Board Number .....................................211  Poster Board Number .....................................212  In Vitro Human Skin Permeation: Example of CMI/3MI and Toloylanid, Two Irritant, and Sensitizer Biocides. A. Berthet1, P. Spring1, N. Charriere1, D. Vernez1, and N. B. Hof1. 1Institute for Work and Health, Lausanne, Switzerland; and 1Dermatology, Centre Hospitalier Universitaire Vaudois, Lausanne, Switzerland.


The Usefulness of the Validated SkinEthic RHE Method to Identify Skin Corrosive UN GHS Subcategories. C. Tornier1, C. Robert1, J. Cotovio1, and N. Alépée1. L’Oréal, Gerland, France; and 1L’Oréal, Aulnay sous Bois, France. Sponsor: D. Bury.

Chronic Solar Simulated UVR Exposure Alters Histone Modifications at Photagingene Promoters in Human Dermal Fibroblasts. J. Tropšin1, M. Matsu2, and M. Costi1. Nelson As Institute of Environmental Medicine, New York University, New York City, NY; and 1Estee Lauder Companies, Inc., Melville, NY.

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.

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.


Using Mode of Action in Predicting Skin Toxicity. V. Veljovic1, D. Mitic Potkrajac1, B. Rakic1, and G. Apic1. 1Cambridge Cell Networks Ltd, Novi Sad, Serbia.

Identification of Putative Skin Sensitizers Using QSAR Models Enriched by In Vitro Data. A. Tropsha1, V. Alves1, E. Murato2, D. Fourches1, J. Strickland1, N. Kleinsteuere, and C. Andrade1. 1UNC-Chapel Hill, Chapel Hill, NC; 2Federal University of Goiás, Goiânia, GO, Brazil; and 3ILS, Inc., Research Triangle Park, NC.
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<tr>
<td>#2183</td>
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<tr>
<td>Displayed: 8:30 AM–12:00 Noon</td>
<td>Combined Repeated-Dose Toxicity Studies with the Reproduction/Developmental Toxicity Screening Tests for Perfluorotetradecanoic Acid and Perfluorohexadecanoic Acid in Rats. A. Hirose1, S. Fujii2, T. Suzuki3, H. Kato4, T. Kawamura5, M. Matsumoto6, M. Takahashi7, M. Hirata-Koizumi8, T. Nishimura9, M. Ema10, and A. Ono1. Division of Risk Assessment, National Institute of Health Sciences, Tokyo, Japan; Safety Research Institute for Chemical Compounds Co., Ltd., Sapporo, Japan; Tokyo Metropolitan Institute of Public Health, Tokyo, Japan; Teikyo Heisei University, Tokyo, Japan; and National Institute of Advanced Industrial Science and Technology, Tsukuba, Japan.</td>
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<td>Poster Session: Reproductive Toxicology: Female</td>
<td>Inhalation Exposure of Pregnant Mice to Concentrated Airborne Particulate Matter Leads to Adverse Obstetric Outcomes Associated with Particular Exposure &quot;Windows&quot;. J. L. Blum, L. Chen, and J. T. Zelikoff. Environmental Medicine, New York University School of Medicine, Tuxedo, NY.</td>
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<tr>
<td>#2185</td>
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<tr>
<td>Poster Session: Reproductive Toxicology: Female</td>
<td>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. Lewis1, J. T. Barrett2, P. Vakil3, M. A. Gallo4, and H. Zarbi5. *GSBS, RWJMS-Rutgers University, Piscataway, NJ; and EOHSI, Rutgers University, Piscataway, NJ.</td>
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<td>Poster Board Number: 226 Phosphoramidate 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.</td>
<td>Poster Board Number: 227 A Short Low-Dose Exposure to Di-n-Butyl Phthalate (DBP) Disrupts 17Beta-Estradiol Levels in the Ovary. P. R. Hannon, and J. A. Flaws. Department of Comparative Biosciences, University of Illinois, Urbana-Champaign, Urbana, IL.</td>
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<td>Poster Board Number: 232 Examining Triclosan-Induced Potentiation of the Estrogen Uterotrophic Effect. G. W. Louis1,2, D. Hallinger1, and T. E. Stoker1. Endocrine Toxicology Branch, US Environmental Protection Agency, Research Triangle Park, NC; and Oak Ridge Institute for Science and Education, Oak Ridge, TN.</td>
<td>Poster Board Number: 233 Propylparaben Has No Estrogenic Activity When Administered for 3 Months in Juvenile Rats. L. Swarmanan1, L. Poulou1, Y. Zhao1, G. Liu1, H. Shen1, B. Wang1, C. Parrula2, T. Brodie1, M. J. Grizzuto1, and M. E. McNerney3. Bristol-Myers Squibb Co., New Brunswick, NJ; and Charles River Laboratories Preclinical Services, Montreal, QC, Canada.</td>
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<td>Poster Board Number: 234 Examining Triclosan-Induced Potentiation of the Estrogen Uterotrophic Effect. G. W. Louis1, D. Hallinger1, and T. E. Stoker1. Endocrine Toxicology Branch, US Environmental Protection Agency, Research Triangle Park, NC; and Oak Ridge Institute for Science and Education, Oak Ridge, TN.</td>
<td>Poster Board Number: 235 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. Lewis1, J. T. Barrett2, P. Vakil3, M. A. Gallo4, and H. Zarbi5. *GSBS, RWJMS-Rutgers University, Piscataway, NJ; and EOHSI, Rutgers University, Piscataway, NJ.</td>
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<td>Poster Board Number: 236 Transfer of Triclofen through Gestation and Lactation. H. Enright1, V. Lao1, M. Sarachane Falsor3, B. A. Buchholz2, K. Kulip3, and M. A. Malfatti3. 1Biosciences and Biotechnology Division, Lawrence Livermore National Laboratory, Livermore, CA; and 2Center for Accelerator Mass Spectrometry, Lawrence Livermore National Laboratory, Livermore, CA.</td>
<td>Poster Board Number: 237 Plasma Microsampling of the Female Mouse and Fetus for Pharmacokinetic Profiling of Monoclonal Antibodies. E. Marsden1, S. Haertle2, L. Reynaud3, and S. Baudet4. WIL Research Europe-Lyon, St Germain-Nuelles, France; and 1MorphoSys AG, Planegg, Germany.</td>
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<td>Poster Board Number: 238 Mammary Gland Histopathology of the Harlan Sprague-Dawley Rat: A Model for Mammary Tumor Susceptibility Studies following Perinatal Endocrine Disrupting Compound Exposures. J. P. Stanko1, and S. E. Fenton1. National Toxicology Program Laboratory, NTP/NIEHS, Research Triangle Park, NC.</td>
<td>Poster Board Number: 239 Early-Life Mammary Effects in Male and Female Rats following Low-Dose Maternal and Drinking Water Exposure to a VOC Mixture. A. J. Figueroa1, E. M. Quist2, and L. A. Nauman1. NTP Labs, DNTP Labs, NIEHS, NIH, DHHS, Research Triangle Park, NC; and 1Curriculum in Toxicology, University of North Carolina, Chapel Hill, NC; and Comparative Biomedical Sciences, College of Veterinary Medicine, NC State University, Raleigh, NC.</td>
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#2196c  Poster Board Number ..................................... 242  Altered Mammary Development As a Result of In Vivo Exposure to a High and Low Dose of Inorganic Arsenic (iAs) in the CD-1 Mouse.  D. K. Robinson1,2, S. E. Fenton3, K. Rodriguez2, and H. Yao1. 1Toxicology, University of North Carolina at Chapel Hill, Cary, NC; 2NTP Laboratory, NIEHS, RTP, NC; and 3Laboratory 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. Macon1,2, and S. E. Fenton2. 1Curriculum in Toxicology, UNC-CH, Chapel Hill, NC; and 2NTP Laboratory, NIEHS, NIH, RTP, NC.

Thursday Morning, March 27  8:30 AM to 12:00 Noon  Hall I

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 Adenocarcinoma Associated with Lifetime Exposure to Empagliflozin.  J. A. Phillips1, M. E. Taub1, N. Ishiguro2, S. Van Tongeren3, B. Knight4, E. C. Ludwig-Schwellinger4, J. Yuan5, J. D. Smith6, H. Yu1, P. A. Escobar1, W. T. Loging1, and W. W. Ku1. 1Boehringer Ingelheim Pharmaceuticals, Inc., Ridgefield, CT; 2Kobe Pharma Research Inc., Ridgefield, CT; 3Biogen Idec, Cambridge, MA; 4Battelle, Columbus, OH; and 5Toxicology, University of North Carolina at Chapel Hill, NC.

#2196f  Poster Board Number ..................................... 247  General Toxicology and Carcinogenicity Assessment of Empagliflozin, an SGLT2 Inhibitor for the Treatment of Type 2 Diabetes Mellitus.  M. Bogdanoff1, R. F. Stachlewitz2, S. Van Tongeren2, B. Knight2, W. W. Ku1, S. G. Emeigh2, and K. T. Blanchard3. 1Nonclinical Drug Safety, Boehringer Ingelheim Pharmaceuticals, Inc., Ridgefield, CT; 2Battelle, Columbus, OH; and 3Boehringer 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. Smith1, Z. Huang1, H. Maw2, R. Nardi1, P. Foppiano1, L. Her1, W. Loging1, P. A. Escobar1, J. A. Phillips1, H. Yu1, M. E. Taub1, and W. W. Ku1. 1Boehringer 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. Knight1, S. Emeigh2, J. A. Phillips1, S. Koegler1, J. Hall1, and W. W. Ku1. 1Boehringer Ingelheim Pharmaceuticals Inc., Ridgefield, CT.

#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. Yuan1, P. Pande1, J. Hill2, Y. Wang3, D. Hall1, J. Mikl1, and W. W. Ku1. 1Nonclinical Drug Safety, Boehringer Ingelheim Pharmaceuticals Inc., Ridgefield, CT; 2Scientific Knowledge Discovery, Boehringer Ingelheim Pharmaceuticals Inc., Ridgefield, CT; and 3Biometrics 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. Elisaa2, N. Borskolen2, M. Lynch3, M. Hawk4, T. Arndt5, P. Hong6, K. Nostman7, D. De Leon7, and P. S. Terse8. 1National Center for Advancing Translational Sciences, Bethesda, MD; 2Battelle, Columbus, OH; and 3The 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. Yamamoto1, T. M. Butt1, N. Serbina1, H. Tang2, and A. Shadiack1. 1Elusys Therapeutics, Pine Brook, NJ; and 2Tox Path Specialists, Frederick, MD.

#2196l  Poster Board Number ..................................... 253  Nonclinical Assessment of NRX-1074, an Orally Bioavailable NMDAR Partial Agonist.  G. W. Wolfe1, M. M. Vegarra2, C. S. Godin1, D. Houck3, and J. Gidda4. 1Smithers Avanza, Gaithersburg, MD; and 2Naurex, Inc, Evanston, IL.

#2196m  Poster Board Number ..................................... 254  Comparative Prolactin Study in Mouse and Rat Using CNS Drugs: Molindone, Haloperidol and Reserpine.  S. Ganiger1, H. Krishnapura1, S. Sulaiman1, S. Goel2, and G. Krishna1. 1Safety Assessment, Advusin Therapeutics Ltd, Bangalore, Karnataka, India; and 2Supernus Pharmaceuticals, Inc, Rockville, MD.

#2196n  Poster Board Number ..................................... 255  Assessment of Prolactin-Mediated Changes and Their Reversal in Molindone-Treated rasH2 Mice.  G. Krishna1, S. Ganiger1, and S. Goel2. 1Supernus Pharmaceuticals, Inc., Rockville, MD; and 2Advusin Therapeutics Ltd., Bengaluru, India.

#2196o  Poster Board Number ..................................... 256  The Role of Receptor Occupancy Analysis during Preclinical Development of Biologics.  S. Kirik1, K. Troth1, A. Head1, and W. Beck2. 1Covance Laboratories Ltd, Harrogate, United Kingdom.

#2196p  Poster Board Number ..................................... 257  De-Risking Potential Infection Risk with Anti-CSF-1.  K. S. Rajapaksa1, W. Lin1, E. Suto1, Z. Huang1, J. Eastham-Anderson1, P. Katovolos1, C. D. Austin1, D. M. Danelken2, J. De Vos3, W. Lee3, F. Martin3, and A. A. Zarrin1. 1Genentech, 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 Bioimunessent Detection Platform.  J. Hantash1. 1Biotechnology Services, Tandem Labs Inc., West Trenton, NJ.  Sponsor: Z. R., D. K. Robinson, S. E. Fenton, K. Rodriguez, and H. Yao.
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 2, J. Austin 3, and G. Gonzalez 4. 1CDER/  
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. Vega 1, C. S. Godin 2, and D. Flyer 3. 1Smithers  
Avanza, Gaithersburg, MD; and 2Novavax, Inc,  
Rockville, MD.

2196t Poster Board Number ..............................261  
Characterization of Otitotoxic Synergism between  
Kanamycin and Amitriptyline in Guinea Pigs.  M.  
1Neurobehavioral 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.  
Ojiri 2, Y. Nakayama 3, K. Mieda 4, Y. Tuda 5, A.  
Nakamura 6, T. Enami 7, S. Okazaki 8, H. Kuse 9. 1BozO  
Research Center Inc., Gotemba, Shizuoka, Japan; and  
2Bozo 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 2, C. Markgraf 3, and L.  
Ballering 4. 1Covance Laboratories, Greenfield, IN;  
and 2Merck 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 2, J. Huang 3, P. R. Sene 4, and M. R. Gralinski 5.  
1CordDynamics, 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 2,  
and V. Trieu 3. 1Sorrento 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 2, C. J. Detrias 3, M. A. Zelig 4,  
D. L. Boring 5, and D. L. McCormick 6. 1IT Research  
Institute, Chicago, IL; 2Pathology Associates, Chicago,  
IL; 3BioResponse Nutrients, LLC, Boulder, CO; and  
4National 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. Pogue 3, R. L.  
Yeager 4, D. R. Davila 1, J. Hiner 2, and L. Shu 5. 1Preclinical  
Safety, AbbVie Inc, North Chicago, IL; 2MPI  
Research, Matttwan, MI; and 3Statistics, 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 2. 1National  
Centre for the Replacement, Refinement & Reduction  
of Animals in Research (NC3Rs), London, United  
Kingdom. Sponsor: L. Burns Nia.s.

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 2,  
I. Kobayashi 3, A. Okamura 4, H. Mizuguchi 5, T. Narita 6,  
R. Haneda 7, and K. Hatayama 8. 1Bozo Research  
Center Inc., Gotemba, Shizuoka, Japan; and 2Bozo  
Research Center Inc., Kannami, Shizuoka, Japan.  
Sponsor: W. Ruddock.

Thursday Morning, March 27  
8:30 AM to 12:00 Noon

PS  
Poster Session: Persistent Organic Pollutants  
New Science and Perspectives Surrounding Environmental  
and Occupational Exposures

Chairperson(s): Hans-Joachim Lehnerd, 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 2, S. Krager 3, C. Jager 1, K. Button 4,  
and S. Tischkau 5. 1Pharmacology, 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'-  
Dichlorodiphenylchloroethylene (DDE)  
Promotes Fasting Hyperglycemia in Male  
C57BL/6 Mice.  G. E. Howell 1, J. Kiliç 2, E. C. Meeke 3,  
and J. E. Chambers 4. 1Center for Environmental  
Health Sciences, Mississippi State University College  
of Veterinary Medicine, Mississippi State, MS; and  
2Biological 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, F. Gourronc 2, A. J. J.  
Klingelhutz 2, and L. W. Robertson 3. 1Graduate  
Program in Human Toxicology, University of Iowa,  
Iowa City, IA; 2Pathology Associates, Chicago, IL; and  
3Occupational & 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.
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<td>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 Duusen. Toxicology, IRAS, Utrecht University, Utrecht, Netherlands.</td>
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<td>Measurement of Protein Adducts Formed by Quinoid Metabolites of Polychlorinated Biphenyls (PCBs). M. Li, L. W. Robertson, P. A. Kapke, and G. Ludewig. Interdisciplinary Graduate Program in Human Toxicology, The University of Iowa, Iowa City, IA; Department of Occupational and Environmental Health, The University of Iowa, Iowa City, IA; and Hybridoma Facility, Iowa State University, Ames, IA.</td>
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<td>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.</td>
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<td>Poster Board Number ..................................................................................................................</td>
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<td>Biotransformation of BDE-100 to Potentially Toxic Metabolites: Predominant Role of Human CYP2B6. M. S. Gross, D. M. Butryn, B. P. McGarrigle, D. S. Aga, and J. R. Olson. Chemistry, University at Buffalo, Buffalo, NY; and Pharmacology and Toxicology, University at Buffalo, Buffalo, NY.</td>
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<td>#2205</td>
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<td>Enantioselective Disposition of 2,2',3,5,6-Hexachlorobiphenyl (PCB 95) and its Metabolites in Mouse Dams during Pregnancy. I. Kania-Korwel, C. Barnhart, K. M. Truong, P. Leis, and H. Lehnen. Department of Occupational and Environmental Health, Univ of Iowa, Iowa City, IA; and School of Veterinary Medicine, University of California, Davis, CA.</td>
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<td>Decreased Hepatocyte Nuclear Factor 4 alpha Activity as a Mechanism of Hepatomegaly Induced by PFOA and PFOS. S. McGreal, A. McCarthy, C. Walsky, M. Manley, C. S. Lau, B. Hagenbuch, and U. Apte. Department of Pharmacology, Toxicology and Therapeutics, University of Kansas Medical Center, Kansas City, KS; and National Health and Environmental Effects Research Laboratory, U.S. Environmental Protection Agency, Research Triangle Park, NC.</td>
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<td>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.</td>
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<td>#2208</td>
<td>Poster Board Number ..................................................................................................................</td>
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<td>Bile Salt Transporters Are Involved in the Disposition of Perfluoroalkyl Sulfonates in Rats and Humans. W. Zhao, J. Etzwe, D. J. Ehresman, S. Chang, J. L. Butenhoff, and R. Hagenbuch. Pharmacology, Toxicology and Therapeutics, The University of Kansas Medical Center, Kansas City, KS; and Medical Department; 3M Center, St. Paul, MN.</td>
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**Society of Toxicology 2014**

**Program Description (Continued)**

**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

**Hall 1**

**Thursday Morning, March 27**

Poster Session: Metals in the Environment
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<td>#2216</td>
<td>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.</td>
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<td>#2217</td>
<td>Poster Board Number ..........................329 Gene Expression Profiling in Saudi Individuals Exposed to Environmental Heavy Metals. J. M. Azmy1, S. A. Albakr2, K. S. Famulski3, and H. M. Korashi1.1Poison Control Center, Jazan Health Affairs, Jazan, Saudi Arabia; 1Alberta Transplant Applied Genomics Centre, University of Alberta, Edmonton, AB, Canada; and 1Pharmacology and Toxicology, King Saud University, Riyadh, Saudi Arabia.</td>
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<td>#2218</td>
<td>Poster Board Number ..........................330 Are Metals in Rolling Tobacco Less Risky Than Cigarettes? M. C. Rubio-Armendáriz1, C. Silva1, D. González-Weller1, A. J. Gutiérrez1, G. Luis-González1, A. Hardisson1, and A. Anadón.1Toxicología, Universidad de La Laguna, La Laguna, S/C de Tenerife, Islas Canarias, Spain; and 1Toxicología y Farmacología, Universidad Complutense, Madrid, Spain. Sponsor: A. Anadón.</td>
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<td>#2219</td>
<td>Poster Board Number ..........................331 Evaluation of Electric Arc Furnace-Processed Steel Slag for Dermal Corrosion, Irritation, and Sensitization. M. Suh1, J. J. Yzenas2, and D. Proctor3. 1ToxStrategies, Mission Viejo, CA; and 2Edw. C. Levy Company, Valparaiso, IN.</td>
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<td>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.</td>
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<td>#2221</td>
<td>Poster Board Number ..........................333 Initial Characterization of Metal Exposures in Community Residents Living Adjacent to the Black Leaf Pesticide Manufacturing Complex. I. Kirpich1, M. Mohammad1, K. C. Falker1, G. E. Artell2, R. Barnett3, J. States4, R. A. Prough5, and M. Cave6. 1Department of Medicine/GI, University of Louisville, Louisville, KY; 2Pharmacology &amp; Toxicology, University of Louisville, Louisville, KY; 3Biochemistry, University of Louisville, Louisville, KY; and 6Robley Rex VAMC, Louisville, KY.</td>
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<td>#2215</td>
<td>Poster Board Number ..........................335 Safety Evaluation of Tibetan Medicine Zautai 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.</td>
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<td>#2223</td>
<td>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. Robinson1, K. Thayer2, K. Levine1, R. A. Fernando3, and S. Waidyanath4. RTI International, Research Triangle Park, NC, and 2Division of the National Toxicology Program, National Institute of Environmental Health Sciences, Research Triangle Park, NC.</td>
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<td>#2224</td>
<td>Poster Board Number ..........................337 Evaluation of the Design, Performance, and Metal Emissions of Electronic Cigarettes. M. T. Williams1,2, A. Villarreal1, K. Bozhilov1, and P. Tailbot3. Environmental Toxicology, University of California, Riverside, Riverside, CA; 2Cell Biology and Neuroscience, University of California, Riverside, Riverside, CA; and 3Central Facility for Advanced Microscopy, University of California, Riverside, Riverside, CA.</td>
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<td>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. Harmon1, C. Miller2, M. Cunepi1, C. Shary1, M. Cajar1, S. Lucas1, B. Pacheco2, S. Ramone1, T. Nez2, and J. L. Lewis3. 1College of Pharmacy, University of New Mexico, Albuquerque, NM; 2Community Environmental Health Program, University of New Mexico, Albuquerque, NM; and 3Southwest Research and Information Center, Albuquerque, NM.</td>
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<td>#2225</td>
<td>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.</td>
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<td>Poster Board Number ..........................340 Toxic Metal Levels in Children Residing in a Smelting Craft Village in Vietnam: A Pilot Biomonitoring Study. S. K. Miller1, A. P. Sanders1, V. Nguyen1, J. B. Kotch3, and R. Fry1,2. 1Environmental Health Sciences and Engineering, Gillings School of Global Public Health, University of North Carolina, Chapel Hill, NC; 2Department of Maternal and Child Health, Gillings School of Global Public Health, University of North Carolina, Chapel Hill, NC; 3Department of Surgery, School of Medicine, University of North Carolina, Chapel Hill, NC; and 1Curriculum in Toxicology, School of Medicine, University of North Carolina, Chapel Hill, NC.</td>
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#2230
Poster Board Number .................................342
Novel Oral Detoxification of Mercury, Cadmium, and Lead with Thiol-Modified Mesoporous Silica. T. Sangvanich1, D. Castro2, W. Njameridtrakul2, J. Morry1, W. Yantasee1,2, and G. Fryxell3. 1PDX Pharmaceuticals, Portland, OR; 2BioMedical Engineering, Oregon Health and Science University, Portland, OR; and 3Pacific Northwest National Laboratory, Richland, WA.

#2231
Poster Board Number .................................343
Vulnerability of Frontal Cortex to Chronic Manganese Exposure in Welders. Z. Long1,2, C. Yeh3,4, X. Li1, S. Snyder5, E. Zauber5, Y. Jiang6, and U. Dyda3,4. 1School of Health Sciences, Purdue Univ., West Lafayette, IN; 2Dept. of Radiology and Imaging Sciences, Indiana Univ. School of Medicine, West Lafayette, IN; 3Guangxi Medical Univ., Nanning, China; and 4Dept. 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. Mielke1, C. R. Gonzales2, E. T. Powell2, and P. W. Mielke6. 1Pharmacology, Tulane University School of Medicine, New Orleans, LA; 2Lead Lab, Inc., New Orleans, LA; and 3Colorado State University, Fort Collins, CO.

#2233
Poster Board Number .................................345

#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, A. A. Sharkawy1, M. M. Mahmod1, and E. O. Hamed1. 1Department of Toxicology and Forensic Medicine, Faculty of Veterinary Medicine, Beni Suef University, Beni Suef, Egypt; 2Department of Toxicology and Forensic Medicine, Faculty of Veterinary Medicine, Assiut University, Assiut, Egypt; and 3Biochemistry 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. I. Valachova1, O. Ovieto1, T. Vasicko1, and L. Musak1. 1Jessenius 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-Lambert1, M. Stapleton1, K. Ruddock1, and D. Skeete1. 1Biology, Medgar Evers College, Brooklyn, NY. Sponsor: E. Catapanova.

#2234c
Poster Board Number .................................349
Environmental Uranium Exposure and Immune Function among Navajo Community Members—DINEH Study. J. Ong1, E. Erdei2, R. L. Rubin3, C. Miller1, B. Pacheco4, M. Cajero5, C. Shuey6, and J. L. Lewis7. 1College of Pharmacy-Community and Environmental Health, University of New Mexico, Albuquerque, NM; 2University of New Mexico Health Sciences Center, School of Medicine, University of New Mexico, Albuquerque, NM; and 3Southwest 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. Karahalil1, M. Ulukaya1, and O. Alp2. 1Toxicology Department, Gazi University Faculty of Pharmacy, Ankara, Turkey; and 2Analytical Chemistry, Gazi University Faculty of Pharmacy, Ankara, Turkey.

Thursday Morning, March 27
8:30 AM to 12:00 Noon
Hall 1
Poster Session: Exposure Assessment and Biomonitoring II
Chairperson(s): Woodrow Setzer, US EPA, Research Triangle Park, NC.
Displayed: 8:30 AM–12:00 Noon

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Poster Board Number .................................351
Comparative Study of US EPA’s Building Assessment and Survey Evaluation Database. R. DeHate1, B. Skelly1, G. T. Johnson2, and R. D. Harbison3. 1GEI Consultants, Inc, Valrico, FL; and 2College of Public Health, University of South Florida, Tampa, FL.

#2234f
Poster Board Number .................................352
Videographic Methodology for Quantification of Dermal Contact with Water During Recreational Beach Use. C. B. Roberts1, L. Stuchal2, and S. M. Roberts2. 1University of Florida, Gainesville, FL.

#2234g
Poster Board Number .................................353
Plasma Hydroxylated Polybrominated Diphenyl Ethers (HO-PBDEs) in Californian Women of High Risk for Birthing an Autistic Child. Y. Lin1,2, I. Hertz-Picciotto3, D. Tancer2,4, J. N. Pesah1, and B. Puschner2. 1VM: Molecular Biosciences, University of California, Davis, Davis, CA; and 2Pacific NW National Lab, Sequim, WA; and 3Southwest Research and Information Center (SRIC), B. K. Ahir1,2, T. B. Knudsen1, J. Ong1, E. Erdei2, R. L. Rubin3, C. Miller1, B. Pacheco4, M. Cajero5, C. Shuey6, and J. L. Lewis7. 1College of Pharmacy-Community and Environmental Health, University of New Mexico, Albuquerque, NM; and 3Southwest Research and Information Center (SRIC), Albuquerque, NM.

#2234h
Poster Board Number .................................355
Exposure Monitoring for Natural and Anthropogenic Polybrominated Diphenyl Ethers (PBDE) and Derivatives in Puget Sound, Washington, Area Volunteers. I. Schultz1,2, and L. Kuo1. 1Marine Sciences, Pacific NW National Lab, Sequim, WA; and 2Pacific NW National Lab, Sequim, WA.
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<td>#2234j</td>
<td>Consumer Exposure to Bisphenol A from Plastic Bottles Depends on Degree of Usage. F. Bidabadi1, and M. A. Yukuba2. 1Environmental &amp; Interdisciplinary Sciences, Texas Southern University, Houston, TX.</td>
<td>#2234s</td>
<td>Exploring Exposure Pathways with Chemical/ Product Categorical (CPCat) Data. K. Dionisio1, A. Frame1, M. Goldsmith2, J. F. Wambaugh3, A. Liddell2, T. Cathey2, D. Smith4, J. Vail5, and R. Judson5. 1US EPA, RTP, NC; and 2Lockheed Martin, Durham, NC.</td>
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<td>Direct Determination of BPA, BPA Glucuronide, BPA Sulfate, and BPS in Human Urine. R. Gerona2, A. J. Schecter1, M. Friesen3, D. Cherry3, N. Thie4, W. C. Shropshire5, and J. Moye6. 1California, San Francisco, CA; 2Texas School of Public Health, Dallas, TX; 3U Washington, Seattle, WA; 4South Dakota State University, Brookings, SD; and 5NICHD, NIH, Bethesda, MD.</td>
<td>#2234t</td>
<td>Naturally Occurring Airborne Diacetetyl Concentrations Resulting from Roasting and Grinding Coffee Beans in an Industrial Setting. S. Gaffney1, C. J. Ronk1, B. L. Finley2, J. L. Henshaw2, J. S. Pierce3, L. McCarthy4, J. Lotter5, and A. Abelmann. 1Cardno ChemRisk, San Francisco, CA.</td>
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<td>#2234l</td>
<td>Application of Physiologically-Based Pharmacokinetic Modeling of Bisphenol A to Estimation of Daily Intake Amounts by Age and Gender. D. Jeong1, S. Kim2, H. Moon3, J. Park3, K. Kim1, K. Choi4, and S. Kim1. 1Environmental Health, Seoul National University; 2Republic of Korea; 3Marine Sciences and Convergent Technology, Hanyang University, Ansan, Republic of Korea; and 4Environmental Health Sciences, Soonchunhyang University, Asan, Republic of Korea.</td>
<td>#2234u</td>
<td>Serum Ferritin, Albumin and Ascorbic Acid Levels in Smokers in Calabar, Nigeria. E. R. Egbe1, Y. D. Obisesan2, and S. T. Maleghemi3. 1Medical Laboratory Science, University of Calabar, Calabar, Cross River, Nigeria; and 2Community Medicine, University of Calabar, Calabar, Cross River, Nigeria. Sponsor: J. Anetor.</td>
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<td>#2234m</td>
<td>High-Throughput Exposure Estimation Using NHANES Data. C. L. Strope1, B. A. Wettore2, W. Setzer2, J. Rabinowitz3, R. Pearce1, K. Dionisio1, and J. F. Wambaugh1. 1National Center for Computational Toxicology, Environmental Protection Agency, Durham, NC; 2National Exposure Research Laboratory, Environmental Protection Agency, Durham, NC; and 3The Hamner Institutes for Health Sciences, Durham, NC.</td>
<td>#2234v</td>
<td>Estimated HPHC Intakes from SNUS Consumption: Comparison with Dietary Intakes. P. Begemann1, O. Mudasiru1, C. Ward2, M. Curvall3, and L. Rutqvist1. 1Health Sciences, ENVIRON International Corporation, Arlington, VA; and 2Swedish Match, Stockholm, Sweden.</td>
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<tr>
<td>#2234o</td>
<td>Urinary Arsenic Metabolism Profiles of Workers in a Copper Mining and Smelting Plant. S. Xi1, Q. Sun2, S. Liu3, and G. Sun3. 1Department of Environmental and Occupational Health, School of Public Health, China Medical University, Shenyang, China. Sponsor: J. Pi.</td>
<td>#2234x</td>
<td>Hematotoxicity and Genotoxicity in Children Exposed to Benzene in a Petrochemical Area in Mexico. P. Nada1, R. Diana2, H. Alejandra3, E. D. Israel4, and M. Brenda5. 1Instituto de Ciencias de la Salud, Universidad Autónoma del Estado de Hidalgo, Pachuca, Hidalgo, Mexico; and 2Universidad de Guanajuato, Guanajuato, Mexico. Mexico. Sponsor: M. Gonsebatt.</td>
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<td>#2234p</td>
<td>Urinary Arsenic Concentration As a Biomarker of Exposure to Arsenic in Drinking Water. L. Schwarzi1, B. Malczewska-Toth2, and H. Krapfl1. 1New Mexico Department of Health, Santa Fe, NM.</td>
<td>#2234y</td>
<td>Refined Exposure Assessment for Three Active Ingredients of Humidifier Disinfectants. J. Lee1, J. Kwon1, and C. Kim1. 1Institute of Environmental Protection and Safety, NeoEnBiz Co., Bucheon, Republic of Korea; and 2Division of Environmental Science and Ecological Engineering, Seoul, Republic of Korea. Sponsor: J. Choi.</td>
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<td>#2234q</td>
<td>A Comprehensive Evaluation of Inorganic Arsenic in Food and Considerations for Dietary Intake Analyses. A. Lewis1, H. N. Lynch2, G. I. Greenberg3, and M. C. Pollock4. 1Gradient, Cambridge, MA.</td>
<td>#2234z</td>
<td>Evaluation of Asbestos Exposure Associated with Research Laboratories. G. T. Johnson1, E. Garcia1, D. Newfang1, J. Doyle2, C. Blake3, and K. D. Harbison. 1College of Public Health, University of South Florida, Tampa, FL; and 2Bureau Veritas North America, Kennesaw, GA.</td>
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<td>Organic Chemical Exposure and Dose from Paper Products: A New Suite of Integrated Predictive Models. M. Posson1, K. T. Bogen1, M. Glomski1, and P. Sheehan1. 1Health Sciences, Exponent, Inc., Oakland, CA.</td>
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#2234aa Poster Board Number .....................................401

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, Hall 1

#2235 Poster Board Number .....................................400
Asbestos Content of Heavy Equipment Brake-Wear Debris and Associated Airborne Exposures during Brake Work. M. Grespin1, E. Donovan1, R. Ward1, A. Madf1, and R. L. Finley1.

#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. Berg1, J. Sedivy2, R. Testman1, K. Acedo1, and T. G. Osmits1.

#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. Rusnak1, and A. Fountaine1. CT, Dept. of Public Health, Hartford, CT; and Stamford Department of Health, Stamford, CT.

Thursday Morning, March 27
8:30 AM to 12:00 Noon
Hall 1

Posters 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, Hall 1

#2235 Poster Board Number .....................................400
Asbestos Content of Heavy Equipment Brake-Wear Debris and Associated Airborne Exposures during Brake Work. M. Grespin1, E. Donovan1, R. Ward1, A. Madf1, and R. L. Finley1.

#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. Berg1, J. Sedivy2, R. Testman1, K. Acedo1, and T. G. Osmits1.

#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. Rusnak1, and A. Fountaine1. CT, Dept. of Public Health, Hartford, CT; and Stamford Department of Health, Stamford, CT.

Program Description (Continued)

Abstact #

#2240 Abstract #
Poster Board Number .....................................406

Poster Board Number .....................................407
Improving Emergency Preparedness: Reviewing Respiratory Irritants of Hazardous Chemicals to Enhance the Chemical Mixture Methodology. H. Dixon1,2, C. Nix1,2, J. Yar1, H. Fournier1, S. Folken1,2, C. Gintz1, and X. Yu1. University of Puget Sound, Tacoma, WA; 2University of Ashland, Ashland, OH; 2Wittenberg University, Springfield, OH; and 2Pacific Northwest National Laboratory, Richland, WA.

Poster Board Number .....................................408
Health Effects of Mercury in Flared Natural Gas. S. Yu1, L. Half2, S. Karan3, H. Wong4, and M. Keinna5. ENVIRON International Corporation, Emeryville, CA; and 2ENVIRON International Corporation, San Francisco, CA.

Poster Board Number .....................................409
TCE, Vapor Intrusion, and Risk Management: A Case Study. J. M. LaVelle. CDM Smith, Green Valley, AZ.

Poster Board Number .....................................410

Poster Board Number .....................................411
A Global Harmonized Risk Assessment for Volatile Cyclic Siloxanes (D4 and D5). R. Gentry1, C. Van Landingham1, T. Greene1, T. Guererro2, and K. P. Plotzke. 2ENVIRON International Corporation, Monroe, LA; 2Silicones Environmental, Health and Safety Center, Washington, DC; and 2Dow Corning Corporation, Midland, MI.

Poster Board Number .....................................412

Poster Board Number .....................................413

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. B. R. Herland1, B. Granum1, J. E. Paulsen1, V. Thrane1, J. L. Lyche1, C. L. L. Østergaard1, and J. E. Remvik2. 1Norwegian Scientific Committee for Food Safety, Oslo, Norway; and 2 External Expert, Oslo, Norway.

Poster Board Number .....................................415
Abstract #  #2250

Poster Board Number ..................................... 416

In Vitro Bioactivity in ToxCast Assays for Fruit
and Vegetable Extracts. B. A. Wetmore1, E. Berg2,
M. A. Polokoff2, R. S. Thomas3, and M. E. Andersen4.
1The Hamner Institutes for Health Sciences, Research
Triangle Park, NC; 2BioSeek, a Division of DiscoveRx,
Inc., South San Francisco, CA; and 3National Center
for Computational Toxicology, USEPA, Research
Triangle Park, NC.

Abstract #  #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. Black1,
J. P. Wambough1, M. Sochausk1, R. Judson2, S. S.
Ferguson3, H. H. Clewidi, M. E. Andersen1, R.
Thomas3, and B. A. Wetmore4. 1The Hamner
Institutes for Health Sciences, Research Triangle Park,
NC; 2National Center for Computational Toxicology,
USEPA, Research Triangle Park, NC; and 3Life
Technologies, Durham, NC.

Abstract #  #2250b

Poster Board Number ..................................... 418

Development of Reverse Toxicokinetic Models to
Correlate In Vitro and In Vivo Estrogen Receptor
Activity. X. Chang1, N. Kleinsteuber1, P. Ceger2, J. T.
Hamm3, B. Jones1, L. Rincke4, and W. Casey4. 1TLS,
Inc., Research Triangle Park, NC; and 2DHHS/NIH,
NIH/NTF/NICEAETM, Research Triangle Park,
NC.

Abstract #  #2250c

Poster Board Number ..................................... 419

Estimation of Methylmercury Intake Doses in the
South Korea Population Using a PBPK Model.
S. Lee1,2, J. Sobus2, M. Phillips3, and S. Kim4.
1School of Public Health, Seoul National University,
Seoul, Republic of Korea; 2NERL, US EPA, RTP, NC;
and 3NERL, US EPA, Duluth, MN.

Abstract #  #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. Meyers1, T. F. Limero2, V. Devero2, P. F. Cheng2, J.
J. Handt2, J. B. Trowbridge3, and J. T. James1. 1NASA
JSC, Houston, TX; and 2Wyle Integrated Science and
Engineering, Houston, TX.

Abstract #  #2250e

Poster Board Number ..................................... 421

Public Health Concerns Surrounding Fine
Particulate Matter Generated from Hydraulic
Fracturing. A. LeBeaut1, and A. Pawlize1. 1CRA,
Dallas, TX.

Abstract #  #2250f

Poster Board Number ..................................... 422

Cancer Risk of PAHs in Particulate Matter from
Biofuel Combustion. D. A. Savigianni5, S. P.
Karakitsios1, D. Zikopoulos5, S. Nikolaki1, and M.
Kermendiou1. 1Chemical Engineering, Aristotle
University of Thessaloniki, Thessaloniki, Greece.

Abstract #  #2250g

Poster Board Number ..................................... 423

Data Source Summary Documents (DSSDs)
Derived for Updated Drinking Water Standards
and Health Advisories (DWSHA) Tables. D. J.
1University of Tennessee, Knoxville, TN; 2Oak Ridge
National Laboratory, Oak Ridge, TN; and 3US
Environmental Protection Agency, Washington, DC.

Abstract #  #2250h

Poster Board Number ..................................... 424

Toluene and Dibutyl Phthalate in Nail Lacquers:
A Proposition 65 Exposure Assessment. J.
Keenan1, C. Kopelovich1, and N. Jacobs1. 1Cardno
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. Vincent1, A. Maier2, M. Jaycok3, B. Gadagbui4,
A. Parker1, and S. Ross. 1Toxicology Excellence
for Risk Assessment, Cincinnati, OH; 2University
of Cincinnati, Cincinnati, OH; and 3Jaylock &
Associates, Longhorn, PA.

Abstract #  #2250j

Poster Board Number ..................................... 426

Automatic Topic Classification for Environmental
Human Health Assessment. K. L. Painter1, S. J.
Dutton2, E. O. Owens1, and L. D. Burgooni3.
1Oak Ridge Institute for Science and Education;
Environmental Protection Agency, Research Triangle
Park, NC; and 2Environmental Protection Agency,
Research Triangle Park, NC.

Abstract #  #2250k

Poster Board Number ..................................... 427

Use of Text-Mining and Machine Learning to
Prioritize the Results of a Complex Literature
Search. B. Howard1, R. Shah2, V. Walker3, S.
Hollengeri1, and K. Thayeri1. 1Sciome LLC, RTP, NC;
2OHAT, National Toxicology Program, NIEHS, RTP,
NC; 3Office of Scientific Information Management,
NIEHS, RTP, NC; and 3SSS, Durham, NC.

Abstract #  #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. Shapiro1, and I.
Rusyn2. 1Envc; and Engin., Univ. North Carolina at
Chapel Hill, Chapel Hill, NC.
<table>
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<th>Program Description (Continued)</th>
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<td><strong>Abstract #</strong></td>
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<td>Poster Board Number .....................................433</td>
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<td>#2254</td>
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<tr>
<td>Data Mining Approach to Alerting Chemotypes for Liver Steatosis/Steatohepatitis/Fibrosis. A. S. Mostrag-Silichzytng1, V. Vitcheva1, M. D. Nelnmu, P. Alvo1, I. Tsakoska1, S. J. Enoch1, A. P. Worth1, M. T. Cronin2, and C. Yang3. 1Altamira LLC, Columbus, OH; 2Liverpool John Moores University, Liverpool, United Kingdom; 3European Commission - Joint Research Centre, Institute for Health &amp; Consumer Protection, Ispra, Italy; and 4Bulgarian Academy of Science, Institute of Biophysics and Biomedical Engineering, Sofia, Bulgaria.</td>
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<td>Breast Cancer-Relevant Biological Pathways in the US EPA ToxCast and US NTP Tox21 Hazard Screening Programs. R. Rudel1, and J. M. Ackerman. Silent Spring Institute, Newton, MA.</td>
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<tr>
<td>Poster Board Number .....................................438</td>
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<tr>
<td>High-Content Screening of Rodent Mammary Gland Carcinogens in Two Breast Cell Lines. C. Vulpe1, J. M. Ackerman1, A. Tagmoun2, and R. Rudel1. University of California, Berkeley, CA; and 2Silent Spring Institute, Newton, MA.</td>
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<td>Poster Board Number .....................................439</td>
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<td>Poster Board Number .....................................440</td>
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</table>
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. *Uppi*1,2,  
1Dept of Biology, Chemistry and Environmental Toxicology, Southern University and A & M College, Baton Rouge, LA; and 2Biology Sciences, Louisiana State University, Baton Rouge, LA.

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Abstract # 2271  
**Poster Board Number**: 451  
**Amoxillin- and Pefloxacin-Induced Inflammatory Disruptions in Rat Tissues.**  
S. O. *Rotimi*1,2, D. Ojo1, E. A. Balogun1, O. Talabi1, and O. *Ademuyiwa*2.  
1Department of Biochemistry, Federal University of Agriculture, Abeokuta, Abeokuta, Ogun, Nigeria; 2Department of Microbiology, Federal University of Agriculture, Abeokuta, Abeokuta, Ogun, Nigeria;  
Health Centre, Federal University of Agriculture, Abeokuta, Abeokuta, Ogun, Nigeria; and 3Department of Biological Sciences, Covenant University, Ota, Ogun, Nigeria.

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Abstract # 2272  
**Poster Board Number**: 452  
**Enhanced Alternatives Analysis: Automated Evaluation of Chemical Hazard Attributes to Identify Preferred Substitutes.**  
P. J. *Beattie*1, J. P. *Rinkevich*1, and J. *Orchard-Hays*.  
SciVera, LLC, Charlottesville, VA.

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Abstract # 2273  
**Poster Board Number**: 453  
**In Silico Workflow for Assessing Skin Irritation, Penetration, and Sensitization Potentials Using Chemotype-Based Models and Alerts.**  
J. *Rathman*1,2, J. Schwöbel1, T. *Magdiziarz*2, A. *Mostrag-Szlichtying*1, A. Tarhov2, L. *Terlhoth*1, and C. *Yang*2.  
1Molecular Networks GmbH, Erlangen, Germany; 2Altamira LLC, Columbus, OH; and 3Chemical and Biomolecular Engineering, The Ohio State University, Columbus, OH.

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Abstract # 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*3,4.  
1HELD/PPRB, CDC/NIOSH, Morgantown, WV; 2Center for Food Safety and Applied Nutrition, Office of Food Additive Safety, U.S. Food and Drug Administration, Jefferson, AR; and 3Chemical and Biomolecular Engineering, The Ohio State University, Columbus, OH; and 4Altamira LLC, Columbus, OH.

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Abstract # 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.  
1Food and Drug Administration, Silver Spring, MD.  
Sponsor: R. *Rouse*.

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Abstract # 2273c  
**Poster Board Number**: 456  
**Pragmatic Issues in Applying Multiple In Silico Systems for Drug Safety Assessment.**  
R. *Benzi*1, K. P. *Cross*1, and G. J. *Myatt*.  
OmmyCorp, Rockville, MD; and 2Leadscope Inc., Columbus, OH.

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Abstract # 2273d  
**Poster Board Number**: 457  
**Metabolism Simulation and Toxicity Prediction in the Evaluation of Food Ingredient/Contaminant Safety.**  
L. *Terlhoth*1, K. *Arvidson*1, K. Muldoon-Jacobs2, P. Volara1, A. *Tarkhov*2, T. *Magdiziarz*1, J. *Rathman*3,4, D. *Hristozov*1, and C. *Yang*2.  
1Molecular Networks GmbH, Erlangen, Germany; 2Center for Food Safety and Applied Nutrition, Office of Food Additive Safety, U.S. Food and Drug Administration, College Park, MD; 3Chemical and Biomolecular Engineering, The Ohio State University, Columbus, OH; and 4Altamira LLC, Columbus, OH.

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Abstract # 2273e  
**Poster Board Number**: 458  
**Comparison of Pattern Recognition Methods for Toxigenomics Time Series.**  
D. M. *Hendrickx*2, D. *Jennén*3, J. J. *Briedé*1, R. *Cavill*2, T. M. *de Kok*1, and J. Kleinjans1.  
Toxigenomics, Maastricht University, Maastricht, Netherlands.  
Sponsor: H. *van Loveren*.

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Abstract # 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*1, and T. B. *Knudser*1.  
Lockheed Martin, Research Triangle Park, NC; NCCGT, US Environmental Protection Agency, Research Triangle Park, NC; and 2Divisions of Physics and Biological Sciences, Vanderbilt University, Nashville, TN.

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Abstract # 2273g  
**Poster Board Number**: 460  
**Warning from Fold Change: Prediction of Potential Toxicity Based on Drug-Induced Genomic Expression Change.**  
1National Center for Toxicological Research, Food and Drug Administration, Jefferson, AR; and 2-Bio X Institutes, Shanghai Jiao Tong University, Shanghai, China.

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Abstract # 2273h  
**Poster Board Number**: 461  
**Development of QSAR Models for Prediction of Hepatotoxicity Using Post-Market Data from US FDA’s AERS Database.**  
N. I. L. *Kruhlak*1, L. *Stavitskaya*1, K. P. *Cross*1, and X. *Zhu*1.  
CDER/OTS/OC/CP, US Food and Drug Administration, Silver Spring, MD; and 2Leadscope Inc., Columbus, OH.  
Sponsor: R. *Rouse*.

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Abstract # 2273i  
**Poster Board Number**: 462  
**A Database of In Vivo Estrogenic Activity for EDSP21 Reference Chemicals.**  
P. *Ceger*1, N. *Klein streuer*2, X. *Chang*2, B. *Jones*1, J. T. *Hammon*1, L. *Rinckel*1, D. *Rotroff*2, and W. *Casey*1.  
1HLS, Inc., Research Triangle Park, NC; 2CC, NC State University, Raleigh, NC; and 3DHHS/NIH, NIEHS/NTP/NICETM, Research Triangle Park, NC.

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Abstract # 2273j  
**Poster Board Number**: 463  
**Using Weighted Entropy to Rank Chemicals in Tox21 Phase II BG1 ER-Luc Estrogen Receptor Assays.**  
K. *Shockley*.  
Bioestatistics Branch, National Institute of Environmental Health Sciences, Research Triangle Park, NC.  
Sponsor: R. *Tice*.  

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Roundtable Session: Computational Toxicology and Data Integration III

Chairperson(s): John Wambach, 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. Wambach1, C. Strope2, C. Nicolas3, R. Judson1, M. Goldsmith1, H. A. El-Maaiti1, B. A. Wetmore1, J. P. Shka1, A. Tropsha1, S. Bougra1, I. Shah1, R. S. Thomas1, and W. Setzer2. 1US EPA, RTP, NC; 2The Hamner Institutes for Health Sciences, RTP, NC; 3University of Arkansas at Little Rock/University of Arkansas for Medical Sciences, Little Rock, AR.

#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. Zang1, K. Mansouri1, and R. Judson1. 1National Center for Computational Toxicology, US EPA, Research Triangle Park, NC.

#2273q Screening Environmental Chemicals in a Metabolically Competent Human-Derived Hepatocyte Model. J. Jack1,2, J. Franzenoudou1, P. G. Kothyia1, J. Bonzo1, P. Hurbani1, S. Sifers1, S. Ferguson1, J. Liu1, S. D. Hester1, A. Lake1, K. Houck1, and J. F. Wambach1. 1US EPA, Research Triangle Park, NC; 2North Carolina State University, Raleigh, NC; 3Life Technologies, Frederick, MD; 4Expression Analysis, Research Triangle Park, NC; and 5NTP, NIEHS, Research Triangle Park, NC.

#2273r Prioritization of the Tox21 10k Library for Xenobiotic Metabolism and Toxicity Studies Using In Silico Metabolism Models. S. Ferguson1, N. Kleinstreuer1, M. Lawless3, and R. R. Tice1. 1DHHS/NIH, NIEHS/DNTP, Research Triangle Park, NC; 2ILS, Inc., Research Triangle Park, NC; and 3Simulations Plus, Lancaster, CA.

#2273s In Vitro Screening of 1877 Industrial and Consumer Chemicals, Pesticides, and Pharmaceuticals in up to 782 Assays: ToxCast Phase I and II. R. Judson1, K. Houck1, M. T. Martin1, A. M. Richard1, T. B. Knudsen1, N. S. Sipes1, I. Shah1, S. B. Little1, J. F. Wambach1, M. Linnenbrink1, J. F. Wambaugh1, J. Phuong2,1, P. G. Kothiya1, K. W. McLaurin1, D. L. Filer2, M. C. Leung2, C. Strope2, L. Truong1, R. Thomas1, D. Smith2, D. Reif2, D. Rotroff2, N. Kleinstreuer2, M. Xia1, and R. Huang2. 1US EPA, Research Triangle Park, NC; 2North Carolina State University, Raleigh, NC; and 3NICETM, Durham, NC.

#2273t Using ToxCast Nuclear Receptor Activity to Predict Liver Toxicity. J. Liu1,2, R. Judson1, M. T. Martin1, and I. Shah1. 1National Center for Computational Toxicology (NCCT), US EPA, Durham, NC; and 2University of Arkansas at Little Rock/University of Arkansas for Medical Sciences, Little Rock, AR.

#2273u Poster Board Number .....................................475
In Silico Study of ToxCast GPCR Assays by Quantitative Structure-Activity Relationships (QSARs) Modeling. K. Mansouri1, N. S. Sipes1, and R. Judson1. 1EPA, Research Triangle Park, NC.

#2273v Predicting Toxic and Therapeutic Mechanisms of the ToxCast Chemical Library by Phenotypic Screening. K. Houck1, N. Kleinstreuer1, J. Yang1, E. Berg2, T. B. Knudsen1, A. M. Richard1, M. T. Martin1, D. Reif1, R. Judson1, and M. A. Polokoff1. 1National Center for Computational Toxicology, US EPA, Research Triangle Park, NC; 2Ils/NICEATM, NIEHS, RTP, NC; 3BioSeek/DiscoveryX, S. Francisco, CA; and 4NCSU, Raleigh, NC.

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 use biochemical markers. 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.
Thursday Morning, March 27
9:00 AM to 11:45 AM
Room 121

Innovations in Toxicological Sciences (ITS)


Enhancing Strategies for Risk Assessment


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.

Abstract #


#2283 10:09 Molecular Evolution of Transcription Factors in Zebrafish and Killifish: Implications for Biomedical and Environmental Toxicology. A. R. Timme-Laragy1, and M. E. Hahn2,3. 1School of Public Health and Health Sciences, University of Massachusetts, Amherst, MA; and 2Department of Biology, Woods Hole Oceanographic Institution, Woods Hole, MA.

Abstract #

#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.


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.

Abstract #

#2286 9:00 Neurobehavioral Impacts of Early-Life Manganese Exposure: Linking Human and Animal Model Studies. D. Smith1, R. Lucchini2,3, R. O. Wright4, E. Haynes5, M. Arora5, and S. A. Bedard1. 1Microbiology and Environmental Toxicology, University of California Santa Cruz, Santa Cruz, CA; 2Department of Preventive Medicine, Icahn School of Medicine at Mount Sinai, New York City, NY; 3Department of Environmental Health, University of Cincinnati, Cincinnati, OH; and 4Department of Environmental Health, University of Brescia, Brescia, Italy.

#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.
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.]

Abstract #

#2289 9:59 Manganese Exposure across Different Life Stages Produces Comparable Deficits in Neuromotor Function and Olfactory Discrimination. R. Lucchini1,2. Department of Preventive Medicine, Icahn School of Medicine at Mount Sinai, New York City, NY; and 3Occupational Medicine, University of Brescia, Brescia, Italy.

Abstract #

#2303 10:30 Are Biofuels More or Less Toxic than Conventional Fuels and What Are the Implications for Human Exposure and Risk? A. M. van Erp. Health Effects Institute, Boston, MA; and 2US EPA, Research Triangle Park, NC.

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 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.]

Abstract #


#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.

#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 Erp1, and M. C. Madden2. Health Effects Institute, Boston, MA; and 3US EPA, Research Triangle Park, NC.

9:00 Introduction. A. M. van Erp. Health Effects Institute, Boston, MA.


#2296 10:05 Comparative Toxicity and Mutagenicity of Biodiesel Exhaust. I. Gilmour1, D. Demarin2, N. Fukagawa1, U. P. Kodavanti1, A. K. Farraj2, M. S. Hazari1, and S. H. Gavett. 1EPHD, US EPA, Durham, NC; 2ISTD, US EPA, Durham, NC; and 3University of Connecticut, Storrs, CT.


11:35 Panel Discussion/Q&A.

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)

Abstract #

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.  1Environmental Medicine, New York University School of Medicine, Tuxedo Park, NY; and 2Pharmaceutical Sciences, University of New Mexico, Albuquerque, NM.

#2300  9:15  Influence of PM Exposure on the Receptor for Advanced Glycation End Products: Insight into an Emerging Risk for Diabetes.  J. M. Vaughan, B. Narayanan, 1 A. Schmidt, 1 and L. Chen.  1Environmental Medicine, New York University School of Medicine, Tuxedo Park, NY; and 2Pharmaceutical Sciences, University of New Mexico, Albuquerque, NM.

#2301  9:45  Carbon-Based Engineered Nanomaterial Exposure Alters Circulating Factors that Induce Endothelial Activation and Impairment of Nitric Oxide Synthesis.  A. Erdely, 2 and M. Aragon.  1CDC-NIOSH, Morgantown, WV; and 2University 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.


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 cynomolgus 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 progress and challenges in the scientific characterization of dogs and minipigs and discuss their utility and limitations for regulatory safety testing of biopharmaceuticals.

#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, 1 and J. Bluemel.  MedImmune, Gaithersburg, MD; and 2Amgen, 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.


11:35  Panel Discussion/Q&A.
Program Description (Continued)

Abstract #

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 decrements 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 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.

#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.


#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 #

Platform Session: Autoimmunity/Hypersensitivities 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 Draped by Arsenic in the Livers of Mice Fed a Western Diet. W. Watson1, X. Shi1, X. Wei1, I. Koo2, R. H. Schmidt3, X. Yin1, S. Kim1, A. Vaughan1, C. McClain4, E. G. Arntfield1, and X. Zhang1. 1Department of Medicine/GI, University of Louisville, Louisville, KY; 2Chemistry, University of Louisville, Louisville, KY; 3Pharmacology & Toxicology, University of Louisville Louisville, Louisville, KY; and 4Robley Rex VAMC, Louisville, KY.

#2317 9:23 Organic Species of Arsenic Have Adverse Effects on Pseudomonas aeruginosa-Induced Immunologic 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. Ahmed1,2, Y. Wagatsuma1, M. Kippler1, R. Raquil1, and M. E. Vahter1. 1Institute of Environmental Medicine (IMM), Karolinska Institutet, Stockholm, Sweden; 2International Centre for Diarrheal Disease Research, Bangladesh, Dhaka, Bangladesh; and 3University of Tsukuba, Tsukuba, Japan.


#2320 10:32 Arsenite Exposure-Induced Lymphocytes G0/G1 Arrest Is Attributable to p16 Accumulation via p16 Increase. K. Okamura1,2, and K. Nohara1,3. 1Center for Environmental Health Sciences, National Institute for Environmental Studies, Tsukuba, Japan; and 2Grad. 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. Holiyan. Center for Environmental Health Sciences, University of Montana, Missoula, MT.

The Characteristics of Activated Lymphocytes in Silicosis Differing in Th17 Phenotype from Systemic Sclerosis. Y. Nishimura1, S. Lee1, N. Kunsagat-Takei1, H. Matsuzaiki1, H. Hayashi1, W. Fujimoto1, Y. Morita1, M. Kusaka1, and T. Otsuki1. 1Hygiene, Kawasaki Medical School, Kurashiki, Japan; 2Dermatology, Kawasaki Medical School, Kurashiki, Japan; 3Rheumatology, Kawasaki Medical School, Kurashiki, Japan; and 4Kusaka Hospital, Bizen, Japan.
Program Description (Continued)

Thursday Morning, March 27
9:00 AM to 11:45 AM
Room 128

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. Kurhanewicz¹, R. McIntosh-Kastrinsky¹, A. Ledbetter¹, L. Walsh¹, A. K. Farraj², and M. S. Hazari². ¹University of North Carolina, Chapel Hill, NC; and ²Environmental 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. Bass³, D. Andrews², J. Richards², M. Schladweiler², A. Ledbetter², D. B. Miller¹, and U. P. Kodavanti². ¹UNC, Chapel Hill, NC; and ²NHEERL, 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. Miller¹, E. D. Karoly², W. Ward³, D. Andrews³, V. L. Bass³, M. Schladweiler², A. Ledbetter², and U. P. Kodavanti². ¹University of North Carolina-Chapel Hill, Chapel Hill, NC; ²METABOLON INC., Durham, NC; and ³NHEERL, 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.


#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. Farraj¹, L. Walsh¹, N. Coates¹, F. Malik¹, D. Winsett¹, K. Kovalcik¹, J. McGee¹, M. A. Higuchi¹, M. S. Hazari¹. ¹US 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. Gordon¹, A. F. Johnstone¹, P. Phillips¹, U. P. Kodavanti¹, K. A. Jarema¹. ¹Toxicity Assessment Division, US EPA, Research Triangle Park, NC, and ²Environmental Public Health Division, US EPA, Research Triangle Park, NC.
On behalf of the 2013–2014 SOT Council, thank you for attending the 2014 SOT Annual Meeting and ToxExpo in Phoenix, Arizona. Your participation at this event plays a significant role in making the Society of Toxicology the number one scientific not-for-profit organization for toxicologists in the world. See you next year in San Diego.
The Author Index provides a list of authors who have contributed to the Society of Toxicology's proceedings. It includes names and page numbers for each author's contributions. The asterisk (*) indicates the number of times an author has contributed.

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Suzanne Compton Fitzpatrick, Member (2013–2015)
Mary E. Gilbert, Member (2012–2014)
Terry Gordon, Member (2013–2015)
Peter L. Goering*
Raul A. Suarez**

**Nominating Committee**

Rosalind 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. Niforos, Member (2013–2015)
Martin A. Philbert, Member (2012–2014)
William Slikker Jr.*
Shawn Douglas Lamb**

**Appointed Committees**

**Audit Committee**

Kim Boekelheide, Member (2013–2016)
William Slikker Jr.*
Shawn Douglas Lamb**

**Board of Publications**

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**

**Careers Resource and Development Committee**

Anne Marie Apic, Member (2013–2015)
Ambuj S. Bale, Member (2013–2016)
Erica D. Bruce, Member (2013–2016)
Michele L. 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)
Lorren A. Buckley*
Kim von Brook**
Kevin Merritt**

**Celebrating Membership Accomplishments Task Force**

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**

Sudheer Beedanagari, Member (2011–2014)
Rosalind R. Bell, Member (2011–2014)
Robert P. Casillas, Member (2012–2015)
Sakina E. Elton, Member (2013–2016)
Umesh H. Hanumegowda, Member (2013–2016)
Jorge M. Maciiff, 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**

Cynthia A. Afshari, Member (2013–2016)
Joy A. Cavagnaro, Member (2012–2015)
Jonathan C. Herrington, 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 Broekel, Postdoctoral Representative (2013–2014)
Kelly Almond, Student Representative (2012–2014)
Leigh Ann Burns Naas*
Lorren A. Buckley*
Shawn Douglas Lamb**
Michelle Werts**

* Council Contact
** Staff Liaison
TBD=To be determined
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
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
Donna L. Mecord, 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. Teegarden, Member (2012–2015)
Ivan Rusyn*
Clarissa Russell Wilson**

CCT Organizing Committee for FutureTox II: Pathways to Prediction
Thomas B. Knudsen, 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
Gayathri Chadalapaka, Member (2012–2015)
Saber M. Hussain, Member (2013–2016)
William B. Mattes, Member (2012–2015)
Monica A. Otieno, Member (2013–2016)
Gary O. Rankin, Member (2013–2016)
Vishal S. Vaidya, Member (2011–2014)
Tao Wang, Member (2011–2014)
Sachin Bhussari, 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
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
James P. Layendyk, 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 (2012–2015)
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)
Mid-Atlantic: Diane Hardej (2011–2016)
Mountain West: Martha A. Lindsey (2011–2014)
National Capital Area: Gopala Krishna (2011–2014)
Mountain West: Martha A. Lindsey (2011–2014)
Mountain West: Martha A. Lindsey (2011–2014)

**Education Subcommittees**

**Education Subcommittee: Graduate Education**
Christin M. Grabinski, Education Committee Graduate Student Representative (2013–2014)
Terese 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)
Betty Eidemiller**

**Education Subcommittee: ToxLearn Work Group**
John H. Duffus, Member (2004–2014)
Tammy R. Dugas, Member (2006–2014)
Sue M. Ford, Member (2006–2014)
Petru I. Hakkinen, Member (2012–2014)
Michael A. Kamrin, Member (2004–2014)
Siladhar A. Ray, Member (2011–2014)
Pine Wright, Member (2004–2014)
Terese L. Leavens, Education Committee Liaison (2013–2014)
Betty Eidemiller**

**Education Subcommittee: Undergraduate Education**
Shu-Yuan Cheng, Member (2013–2016)
Terese 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. Bogdanoff, 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)
Shawna 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**
Jack H. Dean, Member (2013–2017)
Norbert E. Kaminski, Member (2013–2016)
Lois D. Lehman-McKeeman, Member (2012–2014)
Anthony M. Nédor, Member (2012–2015)
John P. Wise, Member (2013–2016)
Shawna Douglas Lamb**
Clarissa Russell Wilson**

**Government Liaison Groups**

**ATSDR/NCEH/CDC**
Myrtle A. Davis, Member (2013–2014)
Norbert E. Kaminski, Member (2012–2016)
Judith T. Zelikoff, Member (2011–2014)
Moiz Mumtaz, Agency Contact (2011–2014)
Sabre M. Hussain, Agency Contact (2013–2014)
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. Hull, Member (2013–2014)
Saber M. Hussain, Member (2013–2014)
William Slikker Jr., Member (2013–2014)
Harry Salem, Department Contact (2013–2014)
Shawna Douglas Lamb**
Clarissa Russell Wilson**

**EPA**
Lorraine A. Buckley, Chair (2013–2014)
Vicki C. Kellenro, Member (2012–2014)
Peter L. Goering, Member (2013–2014)
Edward V. Ohanian, Member (2013–2014)
John A. Wisel, Member (2013–2014)
Harold Zemick, 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**

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Elected and Appointed Committees (Continued)

NICHD
Judith T. Zelikoff, Chair (2011–2014)
Lorraine 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
John C. Lipscomb, Member (2013–2014)
Ivan Rusyn, Member (2013–2014)
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)
Communications Subcommittee
Justin A. Colacino, 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)
Kathryn Siyu Xue, Member (2013–2014)
Arif Yurdagul, Member (2013–2014)
Todd James Zurlinden, Member (2013–2014)
Ivan Rusyn*
David Rosse**

Graduate Student Leadership Committee (GSLC)
In Vitro and Alternative Methods
Christin M. Grabinski, Nanotoxicology (2012–2014)
Holly Marie Hewitt, Communications Subcommittee Chair (2013–2014)
Forrest C. Jessop, Medical Device (2012–2014)
Desinio B. Miller, Inhalation and Respiratory (2013–2014)
Nicole Anne Kurhanewicz, Mixtures (2013–2014)
Monica Langley, Drug Discovery Toxicology (2013–2014)

Graduate Student Leadership Committee (GSLC)(continued)
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)
Shuxi Qiao, Dermal Toxicology (2013–2014)
Jessica Krystle Roberts, Molecular and Systems Biology (2012–2014)
Catherine Michelle Bondelli, Hispanic Organization of Toxicologists (2013–2014)
Karylin 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)
Arif Yurdagul, South Central (2013–2014)
Ivan Rusyn*
David Rosse**

Graduate Student Leadership Committee (GSLC)
In Vitro and Alternative Methods
Christin M. Grabinski, Nanotoxicology (2012–2014)
Justin A. Colacino, 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
Graduate Student Leadership Committee (GSLC)

**Professional Development Subcommittee**
- Christopher Alexander Bates, Member (2013–2014)
- Shirisha Chittiboyina, Member (2013–2014)
- Sanket Gadhaiya, Member (2013–2014)
- Desinio 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**
- 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. Grabiniski, 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)
- Leah Wehmas, Member (2013–2014)
- Ivan Rusyn*
- David Rosse**

**Historian**
- Judith T. Zelikoff*
- Clarissa Russell Wilson**

**ICT Organizing Committee**
- Lorenz 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**
- Jon C. Cook, Member (2012–2014)
- Norbert E. Kaminski, Member (2013–2015)
- Matthew J. Price**

**Postdoctoral Assembly (PDA) Executive Board**
- Karin Marie Streifel, Secretary (2013–2015)
- Judith T. Zelikoff*
- Susan D. Simmons**

**Postdoctoral Assembly (PDA) Representatives**

**Regional Chapters**
- Central States: Yue Cui (2013–2014)
- National Capital Area: Chad Brocker (2013–2014)
- South Central: Si Chen (2013–2014)

**Special Interest Groups**
Elected and Appointed Committees (Continued)

**Specialty Sections**
- Cardiovascular Toxicology: Michael Christopher Boyle (2013–2015)
- Comparative and Veterinary: Sachin Bhusari (2013–2014)
- Inhalation and Respiratory: Samantha Jean Snow (2013–2014)
- Reproductive and Developmental Toxicology: Smitha Krishnan Infante (2013–2014)
- Toxicologic and Exploratory Pathology: Christopher Gibson (2012–2014)

**Research Funding Committee**
- Jamie C. Dewitt, Member (2012–2015)
- David C. Dorman, Member (2011–2014)
- Tammy R. Dugas, Member (2013–2016)
- Robert A. Roth, Member (2011–2014)
- Donna D. Zhang, Member (2013–2016)
- Judith T. Zelikoff,*
- Clarissa Russell Wilson**

**Scientific Program Committee**
- Jeanine L. Bussiere, Member (2013–2017)
- Michael J. Carvan III, Member (2011–2015)
- Mary Beth Genter, Member (2012–2016)
- B. Bhaskar Gollapudi, Member (2011–2015)
- Paul C. Howard, Member (2012–2016)
- Abby A. Li, Member (2010–2014)
- Donald R. Mattison, Member (2012–2016)
- Barry S. McIntyre, Member (2013–2017)
- David Ross, Member (2011–2015)
- James L. Stevens, Member (2010–2014)
- Lisa M. Sweeney, Member (2013–2017)
- Peter K. Working, Member (2010–2014)
- April Brewer**

**ToFchange Task Force**
- Ofek Bar-Ilan, Member (2012–2014)
- Sarah Campion, Member (2011–2014)
- Betina J. Lew, Member (2011–2014)
- Anne Elizabeth Loccisano, Member (2011–2014)
- Jessica R. Placido, Member (2011–2014)
- Dori R. Germolec*
- Matthew J. Price**

**Toxexpo Liaison Working Group**
- Lyric Boyle, Member (2011–2014)
- Cheryl Carlison, Member (2013–2015)
- Deborah Curry, Member (2011–2015)
- Denise Robinson Gravatt*
- Laura Helm**

**SOT Liaison Representatives**
- **American Association for the Advancement of Science (AAAS) Representative**
  Yvonne P. Dragan
- **Association for Assessment and Accreditation of Laboratory Animal Care (AAALAC) Board of Trustees Representative**
  David Dorman
- **International Union of Toxicology (IUTOX) Councilors**
  Peter I. Goering, Member (2013–2016)
  Norbert E. Kaminski, Member (2013–2016)
  Kenneth E. McMartin, Member (2013–2016)
  Timothy P. Pastoor, Member (2013–2016)
  Lois D. Lehman-McKeeman*
  Shawn Douglas Lamb**

**Scientific Liaison Coalition**
- Kevin S. McDorman, Chair (2013–2014)
- Peter L. Goering*
- Marcia G. Lawson**
- **American Association for Cancer Research (AACR)**
  Thomas W. Kensler
- **American Academy of Clinical Toxicology (AACT)**
  Kenneth E. McMartin
- **American Chemical Society (ACS)—Division of Chemical Toxicology**
  Joe Garner
  Trevor M. Penning
- **American College of Medical Toxicology (ACMT)**
  Stephen Munday
  Suzanne R. White
- **American College of Toxicology**
  Florence Burleson
- **American Society for Pharmacology and Experimental Therapeutics (ASPET)**
  John D. Schuetz
- **The Endocrine Society (ENDO)**
  Loretta L. Doan
- **Environmental Mutagenesis and Genomics Society (EMGS)**
  Rosalie K. Elespuru
  Catherine F. Gibbons
Elected and Appointed Committees (Continued)

International Society for the Study of Xenobiotics (ISSX)
Bill J. Smith

Safety Pharmacology Society (SPS)
Mary Jeannne Kallman

Society of Environmental Toxicology and Chemistry (SETAC)
Patrick D. Guiney

Society for Risk Analysis (SRA)
John R. Fowle III

Society for the Study of Reproduction (SSR)
Jodi A. Flaws
Sally Perreault Darney

Society of Toxicologic Pathology (STP)
Daniela Ennulat
Jack R. Harkema
James E. Klaunig

Society of Toxicology (SOT)
Kenneth L. Hastings
David G. Kaufman
Paul B. Watkins

Teratology Society (TS)
John M. DeSesso
Elaine Z. Francis
Edward S. Hunter
Regional Chapter Officers

**Allegheny-Erie (82*)**
- Aaron Erdely, President
- Patti C. Zeidler-Erdely, President-Elect
- Aaron Barchowsky, Vice President
- Robin E. Gaudley, Secretary
- William James Mackay, Treasurer
- Timothy R. Narkiewicz, Past President/Councilor
- Kelly A. Brant, Councilor
- James P. Fabisiaik, Councilor
- Elaine L. Freeman, Councilor
- Jim Scabilloni, Councilor
- Hollie S. Skaggs, Councilor
- Mark Weisberg, Councilor
- Kevin Beethold, Postdoctoral Representative
- Hannah Christine Pope-Varsalaena, Student Representative

**Central States (60*)**
- Aileen F. Keating, President
- Claire Redman Cruoth, President-Elect
- Hans-Joachim Lehmier, Secretary/Treasurer
- Thu Annelise Nguyen, Past President
- Udayan M. Apte, Councilor
- Diane S. Rohman, Councilor
- Timothy Spitzenberger, Councilor
- Yue Cui, Postdoctoral Representative
- Mitchell Ryan McGill, Student Representative

**Lake Ontario (29*)**
- Warren Foster, President
- James Gomes, Vice President
- Mark Korchinski, Secretary/Treasurer

**Lone Star (112*)**
- Weimin Gao, President
- Casey Wright, Vice President
- David R. Steup, Vice President-Elect
- Laura M. Plunkett, Secretary
- Erica D. Bruce, Past President
- Jeffrey L. Larson, Councilor
- Maureen McConnell, Councilor
- Amelia Romoser, Postdoctoral Representative
- Meghan Marie Cromie, Senior Student Representative

**Mid-Atlantic (405*)**
- Ric Stanulis, President
- Conney Will Berger, Vice President
- George DeGeorge, Vice President-Elect
- Valerie D. Shultz, Secretary
- Anne H. Chappelle, Treasurer
- Janet C. Gould, Past President
- Lauren M. Aleksunes, Councilor
- Diane Hardej, Councilor
- Jedd Michael Hillel, Councilor
- Daniel Willis, Postdoctoral Representative
- Ravikumar Atulkumar Sitapara, Senior Student Representative
- Puneet Vij, Junior Student Representative

**Midwest (172*)**
- Gregory L. Ersexon, President
- Michael L. Biehl, President-Elect
- Jennifer Olsen, Secretary
- Yi Yang, Treasurer
- Susan M. Henwood, Past President/Councilor
- Ofek Bar-Ilan, Councilor
- Harjeet Kaur, Councilor
- Laura Kreckler, Councilor
- Ronnie L. Yeager, Councilor
- Mary Jo Laws, Postdoctoral Representative
- Kirsten Eckstrum, Student Representative

**Mountain West (99*)**
- John Gregory Lamb, President
- Todd A. Thompson, Vice President
- Yin Chen, Vice President-Elect
- Ying Chen, Secretary/Treasurer
- Mingyi W. Trimble, Councilor
- Brooke E. Tvermoes, Councilor
- Cynthia Ju, Past President
- Brian C. Jackson, Junior Student Representative
- Mark J. Canet, Senior Student Representative

**National Capital Area (229*)**
- Bruce A. Fowler, President
- Mark F. Miller, Vice President
- Erik R. Janus, Secretary
- Christopher Michael Sheth, Treasurer
- Caroline Baier-Anderson, Past President/Councilor
- Melanie B. Biggs, Councilor
- Susan A. Laessig, Councilor
- Syril D. Pettit, Councilor
- David Taylor Szabo, Councilor
- Chad Brocker, Postdoctoral Representative
- Abhishruti S. Parihar, Student Representative
- Suzanne Nicole Martos, Student Vice-Representative

◊ Membership totals as printed in the most recent Membership Directory
Regional Chapter Officers (Continued)

North Carolina (411◊)
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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
1982 Bernard B. Brodie
1986 Herbert Remmer
1991 Hyman J. Zimmerman
1994 Ronald W. Estabrook
1994 Wendell W. Weber
1995 Gertrude B. Elion
1996 Sten G. Orrenius
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
2002 Mario Molina
2002 Lee Hartwell
2002 H. Robert Horvitz
2002 Gilbert S. Omenn
2007 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
1967 Gabriel L. Plaa
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
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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 Cherrettong
2012 Donna D. Zhang
2013 Wei Xu
2014 Matthew J. Campen

Indicates SOT Awards

*A deceased
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 Dragan, Kristen Mitchell, Drobra Zuzana
2008 Joshua Gray, Christie M. Sayes, Kristy J. Thompson
2009 Jeffrey W. Card, Kembra Howdeshell, Lewis Zhiang Shi
2010 Bret F. Besac, Manabu Nukaya, Nicholas Kudavanti
2011 Deldrich S. Bermudez, Joshua A. Harrill, Jordan Ned Smith
2012 Maryse Lemarie, 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

1996 B. C. Allen, R. J. Kavlock, C. A. Kimmel, E. M. Fauthman
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. Haier, H. Jaeschke
2003 S. Haddad, M. Beliveau, R. Tardif, K. Krishnan
2006 H. Sawada, K. Takami, S. Ashih
2008 S. Snykers, T. Vanhaecke, P. Papulé, A. Luttun, T. Jiang, Y. V. Heyden, C. Faerline, V. Rogiers
2011 K. La L. B. Collins, H. Ra, E. Bermudez, J. A. Swenberg

Frank R. Blood Award

Award Recipients

1974 Y. Alarie
1975 D. J. Ecobichon, G. J. Johnston, O. Hutzinger
1976 R. D. Brown
1977 J. Dedinas, G. D. DiVincenzo, C. J. Kaplan
1980 J. A. Last, P. F. Moore, T. O. Raabe, B. K. Tarkington
1981 Y. Alarie, M. Brady, C. Dixon, M. Karol
1982 M. E. Andersen, M. L. Garsis, L. J. Jenkins Jr., R. A. Jones
1983 H. D. Heck
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. H. A. M. Pilaro
1991 J. B. Silkowski, 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. Borgoff, 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)
2011 Congressman David Price (D-NC)
2011 Congresswoman Judy Biggert (R-IL)
2012 Senator Amy Klobuchar (D-MN)
2012 Congressman Rush Holt (D-NJ)
2013 Congressmate 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 Doylanko
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
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 Harilah M. Mehendale
2011 Oliver Harkinsson
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 J. Krieger
1987 Gabriel L. Pfaa
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 Harilah Meherendale
2002 Joseph Bortelleca
2003 Frederick W. Dehme
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. Dufiis
2013 Rolf G. Scherrmann
2014 Herman N. Aatrup

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 C. Hartung
2009 Sally Robinson
2010 Leonard M. Schechtmann
2013 Martin L. Stephens

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-Verbela (Colombia), Orish Ebere Orisakwe (Nigeria)
2013 Sri Noegrohati (Indonesia), Mohamed Mosad 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.

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. Borzellino
2012 John A. Moore
2013 William Alfred Suk
2014 John A. Thomas

The 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 our understanding of 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 Gerald K. Rowe*
1977 Harry W. Hays*
1978 Julius M. Coon*
1979 M. W. Anders
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 Toshiro Narahashi*
1992 W. Norman Aldridge
1993 John Doulis
1994 Ernest Hodgson
1995 Robert A. Scala
1996 Gabriel L. Plaa*
1997 Mary O. Andmur*
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 Hans Peter Winich
2009 Gary M. Williams
2010 Marion F. Ehrich
2011 Michael Aschner
2012 Curtis D. Kaabuen
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.

Award Recipients
2003 Shirisha Chittiboyina, Hannah Pope-Varsalona
2011 Brandon Haghverdian, Jessica H. Hartman,
2010 Annie L. Carlson, Alisha Chitrakar,
2009 Enrique Fuentes-Mattei, Sheppard A. Martin
2008 Amy DeMicco, Tharu Fernando,
2007 Kay Gonzales, Lisa Koselke, Basharat Sanni,
2006 Shawntay Chaney, Theresa M. Eagle, Natalie Malek, Adelaida Segarra, Ryan Vaughan
2007 Kay Gonzales, Lisa Koselke, Basharat Sanni, Sonia Talathi, Anna Zimmerman
2006 Amy DeMicco, Tharu Fernando, Yamel Perdomo, Amy Yi Hsan Saik, Kelly Sullivan
2009 Sherron Crawford, Sherry J. Hoang, Kelly Krcmarik, Cory M. Mathias, P. Sean McGrath
2010 Annie L. Carlson, Alisha Chitrakar, Megan E. Cultreth, Chang Woo Lee, Sharon Ochak
2011 Brandon Haghverdian, Jessica H. Hartman, Camila Odo, Viviana Vidal Anaya, Phillip Alan Wages

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 Heath Bolstad, Michael Botland
2012 Chad Brocker, Azita Caevas
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.

Award Recipients
2009 Vanessa De La Rosa
2010 Nygerma L. Dangleben
2011 Eva A. Amouzougan
2012 Alba K. Gonzalez Rivera
2013 Alexandra Colon-Rodríguez
2014 Pamela 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 Shavontay Chaney, Theresa M. Eagle, Natalie Malek, Adelaida Segarra, Ryan Vaughan
2007 Kay Gonzales, Lisa Koselke, Basharat Sanni, Sonia Talathi, Anna Zimmerman
2008 Amy DeMicco, Tharu Fernando, Yamel Perdomo, Amy Yi Hsan Saik, Kelly Sullivan
2009 Sherron Crawford, Sherry J. Hoang, Kelly Krcmarik, Cory M. Mathias, P. Sean McGrath
2010 Annie L. Carlson, Alisha Chitrakar, Megan E. Cultreth, Chang Woo Lee, Sharon Ochak
2011 Brandon Haghverdian, Jessica H. Hartman, Camila Odo, Viviana Vidal Anaya, Phillip Alan Wages
Society of Toxicology Awards and Honors (Continued)

2014  David L. Eaton
2013  Marti Lindsey
2012  Martin A. Philbert
2010  Philip Wexler
2007  Linda S. Birnbaum
2005  Robert Kreiger
2003  Charlene A. McQueen
2002  Sam Kacew
2001  Anna Shvedova
1997  Audrey Gotsch
1996  Bruce N. Ames
1995  Philip Abelson*

2014  Wesley Cai, Cory V. Gerlach, Lukas Gora,
2013  Amy Ashworth, Naing Bajaj,
2002  Christophor Dishovsky (Bulgaria),

Awards and Fellowships section.

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 accuracy and sincerity 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
1997  Bruce N. Ames
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 Wealer
2012  Marti Lindsey
2014  David L. Eaton

SOT/AstraZeneca/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 costs 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),
Mariana G. Vicko (Slovenia),
Eman A. Seif (Egypt)
2004  Cristina Bolaton (Philippines),
Patricia Guiao (Philippines),
Salmann Inayat-Hussain (Malaysia),
Xianping Ying (China)
2005  Diana B. Apostolova (Bulgaria),
Marita Arja Bake (Latvia),
Teriela I. Fortuño (Mexico),
Mary Guhumian (South Africa),
He Jiliang (China),
Khulaidya Khamdulina (Russia),
L. Olga Pencaskwe (Nigeria),
Songsk Arianjuta (Thailand),
Sinan Suzen (Turkey)
2006  Olanike Adeyemo (Nigeria),
Deepak Argwal (India),
Carlos Colangelo (Argentina),
Sandra Demichielis (Argentina),
Muntaz Iscan (Turkey),
Karelin Iyubemirova (Bulgaria),
Osman Aly Osman (Egypt),
Shuang-Qing Peng (China),
Julia Radenkova-Saerva (Bulgaria)
2007  Hatem Ahmed (Egypt),
Iiri Baigaz (Czech Republic),
Isset Çok (Turkey),
Carlos Garcia (Pera),
Wonga Umana (Nigeria),
Lyndy McGaw (South Africa),
Kemal Buyukozel (Turkey),
Hane Guer-Oran (Turkey),
Phillip Burcham (Australia),
Sayed Bakry (Egypt),
Zdravko Paskalev (Bulgaria),
Galer Ragh Ahmed (Egypt)
2008  Jin-Hee Chang (Korea),
Lyndy McGaw (South Africa),
Kolawo O. Olorunshola (Nigeria),
Kelly P.K. Olympio (Brazil),
Phillip Burcham (Australia),
Estephania G. Moreira (Brazil),
Sayed Bakry (Egypt),
Rawiwan Maniratanachote (Thailand)
2009  Jing Zhang (China),
Omoniyi Kayode Yemitan (Nigeria),
Songsak Srianjuta (Thailand),
Diana B. Apostolova (Bulgaria),
Kailen Bodhid (South Africa),
Karine R. Caballero-Guarrado (Colombia),
Osama S. El-Tawil (Egypt)
2010  Shuang-Qing Peng (China),
Osman Aly Osman (Egypt),
Sayed Bakry (Egypt)
2011  Sonali Das (India),
Asongalem Emmanuel Acha (Cameroon),
Ayse Basak Engin (Turkey),
Ronnie A. D. Frazer-Williams (Sierra Leone),
Yan Li (China),
Jesul T. Olivero-Verbel (Colombia),
Suresh V. S. Rana (India),
Ganna Shyakhmetova (Ukraine),
Vanessa Steenkamp (South Africa),
Marcelo J. Wolansky (Argentina),
Saleem Khan (India),
Saleem Khan (India),
Saleem Khan (India),
Suleeporn Sangrajang (Thailand)
2012  Oladipo Adefumiyiwa (Nigeria),
Murari Maharokha (India),
Sunisa Chaiiklieng (Thailand),
Xianju Huang (China),
Zhenlie Huang (China),
Guojun Li (China),
Jiajin Lou (China),
Maria Samayoas (Guatemala),
Haixue Wang (China),
Jingdhu Zhang (China),
Xiaolong Zhang (China),
Li Zhou (China)
2013  John I. Anetor (Nigeria),
Kaien Bodhid (South Africa),
Karina R. Caballero-Guarrado (Colombia),
Osama S. El-Tawil (Egypt),
Miriam Carolina Guzman Quilo (Guatemala)
2014  Samir Abbès (Tunisia),
Wafa Hassen (Tunisia),
Gopabandhu Jena (India),
Siti N. Mubarokah (Indonesia),
Olufunke O. Olorunshola (Nigeria),
Haixue Wang (China),
Jingdhu Zhang (China),
Xiaolong Zhang (China),
Li Zhou (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.
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

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

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 translational toxicology. This award consists of a cash stipend and a complimentary registration for the SOT Annual Meeting.

Award Recipients
2012 Xuewei Huang
2013 M. Shane Hutson

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 L. Krieger, Joseph R. Landolph
1991 Sam Kacew
1992 Charles V. Smith, Jerold A. Last
1993 Terrence James Monks, Harithara 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
2002 William D. Atchison
2003 Kevin Kerzee
2004 Kevin M. Crofton
2005 Charlene A. McQueen
2006 Robert A. Roth
2007 Michael S. Denison
2008 José E. Manautou
2009 Kimberly A. Hays, Haitian Lu
2010 Renee Gardner, Prajakta Palkar, Rohit Singhal
2011 Ankur Dnyanmote, Abby Benninghoff
2012 David L. Eaton, Hanspeter R. Witschi
2013 Ming Zhu, Fang, Jennifer Freeman
2014 Lei Li Kerr, Hao Zhu

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 Brian Buggs, Victoria Richards
2002 Kartik Shankar, Chad M. Vezina, Ryan L. Williams
2003 Sachin Devi, Midhan Karrapati, Pallavi Limaye
2004 Jaya Chilkapati, Marc A. Nascarella
2005 Vishaka Bhave, Ankur Dnyanmote, Jonathan Maher
2006 Mary Hassan, Prajakta Palkar
2007 Jyotsna Pandey, Prajakta Palkar, Rohit Singhbal, 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. VanDuyf
2011 Vijay More
2012 Ayres Forgacs, René Viñas
2013 Jonathan Maher
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. Award recipients can re-apply for funding in subsequent years.

Award Recipients
2006 Rola Barbouni, Abby Benninghoff, Jodie Flaws, Courtney Sulentic, Xiaozhong Yu
2007 Rita L. Caruso, Daniel R. Cerven, Anne R. Greenlee, Glenn M. Walker
2008 Daniel R. Cerven, Duncan C. Ferguson, Shashi K. Ramiah
2009 Qin M. Chen, Timothy J. Shafer, Mehmet Uzunçu
2010 Patrick Allard, Duncan C. Ferguson, Mehmet Uzunçu
2011 Patrick Allard, Hao Zhu
2012 Ming Zhu, 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 Walah
1992 Qin Chen
1993 Erika Creton
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 Dayama
e
2010 Ankur Dayama

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Sponsored Award Descriptions (Continued)

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. Budham
2009  Yue Cui
2010  Eric N. Liberda
2011  Alexandria Lau
2012  Julia E. Rager
2013  Julia E. Rager
2014  Dilshan S. Harischandra

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

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: Snorris S. Thorgerisson
2008  University of Louisiana at Monroe
  Visiting Professor: George Michalopoulos
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

---LIFETIME PARACELSUS CIRCLE VISIONARY---

$50,000–$100,000

None at this time.

---LIFETIME PARACELSUS CIRCLE FUTURIST---

$25,000–$49,999

- Barbara Gehring and Family  
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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](http://www.toxicology.org/endowment).
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An initial contribution of $500 or more and a commitment to make cumulative contributions of $5,000 or more within a 10-year period.

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- Clarissa L. Russell Wilson
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2012–2013 Honor Roll of Contributors

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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.

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
- Toshibi 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.

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**Please contact me concerning the following:**

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- 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 ____________________________

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**Donor Contribution Form**

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Contributions of $500 or greater may be allocated to one or more funds in increments of $250 per fund.

**General Purpose Funds**

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<th>Education</th>
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**Named Funds**

(Listed on the proceeding page)

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TOTAL $

**Payment**

- Enclosed is a check for $ ____________

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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.
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Society of Toxicology
54th Annual Meeting
and ToxExpo
San Diego, California
March 22–26, 2015

Mark Your Calendar!

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# Headquarters Staff

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