SOT | Program

SOT 2013 San Antonio ★ Texas

52nd Annual Meeting & ToxExpo™

March 10–14, 2013

San Antonio
TEXAS

SOT | Society of Toxicology

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

www.toxicology.org

Society of Toxicology

San Antonio Texas 2013

Awards Ceremony
(All Attendees Welcome)
Sunday, March 10
5:15 PM–6:30 PM
Grand Ballroom C1

Welcome Reception
(All Attendees Welcome)
Sunday, March 10
6:30 PM–7:30 PM
Exhibit Hall A

25-Year (Or More) Member Reception
(By Invitation Only)
Sunday, March 10
7:00 PM–8:00 PM
Lonesome Dove

SOT Annual Business Meeting
(All SOT Members Invited)
Tuesday, March 12
4:30 PM–6:00 PM
Grand Ballroom C1

These events take place in the Henry B. Gonzalez Convention Center.

Dear Colleagues:

I cordially invite you to attend SOT's 52nd Annual Meeting, March 10–14, 2013, at the Henry B. Gonzalez Convention Center in San Antonio, Texas. The SOT Annual Meeting is the forum to showcase toxicology's novel discoveries. For the science of toxicology, this five-day event is the culmination of a year's worth of achievements in research and education.

The Annual Meeting also affords attendees the opportunity to learn about the latest scientific achievements from myriad experts in the field of toxicology. The SOT thematic program provides participants with a unique opportunity to deepen their knowledge in topical areas and interact with leaders in their respective disciplines. Opportunities abound for members to meet other scientists they have never met and to network with friends and colleagues. The Annual Meeting also offers a chance to pause and pay tribute to those scientists who have distinguished themselves in their field of expertise and are the recipients of the Society's most prestigious awards. Finally, SOT attendees can take advantage of the ToxExpo, which is the world's largest exposition of its kind, offering 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. More importantly, the Annual Meeting goes a long way toward fulfilling the SOT strategy of building for the future of toxicology, highlighting significant scientific achievements, and broadening the awareness of these accomplishments and their potential impact. I urge you to join us for this event. Help us to make the SOT 52nd Annual Meeting a conference to remember.

Sincerely,

William Slikker Jr., PhD, ATS
2012–2013 SOT President

SOT 2013 San Antonio ★ Texas

52nd Annual Meeting and ToxExpo

Scientific Program Overview

THEMATIC APPROACH

Sunday CE course and Monday–Thursday session titles related to each theme are color-coded in this Program Overview.

Application of Systems Biology to Toxicology

Recent technological advances allow the study of multiple interacting networks in cellular application of genomics, proteomics, metabolomics, computational modeling, and bioinformatics to cell-specific and organ-specific toxicity, as well as to broader questions in toxicology to develop. Application of these technologies will provide for systems to improve predictive toxicity tools, enable more complete understanding of the mechanisms underlying the toxicity of pharmaceutical agents and environmental chemicals, and facilitate the interrogation of disease etiology and prevention.

Biomarkers for Exposure Assessment, Safety Evaluation, and Translational Medicine

The development of biomarkers that can be applied to assessing exposure, predicting toxicity, defining mechanisms of toxicity, and improving translation of preclinical and clinical toxicity has impacted how toxicology research is carried out. Developing the basic biology and analytical tools to support biomarker identification, development, and validation is critical to the successful incorporation of biomarkers in all areas of toxicology research.

Effects of Nanomaterials on Biological Systems

Research in the toxicology of nanomaterials has expanded along with the application of this technology in material science research and development. Factors that influence the potential for toxic responses and identification of relevant target organs for exposure and toxicity are critical to the development of cogent and reliable risk assessment for these materials. Basic, applied, and regulatory science must converge in order to address the needs for this class of materials that will advance understanding of potential impacts on human and environmental health.

Molecular Basis for Genetic Variability and Susceptibility to Toxicants

Many toxicants alter gene expression and many types of toxicities can be affected by variation in gene expression or genetic polymorphisms. Similarly, age-dependent gene expression can influence toxic responses and epigenetic perturbations influence heritable gene expression. Both genetic and epigenetic differences can influence the individual's response to pharmaceuticals and environmental chemicals. It is recognized that single nucleotide polymorphisms directly affect genetic differences on rates of metabolism, but for other responses, such as behavior, the connections are more complex. Linking genetic and environmental variables with exposure data is essential to accurately define potential beneficial or adverse effects of chemicals and to assess disease susceptibility and prevention.

Regulatory Science: Advancing New Approaches for Hazard Identification and Risk Assessment

Regulatory science encompasses the science(s) used to evaluate the safety, efficacy, quality, and performance of any product. Advancements in regulatory science will facilitate the development and evaluation of innovative new products. As we modernize the tools used to assess the potential risks from drugs, environmental chemicals, food, and other products, we must also consider the global applications of such methods and strategies to drive better risk-assessment decisions. This theme is intended to foster session content that will provide for perspective on ongoing efforts to improve hazard identification and risk assessment with emphasis on how best to coordinate these efforts for more consistent regulatory practices around the world.

A page reference follows the course or session information.

Sunday, March 10

7:00 AM–7:45 AM

SUNRISE CONTINUING EDUCATION COURSE

1. A Refresher of Immunoglobulin and Fc-Receptor Biology and Advances Related to Therapeutic Antibody Development (p104)

8:15 AM–12:00 Noon

MORNING CONTINUING EDUCATION COURSES

2. Basic Principles of Human Risk Assessment (p105)
3. Recent Developments in Cardiovascular Physiology-Based Toxicology (p105)
4. Approval of Biosimilar Monoclonal Antibodies: Scientific, Regulatory, and Legal Challenges (p105)
5. The What, When, and How of Nonclinical Support for an IND Submission (p106)
6. The Practice and Implementation of Neural Stem Cell-Based Approaches to Neurotoxicology (p107)
7. Toxic Effects of Metals (p107)

1:15 PM–5:00 PM

AFTERNOON CONTINUING EDUCATION COURSES

8. Advances in Nanotoxicology—Challenges (p108)
9. Gonadal Development, Function, and Toxicology (p108)
10. The REACH Regulation and Safety Assessment Approaches for Chemicals That Come in Contact with the Skin (p109)
11. T4: Tools and Technologies in Translational Toxicology (p109)
12. Understanding Toxic Neuropathy in Drug Development: Both Clinical and Nonclinical Perspectives (p110)
13. Weighing in on Nutrition—Essential Concepts for Toxicologists (p110)

Monday, March 11

8:00 AM to 9:00 AM

PLENARY OPENING LECTURE

Genetic Analysis of Innate Immune Sensing
Lecturer: Bruce A. Beutler, University of Texas Southwestern Medical Center (p138)

9:15 AM to 12:00 Noon

SYMPOSIUM SESSIONS

- Genetic and Epigenetic Determinants of Susceptibility to Environmental and Occupational Toxicants (p139)
- Predictive Toxicology Paradigms for Understanding Carbon Nanotube Toxicity in the Lung (p139)
- Translatable Indicators of Testicular Toxicity: Inhibin B, microRNAs, and Sperm Signatures (p140)

WORKSHOP SESSIONS

- Biology of Low-Dose Response for DNA-Reactive Chemicals (p140)
- Incorporation of Exposure Data and Chemical Properties into Early *In Vitro* Screening Studies: Putting Early Hazard Identification into Appropriate Context (p141)
- Inhaled Mixtures: A Mode-of-Action Framework Applied to the Criteria Air Pollutants (p142)

REGIONAL INTEREST SESSION

- Toxicological Challenges in Food Production in Texas and the Gulf Coast (p142)

PLATFORM SESSIONS

- Advances in Neurobehavioral and Neuropathology Assessment of Chemicals (p143)
- Inhalants and Metabolic Disorders (p143)

9:30 AM to 12:30 PM

POSTER SESSIONS

- Bioinformatics and Computational Toxicology: Systems and Strategies (p147)
- Biotransformation/Cytochrome P450 (p159)
- Carcinogenesis (p149)
- Cardiovascular Toxicity: Telemetry and *In Vitro* Systems (p144)
- Chemical and Biological Weapons (p163)
- Developmental Toxicity—Nonmammalian (p162)
- Ecotoxicology (p158)
- Endocrine Disruptor Screening (p146)
- Inflammation and Disease (p156)
- Inhalants and Cardiopulmonary (p154)
- Medical Devices (p153)
- Pharmacogenomics/Genetic Polymorphisms (p152)

12:10 PM to 1:30 PM

ROUNDTABLE SESSIONS

- A Decade of Nanotoxicology: Where Do We Stand Now? (p167)
- Predicting Human Thorough QT (TQT) Study Outcomes with Nonclinical Data—How Good Are We and How Good Do We Need to Be? (p168)

HISTORICAL HIGHLIGHT SESSION

- Diesel and Gasoline Exhaust and Cancer (p168)

EDUCATION-CAREER DEVELOPMENT SESSION

- From New Submissions to Competitive Renewals: Different Phases of Grant Writing (p169)

12:30 PM to 1:20 PM

MERIT AWARD LECTURE

Bioactivation, Covalent Binding, and Toxicity: A Personal Odyssey
Lecturer: Frederick Peter Guengerich, Vanderbilt University Medical Center (p169)

1:00 PM to 3:30 PM

SPECIAL SYMPOSIUM

Meet the Directors (p169)

1:00 PM to 4:30 PM

POSTER SESSIONS

- Animal Models of Disease (p194)
- Animal Models—Measurements and Validation (p195)
- Biological Modeling: Target Tissues and Toxicants (p186)
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- Pesticide Toxicology (p184)
- Pharmacokinetics and Disposition (p177)
- Risk Assessment I: Advances in Approaches and Technologies (p192)
- Systems Biology and Toxicology (p182)

2:00 PM to 4:45 PM

SYMPOSIUM SESSIONS

- Human Health and Environmental Concerns around Natural Gas Production Using Hydraulic Fracturing (p197)
- Role of Metabolic Syndrome and Perivascular Adipose in Exposure-Induced Vascular Dysfunction (p198)

WORKSHOP SESSIONS

- Environmental Factors in Neurodegenerative Diseases (p198)
- Life-Course Models for Ensuring Children's Health Protection (p199)
- NanoInformatics: Computational Challenges for Nanomaterial Hazard Assessment (p199)
- Scientific and Regulatory Advances in Genetic Toxicology Safety Assessment (p200)

PLATFORM SESSIONS

- Biomonitoring: Emerging Markers and Methods (p200)
- Mode of Action and Human Relevance of Rodent Tumors (p201)
- Toxicity of Nanoparticles—Cerium Oxide (p201)

4:45 PM to 6:00 PM

SOT/EUROTOX DEBATE

In the Near Foreseeable Future, Much of Toxicity Testing Can Be Replaced by Computational Approaches (p203)

Tuesday, March 12

8:00 AM to 8:50 AM

LEADING EDGE IN BASIC SCIENCE AWARD LECTURE

Human Organs on Chips As Replacements for Animal Testing
Lecturer: Donald E. Ingber, Harvard University (p205)

9:00 AM to 11:45 AM

SPECIAL SYMPOSIUM

- Frontiers for Toxicology Session: Systems and Computational Biology As Foundations for Toxicology Research (p206)

SYMPOSIUM SESSIONS

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- The Dynamics of Neuroinflammation and Inflammatory Cell Responses in Neurologic Disease (p207)

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- Advances in Carcinogenic Risk Assessment of Low-Level Genotoxic Impurities in Pharmaceuticals (p207)
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9:00 AM to 12:30 PM

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- Alternative Models—Eye and Skin (p216)
- Biomarkers I: Preclinical and Translational Approaches (p213)
- Carcinogenesis: Models and Mechanisms (p224)
- Cardiovascular Toxicity and Hemodynamics (p227)
- Computational Toxicology: Liver and Life Stage Characterizations (p211)
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- Neurotoxicology: General (p212)
- Skin (p221)

9:30 AM to 4:30 PM

RESEARCH FUNDING SESSION

Research Funding Information Room (p231)

12:00 Noon to 1:30 PM

RESEARCH FUNDING SESSION

Strategies for Submitting Successful Grants: Brown Bag Luncheon (p233)

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.

12:30 PM to 1:30 PM

TOXEXPO TIME

ToxExpo is an important component of the SOT Annual Meeting. The Scientific Program Committee has therefore allotted this dedicated time for attendees to visit the Exhibit Hall C–D to stay abreast of the latest advances in technology, equipment, and services available to the toxicologist.

1:00 PM to 4:30 PM

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- Autoimmunity and Hypersensitivity (p250)
- Developmental Neurotoxicity (p246)
- Exposure Assessment: New Characterizations, Methods, and Models (p237)
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- Regulatory Policy: Programs and Approaches (p259)
- Safety Assessment: Nonpharmaceuticals (p257)
- **Stems Cells: Emerging Applications in Toxicology** (p234)

1:30 PM to 4:15 PM

SYMPOSIUM SESSIONS

- **Application of Systems Biology to Identify Molecular Mechanisms and Biomarkers of Lead (Pb) Neurotoxicity: Implications in a Developmental Origin of Alzheimer's Disease** (p260)
- Bone As a Target Tissue for Environmental Toxicants (p260)
- **Nonmonotonic Dose-Response Curves and Endocrine-Disrupting Chemicals: Fact or Falderal?** (p261)
- **Understanding Toxicities of Abnormal Lipid Metabolism: Alcoholic, Nonalcoholic, and Toxicant-Induced Fatty Liver Disease** (p262)

WORKSHOP SESSIONS

- **"Air"-ing on the Side of Caution: Anticipating Impacts of Emerging Issues in the Health Effects of Air Pollution** (p262)
- **Breaking the Routine: Is There Room for Modern Techniques of Neuropathology Assessment in Routine Preclinical Safety Studies?** (p263)
- **Drug Safety Assessment and Regulatory Landscape in Emerging Markets** (p263)

PLATFORM SESSION

- Bioinformatics: Pathways, Profiles, and Predictions (p264)

4:30 PM to 5:50 PM

EDUCATION-CAREER DEVELOPMENT SESSION

- The Symbiosis of Mentoring: Getting the Most out of the Mentor-Mentee Relationship (p265)

4:30 PM to 6:00 PM

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SOT Annual Business Meeting (p266)

Wednesday, March 13

8:00 AM to 9:00 AM

KEYNOTE MEDICAL RESEARCH COUNCIL (MRC) LECTURE

Phenotyping the Patient Journey: Making Systems Medicine Work in the Real World
Lecturer: Jeremy K. Nicholson, Imperial College London (p267)

9:00 AM to 11:45 AM

SYMPOSIUM SESSIONS

- **Role of Systems Biology in Characterizing Risk of Developmental Origins of Disease** (p267)
- **Toxicoepigenomics, Disease Susceptibility, and Implications for Risk Assessment** (p268)

WORKSHOP SESSIONS

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- **Pulmonomics, the Exposome, and Microbiomes in Immunotoxicology** (p269)
- **Standard and Nonstandard Animal Models for Evaluation of Drug Abuse Potential for Pharmaceutical Compounds with Novel Mechanisms** (p269)
- The Placenta in Toxicology: Target or Travel Agent? (p270)

INFORMATIONAL SESSIONS

- K–12 Toxicology Outreach Activities: Regional Chapter Successes and Resources (p270)
- **The Regulatory Framework for Cosmetics: Current Status, Recent Science, and Future Prospects** (p271)

PLATFORM SESSION

- Validation and Application of Neurotoxicology *In Vitro* Methods (p271)

SOT Mobile Event App or Event Website

Use these new planning and networking tools to access the latest meeting information, build your own schedule, view presentation details and abstracts (including late-breaking), 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!

If found, please return to:

Name:

Contact Telephone:

9:00 AM to 12:30 PM

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9:30 AM to 4:30 PM

RESEARCH FUNDING SESSION

Research Funding Information Room (p297)

12:00 Noon to 1:20 PM

ROUNDTABLE SESSION

- Skeptically Examining the Limits of Toxicology Evidence in the Courtroom (p299)

INFORMATIONAL SESSION

- Harnessing Electronic Standards and Informatics to Transform the Use of Regulatory Toxicological Data (p299)

EDUCATION-CAREER DEVELOPMENT SESSION

- Regulatory Science and Risk Assessment: Lessons for Early-Career Scientists on What to Expect and How to Pursue This Career Path (p300)

12:30 PM to 1:20 PM

DISTINGUISHED TOXICOLOGY SCHOLAR AWARD LECTURE

Mitochondria: Crossroads of Cell Survival, Death, and Transformation
Lecturer: John J. Lemasters, Medical University of South Carolina (p300)

1:00 PM to 4:30 PM

POSTER SESSIONS

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Thursday, March 14

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- Late-Breaking Poster Session

9:00 AM to 11:45 AM

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52nd Annual Meeting and ToxExpo
March 10–14, 2013

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

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Direct Connection—SOT QR Codes

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

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The New Mobile Event App

Use these new 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 San Antonio city guide including hotels, restaurants, attractions, nightlife, and shopping.

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

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Job Bank

The SOT Annual Meeting, with over 7,300 attendees including the best toxicologists, early career scientists, and toxicology-related employers, is the ideal place to make your connection, whether you are looking for a position or searching for the right candidate. To facilitate job searches, the SOT online Job Bank is available at all times, and prepares you to take full advantage of the on-site Job Bank Center in San Antonio.

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Late-Breaking Abstract Supplement

Download a PDF of all the accepted Late-Breaking Abstracts being presented on Thursday, March 14.

Mentor Match

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

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Open Table

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

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SOT Website

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

Scan Me!

San Antonio Travel Website

Your one-stop website for complete San Antonio 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.

ToXchange

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

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SOT 2013 San Antonio ★ Texas

How to Use This *Program*

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

Program Publication Layout Overview

Section	Description
Front Fold-Out Cover—Scientific Program Overview	This quick reference guide lists the Annual Meeting scientific sessions with corresponding page numbers in the Program Description section. Color-coded presentation titles assist you in identifying sessions within each theme. A brief description for each theme is available as well.
Daily Pocket Calendar (pages 5–13)	This at-a-glance calendar is your guide to the daily activities of the Annual Meeting including special sessions; Regional Chapter, Special Interest Group, Specialty Section, and ancillary functions; and SOT committee meetings. We encourage you to tear out the daily guide for easy reference. Please note that the scientific session details are included at the end of each day's guide.
Schedule by Event Name (pages 15–24)	This is an alphabetical listing of all the functions held during the Annual Meeting. You may use this easy-to-read schedule to quickly locate an event. Please note that for the scientific session details, you must refer to the Scientific Program Overview on the front fold-out cover or Daily Pocket Calendar on pages 5–13.
Scientific Session Index (pages 113–119)	This index lists the scientific sessions by type, date, and time. In addition, this information includes the session titles with abstract numbers, poster boards, session locations, and corresponding page numbers in the Program Description section.
Poster Session Schedules and Board Surface Maps (pages 121–134)	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 C–D, Monday–Wednesday and Exhibit Hall A on Thursday. Late-Breaking Abstracts will be presented only on Thursday, March 14, in Exhibit Hall A.
Author Index (pages 342–368)	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.
Abstract Keyword Index (pages 371–384)	This index provides a listing of keywords by subject or chemical and the relevant abstract(s) referenced in this *Program*, *The Toxicologist*, and the *mobile event app* or *event website*.

Program Description Scientific Session Reference (pages 135–339)

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

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

Session Type Legend

EC 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/Sponsor-Hosted Sessions (60 minutes)—Informative sessions developed by an exhibiting company

FS Featured Sessions (50–165 minutes)—Keynote and other special lectures

HH Historical Highlight Sessions (80 minutes)—Sessions that provide a review of a historical body of science that has impacted toxicology

IS 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

R Roundtable Sessions (80 minutes)—Controversial subjects

S Symposium Sessions (165 minutes)—Cutting-edge science; new areas, concepts, or data

Thematic Sessions (45–225 minutes)—Timely topics of relevance to toxicology

W Workshop Sessions (165 minutes)—State-of-the-art knowledge in toxicology

Android | BlackBerry | iPad | iPhone | Mobile Web | Windows Phone

The SOT 2013 Annual Meeting Mobile Event App

This year we are happy to announce we have leveraged the services of QuickMobile to provide you, our guests, with a mobile event app and event website. These tools offer multiplatform mobile solutions for the SOT Annual Meeting and ToxExpo, and are provided free of charge to attendees and exhibitors. These mobile tools enable you 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
- Build your own schedule and synchronize from the mobile event website to your iPad, tablet, and smartphone simply by logging in
- View presentation details and abstracts
- Add individual presentations or entire sessions to your schedule
- Contact and interact with speakers
- Search for items based on session title, abstract title, thematic track, or speaker name
- View award recipients and featured speakers
- Access the San Antonio city guide including hotels, restaurants, attractions, nightlife, and shopping
- View the Henry B. Gonzalez Convention Center map and San Antonio city maps
- Request meetings with attendees and exhibitors
- Navigate the real-time ToxExpo floor plan and search for exhibitors
- Contact Exhibitors
- Integrate with ToXchange, Twitter, and Facebook
- Scan QR codes quickly and easily within the app

How to get the SOT Mobile Event App:

iPhone and iPad: Find the free SOT2013 app at the App Store and Install to download. You need an Apple ID to use the Mac App Store. If you have an account (from the iTunes Store or MobileMe, for example) you can use that Apple ID and password to download apps from the Mac App Store.

Android: Find the free SOT2013 app at the Android Market and Install to download. You need a Google account to access apps in the Android Market.

How to Access the SOT Event Website:

Windows or Blackberry Phones or Computer:
Visit http://sot2013.quickmobile.mobi

Scan Me!

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.

Daily Pocket Calendar

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

For your convenience, please tear out and carry with you. Easily folds to nest within your badge holder. *(Calendar as of January 2; private events are not listed.)*

Saturday — March 9

Events are listed alphabetically by the event start time.

Events at the Henry B. Gonzalez Convention Center are noted as CC.

7:00 AM to 12:00 Noon
TERA: OARS WEEL Committee Meeting
Grand Hyatt Presidio B

8:00 AM to 11:30 AM
Council Orientation Meeting
Grand Hyatt Republic B

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

11:30 AM to 1:00 PM
Council Orientation Luncheon
Grand Hyatt Republic A

12:00 Noon to 6:00 PM
American Board of Toxicology Board of Directors Meeting
Grand Hyatt Bowie C

1:00 PM to 5:30 PM
Council Meeting
Grand Hyatt Republic B

3:00 PM to 9:00 PM
Johnson & Johnson Toxicology Interest Group Meeting
Grand Hyatt Bowie A

4:00 PM to 7:00 PM
@SOT Center—Internet Access and Technology Training
CC East Registration

4:00 PM to 7:00 PM
Housing Desk
CC Bridge Hall

4:00 PM to 7:00 PM
Registration
CC Bridge Hall

4:00 PM to 7:00 PM
SOT Office
CC Room 202

4:00 PM to 7:00 PM
Speaker Ready Room
CC Room 211

4:15 PM to 5:45 PM
Undergraduate Education Program: Orientation for SOT Hosts, Peer Mentors, and Advisors
Marriott Rivercenter Conference Room 1

4:30 PM to 5:15 PM
Continuing Education Committee Walk-Through
CC Grand Ballroom C3

5:45 PM to 8:00 PM
Undergraduate Education Program: Opening Event *(By Invitation Only)*
Marriott Rivercenter Grand Ballroom K

8:00 PM to 9:00 PM
CDI Reunion *(Networking and Dessert—Invited: Anyone involved with the SOT Undergraduate Education Program through the years)*
Marriott Rivercenter Grand Ballroom K

Sunday — March 10

Events are listed alphabetically by the event start time.

Events at the Henry B. Gonzalez Convention Center are noted as CC.

7:00 AM to 6:00 PM
@SOT Center—Internet Access and Technology Training
CC East Registration

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

7:00 AM to 8:00 PM
Registration
CC Bridge Hall

7:00 AM to 5:30 PM
SOT Office
CC Room 202

7:00 AM to 5:30 PM
Speaker Ready Room
CC Room 211

7:30 AM to 9:30 AM
Career Resource and Development Committee Meeting
CC Room 216 A

7:30 AM to 2:30 PM
Concession Stands
CC Concourse Level

8:00 AM to 8:00 PM
Coat/Luggage Check
CC East Registration

8:00 AM to 5:00 PM
Guest/Spouse Hospitality Room
Grand Hyatt Presidio C

8:00 AM to 5:00 PM
Housing Desk
CC Bridge Hall

8:00 AM to 12:00 Noon
Scientific Liaison Coalition Meeting
Grand Hyatt Travis A

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

8:00 AM to 12:00 Noon
Toxicology Education Foundation Board of Trustees Meeting
Hilton Palacio del Rio La Condesa

8:00 AM to 11:30 AM
Undergraduate Education Program: Toxicology Lectures
(Undergraduates Ticket Required)
Marriott Rivercenter Grand Ballroom J

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

11:45 AM to 1:15 PM
Continuing Education Luncheon for Speakers, Committee, and Student Volunteers *(By Invitation Only)*
CC Room 212

11:45 AM to 12:45 PM
Undergraduate Education Program: Lunch and Networking
(Undergraduates Ticket Required)
Marriott Rivercenter Grand Ballroom K

12:00 Noon to 3:00 PM
Toxicological Sciences Associate Editors Meeting
Grand Hyatt Presidio B

12:45 PM to 1:45 PM
Undergraduate Education Program: Breakout Session Advisors: Tips for Advising Prospective Graduate Students
Marriott Rivercenter Conference Room 1

12:45 PM to 1:45 PM
Undergraduate Education Program: Breakout Session Students: Planning for Graduate School
Marriott Rivercenter Conference Rooms 2–4

1:00 PM to 5:00 PM
Job Bank Center
CC Room 007 D

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

2:00 PM to 3:15 PM
Undergraduate Education Program: Career Opportunities in Toxicology *(Speaker: Linda S. Birnbaum, NIEHS and Panel Discussion)*
Marriott Rivercenter Grand Ballroom K

3:00 PM to 5:00 PM
Congressional Subcommittee Meeting
CC Room 208

3:15 PM to 3:45 PM
Undergraduate Education Program: Host Mentor and Peer Mentor Meeting
Marriott Rivercenter Conference Room 1

3:15 PM to 5:00 PM
Undergraduate Education Program: Open Time with Academic Program Directors and Internship Sponsors
Marriott Rivercenter Grand Ballroom M

3:45 PM to 4:00 PM
Council Members Photographed
CC Room 204

4:00 PM to 5:05 PM
Awards Recipients Photographed
CC Room 204

4:45 PM to 5:15 PM
Awards Ceremony Music—Performed by Galo Gutiérrez Jr. *(All Attendees Welcome)*
CC Grand Ballroom C1

5:15 PM to 6:30 PM
Awards Ceremony *(All Attendees Welcome)*
CC Grand Ballroom C1

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

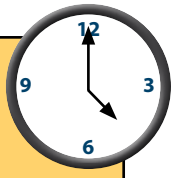
7:00 PM to 8:00 PM
25-Year (Or More) Member Reception *(By Invitation Only)*
CC Lonesome Dove

7:30 PM to 10:30 PM
Arizona Night
Marriott Riverwalk Alamo Ballroom E

7:30 PM to 10:30 PM
Lovelace Respiratory Research Institute Reception
Grand Hyatt Bowie B

7:30 PM to 9:00 PM
Student/Postdoctoral Scholar Mixer *(Ticket Required)*
CC Ballroom A

Remember to Spring Forward One Hour



March 10, 2013

Daylight Saving Time Starts in the United States, Canada, and Mexico.

San Antonio is in the Central Time Zone which is GMT -6, but with DST is GMT -5.

Tear out page for a convenient daily calendar

Daily Pocket Calendar (Continued)

Scientific Program Overview by Day & Time

For your convenience, please tear out and carry with you. Easily folds to nest within your badge holder. *(Calendar as of January 2; private events are not listed.)*

Sunday — March 10

7:00 AM–7:45 AM

CONTINUING EDUCATION SUNRISE MINI-COURSE

1. A Refresher of Immunoglobulin and Fc-Receptor Biology and Advances Related to Therapeutic Antibody Development

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

8:15 AM–12:00 Noon

CONTINUING EDUCATION MORNING COURSES

2. Basic Principles of Human Risk Assessment
3. Recent Developments in Cardiovascular Physiology-Based Toxicology
4. Approval of Biosimilar Monoclonal Antibodies: Scientific, Regulatory, and Legal Challenges
5. The What, When, and How of Nonclinical Support for an IND Submission
6. The Practice and Implementation of Neural Stem Cell-Based Approaches to Neurotoxicology
7. Toxic Effects of Metals

1:15 PM–5:00 PM

CONTINUING EDUCATION AFTERNOON COURSES

8. Advances in Nanotoxicology—Challenges
9. Gonadal Development, Function, and Toxicology
10. The REACH Regulation and Safety Assessment Approaches for Chemicals That Come in Contact with the Skin
11. T4: Tools and Technologies in Translational Toxicology
12. Understanding Toxic Neuropathy in Drug Development: Both Clinical and Nonclinical Perspectives
13. Weighing in on Nutrition—Essential Concepts for Toxicologists

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

ToXchange

Home Members Member CVs Blogs Communities

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

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

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

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

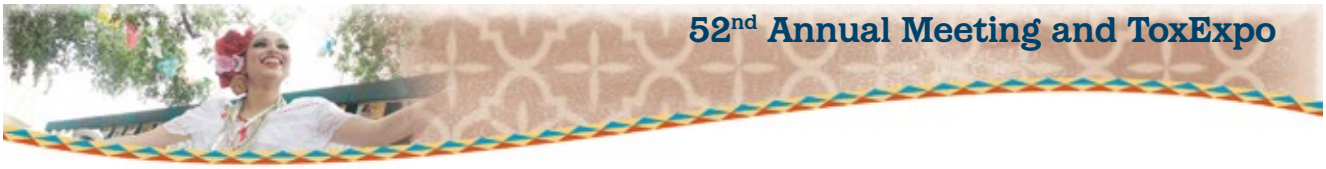
Be sure to visit the **SOT Pavilion** in the Exhibit Hall for on-site information.

ToXchange

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

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

Tear out page for a convenient daily calendar



Daily Pocket Calendar (Continued)

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

For your convenience, please tear out and carry with you. Easily folds to nest within your badge holder. *(Calendar as of January 2; private events are not listed.)*

Monday March 11

Events are listed alphabetically by the event start time.

Events at the Henry B. Gonzalez Convention Center are noted as CC.

6:15 AM to 7:45 AM
SOT Mentoring Breakfast *(Reservations Required)*
Grand Hyatt Bowie

6:30 AM to 8:00 AM
Carcinogenesis Specialty Section Officers Meeting
CC Room 006

6:30 AM to 8:00 AM
Clinical and Translational Toxicology Specialty Section Officers Meeting
CC Room 006

6:30 AM to 8:00 AM
Dermal Toxicology Specialty Section Officers Meeting
CC Room 006

6:30 AM to 8:00 AM
Food Safety Specialty Section Officers Meeting
CC Room 006

6:30 AM to 8:00 AM
In Vitro and Alternative Methods Specialty Section Officers Meeting
CC Room 006

6:30 AM to 8:00 AM
Mechanisms Specialty Section Officers Meeting
CC Room 006

6:30 AM to 8:00 AM
Medical Device Specialty Section Officers Meeting
CC Room 006

6:30 AM to 8:00 AM
Molecular Biology Specialty Section Officers Meeting
CC Room 213 A

6:30 AM to 8:00 AM
Neurotoxicology Specialty Section Officers Meeting
CC Room 006

6:30 AM to 8:00 AM
Past Presidents Breakfast
CC Room 203

6:30 AM to 8:00 AM
Regulatory and Safety Evaluation Specialty Section Officers Meeting
CC Room 006

6:30 AM to 8:00 AM
Reproductive and Developmental Toxicology Specialty Section Officers Meeting
CC Room 215

6:30 AM to 8:00 AM
Risk Assessment Specialty Section Officers Meeting
CC Room 006

6:30 AM to 7:45 AM
Toxicologic and Exploratory Pathology Specialty Section Officers Meeting
Grand Hyatt Travis A

7:00 AM to 6:00 PM
@SOT Center—Internet Access and Technology Training
CC East Registration

7:00 AM to 8:00 AM
Central States Regional Chapter Meeting
Marriott Rivercenter Sazo's Restaurant

7:00 AM to 6:00 PM
Coat/Luggage Check
CC East Registration

7:00 AM to 5:00 PM
Registration
CC Bridge Hall

7:00 AM to 7:45 AM
Scientific Program Committee Walk-Through
CC Grand Ballroom C3

7:00 AM to 5:00 PM
SOT Office
CC Room 202

7:00 AM to 5:00 PM
Speaker Ready Room
CC Room 211

7:30 AM to 9:30 AM
Concession Stands
CC Concourse Level

7:30 AM to 9:30 AM
Poster Set Up *(See Poster Board Surface Maps on Pages 122–123)*
CC Exhibit Hall C–D

8:00 AM to 5:00 PM
Guest/Spouse Hospitality Room
Grand Hyatt Presidio C

8:00 AM to 5:00 PM
Housing Desk
CC Bridge Hall

8:00 AM to 9:00 AM
Plenary Opening Lecture: Genetic Analysis of Innate Immune Sensing, *Lecturer: Bruce A. Beutler, University of Texas Southwestern Medical Center*
CC Exhibit Hall A

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

9:00 AM to 10:00 AM
Complimentary Coffee
CC Exhibit Hall C–D

9:00 AM to 11:00 AM
Global Collaboration Coffee
CC Room 203

9:00 AM to 5:00 PM
Job Bank Center
CC Room 007 D

9:00 AM to 4:30 PM
SOT Pavilion
CC Exhibit Hall C

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

9:00 AM to 4:30 PM
Wi-Fi Lounges *(Wireless Internet Access)*
CC Exhibit Hall C–D

9:15 AM to 10:15 AM
Exhibitor/Sponsor-Hosted Session: ChanTest Corp.
(See Pages 43–45 for Details)
CC Room 007 B

9:15 AM to 10:15 AM
Exhibitor/Sponsor-Hosted Session: Covance
(See Pages 43–45 for Details)
CC Room 007 C

9:15 AM to 10:15 AM
Exhibitor/Sponsor-Hosted Session: MPI Research
(See Pages 43–45 for Details)
CC Room 007 A

9:15 AM to 12:00 Noon
Scientific Sessions
CC *(See Session Index on Pages 113–119 or Mobile Event App for Room Locations)*

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

9:30 AM to 10:50 AM
Undergraduate Education Program: Poster Session for Visiting Students
CC Exhibit Hall C–D

10:00 AM to 11:00 AM
Trainee Discussion with Plenary Lecturer: Dr. Beutler
(Ticket Required; SOT Student and Postdoctoral members only, limited seating)
CC Room 209

10:30 AM to 11:30 AM
Exhibitor/Sponsor-Hosted Session: Harlan Laboratories
(See Pages 43–45 for Details)
CC Room 007 B

10:30 AM to 11:30 AM
Exhibitor/Sponsor-Hosted Session: Huntingdon Life Sciences
(See Pages 43–45 for Details)
CC Room 007 C

10:30 AM to 11:30 AM
Exhibitor/Sponsor-Hosted Session: *In Vitro* ADMET Laboratories
(See Pages 43–45 for Details)
CC Room 007 A

11:00 AM to 12:00 Noon
CME Task Force Meeting
CC Room 218

11:00 AM to 12:30 PM
Global Gallery of Toxicology Poster Session—Representative Attended
CC Bridge Hall

11:00 AM to 11:50 AM
Undergraduate Education Program: Program Recognitions and Conclusion
CC Room 204

11:30 AM to 2:30 PM
Communications Committee Meeting
CC Room 208

11:45 AM to 12:45 PM
Exhibitor/Sponsor-Hosted Session: Battelle
(See Pages 43–45 for Details)
CC Room 007 C

11:45 AM to 12:45 PM
Exhibitor/Sponsor-Hosted Session: Celsis *In Vitro* Technologies
(See Pages 43–45 for Details)
CC Room 007 A

11:45 AM to 12:45 PM
Exhibitor/Sponsor-Hosted Session: Sigma Life Science
(See Pages 43–45 for Details)
CC Room 007 B

12:00 Noon to 1:30 PM
Continuing Education Committee Meeting
CC Room 215

12:00 Noon to 2:00 PM
HESI Lunch Seminar *(Registration Required)*
Grand Hyatt Lone Star Ballroom B

12:00 Noon to 1:20 PM
In Vitro Toxicology Lecture and Luncheon for Students *(Ticket Required), Lecturer: Hisham Hamadeh, Amgen, Inc.*
CC Room 006

12:00 Noon to 2:00 PM
Mid-Atlantic Regional Chapter Luncheon
Rita's on the River

12:00 Noon to 1:30 PM
Special Interest Group Collaboration Group Meeting
CC Room 203 A

12:00 Noon to 1:30 PM
Toxicologic and Exploratory Pathology Specialty Section Meeting/Luncheon
CC Room 216

12:00 Noon to 2:00 PM
Toxicology and Applied Pharmacology Associate Editor Board Meeting
Marriott Riverwalk Alamo Ballroom E

12:10 PM to 1:30 PM
Scientific Sessions
CC *(See Session Index on Pages 113–119 or Mobile Event App for Room Locations)*

12:30 PM to 1:20 PM
Merit Award Lecture: Bioactivation, Covalent Binding, and Toxicity: A Personal Odyssey, *Lecturer: Frederick Peter Guengerich, Vanderbilt University Medical Center*
CC Grand Ballroom C2

12:30 PM to 1:00 PM
Poster Set Up *(See Poster Board Surface Maps on Pages 124–125)*
CC Exhibit Hall C–D

1:00 PM to 2:00 PM
Exhibitor/Sponsor-Hosted Session: ACEA Biosciences, Inc.
(See Pages 43–45 for Details)
CC Room 007 B

1:00 PM to 2:00 PM
Exhibitor/Sponsor-Hosted Session: BioReliance Corporation
(See Pages 43–45 for Details)
CC Room 007 A

1:00 PM to 2:00 PM
Exhibitor/Sponsor-Hosted Session: QIAGEN
(See Pages 43–45 for Details)
CC Room 007 C

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

1:00 PM to 3:30 PM
Special Symposium: Meet the Directors
(See Page 169 for Details)
CC Grand Ballroom C1

1:45 PM to 3:45 PM
Postdoctoral Assembly Workshop: Tools for Bringing Creativity into Your Scientific Research
CC Room 212

2:00 PM to 4:45 PM
Scientific Sessions
CC *(See Session Index on Pages 113–119 or Mobile Event App for Room Locations)*

2:00 PM to 3:00 PM
ToxLearn Work Group
CC Room 203 B

2:15 PM to 3:15 PM
Exhibitor/Sponsor-Hosted Session: Charles River
(See Pages 43–45 for Details)
CC Room 007 A

2:15 PM to 3:15 PM
Exhibitor/Sponsor-Hosted Session: Chemical Solutions Ltd.
(See Pages 43–45 for Details)
CC Room 007 C

2:15 PM to 3:15 PM
Exhibitor/Sponsor-Hosted Session: Phylonix
(See Pages 43–45 for Details)
CC Room 007 B

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

3:00 PM to 4:15 PM
Big 5 Meeting *(By Invitation Only)*
CC Room 203 A

3:00 PM to 4:00 PM
Specialty Section Collaboration and Communication Group Meeting
CC Room 215

3:15 PM to 4:45 PM
Government Liaison Groups Collaboration Meeting
CC Room 204

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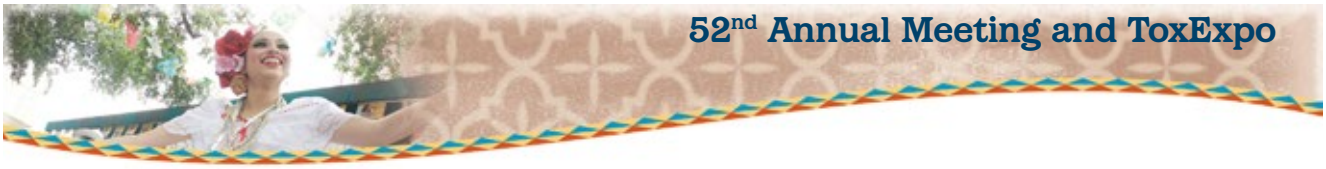

Daily Pocket Calendar (Continued)

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Monday (Continued) — March 11

3:30 PM to 4:30 PM
Exhibitor/Sponsor-Hosted Session: Ellegaard Göttingen Minipigs and Marshall BioResources
(See Pages 43–45 for Details)
CC Room 007 B

3:30 PM to 4:30 PM
Exhibitor/Sponsor-Hosted Session: Litron Laboratories
(See Pages 43–45 for Details)
CC Room 007 A

3:30 PM to 4:30 PM
Exhibitor/Sponsor-Hosted Session: Tandem Labs
(See Pages 43–45 for Details)
CC Room 007 C

4:30 PM to 6:00 PM
American Board of Toxicology Open Mixer
Grand Hyatt Texas Ballroom C

4:30 PM to 5:30 PM
Regional K–12 Outreach Contacts Meeting
CC Room 213 A

4:30 PM to 6:30 PM
Roundtable of Toxicology Consultants Business Meeting
Grand Hyatt Republic

4:45 PM to 6:30 PM
Korean Toxicologists Association in America Special Interest Group Annual Meeting
Marriott Rivercenter Grand Ballroom D

4:45 PM to 6:00 PM
SOT/EUROTOX Debate: In the Near Foreseeable Future, Much of Toxicity Testing Can Be Replaced by Computational Approaches, *SOT Debater: Rory B. Conolly, US EPA, and EUROTOX Debater: George Loizou, Health and Safety Laboratory*
CC Grand Ballroom C1

5:00 PM to 6:00 PM
American Association of Chinese in Toxicology Special Interest Group Distinguished Chinese Toxicologist Lectureship Award and Seminar: Application of Biomarkers: Bridging Toxicology and Disease Prevention, *Lecturer: Jia-Sheng Wang, University of Georgia*
Grand Hyatt Texas Ballroom D

5:00 PM to 7:00 PM
Elsevier Editorial Board Member Reception
Marriott Riverwalk Riverview Room

5:00 PM to 7:00 PM
Lake Ontario Regional Chapter Mixer
The Wine Cellar

5:00 PM to 6:30 PM
Michigan and Allegheny-Erie Regional Chapter Joint Reception
Marriott Rivercenter, Conference Room 17

5:30 PM to 6:30 PM
Comparative and Veterinary Specialty Section Officers Meeting
Grand Hyatt Travis D

5:30 PM to 7:00 PM
Purdue University Alumni Reception
Grand Hyatt Bonham D

6:00 PM to 9:00 PM
American Association of Chinese in Toxicology Special Interest Group Meeting/Reception
Grand Hyatt Texas Ballroom D

6:00 PM to 7:30 PM
Biotechnology Specialty Section Meeting/Reception
Grand Hyatt Lone Star Ballroom A

6:00 PM to 7:30 PM
Cardiovascular Toxicology Specialty Section Meeting/Reception
Grand Hyatt Lone Star Ballroom B

6:00 PM to 7:30 PM
Clinical and Translational Toxicology Specialty Section Meeting/Reception
Grand Hyatt Bowie A

6:00 PM to 7:30 PM
Dermal Toxicology Specialty Section Meeting/Reception
Grand Hyatt Presidio B

6:00 PM to 7:30 PM
Ethical, Legal, and Social Issues Specialty Section Meeting/Reception
Grand Hyatt Bowie B

6:00 PM to 9:00 PM
National Capital Area and North Carolina Regional Chapters Joint Reception
Spanish Governors Palace

6:00 PM to 7:30 PM
Reproductive and Developmental Toxicology Specialty Section Meeting/Reception
Grand Hyatt Texas Ballroom A

6:00 PM to 8:00 PM
Southeastern Regional Chapter Reception
Casa Rio Restaurant

6:00 PM to 7:30 PM
Stem Cells Specialty Section Meeting/Reception
Grand Hyatt Bonham C

6:00 PM to 7:30 PM
Toxicologists of African Origin Special Interest Group Annual Reception
Hilton Palacio del Rio La Vista A

6:30 PM to 9:00 PM
MPI Research Event: Got Science?
Hilton Salon del Rey

7:00 PM to 9:00 PM
Association of Scientists of Indian Origin Special Interest Group Meeting/Reception
Grand Hyatt Lone Star Ballroom F

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

Scientific Program Overview by Day & Time

Monday — March 11

8:00 AM to 9:00 AM

PLENARY OPENING LECTURE

Genetic Analysis of Innate Immune Sensing
Lecturer: Bruce A. Beutler, University of Texas Southwestern Medical Center (Exhibit Hall A)

9:15 AM to 12:00 Noon

SYMPOSIUM SESSIONS

- **Genetic and Epigenetic Determinants of Susceptibility to Environmental and Occupational Toxicants** (Grand Ballroom C1)
- **Predictive Toxicology Paradigms for Understanding Carbon Nanotube Toxicity in the Lung** (Room 214 A&B)
- **Translatable Indicators of Testicular Toxicity: Inhibin B, microRNAs, and Sperm Signatures** (Room 214 C&D)

WORKSHOP SESSIONS

- Biology of Low-Dose Response for DNA-Reactive Chemicals (Room 217 A&B)
- **Incorporation of Exposure Data and Chemical Properties into Early *In Vitro* Screening Studies: Putting Early Hazard Identification into Appropriate Context** (Grand Ballroom C3)
- **Inhaled Mixtures: A Mode-of-Action Framework Applied to the Criteria Air Pollutants** (Grand Ballroom C2)

REGIONAL INTEREST SESSION

- Toxicological Challenges in Food Production in Texas and the Gulf Coast (Room 217 C&D)

PLATFORM SESSIONS

- Advances in Neurobehavioral and Neuropathology Assessment of Chemicals (Room 205)
- Inhalants and Metabolic Disorders (Room 207)

9:30 AM to 12:30 PM

POSTER SESSIONS

(Exhibit Hall C–D—*See Poster Board Surface Map on Pages 122–123*)

- Bioinformatics and Computational Toxicology: Systems and Strategies
- Biotransformation/Cytochrome P450
- Carcinogenesis
- Cardiovascular Toxicity: Telemetry and *In Vitro* Systems
- **Chemical and Biological Weapons**
- Developmental Toxicity—Nonmammalian
- Ecotoxicology
- Endocrine Disruptor Screening
- Inflammation and Disease
- Inhalants and Cardiopulmonary
- Medical Devices
- Pharmacogenomics/Genetic Polymorphisms

12:10 PM to 1:30 PM

ROUNDTABLE SESSIONS

- **A Decade of Nanotoxicology: Where Do We Stand Now?** (Room 207)
- **Predicting Human Thorough QT (TQT) Study Outcomes with Nonclinical Data—How Good Are We and How Good Do We Need to Be?** (Room 214 A&B)

HISTORICAL HIGHLIGHT SESSION

- Diesel and Gasoline Exhaust and Cancer (Room 206)

EDUCATION-CAREER DEVELOPMENT SESSION

- From New Submissions to Competitive Renewals: Different Phases of Grant Writing (Room 214 C&D)

12:30 PM to 1:20 PM

MERIT AWARD LECTURE

Bioactivation, Covalent Binding, and Toxicity: A Personal Odyssey
Lecturer: Frederick Peter Guengerich, Vanderbilt University Medical Center (Grand Ballroom C2)

1:00 PM to 3:30 PM

SPECIAL SYMPOSIUM

Meet the Directors (Grand Ballroom C1)

1:00 PM to 4:30 PM

POSTER SESSIONS

(Exhibit Hall C–D—*See Poster Board Surface Map on Pages 124–125*)

- Animal Models of Disease
- Animal Models—Measurements and Validation
- Biological Modeling: Target Tissues and Toxicants
- Chemical Mixtures
- Epidemiology: Exposures and Associations
- Epigenetics
- Gene Expression and Signal Transduction
- Immunotoxicity
- Liver
- Nanotoxicology—Carbonaceous Materials
- Pesticide Toxicology
- Pharmacokinetics and Disposition
- Risk Assessment I: Advances in Approaches and Technologies
- Systems Biology and Toxicology

2:00 PM to 4:45 PM

SYMPOSIUM SESSIONS

- Human Health and Environmental Concerns around Natural Gas Production Using Hydraulic Fracturing (Grand Ballroom C2)
- **Role of Metabolic Syndrome and Perivascular Adipose in Exposure-Induced Vascular Dysfunction** (Grand Ballroom C3)

WORKSHOP SESSIONS

- Environmental Factors in Neurodegenerative Diseases (Room 217 C&D)
- Life-Course Models for Ensuring Children's Health Protection (Room 214 A&B)
- **NanoInformatics: Computational Challenges for Nanomaterial Hazard Assessment** (Room 217 A&B)
- **Scientific and Regulatory Advances in Genetic Toxicology Safety Assessment** (Room 214 C&D)

PLATFORM SESSIONS

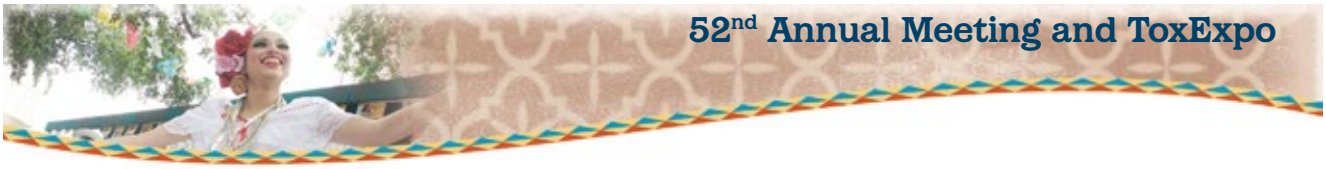
- Biomonitoring: Emerging Markers and Methods (Room 206)
- Mode of Action and Human Relevance of Rodent Tumors (Room 205)
- Toxicity of Nanoparticles—Cerium Oxide (Room 207)

4:45 PM to 6:00 PM

SOT/EUROTOX DEBATE

In the Near Foreseeable Future, Much of Toxicity Testing Can Be Replaced by Computational Approaches (Grand Ballroom C1)

Tear out page for a convenient daily calendar



Daily Pocket Calendar (Continued)

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

For your convenience, please tear out and carry with you. Easily folds to nest within your badge holder. *(Calendar as of January 2; private events are not listed.)*

Tuesday — March 12

Events are listed alphabetically by the event start time.

Events at the Henry B. Gonzalez Convention Center are noted as CC.

6:30 AM to 8:00 AM
Past Presidents' 5k Fun Run/Walk
Hemisfair Park *(Adjacent to CC)*

6:30 AM to 8:00 AM
Stem Cells Specialty Section Officers Meeting
CC Room 213 A

6:45 AM to 7:45 AM
Graduate Student Leadership Committee Meeting
CC Room 204

6:45 AM to 7:45 AM
Postdoctoral Assembly Board Meeting
CC Room 213 B

7:00 AM to 8:00 AM
Awards Committee Meeting
CC Room 203 B

7:00 AM to 6:00 PM
Coat/Luggage Check
CC East Registration

7:00 AM to 8:30 AM
Disease Prevention Task Force Meeting
CC Room 215

7:00 AM to 8:30 AM
Education Committee Meeting
CC Room 218

7:00 AM to 8:00 AM
Research Funding Committee Meeting
CC Room 208

7:00 AM to 4:30 PM
SOT Office
CC Room 202

7:00 AM to 4:30 PM
Speaker Ready Room
CC Room 211

7:30 AM to 9:30 AM
Concession Stands
CC Concourse Level

7:30 AM to 9:00 AM
Poster Set Up *(See Poster Board Surface Maps on Pages 126–127)*
CC Exhibit Hall C–D

7:45 AM to 9:00 AM
American Association of Chinese in Toxicology/Korean Toxicologists Association in America Special Interest Groups Career Development Workshop
Grand Hyatt Lone Star Ballroom C

8:00 AM to 6:00 PM
@SOT Center—Internet Access and Technology Training
CC East Registration

8:00 AM to 4:30 PM
Concession Stands
CC Exhibit Hall C–D

8:00 AM to 5:00 PM
Guest/Spouse Hospitality Room
Grand Hyatt Presidio C

8:00 AM to 8:50 AM
Leading Edge in Basic Science Award Lecture: Human Organs on Chips As Replacements for Animal Testing, *Lecturer: Donald E. Ingber, Harvard University*
CC Grand Ballroom C2

8:00 AM to 11:00 AM
Housing Desk
CC Bridge Hall

8:00 AM to 4:00 PM
Registration
CC Bridge Hall

8:30 AM to 9:30 AM
Exhibitor/Sponsor-Hosted Session: Promega Corporation
(See Pages 43–45 for Details)
CC Room 007 A

8:30 AM to 9:30 AM
Exhibitor/Sponsor-Hosted Session: Vet Path Services, Inc.
(See Pages 43–45 for Details)
CC Room 007 C

8:30 AM to 9:30 AM
Exhibitor/Sponsor-Hosted Session: WIL Research
(See Pages 43–45 for Details)
CC Room 007 B

8:30 AM to 5:00 PM
Job Bank Center
CC Room 007 D

8:30 AM to 4:30 PM
SOT Pavilion
CC Exhibit Hall C

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

8:30 AM to 4:30 PM
Wi-Fi Lounges *(Wireless Internet Access)*
CC Exhibit Hall C–D

9:00 AM to 10:30 AM
Audit Committee Meeting
CC Room 203 A

9:00 AM to 10:00 AM
Complimentary Coffee
CC Exhibit Hall C–D

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

9:00 AM to 11:45 AM
Scientific Sessions
CC *(See Session Index on Pages 113–119 or Mobile Event App for Room Locations)*

9:00 AM to 11:45 AM
Special Symposium: Frontiers for Toxicology Session: Systems and Computational Biology As Foundations for Toxicology Research
(See Page 206 for Details)
CC Grand Ballroom C1

9:30 AM to 4:30 PM
Research Funding Information Room
CC Room 209

9:45 AM to 10:45 AM
Exhibitor/Sponsor-Hosted Session: Charles River
(See Pages 43–45 for Details)
CC Room 007 A

9:45 AM to 10:45 AM
Exhibitor/Sponsor-Hosted Session: Huntingdon Life Sciences
(See Pages 43–45 for Details)
CC Room 007 C

9:45 AM to 10:45 AM
Exhibitor/Sponsor-Hosted Session: MPI Research
(See Pages 43–45 for Details)
CC Room 007 B

10:30 AM to 2:30 PM
High School Poster Exposition
CC Exhibit Hall C *(Adjacent to SOT Pavilion)*

11:00 AM to 12:00 Noon
Exhibitor/Sponsor-Hosted Session: Fraunhofer ITEM
(See Pages 43–45 for Details)
CC Room 007 C

11:00 AM to 12:00 Noon
Exhibitor/Sponsor-Hosted Session: PointCross Life Sciences
(See Pages 43–45 for Details)
CC Room 007 B

11:00 AM to 12:00 Noon
Exhibitor/Sponsor-Hosted Session: SNBL USA, Ltd.
(See Pages 43–45 for Details)
CC Room 007 A

11:30 AM to 1:15 PM
K–12 Subcommittee Meeting
CC Room 208

11:30 AM to 12:30 PM
ToxExpo Exhibit Hall Council Walk-Through
CC Exhibit Hall C–D

11:45 AM to 1:30 PM
Toxicology Letters Editorial Board Meeting
Marriott Riverwalk Alamo Ballroom E

12:00 Noon to 1:30 PM
Association of Scientists of Indian Origin Special Interest Group Lunch and Learn
Grand Hyatt Presidio B

12:00 Noon to 1:30 PM
Comparative and Veterinary Specialty Section Meeting/Luncheon
CC Room 216 A

12:00 Noon to 1:30 PM
In Vitro and Alternative Methods Specialty Section Meeting/Luncheon
CC Room 204

12:00 Noon to 1:30 PM
Networking Time
(See Page 233 for Details)

12:00 Noon to 1:30 PM
Northeast Regional Chapter Student Luncheon
Grand Hyatt Republic B

12:00 Noon to 1:15 PM
Postdoctoral Assembly Luncheon
(Ticket Required)
CC Room 006 C

12:00 Noon to 1:30 PM
Strategies for Submitting Successful Grants: Brown Bag Luncheon
CC Room 212

12:15 PM to 1:15 PM
Exhibitor/Sponsor-Hosted Session: Applied Biophysics, Inc.
(See Pages 43–45 for Details)
CC Room 007 C

12:15 PM to 1:15 PM
Exhibitor/Sponsor-Hosted Session: Data Sciences International
(See Pages 43–45 for Details)
CC Room 007 B

12:15 PM to 1:15 PM
Exhibitor/Sponsor-Hosted Session: XenoBiotic Laboratories
(See Pages 43–45 for Details)
CC Room 007 A

12:30 PM to 1:30 PM
Endowment Fund Board Meeting
CC Room 215

12:30 PM to 1:00 PM
Poster Set Up *(See Poster Board Surface Maps on Pages 128–129)*
CC Exhibit Hall C–D

12:30 PM to 1:30 PM
ToxExpo Time!
(See Page 234 for Details)
CC Exhibit Hall C–D

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

1:30 PM to 2:30 PM
Exhibitor/Sponsor-Hosted Session: Bio-Rad Laboratories
(See Pages 43–45 for Details)
CC Room 007 C

1:30 PM to 2:30 PM
Exhibitor/Sponsor-Hosted Session: Cellectis Stem Cells
(See Pages 43–45 for Details)
CC Room 007 A

1:30 PM to 2:30 PM
Exhibitor/Sponsor-Hosted Session: L'Oréal Research and Innovation
(See Pages 43–45 for Details)
CC Room 007 B

1:30 PM to 4:15 PM
Scientific Sessions
CC *(See Session Index on Pages 113–119 or Mobile Event App for Room Locations)*

2:15 PM to 2:45 PM
Undergraduate Subcommittee Meeting
CC Room 203 B

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

2:45 PM to 3:45 PM
Exhibitor/Sponsor-Hosted Session: Hepregen Corporation
(See Pages 43–45 for Details)
CC Room 007 C

2:45 PM to 3:45 PM
Exhibitor/Sponsor-Hosted Session: Marshall BioResources and Ellegaard Göttingen Minipigs
(See Pages 43–45 for Details)
CC Room 007 A

2:45 PM to 3:45 PM
Exhibitor/Sponsor-Hosted Session: National Toxicology Program
(See Pages 43–45 for Details)
CC Room 007 B

3:00 PM to 4:15 PM
Undergraduate Educator Network Meeting
CC Room 203 A

4:30 PM to 6:00 PM
Lone Star and South Central Regional Chapters Mixer
Pat O'Brien's Restaurant

4:30 PM to 6:30 PM
Midwest and Northland Regional Chapters Mixer
Blue Star Brewing Company

4:30 PM to 5:50 PM
Scientific Sessions *(Sunset)*
CC *(See Session Index on Pages 113–119 or Mobile Event App for Room Locations)*

4:30 PM to 6:00 PM
SOT Annual Business Meeting
(All Members Invited)
CC Grand Ballroom C1

4:30 PM to 6:30 PM
Women in Toxicology Special Interest Group Meeting/Reception
Marriott Riverwalk Alamo Ballroom C

4:45 PM to 6:00 PM
ToxExpo 2014 Exhibit Space Selection Process
(See Pages 43–45 for Details)
CC Room 007 C

5:00 PM to 6:00 PM
International Neurotoxicology Association Meeting
Grand Hyatt Seguin

5:30 PM to 8:30 PM
PointCross Life Sciences Reception
(By Invitation Only)
TBD

6:00 PM to 7:30 PM
Biological Modeling Specialty Section Meeting/Reception
Grand Hyatt Republic B

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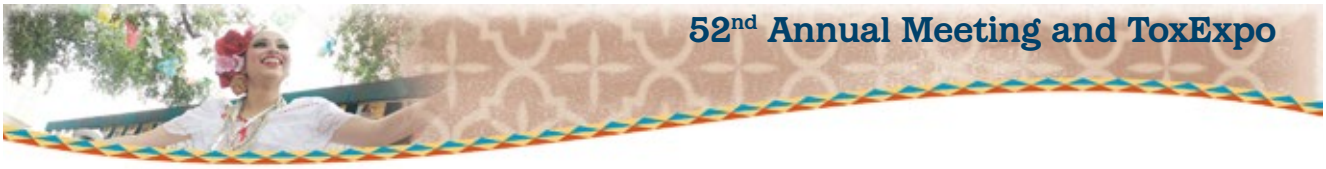

Daily Pocket Calendar (Continued)

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Tuesday (Continued) — March 12

6:00 PM to 7:30 PM
Drug Discovery Toxicology Specialty Section Meeting/Reception
Grand Hyatt Lone Star Ballroom B

6:00 PM to 7:30 PM
Immunotoxicology Specialty Section Meeting/Reception
Grand Hyatt Texas Ballroom C

6:00 PM to 7:30 PM
Inhalation and Respiratory Specialty Section Meeting/Reception
Grand Hyatt Lone Star Ballroom C

6:00 PM to 7:30 PM
Mechanisms Specialty Section Meeting/Reception
Grand Hyatt Lone Star Ballroom A

6:00 PM to 7:30 PM
Mixtures Specialty Section Meeting/Reception
Grand Hyatt Bowie

6:00 PM to 7:30 PM
Neurotoxicology Specialty Section Meeting/Reception
Grand Hyatt Lone Star Ballroom F

6:00 PM to 7:00 PM
Regulatory and Safety Evaluation Specialty Section Meeting/Reception
Grand Hyatt Texas Ballroom A

6:00 PM to 7:30 PM
Risk Assessment Specialty Section Meeting/Reception
Grand Hyatt Texas Ballroom D

6:30 PM to 8:00 PM
Kettering Reception, University of Cincinnati
Grand Hyatt Presidio A

7:00 PM to 10:00 PM
Northern California Regional Chapter Reception
Zinc Bistro & Bar

7:00 PM to 7:30 PM
Regulatory and Safety Evaluation Specialty Section Great Debate: Any Potential Endocrine Effect due to Xenobiotic Exposure Should Be Used in Human or Environmental Risk Assessments *(All Attendees Invited)*
Grand Hyatt Texas Ballroom A

7:00 PM to 9:00 PM
University of Texas at Austin College of Pharmacy Alumni Reception
Grand Hyatt Texas Ballroom F

7:30 PM to 9:00 PM
Tox ShowDown *(All Attendees Invited)*
Marriott Riverwalk Alamo Ballroom D

7:30 PM to 10:00 PM
University of Rochester Alumni Reception
Grand Hyatt Travis A

9:00 PM to 11:00 PM
Michigan State University Environmental Toxicology Reception
Grand Hyatt Seguin

9:00 PM to 11:00 PM
Rutgers University Joint Graduate Program in Toxicology Dessert Reception
Grand Hyatt Presidio B

Scientific Program Overview by Day & Time

Tuesday — March 12

8:00 AM to 8:50 AM

LEADING EDGE IN BASIC SCIENCE AWARD LECTURE

Human Organs on Chips As Replacements for Animal Testing, *Lecturer: Donald E. Ingber, Harvard University* (Grand Ballroom C2)

9:00 AM to 11:45 AM

SPECIAL SYMPOSIUM

- **Frontiers for Toxicology Session: Systems and Computational Biology As Foundations for Toxicology Research** (Grand Ballroom C1)

SYMPOSIUM SESSIONS

- **From Inhaled Particles to Cardiovascular Disease and Toxicity: Evidence from Studies in Volunteers, Experimental Animals, and Cell-Based Systems** (Room 214 C&D)
- **The Dynamics of Neuroinflammation and Inflammatory Cell Responses in Neurologic Disease** (Room 217 C&D)

WORKSHOP SESSIONS

- **Advances in Carcinogenic Risk Assessment of Low-Level Genotoxic Impurities in Pharmaceuticals** (Room 206)
- Health Risks of Sodium (Salt) Intake: Too Much or Too Little? (Room 214 A&B)
- Unique Challenges in Biologic Drug Development: Separating Mechanism of Action from Mechanism of Toxicity (Room 217 A&B)

9:00 AM to 12:30 PM

POSTER SESSIONS

(Exhibit Hall C–D—*See Poster Board Surface Map on Pages 126–127*)

- Alternative Models—Eye and Skin
- Biomarkers I: Preclinical and Translational Approaches
- Carcinogenesis: Models and Mechanisms
- Cardiovascular Toxicity and Hemodynamics
- Computational Toxicology: Liver and Life Stage Characterizations
- Data Integration and Decision Support: Databases, Tools, and Ontologies
- Developmental Basis of Adult Disease
- Developmental Toxicity
- Liver and Model Systems
- Metals I
- Neurotoxicology: General
- Skin

9:30 AM to 4:30 PM

RESEARCH FUNDING SESSION

Research Funding Information Room (Room 209)

12:00 Noon to 1:30 PM

RESEARCH FUNDING SESSION

Strategies for Submitting Successful Grants: Brown Bag Luncheon (Room 212)

1:00 PM to 4:30 PM

POSTER SESSIONS

(Exhibit Hall C–D—*See Poster Board Surface Map on Pages 128–129*)

- Alternative High-Throughput Models I
- Autoimmunity and Hypersensitivity
- Developmental Neurotoxicity
- Exposure Assessment: New Characterizations, Methods, and Models
- Genotoxicity Testing
- Metals II
- Nanotoxicology—Silver and Gold
- Natural Products—*In Vivo* Safety Assessment
- Neurotoxicology: Pesticides
- Pharmaceutical Safety Assessment: Drug Development II
- Receptor-Mediated Toxicity
- Regulatory Policy: Programs and Approaches
- Safety Assessment: Nonpharmaceuticals
- **Stems Cells: Emerging Applications in Toxicology**

1:30 PM to 4:15 PM

SYMPOSIUM SESSIONS

- **Application of Systems Biology to Identify Molecular Mechanisms and Biomarkers of Lead (Pb) Neurotoxicity: Implications in a Developmental Origin of Alzheimer's Disease** (Grand Ballroom C3)
- Bone As a Target Tissue for Environmental Toxicants (Room 207)
- **Nonmonotonic Dose-Response Curves and Endocrine-Disrupting Chemicals: Fact or Falderal?** (Grand Ballroom C2)
- **Understanding Toxicities of Abnormal Lipid Metabolism: Alcoholic, Nonalcoholic, and Toxicant-Induced Fatty Liver Disease** (Room 217 A&B)

WORKSHOP SESSIONS

- **"Air"-ing on the Side of Caution: Anticipating Impacts of Emerging Issues in the Health Effects of Air Pollution** (Room 217 C&D)
- **Breaking the Routine: Is There Room for Modern Techniques of Neuropathology Assessment in Routine Preclinical Safety Studies?** (Room 214 C&D)
- **Drug Safety Assessment and Regulatory Landscape in Emerging Markets** (Room 214 A&B)

PLATFORM SESSION

- Bioinformatics: Pathways, Profiles, and Predictions (Room 206)

4:30 PM to 5:50 PM

EDUCATION-CAREER DEVELOPMENT SESSION

- The Symbiosis of Mentoring: Getting the Most out of the Mentor-Mentee Relationship (Room 214 A&B)

4:30 PM to 6:00 PM

SPECIAL MEMBER SESSION

SOT Annual Business Meeting (Grand Ballroom C1)

Tear out page for a convenient daily calendar

Daily Pocket Calendar (Continued)

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Wednesday — March 13

Events are listed alphabetically by the event start time.

Events at the Henry B. Gonzalez Convention Center are noted as CC.

6:00 AM to 7:30 AM
Academy of Toxicological Sciences Board of Directors Meeting
Grand Hyatt Bowie C

7:00 AM to 6:00 PM
Coat/Luggage Check
CC East Registration

7:00 AM to 8:30 AM
Committee on Diversity Initiatives Meeting
CC Room 208

7:00 AM to 8:00 AM
Contemporary Concepts in Toxicology Conference Committee Meeting
CC Room 216 B

7:00 AM to 8:30 AM
Graduate Student Leadership Committee Executive Board Meeting
CC Room 215

7:00 AM to 4:30 PM
SOT Office
CC Room 202

7:00 AM to 4:30 PM
Speaker Ready Room
CC Room 211

7:00 AM to 8:00 AM
ToXchange Task Force Meeting
CC Room 216 A

7:30 AM to 9:30 AM
Concession Stands
CC Concourse Level

7:30 AM to 9:00 AM
Poster Set Up *(See Poster Board Surface Maps on Pages 130–131)*
CC Exhibit Hall C–D

8:00 AM to 6:00 PM
@SOT Center—Internet Access and Technology Training
CC East Registration

8:00 AM to 4:30 PM
Concession Stands
CC Exhibit Hall C–D

8:00 AM to 5:00 PM
Guest/Spouse Hospitality Room
Grand Hyatt Presidio C

8:00 AM to 9:00 AM
Keynote Medical Research Council (MRC) Lecture: Phenotyping the Patient Journey: Making Systems Medicine Work in the Real World, *Lecturer: Jeremy K. Nicholson, Imperial College London*
CC Grand Ballroom C1

8:00 AM to 4:00 PM
Registration
CC Bridge Hall

8:30 AM to 5:00 PM
Job Bank Center
CC Room 007 D

8:30 AM to 4:30 PM
SOT Pavilion
CC Exhibit Hall C

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

8:30 AM to 4:30 PM
Wi-Fi Lounges *(Wireless Internet Access)*
CC Exhibit Hall C–D

9:00 AM to 10:00 AM
Complimentary Coffee
CC Exhibit Hall C–D

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

9:00 AM to 11:45 AM
Scientific Sessions
CC *(See Session Index on Pages 113–119 or Mobile Event App for Room Locations)*

9:00 AM to 10:30 AM
TRTF Meeting IUTOX *(By Invitation Only)*
CC Room 216 B

9:15 AM to 10:15 AM
Exhibitor/Sponsor-Hosted Session: Charles River
(See Pages 43–45 for Details)
CC Room 007 A

9:15 AM to 10:15 AM
Exhibitor/Sponsor-Hosted Session: Covance
(See Pages 43–45 for Details)
CC Room 007 B

9:15 AM to 10:15 AM
Exhibitor/Sponsor-Hosted Session: Thermo Scientific
(See Pages 43–45 for Details)
CC Room 007 C

9:30 AM to 4:30 PM
Research Funding Information Room
CC Room 209

10:00 AM to 11:30 AM
Board of Publications Meeting
CC Room 203 B

10:00 AM to 11:00 AM
Trainee Discussion with Medical Research Council (MRC) Lecturer: Prof. Nicholson
(Ticket Required; SOT Student and Postdoctoral members only, limited seating)
CC Room 216 A

10:30 AM to 11:30 AM
Exhibitor/Sponsor-Hosted Session: Huntingdon Life Sciences
(See Pages 43–45 for Details)
CC Room 007 A

10:30 AM to 11:30 AM
Exhibitor/Sponsor-Hosted Session: Ingenuity Systems
(See Pages 43–45 for Details)
CC Room 007 C

10:30 AM to 11:30 AM
Exhibitor/Sponsor-Hosted Session: Stemina Biomarker Discovery, Inc.
(See Pages 43–45 for Details)
CC Room 007 B

10:30 AM to 2:30 PM
High School Poster Exposition
CC Exhibit Hall C *(Adjacent to SOT Pavilion)*

11:30 AM to 1:30 PM
Finance Committee Meeting
CC Room 203 A

11:30 AM to 1:00 PM
Membership Committee Meeting
CC Room 208

11:45 AM to 12:45 PM
Exhibitor/Sponsor-Hosted Session: Aptuit
(See Pages 43–45 for Details)
CC Room 007 B

11:45 AM to 12:45 PM
Exhibitor/Sponsor-Hosted Session: emka TECHNOLOGIES, Inc.
(See Pages 43–45 for Details)
CC Room 007 C

11:45 AM to 12:45 PM
Exhibitor/Sponsor-Hosted Session: Exiqon, Inc.
(See Pages 43–45 for Details)
CC Room 007 A

11:45 AM to 1:30 PM
Toxicology Editorial Board Meeting
Marriott Riverwalk Alamo Ballroom E

12:00 Noon to 1:30 PM
Medical Device Specialty Section Meeting/Luncheon
CC Room 212

12:00 Noon to 1:30 PM
Occupational and Public Health Specialty Section Meeting/Luncheon
CC Room 213

12:00 Noon to 1:30 PM
Regional Chapter Collaboration and Communications Committee Meeting
CC Room 215

12:00 Noon to 1:20 PM
Scientific Sessions
CC *(See Session Index on Pages 113–119 or Mobile Event App for Room Locations)*

12:30 PM to 1:20 PM
Distinguished Toxicology Scholar Award Lecture: Mitochondria: Crossroads of Cell Survival, Death, and Transformation, *Lecturer: John J. Lemasters, Medical University of South Carolina*
CC Grand Ballroom C2

12:30 PM to 1:00 PM
Poster Set Up *(See Poster Board Surface Maps on Pages 132–133)*
CC Exhibit Hall C–D

1:00 PM to 2:00 PM
Exhibitor/Sponsor-Hosted Session: Cellular Dynamics International
(See Pages 43–45 for Details)
CC Room 007 B

1:00 PM to 2:00 PM
Exhibitor/Sponsor-Hosted Session: Oxford University Press
(See Pages 43–45 for Details)
CC Room 007 A

1:00 PM to 2:00 PM
Exhibitor/Sponsor-Hosted Session: Thomson Reuters
(See Pages 43–45 for Details)
CC Room 007 C

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

1:30 PM to 4:15 PM
Scientific Sessions
CC *(See Session Index on Pages 113–119 or Mobile Event App for Room Locations)*

2:00 PM to 4:00 PM
ToxExpo Liaison Working Group
CC Room 208

2:00 PM to 4:00 PM
Tri-Service Toxicology Consortium
Grand Hyatt Presidio B

2:15 PM to 3:15 PM
Exhibitor/Sponsor-Hosted Session: InSphero AG
(See Pages 43–45 for Details)
CC Room 007 C

2:15 PM to 3:15 PM
Exhibitor/Sponsor-Hosted Session: Integrated Laboratory Systems, Inc.
(See Pages 43–45 for Details)
CC Room 007 B

2:15 PM to 3:15 PM
Exhibitor/Sponsor-Hosted Session: MPI Research
(See Pages 43–45 for Details)
CC Room 007 A

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

3:30 PM to 4:300 PM
Exhibitor/Sponsor-Hosted Session: NanoSight
(See Pages 43–45 for Details)
CC Room 007 A

3:30 PM to 4:300 PM
Exhibitor/Sponsor-Hosted Session: Pharmaron, Inc.
(See Pages 43–45 for Details)
CC Room 007 B

4:00 PM to 5:00 PM
Undergraduate Student Meeting
(All Undergraduate Students Invited)
CC Room 215

4:30 PM to 5:50 PM
Scientific Sessions *(Sunset)*
CC *(See Session Index on Pages 113–119 or Mobile Event App for Room Locations)*

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

5:00 PM to 6:00 PM
Nanotoxicology Specialty Section Officers Meeting
Grand Hyatt Texas Ballroom C

6:00 PM to 7:30 PM
Carcinogenesis Specialty Section Meeting/Reception
Grand Hyatt Texas Ballroom A

6:00 PM to 7:30 PM
Food Safety Specialty Section Meeting/Reception
Grand Hyatt Seguin

6:00 PM to 7:30 PM
Metals Specialty Section Meeting/Reception
Grand Hyatt Texas Ballroom B

6:00 PM to 7:30 PM
Molecular Biology Specialty Section Meeting/Reception
Grand Hyatt Texas Ballroom F

6:00 PM to 7:30 PM
Nanotoxicology Specialty Section Meeting/Reception
Grand Hyatt Texas Ballroom C

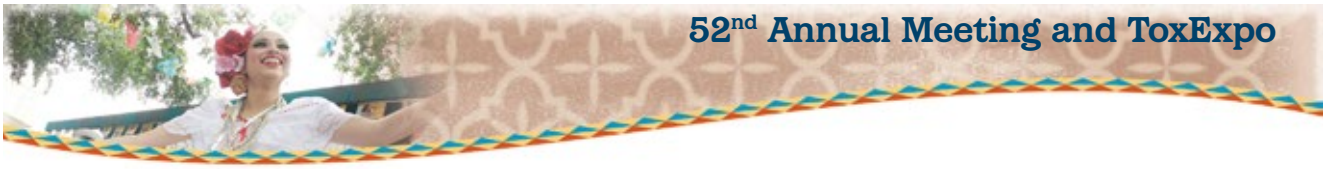
6:00 PM to 7:30 PM
Ocular Toxicology Specialty Section Meeting/Reception
Grand Hyatt Republic B

7:00 PM to 8:30 PM
President's Reception *(By Invitation Only)*
Grand Hyatt Lone Star Ballroom B

8:00 PM to 10:00 PM
Academy of Toxicological Sciences Reception
Grand Hyatt Lone Star Ballroom F

Continued on next page

Tear out page for a convenient daily calendar



Daily Pocket Calendar (Continued)

Scientific Program Overview by Day & Time

For your convenience, please tear out and carry with you. Easily folds to nest within your badge holder. *(Calendar as of January 2; private events are not listed.)*

Wednesday — March 13

8:00 AM to 9:00 AM

KEYNOTE MEDICAL RESEARCH COUNCIL (MRC) LECTURE

Phenotyping the Patient Journey: Making Systems Medicine Work in the Real World
Lecturer: Jeremy K. Nicholson, Imperial College London (Grand Ballroom C1)

9:00 AM to 11:45 AM

SYMPOSIUM SESSIONS

- **Role of Systems Biology in Characterizing Risk of Developmental Origins of Disease** (Grand Ballroom C2)
- **Toxicoepigenomics, Disease Susceptibility, and Implications for Risk Assessment** (Grand Ballroom C3)

WORKSHOP SESSIONS

- Dietary Arsenic—Forms, Hazards, and Risks (Room 217 C&D)
- **Pulmonomics, the Exposome, and Microbiomes in Immunotoxicology** (Room 214 C&D)
- **Standard and Nonstandard Animal Models for Evaluation of Drug Abuse Potential for Pharmaceutical Compounds with Novel Mechanisms** (Room 217 A&B)
- The Placenta in Toxicology: Target or Travel Agent? (Room 214 A&B)

INFORMATIONAL SESSIONS

- K–12 Toxicology Outreach Activities: Regional Chapter Successes and Resources (Room 206)
- **The Regulatory Framework for Cosmetics: Current Status, Recent Science, and Future Prospects** (Room 207)

PLATFORM SESSION

- Validation and Application of Neurotoxicology *In Vitro* Methods (Room 205)

9:00 AM to 12:30 PM

POSTER SESSIONS

(Exhibit Hall C–D—*See Poster Board Surface Map on Pages 130–131*)

- **Biomarkers II: Preclinical and Translational Approaches**
- Cell Death/Apoptosis
- **Children's Health and Juvenile Toxicity**
- Endocrine Toxicology
- Genetic Toxicology and DNA Repair
- Manganism, Parkinson's, and Other Neurodegenerative Diseases
- Nanotoxicology—*In Vitro*
- Natural Products—*In Vitro*
- Oxidative Injury and Redox Biology
- Persistent Organic Pollutants
- Pharmaceutical Safety Assessment: Drug Development I
- Risk Assessment II: Critical Considerations and Characterizations

9:30 AM to 4:30 PM

RESEARCH FUNDING SESSION

Research Funding Information Room (Room 209)

12:00 Noon to 1:20 PM

ROUNDTABLE SESSION

- Skeptically Examining the Limits of Toxicology Evidence in the Courtroom (Room 214 A&B)

INFORMATIONAL SESSION

- **Harnessing Electronic Standards and Informatics to Transform the Use of Regulatory Toxicological Data** (Room 217 A&B)

EDUCATION-CAREER DEVELOPMENT SESSION

- **Regulatory Science and Risk Assessment: Lessons for Early-Career Scientists on What to Expect and How to Pursue This Career Path** (Room 214 C&D)

12:30 PM to 1:20 PM

DISTINGUISHED TOXICOLOGY SCHOLAR AWARD

Mitochondria: Crossroads of Cell Survival, Death, and Transformation
Lecturer: John J. Lemasters, Medical University of South Carolina (Grand Ballroom C2)

1:00 PM to 4:30 PM

POSTER SESSIONS

(Exhibit Hall C–D—*See Poster Board Surface Map on Pages 132–133*)

- Alternative High-Throughput Models II
- Arsenic
- **Clinical and Translational Toxicology**
- Food Safety and Nutrition
- Immunotoxicity Methods
- Immunotoxicity—Biochemical/Molecular
- Inflammation: Methods and Mechanisms
- Kidney
- Male Reproductive Toxicology
- Metal Neurotoxicity: Methylmercury, Lead, Aluminum, and Iron
- Nanotoxicology—*In Vivo*
- Pharmaceutical Safety Assessment: Drug Discovery
- Reproductive Toxicity
- Risk Assessment III: New Derivations and Updated Estimates
- Toxicology Education

1:30 PM to 4:15 PM

SYMPOSIUM SESSIONS

- **Biomarkers of Disease and Toxicity: Exploiting the Interconnections** (Grand Ballroom C3)
- Mechanistic Role(s) of Cytochrome(s) P450 in Oxidative Stress and Inflammation: New Opportunities for Drug Discovery (Room 214 C&D)
- **Molecular Basis of Age-Related Susceptibility to Chemicals and Environmental Hazards: From Model Systems to Humans** (Grand Ballroom C1)

WORKSHOP SESSIONS

- **Challenging the Limits of Nonclinical Safety Assessment of Pediatric Medicines** (Room 217 A&B)
- **Nanotoxicology: Computational Strategies, Advances, and Challenges** (Room 214 A&B)
- **Toxicogenomics in Risk and Safety Assessment: Recent Advances and Continuing Challenges** (Room 217 C&D)

REGIONAL INTEREST SESSION

- Assessment of Environmental, Dietary, and Biological Risk Factors Impacting Liver Cancer Incidence in Texas (Grand Ballroom C2)

PLATFORM SESSIONS

- New and Integrated Approaches for Genetic Toxicity Evaluation (Room 207)
- New Insights into Organophosphate-Induced Neurotoxicity: Pathology, Mode of Action, Modulation, and Protection (Room 205)
- Risk Analysis: Refining Predictions and Systematic Approaches (Room 206)

4:30 PM to 5:50 PM

ROUNDTABLE SESSION

- Nonhuman Primate Sexual Maturity: What Is the Capacity to Endure Uncertainty? (Room 207)

INFORMATIONAL SESSION

- **Regulatory-Based Nanotoxicology: Evolving National Strategies and Research to Address Engineered Nanomaterial Health Risk Assessments** (Room 217 A&B)

LATE-BREAKING INFORMATIONAL SESSION

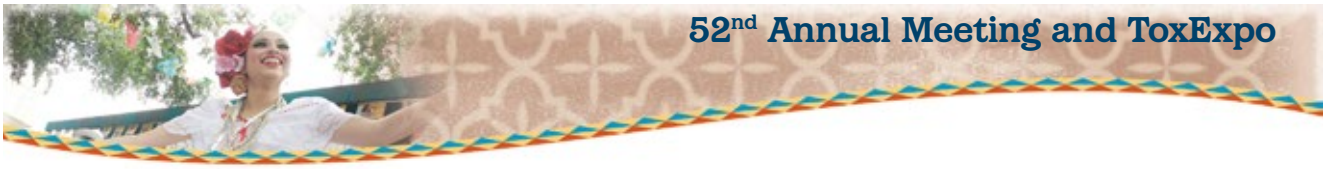
- Exposure Science in the 21st Century: Perspectives from the NAS and What It Means for Toxicology (Room 214 A&B)

EDUCATION-CAREER DEVELOPMENT SESSION

- Toxicological Writing for Industrial and Regulatory Audiences (Room 214 C&D)

Notes

Tear out page for a convenient daily calendar



Daily Pocket Calendar (Continued)

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For your convenience, please tear out and carry with you. Easily folds to nest within your badge holder. *(Calendar as of January 2; private events are not listed.)*

Thursday — March 14

Events are listed alphabetically by the event start time.

Events at the Henry B. Gonzalez Convention Center are noted as CC.

7:00 AM to 12:00 Noon
Coat/Luggage Check
CC East Registration

7:00 AM to 8:30 AM
Poster Set Up *(See Poster Board Surface Maps on Page 134)*
CC Exhibit Hall A

7:00 AM to 12:00 Noon
SOT Office
CC Room 202

7:00 AM to 11:30 AM
Speaker Ready Room
CC Room 211

7:30 AM to 12:00 Noon
Concession Stands
CC Concourse Level

8:00 AM to 12:00 Noon
@SOT Center—Internet Access and Technology Training
CC East Registration

8:00 AM to 10:00 AM
Guest/Spouse Hospitality Room
Grand Hyatt Presidio C

8:00 AM to 12:00 Noon
Registration
CC Bridge Hall

8:30 AM to 12:00 Noon
Poster Session: Late-Breaking
CC Exhibit Hall A

9:00 AM to 11:45 AM
Scientific Sessions
CC *(See Session Index on Pages 113–119 or Mobile Event App for Room Locations)*

12:00 Noon to 1:30 PM
Scientific Program Committee Meeting
CC Room 203 A

12:00 Noon to 2:00 PM
National Center for Toxicological Research Meeting
Grand Hyatt Bowie A

12:30 PM to 4:00 PM
Satellite Meeting: Presented by Johns Hopkins Center for Alternatives to Animal Testing—Updates on 21st Century Toxicology Activities and Related Efforts: Invited Presentations and Open Microphone
(All SOT Attendees Welcome)
Grand Hyatt Presidio

View the Late-Breaking Abstracts using the Mobile Event App or download a PDF of all the accepted Late-Breaking Abstracts being presented on Thursday March 14.

Scan Me!

Scientific Program Overview by Day & Time

Thursday — March 14

8:30 AM to 12:00 Noon

POSTER SESSION

(Exhibit Hall A—*See Poster Board Surface Map on Page 134*)

- Late-Breaking Poster Session
  Late-Breaking Abstracts accepted for presentation were not available for this publication. These abstracts are available through the mobile event app, the event website, or the separate printed supplement.

9:00 AM to 11:45 AM

SYMPOSIUM SESSIONS

- **From Immunotoxicity to Nanotherapy: The Effects of Nanomaterials on the Immune System** (Grand Ballroom C2)
- **Modeling Human Genetic Variability and Susceptibility in the Laboratory** (Room 217 C&D)
- **Role of Air Pollution As a Risk Factor for Central Nervous System Diseases and Disorders** (Room 214 C&D)
- Translational Methods to Assess the Safety of Natural Health Products, Including Traditional Medicines and Dietary Supplements (Room 205)

WORKSHOP SESSIONS

- **Are We Like Rodents, Rabbits, or Something Else? Mechanisms of Developmental and Reproductive Toxicity across Species** (Room 206)
- **Cumulative Risk: Toxicity and Interactions of Physical and Chemical Stressors** (Room 217 A&B)
- **Mechanistic, Occupational, and Clinical Aspects of Lead Exposure** (Room 214 A&B)
- Ocular Medical Devices and Ocular Drug Delivery Systems: Challenges and Opportunities (Room 207)

Home Members Member CVs Blogs Communities

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

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

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

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

Scan Me!

Tear out page for a convenient daily calendar

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 to scientists throughout the world, especially in developing countries.

SOT Global Initiatives include:

Discounted SOT Membership for Scientists from Developing Countries*—Dues of $50, which includes one free membership in one Special Interest Group and one Specialty Section, and many other perks.

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 Senior Scholar toxicologists working in two developing countries and hosts from academia, government, or industry from developed countries.

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

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

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

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

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

Global Gallery of Toxicology

Celebrate Toxicology Globally

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

The Global Gallery is located in the Registration area in Bridge Hall.

Please see details on page 53.

Schedule by Event Name

Tired of carrying the *Program* during the meeting? Access the real-time schedule via the *event mobile app* or *online event website*. *(Schedule as of January 2; private events are not listed.)*

Event:	Date:	Time:	Location:	Room:
@SOT Center—Internet Access and Technology Training	Saturday, Mar 9	4:00 PM to 7:00 PM	Convention Center	East Registration
@SOT Center—Internet Access and Technology Training	Sunday, Mar 10	7:00 AM to 6:00 PM	Convention Center	East Registration
@SOT Center—Internet Access and Technology Training	Monday, Mar 11	7:00 AM to 6:00 PM	Convention Center	East Registration
@SOT Center—Internet Access and Technology Training	Tuesday, Mar 12	8:00 AM to 6:00 PM	Convention Center	East Registration
@SOT Center—Internet Access and Technology Training	Wednesday, Mar 13	8:00 AM to 6:00 PM	Convention Center	East Registration
@SOT Center—Internet Access and Technology Training	Thursday, Mar 14	8:00 AM to 12:00 Noon	Convention Center	East Registration
25-Year (Or More) Member Reception *(By Invitation Only)*	Sunday, Mar 10	7:00 PM to 8:00 PM	Convention Center	Lonesome Dove
A				
Academy of Toxicological Sciences Board of Directors Meeting	Wednesday, Mar 13	6:00 AM to 7:30 AM	Grand Hyatt	Bowie C
Academy of Toxicological Sciences Reception	Wednesday, Mar 13	8:00 PM to 10:00 PM	Grand Hyatt	Lone Star Ballroom F
American Association of Chinese in Toxicology Special Interest Group Meeting/Reception	Monday, Mar 11	6:00 PM to 9:00 PM	Grand Hyatt	Texas Ballroom D
American Association of Chinese in Toxicology Special Interest Group Distinguished Chinese Toxicologist Lectureship Award and Seminar: Application of Biomarkers: Bridging Toxicology and Disease Prevention, *Lecturer: Jia-Sheng Wang, University of Georgia*	Monday, Mar 11	5:00 PM to 6:00 PM	Grand Hyatt	Texas Ballroom D
American Association of Chinese in Toxicology/Korean Toxicologists Association in America Special Interest Groups Career Development Workshop	Tuesday, Mar 12	7:45 AM to 9:00 AM	Grand Hyatt	Lone Star Ballroom C
American Board of Toxicology Board of Directors Meeting	Saturday, Mar 9	12:00 Noon to 6:00 PM	Grand Hyatt	Bowie C
American Board of Toxicology Open Mixer	Monday, Mar 11	4:30 PM to 6:00 PM	Grand Hyatt	Texas Ballroom C
Arizona Night	Sunday, Mar 10	7:30 PM to 10:30 PM	Marriott Riverwalk	Alamo Ballroom E
Association of Scientists of Indian Origin Special Interest Group Lunch and Learn	Tuesday, Mar 12	12:00 Noon to 1:30 PM	Grand Hyatt	Presidio B
Association of Scientists of Indian Origin Special Interest Group Meeting/Reception	Monday, Mar 11	7:00 PM to 9:00 PM	Grand Hyatt	Lone Star Ballroom F
Audit Committee Meeting	Tuesday, Mar 12	9:00 AM to 10:30 AM	Convention Center	Room 203 A
Awards Recipients Photographed	Sunday, Mar 10	4:00 PM to 5:05 PM	Convention Center	Room 204
Awards Ceremony Music—Performed by Galo Gutiérrez Jr. *(All Attendees Welcome)*	Sunday, Mar 10	4:45 PM to 5:15 PM	Convention Center	Grand Ballroom C1
Awards Ceremony *(All Attendees Welcome)*	Sunday, Mar 10	5:15 PM to 6:30 PM	Convention Center	Grand Ballroom C1
Awards Committee Meeting	Tuesday, Mar 12	7:00 AM to 8:00 AM	Convention Center	Room 203 B
B				
Big 5 Meeting *(By Invitation Only)*	Monday, Mar 11	3:00 PM to 4:15 PM	Convention Center	Room 203 A
Biological Modeling Specialty Section Meeting/Reception	Tuesday, Mar 12	6:00 PM to 7:30 PM	Grand Hyatt	Republic B
Biotechnology Specialty Section Meeting/Reception	Monday, Mar 11	6:00 PM to 7:30 PM	Grand Hyatt	Lone Star Ballroom A
Board of Publications Meeting	Wednesday, Mar 13	10:00 AM to 11:30 AM	Convention Center	Room 203 B
C				
Carcinogenesis Specialty Section Meeting/Reception	Wednesday, Mar 13	6:00 PM to 7:30 PM	Grand Hyatt	Texas Ballroom A
Carcinogenesis Specialty Section Officers Meeting	Monday, Mar 11	6:30 AM to 8:00 AM	Convention Center	Room 006
Cardiovascular Toxicology Specialty Section Meeting/Reception	Monday, Mar 11	6:00 PM to 7:30 PM	Grand Hyatt	Lone Star Ballroom B
Career Resource and Development Committee Meeting	Sunday, Mar 10	7:30 AM to 9:30 AM	Convention Center	Room 216 A
CDI Reunion *(Networking and Dessert—Invited: Anyone involved with the SOT Undergraduate Education Program through the years)*	Saturday, Mar 9	8:00 PM to 9:00 PM	Marriott Rivercenter	Grand Ballroom K
Central States Regional Chapter Meeting	Monday, Mar 11	7:00 AM to 8:00 AM	Marriott Rivercenter	Sazo's Restaurant

Schedule by Event Name (Continued)

Tired of carrying the *Program* during the meeting? Access the real-time schedule via the *event mobile app* or *online event website*. *(Schedule as of January 2; private events are not listed.)*

Event:	Date:	Time:	Location:	Room:
Clinical and Translational Toxicology Specialty Section Meeting/Reception	Monday, Mar 11	6:00 PM to 7:30 PM	Grand Hyatt	Bowie A
Clinical and Translational Toxicology Specialty Section Officers Meeting	Monday, Mar 11	6:30 AM to 8:00 AM	Convention Center	Room 006
CME Task Force Meeting	Monday, Mar 11	11:00 AM to 12:00 Noon	Convention Center	Room 218
Coat/Luggage Check	Sunday, Mar 10	8:00 AM to 8:00 PM	Convention Center	East Registration
Coat/Luggage Check	Monday, Mar 11	7:00 AM to 6:00 PM	Convention Center	East Registration
Coat/Luggage Check	Tuesday, Mar 12	7:00 AM to 6:00 PM	Convention Center	East Registration
Coat/Luggage Check	Wednesday, Mar 13	7:00 AM to 6:00 PM	Convention Center	East Registration
Coat/Luggage Check	Thursday, Mar 14	7:00 AM to 12:00 Noon	Convention Center	East Registration
Committee on Diversity Initiatives Meeting	Wednesday, Mar 13	7:00 AM to 8:30 AM	Convention Center	Room 208
Communications Committee Meeting	Monday, Mar 11	11:30 AM to 2:30 PM	Convention Center	Room 208
Comparative and Veterinary Specialty Section Meeting/Luncheon	Tuesday, Mar 12	12:00 Noon to 1:30 PM	Convention Center	Room 216 A
Comparative and Veterinary Specialty Section Officers Meeting	Monday, Mar 11	5:30 PM to 6:30 PM	Grand Hyatt	Travis D
Complimentary Coffee	Monday, Mar 11	9:00 AM to 10:00 AM	Convention Center	Exhibit Hall C–D
Complimentary Coffee	Tuesday, Mar 12	9:00 AM to 10:00 AM	Convention Center	Exhibit Hall C–D
Complimentary Coffee	Wednesday, Mar 13	9:00 AM to 10:00 AM	Convention Center	Exhibit Hall C–D
Complimentary Popcorn and Lemonade	Monday, Mar 11	2:30 PM to 3:30 PM	Convention Center	Exhibit Hall C–D
Complimentary Popcorn and Lemonade	Tuesday, Mar 12	2:30 PM to 3:30 PM	Convention Center	Exhibit Hall C–D
Complimentary Popcorn and Lemonade	Wednesday, Mar 13	2:30 PM to 3:30 PM	Convention Center	Exhibit Hall C–D
Concession Stands	Sunday, Mar 10	7:30 AM to 2:30 PM	Convention Center	Concourse Level
Concession Stands	Monday, Mar 11	7:30 AM to 9:30 AM	Convention Center	Concourse Level
Concession Stands	Monday, Mar 11	8:30 AM to 4:30 PM	Convention Center	Exhibit Hall C–D
Concession Stands	Tuesday, Mar 12	7:30 AM to 9:30 AM	Convention Center	Concourse Level
Concession Stands	Tuesday, Mar 12	8:00 AM to 4:30 PM	Convention Center	Exhibit Hall C–D
Concession Stands	Wednesday, Mar 13	7:30 AM to 9:30 AM	Convention Center	Concourse Level
Concession Stands	Wednesday, Mar 13	8:00 AM to 4:30 PM	Convention Center	Exhibit Hall C–D
Concession Stands	Thursday, Mar 14	7:30 AM to 12:00 Noon	Convention Center	Concourse Level
Congressional Subcommittee Meeting	Sunday, Mar 10	3:00 PM to 5:00 PM	Convention Center	Room 208
Contemporary Concepts in Toxicology Conference Committee Meeting	Wednesday, Mar 13	7:00 AM to 8:00 AM	Convention Center	Room 216 B
Continuing Education Sunrise Mini-Course *(Ticket Required)*	Sunday, Mar 10	7:00 AM to 7:45 AM	Convention Center	***(See Signage or Mobile Event App for Room Location)***
Continuing Education Morning Courses *(Ticket Required)*	Sunday, Mar 10	8:15 AM to 12:00 Noon	Convention Center	***(See Signage or Mobile Event App for Room Location)***
Continuing Education Afternoon Courses *(Ticket Required)*	Sunday, Mar 10	1:15 PM to 5:00 PM	Convention Center	***(See Signage or Mobile Event App for Room Location)***
Continuing Education Committee Meeting	Monday, Mar 11	12:00 Noon to 1:30 PM	Convention Center	Room 215
Continuing Education Committee Walk-Through	Saturday, Mar 9	4:30 PM to 5:15 PM	Convention Center	Grand Ballroom C3
Continuing Education Luncheon for Speakers, Committee, and Student Volunteers *(By Invitation Only)*	Sunday, Mar 10	11:45 AM to 1:15 PM	Convention Center	Room 212
Council Meeting	Saturday, Mar 9	1:00 PM to 5:30 PM	Grand Hyatt	Republic B
Council Members Photographed	Sunday, Mar 10	3:45 PM to 4:00 PM	Convention Center	Room 204
Council Orientation Luncheon	Saturday, Mar 9	11:30 AM to 1:00 PM	Grand Hyatt	Republic A
Council Orientation Meeting	Saturday, Mar 9	8:00 AM to 11:30 AM	Grand Hyatt	Republic B

Schedule by Event Name (Continued)

Tired of carrying the *Program* during the meeting? Access the real-time schedule via the *event mobile app* or *online event website*. *(Schedule as of January 2; private events are not listed.)*

Event:	Date:	Time:	Location:	Room:
D				
Dermal Toxicology Specialty Section Meeting/Reception	Monday, Mar 11	6:00 PM to 7:30 PM	Grand Hyatt	Presidio B
Dermal Toxicology Specialty Section Officers Meeting	Monday, Mar 11	6:30 AM to 8:00 AM	Convention Center	Room 006
Disease Prevention Task Force Meeting	Tuesday, Mar 12	7:00 AM to 8:30 AM	Convention Center	Room 215
Distinguished Toxicology Scholar Award Lecture: Mitochondria: Crossroads of Cell Survival, Death, and Transformation, *Lecturer: John J. Lemasters, Medical University of South Carolina*	Wednesday, Mar 13	12:30 PM to 1:20 PM	Convention Center	Grand Ballroom C2
Drug Discovery Toxicology Specialty Section Meeting/Reception	Tuesday, Mar 12	6:00 PM to 7:30 PM	Grand Hyatt	Lone Star Ballroom B
E				
Education Committee Meeting	Tuesday, Mar 12	7:00 AM to 8:30 AM	Convention Center	Room 218
Elsevier Editorial Board Member Reception	Monday, Mar 11	5:00 PM to 7:00 PM	Marriott Riverwalk	Riverview Room
Endowment Fund Board Meeting	Tuesday, Mar 12	12:30 PM to 1:30 PM	Convention Center	Room 215
Ethical, Legal, and Social Issues Specialty Section Meeting/Reception	Monday, Mar 11	6:00 PM to 7:30 PM	Grand Hyatt	Bowie B
Exhibitor/Sponsor-Hosted Session *(See Pages 43–45 or* **Mobile Event App** *for Details)*				
Exhibitor/Sponsor-Hosted Session: ACEA Biosciences, Inc.	Monday, Mar 11	1:00 PM to 2:00 PM	Convention Center	Room 007 B
Exhibitor/Sponsor-Hosted Session: Applied Biophysics, Inc.	Tuesday, Mar 12	12:15 PM to 1:15 PM	Convention Center	Room 007 C
Exhibitor/Sponsor-Hosted Session: Aptuit	Wednesday, Mar 13	11:45 AM to 12:45 PM	Convention Center	Room 007 B
Exhibitor/Sponsor-Hosted Session: Battelle	Monday, Mar 11	11:45 AM to 12:45 PM	Convention Center	Room 007 C
Exhibitor/Sponsor-Hosted Session: Bio-Rad Laboratories	Tuesday, Mar 12	1:30 PM to 2:30 PM	Convention Center	Room 007 C
Exhibitor/Sponsor-Hosted Session: BioReliance Corporation	Monday, Mar 11	1:00 PM to 2:00 PM	Convention Center	Room 007 A
Exhibitor/Sponsor-Hosted Session: Cellectis Stem Cells	Tuesday, Mar 12	1:30 PM to 2:30 PM	Convention Center	Room 007 A
Exhibitor/Sponsor-Hosted Session: Cellular Dynamics International	Wednesday, Mar 13	1:00 PM to 2:00 PM	Convention Center	Room 007 B
Exhibitor/Sponsor-Hosted Session: Celsis *In Vitro* Technologies	Monday, Mar 11	11:45 AM to 12:45 PM	Convention Center	Room 007 A
Exhibitor/Sponsor-Hosted Session: ChanTest Corp.	Monday, Mar 11	9:15 AM to 10:15 AM	Convention Center	Room 007 B
Exhibitor/Sponsor-Hosted Session: Charles River	Monday, Mar 11	2:15 PM to 3:15 PM	Convention Center	Room 007 A
Exhibitor/Sponsor-Hosted Session: Charles River	Tuesday, Mar 12	9:45 AM to 10:45 AM	Convention Center	Room 007 A
Exhibitor/Sponsor-Hosted Session: Charles River	Wednesday, Mar 13	9:15 AM to 10:15 AM	Convention Center	Room 007 A
Exhibitor/Sponsor-Hosted Session: Chemical Solutions Ltd.	Monday, Mar 11	2:15 PM to 3:15 PM	Convention Center	Room 007 C
Exhibitor/Sponsor-Hosted Session: Covance	Monday, Mar 11	9:15 AM to 10:15 AM	Convention Center	Room 007 C
Exhibitor/Sponsor-Hosted Session: Covance	Wednesday, Mar 13	9:15 AM to 10:15 AM	Convention Center	Room 007 B
Exhibitor/Sponsor-Hosted Session: Data Sciences International	Tuesday, Mar 12	12:15 PM to 1:15 PM	Convention Center	Room 007 B
Exhibitor/Sponsor-Hosted Session: Ellegaard Göttingen Minipigs and Marshall BioResources	Monday, Mar 11	3:30 PM to 4:30 PM	Convention Center	Room 007 B
Exhibitor/Sponsor-Hosted Session: emka TECHNOLOGIES, Inc.	Wednesday, Mar 13	11:45 AM to 12:45 PM	Convention Center	Room 007 C
Exhibitor/Sponsor-Hosted Session: Exiqon, Inc.	Wednesday, Mar 13	11:45 AM to 12:45 PM	Convention Center	Room 007 A
Exhibitor/Sponsor-Hosted Session: Fraunhofer ITEM	Tuesday, Mar 12	11:00 AM to 12:00 Noon	Convention Center	Room 007 C
Exhibitor/Sponsor-Hosted Session: Harlan Laboratories	Monday, Mar 11	10:30 AM to 11:30 AM	Convention Center	Room 007 B
Exhibitor/Sponsor-Hosted Session: Hepregen Corporation	Tuesday, Mar 12	2:45 PM to 3:45 PM	Convention Center	Room 007 C
Exhibitor/Sponsor-Hosted Session: Huntingdon Life Sciences	Monday, Mar 11	10:30 AM to 11:30 AM	Convention Center	Room 007 C
Exhibitor/Sponsor-Hosted Session: Huntingdon Life Sciences	Tuesday, Mar 12	9:45 AM to 10:45 AM	Convention Center	Room 007 C
Exhibitor/Sponsor-Hosted Session: Huntingdon Life Sciences	Wednesday, Mar 13	10:30 AM to 11:30 AM	Convention Center	Room 007 A
Exhibitor/Sponsor-Hosted Session: *In Vitro* ADMET Laboratories	Monday, Mar 11	10:30 AM to 11:30 AM	Convention Center	Room 007 A
Exhibitor/Sponsor-Hosted Session: Ingenuity Systems	Wednesday, Mar 13	10:30 AM to 11:30 AM	Convention Center	Room 007 C
Exhibitor/Sponsor-Hosted Session: InSphero AG	Wednesday, Mar 13	2:15 PM to 3:15 PM	Convention Center	Room 007 C

Schedule by Event Name (Continued)

Tired of carrying the *Program* during the meeting? Access the real-time schedule via the *event mobile app* or *online event website*. *(Schedule as of January 2; private events are not listed.)*

Event:	Date:	Time:	Location:	Room:
Exhibitor/Sponsor-Hosted Session: Integrated Laboratory Systems, Inc.	Wednesday, Mar 13	2:15 PM to 3:15 PM	Convention Center	Room 007 B
Exhibitor/Sponsor-Hosted Session: L'Oréal Research and Innovation	Tuesday, Mar 12	1:30 PM to 2:30 PM	Convention Center	Room 007 B
Exhibitor/Sponsor-Hosted Session: Litron Laboratories	Monday, Mar 11	3:30 PM to 4:30 PM	Convention Center	Room 007 A
Exhibitor/Sponsor-Hosted Session: Marshall BioResources and Ellegaard Göttingen Minipigs	Tuesday, Mar 12	2:45 PM to 3:45 PM	Convention Center	Room 007 A
Exhibitor/Sponsor-Hosted Session: MPI Research	Monday, Mar 11	9:15 AM to 10:15 AM	Convention Center	Room 007 A
Exhibitor/Sponsor-Hosted Session: MPI Research	Tuesday, Mar 12	9:45 AM to 10:45 AM	Convention Center	Room 007 B
Exhibitor/Sponsor-Hosted Session: MPI Research	Wednesday, Mar 13	2:15 PM to 3:15 PM	Convention Center	Room 007 A
Exhibitor/Sponsor-Hosted Session: NanoSight	Wednesday, Mar 13	3:30 PM to 4:30 PM	Convention Center	Room 007 A
Exhibitor/Sponsor-Hosted Session: National Toxicology Program	Tuesday, Mar 12	2:45 PM to 3:45 PM	Convention Center	Room 007 B
Exhibitor/Sponsor-Hosted Session: Oxford University Press	Wednesday, Mar 13	1:00 PM to 2:00 PM	Convention Center	Room 007 A
Exhibitor/Sponsor-Hosted Session: Pharmaron, Inc.	Wednesday, Mar 13	3:30 PM to 4:30 PM	Convention Center	Room 007 B
Exhibitor/Sponsor-Hosted Session: Phylonix	Monday, Mar 11	2:15 PM to 3:15 PM	Convention Center	Room 007 B
Exhibitor/Sponsor-Hosted Session: PointCross Life Sciences	Tuesday, Mar 12	11:00 AM to 12:00 Noon	Convention Center	Room 007 B
Exhibitor/Sponsor-Hosted Session: Promega Corporation	Tuesday, Mar 12	8:30 AM to 9:30 AM	Convention Center	Room 007 A
Exhibitor/Sponsor-Hosted Session: QIAGEN	Monday, Mar 11	1:00 PM to 2:00 PM	Convention Center	Room 007 C
Exhibitor/Sponsor-Hosted Session: Sigma Life Science	Monday, Mar 11	11:45 AM to 12:45 PM	Convention Center	Room 007 B
Exhibitor/Sponsor-Hosted Session: SNBL USA, Ltd.	Tuesday, Mar 12	11:00 AM to 12:00 Noon	Convention Center	Room 007 A
Exhibitor/Sponsor-Hosted Session: Stemina Biomarker Discovery, Inc.	Wednesday, Mar 13	10:30 AM to 11:30 AM	Convention Center	Room 007 B
Exhibitor/Sponsor-Hosted Session: Tandem Labs	Monday, Mar 11	3:30 PM to 4:30 PM	Convention Center	Room 007 C
Exhibitor/Sponsor-Hosted Session: Thermo Scientific	Wednesday, Mar 13	9:15 AM to 10:15 AM	Convention Center	Room 007 C
Exhibitor/Sponsor-Hosted Session: Thomson Reuters	Wednesday, Mar 13	1:00 PM to 2:00 PM	Convention Center	Room 007 C
Exhibitor/Sponsor-Hosted Session: Vet Path Services, Inc.	Tuesday, Mar 12	8:30 AM to 9:30 AM	Convention Center	Room 007 C
Exhibitor/Sponsor-Hosted Session: WIL Research	Tuesday, Mar 12	8:30 AM to 9:30 AM	Convention Center	Room 007 B
Exhibitor/Sponsor-Hosted Session: XenoBiotic Laboratories	Tuesday, Mar 12	12:15 PM to 1:15 PM	Convention Center	Room 007 A
F				
Finance Committee Meeting	Wednesday, Mar 13	11:30 AM to 1:30 PM	Convention Center	Room 203 A
Food Safety Specialty Section Meeting/Reception	Wednesday, Mar 13	6:00 PM to 7:30 PM	Grand Hyatt	Seguin
Food Safety Specialty Section Officers Meeting	Monday, Mar 11	6:30 AM to 8:00 AM	Convention Center	Room 006
G				
Global Collaboration Coffee	Monday, Mar 11	9:00 AM to 11:00 AM	Convention Center	Room 203
Global Gallery of Toxicology Poster Session—Representative Attended	Monday, Mar 11	11:00 AM to 12:30 PM	Convention Center	Bridge Hall
Government Liaison Groups Collaboration Meeting	Monday, Mar 11	3:15 PM to 4:45 PM	Convention Center	Room 204
Graduate Student Leadership Committee Executive Board Meeting	Wednesday, Mar 13	7:00 AM to 8:30 AM	Convention Center	Room 215
Graduate Student Leadership Committee Meeting	Tuesday, Mar 12	6:45 AM to 7:45 AM	Convention Center	Room 204
Guest/Spouse Hospitality Room	Sunday, Mar 10	8:00 AM to 5:00 PM	Grand Hyatt	Presidio C
Guest/Spouse Hospitality Room	Monday, Mar 11	8:00 AM to 5:00 PM	Grand Hyatt	Presidio C
Guest/Spouse Hospitality Room	Tuesday, Mar 12	8:00 AM to 5:00 PM	Grand Hyatt	Presidio C
Guest/Spouse Hospitality Room	Wednesday, Mar 13	8:00 AM to 5:00 PM	Grand Hyatt	Presidio C
Guest/Spouse Hospitality Room	Thursday, Mar 14	8:00 AM to 10:00 AM	Grand Hyatt	Presidio C

Schedule by Event Name (Continued)

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Event:	Date:	Time:	Location:	Room:
H				
HESI Lunch Seminar *(Registration Required)*	Monday, Mar 11	12:00 Noon to 2:00 PM	Grand Hyatt	Lone Star Ballroom B
High School Poster Exposition	Tuesday, Mar 12	10:30 AM to 2:30 PM	Convention Center	Exhibit Hall C–D *(Adjacent to SOT Pavilion)*
High School Poster Exposition	Wednesday, Mar 13	10:30 AM to 2:30 PM	Convention Center	Exhibit Hall C–D *(Adjacent to SOT Pavilion)*
Housing Desk	Saturday, Mar 9	4:00 PM to 7:00 PM	Convention Center	Bridge Hall
Housing Desk	Sunday, Mar 10	8:00 AM to 5:00 PM	Convention Center	Bridge Hall
Housing Desk	Monday, Mar 11	8:00 AM to 5:00 PM	Convention Center	Bridge Hall
Housing Desk	Tuesday, Mar 12	8:00 AM to 11:00 AM	Convention Center	Bridge Hall
I				
Immunotoxicology Specialty Section Meeting/Reception	Tuesday, Mar 12	6:00 PM to 7:30 PM	Grand Hyatt	Texas Ballroom C
Inhalation and Respiratory Specialty Section Meeting/Reception	Tuesday, Mar 12	6:00 PM to 7:30 PM	Grand Hyatt	Lone Star Ballroom C
International Neurotoxicology Association Meeting	Tuesday, Mar 12	5:00 PM to 6:00 PM	Grand Hyatt	Seguin
In Vitro and Alternative Methods Specialty Section Meeting/Luncheon	Tuesday, Mar 12	12:00 Noon to 1:30 PM	Convention Center	Room 204
In Vitro and Alternative Methods Specialty Section Officers Meeting	Monday, Mar 11	6:30 AM to 8:00 AM	Convention Center	Room 006
***In Vitro* Toxicology Lecture and Luncheon for Students** *(Ticket Required)*, *Lecturer: Hisham Hamadeh, Amgen, Inc.*	Monday, Mar 11	12:00 Noon to 1:20 PM	Convention Center	Room 006
J				
Job Bank Center	Sunday, Mar 10	1:00 PM to 5:00 PM	Convention Center	Room 007 D
Job Bank Center	Monday, Mar 11	9:00 AM to 5:00 PM	Convention Center	Room 007 D
Job Bank Center	Tuesday, Mar 12	8:30 AM to 5:00 PM	Convention Center	Room 007 D
Job Bank Center	Wednesday, Mar 13	8:30 AM to 5:00 PM	Convention Center	Room 007 D
Johnson & Johnson Toxicology Interest Group Meeting	Saturday, Mar 9	3:00 PM to 9:00 PM	Grand Hyatt	Bowie A
K				
K–12 Subcommittee Meeting	Tuesday, Mar 12	11:30 AM to 1:15 PM	Convention Center	Room 208
Kettering Reception, University of Cincinnati	Tuesday, Mar 12	6:30 PM to 8:00 PM	Grand Hyatt	Presidio A
Keynote Medical Research Council (MRC) Lecture: Phenotyping the Patient Journey: Making Systems Medicine Work in the Real World, *Lecturer: Jeremy K. Nicholson, Imperial College London*	Wednesday, Mar 13	8:00 AM to 9:00 AM	Convention Center	Grand Ballroom C1
Korean Toxicologists Association in America Special Interest Group Annual Meeting	Monday, Mar 11	4:45 PM to 6:30 PM	Marriott Rivercenter	Grand Ballroom D
L				
Lake Ontario Regional Chapter Mixer	Monday, Mar 11	5:00 PM to 7:00 PM	The Wine Cellar	
Leading Edge in Basic Science Award Lecture: Human Organs on Chips As Replacements for Animal Testing, *Lecturer: Donald E. Ingber, Harvard University*	Tuesday, Mar 12	8:00 AM to 8:50 AM	Convention Center	Grand Ballroom C2
Lone Star and South Central Regional Chapters Mixer	Tuesday, Mar 12	4:30 PM to 6:00 PM	Pat O'Brien's Restaurant	
Lovelace Respiratory Research Institute Reception	Sunday, Mar 10	7:30 PM to 10:30 PM	Grand Hyatt	Bowie B

Schedule by Event Name (Continued)

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Event:	Date:	Time:	Location:	Room:
M				
Mechanisms Specialty Section Meeting/Reception	Tuesday, Mar 12	6:00 PM to 7:30 PM	Grand Hyatt	Lone Star Ballroom A
Mechanisms Specialty Section Officers Meeting	Monday, Mar 11	6:30 AM to 8:00 AM	Convention Center	Room 006
Medical Device Specialty Section Meeting/Luncheon	Wednesday, Mar 13	12:00 Noon to 1:30 PM	Convention Center	Room 212
Medical Device Specialty Section Officers Meeting	Monday, Mar 11	6:30 AM to 8:00 AM	Convention Center	Room 006
Membership Committee Meeting	Wednesday, Mar 13	11:30 AM to 1:00 PM	Convention Center	Room 208
Merit Award Lecture: Bioactivation, Covalent Binding, and Toxicity: A Personal Odyssey, *Lecturer: Frederick Peter Guengerich, Vanderbilt University Medical Center*	Monday, Mar 11	12:30 PM to 1:20 PM	Convention Center	Grand Ballroom C2
Metals Specialty Section Meeting/Reception	Wednesday, Mar 13	6:00 PM to 7:30 PM	Grand Hyatt	Texas Ballroom B
Michigan and Allegheny-Erie Regional Chapter Joint Reception	Monday, Mar 11	5:00 PM to 6:30 PM	Marriott Rivercenter	Conference Room 17
Michigan State University Environmental Toxicology Reception	Tuesday, Mar 12	9:00 PM to 11:00 PM	Grand Hyatt	Seguin
Mid-Atlantic Regional Chapter Luncheon	Monday, Mar 11	12:00 Noon to 2:00 PM	Rita's on the River	
Midwest and Northland Regional Chapters Mixer	Tuesday, Mar 12	4:30 PM to 6:30 PM	Blue Star Brewing Company	
Mixtures Specialty Section Meeting/Reception	Tuesday, Mar 12	6:00 PM to 7:30 PM	Grand Hyatt	Bowie
Molecular Biology Specialty Section Meeting/Reception	Wednesday, Mar 13	6:00 PM to 7:30 PM	Grand Hyatt	Texas Ballroom F
Molecular Biology Specialty Section Officers Meeting	Monday, Mar 11	6:30 AM to 8:00 AM	Convention Center	Room 213 A
MPI Research Event: Got Science?	Monday, Mar 11	6:30 PM to 9:00 PM	Hilton	Salon del Rey
N				
Nanotoxicology Specialty Section Meeting/Reception	Wednesday, Mar 13	6:00 PM to 7:30 PM	Grand Hyatt	Texas Ballroom C
Nanotoxicology Specialty Section Officers Meeting	Wednesday, Mar 13	5:00 PM to 6:00 PM	Grand Hyatt	Texas Ballroom C
National Capital Area and North Carolina Regional Chapters Joint Reception	Monday, Mar 11	6:00 PM to 9:00 PM	Spanish Governors Palace	
National Center for Toxicological Research Meeting	Thursday, March 14	12:00 Noon to 2:00 PM	Grand Hyatt	Bowie A
Networking Time *(See Page 233 for Details)*	Tuesday, Mar 12	12:00 Noon to 1:30 PM	Convention Center	
Neurotoxicology Specialty Section Meeting/Reception	Tuesday, Mar 12	6:00 PM to 7:30 PM	Grand Hyatt	Lone Star Ballroom F
Neurotoxicology Specialty Section Officers Meeting	Monday, Mar 11	6:30 AM to 8:00 AM	Convention Center	Room 006
Northeast Regional Chapter Student Luncheon	Tuesday, Mar 12	12:00 Noon to 1:30 PM	Grand Hyatt	Republic B
Northern California Regional Chapter Reception	Tuesday, Mar 12	7:00 PM to 10:00 PM	Zinc Bistro & Bar	
O				
Occupational and Public Health Specialty Section Meeting/Luncheon	Wednesday, Mar 13	12:00 Noon to 1:30 PM	Convention Center	Room 213
Ocular Toxicology Specialty Section Meeting/Reception	Wednesday, Mar 13	6:00 PM to 7:30 PM	Grand Hyatt	Republic B
P				
Past Presidents Breakfast	Monday, Mar 11	6:30 AM to 8:00 AM	Convention Center	Room 203
Past Presidents' 5k Fun Run/Walk	Tuesday, Mar 12	6:30 AM to 8:00 AM	Hemisfair Park	*(Adjacent to CC)*
Plenary Opening Lecture: Genetic Analysis of Innate Immune Sensing, *Lecturer: Bruce A. Beutler, University of Texas Southwestern Medical Center*	Monday, Mar 11	8:00 AM to 9:00 AM	Convention Center	Exhibit Hall A
PointCross Life Sciences Reception *(By Invitation Only)*	Tuesday, Mar 12	5:30 PM to 8:30 PM	TBD	
Postdoctoral Assembly Board Meeting	Tuesday, Mar 12	6:45 AM to 7:45 AM	Convention Center	Room 213 B
Postdoctoral Assembly Luncheon *(Ticket Required)*	Tuesday, Mar 12	12:00 Noon to 1:15 PM	Convention Center	Room 006 C
Postdoctoral Assembly Workshop: Tools for Bringing Creativity into Your Scientific Research	Monday, Mar 11	1:45 PM to 3:45 PM	Convention Center	Room 212

Schedule by Event Name (Continued)

Tired of carrying the *Program* during the meeting? Access the real-time schedule via the *event mobile app* or *online event website*. *(Schedule as of January 2; private events are not listed.)*

Event:	Date:	Time:	Location:	Room:
Poster Sessions	Monday, Mar 11	9:30 AM to 12:30 PM	Convention Center	Exhibit Hall C–D
Poster Sessions	Monday, Mar 11	1:00 PM to 4:30 PM	Convention Center	Exhibit Hall C–D
Poster Sessions	Tuesday, Mar 12	9:00 AM to 12:30 PM	Convention Center	Exhibit Hall C–D
Poster Sessions	Tuesday, Mar 12	1:00 PM to 4:30 PM	Convention Center	Exhibit Hall C–D
Poster Sessions	Wednesday, Mar 13	9:00 AM to 12:30 PM	Convention Center	Exhibit Hall C–D
Poster Sessions	Wednesday, Mar 13	1:00 PM to 4:30 PM	Convention Center	Exhibit Hall C–D
Poster Session: Late-Breaking	Thursday, Mar 14	8:30 AM to 12:00 Noon	Convention Center	Exhibit Hall A
Poster Set Up *(See Poster Board Surface Maps on Pages 122–123)*	Monday, Mar 11	7:30 AM to 9:30 AM	Convention Center	Exhibit Hall C–D
Poster Set Up *(See Poster Board Surface Maps on Pages 124–125)*	Monday, Mar 11	12:30 PM to 1:00 PM	Convention Center	Exhibit Hall C–D
Poster Set Up *(See Poster Board Surface Maps on Pages 126–127)*	Tuesday, Mar 12	7:30 AM to 9:00 AM	Convention Center	Exhibit Hall C–D
Poster Set Up *(See Poster Board Surface Maps on Pages 128–129)*	Tuesday, Mar 12	12:30 PM to 1:00 PM	Convention Center	Exhibit Hall C–D
Poster Set Up *(See Poster Board Surface Maps on Pages 130–131)*	Wednesday, Mar 13	7:30 AM to 9:00 AM	Convention Center	Exhibit Hall C–D
Poster Set Up *(See Poster Board Surface Maps on Pages 132–133)*	Wednesday, Mar 13	12:30 PM to 1:00 PM	Convention Center	Exhibit Hall C–D
Poster Set Up *(See Poster Board Surface Maps on Page 134)*	Thursday, Mar 14	7:00 AM to 8:30 AM	Convention Center	Exhibit Hall A
President's Reception *(By Invitation Only)*	Wednesday, Mar 13	7:00 PM to 8:30 PM	Grand Hyatt	Lone Star Ballroom B
Purdue University Alumni Reception	Monday, Mar 11	5:30 PM to 7:00 PM	Grand Hyatt	Bonham D
R				
Regional Chapter Collaboration and Communications Committee Meeting	Wednesday, Mar 13	12:00 Noon to 1:30 PM	Convention Center	Room 215
Regional K–12 Outreach Contacts Meeting	Monday, Mar 11	4:30 PM to 5:30 PM	Convention Center	Room 213 A
Registration	Saturday, Mar 9	4:00 PM to 7:00 PM	Convention Center	Bridge Hall
Registration	Sunday, Mar 10	7:00 AM to 8:00 PM	Convention Center	Bridge Hall
Registration	Monday, Mar 11	7:00 AM to 5:00 PM	Convention Center	Bridge Hall
Registration	Tuesday, Mar 12	8:00 AM to 4:00 PM	Convention Center	Bridge Hall
Registration	Wednesday, Mar 13	8:00 AM to 4:00 PM	Convention Center	Bridge Hall
Registration	Thursday, Mar 14	8:00 AM to 12:00 Noon	Convention Center	Bridge Hall
Regulatory and Safety Evaluation Specialty Section Meeting/Reception	Tuesday, Mar 12	6:00 PM to 7:00 PM	Grand Hyatt	Texas Ballroom A
Regulatory and Safety Evaluation Specialty Section Great Debate: Any Potential Endocrine Effect due to Xenobiotic Exposure Should Be Used in Human or Environmental Risk Assessments *(All Attendees Invited)*	Tuesday, Mar 12	7:00 PM to 7:30 PM	Grand Hyatt	Texas Ballroom A
Regulatory and Safety Evaluation Specialty Section Officers Meeting	Monday, Mar 11	6:30 AM to 8:00 AM	Convention Center	Room 006
Reproductive and Developmental Toxicology Specialty Section Meeting/Reception	Monday, Mar 11	6:00 PM to 7:30 PM	Grand Hyatt	Texas Ballroom A
Reproductive and Developmental Toxicology Specialty Section Officers Meeting	Monday, Mar 11	6:30 AM to 8:00 AM	Convention Center	Room 215
Research Funding Committee Meeting	Tuesday, Mar 12	7:00 AM to 8:00 AM	Convention Center	Room 208
Research Funding Information Room	Tuesday, Mar 12	9:30 AM to 4:30 PM	Convention Center	Room 209
Research Funding Information Room	Wednesday, Mar 13	9:30 AM to 4:30 PM	Convention Center	Room 209
Risk Assessment Specialty Section Meeting/Reception	Tuesday, Mar 12	6:00 PM to 7:30 PM	Grand Hyatt	Texas Ballroom D
Risk Assessment Specialty Section Officers Meeting	Monday, Mar 11	6:30 AM to 8:00 AM	Convention Center	Room 006
Roundtable of Toxicology Consultants Business Meeting	Monday, Mar 11	4:30 PM to 6:30 PM	Grand Hyatt	Republic
Rutgers University Joint Graduate Program in Toxicology Dessert Reception	Tuesday, Mar 12	9:00 PM to 11:00 PM	Grand Hyatt	Presidio B

Schedule by Event Name (Continued)

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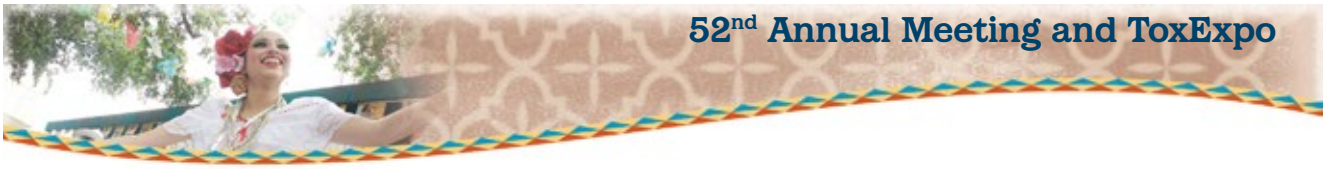
(Schedule as of January 2; private events are not listed.)

Event:	Date:	Time:	Location:	Room:
S				
Satellite Meeting: Presented by Johns Hopkins Center for Alternatives to Animal Testing—Updates on 21st Century Toxicology Activities and Related Efforts: Invited Presentations and Open Microphone *(All SOT Attendees Welcome)*	Thursday, Mar 14	12:30 PM to 4:00 PM	Grand Hyatt	**Presidio**
Scientific Liaison Coalition Meeting	Sunday, Mar 10	8:00 AM to 12:00 Noon	Grand Hyatt	**Travis A**
Scientific Program Committee Meeting	Thursday, Mar 14	12:00 Noon to 1:30 PM	Convention Center	**Room 203 A**
Scientific Program Committee Walk-Through	Monday, Mar 11	7:00 AM to 7:45 AM	Convention Center	**Grand Ballroom C3**
Scientific Sessions	Monday, Mar 11	9:15 AM to 12:00 Noon	Convention Center	***(See Session Index on Pages 113–119 or Mobile Event App for Room Locations)***
Scientific Sessions	Monday, Mar 11	12:10 PM to 1:30 PM	Convention Center	***(See Session Index on Pages 113–119 or Mobile Event App for Room Locations)***
Scientific Sessions	Monday, Mar 11	2:00 PM to 4:45 PM	Convention Center	***(See Session Index on Pages 113–119 or Mobile Event App for Room Locations)***
Scientific Sessions	Tuesday, Mar 12	9:00 AM to 11:45 AM	Convention Center	***(See Session Index on Pages 113–119 or Mobile Event App for Room Locations)***
Scientific Sessions	Tuesday, Mar 12	1:30 PM to 4:15 PM	Convention Center	***(See Session Index on Pages 113–119 or Mobile Event App for Room Locations)***
Scientific Sessions *(Sunset)*	Tuesday, Mar 12	4:30 PM to 5:50 PM	Convention Center	***(See Session Index on Pages 113–119 or Mobile Event App for Room Locations)***
Scientific Sessions	Wednesday, Mar 13	9:00 AM to 11:45 AM	Convention Center	***(See Session Index on Pages 113–119 or Mobile Event App for Room Locations)***
Scientific Sessions	Wednesday, Mar 13	12:00 Noon to 1:20 PM	Convention Center	***(See Session Index on Pages 113–119 or Mobile Event App for Room Locations)***
Scientific Sessions	Wednesday, Mar 13	1:30 PM to 4:15 PM	Convention Center	***(See Session Index on Pages 113–119 or Mobile Event App for Room Locations)***
Scientific Sessions *(Sunset)*	Wednesday, Mar 13	4:30 PM to 5:50 PM	Convention Center	***(See Session Index on Pages 113–119 or Mobile Event App for Room Locations)***
Scientific Sessions	Thursday, Mar 14	9:00 AM to 11:45 AM	Convention Center	***(See Session Index on Pages 113–119 or Mobile Event App for Room Locations)***
SOT Annual Business Meeting *(All Members Invited)*	Tuesday, Mar 12	4:30 PM to 6:00 PM	Convention Center	**Grand Ballroom C1**
SOT Mentoring Breakfast *(Reservations Required)*	Monday, Mar 11	6:15 AM to 7:45 AM	Grand Hyatt	**Bowie**
SOT Office	Saturday, Mar 9	4:00 PM to 7:00 PM	Convention Center	**Room 202**
SOT Office	Sunday, Mar 10	7:00 AM to 5:30 PM	Convention Center	**Room 202**
SOT Office	Monday, Mar 11	7:00 AM to 5:00 PM	Convention Center	**Room 202**

Schedule by Event Name (Continued)

Tired of carrying the *Program* during the meeting? Access the real-time schedule via the *event mobile app* or *online event website*. *(Schedule as of January 2; private events are not listed.)*

Event:	Date:	Time:	Location:	Room:
SOT Office	Tuesday, Mar 12	7:00 AM to 4:30 PM	Convention Center	Room 202
SOT Office	Wednesday, Mar 13	7:00 AM to 4:30 PM	Convention Center	Room 202
SOT Office	Thursday, Mar 14	7:00 AM to 12:00 Noon	Convention Center	Room 202
SOT Pavilion	Monday, Mar 11	9:00 AM to 4:30 PM	Convention Center	Exhibit Hall C
SOT Pavilion	Tuesday, Mar 12	8:30 AM to 4:30 PM	Convention Center	Exhibit Hall C
SOT Pavilion	Wednesday, Mar 13	8:30 AM to 4:30 PM	Convention Center	Exhibit Hall C
SOT/EUROTOX Debate: In the Near Foreseeable Future, Much of Toxicity Testing Can Be Replaced by Computational Approaches, *SOT Debater: Rory B. Conolly, US EPA, and EUROTOX Debater: George Loizou, Health and Safety Laboratory*	Monday, Mar 11	4:45 PM to 6:00 PM	Convention Center	Grand Ballroom C1
Southeastern Regional Chapter Reception	Monday, Mar 11	6:00 PM to 8:00 PM	Casa Rio Restaurant	
Speaker Ready Room	Saturday, Mar 9	4:00 PM to 7:00 PM	Convention Center	Room 211
Speaker Ready Room	Sunday, Mar 10	7:00 AM to 5:30 PM	Convention Center	Room 211
Speaker Ready Room	Monday, Mar 11	7:00 AM to 5:00 PM	Convention Center	Room 211
Speaker Ready Room	Tuesday, Mar 12	7:00 AM to 4:30 PM	Convention Center	Room 211
Speaker Ready Room	Wednesday, Mar 13	7:00 AM to 4:30 PM	Convention Center	Room 211
Speaker Ready Room	Thursday, Mar 14	7:00 AM to 11:30 AM	Convention Center	Room 211
Special Interest Group Collaboration Group Meeting	Monday, Mar 11	12:00 Noon to 1:30 PM	Convention Center	Room 203 A
Special Symposium: Frontiers for Toxicology Session: Systems and Computational Biology As Foundations for Toxicology Research *(See Page 206 for Details)*	Tuesday, Mar 12	9:00 AM to 11:45 AM	Convention Center	Grand Ballroom C1
Special Symposium: Meet the Directors *(See Page 169 for Details)*	Monday, Mar 11	1:00 PM to 3:30 PM	Convention Center	Grand Ballroom C1
Specialty Section Collaboration and Communication Group Meeting	Monday, Mar 11	3:00 PM to 4:00 PM	Convention Center	Room 215
Stem Cells Specialty Section Meeting/Reception	Monday, Mar 11	6:00 PM to 7:30 PM	Grand Hyatt	Bonham C
Stem Cells Specialty Section Officers Meeting	Tuesday, Mar 12	6:30 AM to 8:00 AM	Convention Center	Room 213 A
Strategies for Submitting Successful Grants: Brown Bag Luncheon	Tuesday, Mar 12	12:00 Noon to 1:30 PM	Convention Center	Room 212
Student/Postdoctoral Scholar Mixer *(Ticket Required)*	Sunday, Mar 10	7:30 PM to 9:00 PM	Convention Center	Ballroom A
T				
TERA: OARS WEEL Committee Meeting	Saturday, Mar 9	7:00 AM to 12:00 Noon	Grand Hyatt	Presidio B
Tox ShowDown *(All Attendees Invited)*	Tuesday, Mar 12	7:30 PM to 9:00 PM	Marriott Riverwalk	Alamo Ballroom D
ToXchange Task Force Meeting	Wednesday, Mar 13	7:00 AM to 8:00 AM	Convention Center	Room 216 A
ToxExpo 2014 Exhibit Space Selection Process	Tuesday, Mar 12	4:45 PM to 6:00 PM	Convention Center	Room 007 C
ToxExpo Exhibit Hall Council Walk-Through	Tuesday, Mar 12	11:30 AM to 12:30 PM	Convention Center	Exhibit Hall C–D
ToxExpo Exhibits Open	Monday, Mar 11	9:00 AM to 4:30 PM	Convention Center	Exhibit Hall C–D
ToxExpo Exhibits Open	Tuesday, Mar 12	8:30 AM to 4:30 PM	Convention Center	Exhibit Hall C–D
ToxExpo Exhibits Open	Wednesday, Mar 13	8:30 AM to 4:30 PM	Convention Center	Exhibit Hall C–D
ToxExpo Liaison Working Group	Wednesday, Mar 13	2:00 PM to 4:00 PM	Convention Center	Room 208
ToxExpo Set Up	Saturday, Mar 9	8:00 AM to 5:00 PM	Convention Center	Exhibit Hall C–D
ToxExpo Set Up	Sunday, Mar 10	8:00 AM to 5:00 PM	Convention Center	Exhibit Hall C–D
ToxExpo Tear Down	Wednesday, Mar 13	4:30 PM to 12:00 Midnight	Convention Center	Exhibit Hall C–D
ToxExpo Time! *(See Page 234 for Details)*	Tuesday, Mar 12	12:30 PM to 1:30 PM	Convention Center	Exhibit Hall C–D
Toxicologic and Exploratory Pathology Specialty Section Meeting/Luncheon	Monday, Mar 11	12:00 Noon to 1:30 PM	Convention Center	Room 216
Toxicologic and Exploratory Pathology Specialty Section Officers Meeting	Monday, Mar 11	6:30 AM to 7:45 AM	Grand Hyatt	Travis A
Toxicological Sciences Associate Editors Meeting	Sunday, Mar 10	12:00 Noon to 3:00 PM	Grand Hyatt	Presidio B
Toxicological Sciences/Oxford University Press Appreciation Dinner *(By Invitation Only)*	Monday, Mar 11	7:00 PM to 9:00 PM	Lüke San Antonio	



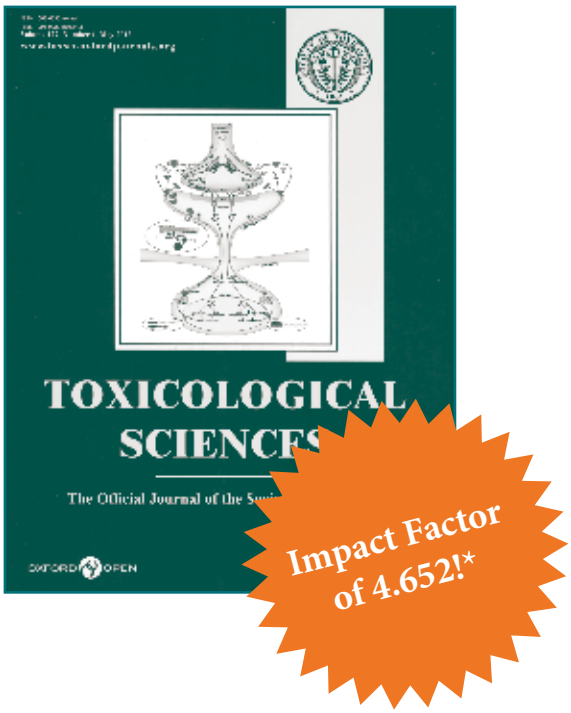
Schedule by Event Name (Continued)

Tired of carrying the *Program* during the meeting? Access the real-time schedule via the *event mobile app* or *online event website*. *(Schedule as of January 2; private events are not listed.)*

Event:	Date:	Time:	Location:	Room:
Toxicologists of African Origin Special Interest Group Annual Reception	Monday, Mar 11	6:00 PM to 7:30 PM	Hilton Palacio del Rio	La Vista A
Toxicology and Applied Pharmacology Associate Editor Board Meeting	Monday, Mar 11	12:00 Noon to 2:00 PM	Marriott Riverwalk	Alamo Ballroom E
Toxicology Editorial Board Meeting	Wednesday, Mar 13	11:45 AM to 1:30 PM	Marriott Riverwalk	Alamo Ballroom E
Toxicology Education Foundation Board of Trustees Meeting	Sunday, Mar 10	8:00 AM to 12:00 Noon	Hilton Palacio del Rio	La Condesa
Toxicology Letters Editorial Board Meeting	Tuesday, Mar 12	11:45 AM to 1:30 PM	Marriott Riverwalk	Alamo Ballroom E
ToxLearn Work Group	Monday, Mar 11	2:00 PM to 3:00 PM	Convention Center	**Room 203 B**
Trainee Discussion with Medical Research Council (MRC) Lecturer: Prof. Nicholson *(Ticket Required; SOT Student and Postdoctoral members only, limited seating)*	Wednesday, Mar 13	10:00 AM to 11:00 AM	Convention Center	**Room 216 A**
Trainee Discussion with Plenary Lecturer: Dr. Beutler *(Ticket Required; SOT Student and Postdoctoral Members only, limited seating)*	Monday, Mar 11	10:00 AM to 11:00 AM	Convention Center	**Room 209**
Tri-Service Toxicology Consortium	Wednesday, Mar 13	2:00 PM to 4:00 PM	Grand Hyatt	**Presidio B**
TRTF Meeting IUTOX *(By Invitation Only)*	Wednesday, Mar 13	9:00 AM to 10:30 AM	Convention Center	**Room 216 B**
U				
Undergraduate Education Program: Orientation for SOT Hosts, Peer Mentors, and Advisors	Saturday, Mar 9	4:15 PM to 5:45 PM	Marriott Rivercenter	Conference Room 1
Undergraduate Education Program: Opening Event *(By Invitation Only)*	Saturday, Mar 9	5:45 PM to 8:00 PM	Marriott Rivercenter	Grand Ballroom K
Undergraduate Education Program: Toxicology Lectures *(Undergraduates Ticket Required)*	Sunday, Mar 10	8:00 AM to 11:30 AM	Marriott Rivercenter	Grand Ballroom J
Undergraduate Education Program: Lunch and Networking *(Undergraduates Ticket Required)*	Sunday, Mar 10	11:45 AM to 12:45 PM	Marriott Rivercenter	Grand Ballroom K
Undergraduate Education Program: Breakout Session Advisors: Tips for Advising Prospective Graduate Students	Sunday, Mar 10	12:45 PM to 1:45 PM	Marriott Rivercenter	Conference Room 1
Undergraduate Education Program: Breakout Session Students: Planning for Graduate School	Sunday, Mar 10	12:45 PM to 1:45 PM	Marriott Rivercenter	Conference Rooms 2–4
Undergraduate Education Program: Career Opportunities in Toxicology *(Speaker: Linda S. Birnbaum, NIEHS and Panel Discussion)*	Sunday, Mar 10	2:00 PM to 3:15 PM	Marriott Rivercenter	Grand Ballroom K
Undergraduate Education Program: Host Mentor and Peer Mentor Meeting	Sunday, Mar 10	3:15 PM to 3:45 PM	Marriott Rivercenter	Conference Room 1
Undergraduate Education Program: Open Time with Academic Program Directors and Internship Sponsors	Sunday, Mar 10	3:15 PM to 5:00 PM	Marriott Rivercenter	Grand Ballroom M
Undergraduate Education Program: Poster Session for Visiting Students	Monday, Mar 11	9:30 AM to 10:50 AM	Convention Center	**Exhibit Hall C–D**
Undergraduate Education Program: Program Recognitions and Conclusion	Monday, Mar 11	11:00 AM to 11:50 AM	Convention Center	**Room 204**
Undergraduate Educator Network Meeting	Tuesday, Mar 12	3:00 PM to 4:15 PM	Convention Center	**Room 203 A**
Undergraduate Student Meeting *(All Undergraduate Students Invited)*	Wednesday, Mar 13	4:00 PM to 5:00 PM	Convention Center	**Room 215**
Undergraduate Subcommittee Meeting	Tuesday, Mar 12	2:15 PM to 2:45 PM	Convention Center	**Room 203 B**
University of Rochester Alumni Reception	Tuesday, Mar 12	7:30 PM to 10:00 PM	Grand Hyatt	**Travis A**
University of Texas at Austin College of Pharmacy Alumni Reception	Tuesday, Mar 12	7:00 PM to 9:00 PM	Grand Hyatt	**Texas Ballroom F**
W				
Welcome Reception *(All Attendees Welcome)*	Sunday, Mar 10	6:30 PM to 7:30 PM	Convention Center	**Exhibit Hall A**
Wi-Fi Lounges *(Wireless Internet Access)*	Monday, Mar 11	9:00 AM to 4:30 PM	Convention Center	**Exhibit Hall C–D**
Wi-Fi Lounges *(Wireless Internet Access)*	Tuesday, Mar 12	8:30 AM to 4:30 PM	Convention Center	**Exhibit Hall C–D**
Wi-Fi Lounges *(Wireless Internet Access)*	Wednesday, Mar 13	8:30 AM to 4:30 PM	Convention Center	**Exhibit Hall C–D**
Women in Toxicology Special Interest Group Meeting/Reception	Tuesday, Mar 12	4:30 PM to 6:30 PM	Marriott Riverwalk	Alamo Ballroom C

The Official Journal of the Society of Toxicology

Toxicological Sciences



- *Premier, hypothesis-driven, original research articles in all areas of toxicology*
- *Advance Access—quick online publication, weeks ahead of print*
- *Optional open access for authors*

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www.toxsci.oxfordjournals.org

* 2011 Journal Citation Reports (Thomson Reuters, 2012)

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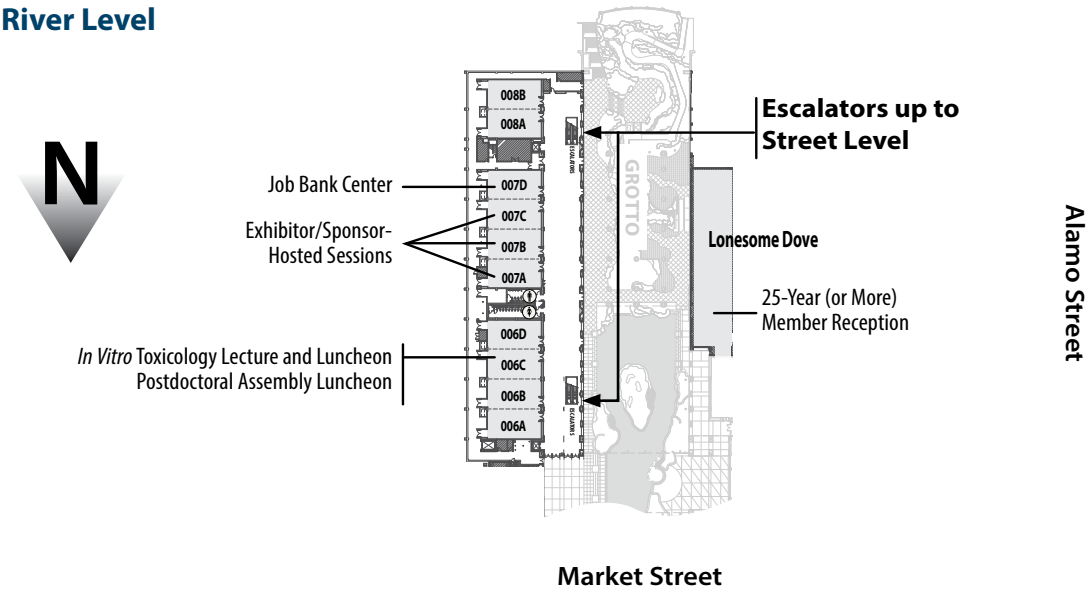
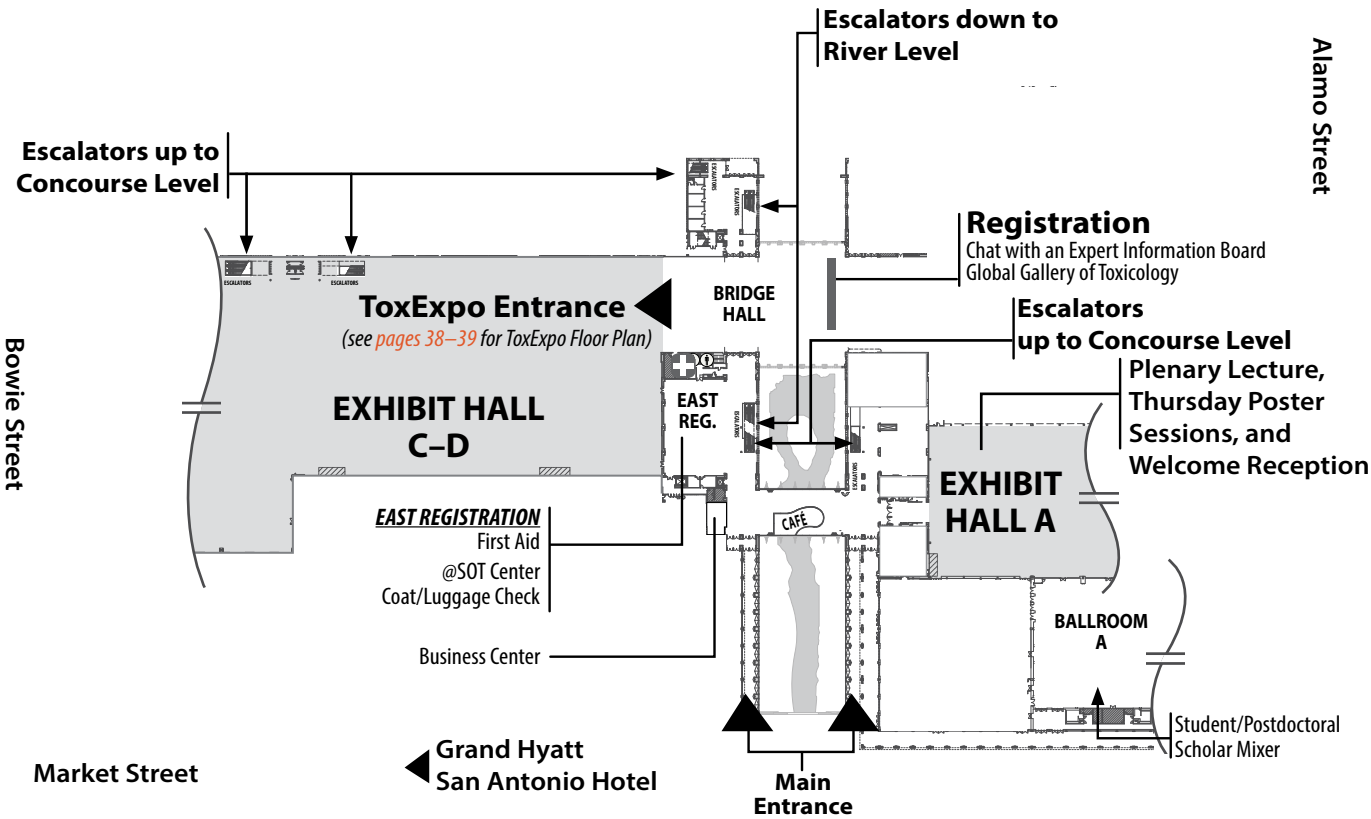
Henry B. Gonzalez Convention Center Maps

River Level



Street Level

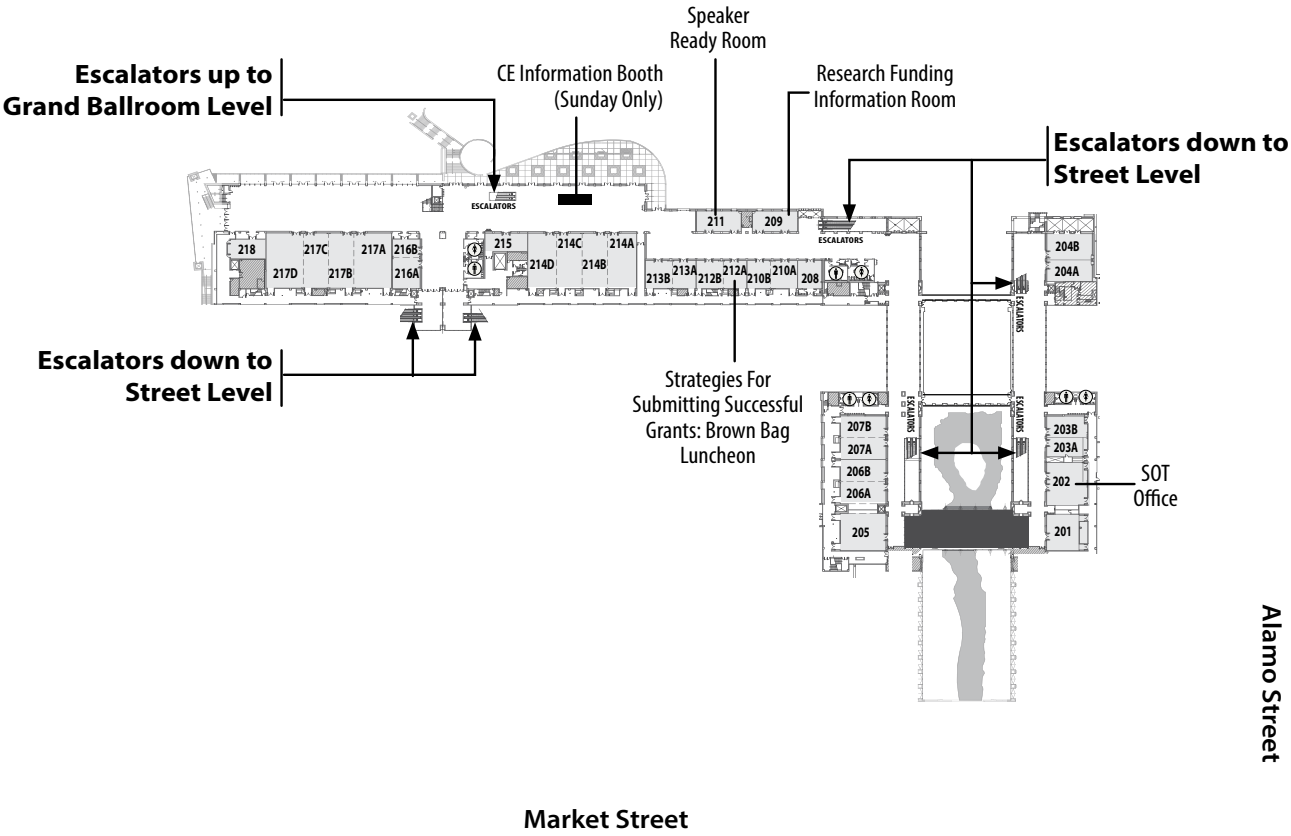
@SOT Center, Registration, ToxExpo, and Welcome Reception



Henry B. Gonzalez Convention Center Maps (Continued)

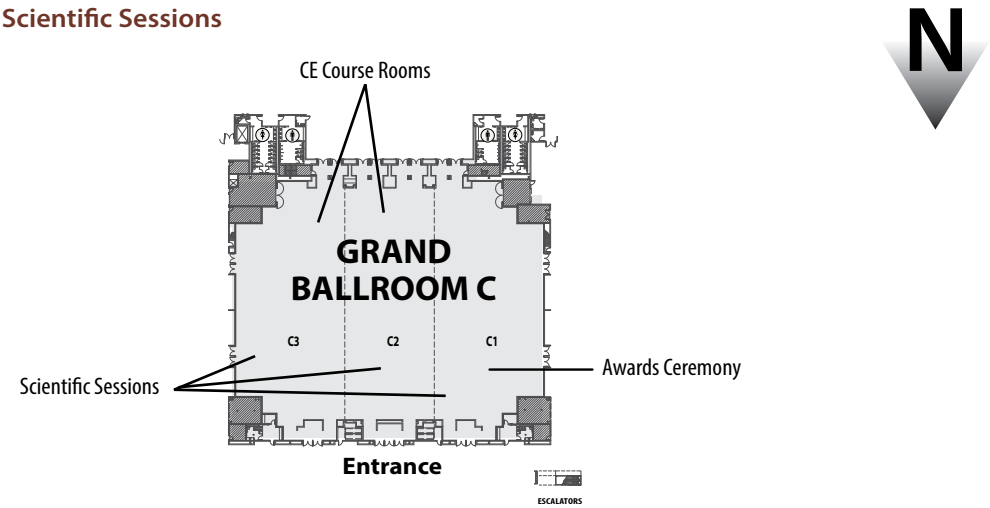
Concourse Level

CE Course Rooms and Scientific Sessions



Grand Ballroom Level

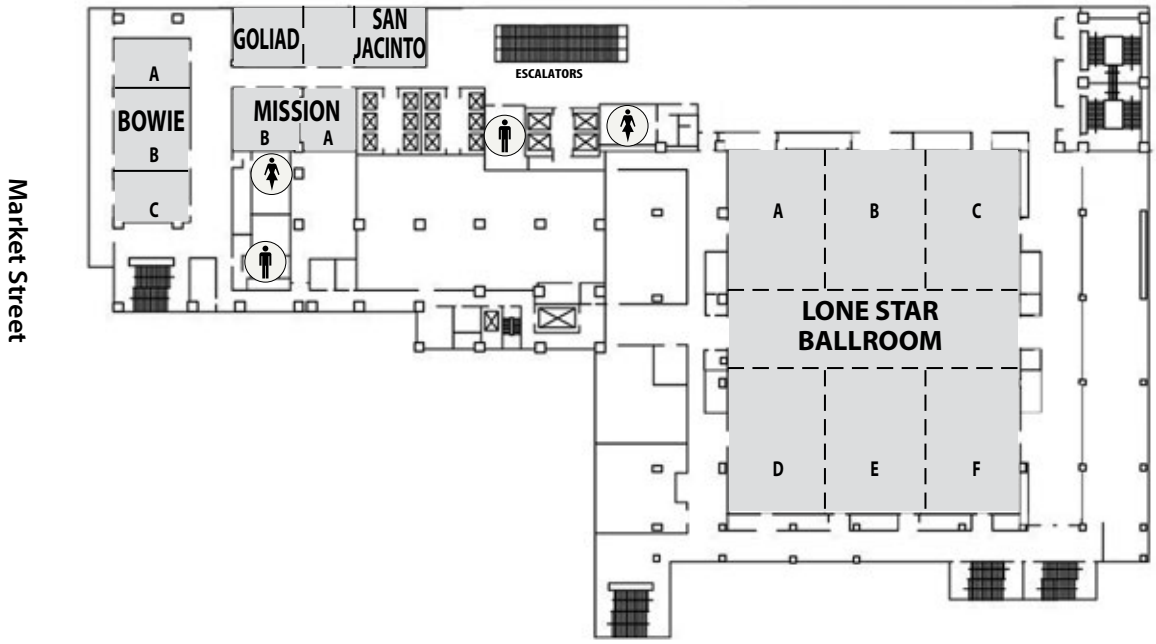
CE Course Rooms and Scientific Sessions



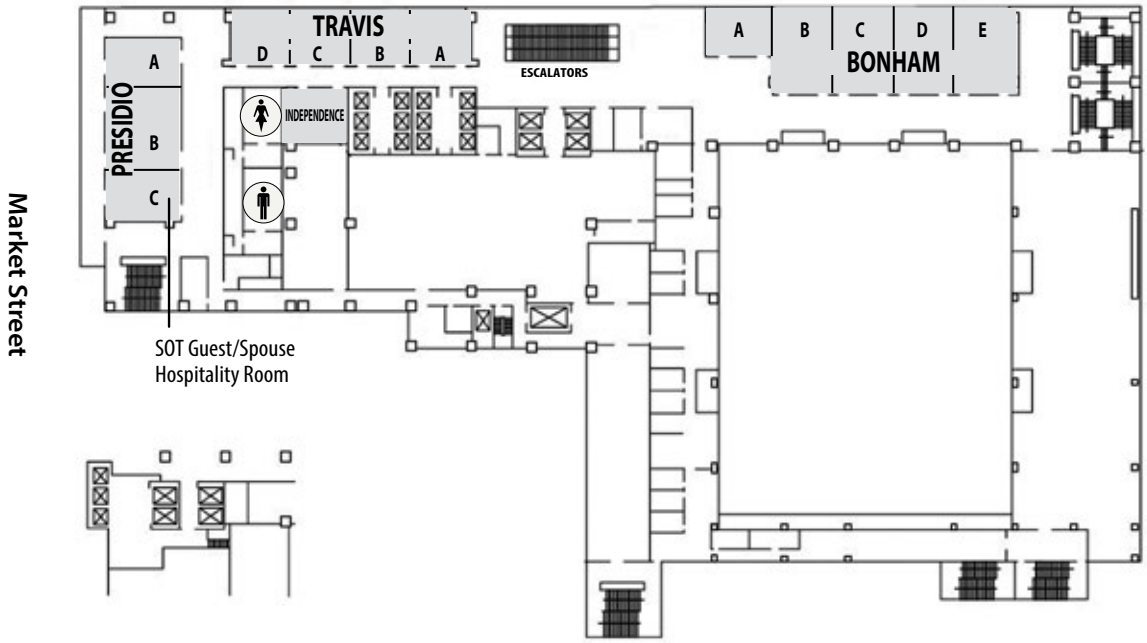
Grand Hyatt San Antonio Hotel Maps

Level Two

Ancillary Meetings (Sunday–Wednesday)



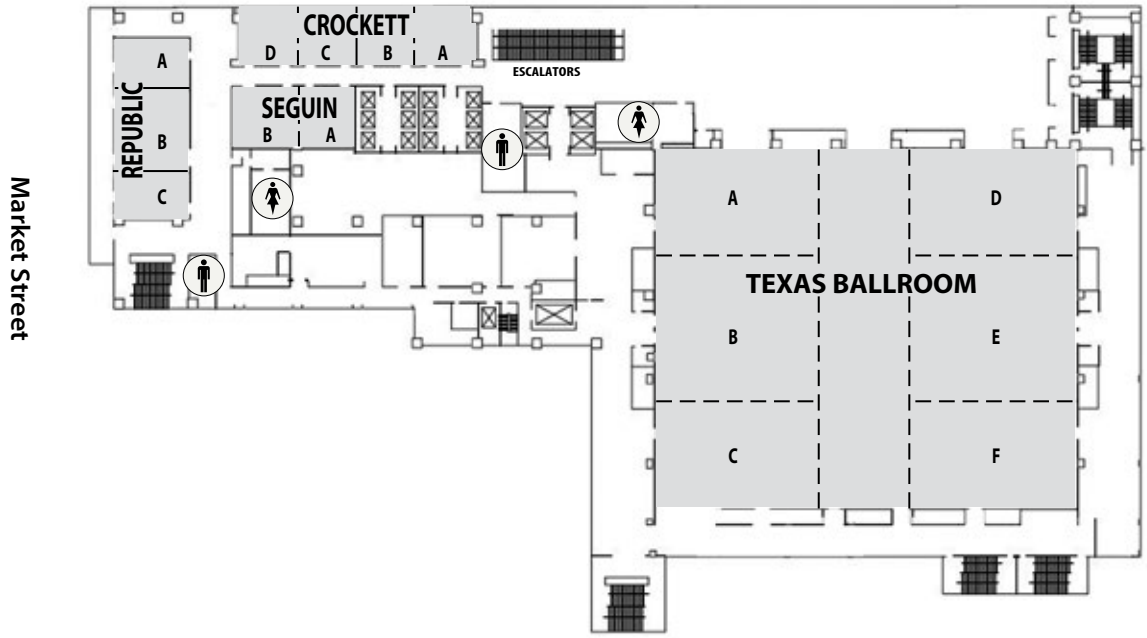
Level Three

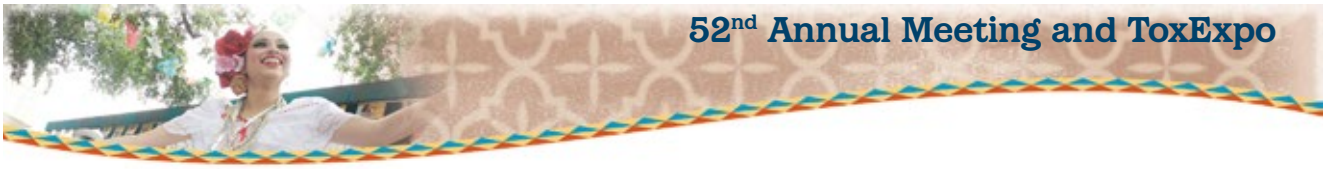


Grand Hyatt San Antonio Hotel Maps (Continued)

Level Four

Ancillary Meetings (Sunday–Wednesday)





San Antonio Hotel Accommodations

1) Courtyard by Marriott San Antonio Riverwalk

$155 single/double
207 N. St. Mary's Street
San Antonio, TX 78205
Tel: 210.223.8888
Fax: 210.223.8893
Website: www.marriott.com/satcr

Club: Marriott Rewards
Check in: 3:00 PM
Check out: 12:00 Noon
6 blocks from convention center
$29.19/day valet parking
Complimentary wireless Internet in lobby, complimentary wireless Internet in guest rooms

2) Grand Hyatt San Antonio

** SOT Headquarters Hotel*

$249 single/double
600 E. Market Street
San Antonio, TX 78205
Tel: 210.224.1234
Fax: 210.451.6162
Website: www.grandsanantonio.hyatt.com

Club: Hyatt Gold Passport
Check in: 4:00 PM
Check out: 11:00 AM
Adjacent to convention center
$33/day valet parking, $25/day self parking
Complimentary wireless Internet in lobby, wireless Internet in guest rooms is $12.95/day

3) Hilton Palacio del Rio

$239 single/double
200 S. Alamo Street
San Antonio, TX 78205
Tel: 210.222.1400
Fax: 210.270.0761
Website: www.palaciodelrio.hilton.com

Club: Hilton HHonors
Check in: 3:00 PM
Check out: 12:00 Noon
Across the street from convention center
$35.50/day valet parking, $22/day self parking
Complimentary wireless Internet in lobby, wireless Internet in guest rooms is $9.95/day

4) Historic Menger Hotel

$150 single/double
204 Alamo Plaza
San Antonio, TX 78205
Tel: 210.223.4361
Fax: 210.228.0022
Website: www.mengerhotel.com

Club: Stash Rewards
Check in: 3:00 PM
Check out: 12:00 Noon
2 blocks from convention center
$28/day valet parking
Complimentary wireless Internet in lobby, complimentary wireless Internet in guest rooms,

5) Holiday Inn San Antonio Riverwalk

$155 single/double
217 N. St. Mary's Street
San Antonio, TX 78205
Tel: 210.224.2500
Fax: 210.527.9589
Website: www.holidayinn.com/sat-riverwalk

Club: Priority Club
Check in: 4:00 PM
Check out: 12:00 Noon
5 blocks from convention center
$26/day valet parking, $18/day self parking
Complimentary wireless Internet in lobby, complimentary wireless Internet in guest rooms

6) Hotel Contessa—Suites on the Riverwalk

$179 single/double
306 W. Market Street
San Antonio, TX 78205
Tel: 210.229.9222
Fax: 210.229.9228
Website: www.thehotelcontessa.com

Club: Real Prefer
Check in: 4:00 PM
Check out: 11:00 AM
2 blocks from convention center
$30/day valet parking
Complimentary wireless Internet in lobby, complimentary wireless Internet in guest rooms

7) Hotel Valencia Riverwalk

$159 single/double
150 E. Houston Street
San Antonio, TX 78205
Tel: 210.227.9700
Fax: 210.227.9701
Website: www.hotelvalencia-riverwalk.com

Club: VVIP
Check in: 4:00 PM
Check out: 11:00 AM
6 blocks from convention center
$29/day valet parking
Complimentary wireless Internet in lobby, complimentary wireless Internet in guest rooms

Housing Bureau 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 Henry B. Gonzalez Convention Center Saturday, March 9, through Tuesday, March 12.

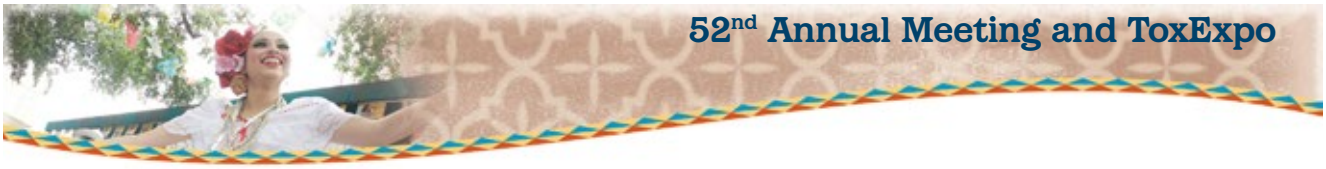
You may also contact SOT Housing Bureau directly:

- Tel: 210.207.6734 (USA and International)
  Hours of Operation: 8:00 AM–5:00 PM (CST) Monday–Friday

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

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

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



San Antonio Hotel Accommodations (Continued)

8) Hyatt Regency San Antonio Riverwalk

$229 single/double
123 Losoya Street
San Antonio, TX 78205
Tel: 210.222.1234
Fax: 210.227.4925
Website: www.sanantonioregency.hyatt.com

Club: Hyatt Gold Passport
Check in: 3:00 PM
Check out: 12:00 Noon
3 blocks from convention center
$33/day valet parking, $25/day self parking
Complimentary wireless Internet in lobby, wireless Internet in guest rooms is $12.95/day

9) La Quinta Inn and Suites convention center

$162 single/double
303 Blum Street
San Antonio, TX 78205
Tel: 210.222.9181
Fax: 210.228.9816
Website: http://501.lq.com

Club: LQ Rewards
Check in: 3:00 PM
Check out: 12:00 Noon
2 blocks from convention center
$22.75/day valet parking, $18.45/day self parking
Complimentary wireless Internet in lobby, complimentary wireless Internet in guest rooms

10) Residence Inn by Marriott—Downtown/Alamo Plaza

$155 single/double
425 Bonham Street
San Antonio, TX 78205
Tel: 210.212.5555
Fax: 210.212.5554
Website: www.residenceinn.com/satrw

Club: Marriott Rewards
Check in: 3:00 PM
Check out: 12:00 Noon
5 blocks from convention center
$24/day valet parking, $24/day self parking
Complimentary wireless Internet in lobby, complimentary wireless Internet in guest rooms

11) San Antonio Marriott Rivercenter

$239 single/double
101 Bowie Street
San Antonio, TX 78205
Tel: 210.223.1000
Fax: 210.223.6239
Website: www.marriott.com/satrc

Club: Marriott Rewards
Check in: 4:00 PM
Check out: 12:00 Noon
1 block from convention center
$33/day valet parking, $25/day self parking
Complimentary wireless Internet in lobby, wireless Internet in guest rooms is $12.95/day

12) San Antonio Marriott Riverwalk

$239 single/double
889 E. Market Street
San Antonio, TX 78205
Tel: 210.224.4555
Fax: 210.224.2754
Website: www.marriott.com/satdt

Club: Marriott Rewards
Check in: 4:00 PM
Check out: 12:00 Noon
Across the street from convention center
$33/day valet parking, $25/day self parking
Complimentary wireless Internet in lobby, wireless Internet in guest rooms is $12.95/day

13) Westin Riverwalk

$239 Cityside/$259 Riverside
420 W. Market Street
San Antonio, TX 78205
Tel: 210.224.6500
Fax: 210.444.6000
Website: www.westinriverwalksanantonio.com

Club: SPG Starwood
Check in: 3:00 PM
Check out: 12:00 Noon
3 blocks from convention center
$30/day valet parking, $15/day self parking
Complimentary wireless Internet in lobby, wireless Internet in guest rooms is $13.95/day

Legend:

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

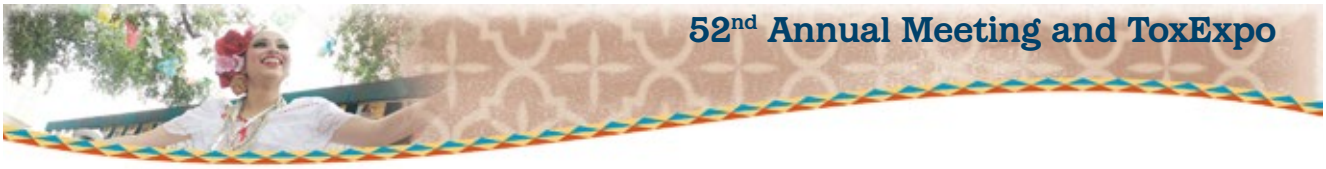
All hotels have Internet access.
Hotel sales tax is currently 16.75%

Map of San Antonio Hotel Locations

1	Courtyard by Marriott San Antonio Riverwalk
2	Grand Hyatt San Antonio* ** SOT Headquarters Hotel*
3	Hilton Palacio del Rio
4	Historic Menger Hotel
5	Holiday Inn San Antonio Riverwalk
6	Hotel Contessa—Suites on the Riverwalk
7	Hotel Valencia Riverwalk
8	Hyatt Regency San Antonio Riverwalk
9	La Quinta Inn and Suites Convention Center
10	Residence Inn by Marriott—Downtown/Alamo Plaza
11	San Antonio Marriott Rivercenter
12	San Antonio Marriott Riverwalk
13	Westin Riverwalk
☆	Henry B. Gonzalez Convention Center

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

Scan Me!



San Antonio Restaurant Listing

Scan Me!

Use the new SOT mobile event app or event website to access a complete San Antonio 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 complete details.

Restaurants within Seven Blocks of the Convention Center, Listed Alphabetically

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

Acenar	146 E. Houston Street	210.222.2362	LD	$$
Achiote River Cafe	600 E. Market Street	210.224.1234	BLD	$
Aldaco's Mex Cuisine	100 E. Hoefgen Street	210.222.0561	L	$
Anaqua Grill	555 S. Alamo Street	210.229.1000	BLD	$
Azuca Nuevo Latino	713 S. Alamo Street	210.225.8000	LD	$$$
Barriba Cantina	111 W. Crockett Street #215	210.228.9876	LD	$
Barron's Restaurant	205 E. Houston Street	210.227.3241	BLD	$$$
Bella on the River	106 Riverwalk Street	210.404.2355	D	$$$
Biga on the Banks	203 St. Mary's at Market Street	210.225.0722	D	$$$
Bohanan's Prime Steak and Seafood	219 E. Houston Street #275	210.472.2600	LD	$$$
Boudro's on the Riverwalk	421 E. Commerce Street	210.224.8484	LD	$$$
The Buckhorn Saloon	318 E. Houston Street	210.247.4000	L	$
Cactus Flower Restaurant	889 E. Market Street	210.224.4555	BLD	$$$
Café Ole	521 River Walk Street	210.281.1292	LD	$$
Casa Rio	430 E. Commerce Street	210.281.1292	LD	$$
Chart House	600 Hemisfair Plaza Way	210.223.3101	LD	$$$
Chilli's Grill	849 E. Commerce Street	210.212.8152	LD	$$
Citrus Restaurant	150 E. Houston Street	210.230.8412	BLD	$$
The Colonial Room Restaurant	204 Alamo Plaza	210.225.6196	BLD	$$$
Denny's	903 E. Commerce Street	210.223.4321	BLD	$
Durty Nelly's	200 S. Alamo Street	210.224.3343	LD	$$$
El Mirador	722 S. St. Mary's Street	210.225.9444	BLD	$
Fig Tree	515 Villita Street	210.224.1976	D	$$$$
Fogo De Chao	849 E. Commerce Street	210.227.1700	LD	$$$
Fuddruckers	115 Alamo Plaza	210.223.9944	LD	$
Guadalajara Grill	301 S. Alamo Street	210.222.1992	LD	$
Hard Rock Cafe	111 W. Crockett Street	210.224.0743	LD	$
Hooters	849 E. Commerce Street	210.229.9464	LD	$
Houston Street Bistro	204 E. Houston Street	210.476.8600	LD	$
Iron Cactus	200 River Walk Street #100	210.224.9835	LD	$

B=Breakfast, L=Lunch, D=Dinner

San Antonio Restaurant Listing (Continued)

Restaurants within Seven Blocks of the Convention Center, Listed Alphabetically *(continued)*				
$ = Under $12	$$ = $12–$18	$$$ = $18–$30	$$$$ = over $30	
Joe's Crab Shack	212 College Street #100	210.271.9981	LD	$$
La Focaccia Italian Grill	800 S. Alamo Street	210.223.5353	LD	$$
La Frite	728 S. Alamo Plaza	210.224.7555	LD	$$
Landry's	517 N. Presa Street	210.229.1010	LD	$$
Las Canarias	112 College Street	210.518.1063	BLD	$$
Las Ramblas	306 W. Market Street	210.298.8040	BLD	$$$
Little Rhein	231 S. Alamo Plaza	210.225.2111	D	$$$$
Lone Star Café	237 Losoya Street	210.223.9374	LD	$$
Luciano Ristorante	849 E. Commerce Street #157	210.223.0500	LD	$$
Luke	125 E. Houston Street	210.227.5853	LD	$$
McDonalds	101 Alamo Plaza	210.226.3800	BLD	$
Mexican Manhattan	110 Soledad Street	210.223.3913	LD	$
Michelino's	521 River Walk Street	210.223.2939	LD	$$
Morton's Steak House	300 E. Crockett Street	210.228.0700	D	$$$
Original Mexican Restaurant	528 River Walk Street	210.224.9951	BLD	$
Oro Restaurant	705 E. Houston Street	210.244.0146	BLD	$
Ostra	212 W. Crockett Street	210.396.5817	BLD	$$$
Paesanos Riverwalk	111 W. Crockett Street #101	210.227.2782	L	$$
Palm Restaurant	233 E. Houston Street	210.226.7256	L	$$$$
Paloma Riverwalk	215 Losoya Street	210.212.0566	LD	$$
Q Riverwalk	123 Losoya Street	210.222.1234	LD	$$
Rainforest Café	110 E. Crockett Street	210.277.6300	LD	$$
Republic of Texas	526 River Walk Street	210.226.6256	LD	$$
Rio Rio Cantina	421 E. Commerce Street	210.226.8462	LD	$
Rita's on the River	245 E. Commerce Street #100	210.227.7482	LD	$$
The River's Edge Café and Patio Bar	200 S. Alamo Street	210.222.1400	BLD	$$$
Rivercenter Mall Food Court	849 E. Commerce Street	210.225.0000	BLD	$$
Rosario's Mex Café y Cantina	910 S. Alamo Plaza	210.223.1806	LD	$
Ruth's Chris Steak House	1170 E. Commerce Street	210.227.8847	D	$$$$
Saltgrass Steak House	502 River Walk Street	210.222.9092	LD	$$
Sazo's Latin Grill	101 Bowie Street	210.554.6180	LD	$$
Schilos Deli	424 E. Commerce Street	210.223.6692	BLD	$
Spaghetti Warehouse	1226 E. Houston Street	210.299.1114	LD	$
Subway	109 Alamo Plaza Suite A	210.224.6010	BLD	$
Sushi Zushi	203 S. St. Mary's Street	210.472.2900	LD	$$
Texas de Brazil	313 E. Houston Street	210.299.1600	LD	$$$
Texas Land and Cattle Steak House	201 N. St. Mary's Street	210.222.2263	LD	$$

B=Breakfast, L=Lunch, D=Dinner

San Antonio Restaurant Listing (Continued)

Restaurants within Seven Blocks of the Convention Center, Listed Alphabetically *(continued)*				
$ = Under $12	$$ = $12–$18	$$$ = $18–$30	$$$$ = over $30	
Tony Romas	849 E. Commerce Street	210.225.7662	LD	$$
Toscana Ristorante	301 E. Houston Street	210.222.2865	LD	$$$
Tre Trattoria	401 S. Alamo Plaza	210.223.0401	LD	$$$
Whataburger	412 E. Commerce Street	210.228.0710	BLD	$
Waxy O'Conner's	234 River Walk Street	210.229.9299	LD	$
Zocca	420 W. Market Street	210.444.6070	BLD	$$$
Zinc Bistro	421 E. Commerce Street	210.224.1313	LD	$$
Zuni Grill	511 Losoya Street	210.227.0864	BLD	$

B=Breakfast, L=Lunch, D=Dinner

MAPS

Creative Dining and Entertainment Desk

For restaurant and entertainment recommendations, reservations, menus, and coupons in San Antonio, visit the Creative Dining and Entertainment desk located near the @SOT Center.

Sunday ..... 11:00 AM–5:00 PM
Monday–Wednesday ..... 9:00 AM–5:00 PM

Advance Your Science

Be Connected • Be Involved • Be Informed • Be Inspired

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 directed across the spectrum from K–12 to throughout 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 located immediately inside the Exhibit Hall across from Registration.

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—FREE !
- Lead an SOT Committee or Activity
- Get one-on-one SOT Mobile Event App and Event Website Assistance and Learning 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

Note: Poster Tours for Trainees will begin here for scheduled participants. (Look for sign.)

The High School Poster Exposition will be in this area Tuesday and Wednesday.

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

toxexpo

Scan Me!

Complete ToxExpo Details via Mobile Event App and Event Website

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

SOT 2013 San Antonio ★ Texas

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

ToxExpo.com is:

- A 24/7 comprehensive online resource, 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.
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Looking for a particular product or service? Check the category listing on www.ToxExpo.com to see which companies offer the best product or service for your needs.

TOXEXPO

ToxExpo Hours:

Monday, March 11	*Tuesday, March 12*	*Wednesday, March 13*
9:00 AM–4:30 PM	*8:30 AM–4:30 PM*	*8:30 AM–4:30 PM*

ToxExpo Prize Drawing $500!

Drawings to take place on Monday, Tuesday, and Wednesday in Exhibit Hall C–D

$500 American Express Gift card awarded each day

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

ToxExpo Time!

Tuesday, March 12
12:30 PM–1:30 PM

In addition to the standard ToxExpo hours and poster presentation times, one hour of dedicated ToxExpo Time has been allotted in the scientific program for attendees to visit with exhibitors.

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

ToxExpo Floor Plan

Complete Details via Mobile Event App and Event Website

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

Exhibit Hall C–D • Street Level

ToxExpo Hours:

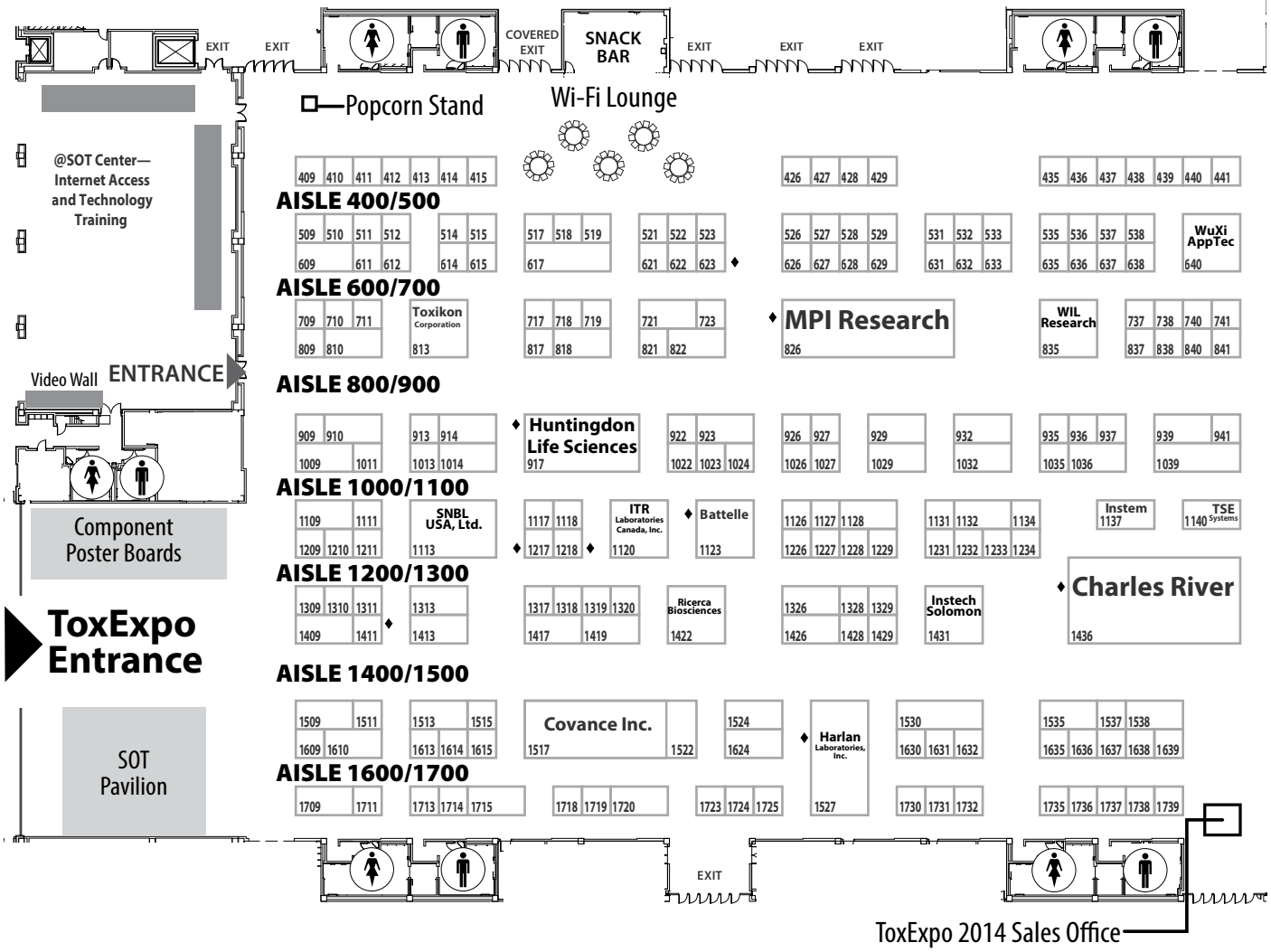
Monday 9:00 AM–4:30 PM • Tuesday 8:30 AM–4:30 PM • Wednesday 8:30 AM–4:30 PM

ToxExpo Time!

In addition to the standard ToxExpo hours and poster presentation times, one hour of dedicated networking time has been allotted in the scientific program for attendees to visit with exhibitors. ToxExpo Time will take place on Tuesday, March 12, 12:30 pm–1:30 pm.

Exhibit Hall Concession Stand Hours:

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



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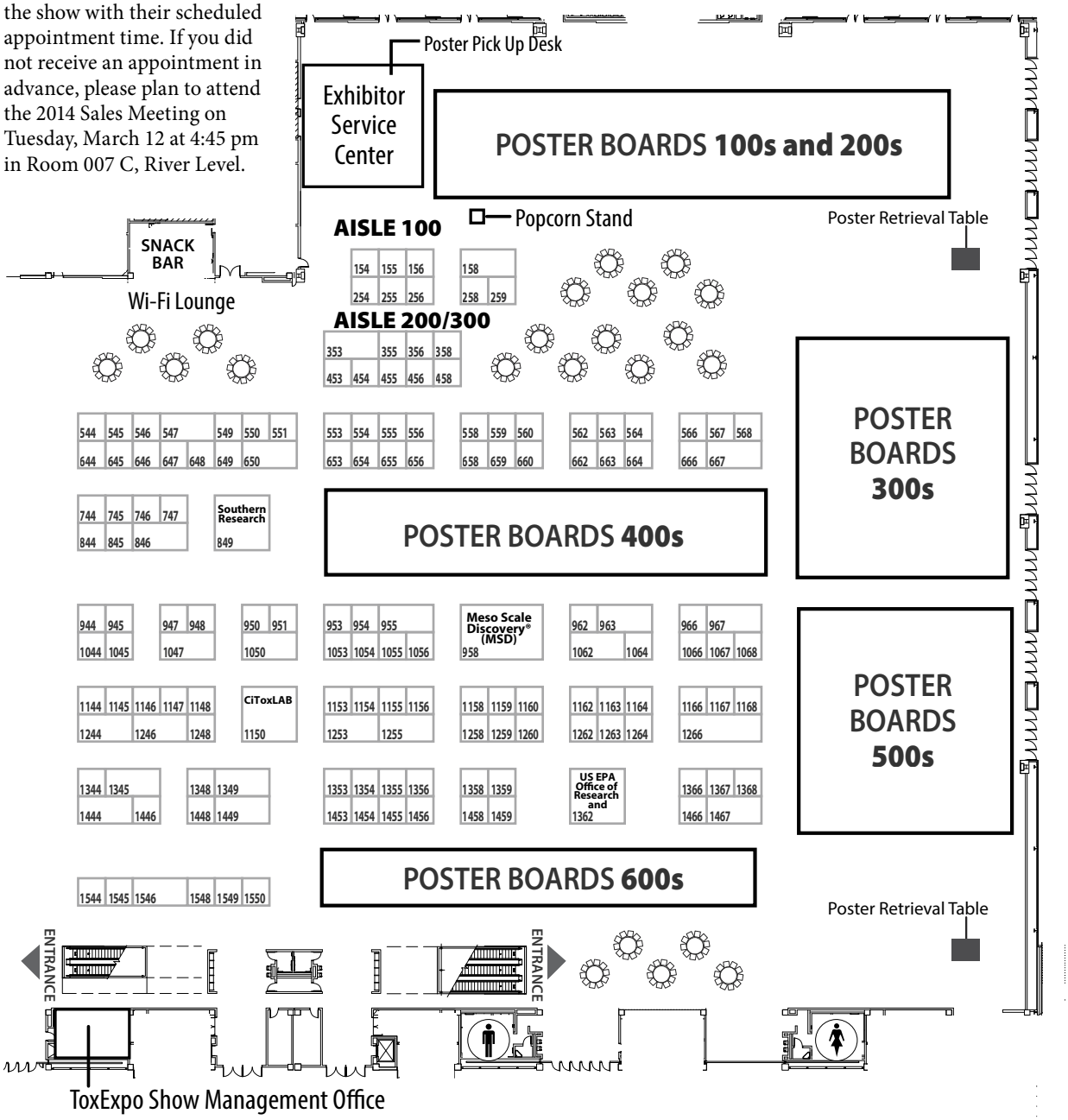
ToxExpo Floor Plan (Continued)

Exhibit Hall C–D • Street Level

ToxExpo 2014 Exhibit Space Selection Process

Priority Point booth sales for 2014 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 2014 Sales Meeting on Tuesday, March 12 at 4:45 pm in Room 007 C, River Level.



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ToxExpo 2013 Exhibitors

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(As of January 10, 2013)

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♦ Diamond Level Sponsors.
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See complete listing of sponsors on page 416 and Back Cover.

▲ SOT Affiliates are indicated by a triangle.
Complete list of SOT Affiliates can be found on page 413.

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

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

Company Name	Booth Number
Abcam	1255
ABL, Inc.	259
Accelera S.r.l.	626
ACEA Biosciences, Inc.	1366
ACGIH®	427
ADMEcell	429
Advanced Technology Inc.	1711
Advinus Therapeutics Limited	621
AEgis Technologies Group	1234
AIT Bioscience	962
Alabama Research & Development	844
Algorithme Pharma	1160
Allentown, Inc.	718
ALPCO	1368
Alpha Genesis, Inc. (AGI)	1610
Alturas Analytics, Inc.	1515
American Association for Laboratory Animal Science (AALAS)	440
American Board of Toxicology (ABT)	1537
American College of Toxicology (ACT)	410
American Preclinical Services	439, 538, 738
American Society for Celluar and Computational Toxicology	1067
Analytical Bio-Chemistry Labs, Inc. (ABC)	629
★▲ **Ani Lytics, Inc.**	**1309**
ANILAB, LLC	1609
Antech Diagnostics GLP	1013
Applied BioPhysics, Inc.	509
Aptuit LLC	822
★ ArunA Biomedical Inc	1062
Aspect Imaging	1158
AVANZA Laboratories, LLC	1413
Avogadro, Inc	655
BASF SE	650
★ **BASi (Bioanalytical Systems, Inc)**	**1524**
♦ **Battelle**	**1123**
Bio Medic Data Systems, Inc.	**1530**
Bio-Rad Laboratories	1156
Bio-Serv	1429
Bioagri Pharma	519
Bioculture (Mauritius) Ltd	1724
BioEnergetics LLC	1259
Biologics Development Services	1614
Biomodels, LLC	546
Bioneer	1356
Biopta Ltd	415
Bioreclamation	1145
★ **BioReliance Corporation**	**810**
Biosafe ty Research Center, Foods, Drugs and Pesticides (BSRC)	551
BioScience Writers, LLC	154
BioStat Consultants, Inc.	1026
BioTox Sciences	609
♦▲ Bristol-Myers Squibb Company	623
Buxco Research Systems	**1448**
★ **Calvert Laboratories, Inc.**	**818**
Caprion Proteomics	1725
Cardno ENTRIX	435
CARE Research LLC/Colorado Histo-Prep	**1739**
Cayman Chemical	1446
CDC NCEH/ATSDR	414
Cedarlane	737
CeeTox, Inc.	1318
Cellectis Stem Cells	941
Cellular Dynamics International, Inc.	1345
▲ Celsis *In Vitro* Technologies	914
Cerep Inc.	1344
CH Technologies (USA), Inc.	**947**
ChanTest Corp.	1036
♦▲ **Charles River**	**1436**
Charles River Lounge	158
Chemical Solutions Ltd.	1127
ChemRisk, Inc.	1024
Chilworth Technology Ltd	1146
Chondrex, Inc.	1367
CiToxLAB	1150
ClearH2O, Inc.	531
Clever Sys Inc	458
Comparative Biosciences (CBI)	1023
Conestoga-Rovers & Associates	1549
Contract Pharma	528
CorDynamics	709
Corning Incorporated	1632
★▲ **Covance Inc.**	**1517**
Covance Research Products Inc.	1522
CRC Press - Taylor & Francis Group LLC	547
CTEH®	649
Cultex Laboratories GmbH	1229
CXR Biosciences Limited	615
Cyprotex	667
Data Sciences International (DSI)	**1419**
Data Unlimited International, Inc.	745
Definiens	1417
Dermal Technology Laboratory Ltd	1111
Detroit R & D, Inc.	1134
DMT-USA Inc.	954
Ellegaard Göttingen Minipigs A/S	927
Elm Hill Breeding Labs, Inc.	426
Elsevier	**1009**
★ EMD Millipore Corporation	1266
emka TECHNOLOGIES, INC.	1326
Environ International Corp.	653
Environmental Health Perspectives (EHP)	1117, 1118

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TOXEXPO

ToxExpo 2013 Exhibitors (Continued)

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Company Name	Booth Number
Enzo Life Sciences	1068
Epithelix	658
EPL Archives, Inc.	935
★ **EPL, Inc.**	**932**
Exemplar Genetics	637
Exiqon, Inc	568
Experimur	644
Expert Publishing, LLC	1311
Exponent, Inc.	1144
Fraunhofer ITEM	1449
Frontier BioSciences, Inc.	1032
★▲ Genentech	533
Genox Corporation	1054
Gentronix, Limited	1248
Gyros	966
H&T Corporation	1545
Hamilton Thorne	817
♦ **Harlan Laboratories, Inc.**	**1527**
HCT CO., LTD	1166
HemoGenix Inc.	611
Hepregen Corporation	521
Histo-Scientific Research Laboratories (HSRL)	1635
HistoTox Labs, Inc.	1053
HTG Molecular Diagnostics, Inc.	1260
♦ **Huntingdon Life Sciences**	**917**
ICDD-sas	746
ICF International	963
IDEXX Laboratories, Inc.	1455
IIT Research Institute (IITRI)	1709
***In Vitro* ADMET Laboratories (IVAL)**	**837**
INDIGO Biosciences, Inc.	1723
Informa Healthcare	**549**
Ingenuity® Systems	**1544**
InSphero AG	1454
Instech Solomon	**1431**
Instem	**1137**
Institute for *In Vitro* Sciences, Inc.	1226
Integrated Laboratory Systems, Inc. (ILS)	1320
International Institute for the Advancement of Medicine	944
INTOX Pvt. Ltd.	1210
IPS Therapeutique	1231
ITR Laboratories Canada, Inc.	1120
IUTOX	455
Jackson Laboratory, The	909
JAF Consulting, Inc.	1044
Jai Research Foundation (JRF - America)	1550
Japanese Society of Toxicology, The	454
KAER Biotherapeutics	809
Kallistem	645
KCAS, LLC	1630
Kinder Scientific Company	1428
Konigsberg Instruments, Inc.	647
Korea Institute of Toxicology (KIT)	1047
Kunming Biomed International (KBI)	1132
L'Oréal Research & Innovation	1349
Lab Products, Inc.	**1509**
LabLogic Systems, Ltd.	631
Lampire Biological Laboratories, Inc.	635
LC Sciences	1064
Leadscope, Inc.	517
Leyden Group	633

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Lhasa Limited	1228
Life Sciences Connect	1631
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Lomir Biomedical, Inc.	1538
Lovelace Respiratory Research Institute (LRRI)	1535
Luxcel Biosciences, Ltd.	1348
Lyophilization Technology, Inc.	1359
Maccine Pte Ltd	1014
Marken	1056
Marshall BioResources	**929**
MatTek Corporation	654
MB Research Laboratories	953
Med Associates, Inc.	1167
Medicilon Preclinical Research (Shanghai) LLC	1613
Medline Industries, Inc.	740
Meso Scale Discovery® (MSD)	958
Metabolic Profiling Inc.	646
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MicroMatrices Associates Ltd	1637
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♦▲ **MPI Research**	**826**
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MS Bioworks	1055
MultiCASE Inc	926
Myriad RBM	1310
NAMSA	1319
NanoInk, Inc.	441
NanoSight	566
National Disease Research Interchange	527
♦ National Institute of Environmental Health Sciences (NIEHS)	1218
National Library of Medicine	1453
National Research Center for New Drug Safety Evaluation (Shenyang)	636
National Shanghai Center for New Drug Safety Evaluation & Research	1624
♦ National Toxicology Program (NTP)	1217
NeuroScience Associates (NSA)	841
Neuroservice	1232
Nexcelom Bioscience	1358
NIH Countermeasures Against Chemical Threats (CounterACT) Research Program	1615
NOTOCORD, Inc.	950
NSF Pharmalytica, International	1029
Nucro-Technics Incorporated	**821**
Numira Biosciences	1050
Oak Ridge Associated Universities	510

(continued on next page)

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ToxExpo 2013 Exhibitors (Continued)

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

Company Name	Booth Number
Optivia Biotechnology Inc.	522
OSOD, LLC.	1719
Oxford University Press	555
Pacific BioLabs	937
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PDS Preclinical Data Systems, Inc.	**1513**
Perceptive Instruments Ltd.	840
PerkinElmer	1153
♦▲ Pfizer Worldwide Research and Development	1411
Pharmaron (formerly Bridge Laboratories)	1444
Pharmatek Laboratories, Inc.	1458
PhoenixBio Co., Ltd.	254
Phylonix Pharmaceuticals Inc.	1022
★ PointCross Life Sciences	1467
Poly Scientific R&D Corp.	662
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Pre-Clinical Research Services, Inc. (PCRS)	515
PreLabs	1211
Premier Laboratory, LLC	1713
Primate Products, Inc.	544
Prisys Biotechnologies	545
Probetex, Inc.	1638
Promega Corp	955
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Puracyp, Inc.	523
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PWG Genetics	721
QIAGEN, Inc.	1162
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QPS LLC	744
Qualyst Transporter Solutions	553
Quotient Bioresearch	1148
ReachBio	614
Research Diets, Inc.	664
Ricerca Biosciences	**1422**
Ridglan Farms, Inc	951
RightAnswer.com	512
ROCKLAND IMMUNOCHEMICALS, Inc.	1258
▲ RTC, Research Toxicology Centre S.p.A.	846
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Sarstedt, Inc.	656
Science/AAAS	1027
SCIREQ, Inc. (Scientific Respiratory Equipment)	1128
Seahorse Bioscience	1466
▲ **Sequani Limited**	**1426**
Seventh Wave	409
Siemens Medical Solutions USA	945
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Sinclair Bio Resources	1233
Sinclair Research Center LLC	1546
Singulex	666
Smithers (formerly Springborn)	**1317**
SNBL USA SRC	612
SNBL USA, Ltd.	1113
SoBran Inc.	526
Society of Quality Assurance (SQA)	1263
SOLVO Biotechnology	1154
★ Southern Research	849
Spring Valley Laboratories, Inc. (SVL)	1329
Springer	1735
★ **SRI International**	**939**
STARR Life Sciences	1355
STEMCELL Technologies Inc	845
Stemina Biomarker Discovery, Inc.	1147
Stillmeadow Inc	**1511**
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★ Tandem Labs	710
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Tianjin Institute of Pharmaceutical Research	1548
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Toxicology Education Foundation (TEF)	428
★▲ Toxicology Excellence for Risk Assessment (TERA)	514
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Toxicology Research Laboratory (TRL)	922
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★ **ToxServices LLC**	**1126**
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US Army Medical Research Institute of Chemical Defense (USAMRICD)	554
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★ Vanta Bioscience	1715
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vivoPharm	518
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WestChina-Frontier PharmaTech Co., Ltd.	1246
★▲ WIL Research	835
Wildlife International Ltd.	**1209**
World Precision Instruments	632
Worldwide Primates, Inc.	1328
Worthington Biochemical Corp.	1011
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Xenometrics/Product Safety Labs	**1109**
XpressBio	663
Xybion Medical Systems	923
ZenBio, Inc	1354

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Exhibitor/Sponsor-Hosted Session Index

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Exhibitor/Sponsor-Hosted Sessions E

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

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

Monday

Time: 9:15 AM to 10:15 AM

Presented by	Topic	Room	Page
ChanTest Corp.	Quantification of Cardioactive Drug Effects Using xCELLigence RTCA Cardio and Human iPS-Derived Cardiomyocytes	007 B	144
Covance	Optical Coherence Tomography in Nonclinical Ocular Drug Development	007 C	144
MPI Research	Assessing Toxicity of the Hematologic System in Preclinical Safety Studies	007 A	144

Time: 10:30 AM to 11:30 AM

Presented by	Topic	Room	Page
Harlan Laboratories	Current Trends in Pharmaceutical Development	007 B	166
Huntingdon Life Sciences	Monoclonal Antibodies for Oncology and Auto Immunity—Running Translatable Studies in Nonhuman Primates	007 C	166
In Vitro ADMET Laboratories	Accurate Identification of DILI (Drug-Induced Liver Injury) and Non-DILI Drugs with Primary Cultured Human Hepatocytes	007 A	166

Time: 11:45 AM to 12:45 PM

Presented by	Topic	Room	Page
Battelle	Battelle's CoLaborative Approach to Drug/Chemical Safety, Discovery, and Development	007 C	166
Celsis *In Vitro* Technologies	Use of Cryopreserved Human Hepatocytes to Investigate Genetic Variability in Drug and Xenobiotic Metabolism and Toxicity	007 A	166
Sigma Life Science	More Predictive Efflux Transporter Evaluation Using Transporter Knockout Rats and Caco-2 Cell Lines	007 B	166

Time: 1:00 PM to 2:00 PM

Presented by	Topic	Room	Page
ACEA Biosciences, Inc.	Cardiac Toxicity Assessment Using Stem Cell-Derived Cardiomyocytes	007 B	196
BioReliance Corporation	New Approaches to Follow up GeneTox Positive Results	007 A	196
QIAGEN	Pathway-Focused Tools for Monitoring and Predicting Toxicity	007 C	197

Time: 2:15 PM to 3:15 PM

Presented by	Topic	Room	Page
Charles River	Skeletal Evaluations in Toxicology Studies: How and When?	007 A	202
Chemical Solutions Ltd.	ICP-MS Use and Validation for Toxicological Applications	007 C	202
Phylonix	Zebrafish As a Predictive Model for Assessing Toxicity and Safety	007 B	202

Time: 3:30 PM to 4:30 PM

Presented by	Topic	Room	Page
Ellegaard Göttingen Minipigs and Marshall BioResources	Juvenile Safety Assessment in Göttingen Minipigs	007 B	203
Litron Laboratories	Efficient Integration of Chromosomal Damage and Gene Mutation Endpoints into Repeat-Dose Toxicology Studies	007 A	203
Tandem Labs	Improving the Bioanalysis of Endogenous Bile Acids As Biomarkers for Hepatobiliary Toxicity	007 C	203

Tuesday

Time: 8:30 AM to 9:30 AM

Presented by	Topic	Room	Page
Promega Corporation	Moving towards Establishing Standardized Conditions for *In Vitro* Human Toxicity Testing	007 A	205
Vet Path Services, Inc.	Why Do We Do What We Do? Pathology Endpoints in Repeat-Dose Toxicity Studies: A Review of Global Regulations	007 C	205
WIL Research	Genetic Toxicity Assessment for the Modern Era: New Regulations, New Strategies, New Methods	007 B	205

Time: 9:45 AM to 10:45 AM

Presented by	Topic	Room	Page
Charles River	Considerations for Developmental Immunotoxicity (DIT) in Preclinical Testing	007 A	232
Huntingdon Life Sciences	Navigating the Scientific Regulatory Maze for an Agrochemical from Candidate Selection to Product Registration	007 C	232
MPI Research	Nonclinical Development of Biopharmaceuticals and Biosimilars—Lessons Learned	007 B	232

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Exhibitor/Sponsor-Hosted Session Index (Continued)

Time: 11:00 AM to 12:00 Noon

Presented by	Topic	Room	Page
Fraunhofer ITEM	Carbonanotubes—A New Challenge in Toxicity Testing	007 C	232
PointCross Life Sciences	SEND Submissions to the US FDA: How Do I Get Ready for Prime Time?	007 B	232
SNBL USA, Ltd.	New Method for Procedure-Related Handling of Nonhuman Primates: Contribution to Improved Animal Welfare and Minimizing Variability in Data	007 A	232

Time: 12:15 PM to 1:15 PM

Presented by	Topic	Room	Page
Applied Biophysics, Inc.	Electric Cell-Substrate Impedance Sensing: A Label Free, Noninvasive Method of Cell Measurement	007 C	233
Data Sciences International	Introducing the First Fully Digital Wireless Solution for Large Animal Research	007 B	233
XenoBiotic Laboratories	Advanced Techniques in Quantitative Whole Body Autoradiography and Cryo-Imaging	007 A	233

Time: 1:30 PM to 2:30 PM

Presented by	Topic	Room	Page
Bio-Rad Laboratories	Multiplex Detection of Drug-Induced Kidney Toxicity with New Bio-Plex Pro™ RBM Assays	007 C	265
Cellectis Stem Cells	Human-Induced Pluripotent and Embryonic Stem Cell-Derived Hepatocytes and Cardiomyocytes for Use in High-Content Toxicity Assessments	007 A	264
L'Oréal Research & Innovation	Integrated Testing Strategies for Skin Sensitization: Safety Assessment for Cosmetics	007 B	265

Time: 2:45 PM to 3:45 PM

Presented by	Topic	Room	Page
Hepregen Corporation	The Use of HepatoPac™, an *In Vitro* Microliver Platform, for Mechanistic Toxicology Studies	007 C	265
Marshall BioResources and Ellegaard Göttingen Minipigs	The Value of the Göttingen Minipig in the Development of New Biotherapeutics	007 A	265
National Toxicology Program	Implementing Systematic Review at the NTP	007 B	265

Wednesday

Time: 9:15 AM to 10:15 AM

Presented by	Topic	Room	Page
Charles River	Alternative Methods in Preclinical Toxicology: 3Rs in Practice	007 A	297
Covance	Immunological Considerations of Intravenously Administered Drugs: Addressing Challenges in the Development of Intravenous Drugs Series	007 B	297
Thermo Scientific	Applications of High Content Analysis in Pharmaceutical and Consumer Products Safety Testing	007 C	297

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Exhibitor/Sponsor-Hosted Session Index (Continued)

Time: 10:30 AM to 11:30 AM

Presented by	Topic	Room	Page
Huntingdon Life Sciences	New Drugs for the Treatment of Inflammation and Chronic Viral Infection—Assessing the Safety of Drugs Designed to Modify TLR Pathways	007 A	298
Ingenuity Systems	IPA the Fast Path to Toxicity Targets of Interest	007 C	298
Stemina Biomarker Discovery, Inc.	Human Embryonic Stem (hES) Cells for Predictive Toxicology	007 B	298

Time: 11:45 AM to 12:45 PM

Presented by	Topic	Room	Page
Aptuit	The Preclinical Development of Gene Therapy Medicinal Products (GTMPs)	007 B	298
emka TECHNOLOGIES, Inc.	A Novel Method for Tetherless Monitoring and Analysis of Seizures	007 C	298
Exiqon, Inc.	MicroRNA in Biofluids—Robust Biomarkers for Disease Toxicology or Injury Studies	007 A	298

Time: 1:00 PM to 2:00 PM

Presented by	Topic	Room	Page
Cellular Dynamics International	Application of Human iPSC-Derived Hepatocytes Models for Toxicity Assessment	007 B	325
Oxford University Press	Best Practices for Authors: Maximizing the Success of Your Submitted Paper	007 A	325
Thomson Reuters	Analysis of Time- and Dose-Dependent Genomic Changes to Elucidate Toxic Modes of Action	007 C	325

Time: 2:15 PM to 3:15 PM

Presented by	Topic	Room	Page
InSphero AG	Advanced 3D-Cell Culture Models for Drug Safety Assessment	007 C	331
Integrated Laboratory Systems, Inc.	Next Generation Animal Models in Toxicology	007 B	331
MPI Research	Application of QWBA and Short-Lived Isotopes in the Drug Development Paradigm	007 A	331

Time: 3:30 PM to 4:30 PM

Presented by	Topic	Room	Page
NanoSight	The European Nanomaterials Definition: Characterization Challenges of a Global Issue	007 A	334
Pharmaron, Inc.	Why You Should Consider China for Your IND-Enabling Program—An Update from the Leader in GLP Toxicology in China	007 B	334

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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SOT | Society of Toxicology

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

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

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

Associate—engaged in continuing professional scientific activities in toxicology.

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

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

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Membership Fees:

Full Membership	**$138**	**Postdoctoral Membership**	**$35**
Associate Membership	**$138**	**Student Membership**	**$20**
*Membership Fees for Members from Developing Countries**			
Full Membership	**$50**	**Postdoctoral Membership**	**$10**
Associate Membership	**$50**	**Student Membership**	**$10**

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 Member Information.

SOT 2013 San Antonio • Texas

52nd Annual Meeting & ToxExpo™

San Antonio, Texas

March 10–14, 2013 • Henry B. Gonzalez Convention Center

Registration

Annual Meeting Registration Fees

	On-Site
SOT Member	$420
Nonmember	$760
SOT Retired/Emeritus Member	$170
Postdoctoral SOT Member	$185
Postdoctoral Nonmember	$270
Graduate Student SOT Member	$165
Graduate Student Nonmember	$230
Undergraduate Student	$0
SOT Affiliate	$0
Press	$0
Guest (Nonscientist)	$100

(Guests do not have access to the Scientific Sessions or the ToxExpo.)

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 10 from 5:15 pm–6:30 pm.
- Welcome Reception, Sunday, March 10 from 6:30 pm–7:30 pm.
- Plenary Opening Lecture, Monday, March 11 from 8:00 am–9:00 am.
- All Scientific Sessions, 9:15 am, Monday, March 11, through 12:00 noon, Thursday, March 14 (see Program Description beginning on page 135 for additional details).
- ToxExpo, Exhibit Hall C–D, 9:00 am–4:30 pm Monday, March 11; 8:30 am–4:30 pm Tuesday, March 12, and Wednesday, March 13.

Participants also are encouraged to register for the Continuing Education Courses. These are available during three time intervals on Sunday, March 10—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 25, 2013, will receive badges and registration materials in the mail. Attendees who already have their 2013 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 San Antonio, 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 is located in the Bridge Hall in the Henry B. Gonzalez 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.

2013 SOT Annual Meeting Policies

By registering for the 2013 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.

GRS Gordon Research Seminars

Cellular & Molecular Mechanisms of Toxicology

August 10–11, 2013, Proctor Academy, Andover, NH

Overview:
An unique forum for graduate students and postdocs organized by the *SOT PDA* to present and exchange new data and cutting edge ideas.

Application Deadline: *July 13, 2013*
Students/Postdoc Speakers Deadline: *April 10, 2013*

Session Topics:
- *Modeling the Toxic Response: From Molecular Alterations and Metabolic Fingerprints to Predictive Toxicology*
- *Genes-Environmental Interactions: Environmental Exposure and the Toxicological Mechanisms Leading to Diseases*
- *Epigenetic Regulations As a Mechanism for Gene-Environment Interaction: Toxicological Implications*
- *"How to Build Effective Curriculum Vitae for Industry, Government, or Academia" & "Finding Grants for Early-Career Scientists."*

Website: http://www.grc.org/programs.aspx?year=2013&program=grs_tox
Fellowships for Minority Scientists Available: Carl Storm Underrepresented Minority (CSURM) Fellowships
Carl Storm International Diversity (CSID) Fellowships

GRC Gordon Research Conferences

Cellular & Molecular Mechanisms of Toxicology

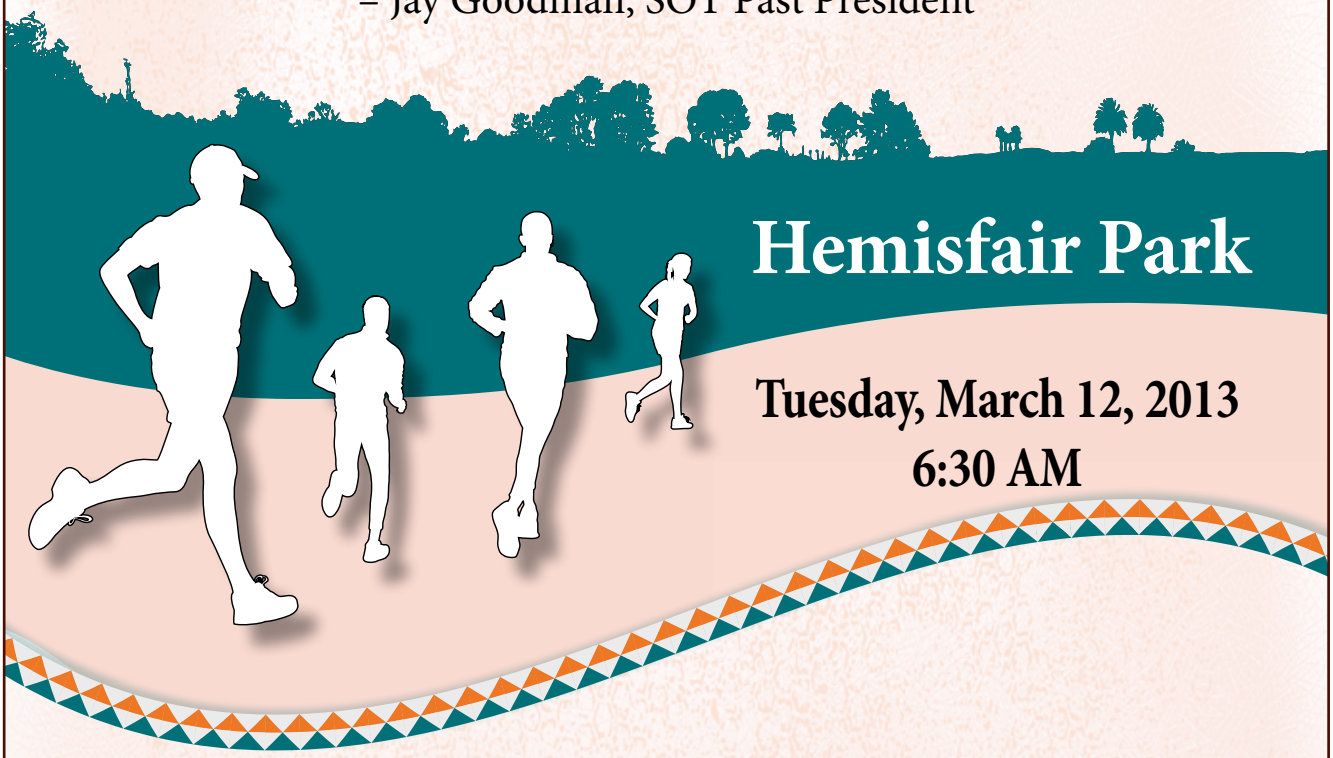
August 11–16, 2013, Proctor Academy, Andover, NH

http://www.grc.org/programs.aspx?year=2013&program=toxicity

Sponsored by the Society of Toxicology

2013 Past Presidents' 5k Fun Run/Walk

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



To register, visit the Social Events web page 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 $10 and all proceeds will go towards the SOT Endowment Fund.

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

Thank You to Our Sponsors:
Millar Instruments
Seventh Wave Laboratories/PreClinical Research Services

SOT is launching a special project for the SOT 52nd Annual Meeting by asking attendees to make a small donation to St. Jude's Ranch.
We would like St. Jude's Ranch for Children in Texas to remember the compassion of toxicologists and the SOT mission, which is to create a safer and healthier world.

ST. JUDE'S RANCH
FOR CHILDREN
with help comes hope

Visit the Giving Back web page under the General Information section of the SOT Annual Meeting website for additional information and to make a donation. A donation box from St. Jude's Ranch* also will be available at SOT Registration.

Donate online at:
www.toxicology.org/ai/meet/am2013/givingback.asp

**St. Jude's Ranch is not affiliated with St. Jude Children's Research Hospital*

General Information

Accessibility for Persons with Disabilities

The Henry B. Gonzalez 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 15), 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 Henry B. Gonzalez 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 C–D. 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 2013 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 15 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 15 (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 Henry B. Gonzalez 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*, the Late-Breaking Abstract Supplement, and other supplementary materials).

The Annual Meeting mobile event website and event app will be available to download in late January.

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 Henry B. Gonzalez 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 2013) 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: 210.258.8950
F: 210.258.8951
Email: store4180@theupsstore.com

The Henry B. Gonzalez Convention Center Business Center is conveniently located in the lobby on the Street Level adjacent to the café. The Business Center offers services such as UPS shipping, common office supplies, Internet access, high-quality black and white copying, printing, and uploading documents from a memory stick or CD.

Business Center hours:

Saturday ..... 9:00 AM–5:00 PM
Sunday ..... Closed
Monday–Friday ..... 8:00 AM–6:30 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 Henry B. Gonzalez Convention Center in Rooms 007 D (Office) and 008 (Interview Rooms) on the River Level.

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 Information Board

The Chat with an Expert (CWAE, formerly known as Lunch with an Expert) events are informal gatherings of small groups of students and a Toxicology Expert over a meal or coffee. The Graduate Student Leadership Committee sponsors these events to provide students 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 Information Bulletin Board provides all the details for the group meetings and is located in the Registration area. Groups meet at the Board 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 East Registration area. The coat/luggage check will be open Sunday, March 10 through Thursday, March 14. 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.

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 Street Level of the convention center. A map of the Exhibit Hall C–D 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 121. *ToxExpo Directories* are available at Registration and inside each entrances of the ToxExpo.

ToxExpo Time!

In addition to the standard ToxExpo hours and poster presentation times, one hour of dedicated ToxExpo Time has been allotted in the scientific program for attendees to visit with exhibitors. ToxExpo Time will take place on Tuesday, March 12, 12:30 pm–1:30 pm.

ToxExpo 2014 Exhibit Space Selection Process

Priority Point booth sales for 2014 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 2014 Sales Meeting on Tuesday, March 12, at 4:45 pm in Room 007 C on the River Level of the convention center.

General Information (Continued)

First Aid and Emergency Services at the Convention Center

If an emergency should occur while at the Henry B. Gonzalez Convention Center, proceed directly to the nearest house phone, located throughout the facility, and dial 7773 for security. You will be connected directly to the 24-hour manned security department at the convention center. From your cell phone, dial 210.207.7773, which will connect directly to security.

A First Aid room will be located in Room H62 just inside Exhibit Hall C.

The First Aid Administrator will be on duty:

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

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

Food Services

Coffee Breaks

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

Concessions

Concession stands are available in Exhibit Hall C–D Monday 8:30 am–4:30 pm and Tuesday and Wednesday 8:00 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 C–D. Please see the map on pages 38–39 for location. Concessions are run by the RK Group, providing outstanding and delectable food and beverage in the Henry B. Gonzalez Convention Center since 1971.

Restaurants

A full restaurant listing may be found on pages 33–35.

Take a Break!

Grab a bite! Check email! Plenty of seating is available in the Wi-Fi Lounges in the Exhibit Hall C–D, where wireless Internet access is available. See map on pages 38–39 for locations.

Giving Back

How will you remember the 2013 Annual Meeting in San Antonio? Enlightening and compelling scientific sessions, persuasive debates, and fond camaraderie? We would like children of the St. Jude's Ranch for Children in Texas to remember the compassion of toxicologists and the SOT mission, which is to create a safer and healthier world.

SOT is launching a special project for the SOT 52nd Annual Meeting in Texas by asking members to make a small donation to St. Jude's Ranch for Children. For more than 40 years, St. Jude's Ranch for Children has been healing and caring for abused, abandoned, and neglected children and young adults by empowering them to create new chances, new choices, and new hope in a caring community. In addition, St. Jude's Ranch for Children was recipient of the Angel Awards in 2012 as the Nonprofit of the Year. Visit the Giving Back web page at **www.toxicology.org/ai/meet/am2013/givingback.asp** for a direct donation link and more information. A box from St. Jude's Ranch for Children also will be available at SOT Registration for monetary donations.

Global Gallery of Toxicology

Toxicology Societies from around the world are invited to participate in the Global Gallery of Toxicology. Now in its third year, posters showcasing the formation, key accomplishments, strategic initiatives, and current and future activities of these sister societies will be prominently displayed during the meeting. In addition, the 2013 Global Gallery poster session has a "Representative Attended" poster time 11:00 am–12:30 pm on Monday, March 11. 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 Registration area in Bridge Hall. For more information, please contact Katie Moore at katie@toxicology.org.

General Information (Continued)

Green in San Antonio

The City of San Antonio has made a substantial commitment to the greening of the community via the Mission Verde Initiative. This initiative is taking a holistic approach to sustainability by creating the following programs:

- Creation of a twenty-first century urban energy infrastructure in San Antonio
- Creation of a multitech venture capital fund in San Antonio
- Creation of a Green Jobs Program
- Adoption of a green, high-performance building code for new residential and commercial construction

The Henry B. Gonzalez Convention Center is also committed to the sustainable practice at the center with the goal of reducing the carbon impact on the environment while being the best stewards they can be with their resources. The current green initiatives include waste reduction, energy conservation, water conservation, and green purchasing. In addition, the city of San Antonio offers a bike-sharing program a food donation program provided to Daily Bread Ministries and the San Antonio Food Bank, with an average of 1,000 meals a month, and more. For more information pertaining to the City's Mission Verde initiative, please go to **www.sanantonio.gov/oep/center.asp#sustainability**.

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 smart phone QR code reader and find a wealth of information regarding the 52nd SOT Annual Meeting, ToxExpo, and the surrounding city of San Antonio. 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 Grand Hyatt San Antonio Hotel, Presidio C.

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 Bureau

The deadline date for new housing reservations was February 8, 2013. Between February 9 and February 15, hotels download their lists and no changes can be made. After February 15, you may call the hotels directly for any housing requests. For information regarding your hotel reservation on-site, please visit the SOT Housing Desk located in the Registration area of Henry B. Gonzalez 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 Henry B. Gonzalez Convention Center.

@SOT Center—Internet Access and Technology Training

SOT will provide computers you can use to access the Internet. These computers are available to attendees in the @SOT Center (formerly know as the Email Center), located outside of ToxExpo.

One-on-one technology training and support is available during the meeting—stop in early to get the most out of the new SOT Mobile Event App and Event Website. SOT staff technology experts are available to assist you with any of the SOT web-based resources.

Free Wireless Internet Access

Free wireless Internet access is available in designated "Wi-Fi Zones" located in ToxExpo Exhibit Hall C-D. The wireless network name is *SOT2013*.

Free wireless Internet is also available in the common areas, including the Entrance Lobby, East and West Registrations, and the foyer outside of Meeting Rooms 208 through 218. The network name is *free Internet*.

Internet is available for purchase by the attendee at $12.95 per day, per device, everywhere in the building, except in the exhibit halls. To connect, go to view available wireless networks on your laptop, connect to Instant Internet network, and open your browser and the splash page for Instant Internet to load. Follow the directions and you will be connected. A receipt for the purchase will be emailed to you.

General Information (Continued)

Letter of Attendance

Please stop by Registration after Tuesday morning if you would like a letter of attendance for your participation in the 2013 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 202, of the Henry B. Gonzalez Convention Center. Any items left in the office after 11:30 am, Thursday, March 14, 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 C–D 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 202, Thursday morning, March 14. All posters not claimed by 1:00 pm on Thursday, March 14, 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. A press room will be available for reporters. For information about the program speakers, and/or sessions, please contact Martha Lindauer at SOT Headquarters: 703.438.3115, ext. 1640, or email at martha@toxicology.org.

Networking Time

The Scientific Program Committee has created a time on Tuesday, March 12, 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!

Program

This is the 2013 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 3.

Recording, Photography, and Cell Phone Policies

Each year, we welcome more than 7,300 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 is located in the Henry B. Gonzalez Convention Center, Bridge Hall on Street Level.

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, CSR, and NIEHS, will be available in the Research Funding Information Room (Room 209) for individual conversations. Check the posted schedule at the NIEHS booth 1218 for specific times staff members will be available all week to answer your questions about scientific review or grant opportunities. The schedule also will be available at the Registration area and in Room 212, and during the "Strategies for Submitting Successful Grants: Brown Bag Luncheon."

Research Funding Information Room hours:

Tuesday..... 9:30 AM–4:30 PM
Wednesday..... 9:30 AM–4:30 PM

General Information (Continued)

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.

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, smart phones, 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.

San Antonio Area Activities

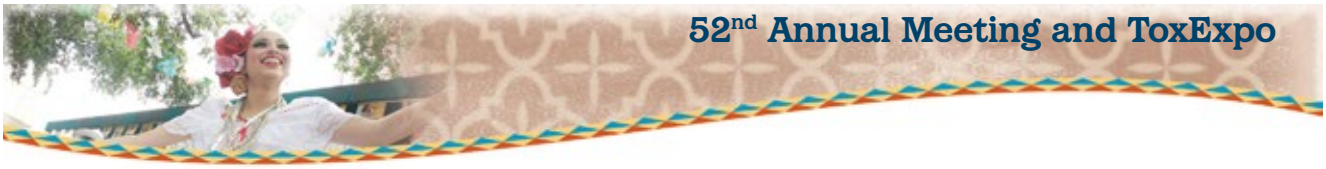
Any time you go to San Antonio you will be impressed by the diversity of the architecture and culture that have helped make this one of the most unique destinations in the United States. San Antonio is a city of contrasts between the old world and the new, the quaint and the contemporary. Native Americans originally lived near the San Antonio River and then in 1691, a group of Spanish explorers and missionaries came upon the river and the Native American settlement on June 13, the feast day of St. Anthony of Padua and named the place and river, San Antonio.

All of San Antonio's history is alive in buildings, such as the Alamo, the La Villita Historic Arts Village, The King William Historic District, the Espada, and the San Jose, San Juan Capistrano, and Concepcion missions. The heart of the city is made up of the Alamo, Military Plaza, the San Antonio River, and the Main Plaza, which dates back to the early 1700s. Given all of the available activities to do in San Antonio, be sure to book your tours early with your hotel concierge. The following is a suggested list of sites to visit during your stay in this most intriguing city:

- **The River Walk**—The celebrated Paseo del Rio is a winding and welcoming oasis that meanders through the downtown area. The River Walk is lined with numerous shops, restaurants, and other attractions such as the Aztec on the River, which is the only surviving exotic-themed movie palace in Texas.

  Rio San Antonio Cruises hosts daily tours of the River Walk Downtown Reach. Ticket booths are located at River Center Mall, river level of the Aztec Theatre, and at the new lock and dam on Brooklyn Avenue.

- **The Alamo**—This mission is San Antonio's most famous landmark. Originally named Misión San Antonio de Valero, the Alamo served as home to missionaries and their Indian converts for nearly seventy years. Construction began on the present site in 1724. In 1793, Spanish officials secularized San Antonio's five missions and distributed their lands to the remaining Indian residents. These men and women continued to farm the fields and participated in the growing community of San Antonio. In the early 1800s, the Spanish military stationed a cavalry unit at the former mission. The soldiers referred to the old mission as the Alamo (the Spanish word for "cottonwood") in honor of their hometown Alamo de Parras, Coahuila. When Antonio Lopez de Santa Anna rescinded the Mexican Constitution of 1824, violence engulfed many states. In a series of battles, the Texian Army succeeded in forcing Mexican soldiers out of the settlement.



General Information (Continued)

In December 1835, Texian forces captured San Antonio from forces commanded by General Martin Perfecto de Cos, Santa Anna's brother-in-law. In the spring of 1836, Santa Anna marched on San Antonio. The Battle of the Alamo took place February 23–March 6, 1836. This final battle constitutes the most celebrated military engagement in Texas history. For many Americans and most Texans, the battle has become a symbol of patriotic sacrifice.

- **The Spanish Governor's Palace**—The Palace is a National Historic Landmark in the city of San Antonio. Completed in 1749, it was originally intended to protect the nearby San Antonio de Valero Mission (the Alamo) and the growing colony and is considered the sole remaining example of an aristocratic early Spanish house in Texas. The National Geographic Society has called the landmark "the most beautiful building in San Antonio."
- **La Villita Historic Arts Village**—The Village was a settlement of primitive huts for the Spanish soldiers stationed at the Mission San Antonio Valero (The Alamo). The La Villita was the site of General Santa Ana's cannon line in the Battle of the Alamo. Today, La Villita is a thriving art community that features shopping, restaurants, and several art galleries.
- **Institute of Texan Cultures**—The institution museum is part of the University of Texas at San Antonio and affiliated with the Smithsonian Institution. It plays a role in the university's community engagement initiatives by developing quality, accessible resources for educators, and lifelong learners on topics of cultural heritage. It strives to develop a rich and vibrant culture in the arts and humanities that will expand the community's awareness and appreciation of Texas through an engaging series of exhibits, programs, and special events. Among other things, the exhibits include the more than 20 ethnic groups that settled in Texas.
- **Spanish Missions**—The Southern part of San Antonio includes four missions, Mission San José, Mission Concepción, Mission San Francisco de la Espada, and San Juan Capistrano. Mission San José is called the "Queen of the Missions." It was established in 1720 and relocated only once. Today, it provides the most complete picture of a working mission. Mission Concepción is the closest replica of the halcyon period, which was marked by colonial expansion. Missions San Francisco de la Espada and San Juan are smaller missions, which were important in keeping farms thriving. Here, you can visit the Espada Dam and aqueduct, which is considered a marvel of eighteenth century engineering.
- **King William Historic District**—The District is a replica for San Antonio's nineteenth century, which was booming because of the German bankers and millers who created the term "Sauerkraut Bend."

  In the late 1800s, the District was the most elegant residential area of the city. Prominent German merchants originally settled the area. Today, it is a 25-block area near downtown on the south bank of the San Antonio River, which is still considered a fashionable neighborhood.
- **Texas Star Trail**—If you enjoy walking then you'll love this tour! Pick up a map at the San Antonio Visitor Center and explore 2.6 miles of historical San Antonio and learn about 79 historic buildings, objects, places, events, and customs of San Antonio and Texas through history. The San Antonio Conservation Society first produced the tour in 1986.
- **Casa Navarro State Historic Site**—This historic site is nestled in downtown San Antonio. The half-acre site is the restored home of Texas patriot José Antonio Narvarro.
- **HemisFair Park**—The Park was built to host the 1968 World's Fair, and includes lushly landscaped areas, dramatic cascading waterfalls, and several historic buildings.
- **Majestic Theatre**—The ornate theater is one of the few remaining vintage vaudeville movie palaces. Its Moorish interior, twinkling lights, and moving clouds adorn the ceiling, all of which make the theater a site worth visiting.

Science the San Antonio Way

- **Bound Outdoors**—San Antonio offers some extraordinary opportunities to explore science outside of the SOT Annual Meeting. With Bound Outdoors, you can explore the newest area of the San Antonio River Walk through a team-building program that is part adventure and part discovery. Your program begins aboard the San Antonio River Taxi, where the Bound Outdoors Guides will greet everyone as the boat glides upstream towards our starting point.

  From there, a handheld GPS takes each team to build bridges, solve a water shortage, unlock riddles inside the San Antonio Museum of Art, and much more. Along the way, guides from Bound Outdoors will work with each team as they explore nature, history, and technology together.
- **Bracken Bat Cave**—Bracken Bat Cave is the summer home of the world's largest bat colony. With millions of Mexican free-tailed bats living in the cave from March through October, Bracken holds one of the largest concentrations of mammals on earth. The cave and 697 acres of the surrounding Texas Hill Country is owned and protected by Bat Conservation International.
- **Natural Bridge Caverns in the Heart of San Antonio**—Experience a thrilling and physically demanding three- to four-hour excursion into one of the world's premier caverns. Climb, crawl, rappel, explore—with only the light of your helmet to guide you. Once outfitted with caving gear, you'll be lowered by rope through a 160-foot

General Information (Continued)

well shaft. Travel approximately one mile, going down to 230 feet below surface level to the Fault Room, which features one of the longest soda straw formations in North America—14 feet in length.

- **Southwest Research Institute (SwRI)**—Headquartered in San Antonio, is one of the oldest and largest independent, nonprofit, applied research and development organizations in the United States. Founded in 1947 by Thomas Baker Slick Jr., an oilman and philanthropist, SwRI provides contract research and development services to industrial and government clients in the United States and abroad. Slick's goal was to establish an internationally known scientific research center in San Antonio and he challenged a group of pioneer scientists and engineers from around the nation to move to the new center to seek revolutionary advancements in many areas by developing and applying technology.

  Slick also founded the Texas Biomedical Research Institute, which conducts biomedical research and is home to the world's largest nonhuman primate colonies used to study human diseases.

San Antonio Fun Facts

1. The Alamo, one of five missions in San Antonio, was moved twice, even though it is probably the oldest mission.
2. The Chili Queens were once enterprising women who were laundresses by day and by night brewed chili at the doorstep of the Spanish Governor's palace.
3. St. Paula Square was named for the oldest African-American church in town.
4. Ellis Alley, located near downtown San Antonio, was settled by African-Americans, but changed in nature once the railroad arrived. It then became a venue for jazz. Performers include Ella Fitzgerald and Duke Ellington.
5. The San Antonio Zoo is the third largest in the nation.
6. VIA streetcars, one of San Antonio's metropolitan transit systems, are reproductions of authentic San Antonio railcars dating back more than 50 years.
7. The San Antonio Sports Hall of Fame is located on the first floor of the Alamodome.
8. The San Antonio National Cemetery was established in 1867 as the resting place for Union soldiers.
9. HemisFair Park is the site of the 1968 World's Fair.
10. According to the 2000 Census, the city proper had a population of 1,144,646, making it the ninth most populated city in the country. The 2011 census estimate for the San Antonio—New Braunfels area now makes it the 24th most populous metro area in the United States.
11. The River Walk extends some 2½ miles and attracts several million visitors every year.
12. The Fairmount Hotel, built in 1906, is San Antonio's second oldest hotel and in the Guinness World Records is listed as one of the heaviest buildings ever moved intact. It was placed in its new location, three blocks south of the Alamo over four days in 1985 and cost $650,000 to move.
13. San Antonio claims to be the birthplace of the spicy stew known as chili. San Antonio is also the home of the Frito, the Cheeto, and David Pace's Pace picante sauce.

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 (Aisle 100). 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 713.398.2268 or send an email to Rachel Primiano at rprimiano@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/am2013/present.asp**.

Scientific Poster Sessions

Poster sessions will take place in the Exhibit Hall C–D on Monday, March 11, 9:30 am–12:30 pm, and 1:00 pm–4:30 pm; and on Tuesday, March 12, and Wednesday, March 13, poster sessions will be presented 9:00 am–12:30 pm and 1:00 pm–4:30 pm respectively. On Thursday, March 14, all Late-Breaking Abstracts will be presented in a poster session from 8:30 am–12:00 noon in Exhibit Hall A.

Full Scientific Poster Session details and information about retrieving your poster may be found on page 121.

General Information (Continued)

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 202.

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

SOT Headquarters Office

The SOT Headquarters Office is located in the Henry B. Gonzalez Convention Center Room 202 on the Concourse 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 Henry B. Gonzalez Convention Center.

SOT Headquarters Office hours:

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

SOT Pavilion

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

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

Pavilion hours:

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

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

Pavilion Events

Monday, March 11 through Wednesday, March 13

Please stop by for these scheduled events each day:

9:00 AM–4:00 PM	***Toxicological Sciences*—**Everything You Want to Know
	Hispanic Organization of Toxicologists—Meet and Greet
10:00 AM–11:00 AM	**Women in Toxicology Special Interest Group—**Meet and Greet
	ToXchange Tutorial—Getting Started
12:00 Noon–1:00 PM	**ToXchange Tutorial—**Discussion Forums (Monday and Tuesday only)
1:00 PM–2:00 PM	**Graduate Student Leadership Committee (GSLC)—**Meet and Greet
2:00 PM–3:00 PM	**ToXchange Tutorial—**Surveys and Polls
3:00 PM–4:00 PM	**Meet the Leaders—**Regional Chapters, Special Interest Groups, and Specialty Sections
	***Toxicological Sciences*—**Meet the Editor, Manuscript Essentials

The Toxicologist and Annual Meeting *Program*

The Toxicologist: *The Official Record of the 2013 Annual Meeting Abstracts*

The Toxicologist is an important scientific resource, as it is the official compilation of all accepted abstracts for the 52nd Annual Meeting of the Society of Toxicology. With over 2,500 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 before the meeting and via the Annual Meeting app. *The Toxicologist* archive is available on the SOT website.
- Full abstracts can be accessed via the event mobile app or event website available on the SOT website and app market places in late January.
- The Late-Breaking Abstract Supplement to *The Toxicologist* will be available via the schedule in the SOT mobile event app and event website, SOT website, and on-site in the Registration area and outside Exhibit Hall A, where the posters will be presented on March 14.

The Program: *The Official Guide to the SOT 2013 Annual Meeting and ToxExpo*

The *Program* is the official guide to all the activities of the 2013 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 2013 award recipients, 2013 Honorary members, SOT Endowment Fund 2012 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 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/Sponsor-Hosted Sessions.

- The *Program* PDF is available for download via the SOT website (late January).
- Copies of the *Program* 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 15), 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).

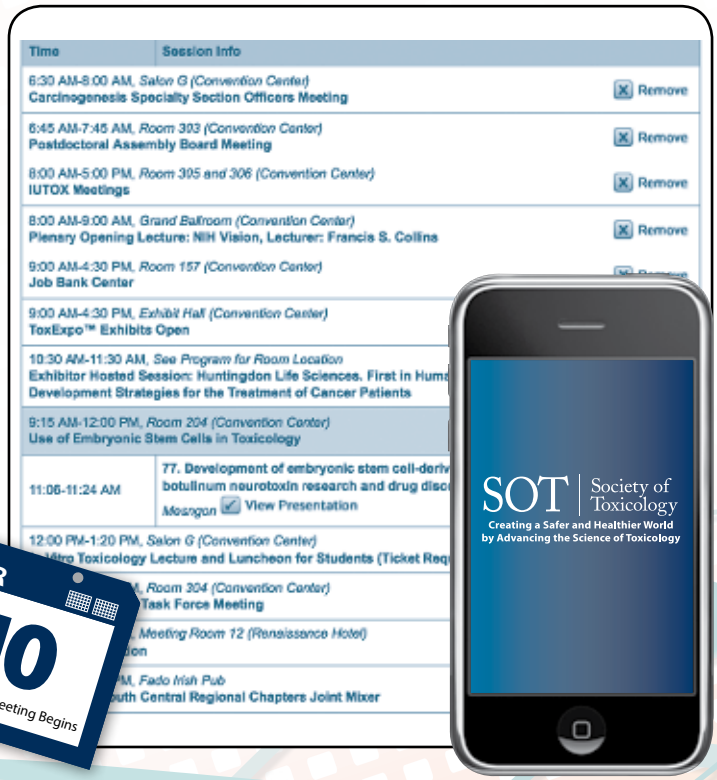
Annual Meeting Schedule and Planning Tool Enhancements

It's an exciting time for SOT as we continue to grow, remaining always adaptable, member-focused, and relevant. This year we are happy to announce we are leveraging the services of QuickMobile to provide you with a enhanced mobile event app and event website that will allow you to:

* Connect with fellow attendees
* Build your own schedule
* View presentation details and abstracts
* View and interact with speakers
* Request meetings with attendees and exhibitors
* Navigate ToxExpo with the interactive floor plan
* And many other exciting options

In late January, you will be able to download the mobile event app from the App Store, Android Market Place, Google Play, or access it for Blackberry or your computer via the mobile event website.

Look for more information on the SOT website.



General Information (Continued)

Speaker Ready Room

The Speaker Ready Room will be located in Room 211. SOT will provide all confirmed presenters in scientific sessions login credentials to access the submission site to preload your presentations. All presentations should be preloaded in advance of the meeting, but not less than 30 minutes prior to the start of the sessions if loaded in the Speaker Ready Room. Presenters will not be able to upload a presentation in the session room.

Speaker Ready Room hours:

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

Sponsorship

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

Sponsorship also provides an opportunity for better name recognition of your company among SOT members and the Annual Meeting attendees. In addition, your support allows the Society to keep registration fees low, thereby enabling us to attract more than 7,300 attendees to the Annual Meeting.

There are five levels of sponsorship 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 sponsorships designed to assist your organization in establishing a leadership position at the SOT Annual Meeting on the website at **www.toxicology.org**.

Sponsor names are prominently displayed on the Annual Meeting website, as well as in print materials that are distributed before and during the Annual Meeting. Sponsors also are recognized through signage displayed throughout the convention center during the Annual Meeting.

Annual Meeting sponsorship contributions are tax deductible per IRS regulations. For detailed information about SOT sponsorship opportunities, please contact Tina Giovanini at SOT Headquarters: 703.438.3115 or email: tina@toxicology.org.

For a complete list of our 2013 Annual Meeting Sponsors (as of press time), please see page 416 and the back cover or access them via the mobile event app or mobile website.

Transportation

Air Transportation

Special Airfare Discounts

SOT has established discounted rates through American and Delta 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.

American Airlines

800.433.1790
www.aa.com
SOT Discount Code: 7833BW

American Airlines is offering a seven percent discount off the lowest applicable fare for attendees traveling to San Antonio for the SOT Annual Meeting. The discount is valid March 6–19, 2013. You may book your ticket at **www.aa.com** (no service fee applies); in the promotion code box, type 7833BW to receive the discount.

You may also book your reservation by calling the AA Meeting Services Desk at 800.433.1790; however, a $25 service fee per ticket will apply (subject to change). International attendees should contact their local AA reservations office and give them the SOT Discount Code, 7833BW.

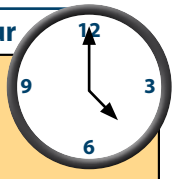
Delta Airlines

800.328.1111
www.delta.com
SOT Discount Code: NMEDM

Delta Airlines is offering a five percent to ten percent discount off full/nonrestricted fares to San Antonio from the US/Canada. The discount is valid March 7–17, 2013. You may book your ticket at **www.delta.com** (no service fee applies); select Meeting Event Code and enter the discount code NMEDM in the box provided on the Search Flight page.

You may also make reservations by calling the Delta Meeting Services Desk at 800.328.1111 from anywhere in the United States or Canada and refer to the discount code NMEDM, however, a service fee will apply.

Remember to Spring Forward One Hour



March 10, 2013

Daylight Saving Time Starts in the United States, Canada, and Mexico.

San Antonio is in the Central Time Zone which is GMT -6, but with DST is GMT -5.

General Information (Continued)

SOT Travel Agent—Carlson Wagonlit

Carlson Wagonlit is the official travel management firm for SOT's 52nd Annual Meeting. To take advantage of their services and savings, call toll-free 800.669.6024 Monday through Friday, 9:00 am–5:30 pm (Eastern Standard Time) and ask to speak to anyone on our SOT-dedicated team, or email arlington.us@contactcwt.com. To obtain the maximum discounted fares, call at least 60 days prior to departure. Discounted fares are still obtainable up to 14 days in advance. Please note that Carlson Wagonlit charges a $42 service fee per ticket.

Before calling Carlson Wagonlit, please gather the following information:

- Your name as it appears on your ID, and your date of birth
- The desired dates of arrival to and departure from San Antonio
- 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)

San Antonio International Airport (SAT)

San Antonio International Airport is located in Northern San Antonio, approximately eight and a half miles (approximately 15 minutes by car) from the downtown area. Loop 410 and US 281 are the two highways providing access to the main entry points. For up-to-the-minute departure and arrival information, airport maps, and details on shopping, dining, ground transportation, and more, visit **www.sanantonio.gov/aviation**.

Ground Transportation—From the Airport

Ground transportation is located curbside in front of Terminal A and B baggage claim area. Uniformed transportation agents (wearing red shirts) can describe services and provide rates to various destinations. For additional ground transportation information, please call 210.207.3411.

- **Taxi Cabs**—Taxi fares to San Antonio downtown areas are approximately $25 to $29 per taxi, not including tip. Up to six passengers may share a taxi for the price of one, as they do not charge per person.
- **Shuttle Service**—GO Airport Shuttle, is San Antonio International Airport's authorized and single shared-ride shuttle service. Shuttles depart from 7:00 am to 1:30 am daily to downtown hotels every 15 minutes. Passengers may purchase tickets at the airport's baggage claim area. Ticket rates are $18 per person to downtown hotels or $34 for a roundtrip ticket. There is a fuel surcharge of $1 each way. Book online and receive an additional discount. Online rates are $17 to downtown hotels and $32 for a roundtrip ticket. For more information, visit **www.saairportsshuttle.com** or call 210.281.9900.
- **City Bus (VIA)**—VIA Metropolitan Transit is San Antonio's public transportation agency. VIA's bus stop will be halfway between Terminals A and B, clearly marked. You will catch VIA bus route 5, which operates every day, and get to beautiful downtown San Antonio in about 30 minutes for only $1.10. For information regarding VIA's Day Pass and downtown streetcar service, see the Public Transportation section below. For more details, visit **www.viainfo.net** or call 866.362.2020.

Public Transportation—Getting around Town

- **Streetcar**—Some of the VIA Metropolitan Transit Streetcars are reproductions of authentic San Antonio railcars dating back more than 50 years. Routes include the Yellow Route, which covers the Alamodome, Henry B. Gonzalez Convention Center, Market Square, Rivercenter Mall, St. Paul Square, Sunset Station, and the Tower of Americas. The Red Route covers the Alamo, Henry B. Gonzalez Convention Center, Market Square, HemisFair Park, La Villita Historic Arts Village, Rivercenter Mall, and the San Antonio Visitor Information Center. The Blue Route includes the Alamo, Blue Star Arts Complex, Central Library, Henry B. Gonzalez Convention Center, HemisFair Park, King William Historical District, La Villita Historic Arts Village, Municipal Auditorium, Rivercenter Mall, San Antonio Visitor Information Center, and Southtown.

  For added convenience, VIA offers a $4 Day Pass, good for unlimited rides on all regular bus and streetcar service for the one day indicated on the pass. The Day Pass will be activated the first time boarding the bus or streetcar. Order your pass online (stores.viaonlinestore.net/storefront.bok) or stop by the Downtown Information Center at 211 West Commerce Street.
- **River Taxi**—The River Taxi stops at 39 locations on the River Walk. Purchase a one-way pass for $5, 24-hour pass for $10, or a 3-day pass for $25 (prices subject to change). Look for the river cruiser with the black and yellow checkered flag or black and red checkered flag. For more river taxi routes and other information, visit **www.riosanantonio.com/rio-taxi**.

General Information (Continued)

- **The Sightseer Special Bus**—The Sightseer Special (Bus 7) runs daily between the city's favorite sites. You can travel to them all for one price. Locations visited by the Sightseer Special include River Walk Streetcar Station, Henry B. Gonzalez Convention Center, Alamo, San Antonio Museum of Art, Japanese Tea Garden, Brackenridge Park, San Antonio Zoo, Trinity University, University of Incarnate Word, Witte Museum, and San Antonio Botanical Garden.
- **Bike-Share Program**—With 14 convenient spots throughout downtown San Antonio, B-cycle is Texas' first bike-share program and a green alternative to traditional public transit. Day visitors can purchase a 24-hour pass checked out daily between 5:00 am and 10:00 pm, and return to any B-cycle station at any time. For more information, visit **www.sanantonio.bcycle.com**.

Convention Center Location and Parking

San Antonio's central and concentrated downtown makes getting around a breeze. The Henry B. Gonzalez Convention Center is an easy walk from most hotels, restaurants, and attractions, and the center itself actually crosses right over the famous River Walk.

Henry B. Gonzalez Convention Center
200 East Market Street
San Antonio, Texas 78205

See the following list for a few of the closest public parking garages to the Henry B. Gonzalez Convention Center.

Marina Garage
210.207.8266
850 East Commerce Street
(across the street from the convention center/Grand Hyatt)
$9–$11/day
(prices subject to change)
Open 24 hours/day, 7 days/week

Groos Lot
210.212.4011
246 East Commerce Street
(across the street from the Westin River Walk)
$12–$15/day
(prices subject to change)
Open 24 hours/day, 7 days/week

Riverbend Garage
210.212.4011
210 North Presa Street
(at Commerce, Market, and Presa Streets)
$12–$15/day
(prices subject to change)
Open 24 hours/day, 7 days/week

Market Street Garage
210.212.4011
421 West Market Street
(across the street from the Westin River Walk)
$12–$15/day
(prices subject to change)
Open 24 hours/day, 7 days/week

For a full list of parking garages in San Antonio, visit **www.downtownsanantonio.org/park/parking**.

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 San Antonio area or those who do not wish to fly, you may want to consider the Ride Share Program. Avoid airport hassles by driving and make it easier for other scientists to attend by sharing rides. Students, especially, appreciate ways to make the meeting even more economical.

Once you have registered for the Annual Meeting, you can access the Ride Share Program. You can indicate whether you want to drive or be a passenger, and then see a list of others who are participating. It will be up to you to match your plans with someone else who is registered, and then to remove your names when you have travel plans in place.

Weather

San Antonio has a mild climate. The typical temperature range for March is an average low of 48°F and an average high of 70°F. For an up-to-date, detailed weather forecast, visit the National Weather Service Forecast Office at **www.srh.noaa.gov/ewx**.

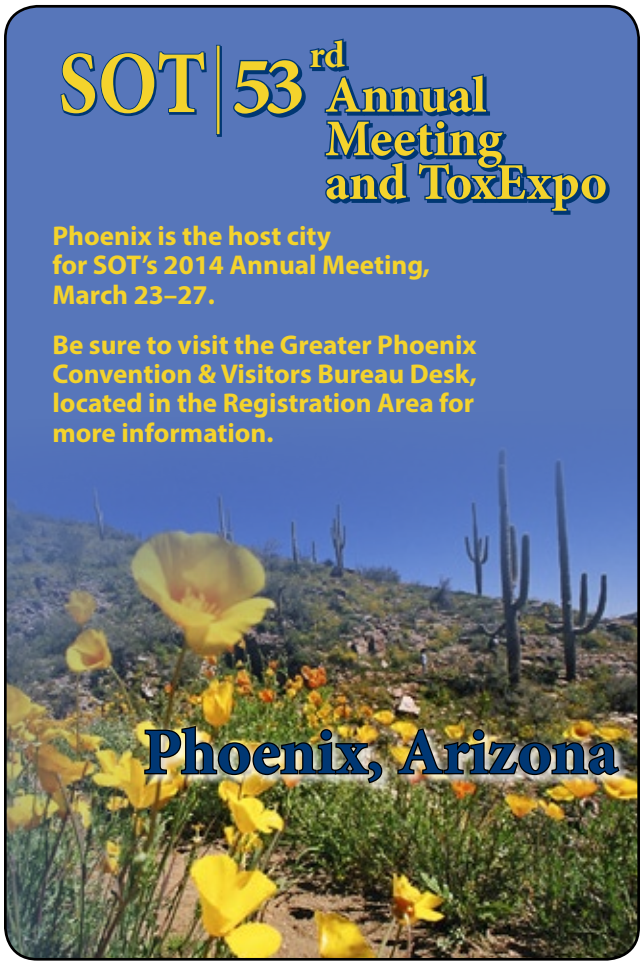


Photo is courtesy of Greater Phoenix Convention & Visitors Bureau.

Notes

job bank

Your Employment and Recruitment Resource

www.toxicology.org/jobbank

Job Seekers—Jobs Await You

Employers Are Looking for Candidates through the SOT Job Bank

- All SOT members can utilize the SOT Job Bank as a job seeker **free of charge.**
- Register and enter your candidate profile; it takes only 15 minutes to complete.
- Post your resume.
- 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.
- Contact employers.
- Gain access to information that will help you plan your near-term and long-term goals and objectives.
- See which sectors are hiring.
- Stay abreast of new and emerging fields.

Employers—Recruit Highly Qualified Candidates

The SOT Job Bank Is the Ideal Place to Streamline Your Recruitment Process

- Join the many employers who rely on this cost-effective and efficient database to assist with their employment needs.
- Find the right candidate from among scientists trained in toxicology and the biological sciences with the expertise and work experience you are looking for.
- Schedule interviews to be held during the SOT Annual Meeting at the on-site Job Bank Center.
- Reserve interview rooms in advance or on-site.
- SOT Affiliates receive a reduced registration rate in appreciation for supporting the Society in achieving its objectives.

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

SOT | Society of Toxicology

Career Resources 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 activities at the Annual Meeting, career development seminars and resources, 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 objective of the Mentor Match online mentoring program is to provide a service that matches mentees with potential mentors from the SOT membership to provide advice on career path selection, professional development, and life/work balance issues. SOT members are encouraged to share their professional knowledge and experience by serving as mentors for colleagues and for the next generation of toxicologists. The SOT Annual Meeting provides a great opportunity for the mentor and mentee to meet in person. We strongly encourage members of the Society to visit the Mentor Match site and register online as mentors and/or mentees. The Mentor Match program is accessible to all active SOT members by visiting **www.toxicology.org/ai/newcrad/mentormatch.asp**.

SOT Online Job Bank

Take Advantage of This Free Member Benefit

The Society's online Job Bank makes it easy for candidates and employers alike to access this resource any time, any place via the SOT website at **www.toxicology.org/jobbank**.

SOT Members can register as job seekers and access the positions posted on the Job Bank at no charge.

This forum links job candidates with employment positions in toxicology and related biological sciences. The SOT Job Bank allows you to:

- Register as an employer or candidate
- Post employment positions
- Search the Job Bank database
- Contact candidates or employers

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.

SOT | Society of Toxicology

Career Resources and Development Services (Continued)

Employers can attract potential candidates in a targeted and cost-effective manner through this SOT service. By having access to detailed candidate resumes, employers can determine the right match for a specific position and expedite the recruitment process. **SOT Corporate Affiliates receive a reduced rate for position posting in appreciation for supporting the Society in achieving its objectives.**

Job Seeker Registration for SOT Online Job Bank

Candidate Types	Fees
SOT Member	$ 0
Non-SOT Member	$80
Non-SOT Member—Postdoctoral	$45
Non-SOT Member—Student	$30

Employer Registration for SOT Online Job Bank

Employer Types	Fees
SOT Affiliate	$220
Corporation	$440
University or Government	$110
Nonprofit Organization	$110

Annual Meeting On-Site Job Bank Center

Located in the Henry B. Gonzalez Convention Center, the on-site Job Bank Center provides Annual Meeting attendees with access to the SOT Job Bank system as well as assistance in facilitating interviews at the SOT Annual Meeting. **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 008 on the River Level. Some rooms are available to be scheduled in advance, and others are on a first-come, first-served basis. To ensure privacy for candidates, the SOT Job Bank Center is located away from the scientific sessions. Also, the Job Bank 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 007 D on the River Level.

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 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.

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:

- From New Submissions to Competitive Renewals: Different Phases of Grant Writing—Monday, 12:10 pm to 1:30 pm, Room 214 C&D
- The Symbiosis of Mentoring: Getting the Most out of the Mentor-Mentee Relationship—Tuesday, 4:30 pm to 5:50 pm, Room 214 A&B
- Regulatory Science and Risk Assessment: Lessons for Early-Career Scientists on What to Expect and How to Pursue This Career Path—Wednesday, 12:00 noon to 1:20 pm, Room 214 C&D
- Toxicological Writing for Industrial and Regulatory Audiences—Wednesday, 4:30 pm to 5:50 pm, Room 214 C&D

Employer Ads in SOT *Communiqué*

The Society's newsletter/blog is disseminated each week and offers employers the opportunity to attract a pool of highly qualified candidates. It includes employment position advertisements from corporate, university, governmental, and nonprofit organizations wishing to reach the entire SOT membership and beyond. For more information, contact Marcia Lawson at SOT Headquarters: 703.438.3115 ext. 1446 or email: marcia@toxicology.org.

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

SOT Encourages the Recruitment of Undergraduates to Toxicology

Undergraduates can sign up on the SOT website for special status as Undergraduate Student Affiliates

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 Undergraduate Student Travel Award for outstanding students presenting abstracts**
- **Undergraduate Student Meeting Wednesday, March 13 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 Endowment Fund's 2013 Undergraduate Educator Award is presented to Sidhartha Ray, Manchester University College of Pharmacy

Find more information at www.toxicology.org

SOT 2013 Award Recipients

Achievement Award

Wei Xu

Wei Xu, PhD, is awarded the 2013 SOT Achievement Award.

Dr. Xu is associate professor of oncology, McArdle Laboratory for Cancer Research, University of Wisconsin-Madison, Madison, Wisconsin. Dr. Xu received her BS degree in chemistry from Beijing University, China, in 1991; MS degree in biophysics from the Institute of Biophysics, Beijing, China; and PhD degree in biochemistry from the University of Iowa in 1999. Her research interests are epigenetic transcriptional control in breast cancer, with specific interest centered on a protein arginine (R) methyltransferase CARM1/PRMT4, a nuclear hormone receptor coactivator, as well as histone H3 methylation by CARM1 potentiates target gene activation by ER. The central focus of Dr. Xu's lab is to analyze the estrogen receptor (ER) regulatory network, define the role(s) and functions of ERα/β homo/hetero dimers, and translate the research outcomes into a better understanding of how environmental estrogens might influence breast cancer outcomes and therapies. Her studies currently address biologically important unanswered questions about the mechanisms and regulation of hormone signaling and she has approached this topic with creativity, vision, and tenacity. To this end, Dr. Xu's lab pioneered the study of ERs in dimer forms and their differential effects in different biological contexts. In order to study ER dimers, Dr. Xu developed novel bioluminescence resonance energy transfer (BRET) assays that allow for high-throughput screening and identification of environmental ligands that selectively induce ERα/β heterodimers. Using those ligands as tools, she was able to show that ERα/β is growth inhibitory in breast cancer cells when both ERs are coexpressed.

The University of Wisconsin has recognized Dr. Xu's early achievements with two awards, a Vilas Associate Professorship and a Rush Basic Research Award at the UW-Comprehensive Cancer Center Retreat. Additionally, she has been highlighted in the Susan Komen Breast Cancer Foundation Spotlight (2008) and has been recognized with a Shaw Scientist Award, a UW-Madison and UW-Milwaukee collaborative that provides additional funding to up-and-coming researchers in the biomedical sciences. She additionally has received one of three Department of Defense Era of Hope awards in 2010.

The Society is pleased to present Dr. Xu with the 2013 SOT Achievement Award.

Arnold J. Lehman Award

Moiz Mumtaz

Moiz Mumtaz, PhD, is recognized as the 2013 recipient of the Arnold J. Lehman Award for his contributions to methods development for the risk assessment of chemicals, particularly as mixtures.

Dr. Mumtaz is a science advisor at the Environmental Toxicology Branch, Division of Toxicology and Human Health Sciences, ATSDR/CDC, Atlanta, Georgia. His research, which has traversed experimental toxicology (*in vitro/in vivo*), use of existing data for risk assessment, use of computational techniques to fill data gaps, and fine tuning of risk assessment methods using quantitative structure activity relationships (QSAR) and physiologically based pharmacokinetic (PBPK) modeling during the past 25 years, focuses on methods development for the human health risk assessment of environmental chemicals, their mixtures, and more recently, for cumulative risk of chemical and nonchemical stressors. Editor of P*rinciples and Practice of Mixtures Toxicology*, published by Wiley-VCH, Dr. Mumtaz has extensively published his research findings in several peer-reviewed journals. His involvement in several agency-wide activities at ATSDR has led to the establishment of a mixtures research program for determining significant human exposures to environmental chemicals that supported mixtures research at several universities and the foundation of a computational toxicology laboratory. Dr. Mumtaz has moved the field of regulatory toxicology and risk assessment significantly forward through innovative thinking and principled risk assessment practice.

Internationally recognized for his contributions of sound and credible science in characterizing risk, Dr. Mumtaz is a highly sought member of US government, national, and international workgroups and committees charged with chemical risk assessment who has served on numerous workgroups organized by NIOSH, CDC, US EPA, and ATSDR, among others, and National Academy of Sciences (NAS) and World Health Organization (WHO) panels. He also has served as a member of the US EPA's Board of Scientific Counselors Computational Toxicology Subcommittee and was involved in the ILSI Health and Environmental Sciences Institute Mixtures initiatives that recently reviewed chemical interactions data and performed a case study to assess mixtures of surface water contaminants using the Threshold of Toxicological Concern (TTC) approach that was presented at WHO. He serves as the principal representative of ATSDR on the Department of Health and Human Services (DHHS) Interagency Coordinating Committee on the Validation of Alternative Methods (ICCVAM).

(continued to next page)

SOT 2013 Award Recipients (Continued)

Dr. Mumtaz is an Adjunct Associate Professor in the Department of Environmental Health, Rollins School of Public Health, Emory University, Atlanta. He lectures on toxicology and risk assessment and serves as a mentor of graduate students in public health.

He also advances educational and academic programs in environmental toxicology through invitational lectures and has been actively engaged in continuing education programs through Society of Toxicology (SOT) Continuing Education courses and Society of Risk Analysis (SRA) workshops.

Dr. Mumtaz is the founding president of the SOT Mixtures Specialty Section and has served on several SOT workgroups including the SOT Chemical/Biological Terrorism Task Force, SOT Mixtures Task Force, and SOT Scientific Liaison Task Force. In addition, he is a member of the SOT ATSDR/NCEH/CDC Government Liaison Workgroup.

The Society is pleased to present Dr. Mumtaz with the 2013 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.

Petra Haberzettl

Petra Haberzettl, PhD, *University of Louisville, Louisville, KY*

Haberzettl P, Lee J, Duggineni D, McCracken J, Bolanowski D, O'Toole TE, Bhatnagar A, and Conklin D.

Exposure to Ambient Air Fine Particulate Matter Prevents VEGF-Induced Mobilization of Endothelial Progenitor Cells from the Bone Marrow

Environmental Health Perspectives, 2012; 120(6): 848–856.

Anne Loccisano

Anne Loccisano, PhD, *ORISE/US EPA/NCEA/NRIS, Arlington, VA*

Loccisano AE, Longnecker MP, Campbell JL, Jr., Andersen ME, and Clewell HJ, III.

Development of PBPK Models for PFOA and PFOS for Human Pregnancy and Lactation Life Stages

Journal of Toxicology and Environmental Health, Part A, 2013 Jan; 76(1): 25–57.

Yuanyuan Xu

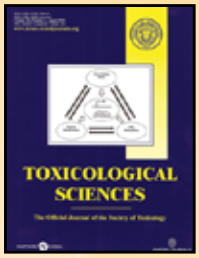
Yuanyuan Xu, MD, PhD, *National Institute of Environmental and Health Sciences, Research Triangle Park, NC*

Xu Y, Tokar EJ, Sun Y, and Waalkes MP.

Arsenic-Transformed Malignant Prostate Epithelia Can Convert Noncontiguous Normal Stem Cells into an Oncogenic Phenotype

Environmental Health Perspectives, 2012 Jun; 120(6): 865–871.

Board of Publications Award for the Best Paper in *Toxicological Sciences*



The Board of Publications has selected the paper entitled "Blood Gene Expression Profiling Detects Silica Exposure and Toxicity" as the best paper published in *Toxicological Sciences* in the past year (*Toxicol. Sci.* 2011, 122(2): 253–264). The authors are Rajendran Sellamuthu, Christina Umbright, Jenny R. Roberts, Rebecca Chapman, Shih-Houng Young, Diana Richardson, Howard Leonard, Walter McKinney, Bean Chen, David Frazer, Shengqiao Li, Michael Kashon, and Pius Joseph. The research was conducted at the National Institute for Occupational Safety and Health in Morgantown, West Virginia.

The authors evaluated gene expression alterations by microarray in the blood of rats exposed to silica via inhalation. They found that the number of gene expression changes was proportional to the extent of pulmonary toxicity produced, as measured by histopathology, macrophage and neutrophil infiltration, and cytokine activation. Analysis of the gene changes data demonstrated activation of inflammatory response as the major biological pathway activated by silica exposure. They extended these findings by using a selected 7-gene signature panel to predict the extent of toxicity of exposure to low concentrations of silica in rats.

This paper fulfills several promises put forth in the early stages of the toxicogenomic era. They evaluated gene expression changes in an easily obtained tissue instead of using target organ tissue. The gene expression data were closely anchored by phenotype analysis, which is an important step in the validation of surrogate biomarkers. Blood is easily obtained whereas target tissues, such as lung, are rarely available in humans. Secondly, they identified the mechanism of toxicity, inflammation, from the gene expression changes. Moreover, and most importantly, they were able to predict the pulmonary toxicity in rats exposed to low dose silica.

SOT 2013 Award Recipients (Continued)

This paper demonstrates an important breakthrough for the detection of target organ toxicity using an easily obtainable sample that may be applicable to a wide range of chemical exposures in humans.

Distinguished Toxicology Scholar Award

John J. Lemasters

John J. Lemasters, MD, PhD, is awarded the 2013 Distinguished Toxicology Scholar Award.

Dr. Lemasters is professor and director, Center for Cell Death, Injury and Regeneration, Department of Biochemistry & Molecular Biology and Pharmaceutical Sciences, Medical University of South Carolina, Charleston, South Carolina. Dr. Lemasters' research interests concern the cellular and molecular mechanisms underlying toxic, hypoxic, and ischemia-reperfusion injury. His laboratory applies new techniques of laser scanning confocal and multiphoton microscopy to characterize the physiology of single living cells, including the assessment of ion homeostasis, chelatable iron, mitochondrial function, electrical potentials, oxygen and nitrogen free radical formation, membrane permeability, and other biochemical parameters during the pathogenesis of lethal cell injury. These approaches are being extended to true *in vivo* (intravital) imaging of cells and tissues in living animals.

In addition to researching cellular and molecular mechanisms of apoptosis and necrosis, Dr. Lemasters is also concerned with organ preservation for transplantation surgery; mitochondrial physiology and pathophysiology, including mitochondrial permeability transition, mitophagy and calcium homeostasis; oxidative stress; ischemia/reperfusion; and confocal and multiphoton microscopy of living cells. Studying reperfusion injury to livers stored for transplantation surgery, Dr. Lemasters' laboratory developed a new solution, Carolina rinse solution, whose use during reperfusion reduces lethal endothelial injury greatly and improves graft survival dramatically. Similarly, his laboratory is developing rinse solutions to decrease reperfusion-induced myocardial infarction and is pursuing mechanisms of Kupffer cell activation caused by ischemia/reperfusion, endotoxin, alcohol exposure and traumatic stress, particularly the roles played by calcium, endocytosis, adenosine receptors and protein kinases. More recently, Dr. Lemasters' lab is characterizing ischemic preconditioning as a strategy of decreasing graft failure from preservation injury, especially in grafts harvested from non-heart beating cadaver donors and reduced-size liver grafts. With respect to ongoing mitochondria research, Dr. Lemasters' lab is exploring the hypothesis that closure of voltage-dependent anion channels (VDAC) in the mitochondrial outer membrane accounts for global mitochondrial suppression consistent with a role for VDAC as a dynamic regulator, or governator, of global mitochondrial function both in health and disease.

The Society is pleased to present Dr. Lemasters with the 2013 SOT Distinguished Toxicology Scholar Award.

FS **Distinguished Toxicology Scholar Award Lecture: Mitochondria: Crossroads of Cell Survival, Death, and Transformation, Wednesday, March 13, 12:30 PM–1:20 PM, Grand Ballroom C2**

Education Award

Rick G. Schnellmann

Rick G. Schnellmann, PhD, is the 2013 SOT Education Award recipient.

Dr. Schnellmann is an eminent scholar, distinguished university professor, and Chair, Department of Drug Discovery and Biomedical Sciences, Medical University of South Carolina, Charleston, South Carolina. The research projects in Dr. Schnellmann's laboratory are directed towards understanding the mechanisms of renal injury and regeneration. His current research is focused on mitochondrial injury and novel approaches to promote mitochondrial biogenesis to treat acute kidney injury and diabetic nephropathy, and acute and chronic diseases in other organs.

As a mentor of more than 40 graduate students and postdoctoral fellows in his laboratory as well as host to numerous undergraduate students, Dr. Schnellmann has focused on building a strong and consistent legacy of education that recognizes the value of training the next generation of toxicologists. He is renowned for influencing his students to find their "niche" in science, improving their scientific abilities, and placing them in prominent laboratories throughout the world. As such, his students have gone on to establish successful, independent careers in toxicology.

At the national level, Dr. Schnellmann has served as a member of the SOT Tox 90s Educational Task Force, as the vice chair and chair of the Subcommittee for Minority Initiatives for the Society. His service on these committees was exceptional and marked with a great spirit of dedication and commitment.

The Society is pleased to present Dr. Schnellmann with the 2013 SOT Education Award.

SOT 2013 Award Recipients (Continued)

Enhancement of Animal Welfare Award

Martin L. Stephens

Martin L. Stephens, PhD, is awarded the 2013 SOT Enhancement of Animal Welfare Award. Dr. Stephens is a senior research associate at the Johns Hopkins Center for Alternatives to Animal Testing (CAAT), where he coordinates the Center's activities on evidence-based toxicology. Prior to joining Hopkins in October 2011, Dr. Stephens was vice president for animal research issues at The Humane Society of the United States where he directed the Society's efforts on behalf of animals in laboratories. He served on the National Academy of Sciences committee that wrote *Toxicity Testing in the 21st Century*, as well as on program committees for the World Congresses on the use of animals and alternatives in the life sciences. He co-founded (i) the Human Toxicology Project Consortium, which seeks to accelerate the implementation of pathway-based toxicity testing; (ii) AltTox website which is devoted to nonanimal methods of toxicity testing; and (iii) the Russell and Burch Award, which has recognized the contributions of toxicologist and others to alternative methods. Dr. Stephens has received the Doerenkamp-Zbinden Award and the CAAT Recognition Award for his contributions to animal protection and alternative methods.

The Society is pleased to present Dr. Stephens with the 2013 SOT Enhancement of Animal Welfare Award.

Founders Award

William Alfred Suk

William Alfred Suk, PhD, MPH, is the 2013 SOT Founders Award recipient. Dr. Suk has served as director of the Superfund Hazardous Substances Basic Research and Training Program (Superfund Research Program) since its inception. He is also director of the Center for Risk & Integrated Sciences (CRIS) at the National Institute of Environmental Health Sciences (NIEHS). His affiliation with a number of organizations and committees include: Roundtable on Environmental Health Sciences, Research, and Medicine, Institute of Medicine, National Academy of Sciences; International Advisory Board of the Chulabhorn Research Institute, Bangkok, Thailand; and World Health Organization Consultation on Scientific Principles and Methodologies for Assessing Health Risks in Children Associated with Chemical Exposures. He is also a member of a number of trans-NIH committees.

Dr. Suk received his PhD in microbiology from the George Washington University and his Masters in Public Health in health policy from the School of Public Health, University of North Carolina at Chapel Hill. He sits on the editorial boards of a number of international journals, including *Environmental Health, Toxicology and Environmental Chemistry, International Journal of Occupational Medicine and Environmental Health,* and the *Central European Journal of Public Health*. Dr. Suk has been a National Science Foundation Fellow. The NIH has honored him for his many efforts and he has received the HHS Secretary's Award for Distinguished Service. He is a recipient of the Roy E. Albert Memorial Award for Translational Research in Environmental Health from the University of Cincinnati; the Child Health Advocacy Award from the Children's Environmental Health Network; the John P. Wyatt Lecture Award in Environmental Health and Disease from the University of Kentucky; and the Adel F. Sarofim Award for Outstanding Professional Achievement in Championing Research on the Origin, Fate and Health Effects of Combustion Emissions. In addition to these many honors, he is a Fellow of the Collegium Ramazzini.

The Society is pleased to present Dr. Suk with the 2013 SOT Founders Award, sponsored by the SOT Endowment Fund.

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. Through this novel program, SOT is sponsoring 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.

Sri Noegrohati

Sri Noegrohati, DrPharm, *Postgraduate Program of the Faculty of Pharmacy, Gadjah Mada, University and Faculty of Pharmacy, Sanata Dharma University, Jogyakarta, Daerah Istimewa Jogyakarta, Indonesia*

Hosts:
Michael L. Dourson, PhD, DABT, ATS, and Bernard K. Gadagbui, MSc, PhD, ERT, DABT, Toxicology Excellence for Risk Assessment, Cincinnati, OH

SOT 2013 Award Recipients (Continued)

Professor Noegrohati has a PhD in pharmacy and, since her dissertation in 1991, she has been involved in the risk assessment of contaminant residues, mainly pesticides, in the environment. She has been recognized by authorities from her country as an expert in the field. From 2002–2008 she worked with the Ministry of the Environment in the implementation and ratification of the Stockholm Convention on Persistent Organic Pollutants (POPs), as well as in the Estimation and Inventory of POPs in Indonesian Environment. Since 2003 she has been the Indonesian delegate for the Expert Working Group on the harmonization of Maximum Residues Limits of Pesticides among the Association of Southeast Asian Nations (ASEAN) countries. Additionally, she has been appointed by the Ministry of Agriculture as the study director for the ASEAN Pesticide Residue Data Generation Project. In 2010 the Indonesian Ministry of Health appointed her as a consultant for cosmetics safety.

The Global Senior Scholar Exchange Program (GSSEP) will assist Dr. Noegrohati in increasing risk assessment capabilities and quality, evaluating and interpreting data, and proposing safety specifications. Since the Indonesian government needs safety assessors to assist in establishing regulations, it is expected that her experiences through the GSSEP would help them in shaping a risk assessment course program, which would motivate younger faculties to advance their knowledge in environmental and life sciences, motivate them to do more research, and use their knowledge to improve public and environmental health.

Through the GSSEP experience Dr. Noegrohati is also seeking to improve the Postgraduate Pharmacy Program of Gadjah Mada University, where she is the lecturer for some courses, including environmental toxicology and risk assessment of pesticide residues. This in turn will increase the knowledge of the environment, toxicology, and ecotoxicology in undergraduate programs of Gadjah Mada and Sanata Dharma Universities.

Dr. Noegrohati will be hosted at Toxicology Excellence for Risk Assessment (TERA) by Drs. Michael Dourson and Bernard Gadagbui. TERA is an independent, nonprofit organization devoted to scientific collaboration to support the protection of public health. While at TERA, Dr. Noegrohati will network with TERA staff, learn about their activities related to evaluation and communication of risk, and investigate their training programs. She will also discuss academic and scientific programs related to human health risk assessment with scientists at University of Cincinnati, US EPA National Center for Environmental Assessment, Procter & Gamble, and other local institutions. In addition, she will participate in the Toxicology and Risk Assessment Conference (TRAC) to be held in Cincinnati, Ohio, in April, 2013.

Mohamed Mosaad Salama

Mohamed Mosaad Salama, MD, PhD,
Department of Toxicology, Mansoura University, Mansoura, Egypt

Host:
Mohamed Abou-Donia, PhD, Professor of Pharmacology and Cancer Biology, Professor of Neurobiology, Deputy Director of Marine Biomedical Center, Duke University Medical Center, Durham, NC

Dr. Salama is a lecturer and head of the Neurotoxicology Unit in the Department of Toxicology at Mansoura University, Egypt. He serves as the clinical toxicologist at the Mansoura University Hospital. Dr. Salama is also head and founder of the Neurotoxicology Unit within the Medical Experimental Research Center of Mansoura University (MERC). The Department of Toxicology at Mansoura University is multidisciplinary with well-established units in clinical, analytical, forensic, and neurotoxicology. The Neurotoxicology and Analytical Units have been recent recipients of sizeable grants for capacity building. His research focuses on the role of environmental pollutants in neurodegenerative disorders (with particular emphasis on Parkinson's disease) and the application of regenerative medicine tools such as stem cells in the treatment of such disorders. He has established collaborations with colleagues at the BMFZ-Philipps University and Technical University of Munich, Germany, on Parkinson's disease models and use of stem cells as potential treatment.

The Global Senior Scholar Exchange Program (GSSEP) offers several opportunities for Dr. Salama, his university, region, and country. First is the need to improve the undergraduate and graduate teaching programs in toxicology. During his visit at Duke University, Dr. Salama hopes to be exposed to the toxicology curriculum and take home ideas on improving the toxicology program at his university in Mansoura. He will also seek to identify opportunities for teaching or research collaboration and be exposed to state-of-the-art research techniques and capabilities. One of Dr. Salama's goals is to help make the toxicology department at Mansoura University an internationally recognized department. The GSSEP award will contribute to this goal through enabling the establishment of a strong and competitive toxicology education program and building collaborations with scientists in the United States, which would include exchange visits, exchange of teaching tools, and collaborative research programs.

Dr. Salama feels extremely fortunate to be hosted by Dr. Abou-Donia, a world-renowned toxicologist with extensive research output in neurotoxicology. In addition to networking with the Duke University students and faculty, Dr. Salama will have an opportunity, through Dr. Abou-Donia's strong networks, to also visit the Duke University Marine Laboratory located on the North Carolina coast; the NIEHS, the US EPA, and the Hamner Institutes for Health Sciences, all located in the Research Triangle Park.

SOT 2013 Award Recipients (Continued)

Leading Edge in Basic Science Award

Donald E. Ingber

Donald E. Ingber, MD, PhD, is the 2013 Leading Edge in Basic Science Award recipient.

Dr. Ingber 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. Dr. Ingber is a founder of the emerging field of biologically inspired engineering, and at the Wyss Institute, he oversees a multifaceted effort to identify the mechanisms that living organisms use to self-assemble and to apply these design principles to develop advanced materials and devices. 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. His most recent innovation is a technology for building tiny, complex, three-dimensional models of living human organs. These "organs on chips," which mimic complicated human functions, are designed to replace traditional animal-based methods for testing of drugs and toxins. Dr. Ingber also has made major contributions to mechanobiology, tissue engineering, tumor angiogenesis, systems biology, and nanobiotechnology. He was the first to recognize that tensegrity architecture (in which a system stabilizes itself mechanically by balancing local compression with continuous tension) is a fundamental principle that governs how living cells are structured at the nanometer scale. In addition, 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, and the Department of Defense Breast Cancer Innovator Award. He is also a member of the Institute of Medicine of the National Academies, a fellow of the American Institute for Medical and Biological Engineering, and serves on the Board of Directors of the National Space Biomedical Research Institute. The Society is pleased to present Dr. Ingber with the 2013 SOT Leading Edge in Basic Science Award.

FS **Leading Edge in Basic Science Award Lecture: Human Organs on Chips As Replacements for Animal Testing**
Tuesday, March 12, 8:00 AM–8:50 AM, Grand Ballroom C2

Merit Award

Frederick Peter Guengerich

Frederick Peter Guengerich, PhD, is awarded the 2013 SOT Merit Award.

Dr. Guengerich is the Stanford Moore professor of biochemistry, Vanderbilt University School of Medicine, Nashville, Tennessee. Dr. Guengerich, was director of the Center in Molecular Toxicology from 1980–2011 at Vanderbilt University and also served as interim chair of the Department of Biochemistry from 2010–2012. He is the author or co-author of over 620 peer-reviewed scientific articles and a researcher in toxicology working on cytochromes P450, DNA damage and carcinogenesis, and drug metabolism. His major areas of research interest include the metabolism of carcinogens and drugs by cytochrome P450 enzymes, the bioactivation of halogenated hydrocarbons, and polymerase interactions with carcinogen-modified DNA. Dr. Guengerich has served on several NIH study sections and special study sections and as an editorial board member or associate editor of a range of publications. He is presently an associate editor of both *Chemical Research in Toxicology* and the *Journal of Biological Chemistry,* and serves on the editorial boards of *Critical Reviews in Toxicology* and *Nature Reviews, Drug Discovery.*

Dr. Guengerich's research has led to a range of awards and honors, including the Society of Toxicology Achievement Award; Burroughs Wellcome Scholar in Toxicology Award; Bernard B. Brodie Award in Drug Metabolism from the American Society for Pharmacology and Experimental Therapeutics; the President's Distinguished Service Award, American College of Toxicology; American Association for Cancer Research Award for Outstanding Achievement in Chemistry in Cancer Research; R. T. Williams Distinguished Scientific Achievement Award of the International Society for the Study of Xenobiotics; and the Founders' Award, American Chemical Society, Division of Chemical Toxicology. He is also a Merit Awardee of the National Cancer Institute and has received an Honorary Doctorate (*Docteur Honoris Causa*) from L'Université Rene Descartes, Paris.

At Vanderbilt University, Dr. Guengerich has served as thesis advisor for 18 graduate students. Significantly, he has served as mentor to 125 postdoctoral trainees. The establishment of the F. Peter Guengerich Teaching Award for Mentoring Postdoctoral Fellows or Residents in the Research Setting at Vanderbilt University is testimony to the quality of his mentorship. In addition, he also teaches in biochemistry courses for graduate students. The Society is pleased to present Dr. Guengerich with the 2013 SOT Merit Award.

FS **Merit Award Lecture: Bioactivation, Covalent Binding, and Toxicity: A Personal Odyssey**
Monday, March 11, 12:30 PM–1:20 PM, Grand Ballroom C2

SOT 2013 Award Recipients (Continued)

Perry J. Gehring Diversity Student Travel Award

This award is presented during the CDI Reunion.

Alexandra Colón-Rodríguez

Alexandra Colón-Rodríguez, *Michigan State University, East Lansing, MI*

Abstract Number: 2144
Poster Board Number: 302

Abstract Title: Low-Dose Postnatal MeHg Exposure Alters mRNA Levels of Rat Brainstem Glutamate Receptors and Voltage-Gated Calcium Channels

Public Communications Award

Marti Lindsey

Marti Lindsey, PhD, is the 2013 Public Communications Award recipient and the director of the Community Outreach and Education Core, Southwest Environmental Health Sciences Center (SWEHSC), University of Arizona College of Pharmacy, Tucson, Arizona.

Dr. Lindsay draws upon her experience in order to share information resulting from the research of toxicologists and environmental health (EH) scientists with the public and the K–12 education community and to facilitate partnerships between these groups. Under the direction of Dr. Lindsey, the Community Outreach and Education Core (COEC) develops materials related to SWEHSC research topics and the environmental health issues in the southwest. These include: arsenic exposure, asthma, cancer (especially skin cancer and UV exposure), chemicals and human health, diabetes, and the environment, EH literacy, EH research methods, environmental toxicology, lead poisoning awareness, lung disease, organ damage from environmental exposure, TCE/1,4 Dioxane exposure, understanding risk and health, and health issues related to solid and hazardous waste. Dissemination mechanisms utilized by Dr. Lindsey include the creation of flyers, information walks, presentations, and web materials.

She has become nationally recognized for her success with outreach and communication to the Gila River Indian Community (GRIC) and Inter Tribal Council of Arizona (ITCA). Her expertise in this area has recently been further recognized as she was awarded an intercenter pilot grant entitled "Defining Environmental Health Literacy" that will fast track the process of finding consensus about the meaning of environmental health literacy by actively seeking the input of diverse groups.

As the co-director of the Keep Engaging Youth in Science (KEYS), a 7-week summer research internship program, Dr. Lindsey teaches high school students about toxicology and environmental health and places them in the research laboratories of SWEHSC investigators. This privately funded program has grown from 9 students in 2007 to accepting 48 students in 2013. During the last five years, Dr. Lindsey's Community Outreach and Education Core (COEC) informed more than 21,700 individuals directly of SWEHSC EH topics and reached half a million people via media coverage. COEC websites received an average of nearly 3,000 requests for pages per day between 2006 and 2010, with more than one million requests for pages in 2010 and 5.3 million during the funding period. Indirectly, 16,800 children were reached during the last five years by more than 200 teachers who attended professional development courses offered by Dr. Lindsey.

The Society is pleased to recognize Dr. Lindsey with the 2013 SOT Public Communications Award.

SOT/AstraZeneca/SOT Endowment Fund/IUTOX Travel Fellowships

John I. Anetor, PhD, *College of Medicine, University of Ibadan, Ibadan, Nigeria*

Kailen Boodhia, MSc, *National Institute for Occupational Health, Johannesburg, South Africa*

Karina R. Caballero-Gallardo, MSc, *University of Cartagena, Cartagena, Colombia*

Osama S. El-Tawil, PhD, *Cairo University, Giza, Egypt*

Miriam Carolina Guzmán Quilo, MTox, MSc , *Centro de Información y Asesoría Toxicológica CIAT, Guatemala City, Guatemala*

Wafa Hassen, PhD, *High Institute of Biotechnology, University of Monastir, Hammam Sousse, Tunisia*

Saleem Khan, PhD, *Indian Veterinary Research Institute, Udaipur, India*

Wenceslao A. Kiat Jr., MD, DPPS, FPSCOT, *St. Luke's Medical Center, Quezon City, Philippines*

Ravinesh Mishra, MPharm, PhD, *Baddi University of Emerging Sciences & Technology, Baddi (Solan), India*

Olubanke O. Ogunlana, PhD, *Covenant University, Ota, Nigeria*

SOT 2013 Award Recipients (Continued)

Toxicology Landmarks Program

Herbert L. Needleman

Herbert L. Needleman, MD, is a medical doctor, child psychiatrist, professor, and renowned scientist who is best known for his seminal research on the neuro-developmental damage caused by lead poisoning. Dr. Needleman played a key role in securing important environmental health protections during the twentieth century, including the elimination of lead in gasoline and the issuance of guidelines by the Centers for Disease Control and Prevention for the diagnosis and management of lead poisoning in children. He played a key role in helping to establish environmental safety measures that have reduced blood lead levels by an estimated 78 percent between 1976 and 1991. In addition, his work and persistence in educating government policymakers and others helped bring about the Consumer Product Safety Commission's ban on lead in interior paints. Dr. Needleman's work was also instrumental in convincing the Department of Housing and Urban Development to remove lead from thousands of housing units in the United States. He also designed one of the first studies of lead exposure during gestation that demonstrated that such exposure is associated with cognitive deficits later in life.

In addition to his many scientific achievements, Dr. Needleman also authored numerous books to offer advice to parents and physicians on how to evaluate and minimize toxic exposure risks including lead, asbestos, pesticides, and other toxins. While teaching at Temple University, he served as the chair of the Committee of Responsibility whose goal was to help civilians who were injured in the Vietnam War. Working with other medical doctors, scientists, clergymen, and citizens, the Committee assisted injured Vietnamese children and set up shelters for care of paraplegic children in Berkeley, California and Boston, Massachusetts.

For his achievements as a researcher on the neurodevelopmental damage caused by lead poisoning and as a researcher who made substantial inroads leading to significant environmental health protections during the twentieth century, the Society of Toxicology is pleased to present the Toxicology Landmark Program Award to Dr. Needleman.

Translational/Bridging Travel Award

M. Shane Hutson

M. Shane Hutson, PhD, who joined the faculty at Vanderbilt University, Nashville, Tennessee, in 2003, is Associate Professor of Physics, with a secondary appointment in Biological Sciences. Professor Hutson is also a Fellow of VIIBRE—the Vanderbilt Institute for Integrative Biosystem Research & Education. His research interests are in biological physics, specifically in how biological systems can be probed and manipulated by light (biophotonics). Current projects in the lab include investigating the physical mechanisms underlying laser tissue ablation, both with mid-IR and UV lasers; using laser-microsurgery to probe the inter- and intracellular forces that drive morphogenesis (i.e., the development of an organism's form); and using genetics, laser-microsurgery, and quantitative modeling to integrate the genetic and mechanical aspects of wound detection and healing.

The Society is pleased to recognize Dr. Hutson as the recipient of the 2013 SOT Translational/Bridging Travel Award.

Undergraduate Educator Award

Sidhartha D. Ray

Sidhartha D. Ray, PhD, FACN, is awarded the 2013 SOT Undergraduate Educator Award.

Dr. Ray is professor and chair, Department of Pharmaceutical Sciences, Manchester University College of Pharmacy, Fort Wayne, Indiana since May 2011. Dr. Ray chairs programs of education, research and service in the Department of Pharmaceutical Sciences and is a member of the Dean's Management Council. Prior to joining Manchester University, Dr. Ray served as professor of toxicology at the Arnold and Marie Schwartz College of Pharmacy and Health Sciences of Long Island University, New York, where he taught several courses in toxicology, medical microbiology and immunology for nearly two decades. In his 28 years of academic experience in pharmacy teaching and research, he has trained numerous undergraduate and graduate students in toxicology. Dr. Ray is both a dedicated teacher and a formidable scientist who passionately teaches his students how to be "lifelong learners"! He currently teaches several undergraduate core courses in biomedical sciences, toxicology, and integrated pharmacotherapeutics. Over the last decade, Dr. Ray has contributed greatly to our knowledge on the apoptosis in the

SOT 2013 Award Recipients (Continued)

toxicity of acetaminophen as well as a stunning variety of drugs and chemicals. His research has influenced the development of safety measures for a number of drugs and chemicals. He is nationally recognized as a leader in the scientific community and was the first to organize continuing education courses on the role of apoptosis in health and disease at the Annual Meeting of the Society of Toxicology in 1996 in Los Angeles, California, and again in 2002 in Nashville, Tennessee.

Based upon his seminal work over the past two decades focused on understanding fundamental mechanisms of how cells die (apoptosis) at the cellular, subcellular and genomic levels, Dr. Ray received several prestigious awards. These include the Abraham Krasnoff Memorial Award for Lifetime Scholarly Achievement, the David Newton Award for Excellence in Teaching Pharmacy, and the American Academy of Clinical Toxicology Research Award. He is internationally known for his ground-breaking work on drug and chemical-induced programmed cell death in the liver and kidneys *in vivo* and its prevention strategies by various phytochemicals. He currently serves on the NIH–NLM–Toxlearn Project and SOT Undergraduate Task Force Subcommittee (both, 2007–present), and has previously served on the SOT Education Committee (2007–2010).

The Society is pleased to present Dr. Ray with the 2013 SOT Undergraduate Educator award.

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Do you know a toxicologist who deserves to be recognized?

SOT recognizes distinguished toxicologists and students with many prestigious awards each year. In addition to receiving the specific award, recipients are honored at a special Awards Ceremony at the SOT Annual Meeting and their names are listed in SOT publications. Most award nominations and applications are submitted through a quick online process.

Applications for 2014 national SOT awards are due October 9, 2013.

Regional Chapter Awards, Special Interest Group Awards, and Specialty Section Awards have various deadlines throughout the year.

Visit the Awards and Fellowships section of the website for award descriptions, and additional information, and to make nominations.

www.toxicology.org

Sponsored 2013 Award Recipients

Colgate-Palmolive Awards for Student Research Training in Alternative Methods

Aaron Lulla, BS, *University of California Los Angeles, Los Angeles, CA*

Project Title: The Dithiocarbamate Fungicide Ziram Results in Endogenous Synuclein Aggregation, Dopaminergic Cell Loss, and Reduced Locomotor Behavior in a Zebrafish Model of Parkinson's Disease

Host Institution: University of California Los Angeles, Los Angeles, CA

Jamie Moscovitz, BA, *Rutgers, The State University of New Jersey, Piscataway, NJ*

Project Title: Utilization of Primary Hepatocytes to Investigate Mechanisms of Chemical Disposition and Toxicity during Pregnancy

Host Institution: University of Rhode Island, Kingston, RI

Alexandra Munoz, BA, *New York University School of Medicine, Tuxedo, NY*

Project Title: Multivariate Analysis and Fuzzy Modeling to Detect Nickel and Arsenic-Induced Gene Signatures in Microarray Data

Host Institution: University of Applied Sciences, Western Switzerland, Yverdon-les-Bains, Switzerland

Colgate-Palmolive Grants for Alternative Research

Lei Li Kerr, PhD, *Miami University, Oxford, OH*

Project Title: Development of Artificial Nose for the Study of Engineered Nanomaterial Toxicity and Accumulation in Brain via Olfactory Pathway Exposure

Hao Zhu, PhD, *Rutgers University, Camden, NJ*

Project Title: Profiling Chemicals Based on Public BioAssay Data for the Development of Predictive Computational Acute Toxicity Model

Colgate-Palmolive Postdoctoral Fellowship Award in *In Vitro* Toxicology

Melanie Adler, PhD, *Brigham and Women's Hospital, Boston, MA*

Project Title: Development and Evaluation of a High-Throughput Platform for Kidney Toxicity Screening and Mechanistic Understanding

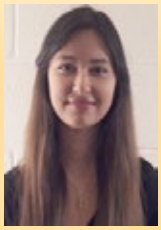
Sponsored 2013 Award Recipients (Continued)

Pfizer Undergraduate Student Travel Awards

Amy Ashworth, *Northern Kentucky University, Highland Heights, KY*

Abstract Number: 1377
Poster Board Number: 411

Abstract Title: Optimizing Methods to Quantify CYP1A Enzyme Activity in Mouse Brain following Developmental PCB Exposure



Naing Bajaj, *New Mexico State University, Las Cruces, NM*

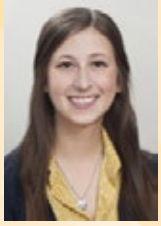
Abstract Number: 193
Poster Board Number: 352

Abstract Title: The Impact of CYP2S1 Single Nucleotide Polymorphisms on the Metabolic Activation of the Anticancer Prodrug AQ4N

Adrienne R. Klinger, *University of North Dakota, Grand Forks, ND*

Abstract Number: 2284
Poster Board Number: 507

Abstract Title: Fibronectin Expression in Human Bladder Cells (UROtsa) Exposed to or Malignantly Transformed by Arsenic or Cadmium



Anna Lang, *Northern Kentucky University, Highland Heights, KY*

Abstract Number: 1391
Poster Board Number: 425

Abstract Title: Cyp1a1_Cyp1a2(-/-) Double-Knockout Mice Exhibit Impaired Motor Function

Douglas J. Saforo, *University of Louisville, Louisville, KY*

Abstract Number: TBD
Poster Board Number: TBD

Abstract Title: Compounds Targeting Anaphase Promoting Complex Disrupt Mitosis and Induce Apoptosis in Cancer Cells

Syngenta Fellowship Award in Human Health Applications of New Technologies

Julia E. Rager, MS, *University of North Carolina at Chapel Hill, Chapel Hill, NC*

Project Title: Elucidating the Relationship between Exposure-Induced DNA Damage and Dysregulated MicroRNAs

SOT 2013 Honorary Memberships

Honorary membership is awarded by the Society of Toxicology to people who are not members of the Society in recognition of outstanding and sustained contributions to advancing the science and field of toxicology. The 2013 SOT Honorary members are Dr. Bruce A. Beutler and Prof. Jeremy K. Nicholson.

Bruce A. Beutler

Bruce A. Beutler, MD, is a regental professor and director of the Center for the Genetics of Host Defense at University of Texas Southwestern Medical Center. He received his MD from the University of Chicago in 1981. As a postdoctoral associate at Rockefeller University (1983–1986), he isolated mouse tumor necrosis factor (TNF) and discovered its importance as a mediator of inflammation. Subsequently at University of Texas Southwestern he analyzed mammalian responses to bacterial lipopolysac-charide. This work culminated in the discovery of Toll-like receptors as key sensors of the innate immune system, capable of detecting infection within minutes of the time the host is inoculated with microbes. In further studies, Beutler has used a forward genetic strategy to elucidate many aspects of mammalian immunity. He received numerous awards for his work, among them the Balzan Prize (2007), the Albany Medical Center Prize (2009), the Shaw Prize (2011), and election to the US National Academy of Sciences (2008), the Institute of Medicine (2008), and EMBO. In 2011, he shared the Nobel Prize in Physiology or Medicine for "discoveries concerning the activation of innate immunity."

The Society is pleased to recognize Dr. Beutler as a 2013 SOT Honorary member.

Jeremy K. Nicholson

Jeremy K. Nicholson, PhD, has won many accolades and international prizes for his work, which spans three decades, and is the author of over 500 peer-reviewed scientific papers and many other articles/patents on the development and application of novel spectroscopic and systems biology approaches to the investigation of disturbed metabolic processes in complex organisms. He was elected as a Fellow of the Academy of Medical Sciences in 2010 and currently holds honorary professorships at eight overseas universities and the Chinese Academy of Sciences, and is on the editorial board of eight international scientific journals. He is head of Department of Surgery and Cancer at Imperial College London. He is also a consultant for many pharmaceutical/healthcare companies in the United Kingdom, Europe, and the United States, and is a founder director of Metabometrix, an Imperial College spin-off company specializing in molecular phenotyping, clinical diagnostics, and toxicological screening via metabonomics and metabolomics.

The Society is pleased to recognize Dr. Nicholson as a 2013 SOT Honorary member.

Notes

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ENDOWMENT
Investing in the Future ...

SOT Endowment Fund

Building for the Future

Contributors to the SOT Endowment Fund are helping to build for the future of toxicology through long-term financial support, which also generates critical resources that enable the Society to fulfill its mission, now and in the years to come.

Since its inception in 2006, Contributors to the Endowment have:

- Underwritten more than 100 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 educators in toxicology 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.

Make a Difference by Becoming a Contributor to the SOT Endowment Fund.

2012 Endowment Award Recipients

For a complete Fund listing and contributions over the past six years, go to www.toxicology.gift-planning.org.

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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/ai/csot/contribute.asp.

Endowment Fund Contribution Donor Form can be found on page 411.

SOT Endowment Fund 2012 Award Recipients

SOT Endowment Fund—Helping the Society Fulfill Its Mission to Build for the Future

The SOT Endowment Fund is a family of Funds comprising the Education Fund, Global Activities Fund, SOT Priorities Fund, and the 33 Named Funds.

In the SOT 2011–2012 fiscal year, the Education, Global Activities, SOT Strategic Priorities, Endowment Funds, Harry W. Hays Memorial Fund, and the Sheldon D. Murphy Memorial Fund contributed funding to three SOT initiatives that addressed one or more of the Society's strategic objectives.

The Founders Award

The Founders Award was conferred on James S. Bus. This Award was established for his leadership in advancing the role of toxicology.

Undergraduate Educator Award

The Undergraduate Educator Award was conferred on Sue M. Ford. This award was established to recognize efforts to increase the pipeline of future toxicologists and was funded through the SOT Endowment Education Fund.

SOT/Endowment Fund/IUTOX Travel Fellowship

As part of our effort to strengthen global participation, the Global Activities Fund and the SOT Strategic Priorities Fund provided financial assistance for Sunisa Chaiklieng (Thailand), and Jianlin Lou (China) to travel to the 51st Annual Meeting in San Francisco, California. 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.

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 2012 Annual Meeting, the SOT Priority and Education Endowment Funds provided funding for an additional ten students, who might not otherwise have found funding, to participate in the Annual Meeting.

SOT Endowment Fund 2012 Award Recipients

Mary Amdur Student Award Fund

Alex Carll, MSPH, *BA, University of North Carolina at Chapel Hill/ US EPA, Carrboro, NC*

Young Soo Choi Student Scholarship Award Fund

Hae-Ryung Park, Doctoral Program, *University of Michigan, Ann Arbor, MI*

Laxman S. Desai Association of Scientists of Indian Origin Student Award Fund

Nivedita Banerjee, MS, *Texas A&M University, College Station, TX*

Vijay More, MS, *University of Rhode Island, Kingston, RI*

John Doull Student Award Fund

Alice Crane, BA, *University at Buffalo, Buffalo, NY*

Education Fund: Undergraduate Educator Award

Sue M. Ford, PhD, DABT, *College of Pharmacy and Allied Health Professions, St. John's University, Jamaica, NY*

Founders Fund

John A. Moore, DVM, DABT, *Hollyhouse Inc, Wicomico Church, VA*

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ENDOWMENT
Investing in the Future ...

SOT Endowment Fund 2012 Award Recipients (Continued)

Perry J. Gehring Biological Modeling Student Award Fund

Kathleen Holm, PhD, MS, BS, *US Environmental Protection Agency, Raleigh, NC*

Perry J. Gehring Diversity Student Travel Award Fund

Alba K. Gonzalez Rivera, *University of Puerto Rico Arecibo, Arecibo, Puerto Rico*

Perry J. Gehring Risk Assessment Student Award Fund

Student:
Nicholas Heger, BS, *Brown University, Providence, RI*

Postdoc:
Michelle DeSimone, PhD, *North Carolina State University, Durham, NC*

Health and Environmental Science Institute Immunotoxicology Young Investigator Student Award Fund

David Blake, PhD, *Fort Lewis College, Durango, CO*

Vera W. Hudson and Elizabeth K. Weisburger Scholarship Fund

Alice Crane, BA, *University of Buffalo, Buffalo, NY*

Frank C. Lu Food Safety Student Award Fund

Amanda Smolarek, BS, *Rutgers University, Piscataway, NJ*

Jean Lu Student Scholarship Award Fund

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

Roger O. McClellan Student Award Fund

Amber Roegner, BS, *(DVM/PhD Candidate), University of California Davis School of Veterinary Medicine, Davis, CA*

Harihara Mehendale Association of Scientists of Indian Origin Student Award Fund

Murli Mishra, PhD, *Graduate Center for Toxicology, University of Kentucky, Lexington, KY*

Ashwini Phadnis, BS, MS, *Michigan State University, East Lansing, MI*

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ENDOWMENT
Investing in the Future ...

To become an Endowment Fund contributor and enjoy the fulfillment of knowing that you are helping to build for the future of toxicology, please visit the Endowment Fund Section of the SOT website. You can make a difference in the lives of toxicologists by your generous support. Add your name to the Honor Roll of Contributors.

SOT Endowment Fund 2012 Award Recipients (Continued)

Molecular Biology Student Award Fund

Students:
First Place
Laura MacPherson, MSc, BMSc, *University of Toronto, Toronto, ON, Canada*

Second Place
Rachel Tanos, PhD, *Pennsylvania State University, State College, PA*

Third Place
Britton Goodale, BS, *Oregon State University, Corvallis, OR*

Third Place
Hong Loan Nguyen, MS, *Pennsylvania State University, State College, PA*

Postdoctorals:
First Place
Kristy Kutanzi, BSc, PhD, *National Center for Toxicological Research, Oak Ridge Research Institution for Science and Education, Redfield, AR*

Second Place
Indira Jutooru, BVSc, PhD, *Texas A&M University, College Station, TX*

Emil A. Pfitzer Drug Discovery Student Award Fund

Students:
First Place
Rhiannon Hardwick, BS, BFA Ballet Pedagogy, *University of Arizona, Tucson, AZ*

Second Place
Michael Rouse, MS, *University of South Carolina School of Medicine, Columbia, SC*

Third Place
Rachel Tanos, PhD, *Pennsylvania State University, State College, PA*

Postdoctorals:
First Place
Jennifer Foreman, PhD, *Pennsylvania State University, State College, PA*

Second Place
Aik Jiang Lau, BS, PhD, *The University of British Columbia, Vancouver, BC, Canada*

(not pictured)
Third Place
Xi Yang, *US FDA-NCTR, Jefferson, AR*

Gabriel L. Plaa Education Award Fund

Tao Chen, MD, *MS, Pennsylvania State University, State College, PA*

Renal Toxicology Fellowship Award Fund

Jessica Sapiro, BS, *MS, University of Arizona, Tucson, AZ*

Robert J. Rubin Student Travel Award Fund

Leena Mol Thuruthippallil, Graduate Student, *Ehime University, Matsuyama, Japan*

Dharm V. Singh Association of Scientists of Indian Origin Student Award Fund

Kartik Balachandran, MS, PhD, *Harvard University, Wyss Institute for Biologically Inspired Engineering, Boston, MA*

Neera Tewari-Singh, PhD, *University of Colorado Denver, Aurora, CO*

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 2012 Award Recipients (Continued)

Dharm V. Singh Carcinogenesis Award Fund

Sara Nowinski, BA, *Austin College of Pharmacy, Austin, TX*

Carl C. Smith Student Mechanisms Award Fund

First Place
Alexandria Lau, BS, *University of Arizona, College of Pharmacy, Department of Pharmacology and Toxicology, Tucson, AZ*

Second Place
Owen R. Kinsky, BA, *University of Arizona, Tucson, AZ*

Third Place
Afshin Mohammadi Bardbori, PhD, *Karolinska Institutet, Stockholm, Sweden*

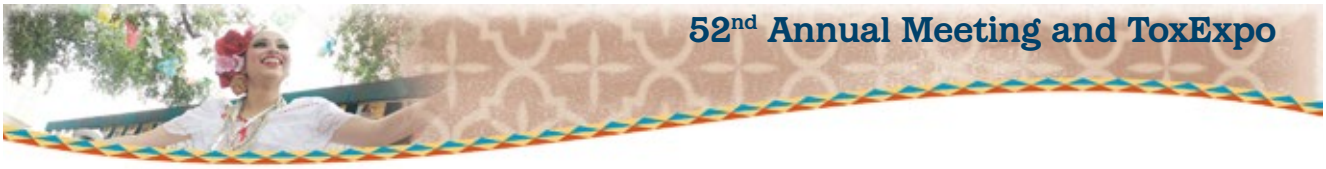
SOT Endowment Fund/IUTOX Travel Fellowship

Sunisa Chaiklieng, PhD, *Department of Environmental Health Science, Muang Khon Kaen, Thailand*

Jianlin Lou, PhD, *Zhejiang Academy of Medical Sciences, Hangzhou, P.R. China*

Notes

Notes



Social Events

All activities will be held at the Henry B. Gonzalez Convention Center in San Antonio unless otherwise noted.

Regional Chapter, Special Interest Group, and Specialty Section Receptions

Monday, March 11–Wednesday, March 13, 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 encourage to attend. More information can be found on pages 91–93.

SATURDAY

Committee on Diversity Initiatives Reunion

Saturday, March 9, 8:00 PM to 9:00 PM

Marriott Rivercenter Grand Ballroom K

Hosted by:
Committee on Diversity Initiatives

The Committee on Diversity Initiatives (CDI) will host the CDI Reunion from 8:00 pm–9:00 pm on Saturday, March 9. Kenneth Ramos, University of Louisville, is the featured speaker, and the 2013 Perry J. Gehring Diversity Student Travel Award will be given. Whether as a student, peer mentor, host mentor, speaker, or organizer, anyone who has ever been involved in the SOT Undergraduate Program is invited to attend.

Visit with colleagues who have been involved in the program over the past 24 years, meet with program alums, and greet the undergraduate students who are attending the program this year. Enjoy dessert, coffee, and tea. Start off your 52nd Annual Meeting by joining with the special people who have contributed to the diversity in SOT through this important activity.

SUNDAY

Awards Ceremony

Sunday, March 10, 4:45 PM to 6:30 PM

Grand Ballroom C1

(All Attendees Welcome)

Pre-Ceremony Musical Performance

Performed by Galo Gutiérrez Jr.

4:45 PM to 5:15 PM

Raised in the Republic of Panama, Galo Gutierrez studied at the National Conservatory of Panama with one of the best classical guitarists in Latin America, Francisco Velasquez. Since moving to the United States, Galo now directs the famous Spanish Choir at St. Luke's Catholic Church, teaches at the Hands on Music School, and continues to perform throughout San Antonio. He is a recipient of the Award of Excellence from the Proart Interlatin USA "in recognition for 25 years of outstanding dedication in preserving and promoting the Latin Music in the United States."

Awards Ceremony

5:15 PM to 6:30 PM

SOT will recognize our 2013 Honorary Members, Global Senior Scientists and hosts, SOT award recipients, and our sponsored award recipients, at the SOT Awards Ceremony (pages 69–80), following the pre-Ceremony musical performance. Please refer to the Awards and Fellowships section of the SOT website for complete details. Award sponsors include Colgate-Palmolive, Syngenta, Pfizer, and the SOT Endowment Fund.

Welcome Reception

Sunday, March 10, 6:30 PM to 7:30 PM

Exhibit Hall A

(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 10, 7:00 PM to 8:00 PM

Lonesome Dove

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 25-year, 35-year, 45-year, or 50-year pin.

MONDAY

SOT Mentoring Breakfast

Monday, March 11, 6:15 AM to 7:45 AM

Grand Hyatt Hotel, Bowie

(Reservation Required)

Sponsors:
Career Resource and Development (CRAD) 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 and Postdoctoral Assembly, in conjunction with the Graduate Student Leadership Committee, is pleased to announce the second 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 following the Annual Meeting.

Global Collaboration Coffee

Monday, March 11, 9:00 AM to 11:00 AM

Room 203

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, 2013 Global Senior Scholars and their hosts, and the 2013 recipients of the SOT/AstraZeneca/IUTOX and SOT Endowment Fund Fellowships. This event offers an opportunity for scientific leaders to meet and make plans 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 11:00 am–12:30 pm. See page 53 for more information about the Global Gallery of Toxicology.

In Vitro Toxicology Lecture and Luncheon for Students: From Hazard Identification to Risk Assessment: Linking It Together with *In Vitro* Models

Monday, March 11, 12:00 Noon to 1:20 PM

Room 006

(Ticket Required)

Chairperson(s): *Thomas A. Lewandowski, Education Committee Chair, Gradient, Seattle, WA, and Emily G. Notch, Dartmouth Medical School, Hanover, NH.*

Lecturer: *Hisham Hamadeh, Amgen, Inc., Thousand Oaks, CA.*

Sponsor:
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 via the Annual Meeting registration, and the $10 deposit will be returned upon entry to the event. Dr. Hamadeh will present an introduction to the topic, and then participants will discuss related questions and report responses. More information can be found on page 94.

Government Liaison Groups Collaboration Meeting

Monday, March 11, 3:15 PM to 4:45 PM

Room 204

Senior Leaders from SOT and officials from various federal government agencies will meet jointly to discuss mutual areas of collaboration, review strategic plans, training needs, and global outreach efforts.

Social Events (Continued)

TUESDAY

Past Presidents' 5k Fun Run/Walk

Tuesday, March 12, 6:30 AM

Hemisfair Park

Sponsors Include:
Millar Instruments
Seventh Wave Laboratories/PreClinical Research Services

Join us for the third 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, all while showing support for SOT and its wonderful past presidents. Whether you're in it for some friendly competition (yes, this year's race will be a timed event) 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 $10, and all proceeds will go towards the SOT Endowment Fund.

Postdoctoral Assembly Luncheon

Tuesday, March 12, 12:00 Noon to 1:15 PM

Room 006 C
(Ticket Required)

Chairperson(s): *Enrique Fuentes-Mattei, University of Texas MD Anderson Cancer Center, Houston, TX.*

Sponsor:
Postdoctoral Assembly

Amidst scrambling to attend all of the events at the meeting, this will be time for postdocs to kick back and relax! All postdoctoral scholars are invited to a casual luncheon organized by the Postdoctoral Assembly (PDA). Best Postdoctoral Publication Awards will be given and the postdocs who received awards this year from Regional Chapters, Special Interest Groups, and Specialty Sections will be recognized. The PDA Board members will present an overview of accomplishments and future directions for the PDA, and will introduce the new board members for 2013–2014. There will be a drawing for prizes. Postdocs can reserve a ticket for $10 when they register for the Annual Meeting.

Undergraduate Educator Network Meeting

Tuesday, March 12, 3:00 PM to 4:15 PM

Room 203 A

Chairperson(s): *Sue M. Ford, St. John's University, Jamaica, NY.*

Sponsors:
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, or for those interested in including toxicology at the undergraduate level. Hear an update on initiatives for undergraduate faculty, provide your input, and network.

SOT Annual Business Meeting

Tuesday, March 12, 4:30 PM to 6:00 PM

Grand Ballroom C1
(All SOT Members Invited)

Members are invited and encouraged to attend the 52nd SOT Annual Business Meeting. The agenda includes discussion of plans for 2013–2014, a financial summary, and a review of the 2012–2013 activities.

Tox ShowDown

Tuesday, March 12, 7:30 PM to 9:00 PM

Marriott Riverwalk, Alamo Ballroom D

Chairperson(s): *Sue M. Ford, St. John's University, Jamaica, NY, and Phil Wexler, NIH-NLM, Bethesda, MD.*

Sponsor:
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 the popular long-running show *It's Academic*. Teams of three contestants will compete at answering questions concerning toxicology not only in its scientific context, but as it relates to society, 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.

RC, SIG, and SS Receptions

(as of January 2)

Regional Chapter Meetings/Luncheons or Receptions

Monday, March 11, through Wednesday, March 13, Various Times

Many of the SOT Regional Chapters meet during the SOT Annual Meeting. All current and prospective Regional Chapter members are encourage to attend.

Event	Date	Time	Location	Room
Central States Regional Chapter Meeting	Monday, Mar 11	7:00 AM to 8:00 AM	Marriott Rivercenter	Sazo's Restaurant
Lake Ontario Regional Chapter Mixer	Monday, Mar 11	5:00 PM to 7:00 PM	The Wine Cellar	
Lone Star and South Central Regional Chapters Mixer	Tuesday, Mar 12	4:30 PM to 6:00 PM	Pat O'Brien's Restaurant	
Michigan and Allegheny-Erie Regional Chapter Joint Reception	Monday, Mar 11	5:00 PM to 6:30 PM	Marriott Rivercenter	Conference Room 17
Mid-Atlantic Regional Chapter Luncheon	Monday, Mar 11	12:00 Noon to 2:00 PM	Rita's on the River	
Midwest and Northland Regional Chapters Mixer	Tuesday, Mar 12	4:30 PM to 6:30 PM	Blue Star Brewing Company	
National Capital Area and North Carolina Regional Chapters Joint Reception	Monday, Mar 11	6:00 PM to 9:00 PM	Spanish Governors Palace	
Northeast Regional Chapter Student Luncheon	Tuesday, Mar 12	12:00 Noon to 1:30 PM	Grand Hyatt	Republic B
Northern California Regional Chapter Reception	Tuesday, Mar 12	7:00 PM to 10:00 PM	Zinc Bistro & Bar	
Regional Chapter Collaboration and Communications Committee Meeting	Wednesday, Mar 13	12:00 Noon to 1:30 PM	Convention Center	Room 215
Southeastern Regional Chapter Reception	Monday, Mar 11	6:00 PM to 8:00 PM	Casa Rio Restaurant	

Special Interest Group Meetings or Receptions

Monday, March 11, through Wednesday, March 13, Various Times

Each of the six Special Interest Groups will hold a meeting/reception during the 2013 SOT Annual Meeting. All current and prospective SOT Special Interest Group members are encouraged to attend.

Event	Date	Time	Location	Room
American Association of Chinese in Toxicology Special Interest Group Meeting/Reception	Monday, Mar 11	6:00 PM to 9:00 PM	Grand Hyatt	Texas Ballroom D
American Association of Chinese in Toxicology Special Interest Group Distinguished Chinese Toxicologist Lectureship Award and Seminar: Application of Biomarkers: Bridging Toxicology and Disease Prevention, *Lecturer: Jia-Sheng Wang, University of Georgia*	Monday, Mar 11	5:00 PM to 6:00 PM	Grand Hyatt	Texas Ballroom D
American Association of Chinese in Toxicology/Korean Toxicologists Association in America Special Interest Groups Career Development Workshop	Tuesday, Mar 12	7:45 AM to 9:00 AM	Grand Hyatt	Lone Star Ballroom C
Association of Scientists of Indian Origin Special Interest Group Lunch and Learn	Tuesday, Mar 12	12:00 Noon to 1:30 PM	Grand Hyatt	Presidio B
Association of Scientists of Indian Origin Special Interest Group Meeting/Reception	Monday, Mar 11	7:00 PM to 9:00 PM	Grand Hyatt	Lone Star Ballroom F
Korean Toxicologists Association in America Special Interest Group Annual Meeting	Monday, Mar 11	4:45 PM to 6:30 PM	Marriott Rivercenter	Grand Ballroom D

(continued to next page)

RC, SIG, and SS Receptions (Continued)

(as of January 2)

Special Interest Group Meetings or Receptions (Continued)

Event	Date	Time	Location	Room
Special Interest Group Collaboration Group Meeting	Monday, Mar 11	12:00 Noon to 1:30 PM	Convention Center	Room 203 A
Toxicologists of African Origin Special Interest Group Annual Reception	Monday, Mar 11	6:00 PM to 7:30 PM	Hilton Palacio del Rio	La Vista A
Women in Toxicology Special Interest Group Meeting/Reception	Tuesday, Mar 12	4:30 PM to 6:30 PM	Marriott Riverwalk	Alamo Ballroom C

Specialty Section Meetings/Luncheons or Receptions

Monday, March 11, through Wednesday, March 13, Various Times

Each of the 27 SOT Specialty Sections will hold either a luncheon or early evening meeting/reception during the SOT 2013 Annual Meeting. All current and prospective SOT Specialty Section members are encouraged to attend.

Event	Date	Time	Location	Room
Biological Modeling Specialty Section Meeting/Reception	Tuesday, Mar 12	6:00 PM to 7:30 PM	Grand Hyatt	Republic B
Biotechnology Specialty Section Meeting/Reception	Monday, Mar 11	6:00 PM to 7:30 PM	Grand Hyatt	Lone Star Ballroom A
Carcinogenesis Specialty Section Meeting/Reception	Wednesday, Mar 13	6:00 PM to 7:30 PM	Grand Hyatt	Texas Ballroom A
Carcinogenesis Specialty Section Officers Meetings	Monday, Mar 11	6:30 AM to 8:00 AM	Convention Center	Room 006
Cardiovascular Toxicology Specialty Section Meeting/Reception	Monday, Mar 11	6:00 PM to 7:30 PM	Grand Hyatt	Lone Star Ballroom B
Clinical and Translational Toxicology Specialty Section Meeting/Reception	Monday, Mar 11	6:00 PM to 7:30 PM	Grand Hyatt	Bowie A
Clinical and Translational Toxicology Specialty Section Officers Meeting	Monday, Mar 11	6:30 AM to 8:00 AM	Convention Center	Room 006
Comparative and Veterinary Specialty Section Meeting/Luncheon	Tuesday, Mar 12	12:00 Noon to 1:30 PM	Convention Center	Room 216 A
Comparative and Veterinary Specialty Section Officers Meeting	Monday, Mar 11	5:30 PM to 6:30 PM	Grand Hyatt	Travis D
Dermal Toxicology Specialty Section Meeting/Reception	Monday, Mar 11	6:00 PM to 7:30 PM	Grand Hyatt	Presidio B
Dermal Toxicology Specialty Section Officers Meeting	Monday, Mar 11	6:30 AM to 8:00 AM	Convention Center	Room 006
Drug Discovery Toxicology Specialty Section Meeting/Reception	Tuesday, Mar 12	6:00 PM to 7:30 PM	Grand Hyatt	Lone Star Ballroom B
Ethical, Legal, and Social Issues Specialty Section Meeting/Reception	Monday, Mar 11	6:00 PM to 7:30 PM	Grand Hyatt	Bowie B
Food Safety Specialty Section Meeting/Reception	Wednesday, Mar 13	6:00 PM to 7:30 PM	Grand Hyatt	Seguin
Food Safety Specialty Section Officers Meeting	Monday, Mar 11	6:30 AM to 8:00 AM	Convention Center	Room 006
Immunotoxicology Specialty Section Meeting/Reception	Tuesday, Mar 12	6:00 PM to 7:30 PM	Grand Hyatt	Texas Ballroom C
Inhalation and Respiratory Specialty Section Meeting/Reception	Tuesday, Mar 12	6:00 PM to 7:30 PM	Grand Hyatt	Lone Star Ballroom C
In Vitro and Alternative Methods Specialty Section Meeting/Luncheon	Tuesday, Mar 12	12:00 Noon to 1:30 PM	Convention Center	Room 204
In Vitro and Alternative Methods Specialty Section Officers Meeting	Monday, Mar 11	6:30 AM to 8:00 AM	Convention Center	Room 006

(continued to next page)

RC, SIG, and SS Receptions (Continued)

(as of January 2)

Specialty Section Meetings/Luncheons or Receptions (Continued)

Event	Date	Time	Location	Room
Mechanisms Specialty Section Meeting/Reception	Tuesday, Mar 12	6:00 PM to 7:30 PM	Grand Hyatt	Lone Star Ballroom A
Mechanisms Specialty Section Officers Meeting	Monday, Mar 11	6:30 AM to 8:00 AM	Convention Center	Room 006
Medical Device Specialty Section Meeting/Luncheon	Wednesday, Mar 13	12:00 Noon to 1:30 PM	Convention Center	Room 212
Medical Device Specialty Section Officers Meeting	Monday, Mar 11	6:30 AM to 8:00 AM	Convention Center	Room 006
Metals Specialty Section Meeting/Reception	Wednesday, Mar 13	6:00 PM to 7:30 PM	Grand Hyatt	Texas Ballroom B
Mixtures Specialty Section Meeting/Reception	Tuesday, Mar 12	6:00 PM to 7:30 PM	Grand Hyatt	Bowie
Molecular Biology Specialty Section Meeting/Reception	Wednesday, Mar 13	6:00 PM to 7:30 PM	Grand Hyatt	Texas Ballroom F
Molecular Biology Specialty Section Officers Meeting	Monday, Mar 11	6:30 AM to 8:00 AM	Convention Center	Room 213 A
Nanotoxicology Specialty Section Meeting/Reception	Wednesday, Mar 13	6:00 PM to 7:30 PM	Grand Hyatt	Texas Ballroom C
Nanotoxicology Specialty Section Officers Meeting	Wednesday, Mar 13	5:00 PM to 6:00 PM	Grand Hyatt	Texas Ballroom C
Neurotoxicology Specialty Section Meeting/Reception	Tuesday, Mar 12	6:00 PM to 7:30 PM	Grand Hyatt	Lone Star Ballroom F
Neurotoxicology Specialty Section Officers Meeting	Monday, Mar 11	6:30 AM to 8:00 AM	Convention Center	Room 006
Occupational and Public Health Specialty Section Meeting/Luncheon	Wednesday, Mar 13	12:00 Noon to 1:30 PM	Convention Center	Room 213
Ocular Toxicology Specialty Section Meeting/Reception	Wednesday, Mar 13	6:00 PM to 7:30 PM	Grand Hyatt	Republic B
Regulatory and Safety Evaluation Specialty Section Great Debate: Any Potential Endocrine Effect due to Xenobiotic Exposure Should Be Used in Human or Environmental Risk Assessments *(All Attendees Invited)*	Tuesday, Mar 12	7:00 PM to 7:30 PM	Grand Hyatt	Texas Ballroom A
Regulatory and Safety Evaluation Specialty Section Meeting/Reception	Tuesday, Mar 12	6:00 PM to 7:00 PM	Grand Hyatt	Texas Ballroom A
Regulatory and Safety Evaluation Specialty Section Officers Meeting	Monday, Mar 11	6:30 AM to 8:00 AM	Convention Center	Room 006
Reproductive and Developmental Toxicology Specialty Section Meeting/Reception	Monday, Mar 11	6:00 PM to 7:30 PM	Grand Hyatt	Texas Ballroom A
Reproductive and Developmental Toxicology Specialty Section Officers Meeting	Monday, Mar 11	6:30 AM to 8:00 AM	Convention Center	Room 215
Risk Assessment Specialty Section Meeting/Reception	Tuesday, Mar 12	6:00 PM to 7:30 PM	Grand Hyatt	Texas Ballroom D
Risk Assessment Specialty Section Officers Meeting	Monday, Mar 11	6:30 AM to 8:00 AM	Convention Center	Room 006
Specialty Section Collaboration and Communication Group Meeting	Monday, Mar 11	3:00 PM to 4:00 PM	Convention Center	Room 215
Stem Cells Specialty Section Meeting/Reception	Monday, Mar 11	6:00 PM to 7:30 PM	Grand Hyatt	Bonham C
Stem Cells Specialty Section Officers Meeting	Tuesday, Mar 12	6:30 AM to 8:00 AM	Convention Center	Room 213 A
Toxicologic and Exploratory Pathology Specialty Section Meeting/Luncheon	Monday, Mar 11	12:00 Noon to 1:30 PM	Convention Center	Room 216
Toxicologic and Exploratory Pathology Specialty Section Officers Meeting	Monday, Mar 11	6:30 AM to 7:45 AM	Grand Hyatt	Travis A

Student and Postdoctoral Scholar Events

Chat with an Expert

Monday, March 11, to Thursday, March 14

Time Varies by Group

(Meet at the Chat with an Expert Bulletin Board in Registration Area)

Sponsor:
Graduate Student Leadership Committee

The purpose of Chat with an Expert is to provide students and postdoctoral scholars 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 Bulletin Board before proceeding to the meeting location. This program also includes opportunities for postdocs to host informal meetings with graduate students, and graduate students to hold informal meetings with undergraduate students. Sign up via the Graduate Student section of the SOT website. Details for each group meeting will be sent to participants in advance of the meeting.

Student/Postdoctoral Scholar Mixer

Sunday, March 10, 7:30 PM to 9:00 PM

Ballroom A
(Ticket Required)

Sponsor:
Graduate Student Leadership Committee

The Graduate Student Leadership Committee hosts this opportunity for students and postdoctoral scholars to gather, to meet new colleagues, and to re-establish relationships in an informal atmosphere at the beginning of the meeting. Tickets are obtained at no cost by registering for this event on the Annual Meeting Registration Form and are required. Complimentary refreshments and a cash bar will be available.

Poster Tours for Trainees

Monday, March 11, to Thursday, March 14

Exhibit Hall C–D *(Meet at SOT Pavilion at designated time)*

Sponsor:
Postdoctoral Assembly

Poster Tours for Trainees was a well-received new event at the 2012 Annual Meeting, and students and postdoctoral scientists will again have the opportunity participate in a one-hour guided poster tour with an expert toxicologist. Participation will allow trainees to take part in critical evaluation of cutting-edge toxicology methods and research findings, network with an expert, and perhaps even build a mentoring relationship with a senior toxicologist. Options to sign up for specific times will be provided on the Annual Meeting website.

Trainee Discussion with Plenary Lecturer: Dr. Beutler

Monday, March 11, 10:00 AM to 11:00 AM

Room 209
(Ticket Required; SOT Student and Postdoctoral members only, limited seating)

Chairperson(s): *David T. Szabo, US EPA, Arlington, VA.*

Lecturer: *Bruce A. Beutler, University of Texas Southwestern Medical Center, Dallas, TX.*

Dr. Beutler will meet informally for discussion with graduate students and postdoctoral scholars after his Plenary Opening Lecture (*see page 138*). Room occupancy is limited, and participants register for a ticket with their Annual Meeting registration.

In Vitro Toxicology Lecture and Luncheon for Students: From Hazard Identification to Risk Assessment: Linking It Together with *In Vitro* Models

Monday, March 11, 12:00 Noon to 1:20 PM

Room 006
(Ticket Required)

Chairperson(s): *Thomas A. Lewandowski, Education Committee Chair, Gradient, Seattle, WA, and Emily G. Notch, Dartmouth Medical School, Hanover, NH.*

Lecturer: *Hisham Hamadeh, Amgen, Inc., Thousand Oaks, CA.*

Sponsor:
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 via the Annual Meeting registration, and the $10 deposit will be returned upon entry to the event. Dr. Hamadeh will present an introduction to the topic, and then participants will discuss related questions and report responses.

Student and Postdoctoral Scholar Events (Continued)

Gaining insight to a molecule's potential to cause harm to humans is a major challenge for scientists working in a variety of industries and disciplines including drug and chemical development as well as environmental protection. The range of tools that are employed range from *in silico* to *in vitro* and *in vivo* animal models in order to approximate the reaction of humans to drugs and chemicals. *In vitro* models have the obvious advantages of not requiring large quantities of given molecules for testing, they contribute to a decrease in animal testing (3Rs). One example is the use of the bile salt export pump (BSEP) functional assay for informing the potential hazard associated with molecules for causing hepatotoxicity in humans through interference with normal bile acid transport. In drug development, clinical liver injury might translate into potentially less competitive drugs. Molecules hypothesized to be associated with clinical liver injury via interference with BSEP function have often not resulted in liver injury signals in preclinical species. *In vitro* assays that can predict the potential clinical hazard in the absence of animal models are valuable not only for selecting more quality candidate drugs to advance, but also to reduce the number of animals consumed by advancing molecules with high potential for liver effects that may eventually be removed from development, depending on the indication. Several confounders that underlie the interpretation of BSEP activity data will be discussed and potential solutions that may improve the translation of the hazard signal to a risk assessment using this assay will be debated.

Luncheon participants will discuss the following questions:

1. Should we use *in vitro* methods like the BSEP functional assay to screen for hypothetical risks and prioritize drugs before going into animal testing? This will result in increased cost and delay in getting new drugs to market to address risks that aren't even proven.
2. If we proceed with this screening approach, what complexity of a model is appropriate, a simple single cell type enzyme-focused system vs. complex, multicell system that attempts to replicate actual liver architecture? Your position should take into account the difficulty and cost of the models and, more importantly, the ability to interpret the results.
3. Do you agree that NIH should reallocate funding to support studies of dynamic *in vitro* models for toxicity testing rather than static cell culture models? This would have the net effect of reduced funding for research involving traditional static cell cultures.

Postdoctoral Assembly Workshop: Tools for Bringing Creativity into Your Scientific Research

Monday, March 11, 1:45 PM to 3:45 PM

Room 212

(Ticket Required; SOT Student and Postdoctoral members only, limited seating)

Chairperson(s): *Enrique Fuentes-Mattei, University of Texas MD Anderson Cancer Center, Houston, TX.*

Sponsor:
Postdoctoral Assembly

Presented by: *Rodney Dietert, Cornell University, Ithaca, NY, and Janice Dietert, Performance Plus Consulting, Ithaca, NY.*

When are Legos not just for kids? When they are a valuable problem-solving tool for your scientific research. Overcoming roadblocks during a research career can be a challenge, particularly when you are using the same set of tools that got you into the roadblock in the first place. Traditional research training often emphasizes linear approaches and the value of greater focus and harder work. Yet, history tells us that many of the most remarkable scientific breakthroughs occur when our attention has been diverted. Nonlinear approaches to problem solving provide additional avenues for the budding researcher. This workshop on enhancing creativity in scientific research will provide lecture material and hands-on exercises, including the use of play, meditation, sleep, music, dance, art, improv, language, body adjustments, concept maps, synchronicity, and strategies for becoming the observer of your own research progress.

Postdoctoral Assembly Luncheon

Tuesday, March 12, 12:00 Noon to 1:15 PM

Room 006 C

(Ticket Required)

Chairperson(s): *Enrique Fuentes-Mattei, University of Texas MD Anderson Cancer Center, Houston, TX.*

Sponsor:
Postdoctoral Assembly

Amidst scrambling to attend all of the events at the meeting, this will be time for postdocs to kick back and relax! All postdoctoral scholars are invited to a casual luncheon organized by the Postdoctoral Assembly (PDA). Best Postdoctoral Publication Awards will be given and the postdocs who received awards this year from Specialty Sections and Regional Chapters will be recognized. The PDA Board members will present an overview of accomplishments and future directions for the PDA and will introduce the new board members for 2013–2014. There will be a drawing for door prizes.

Student and Postdoctoral Scholar Events (Continued)

Postdocs can purchase a ticket for $10 when they register for the Annual Meeting. The ticket charge is not refundable, reserves your place, and defrays some of the expenses for the luncheon. Lunch is served at the beginning of the event and service concludes before the main program begins. Meal service may not be available to guests who arrive after 12:30 pm.

Trainee Discussion with Medical Research Council (MRC) Lecturer: Prof. Nicholson

Wednesday, March 13, 10:00 AM to 11:00 AM

Room 216 A

(Ticket Required; SOT Student and Postdoctoral members only, limited seating)

Chairperson(s): *Enrique Fuentes-Mattei, University of Texas MD Anderson Cancer Center, Houston, TX.*

Lecturer: *Jeremy K. Nicholson, Imperial College London, London, United Kingdom.*

Prof. Nicholson will meet informally for discussion with graduate students and postdoctoral scholars after his Keynote MRC Lecture (*see page 267*). Room occupancy is limited, and participants register for a ticket with their Annual Meeting registration.

Undergraduate Student Meeting

Wednesday, March 13, 4:00 PM to 5:00 PM

Room 215

Chairperson(s): *Sue M. Ford, St. John's University, Jamaica, NY.*

Sponsors:
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.

Notes

Education Outreach Activities and Events

Undergraduate Education Program

Saturday, March 9, to Monday, March 11

Chairperson(s): *Erin Pias Hines, US EPA, Research Triangle Park, NC.*

Sponsor:
Committee for Diversity Initiatives (CDI)

For schedule details go to **www.toxicology.org/ai/meet/am2013/edout.asp** or contact CDI Staff liaison Susan D. Simmons at susan@toxicology.org.

Saturday, March 9

San Antonio Marriott Rivercenter

This evening event is for undergraduate students and advisors receiving 2013 SOT travel funding and SOT program volunteers.

4:15 PM–5:45 PM — **Orientation for SOT Hosts, Peer Mentors, and Advisors—*(Conference Room 1)***
Sudheer Reddy Beedanagari, Bristol-Myers Squibb Company, East Brunswick, NJ, Natalie M. Johnson, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD.

5:30 PM–5:45 PM — **Registration for Undergraduate Students**—*Elaine Valerie Knight, NIH-NCI, Rockville, MD, committee members, and volunteers*

5:45 PM–6:15 PM — **Opening Program—*(Grand Ballroom K)***
Convener: *Erin Pias Hines, US EPA, Research Triangle Park, NC.*
The Tox Squad Icebreaker, *Alice M. Villalobos, Texas A&M University, College Park, TX.*

6:15 PM–7:00 PM — **Dinner** *(By Invitation only)*

7:00 PM–7:45 PM — **Introduction to Toxicology—*(Grand Ballroom K)***
Antonio T. Baines, 1993 Undergraduate Education Program Alumnus, North Carolina Central University, Durham, NC.

8:00 PM–9:00 PM — **CDI Reunion—*(Grand Ballroom K)***
(Dessert and Networking)—Open to anyone previously involved with CDI programs.
Speaker: *Kenneth S. Ramos, University of Louisville, Louisville, KY.*
Chair: *Erin Pias Hines, US EPA, Research Triangle Park, NC; and Ofelia Olivero, NIH-NCI, Bethesda, MD.*

Recognition of the 2013 Perry J. Gehring Diversity Student Travel Award Recipient

Sunday, March 10

San Antonio Marriott Rivercenter

Open to undergraduates in the travel award program and those who register through the Annual Meeting registration

Chairperson(s): *Erin Pias Hines, US EPA, Research Triangle Park, NC, and Ofelia Olivero, NIH-NCI, Bethesda, MD.*

Introductions and Special Toxicology Lectures *(Grand Ballroom J)*

8:00 AM–8:15 AM — **Welcome**
SOT President William Slikker Jr.

8:15 AM–8:55 AM — **Toxicology of the Blood-Cerebrospinal Fluid Barrier: A Comparative Approach,** *Alice M. Villalobos, Texas A&M University, College Park, TX.*

8:15 AM–8:55 AM — **Exposure to Smoked and Smokeless Tobacco *In Utero*: Fetal Injury and Life Long Consequences,** *Judith A. Zelikoff, New York University School of Medicine, Tuxedo Park, NY.*

10:00 AM–10:40 AM — **Optical Nanotechnologies for Imaging of Cellular Processes and Neurosurgery,** *Martin A. Philbert, University of Michigan, Ann Arbor, MI.*

10:45 AM–11:30 AM — **Interactive Presentation: Atrazine: A Frog Feminizing Weed Killer—*(Grand Ballroom K)***
Melinda Pomeroy Black, LaGrange College, La Grange, GA.

11:45 AM–12:45 PM — **Lunch and Networking—*(Grand Ballroom K)***

Breakout Sessions for Undergraduate Students—*(Conference Rooms 2–4)*

12:45 PM–1:45 PM — **What Is Graduate School and What Can I Expect? A Graduate Student Perspective**
How to Get into Graduate School: An Academic Advisor's Perspective
Academic Advisor Facilitators:
Lauren M. Aleksunes, Rutgers University, Piscataway, NJ, James P. Luyendyk, University of Kansas Medical Center, Kansas City, KS, and Richard Nass, Indiana University School of Medicine, Indianapolis, IN.
Graduate Student Facilitators:
Brittany Baisch, University of Rochester, Rochester, NY, Jonathan Coulter, Johns Hopkins School of Public Health, Baltimore, MD, and Vanessa De La Rosa, 2008 Undergraduate Education Program Alumna, University of California Berkeley, Berkeley, CA.

Education Outreach Activities and Events (Continued)

For Advisors—*(Conference Room 1)*

12:45 PM–1:45 PM **Tips for Advising Prospective Graduate Students or How to Get Your Students Accepted to Graduate School!!**
Facilitator: *William D. Atchison, Michigan State University, Lansing, MI.*

All Participants—*(Grand Ballroom K)*

2:00 PM–3:15 PM **Career Opportunities in Toxicology: My Career: A Winding Road**
Speaker: *Linda S. Birnbaum, Director NIEHS, Research Triangle Park, NC.*

Panel Discussion
Moderator: *Robert P. Casillas, MRIGlobal, Kansas City, MO.*
Academic: *Darryl B. Hood, Meharry Medical College, Nashville, TN.*
Government: *Pedro L. Del Valle, US FDA, Silver Spring, MD.*
Industry: *Mari S. Stavanja, Celanese Corporation, Dallas, TX.*
Nonprofit: *Claire Redman Croutch, Midwest Research Institute, Kansas City, MO.*

For Host Mentors and Peer Mentors—*(Conference Room 1)*

3:15 PM–3:45 PM **Host Mentor and Peer Mentor Meeting**
Chairs: *Sudheer Reedy Beedanagari, Bristol-Myers Squibb Company, East Brunswick, NJ, and Natalie Johnson, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD.*

For Students and Advisors—*(Grand Ballroom M)*

3:15 PM–5:00 PM **Open time with Academic Toxicology Program Directors and Internship Sponsors**
Chairs: *Kristini Miles, Kimberly Clark Corporation, Roswell, GA, 1999 program alumna; and Kimberly D. Daniel, Texas A&M University, College Station, TX.*

7:30 PM–9:00 PM **Student/Postdoc Scholar Mixer—*(Ballroom A)***

Monday, March 11

Henry B. Gonzalez Convention Center

These Monday events are for undergraduate students and advisors receiving 2013 SOT travel funding and SOT program volunteers.

8:00 AM–9:00 AM **Plenary Opening Lecture: Genetic Analysis of Innate Immune Sensing—*(Exhibit Hall A)***
Bruce A. Beutler, Director of the Center for the Genetics of Host Defense at University of Texas Southwestern Medical Center, Dallas, TX.

9:30 AM–10:45 AM **Poster Session for Visiting Students—*(ToxExpo, Exhibit Hall C–D)***
Poster Surfaces 557–584
Leslie Recio, Integrated Laboratory Systems Inc., Research Triangle Park, NC, and Douglas K. Stevens, Salish Kootenai College, Pablo, MT.

11:00 AM–11:45 AM **Program Recognitions and Conclusion—*(Room 204)***
Chair: *Erin Pias Hines, US EPA, Research Triangle Park, NC.*

12:00 Noon–1:20 PM ***In Vitro* Toxicology Lecture and Luncheon for Students—*(Room 006)***
From Hazard Identification to Risk Assessment: Linking It Together with *In Vitro* Models
Hisham Hamadeh, Amgen, Inc., Thousand Oaks, CA.

High School Poster Exposition

Tuesday, March 12, and Wednesday, March 13

10:30 AM to 2:30 PM

Exhibit Hall C *(Adjacent to SOT Pavilion)*

Chairperson(s): *Daniel E. Arrieta, Chevron Phillips Chemical Company LP, The Woodlands, TX.*

Sponsors:
Education Committee
K–12 Subcommittee

High school student research related to toxicology is featured in an area adjacent to the 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.

Education Outreach Activities and Events (Continued)

K–12 Toxicology Outreach Activities: Regional Chapter Successes and Resources

Wednesday, March 13, 9:00 AM to 11:45 AM

Room 206

Chairperson(s): *Courtney E.W. Sulentic, Wright State University, Dayton, OH, and Rafael Ponce, Amgen Inc, Seattle, WA.*

Sponsors:
Education Committee
K–12 Subcommittee

K–12 activities are a vital component in our mission to educate the community regarding hazards and hazard communication. Several SOT Regional Chapters have very active K–12 community outreach programs and others are interested in establishing these programs. The Education Committee and Regional Chapter Collaboration and Communication Committee, in promoting recognition of toxicology and communicating the benefit of toxicology to external audiences, support these efforts. This workshop will highlight some of the successful K–12 outreach activities supported by Regional Chapters and will include hands-on demonstrations as well as an overview of efforts to update website resources for K–12 activities. Pedagogical insights helpful to those new to educational outreach will be provided, including opportunities for skill development and pedagogical background for graduate students and postdoctoral scholars considering academic careers.

- **TOTALLY TOXIC! A K–12 Outreach Program Based on the 5E Model of Science Education.** Christine Curran, Northern Kentucky University, Highland Heights, KY.
- **Inspector Tox Outreach Activity.** Diane Hardej, St. John's University, Jamaica, NY, and Anthony Schatz, Merck & Co., Inc., Whitehouse Station, NJ.
- **Silly Science and Other Activities for K–12 Outreach.** Marie Bourgeois, University of South Florida, Tampa, FL.
- **Exploring Toxicology: Designing Learning Goals and Evaluation Strategies for Outreach Activities.** Erin Shanle and Kristina Blanke, University of Wisconsin-Madison, Madison, WI.
- **Resources for Toxicology K–12 Education Outreach: Updating the SOT K–12 Website.** Maureen Gwinn, US EPA-NCEA, Washington, DC.

Notes

Satellite Meeting

Updates on 21st Century Toxicology Activities and Related Efforts: Invited Presentations and Open Microphone

Thursday, March 14, 12:30 PM to 4:00 PM

Grand Hyatt Presidio

Presented by: *Johns Hopkins Center for Alternatives to Animal Testing*

Purpose of Meeting: The meeting will provide a forum for interested stakeholders to update each other on efforts to advance pathway-based approaches to toxicology, as exemplified by the 2007 National Research Council report on "Toxicity Testing in the 21st Century" ("TT21C"). The meeting will also address efforts to promote the use of systematic reviews and related evidence-based approaches in toxicology, with an emphasis on their relevance to TT21C . The meeting will include a box lunch.

Confirmed speakers:

- **ToxCast Update.** David Dix, US Environmental Protection Agency.
- **Tox21 Update.** Raymond Tice, US National Institute of Environmental Health Science.
- **Hamner TT21C-Related Activity Update.** Russell Thomas, Hamner Institutes for Biomedical Sciences.
- **The Center for Alternatives to Animal Testing's TT21C-Related Activity Update.** Thomas Hartung, Johns Hopkins.
- **Validation of High-Throughput Assays.** Richard Judson, US Environmental Protection Agency.
- **Evidence-Based Toxicology Update.** Martin Stephens, Johns Hopkins.

Additional participants are encouraged to provide brief, relevant updates.

To reserve a box lunch or request more information, contact: Marilyn Principe at 410.614.4919, or at mprincip@jhsph.edu.

Notes

SOT | Contemporary Concepts in Toxicology

Advance the Science of Toxicology

Consider Organizing a Contemporary Concepts in Toxicology Meeting

Contemporary Concepts in Toxicology (CCT) Meetings expand the opportunities and forums for members to engage in the exchange of ideas and information relevant to toxicology. CCT Meetings are one- to two-day focused, open registration, scientific meetings in contemporary and rapidly progressing areas of toxicological sciences. CCT Meetings also can be held as webinars.

If you think that your research area could be enhanced by thought leader collaboration or that public health and safety could be improved by disseminating your research findings more broadly, please consider organizing an SOT CCT Meeting. The CCT Conference Committee and the SOT Headquarters staff are prepared to help move your meeting forward.

The Society will underwrite all the liabilities of the CCT Meeting (up to the $25,000 in seed money) with the expectation that the meeting at least break even financially. Profit sharing for SOT component groups is available. For more information about CCT Meetings, please visit the SOT website at **www.toxicology.org/cct**.

CCT Meetings focus on a wide range of topics and future CCTs address the following:

- FutureTox II: *In Vitro* Data and *In Silico* Models for Predictive Toxicology—January 2014

In order to sustain the quality standards of the Society, only meetings in which SOT maintains scientific and administrative control will be considered. Meetings developed and administered by other organizations may be eligible for endorsement by the Society of Toxicology.

www.toxicology.org

Notes

CEd-Tox

SOT | Society of Toxicology

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

Continuing Education Courses Online

CEd-Tox offers a great, low-cost way to expand your professional development, or stay current in the field of toxicology, all year long. A diversity of CE courses from SOT Annual Meetings are now available, including slide presentations and audio; English language transcriptions are available for select courses. SOT Graduate Student and Postdoctoral members receive complimentary access to all courses!

Whether to update your knowledge or to explore a new area, we invite you to register for CEd-Tox. For more information or to register, visit the SOT website: **www.toxicology.org/cedtox.asp**.

Cardiovascular Toxicology:
- Current Nonclinical Strategies and Methods for Evaluating Drug-Induced Cardiovascular Toxicity (2011)

Dermal Toxicology:
- Cutaneous Toxicity: *In Vitro* Methods for Toxicity and Safety Evaluation (2012)

Drug Discovery Toxicology:
- Mitochondrial Toxicity: Animal Models and Screening Methods in Drug Development (2010)

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)

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)

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:
- 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 our smartphone or mobile device.

Scan Me!

Continuing Education

Continuing Education Courses

The Continuing Education (CE) Program offers a wide range of courses that cover established knowledge in toxicology, as well as new developments in toxicology and related disciplines. Courses can be applied toward certifying and licensing board requirements and may also be used for recertification with the American Board of Toxicology (ABT). Both basic and advanced course topics are offered. The basic course is intended to provide a broad overview of an area or to assist individuals in learning new techniques or approaches. The advanced course is intended to be of interest to individuals with previous knowledge of the subject or already working in the field.

All courses will be held on Sunday, March 10, 2013, at the Henry B. Gonzalez 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. A Refresher of Immunoglobulin and Fc-Receptor Biology and Advances Related to Therapeutic Antibody Development

8:15 AM–12:00 Noon Continuing Education Morning (AM) Courses:

2. Basic Principles of Human Risk Assessment
3. Recent Developments in Cardiovascular Physiology-Based Toxicology
4. Approval of Biosimilar Monoclonal Antibodies: Scientific, Regulatory, and Legal Challenges
5. The What, When, and How of Nonclinical Support for an IND Submission
6. The Practice and Implementation of Neural Stem Cell-Based Approaches to Neurotoxicology
7. Toxic Effects of Metals

1:15 PM–5:00 PM Continuing Education Afternoon (PM) Courses:

8. Advances in Nanotoxicology—Challenges
9. Gonadal Development, Function, and Toxicology
10. The REACH Regulation and Safety Assessment Approaches for Chemicals That Come in Contact with the Skin
11. T4: Tools and Technologies in Translational Toxicology
12. Understanding Toxic Neuropathy in Drug Development: Both Clinical and Nonclinical Perspectives
13. Weighing in on Nutrition—Essential Concepts for Toxicologists

Registration for the Annual Meeting and a Continuing Education course ticket are required.

Abstract #

2013 Continuing Education Courses

SUNDAY MORNING

Sunday Morning, March 10
7:00 AM to 7:45 AM
Concourse and Grand Ballroom Levels
(See signage at CE Booth for room location)

CE

Continuing Education: A Refresher of Immunoglobulin and Fc-Receptor Biology and Advances Related to Therapeutic Antibody Development

SR01 **CE Basic**

Biomarkers for Exposure Assessment, Safety Evaluation, and Translational Medicine

Chairperson(s): *Theodora W. Salcedo, Bristol-Myers Squibb Company, New Brunswick, NJ.*

Sponsor:
Biotechnology Specialty Section

Endorsed by:
Regulatory and Safety Evaluation Specialty Section
Toxicologic and Exploratory Pathology Specialty Section

The presentation will review the immunobiology of antibodies and Fc receptors and explore the field of therapeutic antibody development and advances in "antibody engineering" leading to the development of improved therapeutics. A basic overview will be provided on the structure and function of antibodies, as well as the various types and formats of antibody therapeutics and technological methods of production. In addition, the immunobiology of human leukocyte Fc receptors will be discussed. These receptors serve to link humoral immune responses to cellular activities within the immune system, and generally function as either antibody-binding receptors that trigger immune cell effector functions, or as transport receptors (FcRn). Highlights will include how immunoglobulin Fc sequences are now being tailored to trigger specific Fc receptors to improve therapeutic outcomes by introducing amino acid mutations, glycoengineering, or other approaches leading to next generation formats. Known species differences in immunoglobulins and Fc receptors that may be important for pharmacologic and toxicologic evaluations will be explored, as well as other challenges in assessing the nonclinical toxicities of new antibody formats. Building upon these basic themes, the presentation will explore the current landscape of approved therapeutics and forecasts for future developments in the field. The course will provide something for those seeking basic knowledge in the field of immunology and therapeutic antibody development, as well as those seeking to refresh and enhance their knowledge of recent advances.

#1	7:00	**A Refresher of Immunoglobulin and Fc-Receptor Biology and Advances Related to Therapeutic Antibody Development.** *T. W. Salcedo*. Bristol-Myers Squibb Company, New Brunswick, NJ.

CE

Continuing Education (Continued)

Abstract #

Sunday Morning, March 10
8:15 AM to 12:00 Noon
Concourse and Grand Ballroom Levels
(See signage at CE Booth for room location)

Continuing Education: Basic Principles of Human Risk Assessment

AM02 **CE Basic**

Regulatory Science: Advancing New Approaches for Hazard Identification and Risk Assessment

Chairperson(s): *Qiyu (Jay) Zhao, US EPA, Cincinnati, OH, and M.E. (Bette) Meek, University of Ottawa, Ottawa, ON, Canada.*

Sponsor:
Risk Assessment Specialty Section

An overview of the fundamental, evolving guiding principles, and general methods used in chemical risk assessment will be provided. These principles and methods are addressed in presentations and discussions organized by the four components identified by the National Research Council in the Risk Assessment Paradigm: Hazard Identification and Characterization; Dose-Response Assessment; Exposure Assessment; and Risk Characterization. Guiding principles and key concepts in risk assessment will be illustrated by examples from the literature and sample calculations for dose-response assessment, exposure assessment, and risk characterization will presented.

#2	8:15	**Basic Principles of Human Risk Assessment.** *Q. Zhao*[1], and *M. Meek*[2]. [1]US EPA, Cincinnati, OH; [2]University of Ottawa, Ottawa, ON, Canada.
	8:15	**Introduction to Chemical Risk Assessment.** Qiyu (Jay) Zhao. US EPA, Cincinnati, OH.
	8:30	**Hazard Identification and Characterization.** R. Jeffrey Lewis. ExxonMobil Biomedical Sciences, Inc., Annandale, NJ.
	9:15	**Dose-Response Assessment.** John C. Lipscomb. US EPA, Cincinnati, OH.
	10:00	**Course Break.** Coffee Service
	10:30	**Exposure Assessment.** Robinan Gentry. ENVIRON International Corporation, Monroe, LA
	11:15	**Risk Characterization.** M.E. (Bette) Meek. University of Ottawa, Ottawa, ON, Canada

Sunday Morning, March 10
8:15 AM to 12:00 Noon
Concourse and Grand Ballroom Levels
(See signage at CE Booth for room location)

Continuing Education: Recent Developments in Cardiovascular Physiology-Based Toxicology

AM03 **CE Basic**

Chairperson(s): *Travis L. Knuckles, West Virginia University, Morgantown, WV, and W. David McGuinn, US FDA-CDER, Columbia, MD.*

Sponsor:
Cardiovascular Toxicology Specialty Section

Endorsed by:
Comparative and Veterinary Specialty Section
Mechanisms Specialty Section
Toxicologic and Exploratory Pathology Specialty Section

Contemporary drug development and toxicity assessments are focused on exploiting specific molecular targets that can improve disease outcomes with minimal untoward effects. Unfortunately, modern training in toxicology and pharmacology is directed primarily at specific ligand-receptor interactions at the expense of systems physiology. An overview of cardiovascular physiology, with a thematic focus on toxicology, will be provided. The presentations will include: overall physiological changes that manifest at the whole-animal level following toxicant exposure; *in vivo*, *in vitro*, and *ex vivo* cardiac testing protocols in the regulatory environment, and how current testing strategies may potentially miss cardiac effects that manifest chronically; vascular and microvascular effects that result from toxicity initiated in other tissues; and microvascular physiology and toxicology in the context of model development, application, and underlying pathology. The course will be of interest to a broad scope of scientists that are increasingly being requested to consider the impact of novel compounds and toxicants on the physiology of the entire cardiovascular system.

#3	8:15	**Recent Developments in Cardiovascular Physiology-Based Toxicology.** *T. L. Knuckles*[1], and *W. McGuinn*[2]. [1]West Virginia University, Morgantown, WV; [2]US FDA-CDER, Columbia, MD.
	8:15	**Introduction to Cardiovascular Physiology.** Travis L. Knuckles. West Virginia University, Morgantown, WV.
	8:30	**Role of Physiological Responses in Toxicant-Induced Cardiovascular Injury.** Medhi Hazari. US EPA, Research Triangle Park, NC.
	9:00	**The Mechanisms and Manifestations of Cardiac Toxicity Associated with Chronic Drug Administration, with Examples from Experience with Oncology Drugs.** W. David McGuinn. US FDA-CDER, Columbia, MD.
	9:30	**Course Break.** Coffee Service
	10:00	**Principles of Microvascular Assessments in Toxicology.** Timothy Nurkiewicz. University of West Virginia, Morgantown, WV.
	10:45	**Microvascular Perfusion: Where Do the Red Cells Go Following Toxicant or Oxidative Damage?** Mary (Molly) D. Frame. Stony Brook University, Stony Brook, NY.
	11:30	**Cardiovascular Responses to Particulate Matter and Nanoparticles.** Vincent Castranova. CDC-NIOSH, Morgantown, WV.

Sunday Morning, March 10
8:15 AM to 12:00 Noon
Concourse and Grand Ballroom Levels
(See signage at CE Booth for room location)

Continuing Education: Approval of Biosimilar Monoclonal Antibodies: Scientific, Regulatory, and Legal Challenges

AM04 **CE Basic**

Regulatory Science: Advancing New Approaches for Hazard Identification and Risk Assessment

Chairperson(s): *Lynne LeSauteur, Charles River Laboratories, Senneville, QC, Canada, and Jonathan D. Urban, ToxStrategies, Inc., Austin, TX.*

Sponsor:
Immunotoxicology Specialty Section

Endorsed by:
Biotechnology Specialty Section

Technological advances have resulted in the development of a wide range of innovative monoclonal antibodies (mAb). As the patents for these monoclonal antibodies expire, there has been a growing interest in the market of "generic" follow-on products, or biosimilars. These biosimilar drugs, however, are not generic in the same sense as small molecule drugs since they do not have identical active component(s) as the innovative drug product due to the differences in production. While established standard

Continuing Education (Continued)

Abstract #

analytical methodologies enable manufacturers of generic small molecule drugs to demonstrate pharmaceutical equivalence, the complex and sensitive nature of even the most similar biological manufacturing systems (e.g., commercial cell lines) makes producing identical copies of the innovative monoclonal antibody products impossible. Therefore, the scientific and regulatory paradigm for demonstrating that the products are highly similar and that there are no clinically meaningful differences between a biosimilar product and an innovative therapeutic in order to obtain drug approval is necessarily much more complex. Adding to this complexity is the regulatory environment that impacts on the biosimilar approval process. Case studies will compare and contrast the scientific and regulatory approaches used for mAb biosimilar drug development. These examples will cover the GMP to clinical strategies in broad scope but focus on the preclinical breadth of studies conducted based on the extent of GMP and clinical similarity data available. Within these presentations the scientific rational for similarity with the innovator drug will be highlighted. The basic concepts of the legal challenges and recent Biologics Price Competition and Innovation Act (BPCIA), which creates an abbreviated approval framework for biological products that are demonstrated to be "biosimilar" to or "interchangeable" with a US FDA-licensed biological product, along with the role the patent and data exclusivity provisions will play in biosimilar drug development, will also be discussed.

#4	8:15	**Approval of Biosimilar Monoclonal Antibodies: Scientific, Regulatory, and Legal Challenges.** *L. LeSauteur*[2], and *J. D. Urban*[1]. [1]ToxStrategies, Inc., Austin, TX; [2]Charles River Laboratories, Senneville, QC, Canada.
	8:15	**Introduction.** Lynne LeSauteur[1], Jonathan D. Urban[2]. [1]Charles River Laboratories, Senneville, QC, Canada; [2]ToxStrategies, Inc., Austin, TX.
	8:20	**Regulatory Standards for the Approval of Biosimilar Products: A Global Review.** Barbara Mounho-Zamora. ToxStrategies, Inc., Bend, OR.
	8:50	**Preclinical Strategies to Support Clinical Development of Biosimilar Monoclonal Antibodies.** Christine Grimaldi. Boehringer Ingelheim Pharmaceuticals, Ridgefield, CT.
	9:30	**Toxicology Evaluation of Biosimilars: A Case Study.** Danuta J. Herzyk. Merck & Co., Inc., West Point, PA.
	10:00	**Course Break.** Coffee Service
	10:30	**Nonclinical Development of Biosimilars: Adjusting the Strategy to Fit the Program.** Michael W. Leach. Pfizer, Inc., Andover, MA.
	10:55	**The Intersection of Current Patent and Data Exclusivity Provisions and the Biologics Price Competition and Innovation Act (BPCIA) on the Biosimilar Drug Development Process.** Kimberly Greco. Amgen, Washington, DC.
	11:20	**Regulatory Considerations for Biosimilar Monoclonal Antibodies.** Marjorie Shapiro. US FDA, Washington, DC.
	11:45	**Panel Discussion/Q&A.** Lynne LeSauteur[1], Jonathan D. Urban[2]. [1]Charles River Laboratories, Senneville, QC, Canada; [2]ToxStrategies, Inc., Austin, TX.

Abstract #

Sunday Morning, March 10
8:15 AM to 12:00 Noon
Concourse and Grand Ballroom Levels
(See signage at CE Booth for room location)

Continuing Education: The What, When, and How of Nonclinical Support for an IND Submission

AM05 **CE Basic**

Regulatory Science: Advancing New Approaches for Hazard Identification and Risk Assessment

Chairperson(s): *Paul Nugent, Pfizer Worldwide Research and Development, Groton, CT, and Dorothy Colagiovanni, N30 Pharmaceuticals, LLC, Boulder, CO.*

Sponsor:
Regulatory and Safety Evaluation Specialty Section

Endorsed by:
Cardiovascular Toxicology Specialty Section
Drug Discovery Specialty Section
Toxicologic and Exploratory Pathology Specialty Section

The initiation of dosing of human subjects in a Phase 1 clinical trial represents the culmination of years of drug development, and immediately preceding the start of dosing, months of work to prepare and submit the Investigational New Drug (IND) application (or Clinical Trial Application (CTA)). A critical part of the submission dossier is the sections that describe the nonclinical data and interpretation that underwrite the clinical plan; specifically, the results of studies in pharmacology, pharmacokinetics, and toxicology, and their integration into a coherent argument that justifies the clinical starting dose, escalation of dose, and "stopping criteria" to be used in the clinical trial. The objective of the course is to elucidate the path to a successful IND/CTA submission by outlining what needs to be done (concentrating principally on the toxicology and safety pharmacology studies), the timeline and order of activities, and the presentation of the data and its integration into a coherent risk assessment to support introduction of the investigational compound into the clinic. The focus will be the content of the Nonclinical Overview (NCO), which represents an integrated detailed summary of the nonclinical studies conducted to support the clinical plan for first-in-human (FIH) dosing. The course will address the expectations of the two main "customers" for the NCO: the US FDA pharmacology/toxicology reviewer evaluating the data to determine if it supports the safety considerations of the clinical plan, and the clinician designing the clinical protocol and conducting the FIH trial.

#5	8:15	**The What, When, and How of Nonclinical Support for an IND Submission.** *P. Nugent*[1], and *D. Colagiovanni*[2]. [1]Pfizer Worldwide Research and Development, Groton, CT; [2]N30 Pharmaceuticals, LLC, Boulder, CO.
	8:15	**Introduction.** Paul Nugent. Pfizer Worldwide Research and Development, Groton, CT.
	8:25	**Overview of the Nonclinical Toxicology Support for Clinical Trials.** Paul Nugent. Pfizer Worldwide Research and Development, Groton, CT.
	8:45	**The IND Review Process from the Perspective of the Nonclinical Reviewer.** Ronald Wange. US FDA, Silver Spring, MD.
	9:30	**Toxicology Studies in Drug Development and Their Contribution to the NCO (Part 1).** Dorothy Colagiovanni. N30 Pharmaceuticals, LLC, Boulder, CO.
	10:00	**Course Break.** Coffee Service
	10:30	**Toxicology Studies in Drug Development and Their Contribution to the NCO (Part 2).** Dorothy Colagiovanni. N30 Pharmaceuticals, LLC, Boulder, CO.

Continuing Education (Continued)

Abstract #

10:45 **The Content of the Nonclinical Overview (NCO).** J. Neil Duncan. Pfizer Worldwide Research and Development, Groton, CT.

11:30 **Clinical Perspective on the NCO.** Drew Rasco. South Texas Accelerated Research Therapeutics (START), San Antonio, TX.

Sunday Morning, March 10
8:15 AM to 12:00 Noon
Concourse and Grand Ballroom Levels
(See signage at CE Booth for room location)

Continuing Education: The Practice and Implementation of Neural Stem Cell-Based Approaches to Neurotoxicology

AM06 **CE Basic**

Chairperson(s): *Timothy J. Shafer, US EPA, Research Triangle Park, NC, and Aaron B. Bowman, Vanderbilt University Medical Center, Nashville, TN.*

Sponsor:
Neurotoxicology Specialty Section

Endorsed by:
Mechanisms Specialty Section
Metals Specialty Section
Reproductive and Developmental Toxicology Specialty Section
Stem Cells Specialty Section

The availability and use of human pluripotent stem cells (hPSC) and human neural stem cells (hNSC) for toxicology has dramatically increased in the past decade. hNSC are powerful tools for toxicologists and can provide tissue that would otherwise be unobtainable. This includes a renewable source of neural tissue from the same genetic stock that is not transformed or derived from a tumor, a source of normal human nervous system tissue, and sources of nervous system tissue from patients with clinical disease. However, culture and differentiation of hNSC are unique from culture of primary or transformed neural tissue. The course will bring together experts in the culture of various types of neural stem cells, including embryonic human derived neural stem cells, neurospheres, and neural cells derived from hPSC. Each expert will discuss the basic approaches to culturing different types of hNSC, including propagation of the cells in a progenitor status, as well as protocols for differentiation of the cells into different types of neurons. Pitfalls that are both common to the different models as well as unique ones will be described. The goal of the course is to provide the student with knowledge regarding different types of neural stem cell cultures, the techniques to successfully culture and differentiate these models, and application of these model systems to neurotoxicology. The course will conclude with an examination of appropriate outcome measures and discuss the possibility of personalized neurotoxicological assessment.

#6 8:15 **The Practice and Implementation of Neural Stem Cell-Based Approaches to Neurotoxicology.** *T. J. Shafer*[1], and *A. B. Bowman*[2]. [1]US EPA, Research Triangle Park, NC; [2]Vanderbilt University Medical Center, Nashville, TN.

8:15 **Introduction.** Aaron B. Bowman. Vanderbilt University Medical Center, Nashville, TN.

8:30 **Cultural and Neural Differentiation of Human ESC-Derived Neural Cells.** Steven L. Stice. University of Georgia and ArunA Biomedical, Inc., Athens, GA.

9:15 **Neurospheres As 3D Cultures for Developmental Neurotoxicity Testing.** Ellen Fritsche. Leibniz Research Institute of Environmental Medicine, Düsseldorf, Germany.

10:00 **Course Break.** Coffee Service

Abstract #

10:30 **Culture and Differentiation of hPSC-Derived Neurons and the Promise of Personalized Toxicology.** Aaron B. Bowman. Vanderbilt University Medical Center, Nashville, TN.

11:15 **Neurotoxicity Test Development and Mechanistic-Based Toxicology Using hNSC.** Timothy J. Shafer. US EPA, Research Triangle Park, NC.

Sunday Morning, March 10
8:15 AM to 12:00 Noon
Concourse and Grand Ballroom Levels
(See signage at CE Booth for room location)

Continuing Education: Toxic Effects of Metals

AM07 **CE Basic**

Regulatory Science: Advancing New Approaches for Hazard Identification and Risk Assessment

Chairperson(s): *Michael P. Waalkes, NIEHS, Research Triangle Park, NC, and Michael F. Hughes, US EPA, Research Triangle Park, NC.*

Sponsor:
Metals Specialty Section

Endorsed by:
Mechanisms Specialty Section
Neurotoxicology Specialty Section
Risk Assessment Specialty Section
Stem Cells Specialty Section

Human exposures to metals are a daily occurrence because of their natural presence in the environment—their uses in production of many commercial products—are byproducts of energy production and are found in many hazardous waste sites. The objective of the course is to highlight the fundamentals of metals toxicology. Metals have unique chemical and physical properties that distinguish them from organic-based chemicals. Even though some metals are essential to life, overexposure to these and other metals may result in a toxic effect in one or more organ systems. Upon exposure, metals may be absorbed, distributed throughout the systemic circulation, metabolized, and eliminated. The response of an organism following exposure to metals may be protective (e.g., induction of the metal-binding protein metallothionein), or toxicological by several mechanisms including oxidative stress. Key organ systems such as the central nervous system, the vascular system, as well as the skeleton system are affected by metals including manganese, lead, aluminum, and others. Accumulation of metals in bone has recently gained renewed interest as an eventual source of internal exposure. Noninvasive methods such as neutron activation are now being used to quantitate bone metal levels. Metals can influence gene expression, signal transduction, and epigenetics. Various toxic and carcinogenic metals such as arsenic and chromium alter the epigenetic program in cells; these effects on DNA methylation, histone tail modifications, and microRNA may be involved in metal-induced toxicity. Metals are known to cause cancer by several proposed mechanisms, including oxidative stress and the cancer stem cell hypothesis. Recent evidence suggests that developmental exposure to metals may affect stem cell population dynamics, which could result in adult onset of cancer. Overall, this is intended to be a basic course on metals toxicology, and is ideal to those who desire knowledge on the health effects of metals and useful tools used in metals toxicology research.

#7 8:15 **Toxic Effects of Metals.** *M. F. Hughes*[2], and *M. P. Waalkes*[1]. [1]NIEHS, Research Triangle Park, NC; [2]US EPA, Research Triangle Park, NC.

8:15 **Introduction.** Michael P. Waalkes. NIEHS, Research Triangle Park, NC.

8:30 **Essentials of Metals Toxicology.** Michael F. Hughes. US EPA, Research Triangle Park, NC.

9:15 **Metal-Induced Organ Systems Toxicities.** Wei Zheng. Purdue University, West Lafayette, IN.

Continuing Education (Continued)

Abstract #

10:00 **Course Break.** Coffee Service

10:30 **Mode of Metals Toxicities: Example of Epigenetics.** Max Costa. New York University School of Medicine, Tuxedo Park, NY.

11:15 **Metals in Carcinogenesis and Developmental Origins of Adult Disorders.** Erik J. Tokar. NIEHS, Research Triangle Park, NC.

SUNDAY AFTERNOON

Sunday Afternoon, March 10
1:15 PM to 5:00 PM
Concourse and Grand Ballroom Levels
(See signage at CE Booth for room location)

Continuing Education: Advances in Nanotoxicology—Challenges

PM08 **CE Advanced**

Effects of Nanomaterials on Biological Systems

Chairperson(s): *Saber M. Hussain, US Air Force, Wright-Patterson AFB, Dayton, OH, and Syed F. Ali, US FDA-NCTR, Jefferson, AR.*

Sponsor:
Nanotoxicology Specialty Section

Recent developments in nanotechnology have generated a degree of apprehension concerning the potential risk to human health and the environment from manufactured nanomaterials (NM). The unique chemical and physical properties of NM, coupled with their high surface area per unit mass, require an extensive array of characterization tools to effectively assess the toxicity of NM. Not only must the size and surface area of the NM be characterized prior to cellular exposure, but also a number of other specific features must be additionally evaluated, such as the size distribution, chemical composition, crystallinity, surface structure, shape, and solubility. The ionic strength of biological fluids may produce NM instability, resulting in environmental-specific aggregation tendencies that may impact toxicological results. Since aggregation of NM can modify uptake rates, transport properties, and clearance by the cell model or organ system, it is critical to interpret the data from NM toxicity experiments with a detailed knowledge of the physicochemical properties of the NM at all experimental time points. Due to the lack of standardized methods to determine the physicochemical behavior of NM in biological systems, the mechanisms and nature of acute or chronic toxicity of engineered NM cannot be fully understood at this time. An understanding of a proper manner by which NM should be introduced to a biological environment has yet to be established, and consistency between cellular assay techniques has not been verified—both situations presenting clear challenges that must be addressed. This course raises issues to consider for the toxicity assessment of NM, and addresses recent advances and technical obstructions associated with conducting or interpreting *in vitro* or *in vivo* toxicity studies. The goal is to provide a comprehensive understanding of NM characterization, as well as facilitate valuable discussions of key challenges and advancements in the newly emergent field of nanotoxicology.

#8 1:15 **Advances in Nanotoxicology—Challenges.** *S. M.≈Hussain*[1], and *S. F. Ali*[2]. [1]US Air Force, Wright-Patterson AFB, OH; [2]US FDA-NCTR, Jefferson, AR.

1:15 **Introduction.** Saber M. Hussain. US Air Force, Wright-Patterson AFB, OH.

1:20 **Characterizing Techniques for Conducting Nanotoxicity: Complexity and Challenges.** Saber M. Hussain. US Air Force, Wright-Patterson AFB, OH.

1:50 **Robust Characterization of Nanomaterials Is Necessary before Toxicity Studies/Assessment Can Be Undertaken.** David B. Warheit. DuPont Haskell Laboratories, Newark, DE.

Abstract #

2:20 **Surface Modification and Characterization of Nanomaterials for Toxicity Studies: Material Science Aspects.** Kimberly Hamad-Schifferli. Massachusetts Institute of Technology, Cambridge, MA.

3:00 **Course Break.** Beverage Service

3:30 **Aggregation Behavior of Nanomaterials Under Biological Exposure Conditions.** Navid Saleh. University of South Carolina, Columbia, SC.

4:15 ***In Vitro* and *In Vivo* Toxicology Using Silicon-Based NP As an Example.** Dominique Lison. Catholic University of Louvain, Brussels, Belgium.

Sunday Afternoon, March 10
1:15 PM to 5:00 PM
Concourse and Grand Ballroom Levels
(See signage at CE Booth for room location)

Continuing Education: Gonadal Development, Function, and Toxicology

PM09 **CE Basic**

Chairperson(s): *Barry S. McIntyre, NIEHS, Research Triangle Park, NC, and Jodi A. Flaws, University of Illinois Urbana-Champaign, Urbana, IL.*

Sponsor:
Reproductive and Developmental Toxicology Specialty Section

Endorsed by:
Regulatory and Safety Evaluation Specialty Section

The course objectives are to provide the basic tools for toxicologists who desire a better understanding of how to assess the effects of toxicants on the male and female gonads from development through adulthood. A focus on reproductive biology, study design considerations, reproductive endpoints, data interpretation, and use of data in risk assessment will be highlighted. Reproductive toxicity studies are among the most complex and challenging studies in the field of toxicology. The studies assess multiple interrelated endpoints of male and female reproductive development and function. To properly design, conduct, and interpret these studies, a fundamental knowledge of male and female gonadal development, anatomy, physiology, and endocrinology are required. Individual lectures will discuss the anatomy and physiology of the male and female gonads, as well as endocrine regulation of these systems. Evaluation of toxicity endpoints to assess male and female reproductive function will also be discussed, including folliculogenesis, spermatogenesis, hormone analysis, cyclicity, fertility, histopathology, and proper use of statistical analysis. The regulatory expectations related to reproductive toxicity testing, interpretation of results, and how these results are ultimately used to assess potential risks to human reproduction, will be presented. The course will conclude with methodologies for *in vitro* reproductive toxicity assessments for screening and investigation of mode of action. In summary, key information required for the design of reproductive toxicity studies and interpretation of reproductive toxicity data, and provide guidance for use of the data for risk assessment of reproduction, will be presented.

#9 1:15 **Gonadal Development, Function, and Toxicology.** *B. S. McIntyre*[1], and *J. A. Flaws*[2]. [1]NIEHS, Research Triangle Park, NC; [2]University of Illinois Urbana-Champaign, Urbana, IL.

1:15 **Introduction.** Barry S. McIntyre[1], and Jodi A. Flaws[2]. [1]NIEHS, Research Triangle Park, NC; [2]University of Illinois Urbana-Champaign, Urbana, IL.

1:30 **Male Reproductive System: Development and Function of the Gonads.** Katie Turner. RTI International, Research Triangle Park, NC.

2:15 **Female Reproductive System: Development and Function of the Gonads.** Ulrike Luderer. University of California Irvine, Irvine, CA.

Continuing Education (Continued)

Abstract #

3:00 **Course Break.** Beverage Service

3:30 **Reproductive Toxicity Testing in Product Safety Assessment.** Reza Rasoulpour. The Dow Chemical Company, Midland, MI.

4:15 **Strengths and Limitations of *In Vitro* Test Methods for Reproductive Toxicology.** Warren Foster. McMaster University, Hamilton, ON, Canada.

Sunday Afternoon, March 10
1:15 PM to 5:00 PM
Concourse and Grand Ballroom Levels
(See signage at CE Booth for room location)

CE

Continuing Education: The REACH Regulation and Safety Assessment Approaches for Chemicals That Come in Contact with the Skin

PM10 **CE Basic**

Regulatory Science: Advancing New Approaches for Hazard Identification and Risk Assessment

Chairperson(s): *Jens Thing Mortensen, CiToxLAB Scantox, Lille Skensved, Denmark, and Jon Heylings, Dermal Technology Laboratory Ltd., Keele University Science Park, United Kingdom.*

Sponsor:
Dermal Toxicology Specialty Section

Endorsed by:
***In Vitro* and Alternative Methods Specialty Section**

REACH (**R**egistration, **E**valuation, **A**uthorization, and Restriction of **Ch**emical substances) is the European Union regulation on chemicals and their safe use, which came into force on June 1, 2007. The aim of REACH is to improve the protection of human health and the environment through better and earlier identification of the intrinsic properties of chemical substances. REACH places greater responsibility on the industry to manage the risks from chemicals, and to provide safety information on their substances. The regulation will come gradually into force in the period up to 2018. Under REACH, 30–40,000 new and existing chemicals will have to be (re)classified and registered. The regulation requires companies to conduct risk assessment and safety classification, with a minimal use of experimental animals, and to share information via databases managed by the European Chemicals Agency (ECHA). The skin (together with the respiratory system) is important as a route of chemical exposure, and as a target organ for toxicity induced by chemicals. Since under REACH so many chemicals need to be evaluated, it is important to use and develop testing methods that reliably predict human exposure and safety, while minimizing the use of experimental animals. An overview of the REACH regulation, and its practical implications for toxicological safety evaluation of chemicals marketed in Europe, will be given. Efforts to develop new methods and validation status of alternative methods that will limit the number of experimental animals to be used will be highlighted. Specifically, state-of-the art investigational methods within dermal toxicology will be discussed since the skin is very important, both as a barrier to exposure and as a target organ. Practical examples of the use of the collected dermal safety data in the risk assessment of chemicals under REACH will be presented.

#10 1:15 **The Reach Regulation and Safety Assessment Approaches for Chemicals That Come in Contact with the Skin.** *J. Mortensen*[1], and J. Heylings[2]. [1]CiToxLAB Scantox, Lille Skensved, Denmark; [2]Dermal Technology Laboratory Ltd., Keele University Science Park, United Kingdom.

1:15 **Introduction.** Jens Thing Mortensen. CiToxLAB Scantox, Lille Skensved, Denmark.

1:25 **The REACH Process and Dermal Safety Testing.** Laura Rossi. European Chemicals Agency (ECHA), Helsinki, Finland.

Abstract #

2:10 **Dermal Corrosivity and Irritation Testing under REACH: Application of Valid Nonanimal Test Methods.** Hans Raabe. Institute for *In Vitro* Sciences, Gaithersburg, MD.

2:55 **Course Break.** Beverage Service

3:25 **Skin Sensitization Testing under REACH.** David J. Esdaile. CiToxLAB Hungary, Veszprem, Hungary.

4:10 **Skin Penetration Testing under REACH: Methods and Use in Risk Assessment.** Jon Heylings. Dermal Technology Laboratory Ltd., Keele University Park, United Kingdom.

4:50 **Panel Discussion/Q&A.** Jon Heylings. Dermal Technology Laboratory Ltd., Keele University Park, United Kingdom.

Sunday Afternoon, March 10
1:15 PM to 5:00 PM
Concourse and Grand Ballroom Levels
(See signage at CE Booth for room location)

CE

Continuing Education: T4: Tools and Technologies in Translational Toxicology

PM11 **CE Advanced**

Application of Systems Biology to Toxicology

Chairperson(s): *Vishal S. Vaidya, Harvard Medical School, Boston, MA, and Donna L. Mendrick, US FDA-NCTR, Jefferson, AR.*

Sponsor:
Drug Discovery Toxicology Specialty Section

Endorsed by:
Association of Scientists of Indian Origin Special Interest Group
Biotechnology Specialty Section
Disease Prevention Task Force

The last decade has seen revolutionary advances in the tools and technologies available for biomedical scientists such that researchers can now conduct transformative experiments to solve unmet medical needs moving from a single cell to whole organism, and vice versa. Novel tools and innovative technologies have facilitated the development of sophisticated molecular diagnostics, enabled the use of new approaches in safety evaluation and risk assessment, and led to the development of targeted therapeutics. The development and utilization of novel technologies and tools requires interaction between scientists of differing backgrounds and talents (e.g., biologists, chemists, and programmers). Only with this shared effort can medicine transform itself to meet the needs of the 21st century. The panel of experts will decode and demystify the potential of these translational and transformative technologies over a wide variety of applications, including safety/efficacy screening of compounds, imaging, 'omics, and *in silico* modeling. The key goals are to enable you to understand how recent advances in "T4": 1) help in solving important problems that have been critical barriers to progress in the field and, 2) transform the field by generating foundational resources that will be widely used throughout biomedical science for safety evaluation and risk assessment.

#11 1:15 **T4: Tools and Technologies in Translational Toxicology.** *D. L. Mendrick*[2], and *V. Vaidya*[1]. [1]Harvard Medical School, Boston, MA; [2]US FDA-NCTR, Jefferson, AR.

1:15 **Introduction.** Vishal S. Vaidya. Harvard Medical School, Boston, MA.

1:30 **Engineered Approaches to Assess Liver Toxicity.** Salman Khetani. Colorado State University, Fort Collins, CO.

2:15 **Nuts and Bolts of High-Throughput Compound Toxicity Testing.** Menghang Xia. NIH, Bethesda, MD.

CE

Continuing Education (Continued)

Abstract #

3:00 **Course Break.** Beverage Service

3:30 **Imaging Technologies in Translational Toxicology.** Serguei Liachenko. US FDA-NCTR, Benton, AR.

4:15 **Systems Biology: *In Silico* Modeling to 'Omic Biomarkers.** Donna L. Mendrick. US FDA-NCTR, Jefferson, AR.

Sunday Afternoon, March 10
1:15 PM to 5:00 PM
Concourse and Grand Ballroom Levels
(See signage at CE Booth for room location)

Continuing Education: Understanding Toxic Neuropathy in Drug Development: Both Clinical and Nonclinical Perspectives

PM12 **CE Advanced**

Biomarkers for Exposure Assessment, Safety Evaluation, and Translational Medicine

Chairperson(s): *Mary Jeanne Kallman, Covance Research Laboratories, Greenfield, IN, and John Benitez, Vanderbilt University, Nashville, TN.*

Sponsor:
Scientific Liaison Coalition

Endorsed by:
Clinical and Translational Toxicology Specialty Section
Neurotoxicology Specialty Section
Regulatory and Safety Evaluation Specialty Section
Risk Assessment Specialty Section

The topic of risk assessment of peripheral neuropathies is timely due to the increased clinical incidence of challenges related to multiple antecedents for the clinical presentation of neuropathies. The integration of both nonclinical and clinical dialogue on peripheral neuropathies will provide greater possibilities for successful drug development and improved patient outcomes. Peripheral nervous system toxicity is a common complication of exposure to industrial chemicals and drugs such as chemotherapeutics. Neuropathy can be caused by either limited or long-term exposure to drugs or chemicals, and toxic neuropathies can be classified by their presentation (e.g., motor vs. sensory), their electrodiagnostic features or their neuroanatomical location within the peripheral nerve. Identification of toxic neuropathology prior to human exposure in the drug development process requires a multidisciplinary approach. Presentations will include information on the preclinical and clinical syndromes that have been characterized and the specific techniques for assessment. The preclinical presenters will focus on the application of preclinical data to provide risk assessment and to direct clinical assessment possibilities. The clinical presenters will emphasize the clinical situation and current treatment approaches. The course will conclude with open discussion between the presenters and the audience about opportunities for future risk assessment and the application to clinical management.

#12 1:15 **Understanding Toxic Neuropathy in Drug Development: Both Clinical and Nonclinical Perspectives.** *M. Kallman*[1], and *J. Benitez*[2]. [1]Covance Research Laboratories, Greenfield, IN; [2]Vanderbilt University, Nashville, TN.

1:15 **Introduction and Overview.** Mary Jeanne Kallman. Covance Research Laboratories, Greenfield, IN.

1:30 **Anatomy of the Peripheral Nervous System and Recognition of Common Neuropathies.** Mark Cartwright. Merck & Co. Inc., Sparta, NJ.

2:15 **Clinical Overview of Toxic Neuropathy.** Amy Chappell. Eli Lilly and Company, Indianapolis, IN.

3:00 **Course Break.** Beverage Service

Abstract #

3:30 **Assessment of Peripheral Nerve Function: Risk Assessments for Neuropathy and Potential Translation to the Clinic.** Joseph Arezzo. Albert Einstein College of Medicine, Bronx, NY.

4:15 **Examples of Clinical Neuropathies Associated with Oncolytic Drugs.** John Benitez. Vanderbilt University, Nashville, TN.

Sunday Afternoon, March 10
1:15 PM to 5:00 PM
Concourse and Grand Ballroom Levels
(See signage at CE Booth for room location)

Continuing Education: Weighing in on Nutrition—Essential Concepts for Toxicologists

PM13 **CE Basic**

Molecular Basis of Genetic Variability and Susceptibility to Toxicants

Chairperson(s): *Daniel M. Wilson, The Dow Chemical Company, Midland, MI, and Angela L. Slitt, University of Rhode Island, Kingston, RI.*

Sponsor:
Food Safety Specialty Section

Endorsed by:
Cardiovascular Toxicology Specialty Section
Ethical, Legal, and Social Issues Specialty Section
Mechanisms Specialty Section
Women in Toxicology Special Interest Group

There has been an exponential increase in the attention focused on the potential role of nutrition in reducing the risk for numerous health complications, ranging from birth defects to age-associated vascular disease. Underscoring the above is the increasing number of presentations and publications related to this subject, and hallmarks such as the recently revamped Food Pyramid into a Plate Icon. Chronic nutritional diseases are accepted to be a current crisis in our society; three nutrition-related diseases alone, obesity, Metabolic Syndrome, and Type 2 Diabetes, afflict over one-third of the American population. To better understand the components and etiology of nutritional diseases, it's essential for toxicologists to be well versed in the science of nutrition. A comprehensive understanding of nutrition has broad applications in toxicology, especially considering that many of us have roles in investigating the safety of nutrients, food additives or food ingredients, studying nutritional disease, or designing and interpreting preclinical or clinical studies wherein the need to consider and understand nutritional homeostasis is essential. The potential for intersection of normal nutritional metabolic pathways with adverse outcome pathways is becoming even more important to delineate. This course on general nutrition, the biochemistry of nutritional pathways, the essential role of vitamins, the channeling of nutrients such as carbohydrates, proteins and fats, cellular and molecular details of nutrition, and nutritional aspects of development and reproduction, will heighten awareness of their importance in human and animal health at multiple levels. The focus will be on relevant information, starting with an introduction to nutrition, followed by a review of biochemical and metabolic reactions in nutrition, with an emphasis on their relation to toxicology. How the nutritional status of a woman can modulate the developmental toxicity of a number of diverse toxicants, including alcohol, will be presented, along with a seminar describing the tools and applications of molecular and genetic models of nutritional disease.

#13 1:15 **Weighing in on Nutrition—Essential Concepts for Toxicologists.** *D. M. Wilson*[1], and *A. L. Slitt*[2]. [1]The Dow Chemical Company, Midland, MI; [2]University of Rhode Island, Kingston, RI.

1:15 **Introduction.** Daniel M. Wilson. The Dow Chemical Company, Midland, MI.

1:30 **Nutrition 101.** Jo Ann S. Carson. University of Texas Southwestern, Dallas, TX.

Continuing Education (Continued)

2:15 **The Biochemistry of Nutrition.** Daniel M. Wilson. The Dow Chemical Company, Midland, MI.

3:00 **Course Break.** Beverage Service

3:30 **Studying Nutritional Disease in Rodent and Cell-Based Models: Proper Selection of Molecular and Systemic Endpoints.** Angela L. Slitt. University of Rhode Island, Kingston, RI.

4:15 **Nutrition and Pregnancy.** Cheryl S. Rosenfeld. University of Missouri, Columbia, MO.

Notes

Thank You, Speakers

On behalf of the SOT Council and the entire membership of the Society of Toxicology (SOT), thank you to all of the speakers who graciously agreed to come to San Antonio, Texas, to participate in the 2013 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 2014 Annual Meeting Sessions: April 30, 2013

Why Submit a Proposal?

1. To present new developments in toxicology.
2. To provide attendees an opportunity to learn about state-of-the-art technology and how it applies to toxicological research.
3. To provide attendees 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

Historical Highlights—Review of an historical body of science that has impacted toxicology

Informational Sessions—Scientific planning or membership development

Education-Career Development Sessions—Sessions that provide the tools and resources to toxicologists that will enhance their professional and scientific development

Regional Interest—Central topics of relevance that describe public health and/or ecological problems of a particular region

Submit your proposal online at www.toxicology.org

Scientific Session Index

All sessions will be held at the Henry B. Gonzalez Convention Center.

General Scientific Sessions

(Listed by type, then date and time)

- EC Education-Career Development Sessions
- FS Featured Sessions
- HH Historical Highlight Sessions
- IS Informational Sessions
- PL Platform Sessions
- PS Poster Sessions
- RI Regional Interest Session
- R Roundtable Sessions
- S Symposium Sessions
- Thematic Sessions
- W Workshop Sessions

Exhibitor/Sponsor-Hosted Sessions are informative sessions developed by an exhibiting company or SOT sponsor. The Exhibitor/Sponsor-Hosted Session Index is located on *pages 43–45*.

Monday

SYMPOSIUM SESSIONS S

Date/Time	Topic/Abstract #	Room	Page
Monday 9:15 AM	Genetic and Epigenetic Determinants of Susceptibility to Environmental and Occupational Toxicants #14–18	Grand Ballroom C1	139
Monday 9:15 AM	Predictive Toxicology Paradigms for Understanding Carbon Nanotube Toxicity in the Lung #19–24	Room 214 A&B	139
Monday 9:15 AM	Translatable Indicators of Testicular Toxicity: Inhibin B, microRNAs, and Sperm Signatures #25–29	Room 214 C&D	140

WORKSHOP SESSIONS W

Date/Time	Topic/Abstract #	Room	Page
Monday 9:15 AM	Biology of Low-Dose Response for DNA-Reactive Chemicals #30–35	Room 217 A&B	140
Monday 9:15 AM	Incorporation of Exposure Data and Chemical Properties into Early *In Vitro* Screening Studies: Putting Early Hazard Identification into Appropriate Context #36–41	Grand Ballroom C3	141
Monday 9:15 AM	Inhaled Mixtures: A Mode-of-Action Framework Applied to the Criteria Air Pollutants #42–46	Grand Ballroom C2	142

REGIONAL INTEREST SESSION RI

Date/Time	Topic/Abstract #	Room	Page
Monday 9:15 AM	Toxicological Challenges in Food Production in Texas and the Gulf Coast #47–51	Room 217 C&D	142

PLATFORM SESSIONS PL

Date/Time	Topic/Abstract #	Room	Page
Monday 9:15 AM	Advances in Neurobehavioral and Neuropathology Assessment of Chemicals #52–58	Room 205	143
Monday 9:15 AM	Inhalants and Metabolic Disorders #59–66	Room 207	143

POSTER SESSIONS PS

**Author attended 9:30 am–11:00 am; otherwise author attended 11:00 am–12:30 pm. Poster Board Surface Maps are on* *pages 122–123*.

Date/Time		Topic/Abstract #	Room	Page
Monday 9:30 AM	*	Cardiovascular Toxicity: Telemetry and *In Vitro* Systems #67–95 Poster Boards 101–129	Exhibit Hall C–D	144
Monday 9:30 AM		Endocrine Disruptor Screening #96–114 Poster Boards 131–149	Exhibit Hall C–D	146
Monday 9:30 AM	*	Bioinformatics and Computational Toxicology: Systems and Strategies #115–144 Poster Boards 201–230	Exhibit Hall C–D	147
Monday 9:30 AM		Carcinogenesis #145–180 Poster Boards 301–336	Exhibit Hall C–D	149
Monday 9:30 AM	*	Pharmacogenomics/Genetic Polymorphisms #181–196 Poster Boards 340–355	Exhibit Hall C–D	152
Monday 9:30 AM		Medical Devices #197–206 Poster Boards 357–366	Exhibit Hall C–D	153
Monday 9:30 AM	*	Inhalants and Cardiopulmonary #207–241 Poster Boards 401–435	Exhibit Hall C–D	154
Monday 9:30 AM		Inflammation and Disease #242–263 Poster Boards 436–457	Exhibit Hall C–D	156
Monday 9:30 AM	*	Ecotoxicology #264–281 Poster Boards 459–476	Exhibit Hall C–D	158
Monday 9:30 AM		Biotransformation/ Cytochrome P450 #282–321 Poster Boards 501–540	Exhibit Hall C–D	159
Monday 9:30 AM	*	Developmental Toxicity—Nonmammalian #322–335 Poster Boards 543–556	Exhibit Hall C–D	162
Monday 9:30 AM		Chemical and Biological Weapons #336–374 Poster Boards 601–639	Exhibit Hall C–D	163

Scientific Session Index (Continued)

ROUNDTABLE SESSIONS R

Date/Time	Topic/Abstract #	Room	Page
Monday 12:10 PM	A Decade of Nanotoxicology: Where Do We Stand Now? #375	Room 207	167
Monday 12:10 PM	Predicting Human Thorough QT (TQT) Study Outcomes with Nonclinical Data—How Good Are We and How Good Do We Need to Be? #376	Room 214 A&B	168

HISTORICAL HIGHLIGHTS SESSION HH

Date/Time	Topic/Abstract #	Room	Page
Monday 12:10 PM	Diesel and Gasoline Exhaust and Cancer #377	Room 206	168

EDUCATION-CAREER DEVELOPMENT SESSION EC

Date/Time	Topic/Abstract #	Room	Page
Monday 12:10 PM	From New Submissions to Competitive Renewals: Different Phases of Grant Writing #378	Room 214 C&D	169

POSTER SESSIONS PS

**Author attended 1:00 pm–2:45 pm; otherwise author attended 2:45 pm–4:30 pm. Poster Board Surface Maps are on pages 124–125.*

Date/Time		Topic/Abstract #	Room	Page
Monday 1:00 PM	*	Immunotoxicity #379–425 Poster Boards 101–147	Exhibit Hall C–D	170
Monday 1:00 PM		Nanotoxicology—Carbonaceous Materials #426–471 Poster Boards 201–246	Exhibit Hall C–D	173
Monday 1:00 PM	*	Epidemiology: Exposures and Associations #472–482 Poster Boards 247–257	Exhibit Hall C–D	176
Monday 1:00 PM		Pharmacokinetics and Disposition #483–523 Poster Boards 301–341	Exhibit Hall C–D	177
Monday 1:00 PM	*	Epigenetics #524–548 Poster Boards 343–367	Exhibit Hall C–D	180
Monday 1:00 PM		Systems Biology and Toxicology #549–559 Poster Boards 401–411	Exhibit Hall C–D	182
Monday 1:00 PM	*	Chemical Mixtures #560–582 Poster Boards 413–435	Exhibit Hall C–D	183
Monday 1:00 PM		Pesticide Toxicology #583–603 Poster Boards 436–456	Exhibit Hall C–D	184
Monday 1:00 PM	*	Biological Modeling: Target Tissues and Toxicants #604–625 Poster Boards 457–478	Exhibit Hall C–D	186
Monday 1:00 PM		Liver #626–665 Poster Boards 501–540	Exhibit Hall C–D	187
Monday 1:00 PM	*	Gene Expression and Signal Transduction #666–701 Poster Boards 541–576	Exhibit Hall C–D	190
Monday 1:00 PM		Risk Assessment I: Advances in Approaches and Technologies #702–723 Poster Boards 577–598	Exhibit Hall C–D	192
Monday 1:00 PM	*	Animal Models of Disease #724–745 Poster Boards 601–622	Exhibit Hall C–D	194
Monday 1:00 PM		Animal Models—Measurements and Validation #746–762 Poster Boards 625–641	Exhibit Hall C–D	195

SYMPOSIUM SESSIONS S

Date/Time	Topic/Abstract #	Room	Page
Monday 2:00 PM	Human Health and Environmental Concerns around Natural Gas Production Using Hydraulic Fracturing #763–768	Grand Ballroom C2	197
Monday 2:00 PM	Role of Metabolic Syndrome and Perivascular Adipose in Exposure-Induced Vascular Dysfunction #769–774	Grand Ballroom C3	198

WORKSHOP SESSIONS W

Date/Time	Topic/Abstract #	Room	Page
Monday 2:00 PM	Environmental Factors in Neurodegenerative Diseases #775–779	Room 217 C&D	198
Monday 2:00 PM	Life-Course Models for Ensuring Children's Health Protection #780–785	Room 214 A&B	199
Monday 2:00 PM	NanoInformatics: Computational Challenges for Nanomaterial Hazard Assessment #786–791	Room 217 A&B	199
Monday 2:00 PM	Scientific and Regulatory Advances in Genetic Toxicology Safety Assessment #792–796	Room 214 C&D	200

PLATFORM SESSIONS PL

Date/Time	Topic/Abstract #	Room	Page
Monday 2:00 PM	Biomonitoring: Emerging Markers and Methods #797–805	Room 206	200
Monday 2:00 PM	Mode of Action and Human Relevance of Rodent Tumors #806–813	Room 205	201
Monday 2:00 PM	Toxicity of Nanoparticles—Cerium Oxide #814–820	Room 207	201

Scientific Session Index (Continued)

Tuesday

SYMPOSIUM SESSIONS S

Date/Time	Topic/Abstract #	Room	Page
Tuesday 9:00 AM	Frontiers for Toxicology Session: Systems and Computational Biology As Foundations for Toxicology Research #821–825	Grand Ballroom C1	206
Tuesday 9:00 AM	From Inhaled Particles to Cardiovascular Disease and Toxicity: Evidence from Studies in Volunteers, Experimental Animals, and Cell-Based Systems #826–831	Room 214 C&D	206
Tuesday 9:00 AM	The Dynamics of Neuroinflammation and Inflammatory Cell Responses in Neurologic Disease #832–836	Room 217 C&D	207

WORKSHOP SESSIONS W

Date/Time	Topic/Abstract #	Room	Page
Tuesday 9:00 AM	Advances in Carcinogenic Risk Assessment of Low-Level Genotoxic Impurities in Pharmaceuticals #837–842	Room 206	207
Tuesday 9:00 AM	Health Risks of Sodium (Salt) Intake: Too Much or Too Little? #843–848	Room 214 A&B	208
Tuesday 9:00 AM	Unique Challenges in Biologic Drug Development: Separating Mechanism of Action from Mechanism of Toxicity #849–853	Room 217 A&B	208

POSTER SESSIONS PS

**Author attended 9:00 am–11:00 am; otherwise author attended 11:00 am–12:30 pm. Poster Board Surface Maps are on pages 126–127.*

Date/Time		Topic/Abstract #	Room	Page
Tuesday 9:00 AM	*	Data Integration and Decision Support: Databases, Tools, and Ontologies #854–879 Poster Boards 101–126	Exhibit Hall C–D	209
Tuesday 9:00 AM		Computational Toxicology: Liver and Life Stage Characterizations #880–898 Poster Boards 131–149	Exhibit Hall C–D	211
Tuesday 9:00 AM	*	Neurotoxicology: General #899–923 Poster Boards 201–225	Exhibit Hall C–D	212
Tuesday 9:00 AM		Biomarkers I: Preclinical and Translational Approaches #924–954 Poster Boards 301–331	Exhibit Hall C–D	213
Tuesday 9:00 AM	*	Alternative Models—Eye and Skin #955–983 Poster Boards 336–364	Exhibit Hall C–D	216
Tuesday 9:00 AM		Developmental Basis of Adult Disease #984–997 Poster Boards 401–414	Exhibit Hall C–D	218
Tuesday 9:00 AM	*	Developmental Toxicity #998–1035 Poster Boards 417–454	Exhibit Hall C–D	219
Tuesday 9:00 AM		Skin #1036–1055 Poster Boards 455–474	Exhibit Hall C–D	221
Tuesday 9:00 AM	*	Liver and Model Systems #1056–1090 Poster Boards 501–535	Exhibit Hall C–D	222
Tuesday 9:00 AM		Carcinogenesis: Models and Mechanisms #1091–1119 Poster Boards 536–564	Exhibit Hall C–D	224
Tuesday 9:00 AM	*	Cardiovascular Toxicity and Hemodynamics #1120–1148 Poster Boards 568–596	Exhibit Hall C–D	227
Tuesday 9:00 AM		Metals I #1149–1188 Poster Boards 601–640	Exhibit Hall C–D	229

POSTER SESSIONS PS

**Author attended 1:00 pm–2:45 pm; otherwise author attended 2:45 pm–4:30 pm. Poster Board Surface Maps are on pages 128–129.*

Date/Time		Topic/Abstract #	Room	Page
Tuesday 1:00 PM	*	Stems Cells: Emerging Applications in Toxicology #1189–1211 Poster Boards 101–123	Exhibit Hall C–D	234
Tuesday 1:00 PM		Pharmaceutical Safety Assessment: Drug Development II #1212–1238 Poster Boards 124–150	Exhibit Hall C–D	235
Tuesday 1:00 PM	*	Exposure Assessment: New Characterizations, Methods, and Models #1239–1268 Poster Boards 201–230	Exhibit Hall C–D	237
Tuesday 1:00 PM		Receptor-Mediated Toxicity #1269–1298 Poster Boards 231–260	Exhibit Hall C–D	239
Tuesday 1:00 PM	*	Natural Products—*In Vivo* Safety Assessment #1299–1321 Poster Boards 301–323	Exhibit Hall C–D	241
Tuesday 1:00 PM		Nanotoxicology—Silver and Gold #1322–1366 Poster Boards 326–370	Exhibit Hall C–D	243
Tuesday 1:00 PM	*	Developmental Neurotoxicity #1367–1394 Poster Boards 401–428	Exhibit Hall C–D	246
Tuesday 1:00 PM		Neurotoxicology: Pesticides #1395–1422 Poster Boards 429–456	Exhibit Hall C–D	248

Scientific Session Index (Continued)

Tuesday 1:00 PM	*	Autoimmunity and Hypersensitivity #1423–1443 Poster Boards 457–477	Exhibit Hall C–D	250
Tuesday 1:00 PM		Alternative High-Throughput Models I #1444–1482 Poster Boards 501–539	Exhibit Hall C–D	251
Tuesday 1:00 PM	*	Genotoxicity Testing #1483–1508 Poster Boards 540–565	Exhibit Hall C–D	254
Tuesday 1:00 PM		Metals II #1509–1539 Poster Boards 568–598	Exhibit Hall C–D	255
Tuesday 1:00 PM	*	Safety Assessment: Nonpharmaceuticals #1540–1563 Poster Boards 601–624	Exhibit Hall C–D	257
Tuesday 1:00 PM		Regulatory Policy: Programs and Approaches #1564–1580 Poster Boards 625–641	Exhibit Hall C–D	259

SYMPOSIUM SESSIONS S

Date/Time	Topic/Abstract #	Room	Page
Tuesday 1:30 PM	Application of Systems Biology to Identify Molecular Mechanisms and Biomarkers of Lead (Pb) Neurotoxicity: Implications in a Developmental Origin of Alzheimer's Disease #1581–1585	Grand Ballroom C3	260
Tuesday 1:30 PM	Bone As a Target Tissue for Environmental Toxicants #1586–1591	Room 207	260
Tuesday 1:30 PM	Nonmonotonic Dose-Response Curves and Endocrine-Disrupting Chemicals: Fact or Falderal? #1592–1597	Grand Ballroom C2	261
Tuesday 1:30 PM	Understanding Toxicities of Abnormal Lipid Metabolism: Alcoholic, Nonalcoholic, and Toxicant-Induced Fatty Liver Disease #1598–1603	Room 217 A&B	262

WORKSHOP SESSIONS W

Date/Time	Topic/Abstract #	Room	Page
Tuesday 1:30 PM	"Air"-ing on the Side of Caution: Anticipating Impacts of Emerging Issues in the Health Effects of Air Pollution #1604–1609	Room 217 C&D	262
Tuesday 1:30 PM	Breaking the Routine: Is There Room for Modern Techniques of Neuropathology Assessment in Routine Preclinical Safety Studies? #1610–1614	Room 214 C&D	263
Tuesday 1:30 PM	Drug Safety Assessment and Regulatory Landscape in Emerging Markets #1615–1621	Room 214 A&B	263

PLATFORM SESSION PL

Date/Time	Topic/Abstract #	Room	Page
Tuesday 1:30 PM	Bioinformatics: Pathways, Profiles, and Predictions #1622–1629	Room 206	264

EDUCATION-CAREER DEVELOPMENT SESSION EC

Date/Time	Topic/Abstract #	Room	Page
Tuesday 4:30 PM	The Symbiosis of Mentoring: Getting the Most out of the Mentor-Mentee Relationship #1630	Room 214 A&B	265

Wednesday

SYMPOSIUM SESSIONS S

Date/Time	Topic/Abstract #	Room	Page
Wednesday 9:00 AM	Role of Systems Biology in Characterizing Risk of Developmental Origins of Disease #1631–1636	Grand Ballroom C2	267
Wednesday 9:00 AM	Toxicoepigenomics, Disease Susceptibility, and Implications for Risk Assessment #1637–1642	Grand Ballroom C3	268

WORKSHOP SESSIONS W

Date/Time	Topic/Abstract #	Room	Page
Wednesday 9:00 AM	Dietary Arsenic—Forms, Hazards, and Risks #1643–1647	Room 217 C&D	268
Wednesday 9:00 AM	Pulmonomics, the Exposome, and Microbiomes in Immunotoxicology #1648–1653	Room 214 C&D	269
Wednesday 9:00 AM	Standard and Nonstandard Animal Models for Evaluation of Drug Abuse Potential for Pharmaceutical Compounds with Novel Mechanisms #1654–1659	Room 217 A&B	269
Wednesday 9:00 AM	The Placenta in Toxicology: Target or Travel Agent? #1660–1665	Room 214 A&B	270

INFORMATIONAL SESSIONS IS

Date/Time	Topic/Abstract #	Room	Page
Wednesday 9:00 AM	K–12 Toxicology Outreach Activities: Regional Chapter Successes and Resources #1666–1671	Room 206	270
Wednesday 9:00 AM	The Regulatory Framework for Cosmetics: Current Status, Recent Science, and Future Prospects #1672–1678	Room 207	271

Scientific Session Index (Continued)

PLATFORM SESSION PL

Date/Time	Topic/Abstract #	Room	Page
Wednesday 9:00 AM	Validation and Application of Neurotoxicology *In Vitro* Methods #1679–1685	Room 205	271

POSTER SESSIONS PS

**Author attended 9:00 am–11:00 am; otherwise author attended 11:00 am–12:30 pm. Poster Board Surface Maps are on pages 130–131.*

Date/Time		Topic/Abstract #	Room	Page
Wednesday 9:00 AM	*	Genetic Toxicology and DNA Repair #1686–1710 Poster Boards 101–125	Exhibit Hall C–D	272
Wednesday 9:00 AM		Cell Death/Apoptosis #1711–1733 Poster Boards 126–148	Exhibit Hall C–D	274
Wednesday 9:00 AM	*	Nanotoxicology—*In Vitro* #1734–1778 Poster Boards 201–245	Exhibit Hall C–D	275
Wednesday 9:00 AM		Natural Products—*In Vitro* #1779–1799 Poster Boards 301–321	Exhibit Hall C–D	279
Wednesday 9:00 AM	*	Pharmaceutical Safety Assessment: Drug Development I #1800–1826 Poster Boards 326–352	Exhibit Hall C–D	280
Wednesday 9:00 AM		Children's Health and Juvenile Toxicity #1827–1836 Poster Boards 357–366	Exhibit Hall C–D	282
Wednesday 9:00 AM	*	Manganism, Parkinson's, and Other Neurodegenerative Diseases #1837–1874 Poster Boards 401–438	Exhibit Hall C–D	283
Wednesday 9:00 AM		Biomarkers II: Preclinical and Translational Approaches #1875–1913 Poster Boards 439–477	Exhibit Hall C–D	285
Wednesday 9:00 AM	*	Endocrine Toxicology #1914–1941 Poster Boards 501–528	Exhibit Hall C–D	288
Wednesday 9:00 AM		Risk Assessment II: Critical Considerations and Characterizations #1942–1980 Poster Boards 532–570	Exhibit Hall C–D	290
Wednesday 9:00 AM	*	Persistent Organic Pollutants #1981–2000 Poster Boards 571–590	Exhibit Hall C–D	293
Wednesday 9:00 AM		Oxidative Injury and Redox Biology #2001–2040 Poster Boards 601–640	Exhibit Hall C–D	294

ROUNDTABLE SESSION R

Date/Time	Topic/Abstract #	Room	Page
Wednesday 12:00 Noon	Skeptically Examining the Limits of Toxicology Evidence in the Courtroom #2041	Room 214 A&B	299

INFORMATIONAL SESSION IS

Date/Time	Topic/Abstract #	Room	Page
Wednesday 12:00 Noon	Harnessing Electronic Standards and Informatics to Transform the Use of Regulatory Toxicological Data #2042	Room 217 A&B	299

EDUCATION-CAREER DEVELOPMENT SESSION EC

Date/Time	Topic/Abstract #	Room	Page
Wednesday 12:00 Noon	Regulatory Science and Risk Assessment: Lessons for Early-Career Scientists on What to Expect and How to Pursue This Career Path #2043	Room 214 C&D	300

POSTER SESSIONS PS

**Author attended 1:00 pm–2:45 pm; otherwise author attended 2:45 pm–4:30 pm. Poster Board Surface Maps are on pages 132–133.*

Date/Time		Topic/Abstract #	Room	Page
Wednesday 1:00 PM	*	Clinical and Translational Toxicology #2044–2058 Poster Boards 101–115	Exhibit Hall C–D	301
Wednesday 1:00 PM		Immunotoxicity Methods #2059–2071 Poster Boards 116–128	Exhibit Hall C–D	302
Wednesday 1:00 PM	*	Immunotoxicity—Biochemical/Molecular #2072–2087 Poster Boards 131–146	Exhibit Hall C–D	303
Wednesday 1:00 PM		Reproductive Toxicity #2088–2118 Poster Boards 201–231	Exhibit Hall C–D	304
Wednesday 1:00 PM	*	Male Reproductive Toxicology #2119–2142 Poster Boards 232–255	Exhibit Hall C–D	306
Wednesday 1:00 PM		Metal Neurotoxicity: Methylmercury, Lead, Aluminum, and Iron #2143–2161 Poster Boards 301–319	Exhibit Hall C–D	307
Wednesday 1:00 PM	*	Pharmaceutical Safety Assessment: Drug Discovery #2162–2180 Poster Boards 322–340	Exhibit Hall C–D	309
Wednesday 1:00 PM		Kidney #2181–2203 Poster Boards 343–365	Exhibit Hall C–D	310
Wednesday 1:00 PM	*	Toxicology Education #2204–2210 Poster Boards 401–407	Exhibit Hall C–D	312

Scientific Session Index (Continued)

Wednesday 1:00 PM		Risk Assessment III: New Derivations and Updated Estimates #2211–2244 Poster Boards 409–442	Exhibit Hall C–D	312
Wednesday 1:00 PM	*	Alternative High-Throughput Models II #2245–2277 Poster Boards 443–475	Exhibit Hall C–D	314
Wednesday 1:00 PM		Arsenic #2278–2315 Poster Boards 501–538	Exhibit Hall C–D	316
Wednesday 1:00 PM	*	Food Safety and Nutrition #2316–2349 Poster Boards 543–576	Exhibit Hall C–D	319
Wednesday 1:00 PM		Inflammation: Methods and Mechanisms #2350–2361 Poster Boards 578–589	Exhibit Hall C–D	322
Wednesday 1:00 PM	*	Nanotoxicology—*In Vivo* #2362–2396 Poster Boards 601–635	Exhibit Hall C–D	322

SYMPOSIUM SESSIONS S

Date/Time	Topic/Abstract #	Room	Page
Wednesday 1:30 PM	Biomarkers of Disease and Toxicity: Exploiting the Interconnections #2397–2402	Grand Ballroom C3	326
Wednesday 1:30 PM	Mechanistic Role(s) of Cytochrome(s) P450 in Oxidative Stress and Inflammation: New Opportunities for Drug Discovery #2403–2408	Room 214 C&D	326
Wednesday 1:30 PM	Molecular Basis of Age-Related Susceptibility to Chemicals and Environmental Hazards: From Model Systems to Humans #2409–2414	Grand Ballroom C1	327

WORKSHOP SESSIONS W

Date/Time	Topic/Abstract #	Room	Page
Wednesday 1:30 PM	Challenging the Limits of Nonclinical Safety Assessment of Pediatric Medicines #2415–2420	Room 217 A&B	327
Wednesday 1:30 PM	Nanotoxicology: Computational Strategies, Advances, and Challenges #2421–2425	Room 214 A&B	328
Wednesday 1:30 PM	Toxicogenomics in Risk and Safety Assessment: Recent Advances and Continuing Challenges #2426–2431	Room 217 C&D	328

REGIONAL INTEREST SESSION RI

Date/Time	Topic/Abstract #	Room	Page
Wednesday 1:30 PM	Assessment of Environmental, Dietary, and Biological Risk Factors Impacting Liver Cancer Incidence in Texas #2432–2438	Grand Ballroom C2	329

PLATFORM SESSIONS PL

Date/Time	Topic/Abstract #	Room	Page
Wednesday 1:30 PM	New and Integrated Approaches for Genetic Toxicity Evaluation #2439–2446	Room 207	329
Wednesday 1:30 PM	New Insights into Organophosphate-Induced Neurotoxicity: Pathology, Mode of Action, Modulation, and Protection #2447–2453	Room 205	330
Wednesday 1:30 PM	Risk Analysis: Refining Predictions and Systematic Approaches #2454–2461	Room 206	331

ROUNDTABLE SESSION R

Date/Time	Topic/Abstract #	Room	Page
Wednesday 4:30 PM	Nonhuman Primate Sexual Maturity: What Is the Capacity to Endure Uncertainty? #2462	Room 207	332

INFORMATIONAL SESSIONS IS

Date/Time	Topic/Abstract #	Room	Page
Wednesday 4:30 PM	Exposure Science in the 21st Century: Perspectives from the NAS and What It Means for Toxicology #2463	Room 214 A&B	Í332
Wednesday 4:30 PM	Regulatory-Based Nanotoxicology: Evolving National Strategies and Research to Address Engineered Nanomaterial Health Risk Assessments #2464	Room 217 A&B	333

EDUCATION-CAREER DEVELOPMENT SESSION EC

Date/Time	Topic/Abstract #	Room	Page
Wednesday 4:30 PM	Toxicological Writing for Industrial and Regulatory Audiences #2465	Room 214 C&D	333

Scientific Session Index (Continued)

Thursday

POSTER SESSION PS

**Author attended 8:30 am–12:00 Noon.*
Poster Board Surface Maps are on page 134.

Date/Time	Topic/Abstract #	Room	Page
Thursday 8:30 AM *	Late-Breaking Abstracts Poster Boards 101–456	Exhibit Hall A	N/A

SYMPOSIUM SESSIONS S

Date/Time	Topic/Abstract #	Room	Page
Thursday 9:00 AM	From Immunotoxicity to Nanotherapy: The Effects of Nanomaterials on the Immune System #2466–2471	Grand Ballroom C2	335
Thursday 9:00 AM	Modeling Human Genetic Variability and Susceptibility in the Laboratory #2472–2477	Room 217 C&D	335
Thursday 9:00 AM	Role of Air Pollution As a Risk Factor for Central Nervous System Diseases and Disorders #2478–2483	Room 214 C&D	336
Thursday 9:00 AM	Translational Methods to Assess the Safety of Natural Health Products, Including Traditional Medicines and Dietary Supplements #2484–2490	Room 205	336

WORKSHOP SESSIONS W

Date/Time	Topic/Abstract #	Room	Page
Thursday 9:00 AM	Are We Like Rodents, Rabbits, or Something Else? Mechanisms of Developmental and Reproductive Toxicity across Species #2491–2496	Room 206	337
Thursday 9:00 AM	Cumulative Risk: Toxicity and Interactions of Physical and Chemical Stressors #2497–2502	Room 217 A&B	338
Thursday 9:00 AM	Mechanistic, Occupational, and Clinical Aspects of Lead Exposure #2503–2507	Room 214 A&B	338
Thursday 9:00 AM	Ocular Medical Devices and Ocular Drug Delivery Systems: Challenges and Opportunities #2508–2513	Room 207	339

Extended Abstract Submission Phase Complete

In December, we invited our colleagues to submit an abstract during the late-breaking abstract submission phase. We are pleased with the number of abstracts received for consideration and that an overwhelming number were accepted for the Annual Meeting. These abstracts will be presented on Thursday, March 14, along with several dynamic symposia and workshop sessions already scheduled. You can find the poster sessions in the Exhibit Hall A on the Street Level of the convention center. A printed supplement of these additional accepted abstracts can be picked up at Registration, and will be available in front of Exhibit Hall A. The abstracts are not available in the final *Program* but are fully searchable through the SOT mobile event app and online event website.

Notes

Poster Session Schedule and Board Surface Maps

Monday, March 11 to Wednesday, March 13—Exhibit Hall C–D—Street Level *(See Map below)*

MONDAY

Morning, March 11—9:30 AM to 12:30 PM
Poster Set Up—7:30 AM to 9:30 AM

Afternoon, March 11—1:00 PM to 4:30 PM
Poster Set Up—12:30 PM to 1:00 PM

TUESDAY

Morning, March 12—9:00 AM to 12:30 PM
Poster Set Up—7:30 AM to 9:00 AM

Afternoon, March 12—1:00 PM to 4:30 PM
Poster Set Up—12:30 PM to 1:00 PM

WEDNESDAY

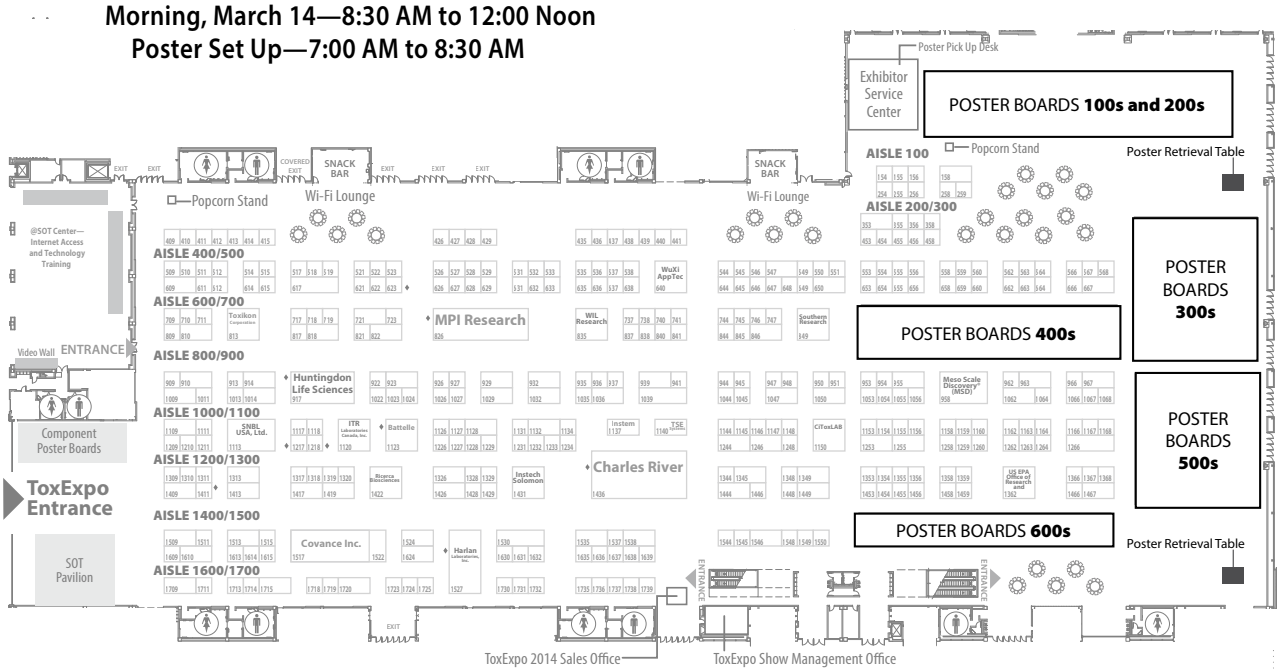
Morning, March 13—9:00 AM to 12:30 PM
Poster Set Up—7:30 AM to 9:00 AM

Afternoon, March 13—1:00 PM to 4:30 PM
Poster Set Up—12:30 PM to 1:00 PM

Thursday, March 14—Exhibit Hall A—Street Level *(See Map on page 134)*

THURSDAY

Morning, March 14—8:30 AM to 12:00 Noon
Poster Set Up—7:00 AM to 8:30 AM



If you do not remove your poster at the end of your session, you will find it on the "Poster Retrieval Tables" located at the rear of the Exhibit Hall C–D 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 202, Thursday morning, March 14. All posters not claimed by 1:00 pm on Thursday, March 14, will be recycled.

Photography in the ToxExpo and all poster sessions is prohibited without the consent of exhibitors or poster presenter(s)/author(s). Please respect your colleagues' right to privacy.

The numbers listed refer to the poster location that does not change throughout the week. Presenters should display posters ONLY on the date and time communicated in your acceptance notice. A list of poster session dates and times with abstract numbers can be found on pages 121–134. The full map of the Exhibit Hall C–D can be found on pages 38–39 to assist you in finding poster sessions.

Poster Session Schedule and Board Surface Maps (Continued)

Monday Morning, March 11—9:30 AM to 12:30 PM—Exhibit Hall C–D
Poster Set Up 7:30 AM to 9:30 AM

SESSION TITLE	ABSTRACT NUMBERS	POSTER BOARD NUMBERS
Cardiovascular Toxicity: Telemetry and *In Vitro* Systems	67–95	101–129
Endocrine Disruptor Screening	96–114	131–149
Bioinformatics and Computational Toxicology: Systems and Strategies	115–144	201–230
Carcinogenesis	145–180	301–336
Pharmacogenomics/Genetic Polymorphisms	181–196	340–355
Medical Devices	197–206	357–366
Inhalants and Cardiopulmonary	207–241	401–435
Inflammation and Disease	242–263	436–457
Ecotoxicology	264–281	459–476
Biotransformation/Cytochrome P450	282–321	501–540
Developmental Toxicity—Nonmammalian	322–335	543–556
Chemical and Biological Weapons	336–374	601–639
Visiting Student Poster Session	**By Invitation Only**	**557–584**

100s and 200s

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68-**102**	75-**109**	78-**112**	85-**119**	88-**122**	95-**129**	97-**132**	104-**139**	107-**142**	114-**149**	116-**202**	123-**209**	126-**212**	133-**219**	136-**222**	143-**229**	232	239	242	249	252	259
69-**103**	74-**108**	79-**113**	84-**118**	89-**123**	94-**128**	98-**133**	103-**138**	108-**143**	113-**148**	117-**203**	122-**208**	127-**213**	132-**218**	137-**223**	142-**228**	233	238	243	248	253	258
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641	373-**638**	370-**635**	367-**632**	364-**629**	361-**626**	358-**623**	355-**620**	352-**617**	349-**614**	346-**611**	343-**608**	340-**605**	337-**602**
642	372-**637**	371-**636**	366-**631**	365-**630**	360-**625**	359-**624**	354-**619**	353-**618**	348-**613**	347-**612**	342-**607**	341-**606**	336-**601**

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The abstract final ID# precedes the poster surface number that is in **bold**. Please display your poster only on the date and time assigned to you. The full map of the Exhibit Hall C–D can be found on pages 38–39 to assist you in finding poster sessions.

Poster Session Schedule and Board Surface Maps (Continued)

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500s

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316-**535**	315-**534**	314-**533**	313-**532**	312-**531**	311-**530**	310-**529**
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329-**550**	330-**551**	331-**552**	332-**553**	333-**544**	334-**555**	335-**556**
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578	579	580	581	582	583	584
591	590	589	588	587	586	585
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Notes

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Poster Session Schedule and Board Surface Maps (Continued)

Monday Afternoon, March 11—1:00 PM to 4:30 PM—Exhibit Hall C–D
Poster Set Up—12:30 PM to 1:00 PM

SESSION TITLE	ABSTRACT NUMBERS	POSTER BOARD NUMBERS
Immunotoxicity	379–425	101–147
Nanotoxicology—Carbonaceous Materials	426–471	201–246
Epidemiology: Exposures and Associations	472–482	247–258
Pharmacokinetics and Disposition	483–523	301–341
Epigenetics	524–548	343–367
Systems Biology and Toxicology	549–559	401–411
Chemical Mixtures	560–582	413–435
Pesticide Toxicology	583–603	436–456
Biological Modeling: Target Tissues and Toxicants	604–625	457–478
Liver	626–665	501–540
Gene Expression and Signal Transduction	666–701	541–576
Risk Assessment I: Advances in Approaches and Technologies	702–723	577–598
Animal Models of Disease	724–745	601–622
Animal Models—Measurements and Validation	746–762	625–641

100s and 200s

379-**101**	388-**110**	389-**111**	398-**120**	399-**121**	408-**130**	409-**131**	418-**140**	419-**141**	150	426-**201**	435-**210**	436-**211**	445-**220**	446-**221**	455-**230**	456-**231**	465-**240**	466-**241**	475-**250**	476-**251**	260
380-**102**	387-**109**	390-**112**	397-**119**	400-**122**	407-**129**	410-**132**	417-**139**	420-**142**	149	427-**202**	434-**209**	437-**212**	444-**219**	447-**222**	454-**229**	457-**232**	464-**239**	467-**242**	474-**249**	477-**252**	259
381-**103**	386-**108**	391-**113**	396-**118**	401-**123**	406-**128**	411-**133**	416-**138**	421-**143**	148	428-**203**	433-**208**	438-**213**	443-**218**	448-**223**	453-**228**	458-**233**	463-**238**	468-**243**	473-**248**	478-**253**	258
382-**104**	385-**107**	392-**114**	395-**117**	402-**124**	405-**127**	412-**134**	415-**137**	422-**144**	425-**147**	429-**204**	432-**207**	439-**214**	442-**217**	449-**224**	452-**227**	459-**234**	462-**237**	469-**424**	472-**247**	479-**254**	482-**257**
383-**105**	384-**106**	393-**115**	394-**116**	403-**125**	404-**126**	413-**135**	414-**136**	423-**145**	424-**146**	430-**205**	431-**206**	440-**215**	441-**216**	450-**225**	451-**226**	460-**235**	461-**236**	470-**245**	471-**246**	480-**255**	481-**256**

400s

549-**401**	556-**408**	557-**409**	563-**416**	564-**417**	571-**424**	572-**425**	579-**432**	580-**433**	585-**438**	586-**439**	593-**446**	594-**447**	601-**454**	602-**455**	609-**462**	610-**463**	617-**470**	618-**471**	625-**478**
550-**402**	555-**407**	558-**410**	562-**415**	565-**418**	570-**423**	573-**426**	578-**431**			587-**440**	592-**445**	595-**448**	600-**453**	603-**456**	608-**461**	611-**464**	616-**469**	619-**472**	624-**477**
551-**403**	554-**406**	559-**411**	561-**414**	566-**419**	569-**422**	574-**427**	577-**430**	581-**434**	584-**437**	588-**441**	591-**444**	596-**449**	599-**452**	604-**457**	607-**460**	612-**465**	615-**468**	620-**473**	623-**476**
552-**404**	553-**405**	412	560-**413**	567-**420**	568-**421**	575-**428**	576-**429**	582-**435**	583-**436**	589-**442**	590-**443**	597-**450**	598-**451**	605-**458**	606-**459**	613-**466**	614-**467**	621-**474**	622-**475**

600s

761-**640**	760-**639**	755-**634**	754-**633**	749-**628**	748-**627**	745-**622**	744-**621**	739-**616**	738-**615**	733-**610**	732-**609**	727-**604**	726-**603**
762-**641**	759-**638**	756-**635**	753-**632**	750-**629**	747-**626**	623	743-**620**	740-**617**	737-**614**	734-**611**	731-**608**	728-**605**	725-**602**
642	758-**637**	757-**636**	752-**631**	751-**630**	746-**625**	624	742-**619**	741-**618**	736-**613**	735-**612**	730-**607**	729-**606**	724-**601**

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Poster Session Schedule and Board Surface Maps (Continued)

300s

489-**307**	488-**306**	487-**305**	486-**304**	485-**303**	484-**302**	483-**301**
490-**308**	491-**309**	492-**310**	493-**311**	494-**312**	495-**313**	496-**314**
503-**321**	502-**320**	501-**319**	500-**318**	499-**317**	498-**316**	497-**315**
504-**322**	505-**323**	506-**324**	507-**325**	508-**326**	509-**327**	510-**328**
517-**335**	516-**334**	515-**333**	514-**332**	513-**331**	512-**330**	511-**329**
518-**336**	519-**337**	520-**338**	521-**339**	522-**340**	523-**341**	342
530-**349**	529-**348**	528-**347**	527-**346**	526-**345**	525-**344**	524-**343**
531-**350**	532-**351**	533-**352**	534-**353**	535-**354**	536-**355**	537-**356**
544-**363**	543-**362**	542-**361**	541-**360**	540-**359**	539-**358**	538-**357**
545-**364**	546-**365**	547-**366**	548-**367**	368	369	370

500s

632-**507**	631-**506**	630-**505**	629-**504**	628-**503**	627-**502**	626-**501**
633-**508**	634-**509**	635-**510**	636-**511**	637-**512**	638-**513**	639-**514**
646-**521**	645-**520**	644-**519**	643-**518**	642-**517**	641-**516**	640-**515**
647-**522**	648-**523**	649-**524**	650-**525**	651-**526**	652-**527**	653-**528**
660-**535**	659-**534**	658-**533**	657-**532**	656-**531**	655-**530**	654-**529**
661-**536**	662-**537**	663-**538**	664-**539**	665-**540**	666-**541**	667-**542**
674-**549**	673-**548**	672-**547**	671-**546**	670-**545**	669-**544**	668-**543**
675-**550**	676-**551**	677-**552**	678-**553**	679-**554**	680-**555**	681-**556**
688-**563**	687-**562**	686-**561**	685-**560**	684-**559**	683-**558**	682-**557**
689-**564**	690-**565**	691-**566**	692-**567**	693-**568**	694-**569**	695-**570**
702-**577**	701-**576**	700-**575**	699-**574**	698-**573**	697-**572**	696-**571**
703-**578**	704-**579**	705-**580**	706-**581**	707-**582**	708-**583**	709-**584**
716-**591**	715-**590**	714-**589**	713-**588**	712-**587**	711-**586**	710-**585**
717-**592**	718-**593**	719-**594**	720-**595**	721-**596**	722-**597**	723-**598**

Notes

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Poster Session Schedule and Board Surface Maps (Continued)

Tuesday Morning, March 12—9:00 AM to 12:30 PM—Exhibit Hall C–D
Poster Set Up—7:30 AM to 9:00 AM

SESSION TITLE	ABSTRACT NUMBERS	POSTER BOARD NUMBERS
Data Integration and Decision Support: Databases, Tools, and Ontologies	854–879	101–126
Computational Toxicology: Liver and Life Stage Characterizations	880–898	131–149
Neurotoxicology: General	899–923	201–225
Biomarkers I: Preclinical and Translational Approaches	924–954	301–331
Alternative Models—Eye and Skin	955–983	336–364
Developmental Basis of Adult Disease	984–997	401–414
Developmental Toxicity	998–1035	417–454
Skin	1036–1055	455–474
Liver and Model Systems	1056–1090	501–535
Carcinogenesis: Models and Mechanisms	1091–1119	536–564
Cardiovascular Toxicity and Hemodynamics	1120–1148	568–596
Metals I	1149–1188	601–640

100s and 200s

854-**101**	863-**110**	864-**111**	873-**120**	874-**121**	130	880-**130**	889-**140**	890-**141**	150	899-**201**	908-**210**	909-**211**	918-**220**	919-**221**	230	231	240	241	250	251	260
855-**102**	862-**109**	865-**112**	872-**119**	875-**122**	129	881-**131**	888-**139**	891-**142**	898-**149**	900-**202**	907-**209**	910-**212**	917-**219**	920-**222**	229	232	239	242	249	252	259
856-**103**	861-**108**	866-**113**	871-**118**	876-**123**	128	882-**132**	887-**138**	892-**143**	897-**148**	901-**203**	906-**208**	911-**213**	916-**218**	921-**223**	228	233	238	243	248	253	258
857-**104**	860-**107**	867-**114**	870-**117**	877-**124**	127	883-**134**	886-**137**	893-**144**	896-**147**	902-**204**	905-**207**	912-**214**	915-**217**	922-**224**	227	234	237	244	247	254	257
858-**105**	859-**106**	868-**115**	869-**116**	878-**125**	879-**126**	884-**135**	885-**136**	894-**145**	895-**146**	903-**205**	904-**206**	913-**215**	914-**216**	923-**225**	226	235	236	245	246	255	256

400s

984-**401**	991-**408**	992-**409**	416	998-**417**	1005-**424**	1006-**425**	1013-**432**	1014-**433**	1019-**438**	1020-**439**	1027-**446**	1028-**447**	1035-**454**	1036-**455**	1043-**462**	1044-**463**	1051-**470**	1052-**471**	478
985-**402**	990-**407**	993-**410**	415	999-**418**	1004-**423**	1007-**426**	1012-**431**			1021-**440**	1026-**445**	1029-**448**	1034-**453**	1037-**456**	1042-**461**	1045-**464**	1050-**469**	1053-**472**	477
986-**403**	989-**406**	994-**411**	997-**414**	1000-**419**	1003-**422**	1008-**427**	1011-**430**	1015-**434**	1018-**437**	1022-**441**	1025-**444**	1030-**449**	1033-**452**	1038-**457**	1041-**460**	1046-**465**	1049-**468**	1054-**473**	476
987-**404**	988-**405**	995-**412**	996-**413**	1001-**420**	1002-**421**	1009-**428**	1010-**429**	1016-**435**	1017-**436**	1023-**442**	1024-**443**	1031-**450**	1032-**451**	1039-**458**	1040-**459**	1047-**466**	1048-**467**	1055-**474**	475

600s

1188-**640**	1187-**639**	1182-**634**	1181-**633**	1176-**628**	1175-**627**	1170-**622**	1169-**621**	1164-**616**	1163-**615**	1158-**610**	1157-**609**	1152-**604**	1151-**603**
641	1186-**638**	1183-**635**	1180-**632**	1177-**629**	1174-**626**	1171-**623**	1168-**620**	1165-**617**	1162-**614**	1159-**611**	1156-**608**	1153-**605**	1150-**602**
642	1185-**637**	1184-**636**	1179-**631**	1178-**630**	1173-**625**	1172-**624**	1167-**619**	1166-**618**	1161-**613**	1160-**612**	1155-**607**	1154-**606**	1149-**601**

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Poster Session Schedule and Board Surface Maps (Continued)

300s

930-**307**	929-**306**	928-**305**	927-**304**	926-**303**	925-**302**	924-**301**
931-**308**	932-**309**	933-**310**	934-**311**	935-**312**	936-**313**	937-**314**
944-**321**	943-**320**	942-**319**	941-**318**	940-**317**	939-**316**	938-**315**
945-**322**	946-**323**	947-**324**	948-**325**	949-**326**	950-**327**	951-**328**
335	334	333	332	954-**331**	953-**330**	952-**329**
955-**336**	956-**337**	957-**338**	958-**339**	959-**340**	960-**341**	961-**342**
968-**349**	967-**348**	966-**347**	965-**346**	964-**345**	963-**344**	962-**343**
969-**350**	970-**351**	971-**352**	972-**353**	973-**354**	974-**355**	975-**356**
982-**363**	981-**362**	980-**361**	979-**360**	978-**359**	977-**358**	976-**357**
983-**364**	365	366	367	368	369	370

500s

1062-**507**	1061-**506**	1060-**505**	1059-**504**	1058-**503**	1057-**502**	1056-**501**
1063-**508**	1064-**509**	1065-**510**	1066-**511**	1067-**512**	1068-**513**	1069-**514**
1076-**521**	1075-**520**	1074-**519**	1073-**518**	1072-**517**	1071-**516**	1070-**515**
1077-**522**	1078-**523**	1079-**524**	1080-**525**	1081-**526**	1082-**527**	1083-**528**
1090-**535**	1089-**534**	1088-**533**	1087-**532**	1086-**531**	1085-**530**	1084-**529**
1091-**536**	1092-**537**	1093-**538**	1094-**539**	1095-**540**	1096-**541**	1097-**542**
1104-**549**	1103-**548**	1102-**547**	1101-**546**	1100-**545**	1099-**544**	1098-**543**
1105-**550**	1106-**551**	1107-**552**	1108-**553**	1109-**554**	1110-**555**	1111-**556**
1118-**563**	1117-**562**	1116-**561**	1115-**560**	1114-**559**	1113-**558**	1112-**557**
1119-**564**	565	566	567	1120-**568**	1121-**569**	1122-**570**
1129-**577**	1128-**576**	1127-**575**	1126-**574**	1125-**573**	1124-**572**	1123-**571**
1130-**578**	1131-**579**	1132-**580**	1133-**581**	1134-**582**	1135-**583**	1136-**584**
1143-**591**	1142-**590**	1141-**589**	1140-**588**	1139-**587**	1138-**586**	1137-**585**
1144-**592**	1145-**593**	1146-**594**	1147-**595**	1148-**596**	597	598

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Poster Session Schedule and Board Surface Maps (Continued)

Tuesday Afternoon, March 12—1:00 PM to 4:30 PM—Exhibit Hall C–D
Poster Set Up—12:30 PM to 1:00 PM

SESSION TITLE	ABSTRACT NUMBERS	POSTER BOARD NUMBERS
Stems Cells: Emerging Applications in Toxicology	1189–1211	101–123
Pharmaceutical Safety Assessment: Drug Development II	1212–1238	124–149
Exposure Assessment: New Characterizations, Methods, and Models	1239–1268	201–230
Receptor-Mediated Toxicity	1269–1298	231–260
Natural Products—*In Vivo* Safety Assessment	1299–1321	301–323
Nanotoxicology—Silver and Gold	1322–1366	326–370
Developmental Neurotoxicity	1367–1394	401–428
Neurotoxicology: Pesticides	1395–1422	429–456
Autoimmunity and Hypersensitivity	1423–1443	457–477
Alternative High-Throughput Models I	1444–1482	501–539
Genotoxicity Testing	1483–1508	540–565
Metals II	1509–1539	568–598
Safety Assessment: Nonpharmaceuticals	1540–1563	601–624
Regulatory Policy: Programs and Approaches	1564–1580	625–641

100s and 200s

1189-**101**	1198-**110**	1199-**111**	1208-**120**	1209-**121**	1218-**130**	1219-**131**	1228-**140**	1229-**141**	1238-**150**	1239-**201**	1248-**210**	1249-**211**	1258-**220**	1259-**221**	1268-**230**	1269-**231**	1278-**240**	1279-**241**	1288-**250**	1289-**251**	1298-**260**
1190-**102**	1197-**109**	1200-**112**	1207-**119**	1210-**122**	1217-**129**	1220-**132**	1227-**139**	1230-**142**	1237-**149**	1240-**202**	1247-**209**	1250-**212**	1257-**219**	1260-**222**	1267-**229**	1270-**232**	1277-**239**	1280-**242**	1287-**249**	1290-**252**	1297-**259**
1191-**103**	1196-**108**	1201-**113**	1206-**118**	1211-**123**	1216-**128**	1221-**133**	1226-**138**	1231-**143**	1236-**148**	1241-**203**	1246-**208**	1251-**213**	1256-**218**	1261-**223**	1266-**228**	1271-**233**	1276-**238**	1281-**243**	1286-**248**	1291-**253**	1296-**258**
1192-**104**	1195-**107**	1202-**114**	1205-**117**	1212-**124**	1215-**127**	1222-**134**	1225-**137**	1232-**144**	1235-**147**	1242-**204**	1245-**207**	1252-**214**	1255-**217**	1262-**224**	1265-**227**	1272-**234**	1275-**237**	1282-**244**	1285-**247**	1292-**254**	1295-**257**
1193-**105**	1194-**106**	1203-**115**	1204-**116**	1213-**125**	1214-**126**	1223-**135**	1224-**136**	1233-**145**	1234-**146**	1243-**205**	1244-**206**	1253-**215**	1254-**216**	1263-**225**	1264-**226**	1273-**235**	1274-**236**	1283-**245**	1284-**246**	1293-**255**	1294-**256**

400s

1367-**401**	1374-**408**	1375-**409**	1382-**416**	1383-**417**	1390-**424**	1391-**425**	1398-**432**	1399-**433**	1404-**438**	1405-**439**	1412-**446**	1413-**447**	1420-**454**	1421-**455**	1428-**462**	1429-**463**	1436-**470**	1437-**471**	478
1368-**402**	1373-**407**	1376-**410**	1381-**415**	1384-**418**	1389-**423**	1392-**426**	1397-**431**			1406-**440**	1411-**445**	1414-**448**	1419-**453**	1422-**456**	1427-**461**	1430-**464**	1435-**469**	1438-**472**	1443-**477**
1369-**403**	1372-**406**	1377-**411**	1380-**414**	1385-**419**	1388-**422**	1393-**427**	1396-**430**	1400-**434**	1403-**437**	1407-**441**	1410-**444**	1415-**449**	1418-**452**	1423-**457**	1426-**460**	1431-**465**	1434-**468**	1439-**473**	1442-**476**
1370-**404**	1371-**405**	1378-**412**	1379-**413**	1386-**420**	1387-**421**	1394-**428**	1395-**429**	1401-**435**	1402-**436**	1408-**442**	1409-**443**	1416-**450**	1417-**451**	1424-**458**	1425-**459**	1432-**466**	1433-**467**	1440-**474**	1441-**475**

600s

1579-**640**	1578-**639**	1573-**634**	1572-**633**	1567-**628**	1566-**627**	1561-**622**	1560-**621**	1555-**616**	1554-**615**	1549-**610**	1548-**609**	1543-**604**	1542-**603**
1580-**641**	1577-**638**	1574-**635**	1571-**632**	1568-**629**	1565-**626**	1562-**623**	1559-**620**	1556-**617**	1553-**614**	1550-**611**	1547-**608**	1544-**605**	1541-**602**
642	1576-**637**	1575-**636**	1570-**631**	1569-**630**	1564-**625**	1563-**624**	1558-**619**	1557-**618**	1552-**613**	1551-**612**	1546-**607**	1545-**606**	1540-**601**

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Poster Session Schedule and Board Surface Maps (Continued)

300s

1305-**307**	1304-**306**	1303-**305**	1302-**304**	1301-**303**	1300-**302**	1299-**301**	
1306-**308**	1307-**309**	1308-**310**	1309-**311**	1310-**312**	1311-**313**	1312-**314**	
1319-**321**	1318-**320**	1317-**319**	1316-**318**	1315-**317**	1314-**316**	1313-**315**	
1320-**322**	1321-**323**	324	325	1322-**326**	1323-**327**	1324-**328**	
1331-**335**	1330-**334**	1329-**333**	1328-**332**	1327-**331**	1326-**330**	1325-**329**	
1332-**336**	1333-**337**	1334-**338**	1335-**339**	1336-**340**	1337-**341**	1338-**342**	
1345-**349**	1344-**348**	1343-**347**	1342-**346**	1341-**345**	1340-**344**	1339-**343**	
1346-**350**	1347-**351**	1348-**352**	1349-**353**	1350-**354**	1351-**355**	1352-**356**	
1359-**363**	1358-**362**	1357-**361**	1356-**360**	1355-**359**	1354-**358**	1353-**357**	
1360-**364**	1361-**365**	1362-**366**	1363-**367**	1364-**368**	1365-**369**	1366-**370**	

500s

1450-**507**	1449-**506**	1448-**505**	1447-**504**	1446-**503**	1445-**502**	1444-**501**	
1451-**508**	1452-**509**	1453-**510**	1454-**511**	1455-**512**	1456-**513**	1457-**514**	
1464-**521**	1463-**520**	1462-**519**	1461-**518**	1460-**517**	1459-**516**	1458-**515**	
1465-**522**	1466-**523**	1467-**524**	1468-**525**	1469-**526**	1470-**527**	1471-**528**	
1478-**535**	1477-**534**	1476-**533**	1475-**532**	1474-**531**	1473-**530**	1472-**529**	
1479-**536**	1480-**537**	1481-**538**	1482-**539**	1483-**540**	1484-**541**	1485-**542**	
1492-**549**	1491-**548**	1490-**547**	1489-**546**	1488-**545**	1487-**544**	1486-**543**	
1493-**550**	1494-**551**	1495-**552**	1496-**553**	1497-**554**	1498-**555**	1499-**556**	
1506-**563**	1505-**562**	1504-**561**	1503-**560**	1502-**559**	1501-**558**	1500-**557**	
1507-**564**	1508-**565**	566	567	1509-**568**	1510-**569**	1511-**570**	
1518-**577**	1517-**576**	1516-**575**	1515-**574**	1514-**573**	1513-**572**	1512-**571**	
1519-**578**	1520-**579**	1521-**580**	1522-**581**	1523-**582**	1524-**583**	1525-**584**	
1532-**591**	1531-**590**	1530-**589**	1529-**588**	1528-**587**	1527-**586**	1526-**585**	
1533-**592**	1534-**593**	1535-**594**	1536-**595**	1537-**596**	1538-**597**	1539-**598**	

Notes

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Poster Session Schedule and Board Surface Maps (Continued)

Wednesday Morning, March 13—9:00 AM to 12:30 PM—Exhibit Hall C–D
Poster Set Up—7:30 AM to 9:00 AM

SESSION TITLE	ABSTRACT NUMBERS	POSTER BOARD NUMBERS
Genetic Toxicology and DNA Repair	1686–1710	101–125
Cell Death/Apoptosis	1711–1733	126–148
Nanotoxicology—*In Vitro*	1734–1778	201–245
Natural Products—*In Vitro*	1779–1799	301–321
Pharmaceutical Safety Assessment: Drug Development I	1800–1826	326–352
Children's Health and Juvenile Toxicity	1827–1836	357–366
Manganism, Parkinson's, and Other Neurodegenerative Diseases	1837–1874	401–438
Biomarkers II: Preclinical and Translational Approaches	1875–1913	439–477
Endocrine Toxicology	1914–1941	501–528
Risk Assessment II: Critical Considerations and Characterizations	1942–1980	532–570
Persistent Organic Pollutants	1981–2000	571–590
Oxidative Injury and Redox Biology	2001–2040	601–640

100s and 200s

1686-**101**	1695-**110**	1696-**111**	1705-**120**	1706-**121**	1715-**130**	1716-**131**	1725-**140**	1726-**141**	150	1734-**201**	1743-**210**	1744-**211**	1753-**220**	1754-**221**	1763-**230**	1764-**231**	1773-**240**	1774-**241**	250	251	260
1687-**102**	1694-**109**	1697-**112**	1704-**119**	1707-**122**	1714-**129**	1717-**132**	1724-**139**	1727-**142**	149	1735-**202**	1742-**209**	1745-**212**	1752-**219**	1755-**222**	1762-**229**	1765-**232**	1772-**239**	1775-**242**	249	252	259
1688-**103**	1693-**108**	1698-**113**	1703-**118**	1708-**123**	1713-**128**	1718-**133**	1723-**138**	1728-**143**	1733-**148**	1736-**203**	1741-**208**	1746-**213**	1751-**218**	1756-**223**	1761-**228**	1766-**233**	1771-**238**	1776-**243**	248	253	258
1689-**104**	1692-**107**	1699-**114**	1702-**117**	1709-**124**	1712-**127**	1719-**134**	1722-**137**	1729-**144**	1732-**147**	1737-**204**	1740-**207**	1747-**214**	1750-**217**	1757-**224**	1760-**227**	1767-**234**	1770-**237**	1777-**244**	247	254	257
1690-**105**	1691-**106**	1700-**115**	1701-**116**	1710-**125**	1711-**126**	1720-**135**	1721-**136**	1730-**145**	1731-**146**	1738-**205**	1739-**206**	1748-**215**	1749-**216**	1758-**225**	1759-**226**	1768-**235**	1769-**236**	1778-**245**	246	255	256

400s

1837-**401**	1844-**408**	1845-**409**	1852-**416**	1853-**417**	1860-**424**	1861-**425**	1868-**432**	1869-**433**	1874-**438**	1875-**439**	1882-**446**	1883-**447**	1890-**454**	1891-**455**	1898-**462**	1899-**463**	1906-**470**	1907-**471**	478		
1838-**402**	1843-**407**	1846-**410**	1851-**415**	1854-**418**	1859-**423**	1862-**426**	1867-**431**			1876-**440**	1881-**445**	1884-**448**	1889-**453**	1892-**456**	1897-**461**	1900-**464**	1905-**469**	1908-**472**	1913-**477**		
1839-**403**	1842-**406**	1847-**411**	1850-**414**	1855-**419**	1858-**422**	1863-**427**	1866-**430**	1870-**434**	1873-**437**	1877-**441**	1880-**444**	1885-**449**	1888-**452**	1893-**457**	1896-**460**	1901-**465**	1904-**468**	1909-**473**	1912-**476**		
1840-**404**	1841-**405**	1848-**412**	1849-**413**	1856-**420**	1857-**421**	1864-**428**	1865-**429**	1871-**435**	1872-**436**	1878-**442**	1879-**443**	1886-**450**	1887-**451**	1894-**458**	1895-**459**	1902-**466**	1903-**467**	1910-**474**	1911-**475**		

600s

2040-**640**	2039-**639**	2034-**634**	2033-**633**	2028-**628**	2027-**627**	2022-**622**	2021-**621**	2016-**616**	2015-**615**	2010-**610**	2009-**609**	2004-**604**	2003-**603**
641	2038-**638**	2035-**635**	2032-**632**	2029-**629**	2026-**626**	2023-**623**	2020-**620**	2017-**617**	2014-**614**	2011-**611**	2008-**608**	2005-**605**	2002-**602**
642	2037-**637**	2036-**636**	2031-**631**	2030-**630**	2025-**625**	2024-**624**	2019-**619**	2018-**618**	2013-**613**	2012-**612**	2007-**607**	2006-**606**	2001-**601**

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Poster Session Schedule and Board Surface Maps (Continued)

300s

1785-**307**	1784-**306**	1783-**305**	1782-**304**	1781-**303**	1780-**302**	1779-**301**
1786-**308**	1787-**309**	1788-**310**	1789-**311**	1790-**312**	1791-**313**	1792-**314**
1799-**321**	1798-**320**	1797-**319**	1796-**318**	1795-**317**	1794-**316**	1793-**315**
322	323	324	325	1800-**326**	1801-**327**	1802-**328**
1809-**335**	1808-**334**	1807-**333**	1806-**332**	1805-**331**	1804-**330**	1803-**329**
1810-**336**	1811-**337**	1812-**338**	1813-**339**	1814-**340**	1815-**341**	1816-**342**
1823-**349**	1822-**348**	1821-**347**	1820-**346**	1819-**345**	1818-**344**	1817-**343**
1824-**350**	1825-**351**	1826-**352**	353	354	355	356
1833-**363**	1832-**362**	1831-**361**	1830-**360**	1829-**359**	1828-**358**	1827-**357**
1834-**364**	1835-**365**	1836-**366**	367	368	369	370

500s

1920-**507**	1919-**506**	1918-**505**	1917-**504**	1916-**503**	1915-**502**	1914-**501**
1921-**508**	1922-**509**	1923-**510**	1924-**511**	1925-**512**	1926-**513**	1927-**514**
1934-**521**	1933-**520**	1932-**519**	1931-**518**	1930-**517**	1929-**516**	1928-**515**
1935-**522**	1936-**523**	1937-**524**	1938-**525**	1939-**526**	1940-**527**	1941-**528**
1945-**535**	1944-**534**	1943-**533**	1942-**532**	531	530	529
1946-**536**	1947-**537**	1948-**538**	1949-**539**	1950-**540**	1951-**541**	1952-**542**
1959-**549**	1958-**548**	1957-**547**	1956-**546**	1955-**545**	1954-**544**	1953-**543**
1960-**550**	1961-**551**	1962-**552**	1963-**553**	1964-**554**	1965-**555**	1966-**556**
1973-**563**	1972-**562**	1971-**561**	1970-**560**	1969-**559**	1968-**558**	1967-**557**
1974-**564**	1975-**565**	1976-**566**	1977-**567**	1978-**568**	1979-**569**	1980-**570**
1987-**577**	1986-**576**	1985-**575**	1984-**574**	1983-**573**	1982-**572**	1981-**571**
1988-**578**	1989-**579**	1990-**580**	1991-**581**	1992-**582**	1993-**583**	1994-**584**
591	2000-**590**	1999-**589**	1998-**588**	1997-**587**	1996-**586**	1995-**585**
592	593	594	595	596	597	598

Notes

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Poster Session Schedule and Board Surface Maps (Continued)

Wednesday Afternoon, March 13—1:00 PM to 4:30 PM—Exhibit Hall C–D
Poster Set Up—12:30 PM to 1:00 PM

SESSION TITLE	ABSTRACT NUMBERS	POSTER BOARD NUMBERS
Clinical and Translational Toxicology	2044–2058	101–115
Immunotoxicity Methods	2059–2071	116–128
Immunotoxicity—Biochemical/Molecular	2072–2087	131–146
Reproductive Toxicity	2088–2118	201–231
Male Reproductive Toxicology	2119–2142	232–255
Metal Neurotoxicity: Methylmercury, Lead, Aluminum, and Iron	2143–2161	301–319
Pharmaceutical Safety Assessment: Drug Discovery	2162–2180	322–340
Kidney	2181–2203	343–365
Toxicology Education	2204–2210	401–407
Risk Assessment III: New Derivations and Updated Estimates	2211–2244	409–442
Alternative High-Throughput Models II	2245–2277	443–475
Arsenic	2278–2315	501–538
Food Safety and Nutrition	2316–2349	543–576
Inflammation: Methods and Mechanisms	2350–2361	578–589
Nanotoxicology—*In Vivo*	2362–2396	601–635

100s and 200s

2044-**101**	2053-**110**	2054-**111**	2063-**120**	2064-**121**	130	2072-**131**	2081-**140**	2082-**141**	150	2088-**201**	2097-**210**	2098-**211**	2107-**220**	2108-**221**	2117-**230**	2118-**231**	2127-**240**	2128-**241**	2137-**250**	2138-**251**	260
2045-**102**	2052-**109**	2055-**112**	2062-**119**	2065-**122**	129	2073-**132**	2080-**139**	2083-**142**	149	2089-**202**	2096-**209**	2099-**212**	2106-**219**	2109-**222**	2116-**229**	2119-**232**	2126-**239**	2129-**242**	2136-**249**	2139-**252**	259
2046-**103**	2051-**108**	2056-**113**	2061-**118**	2066-**123**	2071-**128**	2074-**133**	2079-**138**	2084-**143**	148	2090-**203**	2095-**208**	2100-**213**	2105-**218**	2110-**223**	2115-**228**	2120-**233**	2125-**238**	2130-**243**	2135-**248**	2140-**253**	258
2047-**104**	2050-**107**	2057-**114**	2060-**117**	2067-**124**	2070-**127**	2075-**134**	2078-**137**	2085-**144**	147	2091-**204**	2094-**207**	2101-**214**	2104-**217**	2111-**224**	2114-**227**	2121-**234**	2124-**237**	2131-**244**	2134-**247**	2141-**254**	257
2048-**105**	2049-**106**	2058-**115**	2059-**116**	2068-**125**	2069-**126**	2076-**135**	2077-**136**	2086-**145**	2087-**146**	2092-**205**	2093-**206**	2102-**215**	2103-**216**	2112-**225**	2113-**226**	2122-**235**	2123-**236**	2132-**245**	2133-**246**	2142-**255**	256

400s

2204-**401**	408	2211-**409**	2218-**416**	2219-**417**	2226-**424**	2227-**425**	2234-**432**	2235-**433**	2240-**438**	2241-**439**	2248-**446**	2249-**447**	2256-**454**	2257-**455**	2264-**462**	2265-**463**	2272-**470**	2273-**471**	478
2205-**402**	2210-**407**	2212-**410**	2217-**415**	2220-**418**	2225-**423**	2228-**426**	2233-**431**			2242-**440**	2247-**445**	2250-**448**	2255-**453**	2258-**456**	2263-**461**	2266-**464**	2271-**469**	2274-**472**	477
2206-**403**	2209-**406**	2213-**411**	2216-**414**	2221-**419**	2224-**422**	2229-**427**	2232-**430**	2236-**434**	2239-**437**	2243-**441**	2246-**444**	2251-**449**	2254-**452**	2259-**457**	2262-**460**	2267-**465**	2270-**468**	2275-**473**	476
2207-**404**	2208-**405**	2214-**412**	2215-**413**	2222-**420**	2223-**421**	2230-**428**	2231-**429**	2237-**435**	2238-**436**	2244-**442**	2245-**443**	2252-**450**	2253-**451**	2260-**458**	2261-**459**	2268-**466**	2269-**467**	2276-**474**	2277-**475**

600s

640	639	2395-**634**	2394-**633**	2389-**628**	2388-**627**	2383-**622**	2382-**621**	2377-**616**	2376-**615**	2371-**610**	2370-**609**	2365-**604**	2364-**603**
641	638	2396-**635**	2393-**632**	2390-**629**	2387-**626**	2384-**623**	2381-**620**	2378-**617**	2375-**614**	2372-**611**	2369-**608**	2366-**605**	2363-**602**
642	637	636	2392-**631**	2391-**630**	2386-**625**	2385-**624**	2380-**619**	2379-**618**	2374-**613**	2373-**612**	2368-**607**	2367-**606**	2362-**601**

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Poster Session Schedule and Board Surface Maps (Continued)

300s

2149-**307**	2148-**306**	2147-**305**	2146-**304**	2145-**303**	2144-**302**	2143-**301**
2150-**308**	2151-**309**	2152-**310**	2153-**311**	2154-**312**	2155-**313**	2156-**314**
321	320	2161-**319**	2160-**318**	2159-**317**	2158-**316**	2157-**315**
2162-**322**	2163-**323**	2164-**324**	2165-**325**	2166-**326**	2167-**327**	2168-**328**
2175-**335**	2174-**334**	2173-**333**	2172-**332**	2171-**331**	2170-**330**	2169-**329**
2176-**336**	2177-**337**	2178-**338**	2179-**339**	2180-**340**	341	342
2187-**349**	2186-**348**	2185-**347**	2184-**346**	2183-**345**	2182-**344**	2181-**343**
2188-**350**	2189-**351**	2190-**352**	2191-**353**	2192-**354**	2193-**355**	2194-**356**
2201-**363**	2200-**362**	2199-**361**	2198-**360**	2197-**359**	2196-**358**	2195-**357**
2202-**364**	2203-**365**	366	367	368	369	370

500s

2284-**507**	2283-**506**	2282-**505**	2281-**504**	2280-**503**	2279-**502**	2278-**501**
2285-**508**	2286-**509**	2287-**510**	2288-**511**	2289-**512**	2290-**513**	2291-**514**
2298-**521**	2297-**520**	2296-**519**	2295-**518**	2294-**517**	2293-**516**	2292-**515**
2299-**522**	2300-**523**	2301-**524**	2302-**525**	2303-**526**	2304-**527**	2305-**528**
2312-**535**	2311-**534**	2310-**533**	2309-**532**	2308-**531**	2307-**530**	2306-**529**
2313-**536**	2314-**537**	2315-**538**	539	540	541	542
2322-**549**	2321-**548**	2320-**547**	2319-**546**	2318-**545**	2317-**544**	2316-**543**
2323-**550**	2324-**551**	2325-**552**	2326-**553**	2327-**554**	2328-**555**	2329-**556**
2336-**563**	2335-**562**	2334-**561**	2333-**560**	2332-**559**	2331-**558**	2330-**557**
2337-**564**	2338-**565**	2339-**566**	2340-**567**	2341-**568**	2342-**569**	2343-**570**
577	2349-**576**	2348-**575**	2347-**574**	2346-**573**	2345-**572**	2344-**571**
2350-**578**	2351-**579**	2352-**580**	2353-**581**	2354-**582**	2355-**583**	2356-**584**
591	590	2361-**589**	2360-**588**	2359-**587**	2358-**586**	2357-**585**
592	593	594	595	596	597	598

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Poster Session Schedule and Board Surface Maps (Continued)

Thursday Morning, March 14—8:30 AM to 12:00 Noon—Exhibit Hall A
Poster Set Up—7:00 AM to 8:30 AM

SESSION TITLE	ABSTRACT NUMBERS	POSTER BOARD NUMBERS
Late-Breaking Poster Session	TBD	101–456

ALL Late-Breaking Abstracts will be presented on Thursday in Exhibit Hall A. Please check the mobile event app and event website for details. A printed supplement of these abstracts will be available outside of Exhibit Hall A. These abstracts were not printed in the final *Program*.
Poster layout is subject to change based on the final number of accepted late-breaking submissions. Please see the printed supplemental handout available on-site for the most current information.

View the Late-Breaking Abstracts using the Mobile Event App or download a PDF of all the accepted Late-Breaking Abstracts being presented on Thursday March 14.

Scan Me!

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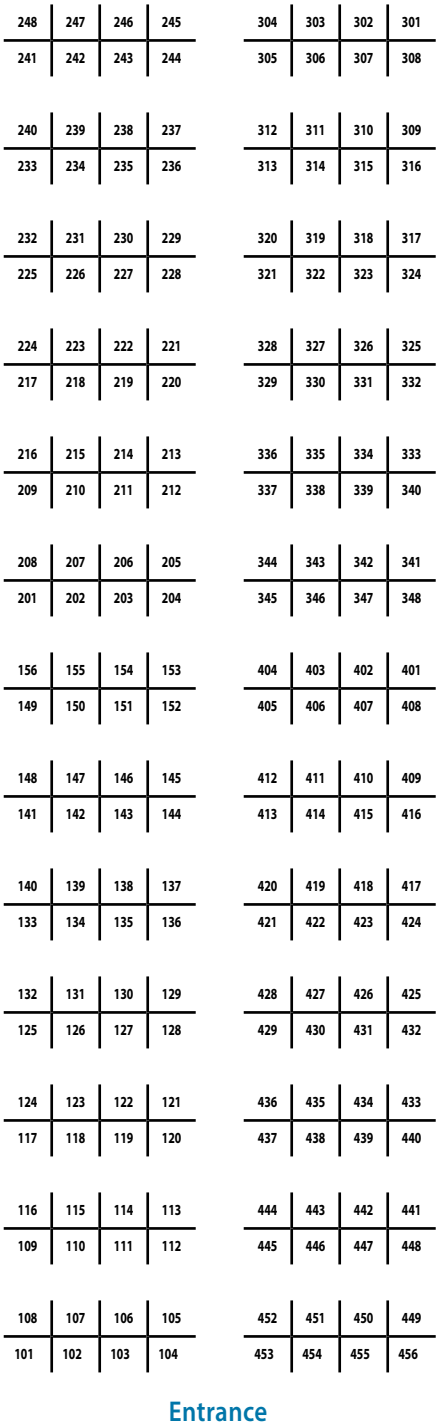

Program Description

The Program Description layout is ordered by date and start time. All scientific sessions and special events will be held in the Henry B. Gonzalez Convention Center unless otherwise noted.

SOT general events and functions are displayed with a yellow background.

Scientific Session Types: *Exhibitor/Sponsor-Hosted Sessions are informative sessions developed by an exhibiting company or SOT sponsor. See pages 43–45 for the Exhibitor/Sponsor-Hosted Session Index.*

- EC Education-Career Development Sessions
- E Exhibitor/Sponsor-Hosted Sessions
- FS Featured Sessions
- HH Historical Highlight Sessions
- IS Informational Sessions
- PL Platform Sessions
- PS Poster Sessions
- RI Regional Interest Sessions
- R Roundtable Sessions
- S Symposium Sessions
- Thematic Sessions
- W Workshop Sessions

SATURDAY AFTERNOON

Saturday Afternoon, March 9
4:15 PM to 5:45 PM
Marriott Rivercenter Conference Room 1
(Registration Required)

Undergraduate Education Program: Orientation for SOT Hosts, Peer Mentors, and Advisors

Chairperson(s): *Sudheer Reddy Beedanagari, Bristol-Myers Squibb Company, East Brunswick, NJ, Natalie M. Johnson, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, and Ofelia A. Olivero, National Cancer Institute, NIH, Bethesda, MD.*

Sponsor:
Committee for Diversity Initiatives

This event is the orientation for advisors, peer mentors, and mentors assisting with the Undergraduate Program. Full program details are found on pages 97–98.

SATURDAY EVENING

Saturday Evening, March 9
5:45 PM to 8:00 PM
Marriott Rivercenter Grand Ballroom K
(By Invitation Only)

Undergraduate Education Program Opening Event

Chairperson(s): *Erin Pias Hines, US EPA, Research Triangle Park, NC.*

Sponsor:
Committee for Diversity Initiatives

This event is for undergraduate students and advisors receiving 2013 SOT travel funding, and SOT program volunteers assisting with the Undergraduate Program. Full program details are found on pages 97–98.

Saturday Evening, March 9
8:00 PM to 9:00 PM
Marriott Rivercenter Grand Ballroom K

Committee on Diversity Initiatives Reunion

Hosted by:
Committee on Diversity Initiatives

The Committee on Diversity Initiatives (CDI) will host the CDI Reunion from 8:00 pm–9:00 pm on Saturday, March 9. Kenneth Ramos, University of Louisville, is the featured speaker and the 2013 Perry J. Gehring Diversity Student Travel Award will be given. Whether as a student, peer mentor, host mentor, speaker, or organizer, anyone who has ever been involved in the SOT Undergraduate Program is invited to attend.

Visit with colleagues who have been involved in the program over the last 24 years, meet with program alums, and greet the undergraduate students who are attending the program this year. Enjoy dessert, coffee, and tea. Start off your 52nd Annual Meeting by joining with the special people who have contributed to the diversity in SOT through this important activity.

Program Description (Continued)

SUNDAY MORNING

Sunday Morning, March 10
7:00 AM to 7:45 AM
Concourse and Grand Ballroom Levels
(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 104–110.

Sunday Morning and Afternoon, March 10
8:00 AM to 5:00 PM
Marriott Rivercenter
(Registration Required; See mobile event app or pages 5–13 for room information)

Undergraduate Education Program

Chairperson(s): *Erin Pias Hines, US EPA, Research Triangle Park, NC.*

Sponsor:
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 pages 97–98.

Sunday Morning, March 10
8:15 AM to 12:00 Noon
Concourse and Grand Ballroom Levels
(Ticket Required; See mobile event app or signage at CE Booth for room location)

Continuing Education Morning Courses

Full Continuing Education Course details may be found on pages 104–110.

SUNDAY AFTERNOON

Sunday Afternoon, March 10
1:15 PM to 5:00 PM
Concourse and Grand Ballroom Levels
(Ticket Required; See mobile event app or signage at CE Booth for room location)

Continuing Education Afternoon Courses

Full Continuing Education Course details may be found on pages 104–110.

Sunday Afternoon, March 10
3:15 PM to 3:45 PM
Marriott Rivercenter Conference Room 1
(Registration Required)

Undergraduate Education Program: Host Mentor and Peer Mentor Meeting

Chairperson(s): *Sudheer Reddy Beedanagari, Bristol-Myers Squibb Company, East Brunswick, NJ, and Natalie M. Johnson, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD.*

Host mentors and peer mentors meet to provide feedback on the Undergraduate Education Program.

Sunday Afternoon, March 10
3:15 PM to 5:00 PM
Marriott Rivercenter, Grand Ballroom M
(Registration Required)

Undergraduate Education Program: Open Time with Academic Program Directors and Internship Sponsors

Chairperson(s): *Kristini Miles, Kimberly Clark Corporation, Roswell, GA, and Kimberly D. Daniel, Texas A&M University, College Station, TX.*

Sponsor:
Committee for Diversity Initiatives

The Sunday program is open to undergraduate students who register for this event using the Annual Meeting Registration Form, the undergraduate students and advisors receiving SOT travel funding, and SOT program volunteers. This is the opportunity for academic program directors, internship hosts, undergraduate students, and faculty advisors to meet informally to discuss research and graduate study opportunities. Full program details are found on pages 97–98.

Program Description (Continued)

Sunday Afternoon, March 10
4:45 PM to 6:30 PM
Grand Ballroom C1
(All Attendees Welcome)

Awards Ceremony

Pre-Ceremony Musical Performance

4:45 PM to 5:15 PM

Performed by Glenn Staller

Raised in the Republic of Panama, Galo Gutierrez studied at the National Conservatory of Panama with one of the best classical guitarists in Latin America, Francisco Velasquez. Since moving to the United States, Galo now directs the famous Spanish Choir at St. Luke's Catholic Church, teaches at the Hands on Music School, and continues to perform throughout San Antonio. He is a recipient of the Award of Excellence from the Proart Interlatin USA "in recognition for 25 years of outstanding dedication in preserving and promoting the Latin Music in the United States."

Awards Ceremony

5:15 PM to 6:30 PM

SOT will recognize our 2013 Honorary Members, Global Senior Scientists and hosts, SOT award recipients, and our sponsored award recipients, at the SOT Awards Ceremony (pages 69–80), following the pre-Ceremony musical performance. Please refer to the Awards and Fellowships section of the SOT website for complete details. Award sponsors include Colgate-Palmolive, Syngenta, Pfizer, and the SOT Endowment Fund.

SUNDAY EVENING

Sunday Evening, March 10
6:30 PM to 7:30 PM
Exhibit Hall A
(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 10
7:00 PM to 8:00 PM
Lonesome Dove

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 25-year, 35-year, 45-year, or 50-year pin.

Sunday Evening, March 10
7:30 PM to 9:00 PM
Ballroom A
(Ticket Required)

Student/Postdoctoral Scholar Mixer

Sponsor:
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

9:30 AM–4:30 PM
Tuesday and Wednesday
Room 209
See pages 231 and 297 for more information

Strategies for Submitting Successful Grants: Brown Bag Luncheon

12:00 Noon–1:30 PM
Tuesday
Room 212
See page 233 for more information

Program Description (Continued)

MONDAY MORNING

Monday Morning, March 11
6:15 AM to 7:45 AM
Grand Hyatt Hotel, Bowie
(Reservation Required)

SOT Mentoring Breakfast

Sponsors:
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 announce the 2nd 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 11
6:30 AM to 8:00 AM
Room 006

Specialty Section Officers Meetings: Carcinogenesis, Clinical and Translational Toxicology, Dermal Toxicology, Food Safety, *In Vitro* and Alternative Methods, Mechanisms, Medical Device, Neurotoxicology, Regulatory and Safety Evaluation, Risk Assessment

Monday Morning, March 11
6:30 AM to 8:00 AM
See room listing below.

Specialty Section Officers Meetings: Molecular Biology (Room 213 A), Reproductive and Developmental Toxicology (Room 215)

Monday Morning, March 11
6:30 AM to 7:45 AM
Grand Hyatt Travis A

Toxicologic and Exploratory Pathology Specialty Section Officers Meeting

Monday Morning, March 11
7:00 AM to 8:00 AM
Marriott Rivercenter Sazo's Restaurant

Central States Regional Chapter Meeting

Monday Morning, March 11
8:00 AM to 9:00 AM
Exhibit Hall A

FS

Plenary Opening Lecture: Genetic Analysis of Innate Immune Sensing

Lecturer: *Bruce A. Beutler, University of Texas Southwestern Medical Center, Dallas, TX.*

Microbes were known to be the causative agents of infectious diseases since the mid-nineteenth century, and infections were known since antiquity for their inflammatory character. However, the molecular interactions through which microbes were recognized, and through which they triggered an inflammatory response on the part of the host, remained unknown until much more recently. A genetic approach was required to elucidate them. Applying a positional cloning approach to mice that were refractory to lipopolysaccharide (LPS), we identified the LPS receptor, and with it, a family of receptors responsible for sensing diverse molecules of microbial origin. These, the Toll-like receptors, signal by way of a system of adaptors, protein kinases, and transcription factors to induce the biosynthesis of hundreds of cytokines that orchestrate inflammation. Subsequently RIG-I-like helicases, NOD-like receptors, and C-type lectin receptors also were found to respond to infection. A number of common inflammatory diseases appear to depend upon these molecular pathways, which evolved to check the spread of micro-organisms prior to the advent of adaptive immunity.

Monday Morning, March 11
8:00 AM to 12:00 Noon
(See pages 5–13 for room information)

Undergraduate Education Program

Chairperson(s): *Erin Pias Hines, US EPA, Research Triangle Park, NC.*

Sponsor:
Committee for Diversity Initiatives

Monday morning activities are for undergraduate students and advisors receiving 2013 SOT travel funding and SOT program volunteers assisting with the Undergraduate Program. Full program details are found on pages 97–98.

MONDAY

Program Description (Continued)

Abstract #

Monday Morning, March 11
9:00 AM to 11:00 AM
Room 203

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, 2013 Global Senior Scholars and their hosts, and the 2013 recipients of the SOT/AstraZeneca/IUTOX and SOT Endowment Fund Fellowships. This event offers an opportunity for scientific leaders to meet and make plans 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 11:00 am–12:30 pm. See page 53 for more information about the Global Gallery of Toxicology.

Monday Morning, March 11
9:15 AM to 12:00 Noon
Grand Ballroom C1

S

Symposium Session: Genetic and Epigenetic Determinants of Susceptibility to Environmental and Occupational Toxicants

Molecular Basis of Genetic Variability and Susceptibility to Toxicants

Chairperson(s): *Berran Yucesoy, NIOSH, Morgantown, WV, and Victor J. Johnson, BRT-Burleson Research Technologies, Morrisville, NC.*

Sponsor:
Immunotoxicology Specialty Section

Endorsed by:
Occupational and Public Health Specialty Section

The most common chronic disorders are multifactorial in nature, influenced by complex sequences of gene-gene and gene-environment interactions. While gene expression is a dynamic process that varies in response to a myriad of internal and external triggers and the surrounding microenvironment, the epigenetic mechanisms play a key role in mediating environmental influences on gene expression and epistatic interactions. In this respect, the expression of complex phenotypes should be assessed in a functional context that would look at the interplay between environmental, genetic, and epigenetic factors. Recent advances in genetic and epigenetic research offer new opportunities to integrate experimental approaches, including animal models and *in vitro*/*in vivo* translational research, with computational strategies to predict such interactions at multiple levels of complexity. The focus of this session will be on current research investigating the role of genetic factors, epigenetic factors, and gene-environment interactions in the development and outcomes of complex diseases caused by environmental and occupational toxicants.

Abstract #		
#14	9:15	**Genetic and Epigenetic Determinants of Susceptibility to Environmental and Occupational Toxicants.** *V. J. Johnson*[1], and *B. Yucesoy*[2]. [1]BRT-Burleson Research Technologies, Morrisville, NC; [2]Toxicology and Molecular Biology Branch, NIOSH, CDC, Morgantown, WV.
	9:15	**Introduction.** Victor Johnson and Berran Yucesoy
#15	9:20	**Genetic Susceptibility to Occupational and Environmental Exposures.** *D. C. Christiani*. School of Public Health, Harvard Medical School, Boston, MA.
#16	9:58	**Toxicogenomic and Systems Biology Approaches in the Understanding of Toxicity and Leukemogenesis Induced by Benzene.** *C. McHale*[1], *L. Zhang*[1], Q. Lan[2], *R. Thomas*[1], A. E. Hubbard[1], R. Vermeulen[3], G. Li[4], S. M. Rappaport[1], S. Yin[4], *M. T. Smith*[1], and N. Rothman[2]. [1]School of Public Health, University of California Berkeley, Berkeley, CA; [2]Division of Cancer Epidemiology and Genetics, National Cancer Institute, Bethesda, MD; [3]Institute of Risk Assessment Sciences, Utrecht University, Utrecht, Netherlands; [4]Institute of Occupational Health and Poison Control, Chinese Center for Disease Control and Prevention, Beijing, China.
#17	10:36	**Integrated Genetic and Genomic Approaches to Understand Susceptibility to Toxicant-Induced Lung Disease.** S. R. Kleeberger. Laboratory of Respiratory Biology, NIEHS, Research Triangle Park, NC. Sponsor: *V. Johnson*.
#18	11:14	**Developmental Exposure to Bisphenol A and Lead: Effects on Metabolic Homeostasis and the Epigenome.** *D. Dolinoy*. University of Michigan, Ann Arbor, MI.
	11:52	**Panel Discussion/Q&A.**

Monday Morning, March 11
9:15 AM to 12:00 Noon
Room 214 A&B

S

Symposium Session: Predictive Toxicology Paradigms for Understanding Carbon Nanotube Toxicity in the Lung

Effects of Nanomaterials on Biological Systems

Chairperson(s): *James Bonner, North Carolina State University, Raleigh, NC, and André Nel, University of California Los Angeles, Los Angeles, CA.*

Sponsor:
Nanotoxicology Specialty Section

Endorsed by:
Inhalation and Respiratory Specialty Section
Occupational and Public Health Specialty Section

Nanotechnology is rapidly developing, resulting in the production of a variety of engineered nanoparticles. Carbon nanotubes (CNTs) represent an important family of nanoparticles because they have many potential uses in engineering, electronics, and medicine due to their ease of functionalization, unusual strength, and electrical conductivity. However, these novel nanostructures also represent a potential human health risk, due to the possibility of inhalation exposure and evidence that the lung and cardiovascular systems are targets for hazardous effects. Inhalation studies in rodents show that CNTs deposit within the distal regions in the lungs and migrate to the pleura to cause inflammatory and/or fibrotic effects. Presentations in this session are aimed at elucidating the pulmonary and cardiovascular effects of CNTs, and how an increasing variety of functionalized CNTs can be evaluated via high-content screening. Because functionalized CNTs vary in toxicological activity, we will address high-content screening for the development of structure-activity relationships relevant to inhalation toxicity and safer design of nanoparticles. This will include exploration of factors that mediate toxic effects such as high aspect ratio, durability, and residual metal content and discuss how removing metal catalysts or changing surface properties alters the pattern and timing of toxicity. While the lung is a major target organ, another goal is to determine the potential for inhaled CNTs to have toxic effects that reach beyond the lung to influence the cardiovascular system. Finally, we will discuss how susceptibility factors, both genetic and environmental, determine pulmonary and cardiovascular toxicity to CNTs. The outcome of this session is to gain a better understanding of the structure-activity relationships, target organs, and susceptibility factors that will aid the development of predictive toxicology paradigms for understanding CNT toxicity.

Program Description (Continued)

Abstract #

#19 9:15 **Predictive Toxicology Paradigms for Understanding Carbon Nanotube Toxicity in the Lung.** *J. C. Bonner*[1], *A. Nel*[2], *D. Porter*[3], *V. Castranova*[3], and *K. Pinkerton*[4]. [1]North Carolina State University, Raleigh, NC; [2]University of California Los Angeles, Los Angeles, CA; [3]NIOSH, Morgantown, WV; [4]University of California Davis, Davis, CA.

9:15 **Introduction.** James Bonner

#20 9:20 **Time Course of Pulmonary Responses to Inhaled Multiwalled Carbon Nanotubes.** *D. W. Porter*[1], *A. F. Hubbs*[1], R. R. Mercer[1], N. Wu[2], W. McKinney[1], B. T. Chen[1], M. G. Wolfarth[1], L. Battelli[1], J. Scabilloni[1], D. Schwegler-Berry[1], S. Friend[1], S. Tsuruoka[3], M. Endo[3], D. Frazer[1], and *V. Castranova*[1]. [1]NIOSH, Morgantown, WV; [2]Department of Mechanical & Aerospace Engineering, West Virginia University, Morgantown, WV; [3]Research Center for Exotic Nanocarbons, Shinshu University, Nagano, Japan.

#21 9:52 **Establishment of Carbon Nanotube Structure-Activity Relationships (SARs) That Can Be Used to Understand Pulmonary Toxicity and Safer Design.** *A. Nel*. University of California Los Angeles, Los Angeles, CA.

#22 10:24 **Surface and Chemical Modification of Single-Walled Carbon Nanotubes Does Not Necessarily Create a Safer Nanomaterial.** *K. Pinkerton*. University of California Davis, Davis, CA.

#23 10:56 **Cardiovascular Responses to Pulmonary Inhalation of Nanoparticles.** *V. Castranova*. Pathology & Physiology Research Branch, NIOSH, Morgantown, WV.

#24 11:28 **Genetic and Environmental Factors That Determine Susceptibility to Inhaled Carbon Nanotubes.** *J. C. Bonner*. Toxicology, North Carolina State University, Raleigh, NC.

Monday Morning, March 11
9:15 AM to 12:00 Noon
Room 214 C&D

S

Symposium Session: Translatable Indicators of Testicular Toxicity: Inhibin B, microRNAs, and Sperm Signatures

Biomarkers for Exposure Assessment, Safety Evaluation, and Translational Medicine

Chairperson(s): *Kim Boekelheide, Brown University, Providence, RI, and Robert E. Chapin, Pfizer, Inc., Groton, CT.*

Sponsor:
Reproductive and Developmental Toxicology Specialty Section

Endorsed by:
Risk Assessment Specialty Section
Toxicologic and Exploratory Pathology Specialty Section

The typical endpoints used in preclinical animal models for reproductive toxicity testing, such as histopathology, are not translatable for human clinical assessment, which typically focuses on the analyses of semen and serum hormones. Therefore, when testicular toxicity arises in preclinical toxicity testing, the methods currently available to monitor this liability in clinical trials are limited. Because of these limitations, there is a need to develop sensitive and translatable indicators that reliably reflect testicular function. In this symposium, an introductory talk will set the stage by describing testicular physiology, preclinical tests of male reproductive toxicity, and current methods for assessing testicular function in men in clinical trials. The following three talks will discuss currently active efforts to develop improved translatable indicators of testicular toxicity in men. Serum inhibin B is a product of the testicular Sertoli cell and levels fall in response to testicular injury. Testis-specific miRNAs may be released upon testicular injury, and their measurement in serum may be a measure of effect. Sperm mRNA transcripts and DNA methylation may be indicators of testicular toxicity because they are easily measured and persistently altered after testicular injury. Developing reliable and predictive translatable indicators of testicular toxicity would be valuable for drug development in the pharmaceutical industry, and for monitoring men in occupational settings where exposure to potential testicular toxicants is a concern.

Abstract #

#25 9:15 **Translatable Indicators of Testicular Toxicity: Inhibin B, microRNAs, and Sperm Signatures.** *K. Boekelheide*[1], *B. McIntyre*[3], M. Coulson[4], and *R. E. Chapin*[2]. [1]Brown University, Providence, RI; [2]Pfizer Drug Safety, DART Group, Groton, CT; [3]National Toxicology Program, NIEHS, NIH, Research Triangle Park, NC; [4]AstraZeneca R&D, Alderley Park, United Kingdom.

9:15 **Introduction.** Kim Boekelheide

#26 9:20 **Biomarkers of Testicular Injury: Where Have We Been.** *B. McIntyre*. NIEHS/NTP, Research Triangle Park, NC.

#27 9:56 **Industry Efforts to Evaluate Inhibin B As Potential Biomarker for Testicular Toxicity.** M. Coulson. Safety Assessment, AstraZeneca, Macclesfield, United Kingdom. Sponsor: *K. Boekelheide*.

#28 10:32 **Circulating microRNAs As Biomarkers of Testicular Damage?** *R. E. Chapin*. DART, Drug Safety R&D, Pfizer, Inc, Groton, CT.

#29 11:08 **Sperm mRNA Transcripts and DNA Methylation Marks As Indicators of Testicular Injury.** *K. Boekelheide*. Brown University, Providence, RI.

11:44 **Panel Discussion/Q&A.**

Monday Morning, March 11
9:15 AM to 12:00 Noon
Room 217 A&B

W

Workshop Session: Biology of Low-Dose Response for DNA-Reactive Chemicals

Chairperson(s): *Joanna Klapacz, The Dow Chemical Company, Midland, MI, and Bevin P. Engelward, Massachusetts Institute of Technology, Cambridge, MA.*

Sponsor:
Molecular Biology Specialty Section

Endorsed by:
Biological Modeling Specialty Section
Risk Assessment Specialty Section

In the risk assessment process, DNA-reactive agents are generally considered to have no thresholds for their biological effects and this assumption formed the basis for linear low-dose extrapolation of any carcinogenic effects induced by these agents. On the other hand, cells have evolved to handle DNA lesions from endogenous and many exogenous DNA-reactive agents. In fact, DNA-repair processes are strictly conserved from bacteria to humans underlying their importance in protection against the effects of these agents, such as disease and aging. In recent years, low-dose response for DNA-reactive agents has been an active domain for research in toxicology, with publication of several datasets with large numbers of doses focused on the determination of no-observed-genotoxic-effect-level (NOGEL) values. This effort has included dose-response modelling to identify the best fit between linear and nonlinear models, such as bilinear (hockey-stick) and the benchmark dose (BMD) suite of models, and most datasets have supported a bilinear or nonlinear/threshold dose response as providing best fit based on statistical criteria. However, empirical demonstration of statistically-

Program Description (Continued)

Abstract #

supported nonlinear/threshold dose response alone is not sufficient to achieve a paradigm shift in risk assessment. A clear understanding of the biological processes behind the shape of the low-dose response curve is similarly a critical piece of this journey, and one where less effort has been focused to date within toxicology. This workshop will explore some of the questions that need to be addressed to understand and bridge DNA-repair processes and cellular responses with the mode-of-action driving these nonlinear/threshold dose responses for genotoxic effects. The workshop will examine existing knowledge from the field of DNA repair and link it with response to low doses of DNA-reactive agents, in order to draw specific recommendations on a path forward.

#30	9:15	**Biology of Low-Dose Response for DNA-Reactive Chemicals.** *J. Klapacz*[1], and *B. Engelward*[2]. [1]TERC, The Dow Chemical Company, Midland, MI; [2]Department of Biological Engineering, Massachusetts Institute of Technology, Cambridge, MA.
	9:15	**Introduction.** Joanna Klapacz
#31	9:20	**Genotoxic Effects and Dose Response: What Do We Know So Far?** *L. H. Pottenger*. TERC, The Dow Chemical Company, Midland, MI.
#32	9:50	**CometChip and Recombomice Shed Light on Gene-Exposure Interactions That Impact Genomic Stability.** *B. P. Engelward*. Department of Biological Engineering, Massachusetts Institute of Technology, Cambridge, MA.
#33	10:20	**Role of Mismatch Repair in Mutagenesis, Cancer, and DNA-Damage Signaling.** W. Edelmann. Department of Cell Biology, Albert Einstein College of Medicine, Bronx, NY. Sponsor: *J. Klapacz*.
#34	10:50	**Computational Systems Biology Modeling of DNA-Damage Stress Pathways for Assessing Mutation Rates at Low Doses.** *M. E. Andersen*. The Hamner Institutes for Health Sciences, Research Triangle Park, NC.
#35	11:20	**Do Alkylating Agents Cause Genotoxic Thresholds through a DNA Repair Mode of Action?** G. E. Johnson, *S. H. Doak*, B. J. Rees, A. D. Thomas, J. R. Verma, Z. M. Zair, and G. J. Jenkins. College of Medicine, Swansea University, Swansea, United Kingdom.
	11:50	**Panel Discussion/Q&A.**

Monday Morning, March 11
9:15 AM to 12:00 Noon
Grand Ballroom C3

W

Workshop Session: Incorporation of Exposure Data and Chemical Properties into Early *In Vitro* Screening Studies: Putting Early Hazard Identification into Appropriate Context

Regulatory Science: Advancing New Approaches for Hazard Identification and Risk Assessment

Chairperson(s): *Robert T. Dunn II, Amgen, Inc, Thousand Oaks, CA, and Yvonne Will, Pfizer, Inc., Groton, CT.*

Sponsor:
Drug Discovery Specialty Section

Endorsed by:
***In Vitro* and Alternative Methods Specialty Section**

Over the past several years, a multiplicity of innovative early-screening assays have been adopted to improve our ability to select drug candidates with the maximal opportunity to eventually succeed in later development. Examples of medium and high-throughput assays that can enable early hazard identification include ion channels related to cardiovascular safety

Abstract #

(hERG, NaV1.5, and others), assays to understand CNS permeability and hepatobiliary transport (PgP, BSEP, etc.), and receptor and kinase screens, as well as screening ADME assays. These assays are typically employed early in the drug discovery process when little other data are available to help contextualize the early-screening result. Data output from these early screens is often produced, then utilized by project teams to select molecules for advancement, deprioritization, or to accumulate the knowledge base around a compound. In this model, the early-screening data may become a static entity, such as an IC50 value, which is then stored in a database often without further consideration or re-evaluation. There is a possibility that early-screening data in such a model is underutilized or potentially misleading. An inherent problem with generating early-screening data is that it is often produced in the absence of accompanying data (e.g., *in vivo* exposure), which is information that can be leveraged to place these data into better context and enable more accurate predictions. In this workshop, several use case examples will be presented where *in vivo* exposure information and chemical compound properties have been weaved into early *in vitro* toxicity screening data enabling the discovery toxicologist to conduct a more robust assessment of the hazard identification assay data.

#36	9:15	**Incorporation of Exposure Data and Chemical Properties into Early *In Vitro* Screening Studies: Putting Early Hazard Identification into Appropriate Context.** *R. T. Dunn*[1], and *Y. Will*[2]. [1]Discovery Toxicology, Amgen Inc, Thousand Oaks, CA; [2]Compound Safety Prediction, Pfizer R&D, Groton, CT.
	9:15	**Introduction.** Robert Dunn
#37	9:20	**Inclusion of Exposure Data to Early Toxicity Screening: Using the Bile Salt Export Pump (BSEP) Screen As an Illustrative Example.** *R. T. Dunn*, *R. E. Morgan*, and *H. K. Hamadeh*. Discovery Toxicology, Amgen Inc, Thousand Oaks, CA.
#38	9:49	**High-Content Mechanistic Screening (HCMS) Technology to Impact Safety in the Context of Efficacy, Exposure, and Toxicity.** *K. Tsaioun*. Apredica, Watertown, MA.
#39	10:18	**Lead Optimization Against Toxicological End Points in Drug Discovery: Recognition of Structural Determinants of Small Molecule Target Organ Exposure and Toxicity.** *D. P. Hartley*. Array Biopharma, Boulder, CO.
#40	10:47	**The Challenges of Putting *In Vitro* Safety Assays into Context with *In Vivo* Data.** *N. Greene*. Compound Safety Prediction, Pfizer, Inc., Groton, CT.
#41	11:16	**Relating Molecular Properties and *In Vitro* ADME/Tox Surrogate Assay Results to *In Vivo* Outcomes.** *D. E. Watson*. Lilly Research Laboratories, Indianapolis, IN.
	11:45	**Panel Discussion/Q&A.**

MONDAY

Program Description (Continued)

Abstract #

Monday Morning, March 11
9:15 AM to 12:00 Noon
Grand Ballroom C2

W

Workshop Session: Inhaled Mixtures: A Mode-of-Action Framework Applied to the Criteria Air Pollutants

Regulatory Science: Advancing New Approaches for Hazard Identification and Risk Assessment

Chairperson(s): *Elizabeth O. Owens, US EPA, Research Triangle Park, NC, and Christal C. Bowman, Bayer CropScience, Durham, NC.*

Sponsor:
Inhalation and Respiratory Specialty Section

Endorsed by:
Mixtures Specialty Section
Regulatory and Safety Evaluation Specialty Section

Although regulated individually, the criteria air pollutants, NOx, Sox, CO, PM, Pb, and O3, exist as a complex mixture in the atmosphere. Thus, the interactions and cumulative effects of multiple pollutants are important to consider when assessing the impact of ambient air exposures on health. The criteria air pollutants act through complex biological pathways to elicit health effects, but many share common modes of action, including oxidative stress and inflammation. Mode of action for a given toxic agent is defined as the set of key events involved in a given toxic effect. Key events are measurable endpoints along a continuum from exposure to effect, and are consistent with emerging concepts of how to use biomarkers, surrogate endpoints, and toxicity pathways to characterize health risks. Recent discussions have proposed the use of mode of action to develop a unifying framework for the evaluation of mixtures containing multiple pollutants. This session convenes experts in the modes of action of criteria air pollutants to examine how this information can be organized, beginning with a description of an emerging framework for integrating mechanistic and biological plausibility information regarding the criteria air pollutants and a subset of ambient air toxics. Attendees will gain knowledge of how a mode-of-action framework can be used to consider mixtures, as well as emerging and established mechanisms of toxicity of air pollutants, focusing on potential interactions between pollutants encountered in a multipollutant context.

#42	9:15	**Inhaled Mixtures: A Mode-of-Action Framework Applied to the Criteria Air Pollutants.** *E. O. Owens*, and *C. C. Bowman*. National Center for Environmental Assessment, US EPA, Durham, NC.
	9:15	**Introduction.** Elizabeth Owens
#43	9:20	**Assessing Health Effects of Air Pollution Mixtures: Mode-of-Action Framework.** B. Buckley. National Center for Environmental Assessment, US EPA, Durham, NC. Sponsor: *C. Bowman*.
#44	9:56	**The Effects of Criteria Pollutants in the Brain.** *M. L. Block*. Anatomy and Neurobiology, Medical College of Virginia, Richmond, VA.
#45	10:32	**Air Pollution and Pattern Recognition Receptors: Like a Wee LCMS in Every Mouse.** *M. Campen*. College of Pharmacy, University of New Mexico, Albuquerque, NC.
#46	11:08	**Differential Effects of PM Components: Toward a Better Understanding of Underlying Mechanisms.** *A. Rohr*. Air Quality, Electric Power Research Institute, Palo Alto, CA.
	11:44	**Panel Discussion/Q&A.**

Abstract #

Monday Morning, March 11
9:15 AM to 12:00 Noon
Room 217 C&D

RI

Regional Interest Session: Toxicological Challenges in Food Production in Texas and the Gulf Coast

Chairperson(s): *Erica D. Bruce, Baylor University, Waco, TX, and Laura M. Plunkett, Integrative Biostrategies LLC, Houston, TX.*

Sponsor:
Lone Star Regional Chapter

Endorsed by:
Food Safety Specialty Section

With recent media attention on episodes of food contamination and the impact of chemicals in the environment on the food supply (i.e., bacterial contamination of food, as well as the 2010 BP oil spill), public awareness of food safety issues has grown. This symposium will explore the topic of food safety as it relates to unique features of food production in Texas and the Gulf Coast. Texas is a major source of fresh fruit and vegetable production for both regional and countrywide consumption, while the Gulf Coast is a major source of fresh fish and seafood for many parts of the United States. Topics covered in the symposium will include recent legislative initiatives such as the Food Safety and Modernization Act of 2010, current regulatory oversight of food safety in the Gulf Coast region, and key public and/or worker health issues associated with food production in the region. The goal of the symposium is to describe the strengths and weaknesses of current regulations and practices to ensure a safe food supply as well as worker safety, and provide dialog for ways to address unique concerns related to food production in Texas and the Gulf Coast. Symposium speakers work in academia, for the United States government (US FDA), and an organization representing the interests of the public (Center for Science in the Public Interest), which will allow for discussion of the topics from a variety of perspectives.

#47	9:15	**Toxicological Challenges in Food Production in Texas and the Gulf Coast.** *L. M. Plunkett*. Integrative Biostrategies LLC, Houston, TX.
	9:15	**Introduction.** Laura Plunkett
#48	9:30	**Multiagency Response to Seafood Safety Concerns following the 2010 Deepwater Horizon Oil Spill.** R. W. Dickey. US FDA, Dauphine Island, AL. Sponsor: *L. Plunkett*.
#49	10:00	**Seafood Safety Challenges for the Texas Gulf Coast.** D. W. Plunkett. Center for Science in the Public Interest, Washington DC. Sponsor: *L. Plunkett*.
#50	10:30	**Occupational Hazards in Texas Food Production.** E. Shipp. Epidemiology and Biostatistics, Texas A&M School of Rural Public Health, College Station, TX. Sponsor: *E. Bruce*.
#51	11:00	**Occupational Heat Stress in Agricultural Settings.** J. L. Levine. Occupational Health Sciences, The University of Texas Health Science Center at Tyler, Tyler, TX. Sponsor: *E. Bruce*.
	11:30	**Panel Discussion/Q&A.**

Program Description (Continued)

Abstract #

Monday Morning, March 11
9:15 AM to 12:00 Noon
Room 205

PL

Platform Session: Advances in Neurobehavioral and Neuropathology Assessment of Chemicals

Chairperson(s): *Abby A. Li, Exponent, San Francisco, CA, and Virginia Moser, US EPA, Research Triangle Park, NC.*

#52 9:15 **Developmental Toxicity and Neurobehavioral Effects of Dietary Flavonoids.** *S. M. Bugel*, and *R. L. Tanguay*. Department of Environmental and Molecular Toxicology, Environmental Health Sciences Center, Oregon State University, Corvallis, OR.

#53 9:38 **Perinatal Toxicity and Carcinogenicity Studies of Styrene Acrylonitrile Trimer, a Ground Water Contaminant.** *M. Behl*[1,2], *S. A. Elmore*[1], *M. R. Hejtmancik*[3], D. K. Gerken[3], and *R. S. Chhabra*[1]. [1]Division of the National Toxicology Program, NIEHS, Research Triangle Park, NC; [2]Kelly Government Solutions, Research Triangle Park, NC; [3]Battelle Memorial Institute, Columbus, OH.

#54 10:01 **Does Developmental Hypothyroidism Produce Lasting Effects on Adult Neurogenesis?** J. Nance[1], *R. C. Switzer*[2], A. Tennant[1], A. Johnstone[1], and *M. E. Gilbert*[1]. [1]US EPA, Research Triangle Park, NC; [2]NeuroScience Associates, Knoxville, TN.

#55 10:24 **Dietary Administration of Paraquat for 13 Weeks Does Not Result in a Loss of Dopaminergic Neurones from the Substantia Nigra of Mice.** N. Sturgess[1], *P. Botham*[1], *M. Butt*[3], D. Minnema[2], *L. Smith*[1], and J. Wolf[4]. [1]Syngenta, Bracknell, United Kingdom; [2]Syngenta, Greensboro, NC; [3]Tox Path Specialists, Frederick, MD; [4]EPL, Sterling, VA.

#56 10:47 **Neurodevelopmental Effects of Inhaled Vapors of Gasoline and Ethanol in Rats.** *P. J. Bushnell*[1], T. E. Beasley[1], W. M. Oshiro[1], P. A. Evansky[1], *S. A. Martin*[1], *V. C. Moser*[1], K. L. McDaniel[1], P. M. Phillips[1], J. Norwood[1], *M. E. Gilbert*[1], M. M. Taylor[2], C. J. Gordon[1], C. E. Grace[1], and *J. M. Rogers*[1]. [1]NHEERL/ORD, US EPA, Research Triangle Park, NC; [2]MMT Inc, Durham, NC.

#57 11:10 **Postnatal Trichloroethylene Exposure Is Associated with Abnormal Behavior and Alterations Global DNA Methylation Patterns in Mouse Cerebellum.** *S. Blossom*[1], J. L. Rau[1], S. B. Melnyk[1], C. A. Cooney[1], S. J. James[1], and W. D. Wessinger[2]. [1]Pediatrics, Arkansas Children's Hospital Research Institute, Little Rock, AR; [2]Pharmacology and Toxicology, University of Arkansas for Medical Scieinces, Little Rock, AR.

#58 11:33 **Perfluorohexane Sulfonate (PFHxS) Causes Adult Behavioral Disturbances in Male and Female Mice, after Neonatal Exposure.** *H. Viberg*, I. Lee, A. Fredriksson, and *P. Eriksson*. Environmental Toxicology, Uppsala University, Uppsala, Sweden.

Abstract #

Monday Morning, March 11
9:15 AM to 12:00 Noon
Room 207

PL

Platform Session: Inhalants and Metabolic Disorders

Chairperson(s): *Urmila Kodavanti, US EPA, Research Triangle Park, NC, and James Wagner, Michigan State University, East Lansing, MI.*

#59 9:15 **Acute Ozone-Induced Impairment of Glucose Regulation: Age-Related and Temporal Changes.** V. L. Bass[1], *R. MacPhail*[1], D. L. Andrews[1], B. Vallanat[1], W. O. Ward[1], M. Schladweiler[1], A. D. Ledbetter[1], *D. B. Johnson*[2], K. Jarema[1], *C. Gordon*[1], and *U. P. Kodavanti*[1]. [1]EPHD/NHEERL/ORD, US EPA, Research Triangle Park, NC; [2]Curriculum in Toxicology, University of North Carolina at Chapel Hill, Chapel Hill, NC.

#60 9:35 **Fine Particulate Matter ($PM_{2.5}$) Exposure Impairs Vascular Insulin Signaling and Exacerbates Diet-Induced Systemic Insulin Resistance in Mice.** *P. Haberzettl*, J. McCracken, J. Lee, A. Bhatnagar, and *D. J. Conklin*. University of Louisville, Louisville, KY.

#61 9:55 **Ozone (O3): A Potential Contributor to Metabolic Syndrome through Altered Insulin Signaling.** *D. B. Johnson*[3], D. L. Andrews[2], V. L. Bass[1], M. C. Schladweiler[1], A. D. Ledbetter[1], and *U. P. Kodavanti*[1]. [1]EPHD/NHEERL/ORD, US EPA, Research Triangle Park, NC; [2]RCU/NHEERL/ORD, US EPA, Research Triangle Park, NC; [3]Curriculum in Toxicology, University of North Carolina at Chapel Hill, Chapel Hill, NC.

#62 10:15 **Inhaled Ozone Induces Metabolic Abnormalities in Mice Fed a High-Fructose Diet.** K. M. Allen[1,2], P. Brooks[1], M. Dereski[1], R. Lewandowski[1,2], I. Hotchkiss[1], D. Jackson-Humbles[1], C. Brandenberger[1], L. Bramble[1,2], *J. Wagner*[1,2], and *J. Harkema*[1,2]. [1]Pathobiology, Michigan State University, East Lansing, MI; [2]Great Lakes Air Center for Integrated Environmental Research, Michigan State University, East Lansing, MI.

#63 10:35 **Suppressed Responses in Heart Rate Variability during Inhalation Exposure to Ozone and Ambient Fine Particles in Rats on a High-Fructose Diet.** *J. G. Wagner*[1], H. Yang[2], K. M. Allen[1], M. Morishita[2], B. Nan[2], B. Mukherjee[2], G. Fink[1], and *J. R. Harkema*[1]. [1]Michigan State University, East Lansing, MI; [2]University of Michigan, Ann Arbor, MI.

#64 10:55 **Oxidative Stress and the Acceleration of Atherosclerosis in Susceptible Mice after Exposure to Semivolatile Components of Ultrafine Particulate Matter.** A. J. Keebaugh[1], P. Pakbin[2], L. Mendez[1], Z. Ning[2], G. Gookin[1], C. Sioutas[2], and *M. Kleinman*[1]. [1]Community and Environmental Medicine, University of California Irvine, Irvine, CA; [2]Environmental Engineering, University of Southern California, Los Angeles, CA.

#65 11:15 **Acrolein-Induced Increases in Blood Pressure and Heart Rate Are Coupled with Decreased Blood Oxygen Levels during Exposure in Hypertensive Rats.** *C. M. Perez*[1], A. D. Ledbetter[2], *M. S. Hazari*[2], N. Haykal-Coates[2], *A. P. Carll*[1], D. W. Winsett[2], *D. L. Costa*[3], and *A. K. Farraj*[2]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]Environmental Public Health Division, US EPA, Research Triangle Park, NC; [3]ORD, US EPA, Research Triangle Park, NC.

Program Description (Continued)

Abstract #

#66 11:35 **PM2.5 Exposure and Rage: Insight into an Emerging Risk for Diabetes.** *J. M. Vaughan, J. Zelikoff, B. Narayanan*, A. Schmidt, and *L. Chen*. Environmental Health Science, New York University, Tuxedo, NY.

Monday Morning, March 11
9:30 AM to 10:50 AM
Exhibit Hall C–D, Poster Surfaces 557–584

Undergraduate Education Program: Poster Session for Visiting Students

Chairperson(s): *Leslie Recio, Integrated Laboratory Systems Inc., Research Triangle Park, NC, and Douglas K. Stevens, Salish Kootenai College, Pablo, MT.*

Sponsors:
Committee on Diversity Initiatives

This special poster session held within the Exhibit Hall is for is for undergraduate students and advisors receiving 2013 SOT travel funding and SOT program volunteers assisting with the Undergraduate Program. Full program details are found on pages 97–98.

Monday Morning, March 11
9:15 AM to 10:15 AM
Room 007 A

E

Exhibitor/Sponsor-Hosted Session: Assessing Toxicity of the Hematologic System in Preclinical Safety Studies

Presented by:
MPI Research

This session will provide an overview of the current principles involved in the evaluation of the hematologic system focusing on techniques critical to accurate data interpretation. In addition, integration of hematology data with other study endpoints (e.g., microscopic pathology, in-life data, etc) will be discussed.

Monday Morning, March 11
9:15 AM to 10:15 AM
Room 007 C

E

Exhibitor/Sponsor-Hosted Session: Optical Coherence Tomography in Nonclinical Ocular Drug Development

Presented by:
Covance

Optical Coherence Tomography (OCT) is used to obtain high resolution images of ocular tissues. The basic functionality of OCT, examples from several instrument models and lab animal species, and considerations for data acquisition, analysis, and interpretation will be discussed to demonstrate how this technique can be applied in nonclinical studies.

Monday Morning, March 11
9:15 AM to 10:15 AM
Room 007 B

E

Exhibitor/Sponsor-Hosted Session: Quantification of Cardioactive Drug Effects Using xCELLigence RTCA Cardio and Human iPS-Derived Cardiomyocytes

Presented by:
ChanTest Corp.

We evaluated xCELLigence Cardio instrument and stem cell-derived human cardiomyocytes (SC-hCMs) for sensitivity to compounds with broad mechanisms of action. Distinct impedance profiles were observed for drugs that modify contraction, acutely block hERG, inhibit channel trafficking, and cardiotoxicants, allowing us to correlate known cardiac activity with impedance profiles.

Abstract #

Monday Morning, March 11
9:30 AM to 12:30 PM
Exhibit Hall C–D

PS

Poster Session: Cardiovascular Toxicity: Telemetry and *In Vitro* Systems

Chairperson(s): *Kim Henderson, Battelle Memorial Institute, Columbus, OH.*

Displayed: *9:30 AM–12:30 PM*

Author Attended: *9:30 AM–11:00 AM*

#67 **Poster Board Number 101**
Integration of Jacketed Telemetric Hemodynamics in a Toxicology Study Design: Assessment of Sensitivity and Distribution and Impact of Erroneous Values. *H. Holzgrefe*, S. Tichenor, R. Kaiser, and *D. Meyer*. Toxicology, Charles River Laboratories, Reno, NV.

#68 **Poster Board Number 102**
Evaluation of an in Line Filter for Reducing Noise in Subcutaneous Telemetered ECGs. *C. M. Kelly*[1], M. Miyamoto[1], *M. Brockway*[2], and B. Brockway[2]. [1]Huntingdon Life Sciences, East Millstone, NJ; [2]VivaQuant, St. Paul, MN.

#69 **Poster Board Number 103**
The Application of Telemetry EEG and EMG in Conscious Dogs and Monkeys for Safety Assessment and Translational Science. *X. Cheng*, C. Cao, N. N. Niu, K. H. Chen, S. L. Sun, and A. Hu. Toxicology and Safety Pharmacology, Pharmaron, Beijing, China.

#70 **Poster Board Number 104**
Established Method to Assess Cardiorespiratory Parameters in Inhalation Safety Pharmacology Studies in Conscious Beagle Dogs. T. Ziegelhofer, J. Sheehan, J. Sentz, M. Miyamoto, and *A. Curran*. Safety Pharmacology, Huntingdon Life Sciences, East Millstone, NJ.

#71 **Poster Board Number 105**
Assessment of QT-Interval Prolongation in Nonclinical Safety Study Using External Telemetric Device in Conscious Beagle Dogs: Application of QT Shift and Probabilistic Methods. L. Renaud[1], P. Champeroux[2], S. Ruillon[1], N. Velasquez[1], P. Desbois[1], O. Wattrelos[1], and *N. Claude*[1]. [1]Drug Safety, Servier, Gidy, France; [2]Centre de Recherches Biologiques, CERB, Baugy, France.

#72 **Poster Board Number 106**
Integration of Automated Patch Clamp Systems and Logistic Models in the Cardiochannelgramtm (CCGTM) for Better Prediction of Cardiac Risk. J. W. Kramer[1], G. J. Myatt[2], C. A. Obejero-Paz[1], A. Bruening-Wright[1], Y. A. Kuryshev[1], and *A. M. Brown*[1]. [1]ChanTest Corporation, Cleveland, OH; [2]Leadscope Inc., Columbus, OH.

Program Description (Continued)

Abstract #

#73 **Poster Board Number 107**
Characterization of Jacketed External Telemetry with Blood Pressure in Conscious Nonhuman Primates in Pen-Style Housing Administered Etilefrine, Sotalol, or Hydralazine. *L. Kreckler*, J. Kopshinsky, J. Schneider, G. Hanson, D. Morris, and C. Foley. Covance Laboratories, Inc., Madison, WI.

#74 **Poster Board Number 108**
Differential Cardiovascular Physiology and Pathology in Selected Lineages of Miniature Swine. A. Stricker-Krongrad[1], T. J. Madsen[1], B. C. Hanks[1,2], D. Brocksmith[2], J. Liu[1], L. D. Brown[1,2], and *G. Bouchard*[1,2]. [1]Sinclair Research Center, LLC, Columbia, MO; [2]Sinclair BioResources LLC, Auxvasse, MO.

#75 **Poster Board Number 109**
Whole Heart Energetics and Stress Test As an Indicator of Drug-Induced Cardiac Toxicity. *K. A. Henderson*[1], R. B. Borders[1], J. Ross[1], A. Jalil[2], W. Brandon[1], J. Ma[1], and *R. M. Brian*[1]. [1]Battelle Memorial Institute, Columbus, OH; [2]Ohio State University, Columbus, OH.

#76 **Poster Board Number 110**
Simultaneous Recording of Action Potentials and Calcium Transients from Stem-Cell Derived Cardiomyocytes: Applications for Cardiotoxicity Testing. *R. Whittaker*[1], F. Cerignoli[1], R. Vega[1], R. Ingermanson[1], R. Towart[2], D. Gallacher[2], M. Mercola[3], and J. Price[1,3]. [1]Vala Sciences Inc, San Diego, CA; [2]Center of Excellence for Cardiovascular Safety Research, Janssen Pharmaceuticals, Beerse, Belgium; [3]Sanford-Burnham Medical Research Institute, La Jolla, CA.

#77 **Poster Board Number 111**
Effect of Cell Culture Media on the Growth and Viability of Neonatal Rat Cardiomyocytes. L. Baeva, D. Chan, H. Dinesdurage, M. Betz, and *R. Brown*. CDRH, US FDA, Silver Spring, MD.

#78 **Poster Board Number 112**
Understanding the Relationship of PI3K Inhibition to HERG Liabilities and QT Prolongation. *D. Puppala*[1], H. Cheng[3], A. Rosado[2], K. McKiernan[2], S. Sun[2], B. Fermini[2], and *K. Leach*[1]. [1]Compound Safety Prediction, Pfizer Inc, Groton, CT; [2]Global Safety Pharmacology, Pfizer Inc, Groton, CT; [3]Oncology Medicinal Chemistry, Pfizer Inc, Groton, CT.

#79 **Poster Board Number 113**
Characterization of Cell Signaling Events in Human Cardiomyocytes. *S. Eldridge*[1], *M. Davis*[1], J. Mussio[2], and R. Parchment[2]. [1]DCTD, NCI, Bethesda, MD; [2]SAIC-Frederick, Frederick National Laboratory for Cancer Research, Frederick, MD.

#80 **Poster Board Number 114**
Mitochondria and Intrinsic Apoptotic Pathway Mediate Cardiac Toxicity of Environmentally Persistent Free Radicals (EPFR). *G. C. Chuang*[1], B. Dellinger[2], and *K. J. Varner*[1]. [1]Pharmacology, Louisiana State University Health Sciences Center, New Orleans, LA; [2]Chemistry, Louisiana State University and A&M College, Baton Rouge, LA.

#81 **Poster Board Number 115**
Evaluation of Cellular Impedance Assays for Drug Screening in Cardiomyocytes. *M. Peters*, *C. W. Scott*, S. D. Lamore, and *Y. P. Dragan*. Safety Assessment, AstraZeneca, Waltham, MA.

Abstract #

#82 **Poster Board Number 116**
Cellular Impedance Assays for Predictive Preclinical Drug Screening of Kinase Inhibitors in Cardiovascular Toxicity. S. D. Lamore, *C. W. Scott*, *Y. P. Dragan*, and *M. Peters*. Safety Assessment, AstraZeneca, Waltham, MA.

#83 **Poster Board Number 117**
Activation of Human Monocytic NADPH Oxidase by Chlorinated Cyclodiene Insecticides. *L. C. Mangum*, *J. E. Chambers*, and *M. K. Ross*. CVM Basic Sciences, Mississippi State University, Mississippi State, MS.

#84 **Poster Board Number 118**
Mechanistic Studies of Drug-Induced Cardiac Hypertrophy in H9c2 Cell. *Z. Lin*, and Y. Will. Compound Safety Prediction, Pfizer Global Research & Development, Groton, CT.

#85 **Poster Board Number 119**
Optical Measurements of Electrical Activity from hiPSC-Derived Cardiomyocytes Is a Robust and High-Throughput Method for Measuring NCE-Effects on the Cardiac Action Potential. G. Smith[2], B. D. Anson[1], M. A. Craig[3], and I. Ghouri[2]. [1]Cellular Dynamics International, Madison, WI; [2]University of Glasgow, Glasgow, United Kingdom; [3]Clyde Biosciences, Glasgow, United Kingdom. Sponsor: *K. Kolaja*.

#86 **Poster Board Number 120**
Multiparameter *In Vitro* Assessment of Drug Effects on Cardiomyocyte Physiology Using iPSCells. O. Sirenko[1], C. Crittenden[1], A. Blake[2], *I. Rusyn*[3], and E. F. Cromwell[1]. [1]Molecular Devices LLC, Sunnyvale, CA; [2]Cellular Dynamics International, Madison, WI; [3]University of North Carolina at Chapel Hill, Chapel Hill, NC.

#87 **Poster Board Number 121**
Nucleoside Reverse Transcriptase Inhibitors Induced Premature Senescence in Aortic Endothelial Cells. V. Y. Hebert, K. Slaybaugh, C. N. Robinson, S. Xue, D. Hayes, M. C. Glover, and *T. R. Dugas*. Pharmacology, Louisiana State University Health Sciences Center, Shreveport, LA.

#88 **Poster Board Number 122**
Fluoride Prevents Ectopic Calcification of Vascular Cells through Inhibition of Crystal Nucleation. A. Martin-Pardillos[1], A. Millan[2], and V. Sorribas[1]. [1]Laboratory of Molecular Toxicology, University of Zaragoza, Zaragoza, Spain; [2]Institute of Materials Science, CSIC, Zaragoza, Spain. Sponsor: *A. Anadon*.

#89 **Poster Board Number 123**
Development of an *In Vitro* Multiwell Cardiovascular Microelectrode Array (MEA) Toxicity Assay with Human IPS-Derived Cardiomyocytes. S. Qin[1], *J. Ross*[2], M. Brock[2], J. Bradley[1], H. Luithardt[1], J. Gilbert[1], and C. Strock[1]. [1]Cyprotex, Watertown, MA; [2]Axion Biosystems, Atlanta, GA.

#90 **Poster Board Number 124**
Development of Improved hESCH-Based High-Throughput Screening Assays for Cardiotoxicity Assessment. H. Xian, C. Blanco, J. Lam, and *R. Snodgrass*. VistaGen Therapeutics Inc., South San Francisco, CA.

Program Description (Continued)

Abstract #

#91 **Poster Board Number 125**
Vascular Effects Induced by 15nm Gold Nanoparticles in Isolated Rat Aortic Rings. M. Gonzalez Castillo[1,2], S. Salazar-García[1], D. Maldonado Ortega[1], G. Palestino Escobedo[1], M. Ramirez Lee[1], A. Mendez Mancilla[1], and *S. F. Ali*[2]. [1]Universidad Autonoma de San Luis Potosi, San Luis Potosi, Mexico; [2]National Center for Toxicological Research, US FDA, Jefferson, AR.

#92 **Poster Board Number 126**
Nano-Cerium Dioxide Exposure and Arteriolar Dysfunction: Exposure Route Dependency. *T. R. Nurkiewicz*[1], *P. A. Stapleton*[1], E. M. Sabolsky[2], and *V. C. Minarchick*[1]. [1]Center for Cardiovascular and Respiratory Sciences, West Virginia University, Morgantown, WV; [2]Mechanical Engineering, West Virginia University, Morgantown, WV.

#93 **Poster Board Number 127**
Simulated Metabolism in the Langendorff Isolated Rat Heart: A Comparison of Novel and Traditional Dosing Techniques for 5-Fluorouracil and Doxorubicin. *J. B. Ross*, *K. A. Henderson*, R. Borders, *P. S. Hong*, W. M. Black, and B. M. Roche. Battelle, Columbus, OH.

#94 **Poster Board Number 128**
Oxidative Stress Uncovers fM β2-Adrenergic Mediated Dilation to Curcumin Mimicked by Preventing Clathrin Endosome Formation. M. Frame[1,2], B. Calizo[2], A. M. Dewar[1], and S. Scarlata[2]. [1]Biomedical Engineering, Stony Brook University, Stony Brook, NY; [2]Physiology/Biophysics, Stony Brook University, Stony Brook, NY. Sponsor: *T. Nurkiewicz*.

#95 **Poster Board Number 129**
Diminished Oxygen Supply in Microvessels following Inflammatory Oxidative Stress. A. M. Dewar, M. Frame, N. Zhou, and C. Du. Biomedical Engineering, Stony Brook University, Stony Brook, NY. Sponsor: *T. Nurkiewicz*.

Monday Morning, March 11
9:30 AM to 12:30 PM
Exhibit Hall C–D

PS

Poster Session: Endocrine Disruptor Screening

Chairperson(s): *Leah Zorrilla, Integrated Laboratory Systems, Inc, Research Triangle Park, NC.*

Displayed: *9:30 AM–12:30 PM*

Author Attended: *11:00 AM–12:30 PM*

#96 **Poster Board Number 131**
Validation of the Amphibian Metamorphosis Assay for Potential Endocrine Disrupting Chemicals with Xenopus Laevis. J. J. Burlingham, C. A. Jenkins, J. Pawsey, I. Taylor, and L. Haynes. Aquatic Ecotoxicology and Biodegradation, Huntingdon Life Sciences, Eye, United Kingdom. Sponsor: *C. Auletta*.

Abstract #

#97 **Poster Board Number 132**
Mammary Gland Morphology and Gene Expression Signature of Prepubertal Male and Female Rats following Exposure to Exogenous Estradiol. *M. Ronis*[1,2], I. R. Miousse[1,2], N. Sharma[2], J. Vantrease[2], L. Hennings[1], *K. Shankar*[1,2], H. Gomez-Acevedo[1,2], M. Cleves[1,2], and *T. M. Badger*[1,2]. [1]University of Arkansas for Medical Sciences, Little Rock, AR; [2]Arkansas Children's Nutrition Center, Little Rock, AR.

#98 **Poster Board Number 133**
Potential Endocrine Disruption of a Drinking Water Sample from the State of São Paulo, Brazil. M. M. Solano[1], C. M. Raimundo[2], I. C. Pescara[2], W. F. Jardim[2], D. D. França[3], G. A. Quinaglia[3], J. A. Anselmo-Franci[4], R. G. Carolino[4], J. L. Luvizutto[1], G. A. Umbuzeiro[5], and *J. V. de Camargo*[1]. [1]Botucatu Medical School, Department of Pathology, São Paulo State University- UNESP, Botucatu, Brazil; [2]Institute of Chemistry, University of Campinas- UNICAMP, Campinas, Brazil; [3]Environmental Toxicology, Genotoxicity and Microbiology Division - CETESB, São Paulo, Brazil; [4]School of Dentistry, Department of Morphology, Stomatology and Physiology, University of São Paulo- USP, Ribeirão Preto, Brazil; [5]Faculty of Technology, University of Campinas- UNICAMP, Limeira, Brazil.

#99 **Poster Board Number 134**
Development of Medium-Throughput Thyroperoxidase Inhibition Assays for Screening. *K. B. Paul*[1,2], J. M. Hedge[2], *K. M. Crofton*[2], *M. W. Hornung*[3], and S. O. Simmons[2]. [1]ORISE, US EPA, Research Triangle Park, NC; [2]Integrated Systems Toxicology Division, NHEERL, ORD, US EPA, Research Triangle Park, NC; [3]Mid-Continent Ecology Division, NHEERL, ORD, US EPA, Duluth, MN.

#100 **Poster Board Number 135**
High-Throughput Detection of Estrogenic Compounds Using Autonomously Bioluminescent Human Breast Cancer Cells. T. Xu[1], D. M. Close[2], S. L. Price[1], and G. S. Sayler[1,2]. [1]The University of Tennessee, Knoxville, TN; [2]490 BioTech Inc., Knoxville, TN. Sponsor: *S. Ripp*.

#101 **Poster Board Number 136**
Cryopreserved Rainbow Trout Hepatocytes Model Endocrine Disruption As Detected by Protein and Gene Expression of Vitellogenin. *L. K. Markell*, R. T. Mingoia, H. M. Peterson, J. P. Finn, D. L. Nabb, and *X. Han*. DuPont Haskell Global Centers for Health and Environmental Sciences, Newark, DE.

#102 **Poster Board Number 137**
Permethrin Does Not Have Endocrine Disrupting Properties As Evaluated by the US EPA's Endocrine Disruptor Screening Program (EDSP) *In Vivo* Assays. *L. Zorrilla*[1], *S. J. Borghoff*[1], and *T. G. Osimitz*[2]. [1]Integrated Laboratory Systems, Inc, Durham, NC; [2]Science Strategies, Charlottesville, VA.

MONDAY

Program Description (Continued)

Abstract #

#103 **Poster Board Number 138**
Linking *In Vitro* Enzyme Activity to *In Vivo* Effects: Thyroperoxidase Inhibition in Methimazole-Exposed Rats. J. M. Hedge[1], *K. M. Crofton*[1], S. O. Simmons[1], *M. W. Hornung*[2], and *K. B. Paul*[1,3]. [1]Integrated Systems Toxicology Division, NHEERL, ORD, US EPA, Research Triangle Park, NC; [2]Mid-Continent Ecology Division, NHEERL, ORD, US EPA, Duluth, MN; [3]Oak Ridge Institute for Science Education, US EPA, Research Triangle Park, NC.

#104 **Poster Board Number 139**
Endocrine Disruption Potential of Benefin: Weight of Evidence Evaluation. *S. Papineni*[1], K. K. Coady[2], *S. M. Marty*[2], V. J. Kramer[1], and *S. C. Gehen*[1]. [1]Dow AgroSciences, Indianapolis, IN; [2]The Dow Chemical Company, Midland, MI.

#105 **Poster Board Number 140**
Endocrine Exposure at Environmentally-Relevant Concentrations. K. C. Fussel[1], *S. Schneider*[1], S. Melching-Kolmuss[2], S. Gröters[1], V. Strauss[1], B. Siddeek[3], M. Benahmed[3], M. Frericks[2], and *B. van Ravenzwaay*[1]. [1]Experimental Toxicology and Ecology, BASF SE, Ludwigshafen am Rhein, Germany; [2]Product Safety, BASF SE, Ludwigshafen am Rhein, Germany; [3]U895, équipe 5, Centre Hospitalier l'Archet 2, Inserm, Nice, France.

#106 **Poster Board Number 141**
Assessment of Estrogenic and Androgenic Impairment of Iowa Surface Water by Chemical Analysis and Bioassays. *S. Flor*[1], J. Vargo[2], and *G. Ludewig*[1]. [1]University of Iowa, Iowa City, IA; [2]Iowa State Hygienic Lab, Coralville, IA.

#107 **Poster Board Number 142**
Endocrine Disruption: Weight of the Evidence for Low-Dose Effects of TCDD on Sperm Counts. *K. L. Hentz*, *A. L. Williams*, and *J. C. Lamb*. Exponent, Alexandria, VA.

#108 **Poster Board Number 143**
Effects of Pesticides on Cytochrome P450 17 (CYP17) and Androgen Receptor (AR) Function in Human H295R Adrenocortical and LNCaP Prostate Cancer Cells. C. Robitaille, P. Rivest, and *T. Sanderson*. INRS-Institut Armand-Frappier, Laval, QC, Canada.

#109 **Poster Board Number 144**
Metabolomics Characterization of the Effects of Estradiol in Human Breast Cancer Cell Lines. L. Zhao[1], S. Odwin-DaCosta[1], M. Vantangoli[2], *H. Hogberg*[1], M. Bouhifd[1], A. Kleensang[1], L. Smirnova[1], *K. Boekelheide*[2], *J. D. Yager*[1], and *T. Hartung*[1]. [1]Department of Environmental Health Sciences, Johns Hopkins University, Bloomberg School of Public Health, Baltimore, MD; [2]Department of Pathology and Laboratory Medicine, Brown University, Providence, RI.

#110 **Poster Board Number 145**
Creating *In Vitro* Test Methods for Endocrine Disruptor Risk Assessment: Assay Development. C. Le Sommer, S. M. Ross, *P. D. McMullen*, *M. E. Andersen*, and *R. A. Clewell*. The Hamner Institutes for Health Sciences, Research Triangle Park, NC.

Abstract #

#111 **Poster Board Number 146**
Leaching of Chemicals with Estrogenic Activity from Packaging into Popular Lab Animal Feeds. D. Klein[1], C. Z. Yang[2], G. Kollessery[2], and G. D. Bittner[1,2,3]. [1]PlastiPure, Inc., Austin, TX; [2]CertiChem, Austin, TX; [3]University of Texas, Austin, TX. Sponsor: *M. Stoner*.

#112 **Poster Board Number 147**
Endocrine Disruption Potential of Trifluralin: Weight of Evidence Evaluation. *S. Marty*[1], *S. Papineni*[2], V. Kramer[2], *S. Gehen*[2], and *K. Coady*[1]. [1]The Dow Chemical Company, Midland, MI; [2]Dow AgroSciences LLC, Indianapolis, IN.

#113 **Poster Board Number 148**
Cosmetics Products Have Detectable Estrogenic and Antiestrogenic Activity. C. Z. Yang[1], G. J. Kollessery[1], *M. Stoner*[1], A. W. Wong[1], and G. D. Bittner[1,2]. [1]CertiChem, Inc., Austin, TX; [2]The University of Texas, Austin, TX.

#114 **Poster Board Number 149**
Use of Novel Assays to Screen Large Chemical Inventories for Functional Estrogen Receptor (ER) Activity. *K. Houck*[1], *M. Martin*[1], *R. Judson*[1], *D. Rotroff*[1], J. Melnick[2], J. Lamedin[2], and J. Weswick[2]. [1]NCCT, US EPA, Research Triangle Park, NC; [2]Odyssey Thera, San Ramon, CA.

Monday Morning, March 11
9:30 AM to 12:30 PM
Exhibit Hall C–D

PS

Poster Session: Bioinformatics and Computational Toxicology: Systems and Strategies

Chairperson(s): *Tao Liu, Karolinska Institutet, Stockholm, Sweden, and Richard Judson, US EPA, Research Triangle Park, NC.*

Displayed: *9:30 AM–12:30 PM*

Author Attended: *9:30 AM–11:00 AM*

#115 **Poster Board Number 201**
Effect of Technical Variation and Bioinformatics on the Biological Discovery in a Mechanistic Toxicogenomics Study. B. Gong[1], J. Xu[1], Z. Su[1], H. Hong[1], J. Meehan[1], H. Fang[1], W. Ge[1], S. S. Auerbach[2], C. Wang[3], L. Shi[1], and *W. Tong*[1]. [1]Division for Bioinformatics and Biostatistics, National Center for Toxicological Research, US FDA, Jefferson, AR; [2]National Toxicology Program, NIEHS, Durham, NC; [3]Department of Molecular Medicine, City of Hope National Medical Center and Beckman Research Institute, Duarte, CA.

#116 **Poster Board Number 202**
Structural Classification of 1848 Chemicals Evaluated for Estrogenic Activity in 13 HTS Assays. *R. Judson*[1], D. Rotroff[1], *M. Martin*[1], D. Reif[1], *K. Houck*[1], P. Kothia[1], *N. Sipes*[1], *T. Knudsen*[1], M. Xia[2], and R. Huang[2]. [1]US EPA, Research Triangle Park, NC; [2]NCGC, Rockville, MD.

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Abstract #

#117 **Poster Board Number 203**
Categorizing Tobacco Related Documents by Salient Topics for Regulatory Examination with Topic Modeling. K. Yu[1], Y. Ding[1], R. Perkins[1], W. Aaaronson[2], D. Sholtes[2], Y. Tian[2], G. Rochester[2], X. Xu[1,3], and *W. Tong*[1]. [1]Division of Bioinformatics and Biostatistics, National Center for Toxicological Research, US FDA, Jefferson, AR; [2]Center for Tobacco Products, US FDA, Rockville, MD; [3]Department of Information Science, University of Arkansas at Little Rock, Little Rock, AR.

#118 **Poster Board Number 204**
Gene Expression Analysis to Predict the Dermal Carcinogenic Potential of Petroleum Streams. K. Mathijs[1], J. van Delft[1], M. van Steensel[2], *K. Goyak*[3], H. Ketelslegers[3], *J. Freeman*[3], and *R. Phillips*[3]. [1]Department of Toxicogenomics, Maastricht University, Maastricht, Netherlands; [2]Department of Dermatology, Maastricht University, Maastricht, Netherlands; [3]ExxonMobil Biomedical Sciences Inc., Annandale, NJ.

#119 **Poster Board Number 205**
Structure-Based Virtual Screening: Identification of New Targets for Triclosan. *D. Montes-Grajales*, and *J. Olivero-Verbel*. Environmental and Computational Chemistry Group Pharmaceutical Sciences, University of Cartagena, Cartagena, Colombia.

#120 **Poster Board Number 206**
Generation of *In Vitro* Margin of Exposure (MOE) Values to Support the Postulated Mode of Action (MOA) for Selected Tobacco Smoke Toxicants. S. A. Fiebelkorn, *F. H. Cunningham*, E. L. Bishop, D. M. Dillon, and *C. Meredith*. Group R&D, British American Tobacco, Southampton, United Kingdom.

#121 **Poster Board Number 207**
Developing a Gene-Gene Interaction Network for Nonsyndromic Orofacial Clefts Using Computational Analysis. J. McKone, A. N. Van, E. Lachenauer, and *D. Johnson*. University of California Berkeley, Berkeley, CA.

#122 **Poster Board Number 208**
Role of Beta-Methylamino-L-Alanine in GRIK1-Mediated Amyotrophic Lateral Sclerosis Disease Pathway. S. Firouzbakht, Y. Iizuka, and *D. Johnson*. University of California Berkeley, Berkeley, CA.

#123 **Poster Board Number 209**
Computational Analysis of a Potential Mechanistic Relationship between Depleted Uranium (DU) Exposure and Risk of Spina Bifida Cystica. S. Aghaee, H. Ngo, and *D. Johnson*. University of California Berkeley, Berkeley, CA.

#124 **Poster Board Number 210**
Computational Analysis of Catechins in Teas and Potential Relationship to Cardiovascular Health. C. Lei, M. Nhan, C. Ha, and *D. Johnson*. University of California Berkeley, Berkeley, CA.

#125 **Poster Board Number 211**
Computational Analysis of Environmental Factors Potentially Associated with Multiple Sclerosis Susceptibility. F. Su, M. Gooding, G. Anderson, and *D. Johnson*. University of California Berkeley, Berkeley, CA.

Abstract #

#126 **Poster Board Number 212**
Profiling the Activity of Environmental Chemicals in Causing Testicular Dysgenesis Syndrome Using the US EPA Toxicity Reference Database (ToxRefDB). *M. C. Leung*[1], K. McLaurin[1], J. Phuong[1], *N. S. Sipes*[1], N. C. Baker[1], *N. C. Kleinstreuer*[1], A. M. Frame[1], *R. S. Judson*[1], G. R. Klinefelter[2], *M. T. Martin*[1], and *T. B. Knudsen*[1]. [1]National Center of Computational Toxicology, US EPA, Research Triangle Park, NC; [2]Reproductive Toxicology Division, US EPA, Research Triangle Park, NC.

#127 **Poster Board Number 213**
Compound Toxicity Profiling and Prioritization Using Tox21 Phase I Quantitative High-Throughput Screening (qHTS) Cytotoxicity Data. *J. Hsieh*[1], *A. Sedykh*[2], R. Huang[3], M. Xia[3], and *R. Tice*[1]. [1]Division of the National Toxicology Program, NIEHS, NIH, Research Triangle Park, NC; [2]University of North Carolina at Chapel Hill, Chapel Hill, NC; [3]National Center for Advancing Translational Sciences, Bethesda, MD.

#128 **Poster Board Number 214**
Predicting Cellular Dynamics and Key Events in Developmental Toxicity with a Multicellular Systems Model. *T. B. Knudsen*[1], M. R. Rountree[1], *S. Hunter*[2], N. C. Baker[3], R. Spencer[3], *R. S. Dewoskin*[4], and *W. Setzer*[1]. [1]NCCT, US EPA, Research Triangle Park, NC; [2]NHEERL, US EPA, Research Triangle Park, NC; [3]Lockheed Martin, Research Triangle Park, NC; [4]NCEA, US EPA, Research Triangle Park, NC.

#129 **Poster Board Number 215**
Chemical Structure-Based *In Silico* Phototoxicity Prediction: An Approach from a Combination of Photochemical Properties. Y. Haranosono, S. Nemoto, *M. Kurata*, and H. Sakaki. Senju Pharmaceutical Co., Ltd., Kobe, Japan.

#130 **Poster Board Number 216**
High-Content Screening of ToxCast Compounds for Developmental Endpoints Related to Adipogenesis and Angiogenesis. D. L. Filer, *N. Kleinstreuer*, *M. Martin*, *K. Houck*, and *D. Reif*. National Center for Computational Toxicology, US EPA, Research Triangle Park, NC.

#131 **Poster Board Number 217**
***In Silico* Models for Dermal Absorption from Complex Formulations.** K. Guth[1], *J. Riviere*[2,3], J. Brooks[2], M. Schäfer-Korting[4], M. Dammann[1], E. Fabian[1], *B. van Ravenzwaay*[1], and *R. Landsiedel*[1]. [1]Experimental Toxicology and Ecology, BASF SE, Ludwigshafen am Rhein, Germany; [2]Toxicology Research and Pharmacokinetics, North Carolina State University, Center for Chemical, Raleigh, NC; [3]Institute of Computational Comparative Medicine, Kansas State University, Manhattan, KS; [4]Institut für Pharmazie, Freie Universität, Berlin, Germany.

#132 **Poster Board Number 218**
Development of Improved Salmonella Mutagenicity QSAR Models Using Structural Fingerprints of Known Toxicophores. L. Stavitskaya[1], B. L. Minnier[2], *R. Benz*[1], and N. L. Kruhlak[1]. [1] US FDA, Silver Spring, MD; [2]GlobalNet Services, Inc., Rockville, MD.

Program Description (Continued)

Abstract #

#133 **Poster Board Number 219**
Evaluation of QSPR Models to Predict Evaporation Rates of Hazardous Chemicals from the Skin Surface. T. Liu, M. Rauma, and *G. Johanson*. Institute of Environmental Medicine, Karolinska Institutet, Stockholm, Sweden.

#134 **Poster Board Number 220**
Regulatory Targets of CDKN2A in Lung Epithelial Cells. J. Mehta, and *G. Acquaah-Mensah*. Massachusetts College of Pharmacy and Health Sciences, Worcester, MA.

#135 **Poster Board Number 221**
Irreversible Inhibition of Acetylcholinesterase by Soman. G. S. Sirin[1,2], and Y. Zhang[2]. [1]ATSDR, Atlanta, GA; [2]New York University, New York, NY. Sponsor: *P. Ruiz*.

#136 **Poster Board Number 222**
Computational Elucidation of Energetic Trends for DNA Intercalation. H. W. German, and M. J. Novak. Chemistry, Florida Institute of Technology, W. Melbourne, FL. Sponsor: *L. Valerio*.

#137 **Poster Board Number 223**
Efficient *In Vivo* Developmental and Neurotoxicity Screen of ToxCast Phase I and II Compounds in Zebrafish. *L. Truong*[1,2,3], C. Miller[1,2,3], *D. Haggard*[1,2,3], G. Gonnerman[1,2,3], L. Chalker[1,2,3], K. Nhan[1,2,3], and *R. Tanguay*[1,2,3]. [1]Environmental and Molecular Toxicology, Oregon State University, Corvallis, OR; [2]Environmental Health Sciences Center, Corvallis, OR; [3]Sinnhuber Aquatic Research Laboratory, Corvallis, OR.

#138 **Poster Board Number 224**
***In Silico* and *In Vitro* Analyses of the Hormonal Activity of Hydroxylated Polychlorinated Biphenyl on Human Thyroid Receptor.** C. Dassuncao, O. Faroon, *J. Wheeler*, and *P. Ruiz*. DTHHS, ATSDR/CDC, Chamblee, GA.

#139 **Poster Board Number 225**
A Systematic Analysis of ToxCast *In Vitro* Assays Associated with *In Vivo* Hepatic Outcomes. J. Liu[1,2], *M. T. Martin*[1], *C. Corton*[3], C. Wood[3], and *I. Shah*[1]. [1]NCCT/US EPA, Durham, NC; [2]University of Arkansas, Little Rock, AR; [3]NHEERL/US EPA, Durham, NC.

#140 **Poster Board Number 226**
Interpreting QSAR Toxicity Predictions in Hazard Assessments: An Acrylamide Case Study. *R. S. DeWoskin*, *L. D. Burgoon*, and *G. M. Woodall*. US EPA, Research Triangle Park, NC.

#141 **Poster Board Number 227**
Health-Related Effects Reported by Electronic Cigarette Users in Online Forums. M. Hua, M. Alfi, and *P. Talbot*. Cell Biology and Neuroscience, University of California Riverside, Riverside, CA.

#142 **Poster Board Number 228**
The Relationship between T-Box Transcription Factors CAMK2B and PITX2 in the Expression of Collagen Protein COL4A3 in COPD. *B. Nguyen*, *G. Acquaah-Mensah*, and C. Ngo. Pharmaceutical Sciences, Massachusetts College of Pharmacy & Health Sciences, Worcester, MA.

Abstract #

#143 **Poster Board Number 229**
Validation of a Systems Toxicology Based Adverse Outcome Pathway Prediction with Functional Outcome: Effect of Exposure to 2,4-Dinitrotoluene on Energy Metabolism and Exercise Endurance. *M. S. Wilbanks*[1], K. Gust[1], S. Atwa[2], I. Sunesara[3], *S. Meyer*[2], and *E. Perkins*[1]. [1]Engineer R & D Center, US Army Corps of Engineers, Vicksburg, MS; [2]Department of Toxicology, University of Louisiana-Monroe, Monroe, LA; [3]Center of Biostatistics and Bioinformatics, University of Mississippi Medical Center, Jackson, MS.

#144 **Poster Board Number 230**
Modelability of ToxCast Phase I Datasets. *A. Golbraikh*[1,2], *A. Sedykh*[1], E. Muratov[1], *R. Shah*[2,3], *W. Boyd*[4], M. Smith[4], G. Zhao[5], *H. Zhu*[6], *J. H. Freedman*[4], and A. Tropsha[1,2]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]Sciome LLC, Research Triangle Park, NC; [3]SRA International, Durham, NC; [4]NIEHS, Research Triangle Park, NC; [5]AstraZeneca, Shanghai, China; [6]Rutgers University, Camden, NJ.

Monday Morning, March 11
9:30 AM to 12:30 PM
Exhibit Hall C–D

PS

Poster Session: Carcinogenesis

Chairperson(s): *Nivedita Banerjee, Texas A&M University, College Station, TX, and Gayathri Chadalapaka, Texas A&M University, College Station, TX.*

Displayed: *9:30 AM–12:30 PM*

Author Attended: *11:00 AM–12:30 PM*

#145 **Poster Board Number 301**
Celastrol Decreases Specificity Proteins (Sp) and Fibroblast Growth Factor Receptor-3 (FGFR3) in Bladder Cancer Cells. *G. Chadalapaka*[1], *I. Jutooru*[1], and *S. Safe*[1,2]. [1]Department of Veterinary Physiology and Pharmacology, Texas A&M University, College Station, TX; [2]CEGM, Institute of Biosciences & Technology, Houston, TX.

#146 **Poster Board Number 302**
Raloxifene Potentiates the Cytotoxicity-Induced by RL91, a Second Generation Curcumin Analog, in PC3 Prostate Cancer Cells. A. Mazumder[1], M. Gould[2], S. Taurin[1], H. D. Nicholson[2], and *R. J. Rosengren*[1]. [1]Pharmacology & Toxicology, University of Otago, Dunedin, New Zealand; [2]Anatomy, University of Otago, Dunedin, New Zealand.

#147 **Poster Board Number 303**
Evaluation of Wild Yam (*Dioscorea villosa*) Root Extract As a Potential Epigenetic Agent in Breast Cancer Cells. *P. Aumsuwan*[1,2], S. I. Khan[1,3], I. A. Khan[1,3], L. A. Walker[1,2], and *A. K. Dasmahapatra*[1,2]. [1]National Center for Natural Product Research, University of Mississippi, University, MS; [2]Department of Pharmacology, University of Mississippi, University, MS; [3]Department of Pharmacognosy, University of Mississippi, University, MS.

Program Description (Continued)

Abstract #

#148 **Poster Board Number 304**
Mucosa-Associated Enteropathogenic *Escherichia coli* As an Internal Exposome Triggers Tumor Cell Dissemination via Macrophage Inhibitory Cytokine 1. H. Choi, J. Kim, S. Park, K. Do, C. Oh, and *Y. Moon*. Laboratory of Mucosal Exposome and Biomodulation, Department Microbiology and Immunology, Pusan National University School of Medicine and Medical Research Institute, Yangsan, Republic of Korea.

#149 **Poster Board Number 305**
Ring-Substituted Analogs of 3,3'-Diindolylmethane (DLM) Induce Apoptosis and Necrosis in Androgen-Dependent and -Independent Prostate Cancer Cells. *A. Goldberg*[1], V. I. Titorenko[2], A. Beach[2], *S. Safe*[3,4], and *T. Sanderson*[1]. [1]Toxicology, INRS, Laval, QC, Canada; [2]Biology, Concordia University, Montréal, QC, Canada; [3]Veterinary Physiology and Pharmacology, Texas A&M University, College Station, TX; [4]Institute for Bioscience and Technology, Houston, TX.

#150 **Poster Board Number 306**
Ellagitannins and Anthocyanins Constituents of Pomegranate Suppress Colorectal Aberrant Crypt Foci (ACF) and Inflammation: Possible Role of miR126. *N. Banerjee*[1,2], *H. Kim*[2], and S. U. Mertens-Talcott[1,2,3]. [1]Toxicology, Texas A&M University, College Station, TX; [2]Nutrition and Food Science, Texas A&M University, College Station, TX; [3]Veterinary Physiology & Pharmacology, Texas A&M University, College Station, TX.

#151 **Poster Board Number 307**
Dichloroacetate (DCA) Increases Radiation Sensitivity of A549 and H1299 Lung Cancer Cells. *J. B. Watkins*[1], K. T. Allen[1], H. Chin-Sinex[2], J. D. Sherer[2], J. M. Jesseph[1], J. G. Foley[1], and M. S. Mendoca[2]. [1]Medical Sciences Program, Indiana University School of Medicine, Bloomington, IN; [2]Department of Medical and Molecular Genetics, Indiana University School of Medicine, Indianapolis, IN.

#152 **Poster Board Number 308**
Mango Polyphenolics Reduce Inflammation in Intestinal Colitis—Potential Involvement of the miR-126/PI3K/AKT/mTOR Pathway *In Vitro* and *In Vivo*. *H. Kim*[1], *N. Banerjee*[1,2], S. Talcott[1], and S. U. Mertens-Talcott[1,2]. [1]Department of Nutrition and Food Science, Texas A&M University, College Station, TX; [2]Interdisciplinary Program of Toxicology, Texas A&M University, College Station, TX.

#153 **Poster Board Number 309**
Loss of the Tumor Suppressor Protein PTEN Contributes to Increased Nrf2 Signaling. *P. M. Shelton*[1], M. I. Vitolo[2], S. S. Martin[2], and *A. K. Jaiswal*[1]. [1]Pharmacology, University of Maryland, Baltimore, Baltimore, MD; [2]Marlene and Stewart Greenebaum Cancer Center, University of Maryland, Baltimore, Baltimore, MD.

#154 **Poster Board Number 310**
Formaldehyde-Induced Replication Stress Causes Activation of ATR Kinase Leading to p53-Mediated Apoptosis and Senescence in Human Lung Cells. J. Morse, V. Wong, and *A. Zhitkovich*. Brown University, Providence, RI.

Abstract #

#155 **Poster Board Number 311**
Downregulation of Telomerase Activity and Shortening of Telomere Length by Polychlorinated Biphenyls (PCBs) in HL-60 Cells. *X. Xin*[1], *S. Pk*[1], J. L. Schnoor[1,2], and *G. Ludewig*[1]. [1]Interdisciplinary Graduate Program in Human Toxicology, The University of Iowa, Iowa City, IA; [2]Department of Civil and Environmental Engineering, The University of Iowa, Iowa City, IA.

#156 **Poster Board Number 312**
Chronic Exposure to Particulate Hexavalent Chromium Disrupts Shugoshin1 Localization in Human Lung Cells. *C. Falank*[1], and *J. Wise*[1,2,3]. [1]Wise Laboratory of Environmental and Genetic Toxicology, University of Southern Maine, Portland, ME; [2]Maine Center for Toxicology and Environmental Health, University of Southern Maine, Portland, ME; [3]Department of Applied Medical Science, University of Southern Maine, Portland, ME.

#157 **Poster Board Number 313**
Ultraviolet B-Irradiated L-Tryptophan Induces Human UDP-Glucuronosyltransferase 1A1 and 1A8 Expressed in the Human Skin. *R. Fujiwara*, M. Kawana, E. Kouno, S. Takano, T. Narawa, and T. Itoh. School of Pharmacy, Kitasato University, Tokyo, Japan.

#158 **Poster Board Number 314**
The Cannabinoid WIN 55,212-2 Decreases Specificity Protein (Sp) Transcription Factor and the CaP Protein eIF4E in Colon Cancer Cells. *S. Sreevalsan*[1], and *S. Safe*[1,2]. [1]VTPP, Texas A&M University, College Station, TX; [2]Institute of Biosciences and Technology, Texas A&M Health Science Center, Houston, TX.

#159 **Poster Board Number 315**
HOTTIP, a lncRNA, Exhibits Pro-Oncogenic Activity in Pancreatic Cancer. *I. D. Jutooru*[1], *G. Chadalapaka*[1], K. Kim[2], and *S. H. Safe*[1,2]. [1]Texas A&M University, College Station, TX; [2]IBT, Texas A&M Health Science Center, Houston, TX.

#160 **Poster Board Number 316**
Metformin Causes Degradation of Fatty Acid Synthase and PI3 Kinase Signaling Proteins in Pancreatic Cancer Cells through Downregulation of Specificity Protein (Sp) Transcription Factors. *V. Vasanthakumari*[1], and *S. Safe*[1,2]. [1]VTPP, Texas A&M University, College Station, TX; [2]IBT, Texas A&M Health Science Center, Houston, TX.

#161 **Poster Board Number 317**
Overexpression of STAT-3 Induces Anoikis Resistance, Promotes Cell Migration, and Metastatic Potential in Cancer Cells. *N. M. Fofaria*, and *S. K. Srivastava*. Biomedical Sciences and Cancer Biology Center, Texas Tech University Health Sciences Center, Amarillo, TX.

#162 **Poster Board Number 318**
Indole and Related Compounds Exhibit AhR Antagonist/Agonist Activities. *S. H. Safe*[1], A. Jayaraman[2], R. Alaniz[2], and U. Jin[2]. [1]Texas A&M University, College Station, TX; [2]IBT, Texas A&M University System, Houston, TX.

Program Description (Continued)

Abstract #

#163 **Poster Board Number 319**
Tolfenamic Acid Inhibits Colon Cancer Cell and Tumor Growth and Downregulates Specificity Protein (Sp) Transcription Factors. *S. Pathi*[1], and *S. Safe*[1,2]. [1]Veterinary Physiology and Pharmacology, Texas A&M University, College Station, TX; [2]Institute of Bioscience and Technology, Houston, TX.

#164 **Poster Board Number 320**
$Ni^{+}2$-Induced Chromosome Aberrations/Gene Amplification/Gene Silencing Alter Cytoskeleton, $Ca^{+}2$ Distribution, and Global Gene Expression, Causing Morphol./Neoplast. Transformation of 10T1/2 Mouse Embryo Cells. *J. R. Landolph*[1,3,2], A. DaSilva Pehl[2,3], P. Samala[1,3], S. Keliipaakaua[2,3], and K. Akinwumi[1,3]. [1]Department of Molecular Microbiology and Immunology, University of Southern California, Los Angeles, CA; [2]Department of Pathology, University of Southern California, Los Angeles, CA; [3]USC Cancer Center, University of Southern California, Los Angeles, CA.

#165 **Poster Board Number 321**
Benzoquinone-Induced Topoisomerase Modifications: Linking Benzene Myelotoxicity and Leukemia. *C. L. Kuhlman*, *G. Tsaprailis*, *T. Monks*, and *S. Lau*. Southwest Environmental Health Sciences Center, Department of Pharmacology and Toxicology, University of Arizona, Tucson, AZ.

#166 **Poster Board Number 322**
Overexpression of CRM1 in Normal Human Lung Epithelial Cells Changes Cellular Morphology and Cytotoxic Responses to Tobacco-Specific Carcinogen NNK. *C. Lu*, *W. Zhu*, and *W. Gao*. The Institute of Environmental and Human Health, Texas Tech University, Lubbock, TX.

#167 **Poster Board Number 323**
ARNT Isoforms Mediate Opposing Effects on NF-κB Signaling. *K. Gardella*[1,2], I. Muro[1,2], and *C. Wright*[1,2]. [1]Divison of Pharmacology and Toxicology, The University of Texas at Austin, Austin, TX; [2]The Center for Molecular and Cellular Toxicology, The University of Texas at Austin, Austin, TX.

#168 **Poster Board Number 324**
Coexposure to Arsenic and Estrogen Leads to Enhanced Transformation of Normal Human Prostate Epithelial Cells. J. Treas, *T. Tyagi*, and *K. P. Singh*. The Institute of Environmental and Human Health, Texas Tech, Lubbock, TX.

#169 **Poster Board Number 325**
Effects of Polycyclic Aromatic Hydrocarbons with Estrogen Receptors α and β in Breast Cancer Cells. T. T. James[1,2], C. K. Sievers[2], *E. K. Shanle*[1,2], *S. S. Hecht*[3], *C. A. Bradfield*[1,2], and *W. Xu*[1,2]. [1]Molecular and Environmental Toxicology Center, University of Wisconsin-Madison, Madison, WI; [2]Oncology, University of Wisconsin-Madison, Madison, WI; [3]Masonic Cancer Center, University of Minnesota, Minneapolis, MN.

Abstract #

#170 **Poster Board Number 326**
Alternative Splicing of ATG5 in DU145 Human Prostate Cancer Cells Inactivates Autophagy and Promotes Xenograft Tumor Growth. D. J. Wible[1,2], T. M. Calhoun-Davis[2], D. G. Tang[2], and *S. B. Bratton*[2]. [1]Institute for Cellular and Molecular Biology, The University of Texas at Austin, Austin, TX; [2]Molecular Carcinogenesis, Virginia Harris Cockrell Cancer Research Center at The University of Texas MD Anderson Cancer Center Science Park, Smithville, TX.

#171 **Poster Board Number 327**
The Aryl Hydrocarbon Receptor Regulation during Epithelial-to-Mesenchymal Transition. S. S. Kishinhi, and *S. E. Eltom*. Biochemistry & Cancer Biology, Meharry Medical College, Nashville, TN.

#172 **Poster Board Number 328**
Expression and Role of ALDH1B1 in Pancreatic Cancer. *S. Singh*[1], K. Quackenbush[2], A. Purkey[2], J. Arcaroli[2], *Y. Chen*[1], D. Orlicky[3], W. Messersmith[2], and *V. Vasiliou*[1]. [1]Department of Pharmaceutical Sciences, University of Colorado, Aurora, CO; [2]Division of Medical Oncology, University of Colorado, Aurora, CO; [3]Department of Pathology, University of Colorado, Aurora, CO.

#173 **Poster Board Number 329**
Gene Expression Changes in Human Endometrial and Mammary Cells Exposed to Tamoxifen. *E. Hernandez Ramon*[1], E. Asaki[2], *O. A. Olivero*[1], and *M. C. Poirier*[1]. [1]LCBG, NCI, NIH, Bethesda, MD; [2]Division of Computational Bioscience, CIT, NIH, Bethesda, MD.

#174 **Poster Board Number 330**
Revealing the Role of Cancer Testes Antigens in Hif Signaling. C. Okechukwu[1], A. Whitehurst[2], J. Wooten[2], and K. Corcoran[2]. [1]Chemistry and Pharmaceutical Sciences, North Carolina Central University, Durham, NC; [2]Pharmacology, University of North Carolina at Chapel Hill, Chapel Hill, NC. Sponsor: *A. Baines*.

#175 **Poster Board Number 331**
Aryl Hydrocarbon Receptor (AhR)-Active Pharmaceuticals Are Selective AhR Modulators in Triple Negative Breast Cancer Cell Lines. U. Jin[1], S. Lee[1], and *S. Safe*[1,2]. [1]CEGM, Institute of Biosciences & Technology, Houston, TX; [2]VTPP, Texas A&M University, College Station, TX.

#176 **Poster Board Number 332**
A Retrospective Analysis of Vehicle-Related Effects on Body Weight Gain and Survival from Two-Year Sprague-Dawley Rat Carcinogenicity Studies. *R. Yeager*[1], *C. Papagiannis*[2], D. Poage[2], R. Pimentel[2], T. Henriques[1], C. Lin[3], and L. Shu[3]. [1]Preclinical Safety Toxicology, Abbott Laboratories, Abbott Park, IL; [2]MPI Research, Inc., Mattawan, MI; [3]Non-Clinical Statistics, Abbott Laboratories, Abbott Park, IL.

#177 **Poster Board Number 333**
Modifying Effect of Glycidol Fatty Acid Esters on *N*-Methyl-*N*-Nitrosourea Induced Mammary Carcinogenesis in Rats. Y. Cho[1], T. Toyoda[1], S. Onami[1], Y. Mizuta[1], *A. Nishikawa*[2], and K. Ogawa[1]. [1]Division of Pathology, NIHS, Tokyo, Japan; [2]Biological Safety Research Center, NIHS, Tokyo, Japan.

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Program Description (Continued)

Abstract #

#178 **Poster Board Number 334**
Spontaneous Thymoma Observed in Carcinogenicity Study of Wistar Han Rats. C. Maraschiello[1], W. Henderson[1], H. Iwata[1,2], K. Weber[1,2], S. Gaehle[1], and *T. Anzai*[1]. [1]Harlan Laboratories, Inc., Indianapolis, IN; [2]AnaPath GmbH, Oberbuchsiten, Switzerland.

#179 **Poster Board Number 335**
Mechanisms of Acetyleugenol Nanocapsules on Melanoma Development: *In Vitro* and *In Vivo* Assays. C. C. Drewes[1], C. G. Bexiga[1], L. A. Fiel[2], V. F. de Paula[1], A. R. Pohlmann[2,3], S. S. Guterres[2], and S. P. Farsky[1]. [1]Department of Clinical and Toxicological Analyses, Universidade de São Paulo, São Paulo, Brazil; [2]Department of Pharmacy, UFRGS, Porto Alegre, Brazil; [3]Department of Organic Chemistry, UFRGS, Porto Alegre, Brazil. Sponsor: *S. Barros*.

#180 **Poster Board Number 336**
Natural Compounds As Chemopreventive Agents for the Inhibition of Protein Targets Involved in Cancer Induced by UV Radiation. *W. Maldonado-Rojas*, M. Ojeda-Cuello, and *J. Olivero-Verbel*. Environmental and Computational Chemistry Group Pharmaceutical Sciences, University of Cartagena, Cartagena, Colombia.

Monday Morning, March 11
9:30 AM to 12:30 PM
Exhibit Hall C–D

PS

Poster Session: Pharmacogenomics/Genetic Polymorphisms

Chairperson(s): *Curtis J. Omiecinski, Penn State University, State College, PA.*

Displayed: *9:30 AM–12:30 PM*

Author Attended: *9:30 AM–11:00 AM*

#181 **Poster Board Number 340**
Genetic Polymorphism of Human Microsomal Epoxide Hydrolase As a Determinant of Polyaromatic Hydrocarbon Metabolism and Toxicity. X. Cai[1], W. D. Hedrich[1], *E. M. Laurenzana*[1], B. E. Sell[1], *K. John*[1], A. K. Sharma[2], S. G. Amin[2], and *C. J. Omiecinski*[1]. [1]Center for Molecular Toxicology and Carcinogenesis, The Pennsylvania State University, University Park, PA; [2]Department of Pharmacology, Hershey College of Medicine, Hershey, PA.

#182 **Poster Board Number 341**
Cotinine Levels and Gene Polymorphisms in Asthmatic Children Exposed to Tobacco Smoke in Northern Mexico. *A. Albores*[1], B. S. Barron-Vivanco[1,2], V. M. Davila-Borja[3], E. Juárez-Pérez[4], A. E. Rojas-García[2], C. López-Campos[4], B. Muñoz[5], and I. Poblete-Naredo[1]. [1]Toxicology, Cinvestav, Mexico City, Mexico; [2]Laboratorio de Contaminacón y Toxicologia Ambiental, UAN, Tepic, Mexico; [3]Laboratorio de Toxicologia Genetica, Instituto Nacional de Pediatría, Mexico City, Mexico; [4]Departamento de Pediatría, UMAE 71, IMSS, Torreon, Mexico; [5]Escuela de Ciencias de la Vida, ITESM-Ciudad de Mexico, Mexico City, Mexico.

Abstract #

#183 **Poster Board Number 342**
Identification of Genomic Regions Linked to Epigallochatechin Gallate Induced Liver Toxicity Using the Diversity Outbred Stock. *R. J. Church*[1], D. M. Gatti[2], J. S. Eaddy[1], *P. B. Watkins*[1], *D. W. Threadgill*[3], and *A. H. Harrill*[1]. [1]The Hamner-UNC Institute for Drug Safety Sciences, The Hamner Institutes, Research Triangle Park, NC; [2]The Jackson Laboratories, Bar Harbor, ME; [3]North Carolina State University, Raleigh, NC.

#184 **Poster Board Number 343**
Pharmaco-Genomics and -Genetics of 5-Fluorouracil in Koreans. *M. Yang*, and M. Bae. Sookmyung Women's University, Seoul, Republic of Korea.

#185 **Poster Board Number 344**
PON1 Genotypes of Black Females from the Mississippi Delta Are Different from Those in the Rest of the State and Country. *M. Dail*, *P. Eden*, C. McDaniel, *E. C. Meek*, and *J. E. Chambers*. Center for Environmental Health Sciences, Mississippi State University, Mississippi State, MS.

#186 **Poster Board Number 345**
***In Vitro* Toxicogenomic Screen Developed Using Genetically-Diverse Mouse Inbred Cell Lines: Developing *In Vivo* Validations.** T. Wiltshire[1], O. Suzuki[1], B. Parks[2], *O. Trask*[2], C. Benton[1], A. Frick[1], N. Butz[1], E. Chan[1], E. Healy[2], and *R. Thomas*[1]. [1]Eshelman School of Pharmacy, University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]The Hamner Institute for Health Sciences, Durham, NC.

#187 **Poster Board Number 346**
P-Glycoprotein Transport in the Disposition of Neurotoxicants. *S. Lacher*, K. Skagen, R. Dalton, F. Cardozo-Pelaez, and E. Woodahl. CEHS/BMED, The University of Montana, Missoula, MT.

#188 **Poster Board Number 347**
Polymorphic Enzymes, Urinary Bladder Cancer Risk, and Structural Change in the Local Industry. *K. Golka*[1], D. Ovsiannikov[2], S. Selinski[1], M. Lehmann[1], M. Blaszkewicz[1], O. Moormann[2], M. W. Haenel[3], and J. G. Hengstler[1]. [1]Leibniz Research Centre for Working Environment and Human Factors, Dortmund, Germany; [2]Department of Urology, St.-Josefs-Hospital Dortmund-Hörde, Dortmund, Germany; [3]Max-Planck-Institut für Kohlenforschung, Mülheim an der Ruhr, Germany.

#189 **Poster Board Number 348**
CTNNA3 (α-Catenin) Gene Variants Are Associated with Diisocyanate Asthma in Occupationally-Exposed Workers. *B. Yucesoy*[1], M. L. Kashon[1], Z. L. Lummus[2], *V. J. Johnson*[3], K. Fluharty[1], D. Gautrin[4], J. Malo[4], A. Cartier[4], *D. R. Germolec*[5], *M. I. Luster*[1], and D. I. Bernstein[2]. [1]Health Effects Laboratory Division, CDC, NIOSH, Morgantown, WV; [2]Division of Immunology, Allergy and Rheumatology, University of Cincinnati, Cincinnati, OH; [3]BRT-Burleson Research Technologies, Morrisville, NC; [4]Hôpital du Sacré-Coeur de Montréal, Université de Montréal, Montréal, QC, Canada; [5]Toxicology Branch, DNTP, NIEHS, Research Triangle Park, NC.

Program Description (Continued)

Abstract #

#190 **Poster Board Number 349**
Prevalence and Functional Characterization of the NADH Cytochrome b_5 Reductase I1M⁺6C>T Intronic Variant. *K. L. Blanke*[1,2], J. Sacco[1], and L. Trepanier[1,2]. [1]Department of Medical Sciences, School of Veterinary Medicine, University of Wisconsin - Madison, Madison, WI; [2]Molecular & Environmental Toxicology Center, University of Wisconsin - Madison, Madison, WI.

#191 **Poster Board Number 350**
Influence of Genetics on Paraoxonase 1 Activity in Monozygotic and Dizygotic Twins. *L. Podolefsky*[1], K. M. Kelly[2], J. C. Murray[3], T. J. Raife[4], and *G. Ludewig*[1,2]. [1]Grad Program in Human Toxicology, University of Iowa, Iowa City, IA; [2]Occupational and Environmental Health, University of Iowa, Iowa City, IA; [3]Pediatrics, University of Iowa, Iowa City, IA; [4]Pathology, University of Iowa, Iowa City, IA.

#192 **Poster Board Number 351**
Contribution of Environmental and Genetic Factors to Pancreatic Cancer. *S. Chittiboyina*, A. A. Bond, *L. M. Kamendulis*, and *B. A. Hocevar*. Environmental Health, Indiana University School of Public Health, Bloomington, IN.

#193 **Poster Board Number 352**
The Impact of CYP2S1 Single Nucleotide Polymorphisms on the Metabolic Activation of the Anticancer Prodrug, AQ4N. N. Bajaj, *N. M. Singh*, and *A. M. Rowland*. Chemistry and Biochemistry, New Mexico State University, Las Cruces, NM.

#194 **Poster Board Number 353**
The Remarkable Genotoxic Effect of Exposure to Ethyl Tertiary Butyl Ether in ALDH2 Knockout Mice. R. Wang, *Z. Weng*, K. Ohtani, M. Suda, Y. Yanagiba, and T. Suzuki. Japan National Institute of Occupational Safety and Health, Kawasaki, Japan.

#195 **Poster Board Number 354**
MGMT Haplotypes Alter MGMT Expression and Can Thus Affect Response to Alkylating Agents. M. Xu, I. Nekhayeva, *C. E. Cross*, *C. M. Rondelli*, and *S. Z. Abdel-Rahman*. OB/Gyn, University of Texas Medical Branch, Galveston, TX.

#196 **Poster Board Number 355**
Associations between Genetic Polymorphisms of the Genes Mediating Inflammatory Response and Acute Pancreatitis Risk. *B. Alpertunga*, and *G. Ozhan*. Pharmaceutical Toxicology, Istanbul University, Faculty of Pharmacy, Istanbul, Turkey.

Abstract #

Monday Morning, March 11
9:30 AM to 12:30 PM
Exhibit Hall C–D

PS

Poster Session: Medical Devices

Chairperson(s): *Robert Pryzgoda, Johnson & Johnson, Cincinnati, OH.*

Displayed: *9:30 AM–12:30 PM*

Author Attended: *11:00 AM–12:30 PM*

#197 **Poster Board Number 357**
***In Vitro* Toxicity of Antibacterial Silver Ions Released by Low Intensity Direct Electric Current (LIDC) Stimulation.** R. A. Shirwaiker[1,2], *M. E. Samberg*[2], Z. Tan[1], and *N. A. Monteiro-Riviere*[2,3]. [1]E. P. Fitts Department of Industrial and Systems Engineering, North Carolina State University, Raleigh, NC; [2]Joint Department of Biomedical Engineering, University of North Carolina at Chapel Hill and North Carolina State University, North Carolina State University, Raleigh, NC; [3]Nanotechnology Innovation Center of Kansas State, Kansas State University, Manhattan, KS.

#198 **Poster Board Number 358**
Safety Assessment of Colorants Used in a Short Term Blood Contacting Medical Device—Challenges in Color Extraction Testing. *F. K. Hsia*[1], H. J. Beckord[1], M. P. Beauchane[1], C. J. Anderson[2], *D. R. Kent*[3], and *E. E. Reverdy*[1]. [1]Corporate Toxicology and Biocompatibility Services, Boston Scientific Corporation, Maple Grove, MN; [2]Materials, Testing, Analysis, and Characterization, Boston Scientific Corporation, Maple Grove, MN; [3]Product Safety and Validation, NAMSA, Northwood, OH.

#199 **Poster Board Number 359**
Comparison of Results from 2 *In Vitro* Cytotoxicity Tests Used in the Evaluation of Medical Devices. D. E. Malek[1], and *R. T. Przygoda*[2]. [1]Malek Toxicology Delaware LLC, Greenville, DE; [2]Life Cycle Materials, Johnson & Johnson, Cincinnati, OH.

#200 **Poster Board Number 360**
Evaluation of Sample Preparation Methods in the ISO 10993-12 Standard: Implications for the Biocompatibility Assessment of Medical Devices. *R. P. Brown*, H. Dinesdurage, J. Goode, and *M. Ghosh*. US FDA, Silver Spring, MD.

#201 **Poster Board Number 361**
Can There Be a Universal Extraction Solvent for Medical Device Biocompatibility Testing? Comparison of Extraction Efficiencies among Five Solvents Used to Extract Polymeric Dental Devices. *L. H. Moilanen*[1], J. K. Dahms[2], *B. D. Bagley*[1], and *E. F. Hope*[1]. [1]Medical Department, 3M, St. Paul, MN; [2]3M ESPE, 3M, St. Paul, MN.

#202 **Poster Board Number 362**
Determination of Total Leachable Bisphenol A from Polysulfone Membranes in Hemodialyzers and Hemoconcentrators. S. M. Cho, Y. Choi, *H. Luu*, and J. Guo. US FDA, Silver Spring, MD.

MONDAY

Program Description (Continued)

Abstract #

#203 **Poster Board Number 363**
Bisphenol A Content in Polycarbonate from Medical, Automotive and Consumer Suppliers. *R. T. Przygoda*[1], J. A. Anim[1], D. E. Malek[2], and *D. J. Caldwell*[3]. [1]Life Cycle Materials, Johnson & Johnson, Cincinnati, OH; [2]Malek Toxicology Delaware, LLC, Greenville, DE; [3]Worldwide Environment, Health, and Safety, Johnson & Johnson, New Brunswick, NJ.

#204 **Poster Board Number 364**
Local Effects of Microelectrode Implantation in Rabbit Muscles. J. Yoon[1], E. Cho[1], S. Kim[1], J. You[1], Y. Kim[1], E. Kwon[1], B. Kang[1,2], and J. Che[1]. [1]Biomedical Research Institute, Seoul National University Hospital, Seoul, Republic of Korea; [2]Graduate School of Immunology, Seoul National University, Seoul, Republic of Korea. Sponsor: *K. Lim*.

#205 **Poster Board Number 365**
Subchronic Systemic Toxicity of Subcutaneous Implantation of Microelectrodes in Rats. E. Cho[1], S. Kim[1], J. You[1], Y. Kim[1], E. Kwon[1], B. Kang[1], J. Che[1,2], and J. Yoon[1]. [1]Biomedical Research Institute, Seoul National University Hospital, Seoul, Republic of Korea; [2]Graduate School of Immunology, Seoul National University, Seoul, Republic of Korea. Sponsor: *K. Lim*.

#206 **Poster Board Number 366**
Comprehensive Health-Based Risk Assessment of Material from an Ingestible Medical Device. *M. A. Nascarella*[1], G. M. Savage[2], G. Moon[2], and *B. D. Beck*[1]. [1]Gradient, Cambridge, MA; [2]Proteus Biomedical, Inc., Redwood City, CA.

Monday Morning, March 11
9:30 AM to 12:30 PM
Exhibit Hall C–D

PS

Poster Session: Inhalants and Cardiopulmonary

Chairperson(s): *Gary Hatch, US EPA, Research Triangle Park, NC.*

Displayed: *9:30 AM–12:30 PM*

Author Attended: *9:30 AM–11:00 AM*

#207 **Poster Board Number 401**
Comparative Pulmonary Response to Aerosolized Humidifier Disinfectants by Intratracheal Instillation and Inhalation Exposure. Y. Kim[1], S. Choi[2], Y. Yang[2], Y. Kim[1], C. Song[1], J. Cho[1], C. Ha[2], and K. Lee[2]. [1]Korea Institute of Toxicology, Daejeon, Republic of Korea; [2]Jeonbuk Department of Non-Human Primate, Korea Institute of Toxicology, Jeongup, Republic of Korea. Sponsor: *S. Park*.

#208 **Poster Board Number 402**
Effect of Fuel Composition on Chemistry and Pulmonary Toxicity in Mice Exposed to Biomass Pyrolysis Vapor. *I. Gilmour*[1], *E. Mutlu*[3], B. Elizabeth[1], D. Mary[1], L. Copeland[1], C. King[1], T. Krantz[1], I. George[2], M. Hays[2], J. Dye[1], *M. Higuchi*[1], and C. Lee[2]. [1]NHEERL, US EPA, Durham, NC; [2]NRMRL, US EPA, Durham, NC; [3]CEMALB, University of North Carolina at Chapel Hill, Chapel Hill, NC.

Abstract #

#209 **Poster Board Number 403**
Gene Expression in Bronchiolitis Obliterans-Like Lesions in Rats Exposed to 2,3-Pentanedione. *D. L. Morgan*[1], *B. A. Merrick*[1], K. E. Gerrish[2], P. S. Stockton[1], J. F. Foley[1], *W. M. Gwinn*[1], and G. P. Flake[1]. [1]Division of the National Toxicology Program, NIEHS, Research Triangle Park, NC; [2]Division of Intramural Research, NIEHS, Research Triangle Park, NC.

#210 **Poster Board Number 404**
Polyhexamethyleneguanidine Phosphate Induces Severe Lung Inflammation, Fibrosis, and Thymic Atrophy. J. Song[1], H. Park[1], H. Yang[1], M. Yang[1], C. Song[2], and K. Lee[1]. [1]Inhalation Toxicology Center, Jeonbuk Department of Non-Human Primate, Koeran Institute of Toxicology, Jeongeup, Republic of Korea; [2]Koeran Institute of Toxicology, Daejeon, Republic of Korea. Sponsor: *S. Park*.

#211 **Poster Board Number 405**
Inhalation of a Spot Welding Aerosol Using an Adhesive Increased Airway Resistance but Not Lung Inflammation. *J. M. Antonini*, A. Afshari, J. A. Thompson, J. S. Fedan, W. McKinney, T. G. Meighan, M. Jackson, B. T. Chen, D. Schwegler-Berry, *A. Erdely*, D. G. Frazer, and *P. C. Zeidler-Erdely*. NIOSH, Morgantown, WV.

#212 **Poster Board Number 406**
Cardiopulmonary Health Effects of Traffic-Related Air Pollutants in a Healthy Population. *J. E. Mirowsky*[1], R. Peltier[2], *M. Lippmann*[1], L. Griffith[1], J. Carter[3], D. Diaz-Sanchez[3], W. Cascio[3], and *T. Gordon*[1]. [1]Environmental Medicine, New York University, Tuxedo, NY; [2]Environmental Health Science, University of Massachusetts, Amherst, MA; [3]US EPA, Research Triangle Park, NC.

#213 **Poster Board Number 407**
Ventricular Transcriptional Data Provide Mechanistic Insights into Diesel Exhaust-Induced Attenuation of Cardiac Contractile Response and Blood Pressure. *U. P. Kodavanti*, V. L. Bass, J. Crooks, B. Vallanat, H. Ren, M. C. Schladweiler, R. F. Thomas, T. Krantz, C. King, *C. Gordon*, and A. D. Ledbetter. EPHD/NHEERL/ORD, US EPA, Research Triangle Park, NC.

#214 **Poster Board Number 408**
Comparative Cardiopulmonary Toxicity of Soy Biofuel and Diesel Exhausts in Healthy and Hypertensive Rats. M. C. Schladweiler[1], V. L. Bass[1], R. F. Thomas[1], J. E. Richards[1], *D. Johnson*[2], D. L. Andrews[4], *A. Nyska*[3], T. Krantz[1], C. King[1], and *U. P. Kodavanti*[1]. [1]EPHD/NHEERL/ORD, US EPA, Research Triangle Park, NC; [2]Curriculum in Toxicology, University of North Carolina at Chapel Hill, Chapel Hill, NC; [3]Tel Aviv University, Tel Aviv, Israel; [4]RCU/NHEERL/ORD, US EPA, Research Triangle Park, NC.

#215 **Poster Board Number 409**
Acute and Delayed Effects of Intermittant Ozone on Cardiovascular and Thermoregulatory Responses of Young and Aged Rats. A. F. Johnstone[1], R. C. MacPhail[1], C. Aydin[2], and *C. J. Gordon*[1]. [1]TAD, NHEERL, US EPA, Research Triangle Park, NC; [2]Physiology, University of Uludag, Bursa, Turkey.

Program Description (Continued)

Abstract #

#216 **Poster Board Number 410**
Dose and Effect of Inhaled Ozone in Resting versus Exercising Human Subjects: Comparison with Resting Rats. *G. E. Hatch*, J. McKee, *J. S. Brown*, B. McDonnell, E. Seal, J. Soukup, R. Slade, K. Crissman, and *R. B. Devlin*. Environmental Public Health Division, US EPA, Research Triangle Park, NC.

#217 **Poster Board Number 411**
Biological Responses in Rats Exposed to Mainstream Smoke from a Heated Cigarette Compared to a Conventional Reference Cigarette. H. Fujimoto[1], H. Tsuji[1], I. Fukuda[1], T. Nishino[1], *M. K. Lee*[2], *R. Renne*[3], and H. Yoshimura[1]. [1]R&D Group, Japan Tobacco Inc., Yokohama, Japan; [2]Scientific and Regulatory Affairs, Japan Tobacco International S.A, Geneva, Swaziland; [3]Roger Renne ToxPath Consulting, Sumner, WA.

#218 **Poster Board Number 412**
A Cross-Regulatory T Cell Response in Pulmonary Hypertension. *G. Grunig*, W. Chen, C. Hoffman, *T. Gordon*, and *S. Park*. New York University Medical Center, Tuxedo, NY.

#219 **Poster Board Number 413**
Capsule-Based Aerosol Generator (CBAG)—Validation in a Rat Model of LPS-Induced Nonallergic Pulmonary Inflammation. S. Jordan, S. Moore, and R. Armstrong. Huntingdon Life Sciences, Huntingdon, United Kingdom. Sponsor: *E. Moore*.

#220 **Poster Board Number 414**
Distinct Inflammatory Macrophage Subpopulations and Myeloid-Derived Suppressor Cells Accumulate in the Lung and Spleen following Exposure of Mice to Inhaled Ozone. *D. Laskin*[1], H. Choi[1], *J. Laskin*[2], and *M. Mandal*[1]. Pharmacology and Toxicology, University of Arizona, Tucson, AZ.

#221 **Poster Board Number 415**
Compare *In Vitro* Endothelial Cell Release of Endothelium Derived Vasodilators in Response to Diesel, Biodiesel Blend and Biodiesel Neat Combustion Extract. *L. Bhavaraju*[1], A. Williams[2], *T. Kormos*[3], and *M. Madden*[4]. [1]Toxicology, University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]National Renewable Energy Laboratory, Golden, CO; [3]NERL, ORD, US EPA, Research Triangle Park, NC; [4]EPHD, NHEERL, US EPA, Chapel Hill, NC.

#222 **Poster Board Number 416**
Role of CD36 in Ozone (O_3)-Induced Lung Injury, Inflammation, and Vascular Dysfunction. S. Robertson, S. N. Lucas, P. Hall, *M. Paffett*, and *M. Campen*. University of New Mexico, Albuquerque, NM.

#223 **Poster Board Number 417**
***In Vitro* Endothelial Cell Model to Assess the Impact of Systemic Inflammation on Vascular Health.** M. Aragon. University of New Mexico, Albuquerque, NM. Sponsor: *M. Campen*.

Abstract #

#224 **Poster Board Number 418**
Interaction of Human Bronchial Epithelial Cells and Alveolar Macrophages Modifies the Innate Immune Response to Ozone. *R. N. Bauer*[1], L. Mueller[2], L. Brighton[2], and *I. Jaspers*[1,2]. [1]Curriculum in Toxicology, University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]Center for Environmental Medicine, Asthma, and Lung Biology, University of North Carolina at Chapel Hill, Chapel Hill, NC.

#225 **Poster Board Number 419**
Behaviour of Lactose Blends in Nonclinical Respiratory Safety Assessment Studies. S. Moore[1], and S. Cracknell[2]. [1]Huntingdon Life Sciences, Huntingdon, United Kingdom; [2]Huntingdon Life Sciences, East Millstone, NJ. Sponsor: *D. Mitchell*.

#226 **Poster Board Number 420**
An *In Vitro* Cell-Based Assay to Measure the Solubilization of Indium-Containing Particles by Macrophages. *W. M. Gwinn*[1], *W. Qu*[1], R. W. Bousquet[2], *M. P. Waalkes*[1], and *D. L. Morgan*[1]. [1]NTP Laboratory, NIEHS, Research Triangle Park, NC; [2]Alion Science and Technology, Research Triangle Park, NC.

#227 **Poster Board Number 421**
Acute Pulmonary Heme Oxygenase-1 Protein Response to Particulate Matter in Naïve Animals As an Indicator of Allergic Adjuvant Potential. *C. Carosino*, A. Castaneda, *L. E. Plummer*, K. Green, Y. Zhao, K. J. Bein, A. S. Wexler, and *K. E. Pinkerton*. Center for Health and the Environment, University of California Davis, Davis, CA.

#228 **Poster Board Number 422**
Toxic and Mutagenic Effects of World Trade Center Dust on Cultured Human Lung Cells. *A. M. DiLorenzo*, C. Lambroussis, S. Choi, and P. Rivera. Montclair State University, Montclair, NJ.

#229 **Poster Board Number 423**
Dose Response to Sacramento Particulate Matter. *L. S. Van Winkle*, *D. Anderson*, *K. Pinkerton*, F. Tablin, D. Wilson, K. Bein, and A. Wexler. University of California Davis, Davis, CA.

#230 **Poster Board Number 424**
Subchronic Inhalation Exposure of Rats to Libby Amphibole and Amosite Asbestos: Effects at 1 and 3 Months Postexposure. G. A. Willson[1], *D. E. Dodd*[2], K. Roberts[2], H. G. Wall[1], *J. M. Cyphert*[3], *A. M. Jarabek*[4], and *S. H. Gavett*[4]. [1]Experimental Pathology Laboratories, Inc., Research Triangle Park, NC; [2]The Hamner Institutes for Health Sciences, Research Triangle Park, NC; [3]Curriculum in Toxicology, University of North Carolina School of Medicine, Chapel Hill, NC; [4]US EPA, Research Triangle Park, NC.

#231 **Poster Board Number 425**
Exposure to Sumas Mountain Chrysotile Induces Similar Gene Expression Changes As Libby Amphibole but Has Greater Effect on Long-Term Pathology and Lung Function. *J. M. Cyphert*[1,2], A. Nyska[3], R. K. Mahoney[4], M. C. Schladweiler[2], *U. P. Kodavanti*[2], and *S. H. Gavett*[2]. [1]Curriculum in Toxicology, University of North Carolina School of Medicine, Chapel Hill, NC; [2]EPHD, NHEERL, US EPA, Research Triangle Park, NC; [3]Sackler School of Medicine, Tel Aviv University, Timrat, Israel; [4]EMSL Analytical, Inc., Libby, MT.

Program Description (Continued)

Abstract #

#232 **Poster Board Number 426**
Lack of Sex Difference in Nasal Glutathione Response to Naphthalene. *J. A. Cichocki*[1], *L. S. Van Winkle*[2], *G. J. Smith*[1], and *J. B. Morris*[1]. [1]Toxicology, University of Connecticut, Storrs, CT; [2]Veterinary Medicine, University of California Davis, Davis, CA.

#233 **Poster Board Number 427**
Acetaminophen at Low Doses Depletes Airway Glutathione and Alters Respiratory Reflex Responses. *G. J. Smith*, *J. A. Cichocki*, *J. E. Manautou*, and *J. B. Morris*. Toxicology Program, University of Connecticut, Storrs, CT.

#234 **Poster Board Number 428**
Upper Respiratory Lesions in Rats Administered Amiodarone Hydrochloride Solution Orally for 4 Days by Intraesophageal Dosing: Absence of the Lesion by Intragastric Dosing. S. Ogata, Y. Nezu, T. Watanabe, S. Takada, Y. Tani, and *W. Takasaki*. Medicinal Safety Research Laboratories, Daiichi-Sankyo, Tokyo, Japan.

#235 **Poster Board Number 429**
A High-Fructose Diet Attenuates Adaptation of Nasal Epithelium to Subacute Ozone Exposure in Mice. *J. Harkema*[1,2], P. Brooks[1], K. M. Allen[1,2], M. Dereski[1], R. Lewandowski[1,2], D. Jackson[1], L. Bramble[1,2], and *J. Wagner*[1,2]. [1]Michigan State University, East Lansing, MI; [2]US EPA Great Lakes Air Center for Integrated Environmental Research, East Lansing, MI.

#236 **Poster Board Number 430**
Morphometric Assessment of Concentration- and Time-Dependent Injury in the Nasal Airways of Rats Exposed to Chlorine Gas. *A. Jarabek*[2], A. Watkins[1], and *J. Harkema*[1]. [1]Michigan State University, East Lansing, MI; [2]US EPA, Research Triangle Park, NC.

#237 **Poster Board Number 431**
Diacetyl-Induced Respiratory and Olfactory Toxicity in Mice: Influence of Ubiquitination, Gender, and Dicarbonyl/L-Xylulose Reductase Gene Knockout. *A. F. Hubbs*[1], K. L. Fluharty[1], *M. P. Goravanahally*[2,1], R. J. Edwards[2,1], M. L. Kashon[1], L. M. Sargent[1], R. R. Mercer[1], M. C. Jackson[1], A. M. Cumpston[1], W. T. Goldsmith[1], J. S. Fedan[1], R. D. Dey[2], L. A. Battelli[1], T. Munro[1], W. B. Moyers[1], P. A. Willard[1], K. McKinstry[1], S. Friend[1], and *K. Sriram*[1]. [1]HELD, NIOSH, Morgantown, WV; [2]West Virginia University, Morgantown, WV.

#238 **Poster Board Number 432**
Subchronic Exposure to Ambient Particulate Matter Induces Oxidative Stress Responses in Brain Tissue of ApoE-/- Mice. *L. B. Mendez*[1], *A. Keebaugh*[1], *L. C. Chen*[2], *M. Lippmann*[2], and *M. T. Kleinman*[1]. [1]University of California Irvine, Irvine, CA; [2]New York University, New York, NY.

#239 **Poster Board Number 433**
Coexposure to Ultrafine Particulate Matter and Ozone Causes Electrocardiogram Changes Indicative of Increased Arrhythmia Risk in Mice. *N. Kurhanewicz*[1], R. McIntosh-Kastrinsky[1], L. Walsh[2], *A. Farraj*[2], and *M. Hazari*[2]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]Environmental Public Health Division, US EPA, Research Triangle Park, NC.

Abstract #

#240 **Poster Board Number 434**
An Air-Liquid Interface *In Vitro* Approach for Studying Toxic Effects of Exhaust Emissions Using a Heavy Duty Truck. I. M. Kooter[1], M. Alblas[1], J. van Triel[2], A. Jedynska[1], M. Steenhof[1], M. Houtzager[1], and M. van Ras[1]. [1]EELS, TNO, Utrecht, Netherlands; [2]TAP, TNO Triskelion, Zeist, Netherlands. Sponsor: *R. Woutersen*.

#241 **Poster Board Number 435**
Comparative Toxicity of Soy Biodiesel and Diesel Emissions in Healthy and Allergic Mice. *S. H. Gavett*[1], *M. A. Williams*[1], *J. M. Cyphert*[2,1], E. H. Boykin[1], M. E. Daniels[1], L. B. Copeland[1], D. L. Andrews[3], J. H. Richards[1], and *M. I. Gilmour*[1]. [1]EPHD, NHEERL, US EPA, Research Triangle Park, NC; [2]Curriculum in Toxicology, University of North Carolina School of Medicine, Chapel Hill, NC; [3]Research Cores Unit, Proteomic Research Core, US EPA, Research Triangle Park, NC.

Monday Morning, March 11
9:30 AM to 12:30 PM
Exhibit Hall C–D

PS

Poster Session: Inflammation and Disease

Chairperson(s): *Edmund O'Brien, University of Michigan, Ann Arbor, MI.*

Displayed: *9:30 AM–12:30 PM*

Author Attended: *11:00 AM–12:30 PM*

#242 **Poster Board Number 436**
Mechanisms Underlying Anti-Inflammatory Effects of Selective Diindolylmethane Compounds Using RAW264.7 Cells. *M. F. Afzali*[1], G. P. Dooley[1], *S. H. Safe*[2], *W. H. Hanneman*[1], and *M. E. Legare*[1]. [1]Center for Environmental Medicine, Environmental and Radiological Health Sciences, Colorado State University, Fort Collins, CO; [2]Center for Environmental and Genetic Medicine, Institute of Biosciences and Technology, Texas A&M Health Sciences, Houston, TX.

#243 **Poster Board Number 437**
Fyn Kinase Inhibitors Attenuate Manganese Nanoparticles Induced Neuroinflammatory Signaling in BV2 Microglial Cells and Primary Microglia. K. Kanthasamy, N. Panicker, A. Ngwa, C. Jeffery, M. Neal, A. Kanthasamy, and *V. Anantharam*. Iowa State University, Ames, IA.

#244 **Poster Board Number 438**
Proinflammatory Cytokines Present in the Tumour Microenvironment Induce Phenotypic Change in Colorectal Cancer Cell Lines. S. Patel, and *N. Gooderham*. Surgery and Cancer, Imperial College London, London, United Kingdom.

#245 **Poster Board Number 439**
A Novel Anti-Inflammatory Peptide: Potential Therapy of Sepsis Induced by Bacterial Endotoxin. *U. Wormser*[1], *M. Aschner*[2], Y. Finkelstein[3], E. Proscura[1], B. Brodsky[1], and E. Shapira[1]. [1]Institute of Drug Research, The Hebrew University, Jerusalem, Israel; [2]Department of Pharmacology, Center for Molecular Toxicology, and the Kennedy Center for Research on Human Development, Vanderbilt University School of Medicine, Nashville, TN; [3]Neurology and Toxicology Service and Unit, Shaare Zedek Medical Center, Jerusalem, Israel.

Program Description (Continued)

Abstract #

#246 **Poster Board Number 440**
S-Adenosylhomocysteine Inhibits NF-κB Activity in the Nucleus of Hepatocytes and Confers Sensitivity to TNF Cytotoxicity. W. Watson[1], T. Burke[1], and *C. McClain*[1,2]. [1]Department of Medicine/GI, University of Louisville, Louisville, KY; [2]Louisville VAMC, Louisville, KY.

#247 **Poster Board Number 441**
Cyanobacterium *Anabaena sp.* Lipopolysaccharide (LPS) Elicits Release of MIP-α, Interleukin-6, and Matrix Metalloproteinase-9 from Rat Brain Microglia *In Vitro*. D. Macadam[1], M. L. Hall[1], D. Feher[2], P. Williams[2], and *A. M. Mayer*[1]. [1]Pharmacology, Midwestern University, Downers Grove, IL; [2]Chemistry and Biochemistry, University of Hawaii at Manoa, Honolulu, HI.

#248 **Poster Board Number 442**
Spleen As a Source of Inflammatory Macrophages: Role in Acetaminophen-Induced Hepatotoxicity. *M. Mandal*[1], *A. Dragomir*[1], H. Choi[1], *J. D. Laskin*[2], and *D. L. Laskin*[1]. [1]Pharmacolgy & Toxicology, Rutgers University, Piscataway, NJ; [2]Environmental & Occupational Medicine, UMDNJ-RWJMS, Piscataway, NJ.

#249 **Poster Board Number 443**
Exaggerated Hepatotoxicity of Acetaminophen (APAP) following Administration of Clodronate Liposomes Is Associated with the Persistence of Classically-Activated Macrophages in the Liver. *A. Dragomir*, R. Sun, *M. Mili*, *J. Laskin*, and *D. Laskin*. Joint Graduate Program in Toxicology, Rutgers University/UMDNJ-RWJMS, Piscataway, NJ.

#250 **Poster Board Number 444**
Bone Marrow Inflammation Precedes Delayed Myelosuppression from Hexahydro-1-Nitroso-3, 5-Dinitro-1, 3, 5-Triazine (MNX) Induced in Rats. *S. Jaligama*[1], *V. M. Kale*[2], *M. S. Wilbanks*[3], *E. J. Perkins*[3], and *S. A. Meyer*[1]. [1]Toxicology, University of Louisiana-Monroe, Monroe, LA; [2]College Pharmacy, Roseman University Health Science, South Jordan, UT; [3]US Army Engineer R&D Center, Vicksburg, MS.

#251 **Poster Board Number 445**
Reversibility of Prostate Fibrosis in Response to Bacterial-Induced Chronic Inflammation. *L. Wong*, P. Hutson, and W. Bushman. University of Wisconsin-Madison, Madison, WI.

#252 **Poster Board Number 446**
Topical Application of TRPV1 Antagonist Effectively Inhibits PTD-Induced Sensitization in Murine Skin. *K. Lim*, K. Jung, W. Jang, and Y. Park. AMOREPACIFIC.Co. R&D Center, Gyeonggi-do, Republic of Korea.

#253 **Poster Board Number 447**
Comparative Inflammatory Effects of Differential Particulate Matter Species in an OVA-Sensitization and Challenge Model. *M. A. Williams*[1], *M. J. Daniels*[1], *E. H. Boykin*[1], T. Smith[1], *N. Hykal-Coates*[2], L. B. Copeland[1], D. L. Andrews[2], J. H. Richards[1], and *I. M. Gilmour*[1]. [1]Environmental Public Health Division, US EPA, Research Triangle Park, NC; [2]Research Core Unit, US EPA, Research Triangle Park, NC.

Abstract #

#254 **Poster Board Number 448**
Role of Ortho-Phthalaldehyde in IgE Induced Airway Hyperresponsiveness As a Hapten and an IgE-Selective Adjuvant-Like Activity in Mice Treated with Ovalbumin. *Y. Ishihara*[1], M. Nakao[1], T. Morinaga[1], G. Hasegawa[1], M. Yamaguchi[1], T. Nishikawa[2], and H. Kawashima[3]. [1]Public Health, Kurume University, Kurume, Japan; [2]Surgical Pathology, Tokyo Women's Medical University, Tokyo, Japan; [3]Microbiology & Immunology, University of Shizuoka, Shizuoka, Japan.

#255 **Poster Board Number 449**
Dual Oxidase Modulates Airway Neutrophil Recruitment in Allergic Airways. *S. Chang*[1,2], A. L. Linderholem[2], H. Grasberger[3], and R. W. Harper[2]. [1]Pharmacology Toxicology, University of California Davis, Davis, CA; [2]Internal Medicine, University of California Davis, Davis, CA; [3]Internal Medicine, University of Michigan, Ann Arbor, MI.

#256 **Poster Board Number 450**
Epithelial-Derived Hypoxia Inducible Factor-1/2α Plays a Role in Programming the Innate Immune Response of the Lung. K. Greenwood, S. Proper, *Y. Saini*, D. Jackson-Humbles, *J. Wagner*, *J. Harkema*, and *J. LaPres*. Michigan State University, East Lansing, MI.

#257 **Poster Board Number 451**
ODSH Improves Survival in PA Pneumonia by Increased Bacterial Clearance and Reduced Lung Injury. L. Sharma[1], J. Wu[1], V. Patel[1], *R. Sitapara*[1], N. Rao[3], T. P. Kennedy[4], and *L. L. Mantell*[1,2]. [1]St. John's University, New York, NY; [2]The Feinstein Institute for Medical Research, Manhasset, New York, NY; [3]University of Utah, Salt Lake City, UT; [4]Pulmonary and Critical Care Medicine, Georgia Health Sciences University, Augusta, GA.

#258 **Poster Board Number 452**
Role of Mannose-Binding Lectin in the Pulmonary Response to Ozone. J. Ciencewicki, K. Gerrish, P. Bushel, and S. Kleeberger. NIEHS, Research Triangle Park, NC. Sponsor: *D. Harbourt*.

#259 **Poster Board Number 453**
Anti-Inflammatory Effect of Imipramine in Silica-Induced Inflammation. *R. Biswas*, R. Hamilton, and *A. Holian*. Center for Environmental Health Sciences, University of Montana, Missoula, MT.

#260 **Poster Board Number 454**
Higher Susceptibility of Male Mice to Diesel Exhaust Neurotoxicity. *L. G. Costa*[1,2], *G. Giordano*[1], *A. Engstrom*[1], *C. S. Weldy*[3], *F. Farin*[1], and *T. J. Kavanagh*[1]. [1]Department Environmental Occupational Health Sciences, University of Washington, Seattle, WA; [2]Department of Neuroscience, University of Parma, Parma, Italy; [3]Division of Cardiology, University of Washington, Seattle, WA.

#261 **Poster Board Number 455**
Pilot Study Using an Alzheimer's Disease Animal Model to Assess the Role of Particulate Matter Exposure in Neuroinflammation and Amyloid Production. S. Lung[1], *L. Mendez*[2], and *A. Campbell*[1]. [1]Pharmaceutical Science, Western University of Health Science, Pomona, CA; [2]Medicine, University of California Irvine, Irvine, CA.

Program Description (Continued)

Abstract #

#262 **Poster Board Number 456**
Subchronic Exposure to Deltamethrin Causes Hippocampal Neuroinflammation and Deficits in Learning and Memory. *M. M. Hossain*, and *J. R. Richardson*. Environmental and Occupational Medicine, Robert Wood Johnson Medical School, Piscataway, NJ.

#263 **Poster Board Number 457**
Ambient Endotoxins Possible Links to Toll-Like Receptors Gene Polymorphisms in Puerto Rican Asthmatics. *M. G. Ortiz-Martínez*[1,2], and *B. D. Jiménez-Vélez*[1,2]. [1]Biochemistry, University of Puerto Rico-Medical Sciences Campus, San Juan, Puerto Rico; [2]Center for Environmental and Toxicological Research, University of Puerto Rico-Medical Sciences Campus, San Juan, Puerto Rico.

Monday Morning, March 11
9:30 AM to 12:30 PM
Exhibit Hall C–D

PS

Poster Session: Ecotoxicology

Chairperson(s): *Chris D. Vulpe, University of California Berkeley, Berkeley, CA.*

Displayed: *9:30 AM–12:30 PM*

Author Attended: *9:30 AM–11:00 AM*

#264 **Poster Board Number 459**
Cytotoxicity Effect and Utilization of *Mytilus edulis* Shell in the Diet of *Clarias gariepinus*. A. A. Idowu[1], and *S. O. Ayoola*[2]. [1]Aquaculture and Fisheries Management, Federal University of Agriculture, Abeokuta, Abeokuta, Nigeria; [2]Marine Sciences, University of Lagos Akoka, Lagos, Lagos, Nigeria.

#265 **Poster Board Number 460**
Using a Sequence Homology-Based Predictive Strategy to Address Current Demands for Focused Toxicity Testing in Ecological Risk Assessment. C. LaLone[1], D. Villeneuve[1], *L. Burgoon*[2], C. Russom[1], H. Helgen[4], J. Berninger[3], J. Tietge[1], M. Severson[1], J. Cavallin[5], and G. T. Ankley[1]. [1]US EPA, Duluth, MN; [2]US EPA, Research Triangle Park, NC; [3]National Research Council, Duluth, MN; [4]Computer Sciences Corporation, Duluth, MN; [5]ORISE Research Participation Program, Duluth, MN.

#266 **Poster Board Number 461**
Alteration in Behaviour, Histoarchitecture of Liver, Lung, and Kidney of Male Wistar Rats Exposed to Open Refuse Dump. *P. U. Nwoha*[1,2,3], G. E. Waritimi[2], A. D. Atoni[2], F. Onyije[2], and O. M. Ijomone[1]. [1]Anatomy and Cell Biology, Obafemi Awolowo University, Ile-Ife, Nigeria; [2]Human Anatomy, Niger Delta University, Wilberforce Island, Nigeria; [3]Environmental Neurobiology and Toxicology, Centre for Scientific Investigations and Training, Owerri, Nigeria.

#267 **Poster Board Number 462**
***In Vitro* Fish Metabolism Using Rainbow Trout Liver S9 Fractions to Evaluate the Bioaccumulation Potential of Fragrance Ingredients.** *G. Adamson*[1], H. Laue[2], K. J. Jenner[3], H. Gfeller[2], S. Kern[2], J. W. Nichols[4], and A. Natsch[2]. [1]Givaudan US, East Hanover, NJ; [2]Givaudan Schweiz AG, Duebendorf, Switzerland; [3]Givaudan UK Ltd., Ashford, United Kingdom; [4]US EPA, Duluth, MN.

Abstract #

#268 **Poster Board Number 463**
The Role of Aquaporin 3 in the Uptake of Arsenite through the Intestine of the Atlantic Killifish (*Fundulus heteroclitus*). *D. Jung*[1,2], M. A. Adamo[2], R. M. Lehman[2], R. Barnaby[1], B. P. Jackson[3], J. R. Shaw[4,2], and *B. A. Stanton*[1,2]. [1]Microbiology and Immunology, Geisel School of Medicine at Dartmouth, Hanover, NH; [2]Mount Desert Island Biological Laboratory, Salisbury Cove, ME; [3]Earth Sciences and Chemistry, Dartmouth College, Hanover, NH; [4]School of Public and Environmental Affairs, Indiana University, Bloomington, IN.

#269 **Poster Board Number 464**
Characterization of DCOIT Bioaccumulation Mechanism via *In Vitro* Incubation with Rainbow Trout Liver S9. F. Zhang, D. L. Rick, *M. J. Bartels*, and *G. A. Hazelton*. [1]Global Environmental Health Sciences, Tulane University, New Orleans, LA; [2]Tulane Cancer Center, Tulane University, New Orleans, LA; [3]Department of Biomedical Sciences, Tulane University, New Orleans, LA; [4]Department of Sociology, Washington State University, Pullman, WA; [5]Mary Queen of Vietnam Community Development Corporation, New Orleans, LA.

#270 **Poster Board Number 465**
Zinc Content Determines the Toxicity of Tire Leachate in *Girardia tigrina*. R. Sneed, E. Coleman, and E. Rice. Biology, Chemistry, and Physics, University of the District of Columbia, Washington DC. Sponsor: *P. Ganey*.

#271 **Poster Board Number 466**
Harmonizing Use of the 3Rs in Fish Toxicity Testing. *C. Willett*[1], *S. Belanger*[2], *M. Embry*[3], *T. Iguchi*[4], *M. Halder*[5], *A. Lillicrap*[6], *H. Rufli*[7], *L. Touart*[8], and *S. Zok*[9]. [1]The Humane Society of the United States, Gaithersburg, MD; [2]Procter & Gamble, Cincinnati, OH; [3]Health and Environmental Sciences Institute, Washington DC; [4]National Institute for Basic Biology, Okazaki, Japan; [5]ECVAM, Joint Research Centre, Ispra, Italy; [6]Norwegian Institute for Water Research, Ecotoxicology and Risk Assessment, Oslo, Norway; [7]ecotoxsolutions, Basel, Switzerland; [8]Office of Science Coordination and Policy, US EPA, Washington DC; [9]BASF, Ludwigshafen, Germany.

#272 **Poster Board Number 467**
Concentrations of Metals Associated with Crude Oil from the BP Macondo Well in Sediments and Fish from the Northeastern Gulf of Mexico. *A. C. Nichols*, D. A. Steffy, and L. J. Morgan. Physical and Earth Sciences, Jacksonville State University, Jacksonville, AL.

#273 **Poster Board Number 468**
The Effect of Tributyltin (TBT) on Zebrafish Sexual Differentiation. *C. L. McGinnis*. Quinnipiac University, Hamden, CT.

#274 **Poster Board Number 469**
Heavy Metal Response in *Daphnia magna*: An Ecologically-Relevant Nonmodel Organism. *S. Roy*, and M. E. Pfrender. Biology, University of Notre Dame, Notre Dame, IN.

Program Description (Continued)

Abstract #

#275 **Poster Board Number 470**
Characterization of the Hepatic Metabolome of Migrating Sockeye Salmon in British Columbia, Canada. J. P. Benskin[1,2], M. G. Ikonomou[2], N. Veldhoen[3], C. Dubetz[2], C. C. Helbing[3], and *J. R. Cosgrove*[1]. [1]Product Development, AXYS Analytical Services Ltd., Sidney, BC, Canada; [2]Fisheries and Oceans Canada, Institute of Ocean Sciences, Sidney, BC, Canada; [3]Biochemistry and Microbiology, University of Victoria, Victoria, BC, Canada.

#276 **Poster Board Number 471**
Elevated Metals and Organic Concentrations Linked to Biomarkers' Alterations in Organisms Exposed to Mining Effluent. *O. T. Olubambi*, and V. Wepener. Centre for Aquatic Research, Department of Zoology, University of Johannesburg, Johannesburg, South Africa.

#277 **Poster Board Number 472**
Effects of Two Progestins, Norethindrone and Levonorgestrel, on Reproduction in a Marine Fish, *Tautogolabrus adspersus*. *L. Mills*[1], D. Borsay Horowitz[1], G. Zaroogian[1], B. Rashleigh[1], B. Riffle[2], and *S. Laws*[2]. [1]Atlantic Ecology Division, US EPA, ORD, NHEERL, Narragansett, RI; [2]Toxicology Assessment Division, US EPA, ORD, NHEERL, Research Triangle Park, NC.

#278 **Poster Board Number 473**
Effects of Fungicides on Honey Bee Development and Behavior. *L. A. Hooven*. Oregon State University, Corvallis, OR.

#279 **Poster Board Number 474**
The Mediterranean Gecko, *Hemidactylus turcicus* (*Gekkonidae : Squamata*)—An Alternative Model for the Study of Redox Potential. *M. Y. Farooqui*, and R. Bloom. Biology, University of Texas Pan American, Edinburg, TX.

#280 **Poster Board Number 475**
Recent Emergence of Perfluorohexanoate in Tap, River, and Sea Water in Japan. *N. Saito*, K. Sasaki, and *S. Tsuda*. Iwate Institute of Environmental Health Sciences, Morioka, Japan.

#281 **Poster Board Number 476**
Distributions of Metals (Cadmium, Lead, Iron, Manganese, Zinc, and Copper) in Water, Aquatic Plant, and Fish. K. A. Abdou[1], A. S. Mahmoud[2], M. S. Housen[1], and K. I. Ahmed[1]. [1]Department of Toxicology and Forensic, Medicine, Faculty of Veterinary Medicine, Beni Suef University, Beni Suef, Egypt; [2]Department of Toxicology and Forensic Medicine, Faculty of Veterinary Medicine, Assiut University, Assiut, Egypt. Sponsor: *A. Kadry*.

Abstract #

Monday Morning, March 11
9:30 AM to 12:30 PM
Exhibit Hall C–D

PS

Poster Session: Biotransformation/Cytochrome P450

Chairperson(s): *Vasilis Vasiliou, University of Colorado Denver, Denver, CO.*

Displayed: *9:30 AM–12:30 PM*

Author Attended: *11:00 AM–12:30 PM*

#282 **Poster Board Number 501**
Cytochrome P450 Monooxygenases Expression in Human Epithelial Lung Cell Lines. M. Niehof, and T. Hansen. Fraunhofer ITEM, Hannover, Germany. Sponsor: *C. Dasenbrock*.

#283 **Poster Board Number 502**
Role of Renal Proximal Tubule P450 Enzymes in Chloroform-Induced Nephrotoxicity. S. Liu[1,2], Y. Yao[1], S. Lu[1], *X. Ding*[1], C. Mei[1], and *J. Gu*[1]. [1]Wadsworth Center, Albany, NY; [2]Changzheng Hospital, Shanghai, China.

#284 **Poster Board Number 503**
Green Tea Epigallocatechin Gallate Inhibits Drug Metabolizing Enzymes by Covalent-Binding to the Proteins and Formation of Protein Aggregates. Z. Weng, and Q. Shi. Division of Systems Biology, US FDA, NCTR, Jefferson, AR. Sponsor: *X. Yang*.

#285 **Poster Board Number 504**
Metabolism of Rutaecarpine in Freshly Isolated Hepatocytes from Rats and Mice. *T. Jeong*, D. Lee, D. Oh, J. Kim, Y. Jahng, and M. Kang. Pharmacy, Yeungnam University, Gyeongsan, Republic of Korea.

#286 **Poster Board Number 505**
Effects of Intestinal Microflora on Oral Pharmacokinetics of Baicalin in Normal and Antibiotic-Treated Mice. D. Oh, M. Kong, J. Kim, M. Kang, W. Kang, and *T. Jeong*. Pharmacy, Yeungnam University, Gyeongsan, Republic of Korea.

#287 **Poster Board Number 506**
Role of Intestinal Microflora in Oral Pharmacokinetics of Baicalin in a Germ-Free Mouse Model. J. Kim[1], D. Oh[1], M. Kang[1], W. Yun[2], H. Kim[2], and *T. Jeong*[1]. [1]Pharmacy, Yeungnam University, Gyeongsan, Republic of Korea; [2]Biomedical Mouse Resource Center, KRIBB, Ochang, Republic of Korea.

#288 **Poster Board Number 507**
Importance of Chirality Considerations in Risk Assessments: Enantiomer-Specific Pharmaceutical Metabolism with Rainbow Trout (*Oncorhynchus mykiss*) S9. *K. Connors*[1], B. Du[1], P. N. Fitzsimmons[2], C. K. Chambliss[1], J. W. Nichols[2], and *B. W. Brooks*[1]. [1]Baylor University, Waco, TX; [2]US EPA, Duluth, MN.

#289 **Poster Board Number 508**
The Role of Interstrain Differences in Trichloroethylene Metabolism in Kidney Effects in Mice. *H. Yoo*, *B. U. Bradford*, L. B. Collins, O. Kosyk, S. Shymonyak, W. M. Bodnar, *L. M. Ball*, A. Gold, and *I. Rusyn*. Department of Environmental Sciences and Engineering, University of North Carolina at Chapel Hill, Chapel Hill, NC.

Program Description (Continued)

Abstract #

#290 **Poster Board Number 509**
Interpretation of Multiroute Data for Chloroform-Induced Renal Toxicity in Rats and Mice Using an Updated Physiologically-Based Pharmacokinetic Model. A. F. Sasso[1], *P. M. Schlosser*[2], *G. L. Kedderis*[6], *M. Genter*[3], *J. E. Snawder*[4], *Z. Li*[1], *S. Rieth*[1], and *J. C. Lipscomb*[5]. [1]National Center for Environmental Assessment, US EPA, Washington DC; [2]National Center for Environmental Assessment, US EPA, Research Triangle Park, NC; [3]Department of Environmental Health and Center for Environmental Genetics, University of Cincinnati, Cincinnati, OH; [4]NIOSH, CDC, Cincinnati, OH; [5]National Center for Environmental Assessment, US EPA, Cincinnati, OH; [6]Independent Consultant, Chapel Hill, NC.

#291 **Poster Board Number 510**
The Use of Cytochrome P450-Embedded Nanodisks to Enhance Metabolism and Elimination of Chemical Toxicants. *M. Malfatti*[1], E. Kuhn[1], A. Kohlgruber[1], Y. Li[2], K. Lam[2], and M. Coleman[1]. [1]Lawrence Livermore National Laboratory, Livermore, CA; [2]University of California Davis, Davis, CA.

#292 **Poster Board Number 511**
Sulfonation of 1-Methyl-Phenanthrene and 9-Ethyl-Phenanthrene in Human Hepatoma (HepG2) Cells. *M. Huang*, I. A. Blair, and *T. M. Penning*. Centers of Excellence in Environmental Toxicology and Cancer Pharmacology, Department of Pharmacology, University of Pennsylvania, Philadelphia, PA.

#293 **Poster Board Number 512**
N-Acetyltransferase 1 (NAT1) Expression and Activity during Keratinocyte Differentiation and Cell Cycle Progression. J. Bonifas, and *B. Blömeke*. Environmental Toxicology, University of Trier, Trier, Germany.

#294 **Poster Board Number 513**
Characterization of Peroxidase Activity in Skinethic™ Reconstructed Skin Models Compared with *Ex Vivo* Human Skin Samples. J. Eilstein, G. Lereaux, A. Garrigues-Mazert, J. Meunier, and D. Duché. L'Oréal Research & Innovation - Advanced Research, Aulnay-sous-Bois, France. Sponsor: *E. Dufour*.

#295 **Poster Board Number 514**
Covalent Thiol Adducts Arising from Cocaine and Morphine Biotransformation. *K. J. Schneider*, and *A. P. DeCaprio*. Department of Chemistry & Biochemistry and International Forensic Research Institute, Florida International University, Miami, FL.

#296 **Poster Board Number 515**
The Enantioselective Oxidation of 2,2',3,3',6,6'-Hexachlorobiphenyl (PCB136) by Liver Microsomes Is Species Dependent. *H. Lehmler*, *X. Wu*, and A. Kammerer. Department of Occupational and Environmental Health, College of Public Health, The University of Iowa, Iowa City, IA.

#297 **Poster Board Number 516**
CYP2F1 Expression and Activity Toward Naphthalene in a *CYP2A13/2F1*-Humanized Mouse Model. *L. Li*[1], K. Jia[1], *Y. Wei*[1], *L. V. Winkle*[2], and *X. Ding*[1]. [1]Health Research Inc., Albany, NY; [2]Center for Health and the Environment, University of California Davis, Davis, CA.

Abstract #

#298 **Poster Board Number 517**
Effect of Vinclozolin Exposure during Pregnancy on *In Vitro* Testosterone Metabolism. *F. G. García-Montes de Oca*, M. L. Lopez-Gonzalez, *D. C. Escobar-Wilches*, and *A. Sierra-Santoyo*. Toxicology, CINVESTAV-IPN, Mexico City, Mexico.

#299 **Poster Board Number 518**
***In Vitro* Metabolism of Benzo[a]pyrene and Dibenzo[Def,P]Chrysene in Rodents and Humans.** S. Hanson-Drury[1], *S. R. Crowell*[1], J. Soelberg[1], *R. A. Corley*[1], and *D. E. Williams*[2]. [1]Systems Toxicology, Pacific Northwest National Laboratory, Richland, WA; [2]Oregon State University, Corvallis, OR.

#300 **Poster Board Number 519**
Hyperoxia Attenuates Cytochrome CYP1B1 Expression in Human Bronchial Epithelial Cell BEAS-2B: Implications for Oxygen-Mediated Lung Injury. D. Dinu, C. Chu, W. Jiang, B. Shivanna, X. Couroucli, and *B. Moorthy*. Pediatrics, Baylor College of Medicine, Houston, TX.

#301 **Poster Board Number 520**
Metabolism of Deltamethrin (DLM) and Trans-Permethrin (TPM) by Human Hepatic and Intestinal Preparations. *B. G. Lake*[1], R. J. Price[1], B. Ing[1], M. Scott[1], *R. N. Hines*[2], *H. J. Clewell*[4], *D. Gammon*[5], N. Assaf[3], *M. Yoon*[4], *S. S. Anand*[6], and *T. G. Osimitz*[7]. [1]LFR Molecular Sciences, Leatherhead, United Kingdom; [2]Medical College of Wisconsin, Milwaukee, WI; [3]Valent Biosciences, Libertyville, IL; [4]The Hamner Institutes for Health Sciences, Research Triangle Park, NC; [5]FMC, Ewing, NJ; [6]DuPont Haskell, Newark, DE; [7]Science Strategies LLC, Charlottesville, VA.

#302 **Poster Board Number 521**
Biological Impact of a Dysfunctional CYP1/AhR Auto-Regulatory Feedback Loop. E. Wincent[1,2], A. Kubota[2], *A. R. Timme-Laragy*[2], *M. E. Hahn*[2], *A. Rannug*[1], and *J. J. Stegeman*[2]. [1]Institute of Environmental Medicine, Karolinska Institutet, Stockholm, Sweden; [2]Biology Department, Woods Hole Oceanographic Institution, Woods Hole, MA.

#303 **Poster Board Number 522**
Metabolism and Disposition of 2-Ethylhexyl-*P*-Methoxycinnamate in Male and Female Harlan Sprague-Dawley Rats and B6C3F$_1$/N Mice after Gavage and Intravenous Administration. *S. Waidyanatha*[1], R. Snyder[2], Y. Hong[2], S. Watson[2], S. Black[2], *B. McIntyre*[1], and J. Mathews[2]. [1]Division of National Toxicology Program, NIEHS, Research Triangle Park, NC; [2]RTI International, Research Triangle Park, NC.

#304 **Poster Board Number 523**
Immunochemical Characterization of Xenobiotic-Metabolizing Enzyme Expression in Adult Rat Testis. R. R. Gilibili[1], W. A. Vogl[2], *T. K. Chang*[1], and *S. M. Bandiera*[1]. [1]Faculty of Pharmaceutical Sciences, University of British Columbia, Vancouver, BC, Canada; [2]Faculty of Medicine, University of British Columbia, Vancouver, BC, Canada.

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#305 **Poster Board Number 524**
Demographic Differences by Age, BMI, Gender, and Disease States of Phase I and Phase II Enzyme Activities in Cryopreserved Human Hepatocytes. T. Moeller, C. Six, S. Dennell, T. Rose, and C. Watt. Celsis *In Vitro* Technologies, Halethorpe, MD. Sponsor: *M. Xia*.

#306 **Poster Board Number 525**
Metabolism of Benzo(a)pyrene (BAP) and Fluoranthene (FLA) in Gastrointestinal Tract Subcellular Fractions of the APC^{Min} Mouse. *K. L. Harris*, P. V. Rekhadevi, *D. L. Diggs*, *A. C. Huderson*, J. A. Mantey, *L. D. Banks*, M. S. Niaz, and *A. Ramesh*. Biochemistry & Cancer Biology, Meharry Medical College, Nashville, TN.

#307 **Poster Board Number 526**
Studies of Styrene, Styrene Oxide and 4-Hydroxystyrene Toxicity in CYP2F2 Knockout and CYP2F1 Humanized Mice Support Lack of Human Relevance for Mouse Lung Tumors. *G. Cruzan*[1], *J. Bus*[2], *J. Hotchkiss*[2], R. Sura[2], *M. Banton*[3], and *S. Sarang*[4]. [1]ToxWorks, Bridgeton, NJ; [2]Dow Chemical Company, Midland, MI; [3]LyondellBasell Company, Houston, TX; [4]Shell International, Houston, TX.

#308 **Poster Board Number 527**
Metabolism and Disposition of Bisphenol AF in Male and Female Harlan Sprague-Dawley Rats following Gavage and Intravenous Administration. *T. Fennell*[1], R. Snyder[1], P. Patel[1], S. Black[1], J. Mathews[1], *M. Mercado-Feliciano*[2], and *S. Waidyanatha*[2]. [1]Pharmacology and Toxicology, RTI International, Research Triangle Park, NC; [2]Division of National Toxicology Program, NIEHS, Research Triangle Park, NC.

#309 **Poster Board Number 528**
Absorption, Distribution, Metabolism, and Excretion Studies of *n* -Butylbenzenesulfonamide in Harlan Sprague-Dawley Rats following Gavage Administration. S. Black[1], S. Watson[1], J. Mathews[1], *C. Rider*[2], and *S. Waidyanatha*[2]. [1]Pharmacology and Toxicology, RTI International, Research Triangle Park, NC; [2]Division of National Toxicology Program, NIEHS, Research Triangle Park, NC.

#310 **Poster Board Number 529**
Biotransformation of BDE-47 to Potentially Toxic Metabolites Is Predominantly Mediated by Human CYP2B6: Implications for Interindividual Variability in Metabolism and Retention of BDEs. *J. R. Olson*[1], M. S. Gross[2], M. L. Feo[3], *S. T. Singleton*[1], *A. L. Crane*[1], B. P. McGarrigle[1], E. Eljarrat[3], D. Barcelo[3], and D. S. Aga[2]. [1]Pharmacology and Toxicology, University at Buffalo, Buffalo, NY; [2]Chemistry, University at Buffalo, Buffalo, NY; [3]Environmental Chemistry, IDAEA CSIC, Barcelona, Spain.

#311 **Poster Board Number 530**
Coculture of Antigen-Presenting Cells and Keratinocytes Increases Responsiveness to Prohaptens. *J. Hennen*[1], C. Cohrs[1], A. John[2], A. Seidel[2], and *B. Blömeke*[1]. [1]Department of Environmental Toxicology, University Trier, Trier, Germany; [2]Biochemical Institute for Environmental Carcinogens, Prof. Dr. Gernot Grimmer Foundation, Grosshansdorf, Germany.

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#312 **Poster Board Number 531**
Early Vertebrate Origin of ALDH1B1 from ALDH2 Gene and Inactivation of ALDH1B1 by Heteromerization with ALDH2*2. *B. C. Jackson*[1], R. S. Holmes[3], D. S. Backos[1], P. Reigan[1], D. C. Thompson[2], and *V. Vasiliou*[1]. [1]Department of Pharmaceutical Sciences, University of Colorado Anschutz Medical Campus, Aurora, CO; [2]Department of Clinical Pharmacy, University of Colorado Anschutz Medical Campus, Aurora, CO; [3]School of Biomolecular and Physical Sciences, Griffith University, Nathan, QLD, Australia.

#313 **Poster Board Number 532**
Epigallocatechin-3-Gallate Abrogates Cytotoxicity and DNA Damage Induced by Benzo[a]pyrene in Lung Epithelial Cells. *W. Zhu*, *W. Gao*, and Q. Cai. The Institute of Environmental and Human Health, Lubbock, TX.

#314 **Poster Board Number 533**
17β-Estradiol Benzoate and Bisphenol A Suppress Xenobiotic-Metabolizing Enzyme Expression in Adult Rat Testis. *S. M. Bandiera*, R. R. Gilibili, and *T. K. Chang*. Faculty of Pharmaceutical Sciences, University of British Columbia, Vancouver, BC, Canada.

#315 **Poster Board Number 534**
Acute Lead Exposure Induces Cardiotoxicity *In Vivo* and *In Vitro* Rat Model through the Cytochrome P450 1A1 Signaling Pathway. H. M. Korashy, M. A. Ansari, and Z. H. Maayah. Pharmacology & Toxicology, King Saud University, Riyadh, Saudi Arabia. Sponsor: *S. Al-Bakheet*.

#316 **Poster Board Number 535**
Reciprocal Roles of Cytochromes P4501a1 and 1A2 in Lung Carcinogenesis Mediated by Polycyclic Aromatic Hydrocarbons (PAHs) in Mice. W. Jiang[1], L. Wang[1], *G. Zhou*[2], *X. Couroucli*[1], and *B. Moorthy*[1]. [1]Pediatrics, Baylor College of Medicine, Houston, TX; [2]Institute of Biosciences and Technology, Texas A&M University Health Science Center, Houston, TX.

#317 **Poster Board Number 536**
Activity-Based Protein Profiling of Metabolizing Enzyme Ontogeny and Response to PAH Exposure in Rodents and Humans. N. Sadler[1], *S. R. Crowell*[1], A. Wright[1], *D. E. Williams*[2], and *R. A. Corley*[1]. [1]Systems Toxicology, Pacific Northwest National Laboratory, Richland, WA; [2]Oregon State University, Corvallis, OR.

#318 **Poster Board Number 537**
Elucidating the Catalytic Mechanisms of the Novel Styrene Detoxification System in *Pseudomonas* Bacteria. N. Okonkwo, and G. T. Gassner. Chemistry and Biochemistry, San Francisco State University, San Francisco, CA. Sponsor: *F. Bayliss*.

#319 **Poster Board Number 538**
Impact of Liver-Specific Loss of Cytochrome P450 Reductase on the Expression and Function of Intestinal P450 Enzymes. *Y. Zhu*[1], *X. Ding*[1], *C. Fang*[2], and Q. Zhang[1]. [1]Wadsworth Center, Albany, NY; [2]American Clinical Solutions, Tampa, FL.

Program Description (Continued)

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#320 **Poster Board Number 539**
Organ-Specific *Ugt1* Locus Profiling in Defining the Toxic Response Towards Irinotecan Anticancer Drug Therapy. *S. Chen*, V. Devaraj, M. Fagan, and *R. H. Tukey*. Laboratory of Environmental Toxicology, Departments of Chemistry & Biochemistry and Pharmacology, University of California San Diego, La Jolla, CA.

#321 **Poster Board Number 540**
Selective Criteria for Determining Catalytic Competency in CYP3A4: A Combined Docking and Pharmacophore Study on Triazole Fungicide Metabolism. D. T. Chang[1], C. M. Grulke[1], M. Goldsmith[1], J. F. Kenneke[2], S. Rawat[3], S. Marchitti[2], C. S. Mazur[2], *K. Holm*[1], *M. Phillips*[1], *Y. Tan*[1], R. Tornero-Velez[1], and *C. C. Dary*[4]. [1]National Exposure Research Laboratory, US EPA, Research Triangle Park, NC; [2]National Exposure Research Laboratory, US EPA, Athens, GA; [3]Student Services Authority, Athens, GA; [4]National Exposure Research Laboratory, US EPA, Las Vegas, NV.

Monday Morning, March 11
9:30 AM to 12:30 PM
Exhibit Hall C–D

PS

Poster Session: Developmental Toxicity—Nonmammalian

Chairperson(s): *Siba Das, Oregon State University, Corvallis, OR.*

Displayed: *9:30 AM–12:30 PM*

Author Attended: *9:30 AM–11:00 AM*

#322 **Poster Board Number 543**
Chlorpyrifos Affects Specific Types of Zebrafish Larval Behavior If Administered during Distinct Developmental Time Periods. *H. Richendrfer*, and R. Creton. MCB, Brown University, Providence, RI.

#323 **Poster Board Number 544**
The AhR Pathway and Aromatic Hydrocarbon-Mediated Teratogenicity in the Atlantic Killifish. *R. T. Di Giulio*[1], C. W. Matson[2], and B. W. Clark[1]. [1]Duke University, Durham, NC; [2]Baylor University, Waco, TX.

#324 **Poster Board Number 545**
Characterization of glo1 Gene Expression during Development and Alterations Induced by Atrazine Exposure in Zebrafish. G. Ryan[1], *G. J. Weber*[1], *S. M. Peterson*[1], M. S. Sepulveda[2], and *J. L. Freeman*[1]. [1]Health Sciences, Purdue University, West Lafayette, IN; [2]Forestry and Natural Resources, Purdue University, West Lafayette, IN.

#325 **Poster Board Number 546**
Developmental Effects of 6-Formylindolo[3,2-B] Carbazole in Birds. M. E. Jönsson[1], S. Shaik[1,2], *A. Rannug*[2], and B. Brunström[1]. [1]Environmental Toxicology, Uppsala University, Uppsala, Sweden; [2]Institute of Environmental Medicine, Karolinska Institutet, Stockholm, Sweden.

#326 **Poster Board Number 547**
Aryl Phosphate Esters within a Major PentaBDE Replacement Induce Cardiotoxicity in Developing Zebrafish Embryos: Potential Role of the Aryl Hydrocarbon Receptor. *D. Volz*[1], *S. McGee*[1], A. Konstantinov[2], and H. Stapleton[3]. [1]University of South Carolina, Columbia, SC; [2]Wellington Laboratories, Guelph, ON, Canada; [3]Duke University, Durham, NC.

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#327 **Poster Board Number 548**
Cytochrome P450 Gene Transcripts in Early Development of Zebrafish *Danio rerio*. *J. Stegeman*, A. Kubota, B. Woodin, E. Hawley, Z. Janes, B. Lemaire, and *J. Goldstone*. Biology, WHOI, Woods Hole, MA.

#328 **Poster Board Number 549**
Benzo[a]pyrene Exposure Effects on Reproductive Success, Development, and Transcriptome in Zebrafish. *K. L. Willett*[1], C. Thornton[1], J. Corrales[1], *X. Fang*[1], M. White[1], K. Mislan[1], L. Ballard[2], and B. E. Scheffler[2]. [1]Pharmacology and Environmental Toxicology, University of Mississippi, University, MS; [2]Genomics and Bioinformatics, USDA ARS, Stoneville, MS.

#329 **Poster Board Number 550**
Molecular Pathway of Neurotoxicity Caused by Developmental Exposure to Bisphenol A in Embryonic Zebrafish. *S. R. Das*[1], *K. S. Saili*[1], *S. M. Bugel*[1], *M. M. Corvi*[1], *S. C. Tilton*[2], *K. M. Waters*[2], and *R. L. Tanguay*[1]. [1]Environmental and Molecular Toxicology, Oregon State University, Corvallis, OR; [2]Computational Biology and Bioinformatics, Pacific Northwest National Laboratory, Richland, WA.

#330 **Poster Board Number 551**
Methylmercury-Induced Notch Signaling Points to a Role for Muscle Targets in Motor Nerve Development in Drosophila. C. Mahapatra[2], *M. D. Rand*[1], G. Engel[1], and A. Delwig[1]. [1]Environmental Medicine, University of Rochester, Rochester, NY; [2]College of Agriculture, Purdue University, West Lafayette, IN.

#331 **Poster Board Number 552**
Effects of Benzo[a]pyrene on Early Zebrafish Development. *K. M. Alharthy*, *F. Booc*, J. Corrales, C. Thornton, and *K. Willett*. Department of Pharmacology and ETRP, University of Mississippi, Oxford, MS.

#332 **Poster Board Number 553**
Drosophila CYP6g1 and Its Human Homolog CYP3A4 Confer Tolerance to Methylmercury during Development. *M. D. Rand*[1], J. A. Lowe[1], and C. T. Mahapatra[2]. [1]Environmental Medicine, University of Rochester, Rochester, NY; [2]College of Agriculture, Purdue University, West Lafayette, IN.

#333 **Poster Board Number 554**
Systems Approaches to Define the Developmental Toxicity of Polybrominated Diphenyl Ethers. M. T. Simonich, L. Truong, *S. M. Bugel*, B. Goodale, W. Bisson, D. C. Koch, *S. K. Kolluri*, and *R. Tanguay*. Environmental & Molecular Toxicology, Oregon State University, Corvallis, OR.

#334 **Poster Board Number 555**
Evaluating Morphological, Neurologoical, and Gene Expression Changes in Response to Developmental PAH Exposures. *A. Knecht*, and *R. L. Tanguay*. Oregon State University, Corvallis, OR.

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#335 **Poster Board Number 556**
Defining Pathways of Polycyclic Aromatic Hydrocarbon Developmental Toxicity in Zebrafish Using Systems-Based Transcriptional Profiling. *B. C. Goodale*[1], *S. Tilton*[2], *A. Knecht*[1], A. Swanson[1], K. Anderson[1], *K. Waters*[2], and *R. Tanguay*[1]. [1]Environmental and Molecular Toxicology, Oregon State University, Corvallis, OR; [2]Computational Biology and Bioinformatics, Pacific Northwest National Laboratory, Richland, WA.

Monday Morning, March 11
9:30 AM to 12:30 PM
Exhibit Hall C–D

PS

Poster Session: Chemical and Biological Weapons

Biomarkers for Exposure Assessment, Safety Evaluation, and Translational Medicine

Chairperson(s): *Anil Jain, University of Colorado Denver, Aurora, CO, and Tsung-Ming A. Shih, US Army Medical Research Institute of Chemical Defense, Aberdeen Proving Ground, MD.*

Displayed: *9:30 AM–12:30 PM*

Author Attended: *11:00 AM–12:30 PM*

#336 **Poster Board Number 601**
Ebselen As a Countermeasure for Nitrogen Mustard Vesicant-Induced Toxicity. *J. D. Laskin*[1], *Y. Jan*[1], *D. E. Heck*[2], *R. P. Casillas*[3], and *D. L. Laskin*[4]. [1]Environmental & Occupational Medicine, UMDNJ-Robert Wood Johnson Medical School, Piscataway, NJ; [2]Environmental Health Science, New York Medical College, Valhalla, NY; [3]MRIGlobal, Kansas City, MO; [4]Pharmacology & Toxicology, Rutgers University, Piscataway, NJ.

#337 **Poster Board Number 602**
Identification of Thioredoxin As a Molecular Target for Sulfur Mustard Analog Vesicants. *Y. Jan*[1], *I. Wohlman*[2], *D. E. Heck*[3], *R. P. Casillas*[4], *D. L. Laskin*[2], and *J. D. Laskin*[1]. [1]Environmental & Occupational Medicine, UMDNJ-Robert Wood Johnson Medical School, Piscataway, NJ; [2]Pharmacology & Toxicology, Rutgers University, Piscataway, NJ; [3]Environmental Health Science, New York Medical College, Valhalla, NY; [4]MRIGlobal, Kansas City, MO.

#338 **Poster Board Number 603**
Novel Therapeutic Compounds YEL001 and YEL002 Mitigate Radiation-Induced Toxicity Authors. Y. Rivina, and *R. H. Schiestl*. Pathology; Environmental Health Sciences, Radiation Oncology, University of California Los Angeles, Los Angeles, CA.

#339 **Poster Board Number 604**
Show Bispyridinium Nonoximes Direct Interactions with Muscle-Type Nicotinic Acetylcholine Receptors? *H. Thiermann*, T. Seeger, F. Worek, and K. V. Niessen. Bundeswehr Institute of Pharmacology and Toxicology, Munich, Germany.

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#340 **Poster Board Number 605**
Novel Pyridinium Oximes Offer Neural Protection in the Central Nervous System against Nerve Agent Surrogates. *R. B. Pringle*[1], *E. C. Meek*[1], H. W. Chambers[2], *J. M. Gearhart*[3], and *J. E. Chambers*[1]. [1]College Veterinary Medicine, Mississippi State University, Mississippi State, MS; [2]Biochemistry, Molecular Biology, Entomology and Plant Pathology, Mississippi State University, Mississippi State, MS; [3]AFRL, Wright-Patterson AFB, Dayton, OH.

#341 **Poster Board Number 606**
Sulforaphane Induces Antioxidants and Glutathione S-Transferase A1 and Protects against Vesicant-Induced Toxicity in Mouse Keratinocytes. *R. G. Udasin*[1,4], M. P. Shakarjian[2,3], V. Mishin[4], *D. E. Heck*[3], *R. P. Casillas*[5], *D. L. Laskin*[1,4], and *J. D. Laskin*[1,6]. [1]Joint Graduate Program in Toxicology, Rutgers University/UMDNJ, Piscataway, NJ; [2]Department of Medicine, UMDNJ-RWJMS, Piscataway, NJ; [3]Department of Environmental Health Science, New York Medical College, Valhalla, NY; [4]Pharmacology & Toxicology, Rutgers University, Piscataway, NJ; [5]MRI Global, Kansas City, MO; [6]Environmental & Occupational Medicine, UMDNJ-RWJMS, Piscataway, NJ.

#342 **Poster Board Number 607**
Effects of Delayed Treatment with a Centrally Active Oxime on Acetylcholinesterase and Survival following Sarin Intoxication. *T. Shih*, R. K. Kan, T. M. Myers, and I. Koplovitz. Research Division, US Army Medical Research Institute of Chemical Defense, Aberdeen Proving Ground, MD.

#343 **Poster Board Number 608**
Novel Oximes That Penetrate the Blood-Brain-Barrier (BBB) and Reactivate Organophosphate (OP) Inhibited Acetylcholinesterase (AChE). *E. C. Meek*[1], H. W. Chambers[2], *R. B. Pringle*[1], *J. E. Chambers*[1], and *J. M. Gearhart*[3]. [1]College of Veterinary Medicine, Mississippi State University, Mississippi State, MS; [2]Department of Biochemistry, Molecular Biology, Entomology and Plant Pathology, Mississippi State University, Mississippi State, MS; [3]AFRL, Wright-Patterson AFB, Dayton, OH.

#344 **Poster Board Number 609**
Toxicokinetics of ST-246, an Antiviral Product Developed for the Treatment of Human Pathogenic Orthopoxvirus Infection, in Cynomolgus Monkeys. M. Trinh[1], A. Amantana[2], J. M. Leeds[2], Y. Chen[2], K. Honeychurch[2], D. E. Hruby[2], B. M. Saville[3], C. Chang[1], J. F. Marier[1], and *M. Beliveau*[1]. [1]Pharsight Consulting Services, Pharsight Corporation, Montréal, QC, Canada; [2]SIGA Technologies, Inc., Corvallis, OR; [3]Charles River Laboratories Preclinical Services, Reno, NV.

#345 **Poster Board Number 610**
Prediction of Human Equivalent Dose (HED) of Levofloxacin (LEVO) in New Zealand White Rabbits (NZW) to Support Efficacy of Combination Treatment with Novel Therapeutics against Inhalation Anthrax (IA). *M. Beliveau*[1], A. L. Menard[1], J. F. Marier[1], J. T. Troyer[2], and *E. K. Leffel*[2]. [1]Pharsight Consulting Services, Pharsight Corporation, Montréal, QC, Canada; [2]PharmAthene, Inc., Annapolis, MD.

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#346 **Poster Board Number 611**
The Beneficial Effect of a Treatment with Macrophages on Sulfur Mustard Cutaneous Burns. *S. Dachir*[1], D. Kamus-Elimeleh[1], R. Sahar[1], E. Fishbine[1], R. Gez[1], *J. S. Graham*[2], A. Eisenkraft[3], V. Horwitz[1], and T. Kadar[1]. [1]Pharmacology, Israel Institute for Biological Research, Ness Ziona, Israel; [2]Office of the Commander, USAMRICD, Aberdeen Proving Ground, MD; [3]NBC Protection Division, Ministry of Defense, Tel Aviv, Israel.

#347 **Poster Board Number 612**
Comparative Anticonvulsant Effects of Diazepam in Rats Exposed to DFP, Paraoxon and the Chemical Warfare Nerve Agent Soman. R. K. Kan, J. A. Leuschner, T. T. Dao, S. W. Kaski, J. F. Irwin, C. Acon-Chen, C. R. Braue, E. A. Johnson, H. M. Hoard-Fruchey, and *T. Shih*. Pharmacology, USAMRICD, Aberdeen Proving Ground, MD.

#348 **Poster Board Number 613**
Determination of Cholinesterase Levels in the Blood and Brain following Galantamine Administration in the Guinea Pig Model. C. Wilhelm[1], A. Moulder[1], G. Platoff[2], D. Jett[2], D. Yeung[2], and *M. Babin*[1]. [1]Battelle, Columbus, OH; [2]CounterACT Program, NIH OD, Bethesda, MD.

#349 **Poster Board Number 614**
Characterization of Protein Adducts of Nitrogen Mustards As Potential Exposure Biomarkers. *V. R. Thompson*, and *A. P. DeCaprio*. Department of Chemistry & Biochemistry and International Forensic Research Institute, Florida International University, Miami, FL.

#350 **Poster Board Number 615**
Glucocorticoid Exposure Primes the Neuroinflammatory Response to the Nerve Agent DFP in a Model of Gulf War Illness. K. A. Kelly[1], *D. B. Miller*[1], *S. M. Lasley*[2], and *J. P. O'Callaghan*[1]. [1]CDC-NIOSH, Morgantown, WV; [2]University of Illinois College of Medicine, Peoria, IL.

#351 **Poster Board Number 616**
Evaluation of Selected Organoselenium Analogs of Ebselen As Protective Agents against HN2 Toxicity in A-431 Skin Cells. *M. A. Pino*[1,2], *B. Billack*[2], and M. Pietka-Ottlik[3]. [1]Basic Sciences, TouroCOM, New York, NY; [2]Pharmaceutical Sciences, St. John's University, New York, NY; [3]Division of Organic and Pharmaceutical Technology, Faculty of Chemistry, Wroclaw University of Technology, Wroclaw, Poland.

#352 **Poster Board Number 617**
Hydroxamate Inhibition of EMMPRIN, an MMP Inducer, after Mustard Exposure. *A. S. Rodrigues*[1], A. Miller[1], R. A. Hahn[1], M. Patel[1], C. Lacey[2], A. N. Pillai[2], *S. Young*[2], R. A. Flowers[2], N. Dennisova[1], *M. A. Gallo*[3], *D. R. Gerecke*[1], K. K. Svoboda[4], *N. D. Heindel*[2], and *M. K. Gordon*[1]. [1]Pharmacology and Toxicology, EMSOP, Rutgers University, Piscataway, NJ; [2]Department of Chemistry, Lehigh University, Bethlehem, PA; [3]Environmental and Occupational Health, UMDNJ, RWJMS, Piscataway, NJ; [4]Biomedical Sciences, Baylor College of Dentistry, Texas A&M University, Dallas, TX.

Abstract #

#353 **Poster Board Number 618**
Sulfur Mustard Induces Cytotoxicity and Apoptosis in Mouse Skin Hair Follicles. *L. Joseph*[1], J. A. Cervelli[1], G. M. Composto[1], *M. C. Babin*[2], *R. P. Casillas*[3], P. J. Sinko[1], *D. R. Gerecke*[1], *D. L. Laskin*[1], *J. D. Laskin*[4], and *D. E. Heck*[5]. [1]Rutgers University, Piscataway, NJ; [2]Battelle, Columbus, OH; [3]MRI Global, Kansas City, MO; [4]UMDNJ-Robert Wood Johnson Medical School, Piscataway, NJ; [5]New York Medical College, Valhalla, NY.

#354 **Poster Board Number 619**
Acute Respiratory and Neurological Toxicity in Rats following Inhalational Exposure to Lethal Doses of Soman. B. Wong, M. Perkins, G. Murphy, D. A. Alves, A. Rodriguez, J. Devorak, R. Kan, J. Leuschner, T. Dao, and *A. M. Sciuto*. USAMRICD, Aberdeen Proving Ground, MD.

#355 **Poster Board Number 620**
Inflammatory Profile and Macrophages Population in Sulfur Mustard (SM)-Exposed Skin Wound Repair. *Y. Chang*[1], M. Soriano[1], *J. Laskin*[2], *R. Casillas*[3], *M. Gordon*[1], and *D. Gerecke*[1]. [1]Pharmacology and Toxicology, EOHSI, Rutgers University, Piscataway, NJ; [2]UMDNJ-RWJMS, Piscataway, NJ; [3]MRI Global, Kansas City, MO.

#356 **Poster Board Number 621**
Activation of the Endoplasmic Reticulum Stress and Unfolded Protein Responses for Protection against Sulfur Mustard-Induced Skin Injury. *D. Gerecke*[1], *J. D. Wang*[1], *J. Laskin*[2], *M. Gordon*[1], and *Y. Chang*[1]. [1]Pharmacology and Tox, EOHSI, Rutgers University, Piscataway, NJ; [2]UMDNJ-RWJMS, Piscataway, NJ.

#357 **Poster Board Number 622**
Detection of Sulfur Mustard or Half Mustard-Induced DNA Adducts in Human Skin Cells. K. Kehe, V. Schrettl, D. Steinritz, and H. Thiermann. Bundeswehr Institute of Pharmacology and Toxicology, München, Germany. Sponsor: *A. Bürkle*.

#358 **Poster Board Number 623**
Differential Inhibition of Cytoplasmic and Mitochondrial Thioredoxin and Thioredoxin Reductase by Nitrogen Mustard in A549 Lung Epithelial Cells. *I. Wohlman*[1], *Y. Jan*[2], *D. E. Heck*[3], *R. P. Casillas*[4], *D. L. Laskin*[1], and *J. D. Laskin*[2]. [1]Pharmacology & Toxicology, Rutgers University, Piscataway, NJ; [2]Environmental & Occupational Medicine, UMDNJ-RWJMS, Piscataway, NJ; [3]Environmental Health Science, New York Medical College, Valhalla, NY; [4]MRIGlobal, Kansas City, MO.

#359 **Poster Board Number 624**
Nitrogen Mustard (NM)-Induced Pulmonary Injury and Inflammation Are Associated with Alterations in Histone Methylation and Acetylation. *A. Venosa*[1], R. Malaviya[1], *J. D. Laskin*[2], and *D. L. Laskin*[1]. [1]Pharmacology and Toxicology, Rutgers University, Piscataway, NJ; [2]Environmental & Occupational Medicine, UMDNJ-RWJMS, Piscataway, NJ.

#360 **Poster Board Number 625**
Dose Modulation of a Potential Therapeutic for Neovascularization from Ocular Exposure to Sulfur Mustard. M. L. Meade[1], *J. J. Schlager*[2], and *M. Babin*[3]. [1]Henry M Jackson Foundation, Wright-Patterson AFB, OH; [2]711th Human Performance Wing, Wright-Patterson AFB, OH; [3]Battelle Biomedical Research Center, Jeffersonville, OH.

Program Description (Continued)

Abstract #

#361 **Poster Board Number 626**
Development and Optimization of *In Vitro* Models of Chemical Ocular Injury for High-Throughput siRNA Screening. J. G. Lehman, S. L. Beach, R. D. Causey, and *A. L. Ruff*. US Army Medical Research Institute of Chemical Defense, Aberdeen Proving Ground, MD.

#362 **Poster Board Number 627**
Multiarray Gene Expression Approach Analyzing Cultured Primary Human Astrocytes and Neurons following Chemical Warfare Nerve Agent Exposure. C. Rothwell, S. Swayze, *J. F. Dillman*, and H. M. Hoard-Fruchey. USAMRICD, Gunpowder, MD.

#363 **Poster Board Number 628**
MicroRNA Microarray Analysis of Human-Induced Pluripotent Stem Cell-Derived Neurons and Cardiomyocytes following Exposure to the Organophosphate Nerve Agents Soman and VX. *E. K. Yego*, *J. F. Dillman*, and H. M. Hoard-Fruchey. Research Division, US Army Medical Research Institute of Chemical Defense, Aberdeen Proving Ground, MD.

#364 **Poster Board Number 629**
Toxidromes—A Decision-Making Tool for Early Response to Chemical Mass Exposure Incidents. M. Kirk[1], *P. J. Hakkinen*[2], J. S. Ignacio[3], O. Kroner[4], *A. Maier*[4], and *J. Patterson*[4]. [1]University of Virginia, Charlottesville, VA; [2]National Library of Medicine, Bethesda, MD; [3]Department of Homeland Security, Washington DC; [4]TERA, Cincinnati, OH.

#365 **Poster Board Number 630**
Activation of DNA Damage Repair Pathways in Response to Nitrogen Mustard-Induced DNA Damage and Toxicity in Skin Keratinocytes. *S. Inturi*[1], *N. Tewari-Singh*[1], C. Agarwal[1], *C. W. White*[2], and *R. Agarwal*[1]. [1]Pharmaceutical Sciences, University of Colorado Denver, Aurora, CO; [2]Pediatrics, University of Colorado Denver, Aurora, CO.

#366 **Poster Board Number 631**
Progression of Injury and Toxic Effects following Nitrogen Mustard Exposure in SKH-1 Hairless and C57BL/6J Mice Skin: Clinical and Pathological Significance. *N. Tewari-Singh*[1], *A. K. Jain*[1], *S. Inturi*[1], D. J. Orlicky[2], C. W. White[3], and *R. Agarwal*[1]. [1]Pharmaceutical Sciences, University of Colorado Denver, Aurora, CO; [2]Pathology, University of Colorado Denver, Aurora, CO; [3]Pediatrics, University of Colorado Denver, Aurora, CO.

#367 **Poster Board Number 632**
Long-Range Assessment and Treatment of Lung and Systemic Injury in Rats Exposed to Inhaled Sulfur Mustard. D. S. Olivera, T. R. Varney, D. A. Alves, K. Whitten, V. I. Morthole, R. K. Kan, J. L. Collins, J. B. Simons, J. L. Devorak, A. M. Rodriguez, C. M. Bowens, A. M. Witriol, E. A. Lyman, R. R. Deckert, S. L. Russell, and *A. M. Sciuto*. Analytical Toxicology, USAMRICD, Gunpowder, MD.

#368 **Poster Board Number 633**
Therapeutic Efficacy of Serum-Derived Human Butyrylcholinesterase against Topical Challenges of VX in the Hartley Guinea Pig. *T. Snider*[1], *J. D. Johnson*[1], K. G. McGarry[1], G. H. Van der Zwaag[1], R. L. Malek[2], B. Peterson[2], and *A. N. Nunley*[2]. [1]Battelle, Columbus, OH; [2]Chemical Biological Medical Systems/Medical Identification and Treatment Systems, Frederick, MD.

#369 **Poster Board Number 634**
A Comparative Study of Biomarkers of Nitrogen Mustard-Induced Skin Injury in Male SKH-1 Hairless and C57BL/6J Mice. *A. K. Jain*[1], *N. Tewari-Singh*[1], *S. Inturi*[1], D. J. Orlicky[2], *C. W. White*[3], and *R. Agarwal*[1]. [1]Pharmaceutical Sciences, University of Colorado Denver, Aurora, CO; [2]Pathology, University of Colorado Denver, Aurora, CO; [3]Pediatrics, University of Colorado Denver, Aurora, CO.

#370 **Poster Board Number 635**
24 h LD_{50} for Subcutaneous Exposure to Chemical Warfare Nerve Agents in Rats: Comparison across Multiple Age Groups. *L. K. Wright*, R. B. Lee, S. H. Robertson, K. M. Licht, M. F. Stone, M. C. Moffett, and L. A. Lumley. US Army Medical Research Institute of Chemical Defense, Aberdeen Proving Ground, MD.

#371 **Poster Board Number 636**
Mechanisms of Vesicating Agent Nitrogen Mustard-Induced Skin Injury in SKH-1 Hairless Mice. D. Kumar[1], *N. Tewari-Singh*[1], *S. Inturi*[1], C. Agarwal[1], *A. K. Jain*[1], D. Dhar[1], C. W. White[2], and *R. Agarwal*[1]. [1]Pharmaceutical Sciences, University of Colorado Denver, Aurora, CO; [2]Pediatrics, University of Colorado Denver, Aurora, CO.

#372 **Poster Board Number 637**
Ovarian Hormones Affect the Physiological Response to VX in Female Rats. C. Smith, L. K. Wright, J. E. Schwartz, S. H. Robertson, K. M. Licht, and L. A. Lumley. US Army Medical Research Institute of Chemical Defense, Aberdeen Proving Ground, MD. Sponsor: *J. McDonough*.

#373 **Poster Board Number 638**
Inflammatory Response following Neurogenic Cardiotoxicity Induced by Exposure to the Chemical Warfare Agent Soman. H. Hoard-Fruchey, C. J. Smith, M. A. Guignet, J. F. Irwin, T. L. Dao, J. A. Leuschner, E. A. Johnson, *J. F. Dillman*, and R. K. Kan. US Army Medical Research Institute of Chemical Defense, Aberdeen Proving Ground, MD.

#374 **Poster Board Number 639**
Development of an Inhalation Exposure System to Control Concentration and Time Profile of a Test Gas to Evaluate the Predictivity of "Toxic Load" Models. *B. A. Wong*, R. James, B. C. Sharits, and *L. M. Sweeney*. Naval Medical Research Unit - Dayton, Wright Patterson Air Force Base, OH.

Monday Morning, March 11
10:00 AM to 11:00 AM
Room 209
(Ticket Required; SOT Student and Postdoctoral members only, limited seating)

Trainee Discussion with Plenary Lecturer: Dr. Beutler

Chairperson(s): *David T. Szabo, US EPA, Arlington, VA.*

Lecturer: *Bruce A. Beutler, University of Texas Southwestern Medical Center, Dallas, TX.*

Dr. Beutler will meet informally for discussion with graduate students and postdoctoral scholars after his Plenary Opening Lecture (*see page 138*). Room occupancy is limited, and participants register for a ticket with their Annual Meeting registration.

Program Description (Continued)

Monday Morning, March 11
10:30 AM to 11:30 AM
Room 007 A

E

Exhibitor/Sponsor-Hosted Session: Accurate Identification of DILI (Drug-Induced Liver Injury) and Non-DILI Drugs with Primary Cultured Human Hepatocytes

Presented by:
***In Vitro* ADMET Laboratories**

Results of a highly specific and sensitive *in vitro* assay with primary human hepatocytes for the identification of drugs known to induce severe drug-induced liver injuries (DILI) will be presented. The assay may be useful in drug development for the selection of drug candidates with low propensity to cause DILI.

Monday Morning, March 11
10:30 AM to 11:30 AM
Room 007 B

E

Exhibitor/Sponsor-Hosted Session: Current Trends in Pharmaceutical Development

Presented by:
Harlan Laboratories

A first topic of this session will deal with the toxicity of surfactants, cosolvents and conventional vehicles used in formulating drugs before starting the regulatory preclinical safety development. The relevance of immunogenicity in preclinical trials after parenteral administration will also be discussed as a hot topic in the development of biopharmaceuticals.

Monday Morning, March 11
10:30 AM to 11:30 AM
Room 007 C

E

Exhibitor/Sponsor-Hosted Session: Monoclonal Antibodies for Oncology and Auto Immunity—Running Translatable Studies in Nonhuman Primates

Presented by:
Huntingdon Life Sciences

Monoclonal antibodies have proven clinical success in treating oncology and autoimmune disease. Ensuring that studies are performed in a regulatory- and ethically-compliant manner and the collected data easily translates to the clinic is of crucial importance. The talk will focus on NHP supply, immunotoxicity study design, microsampling, and microanalysis.

Monday Morning, March 11
11:00 AM to 12:30 PM
Bridge Hall

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 formation, 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.

Monday Morning, March 11
11:45 AM to 12:45 PM
Room 007 C

E

Exhibitor/Sponsor-Hosted Session: Battelle's CoLaborative Approach to Drug/Chemical Safety, Discovery, and Development

Presented by:
Battelle

Drug and chemical safety has recently received tremendous attention. Identifying risk early in development benefits public health and saves companies time and money. Dr. Michael Holsapple and colleagues will address how Battelle and its CoLaborative use systems biology to address these industry challenges.

Monday Morning, March 11
11:45 AM to 12:45 PM
Room 007 B

E

Exhibitor/Sponsor-Hosted Session: More Predictive Efflux Transporter Evaluation Using Transporter Knockout Rats and Caco-2 Cell Lines

Presented by:
Sigma Life Science

Sigma Life Science offers technologies to further pharmaceutical research and development, spanning CompoZr® Zinc Finger Nucleases, bioactive small molecules, iPSC derived cardiomyocytes, SAGE® animal models and services. Sigma will present data on our exclusive efflux transporter knockout rats, Caco-2 transporter knockout cell lines, iPSC derived cardiomyocytes and other ADME/Tox tools.

Monday Morning, March 11
11:45 AM to 12:45 PM
Room 007 A

E

Exhibitor/Sponsor-Hosted Session: Use of Cryopreserved Human Hepatocytes to Investigate Genetic Variability in Drug and Xenobiotic Metabolism and Toxicity

Presented by:
Celsis *In Vitro* Technologies

The session will describe the use of cryopreserved human hepatocytes to investigate genetic variation in a well-established genetic polymorphism (N-acetyltransferase 2) that is important in the metabolism and toxicity of numerous drugs and xenobiotics.

Program Description (Continued)

MONDAY AFTERNOON

Monday Afternoon, March 11
12:00 Noon to 1:20 PM
Room 006
(Ticket Required)

In Vitro Toxicology Lecture and Luncheon for Students: From Hazard Identification to Risk Assessment: Linking It Together with *In Vitro* Models

Chairperson(s): *Thomas A. Lewandowski, Education Committee Chair, Gradient, Seattle, WA, and Emily G. Notch, Dartmouth Medical School, Hanover, NH.*

Lecturer: *Hisham Hamadeh, Amgen, Inc., Thousand Oaks, CA.*

Sponsor:
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 via the Annual Meeting registration, and the $10 deposit will be returned upon entry to the event. Dr. Hamadeh will present an introduction to the topic, and then participants will discuss related questions and report responses. More information can be found on page 94.

Monday Afternoon, March 11
12:00 Noon to 2:00 PM
Rita's on the River

Mid-Atlantic Regional Chapter Luncheon

Monday Afternoon, March 11
12:00 Noon to 1:30 PM
Room 203 A

Special Interest Group Collaboration Group Meeting

Monday Afternoon, March 11
12:00 Noon to 1:30 PM
Room 216

Toxicologic and Exploratory Pathology Specialty Section Meeting/Luncheon

Abstract #

Monday Afternoon, March 11
12:10 PM to 1:30 PM
Room 207

R

Roundtable Session: A Decade of Nanotoxicology: Where Do We Stand Now?

Effects of Nanomaterials on Biological Systems

Chairperson(s): *Saber M. Hussain, US Air Force Research Laboratory, Wright-Patterson AFB, Dayton, OH, and John J. Schlager, US Air Force Research Laboratory, Wright-Patterson AFB, Dayton, OH.*

Sponsor:
Nanotoxicology Specialty Section

Endorsed by:
Association of Scientists of Indian Origin Special Interest Group

The last ten years have seen an explosion in the development and evolution of nanotoxicology. This milestone of a decade of research provides a great opportunity to look back and evaluate both the progress made, as well as identify challenges that can potentially plague future research. Early studies had few materials to work with. However, advances in material science have resulted in a large array of nanomaterials (NM) with controlled size, shape, and surface functionalities. From early on, it became apparent that the unique properties associated with NMs, (i.e., primary size, agglomeration patterns, crystal structure, shape, etc.) can dictate the observed effects. Systematic evaluation of toxicity mechanisms necessitated development of novel tools to assess NM physicochemical properties that include: enhanced microscopy techniques, dynamic and static light scattering, and quantitation of cellular uptake. However, adaptation of such characterization tools within the nanotoxicity community has been slow, due to convoluted literature reports of the same NM property measured with different techniques. Recently, the question of dosimetry has become a focus of inquiry due to such conflicting reports. Experiments are being performed to evaluate and compare the effect of dosage by mass, surface area, and number of particles. However, the evaluation of aggregation state has largely ignored the structure of aggregation, which can substantially influence NM mass exposure and uptake. In addition, another challenge in nanotoxicity is the lack of strategies to accurately extrapolate *in vitro* results to predict *in vivo* responses. This generates the need for enhanced cell model development and implementation in nanotoxicity research. The emerging field of nanotoxicology has made remarkable progress over the past decade and holds immense promise for the next. The focus of this discussion will be to highlight the current state of nanotoxicity and determine key gaps in dosimetry, interpretation of characterization to decipher mechanistic toxicity, and translating data to reliable assessment of human exposure and risk.

#375	12:10	**A Decade of Nanotoxicology: Where Do We Stand Now?** *S. M. Hussain*, and *J. J. Schlager*. Air Force Research Laboratory, US Air Force, Wright-Patterson AFB, Dayton, OH.
	12:10	**Introduction.** Saber M. Hussain
	12:15	**A Change in Dose Metrics for Inhalation Toxicity Studies with Engineered Nanoparticles.** David B. Warheit
	12:30	**Lessons Learned from High-Content *In Vivo* Nano Toxicology Testing.** Robert L. Tanguay
	12:45	**Accurate Aggregation Size and Structure Determination in Physiological Conditions—Ignored Fact in Nanotoxicity?** Navid B. Saleh
	1:00	**Hazards and Risks in the Workplace: Have We Made Any Progress?** Charles L. Geraci
	1:15	**Q&A.** Panel Discussion

Program Description (Continued)

Abstract #

Monday Afternoon, March 11
12:10 PM to 1:30 PM
Room 214 A&B

R

Roundtable Session: Predicting Human Thorough QT (TQT) Study Outcomes with Nonclinical Data—How Good Are We and How Good Do We Need to Be?

Biomarkers for Exposure Assessment, Safety Evaluation, and Translational Medicine

Chairperson(s): *Jean-Pierre Valentin, AstraZeneca, Macclesfield, United Kingdom, and Oscar Della Pasqua, Leiden University, Leiden, Netherlands.*

Sponsor:
Cardiovascular Toxicology Specialty Section

Endorsed by:
Comparative and Veterinary Specialty Section
Drug Discovery Toxicology Specialty Section
Regulatory and Safety Evaluation Specialty Section

The ability to predict and thus prevent drug-induced ventricular arrhythmia and Torsades de Pointes (TdP) is a significant public health issue and a primary focus of regulatory safety pharmacology studies. Data are generated both nonclinically (via hERG, ECG, APD studies) and clinically primarily via a thorough QT study (TQT). The speakers in this roundtable session will consider the predictive value of each of these studies individually and their utility as a panel overall. Specifically, speakers will discuss concordance between nonclinical and clinical data for safety pharmacology endpoints; discuss optimization of nonclinical study design and data collection; identify opportunities for data from additional metrics; and discuss perspectives on the collection and use of nonclinical data to inform clinical trials. The panelists will also be challenged to identify strengths and weaknesses in current testing approaches and propose recommendations to improve or modify these approaches in the future. Participants will be engaged in these discussions and provide input in the debate of the predictive value of nonclinical QT studies as well as the potential for alternative assays or extrapolations to improve our ability to anticipate clinical outcome.

#376 12:10 **Predicting Human Thorough QT (TQT) Study Outcomes with Nonclinical Data—How Good Are We and How Good Do We Need to Be?** *J. Valentin*[1], *O. Della Pasqua*[2], J. Koerner[3], D. Leishman[4], L. Ewart[1], and M. Krucoff[5]. [1]AstraZeneca, Macclesfield, United Kingdom; [2]Leiden University, Leiden, Netherlands; [3]US FDA, Silver Spring, MD; [4]Lilly, Greenfield, IN; [5]Duke University Medical Center, Durham, NC.

12:10 **Introduction.** Oscar Della Pasqua

12:15 **A Practical Look at Data Concordance.** John Koerner

12:30 **Optimizing Nonclinical Study Design to Predict TQT.** Derek J. Leishman

12:45 **Reconsidering Data Inputs for Predicting TdP.** Lorna Ewart

1:00 **Predicting TdP—A Clinical Perspective.** Mitchell W. Krucoff

1:15 **Q&A.** Panel Discussion

Abstract #

Monday Afternoon, March 11
12:10 PM to 1:30 PM
Room 206

HH

Historical Highlights Session: Diesel and Gasoline Exhaust and Cancer

Chairperson(s): *Annemoon M. van Erp, Health Effects Institute, Boston, MA, and Jacob D. McDonald, Lovelace Respiratory Research Institute, Toxicology, Albuquerque, NM.*

Sponsor:
Inhalation and Respiratory Specialty Section

Endorsed by:
Comparative and Veterinary Specialty Section
Mixtures Specialty Section
Occupational and Public Health Specialty Section
Risk Assessment Specialty Section
Toxicologic and Exploratory Pathology Specialty Section

In 1989, the International Agency for Research on Cancer (IARC) classified whole diesel exhaust as a "probable human carcinogen" and whole gasoline engine exhaust as a "possible human carcinogen." Since then, stringent regulations on diesel engine emissions have been introduced, and there have been significant developments in engine technology and introduction of ultra-low sulfur fuel resulting in marked reductions in the hazardous components in diesel exhaust. These changes are expected to provide substantial benefits to air quality and human health. The time course for realizing the benefits will be related to the rate at which old engines are replaced with new technology. In June 2012, IARC re-evaluated the carcinogenic hazard of diesel and gasoline exhaust based on new information that has become available from studies in humans and animals, which has led to the current designation of diesel exhaust as a "known human carcinogen." This session provides a historical overview of diesel engine technology and emissions, and the significant changes that have occurred over the past decades. We also take a look at what is known about the health effects of diesel and gasoline exhaust and its public perception over the years. We provide a detailed characterization of the June 2012 IARC Working Group re-evaluation of the carcinogenic hazard classification of diesel exhaust and gasoline emissions, both regarding the toxicologic and epidemiologic evidence, and discuss potential implications of the new hazard classification for public policy. Although the Working Group discussed whether to distinguish between "traditional diesel exhaust" and "new technology diesel exhaust" in the cancer hazard assessment, they concluded that this was not possible due to a lack of data on health effects associated with exposure to new technology diesel exhaust.

#377 12:10 **Diesel and Gasoline Exhaust and Cancer.** *A. M. van Erp*[1], *J. D. McDonald*[3], *R. O. McClellan*[2], and E. Garshick[4]. [1]Health Effects Institute, Boston, MA; [2]Toxicology and Human Health Risk Analysis, Albuquerque, NM; [3]Lovelace Respiratory Research Institute, Albuquerque, NM; [4]Veterans Administration Boston Health Care System, Boston, MA.

12:10 **Introduction.** Annemoon van Erp

12:15 **A Historical Perspective on Diesel and Gasoline Engine Technology and Its Health Impacts.** Roger O. McClellan

12:35 **IARC Assessment of Diesel and Gasoline Exhaust: Overview of Toxicologic Evidence.** Jacob D. McDonald

12:55 **IARC Assessment of Diesel and Gasoline Exhaust: Overview of Epidemiologic Evidence.** Eric Garshick

1:15 **Q&A.** Panel Discussion

Program Description (Continued)

Abstract #

Monday Afternoon, March 11
12:10 PM to 1:30 PM
Room 214 C&D

EC

Education-Career Development Session: From New Submissions to Competitive Renewals: Different Phases of Grant Writing

Chairperson(s): *Courtney E. Sulentic, Wright State University, Dept of Pharmacology and Toxicology, Dayton, OH, and Barbara L. Kaplan, Michigan State University, Pharmacology and Toxicology, East Lansing, MI.*

Sponsor:
Career Resource and Development Committee

Endorsed by:
Graduate Student Leadership Committee

Grant writing is a challenging endeavor. One must effectively communicate the significance, innovation, and approach of their research project in a clear, but concise manner with appropriate grammar. While there are some aspects of grant writing that apply regardless of the grant application phase, such as a clearly stated hypothesis and specific aims, the style, and required elements of the various phases of the grant writing process can differ significantly. Thus, the goals of this session are to discuss the various phases of the grant writing process, including preparing a new application versus a competitive renewal, composing the rebuttal and revised grant application, how best to create a "new" grant if a grant has not been funded after two review cycles, and an overview of the review process, and choosing the best scientific review group. Three speakers from NIEHS and a well-funded fourth speaker, who is also an experienced grant reviewer, will expertly cover these topics and participate in a panel discussion at the end of the session.

#378	12:10	**From New Submissions to Competitive Renewals: Different Phases of Grant Writing.** *C. E. Sulentic*[1], and *B. Kaplan*[2]. [1]Wright State University, Dayton, OH; [2]Michigan State University, Lansing, MI.
	12:10	**Introduction.** Courtney Sulentic
	12:15	**Grantsmanship: The Lifeline for Academic Scientists.** Jerrold J. Heindel
	12:30	**The NIH Application Review Process: The How, What, When, Where, and Who in Submitting Your Grant Application to NIH.** Janice B. Allen
	12:45	**The Application Wasn't Funded: Resubmissions and New Applications.** Michael C. Humble
	1:00	**Writing Tips from a Successfully-Funded Academic Toxicologist and Grant Reviewer.** Martin A. Philbert
	1:15	**Q&A.** Panel Discussion

Monday Afternoon, March 11
12:30 PM to 1:20 PM
Grand Ballroom C2

FS

Merit Award Lecture: Bioactivation, Covalent Binding, and Toxicity: A Personal Odyssey

Lecturer: *Frederick Peter Guengerich, Vanderbilt University Medical Center, Nashville, TN.*

My research program built on the early bioactivation work of James and Elizabeth Miller (with carcinogens) and Bernard Brodie and James Gillette (with drugs). Advances in technology and the basic science itself have allowed the elucidation of many of the details. Our group characterized many of what have proved to be the major rat and human cytochrome P450 (P450) enzymes involved in the metabolism of drugs and carcinogens. These studies, plus recombinant DNA technology, allowed discernment of roles of individual P450s and other enzymes in the activation reactions. Advances in analytical chemistry helped define the structures of many adducts, and kinetic analysis allowed insight into a number of aspects of the behavior of reactive products. More recently, X-ray crystallography has provided pictures of DNA polymerases making mutations. Today we continue the odyssey into details and also search for global meaning in applying the wealth of information now available to practical issues in hazard identification and risk assessment with drug candidates, as well as agricultural and other commodity chemicals. (Supported by USPHS R01 ES010374, R01 ES010546, R37 CA090426, and P30 ES000267.)

Monday Afternoon, March 11
1:00 PM to 3:30 PM
Grand Ballroom C1

FS

Special Symposium: Meet the Directors

Chairperson(s): *Lois D. Lehman-McKeeman, Bristol-Myers Squibb Company, Princeton, NJ, and Norbert E. Kaminski, Michigan State University, East Lansing, MI.*

This important session is designed to provide an opportunity for the directors of agencies to discuss the scientific directions and strategies along with relevant concepts and achievements of their organizations. An important issue for many SOT members is the funding opportunities that various agencies can provide for toxicology research. This year, our panel of experts will focus the scientific strategies and initiatives of their respective agencies and provide relevant information on the funding opportunities that are available to support basic and applied research. Our panel—Linda S. Birnbaum, National Institute of Environmental Health Science (NIEHS), Michael E. Rogers, National Institute of General Medical Sciences (NIGMS), James H. Johnson, US Environmental Protection Agency (US EPA), and W. Allen Robison, National Institute for Occupational Safety and Health (NIOSH) will share their perspectives on these matters. The session is intended to be highly interactive, providing the audience with an opportunity to query the panel on issues concerning extramural funding, and other relevant topics. We hope you'll join them as they deliver recent updates related to issues that have an impact on toxicology.

1:00	Linda S. Birnbaum, NIEHS
1:30	Michael E. Rogers, NIGMS
2:00	James H. Johnson Jr., US EPA
2:30	W. Allen Robison, NIOSH
3:00	**Q&A.** Panel Discussion

Program Description (Continued)

Abstract #

Monday Afternoon, March 11
1:00 PM to 4:30 PM
Exhibit Hall C–D

PS

Poster Session: Immunotoxicity

Chairperson(s): *Courtney E. Sulentic, Wright State University, Dept of Pharmacology and Toxicology, Dayton, OH, and Gregory S. Ladics, DuPont Ag Biotechnology, Wilmington, DE.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *1:00 PM–2:45 PM*

#379 **Poster Board Number 101**
Erionite Induces Th-17 Pathway Cytokines *In Vitro* and *In Vivo*. N. Zebedeo, and *J. Pfau*. Idaho State University, Pocatello, ID.

#380 **Poster Board Number 102**
Resistance to Asbestos-Induced Apoptosis with Continuous Exposure to Crocidolite on a Human T Cell. *T. Otsuki*[1], M. Maeda[2], S. Yamamoto[1], N. Kumagai-Takei[1], S. Lee[1], H. Mastuzaki[1], and Y. Nishimura[1]. [1]Hygiene, Kawasaki Medical School, Kurashiki, Japan; [2]Biofunctional Chemistry, Graduate School of Natural Science and Technology, Okayama University, Okayama, Japan.

#381 **Poster Board Number 103**
Effect of Asbestos Exposure on Regulatory Role of NK Cells for Expanded Autologous CD4⁺ T Cells. Y. Nishimura, N. Kumagai-Takei, H. Matsuzaki, S. Lee, and *T. Otsuki*. Hygiene, Kawasaki Medical School, Kurashiki, Japan.

#382 **Poster Board Number 104**
Long-Term Exposure of Asbestos on MT-2 Cell Affects Cell Cycle Progression and Cell Death. S. Lee[1], H. Matsuzaki[1], M. Maeda[2], N. Kumagai-Takei[1], Y. Nishimura[1], and *T. Otsuki*[1]. [1]Hygiene, Kawasaki Medical School, Kurashiki, Japan; [2]Laboratory of Functional Glycobiochemistry, Department of Biofunctional Chemistry, Division of Agricultural and Life Science, Graduate School of Environmental and Life Science, Okayama University, Okayama, Japan.

#383 **Poster Board Number 105**
Difference in Functional Property of CD8⁺ Lymphocytes between Patients with Pleural Plaque and Malignant Mesothelioma. N. Kumagai-Takei[1], Y. Nishimura[1], M. Maeda[2], H. Matsuzaki[1], S. Lee[1], T. Kishimoto[3], K. Fukuoka[4], T. Nakano[4], and *T. Otsuki*[1]. [1]Department of Hygiene, Kawasaki Medical School, Kurashiki, Japan; [2]Department of Biofunctional Chemistry, Graduate School of Natural Science and Technology, Okayama University, Okayama, Japan; [3]Okayama Rosai Hospital, Okayama, Japan; [4]Division of Respiratory Medicine, Department of Internal Medicine, Hyogo College of Medicine, Nishinomiya, Japan.

#384 **Poster Board Number 106**
Cadmium Exposure Effects on the Class- Switch Recombination in Burkett's Lymphoma Cell Lines. V. Poltoratsky. Pharmaceutical, St. John's University, Queens, NY. Sponsor: *L. Trombetta*.

Abstract #

#385 **Poster Board Number 107**
Arsenic Species Have Differential Impacts on *Pseudomonas aeruginosa* Induced Immune Response in Human Bronchial Epithelial Cells. *E. Notch*, R. Barnaby, B. Coutermarsh, V. Taylor, B. Jackson, T. Hampton, and *B. Stanton*. Geisel School of Medicine at Dartmouth, Hanover, NH.

#386 **Poster Board Number 108**
Evidence for Low-Dose Suppression of T Cell Proliferation by Arsenite in Certain Normal HPBMC Donors *In Vitro*. F. T. Lauer, K. Liu, L. G. Hudson, and *S. W. Burchiel*. College of Pharmacy, University of New Mexico, Albuquerque, NM.

#387 **Poster Board Number 109**
The Aryl Hydrocarbon Receptor and Th17 Polarization: Relevance of Receptor Affinity. M. D. Hayes[1], *A. Smith*[2], *I. Kimber*[1], and *R. J. Dearman*[1]. [1]Faculty of Life Sciences, Manchester University, Manchester, United Kingdom; [2]MRC Toxicology Unit, Leicester, United Kingdom.

#388 **Poster Board Number 110**
2,3,7,8-Tetracholordibenzo-*p*-dioxin (TCDD) Reduces *Leishmania major* Burdens in Mice but Not in Macrophages *In Vitro*. R. E. Teagarden, J. L. Lenberg, A. R. Dunn, and *G. K. DeKrey*. Biological Sciences, University of Northern Colorado, Greeley, CO.

#389 **Poster Board Number 111**
Carbamate Pesticides Induce Apoptosis in Human NK-92CI Cells. *Q. Li*, M. Kobayashi, and T. Kawada. Department of Hygiene and Public Health, Nippon Medical School, Tokyo, Japan.

#390 **Poster Board Number 112**
PCB126 Inhalation Reduces the Number and Function of Lymphocytes in Rats. A. B. Shimada, W. S. Cruz, A. Nakasato, and S. H. Farsky. Clinical and Toxicological Analysis, University of São Paulo, São Paulo, Brazil. Sponsor: *S. Moraes Barros*.

#391 **Poster Board Number 113**
Alternariol Induces Differentiation of Macrophages. A. Solhaug[1], C. Wisbech[1], T. E. Christoffersen[2,3], L. Olsen[2], T. Lea[2], L. L. Vines[4], *J. Pestka*[4], J. A. Holme[5], and G. S. Eriksen[1]. [1]Norwegian Veterinary Institute, Oslo, Norway; [2]Norwegian University of Life Sciences, Ås, Norway; [3]Østfold University College, Halden, Norway; [4]Michigan State University, East Lansing, MI; [5]Norwegian Institute of Public Health, Oslo, Norway.

#392 **Poster Board Number 114**
Analysis of Epigenetic Reprogramming of CD8⁺ T Cell Responses by Developmental Aryl Hydrocarbon Receptor Activation. *B. Winans*[1], A. Nagari[2], M. Chae[2], W. Kraus[2], and *B. Lawrence*[1]. [1]University of Rochester Medical Center, Rochester, NY; [2]University of Texas Southwestern Medical Center, Dallas, TX.

#393 **Poster Board Number 115**
DES and Methoxychlor Metabolite, HPTE, Induction of Cell Death and Alteration of Thymocyte Development: Timing of Induction of Apoptosis. *C. Broussard*, L. Leung Liu, C. Zambrano, F. Mourad, Z. Muscato, and P. Escalante. Biology, University of La Verne, La Verne, CA.

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#394 **Poster Board Number 116**
Genetic Alterations by Prenatal Exposure to Mercury. *K. L. Kracke*, D. L. Shirley, and *J. F. Nyland*. Pathology, Microbiology & Immunology, University of South Carolina School of Medicine, Columbia, SC.

#395 **Poster Board Number 117**
Cannabinoid Receptors and PPAR-Gamma Interactions in Endocannabinoid-Modulated Differential CD8+ T Cell Responses. *S. T. Pike*[1], *R. Crawford*[1], *B. Kaplan*[1,2], and *N. E. Kaminski*[1,2]. [1]Center for Integrative Toxicology, Michigan State University, East Lansing, MI; [2]Department of Pharmacology and Toxicology, Michigan State University, East Lansing, MI.

#396 **Poster Board Number 118**
Perinatal Exposure to Bisphenol A through Maternal Diet Alters Allergen-Induced Lung Inflammation in Adult Offspring. E. O'Brien[1], *D. C. Dolinoy*[1], M. Peters-Golden[2], Z. Zaslona[2], and P. Mancuso[1]. [1]Environmental Health Sciences, School of Public Health, University of Michigan, Ann Arbor, MI; [2]Internal Medicine, School of Medicine, University of Michigan, Ann Arbor, MI.

#397 **Poster Board Number 119**
Direct Evidence of Altered Conformation and Evidence for a Binding Site on TLR3 for Ethanol at Relevant Concentrations. *S. B. Pruett*[2], V. Le[1], E. Lewis[1], S. Gwaltney[1], B. Manikanthan[1], and *A. Shack*[2]. [1]Chemistry, Mississippi State University, Mississippi State, MS; [2]Basic Sciences, Mississippi State University, Mississippi State, MS.

#398 **Poster Board Number 120**
Developmental Aryl Hydrocarbon Receptor (AhR) Activation Attenuates Hematopoietic Stem Cell (HSC) Capacity to Undergo Lymphocyte Differentiation. *L. Ahrenhoerster*, P. Lakatos, and *M. Laiosa*. Zilber School of Public Health, University of Wisconsin-Milwaukee, Milwaukee, WI.

#399 **Poster Board Number 121**
Immunotoxicity of the Nasal Associated Lymphoid Tissue Induced by the Black Mold Toxin Satratoxin-G in Rhesus Monkeys. *S. A. Carey*[1], V. M. Takala[1], *D. M. Hyde*[2], *J. J. Pestka*[1], and *J. R. Harkema*[1]. [1]Michigan State University, East Lansing, MI; [2]University of California Davis, Davis, CA.

#400 **Poster Board Number 122**
Prenatal Exposure to Benzo(a)pyrene Confers an Enhanced Susceptiblity of Macrophage Membranes to Microbial Infection. R. S. Clark[1], *A. Ramesh*[2], *M. Maguire*[1], and *D. B. Hood*[1]. [1]Neuroscience and Pharmacology, Environmental Health Disparities and Medicine, Center for Molecular and Behavioral Neuroscience, Meharry Medical College, Nashville, TN; [2]Biochemistry and Cancer Biology, Meharry Medical College, Nashville, TN.

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#401 **Poster Board Number 123**
The CpG Adjuvant Increases Immune Responses to Ovalbumin (OVA) following Sublingual Immunization in C57/BL6 Mice. *L. A. Coney*[3], A. Parlapiano[2], A. Curran[5], *G. Bannish*[4,1], M. Perpetua[1], J. Doughty[1], A. Beavis[1], and E. Dadey[2]. [1]Biologics and Biomarker Analysis, Huntingdon Life Sciences, East Millstone, NJ; [2]MonoSol Rx, LLC, Warren, NJ; [3]Group Strategic Marketing, Huntingdon Life Sciences, Huntingdon, United Kingdom; [4]Group Strategic Marketing, Huntingdon Life Sciences, East Millstone, NJ; [5]Safety Assessment, Huntingdon Life Sciences, East Millstone, NJ.

#402 **Poster Board Number 124**
Effects of Early Life Farm Exposure on Phenotype and Functional Properties of Dendritic Cells and Contribution to the Risk of Disease. H. Kääriö[1], J. Nieminen[2], K. Huttunen[1], M. Hirvonen[1,3], J. Pekkanen[3], O. Vaarala[2], and M. Roponen[1]. [1]Environmental Science, University of Eastern Finland, Kuopio, Finland; [2]Viral Diseases and Immunology, National Institute for Health and Welfare, Helsinki, Finland; [3]Environmental Health, National Institute for Health and Welfare, Kuopio, Finland. Sponsor: *M. Viluksela*.

#403 **Poster Board Number 125**
Role of PKC Beta in Allergen-Induced CD86 Expression and IL-8 Release in THP-1 Cells. V. Galbiati, M. Marinovich, *E. Corsini*, and *C. L. Galli*. DiSFeB, Università degli Studi di Milano, Milan, Italy.

#404 **Poster Board Number 126**
Perfluorooctanoic Acid Exposure Suppresses T-Independent Antibody Responses. *J. DeWitt*[1], N. Creech[1], Q. Hu[1], W. Williams[2], and *R. Luebke*[1]. [1]Pharmacology and Toxicology, East Carolina University, Greenville, NC; [2]Cardiopulmonary & Immunotoxicology Branch, Research Triangle Park, NC.

#405 **Poster Board Number 127**
African Dust Fine PM Induce the Expression of GSTp, HO-1, IL-6 and IL-8 in BEAS-2B. *R. I. Rodríguez*[1,2], and *B. D. Jiménez-Vélez*[1,2]. [1]Biochemistry, University of Puerto Rico-Medical Sciences Campus, San Juan, Puerto Rico; [2]Center for Environmental and Toxicological Research, University of Puerto Rico-Medical Sciences Campus, San Juan, Puerto Rico.

#406 **Poster Board Number 128**
Aminoglutethimide-Induced Immune Changes and Idiosyncratic Drug Reactions. *W. Ng*, and *J. Uetrecht*. Faculty of Pharmacy, University of Toronto, Toronto, ON, Canada.

#407 **Poster Board Number 129**
The Dermal Exposure to Silica Nanoparticles Induces IgE-Mediated Hypersensitivity. T. Hirai[1], *Y. Yoshioka*[1], H. Takahashi[1], K. Ichihashi[1], N. Nishijima[1], T. Yoshida[1], H. Nabeshi[2], *T. Yoshikawa*[1], S. Tsunoda[3,4], K. Higashisaka[1], and *Y. Tsutsumi*[1,3,4]. [1]Laboratory of Toxicology and Safety Science, Graduate School of Pharmaceutical Sciences, Osaka University, Osaka, Japan; [2]National Institute of Health Science, Tokyo, Japan; [3]Laboratory of Biopharmaceutical Research, National Institute of Biomedical Innovation, Osaka, Japan; [4]MEI Center, Osaka University, Osaka, Japan.

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#408 **Poster Board Number 130**
Effects of Clozapine on the Bone Marrow and Immune Cells in Rodents and Humans: Implications for Drug-Induced Agranulocytosis. *A. R. Lobach*, and *J. Uetrecht*. Leslie Dan Faculty of Pharmacy, University of Toronto, Toronto, ON, Canada.

#409 **Poster Board Number 131**
A Mechanistic Analysis of Silica Nanoparticle-Induced Immune-Modulating Effect in Murine Dendritic Cells. H. Takahashi[1], *Y. Yoshioka*[1], T. Hirai[1], K. Ichihashi[1], N. Nishijima[1], T. Yoshida[1], H. Nabeshi[2], *T. Yoshikawa*[1], S. Tsunoda[3,4], K. Higashisaka[1], and *Y. Tsutsumi*[1,3,4]. [1]Graduate School of Pharmaceutical Sciences, Osaka University, Laboratory of Toxicology and Safety Science, Suita, Japan; [2]National Institute of Health Science, Setagaya, Japan; [3]National Institute of Biomedical Innovation, Laboratory of Biopharmaceutical Research, Ibaraki, Japan; [4]Osaka University, MEI center, Suita, Japan.

#410 **Poster Board Number 132**
Programmed Death-1 Receptor Interactions with Its Ligands May Play a Role in Inhibiting Drug-Induced Liver Injury Mediated by the Adaptive Immune System. K. Semple, *P. Ryan*, M. Chakraborty, W. R. Proctor, and *L. Pohl*. Molecular and Cellular Toxicology Section, Laboratory of Molecular Immunology, National Heart, Lung and Blood Institute, Bethesda, MD.

#411 **Poster Board Number 133**
***In Vitro* Characterization of Immunostimulation by siRNA-Lipid Nanoparticles.** P. Kasperkovitz, R. Duncan, B. Bettencourt, J. Harrop, G. Warner, and *S. Barros*. Alnylam, Cambridge, MA.

#412 **Poster Board Number 134**
Characterization of Suppression of the Innate Immune System by Sodium Methyldithiocarbamate. *W. Tan*, B. Jan, *X. Deng*, M. Gadson, and *S. Pruett*. Basic Sciences, Mississippi State University, Mississippi State, MS.

#413 **Poster Board Number 135**
Submicrometer-Sized Iron Oxide Particles and Inflammation. *A. M. Nilsen*, and D. Mihaylova. Norwegian University of Science and Technology, Trondheim, Norway.

#414 **Poster Board Number 136**
A 28-Day Inhalation Immunotoxicity Study of Methyl Isothiocyanate in Female B6C3F1 Mice. *J. Weinberg*[1], *D. Kirkpatrick*[1], *V. Peachee*[2], *V. Piccirillo*[3], *A. Jonynas*[3], and J. Hauswirth[3]. [1]WIL Research, Ashland, OH; [2]ImmunoTox, Inc., Richmond, VA; [3]MITC Task Force, Washington DC.

#415 **Poster Board Number 137**
Activation of the Aryl Hydrocarbon Receptor during Development Leads to an Altered Cd4$^+$ T Cell Response to Influenza Virus. L. Boule[1], and *B. Lawrence*[2,1]. [1]Immunology, Microbiology, and Virology, University of Rochester Medical Center, Rochester, NY; [2]Environmental Medicine, University of Rochester Medical Center, Rochester, NY.

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#416 **Poster Board Number 138**
Exposure to Triclosan Augments the Allergic Response to Ovalbumin in a Mouse Model of Asthma. *C. M. Long*[1,2], J. Franko[3], M. L. Kashon[1], K. L. Anderson[1], *A. F. Hubbs*[1], E. Lukomska[1], *B. J. Meade*[1], and *S. Anderson*[1]. [1]HELD/ACIB, CDC, NIOSH, Morgantown, WV; [2]West Virginia University, Morgantown, WV; [3]Bethany College, Bethany, WV.

#417 **Poster Board Number 139**
Oral Exposure to Genistin but Not Daidzein Increased Natutal Killer (NK) Cell Activity in Female B6C3F1 Mice. *T. Guo*[1], R. D. Brown[2], and J. F. Zheng[2]. [1]University of Georgia, Athens, GA; [2]Virginia Commonwealth University, Richmond, VA.

#418 **Poster Board Number 140**
Neural Autoimmunity and Low-Level Mercury Exposure. C. Wright, D. L. Shirley, and *J. F. Nyland*. Pathology, Microbiology & Immunology, University of South Carolina School of Medicine, Columbia, SC.

#419 **Poster Board Number 141**
Modulation of HIV$_{GP120}$-Specific T Cell Responses by Δ^9-Tetrahydrocannabinol *In Vitro* and *In Vivo*. *W. Chen*[1,3], *B. F. Kaplan*[2,3], *S. T. Pike*[3], and *N. E. Kaminski*[2,3]. [1]Microbiology and Molecular Genetics, Michigan State University, East Lansing, MI; [2]Pharmacology and Toxicology, Michigan State University, East Lansing, MI; [3]Center for Integrative Toxicology, Michigan State University, East Lansing, MI.

#420 **Poster Board Number 142**
Cannabinoid Enhancement of Humoral Immunity in CB$_1$/CB$_2$ Null Mice Is Correlated with Enhanced Splenic Norepinephrine (NE) Concentration. T. J. Simkins[1,2,3], K. J. Lookingland[2,3], and *B. L. Kaplan*[1,2,3]. [1]Center for Integrative Toxicology, Michigan State University, East Lansing, MI; [2]Pharmacology and Toxicology, Michigan State University, East Lansing, MI; [3]Neuroscience Program, Michigan State University, East Lansing, MI.

#421 **Poster Board Number 143**
Differential Effects of Delta(9)-Tetrahydrocannabinol on NFκB Activation in T Cell-Dependent Humoral Immune Response in Humans. *T. Ngaotepprutaram*[1,2], *B. F. Kaplan*[1,2], and *N. E. Kaminski*[1,2]. [1]Pharmacology and Toxicology, Michigan State University, East Lansing, MI; [2]Center of Integrative Toxicology, Michigan State University, East Lansing, MI.

#422 **Poster Board Number 144**
Phenotypic Comparison of Leukocyte Populations between Wild Type and Aryl Hydrocarbon Receptor (AhR) Null Rat in the Developing and Mature Spleen and Thymus. R. B. Crawford[1], N. Joshi[1], *R. S. Thomas*[2], and *N. E. Kaminski*[1]. [1]Department of Pharmacology & Toxicology and Center for Integrative Toxicology, Michigan State University, East Lansing, MI; [2]Institute for Chemical Safety Sciences, The Hamner Institutes for Health Sciences, Research Triangle Park, NC.

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#423 **Poster Board Number 145**
Differential Expression Kinetics of miRNA Involved in Allergic Chemical Sensitization following Dermal Exposure in a Murine Model. *S. Anderson*[1], K. Beezhold[2], E. Lukomska[1], J. Richardson[1], *C. Long*[1], K. Anderson[1], J. Franko[3], *B. J. Meade*[1], and D. H. Beezhold[1]. [1]NIOSH, Morgantown, WV; [2]University of Pittsburgh, Pittsburgh, PA; [3]Bethany College, Bethany, WV.

#424 **Poster Board Number 146**
Potential for Immune Sensitization following Dermal Exposure to Indium Tin Oxide. *B. J. Meade*[1], E. Lukomska[1], K. Brock[2], *C. Long*[1], K. Anderson[1], and *S. Anderson*[1]. [1]NIOSH, Morgantown, WV; [2]West Virginia University, Morgantown, WV.

#425 **Poster Board Number 147**
Rat Bioassay of Diisocyanate Asthma: Comparison of Thresholds of the Asthmagenic Response and Pulmonary Irritation. *J. Pauluhn.* Toxicology, Bayer Pharma AG, Wuppertal, Germany.

Monday Afternoon, March 11
1:00 PM to 4:30 PM
Exhibit Hall C–D

PS

Poster Session: Nanotoxicology—Carbonaceous Materials

Chairperson(s): *Silvia Lacerda, US FDA, Bethesda, MD.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *2:45 PM–4:30 PM*

#426 **Poster Board Number 201**
Identification of Novel Exposure and Lung Cancer Gene Markers in Carbon Nanotube-Exposed Human Lung Epithelial Cells. *T. A. Stueckle*[1], *A. Mishra*[1], R. Derk[1], T. Meighan[1], *V. Castranova*[1], *Y. Rojanasakul*[2], and *L. Wang*[1]. [1]NIOSH, Morgantown, WV; [2]West Viriginia University, Morgantown, WV.

#427 **Poster Board Number 202**
ROS Evaluation for Series of CNTs Using ESR Method and Its CNT Concentration Effects. S. Tsuruoka[1], K. Takeuchi[2], K. Koyama[2], F. Tristan-Lopez[1], H. Matsumoto[3], N. Saito[4], Y. Usui[4], M. Endo[1], M. Terrones[1], *D. W. Porter*[5], and *V. Castranova*[5]. [1]ENCs, Shinshu University, Nagano, Japan; [2]Faculty of Engineering, Shinshu University, Nagano, Japan; [3]Department of Organic and Polymeric Materials, Tokyo Institute of Technology, Meguro, Japan; [4]Department of Applied Physical Therapy, Shinshu University, Nagano, Japan; [5]NIOSH, Morgantown, WV.

#428 **Poster Board Number 203**
The Biological Response to Carbon Nanotubes in the BEAS-2B Cell Line Is Affected by Medium Conditions. H. Haniu[1], N. Saito[2], Y. Matsuda[3], Y. Usui[4], K. Aoki[1], S. Takanashi[1], S. Kobayashi[1], H. Nomura[1], M. Okamoto[1], and H. Kato[1]. [1]Department of Orthopaedic Surgery, Shinshu University School of Medicine, Matsumoto, Japan; [2]Department of Applied Physical Therapy, Shinshu University School of Health Sciences, Matsumoto, Japan; [3]Clinical Pharmacology Educational Center, Nihon Pharmaceutical University, Ina-machi, Japan; [4]Research Center for Exotic Nanocarbons, Shinshu University, Matsumoto, Japan. Sponsor: *T. Kadota.*

Abstract #

#429 **Poster Board Number 204**
Evaluation of the Effect of Carbon Nanotubes on the Expressions of Endothelial Genes Implicated in Different Pathways of Cellular Death. O. Janouskova[1], M. Orecna[2], T. Tegegn[2], *S. Lacerda*[2], K. Holada[1], and J. Simak[2]. [1]First Faculty of Medicine, Charles University, Prague, Czech Republic; [2]Division of Hematology, CBER, US FDA, Rockville, MD.

#430 **Poster Board Number 205**
Carboxylated Multiwalled Carbon Nanotubes Induce mTOR Independent Autophagosome Accumulation in Endothelial Cells by Blockade of Autophagic Flux. M. Orecna[1], *S. Lacerda*[1], O. Janouskova[2], T. Tegegn[1], K. Holada[2], and J. Simak[1]. [1]Division of Hematology, CBER, US FDA, Rockville, MD; [2]First Faculty of Medicine, Charles University, Prague, Czech Republic.

#431 **Poster Board Number 206**
Effects of the Protein Corona on the Interaction of Carbon Nanotubes with Blood Platelets. *S. Lacerda*[1], L. L. Diduch[2], M. Orecna[1], T. Tegegn[1], E. Karnaukhova[1], and J. Simak[1]. [1] US FDA, Bethesda, MD; [2]NIST, Gaithersburg, MD.

#432 **Poster Board Number 207**
Genotoxicity of Multiwalled Carbon Nanotubes. S. H. Reynolds[1], C. Dinu[2], D. Lowry[1], M. Kashon[1], *A. F. Hubbs*[1], *B. Stanley*[3], J. L. Salisbury[4], J. Mastovich[5], B. Kristin[5], J. Sturgeon[5], M. Keane[1], C. Lorenzo[1], and L. Sargent[1]. [1]CDC/NIOSH, Morgantown, WV; [2]West Virginia University, Morgantown, WV; [3]NSA, Knoxville, TN; [4]Mayo Clinic, Rochester, MN; [5]RJ Lee, Monroeville, PA.

#433 **Poster Board Number 208**
Loss of Epithelial Monolayer Integrity following Exposure of Primary Human Airway Cells to Multiwalled Carbon Nanotubes. R. J. Snyder[1], S. Hussain[1], R. Wine[2], J. Roberts[2], J. M. Brown[3], *N. J. Walker*[4], and S. Garantziotis[1]. Division of Bioinformatics and Biostatistics, National Center for Toxicological Research, US FDA, Jefferson, AR.

#434 **Poster Board Number 209**
Human Pleural Mesothelial MeT-5A Cells Are a Limited *In Vitro* Model for Detection of Potential Asbestos-Like Genotoxic Effects of Multiwall Carbon Nanotubes. C. Ziemann, S. Reamon-Büttner, A. Hackbarth, H. Brockmeyer, H. Rahmer, and B. Bellmann. Fraunhofer Institute for Toxicology and Experimental Medicine, Hannover, Germany. Sponsor: *C. Dasenbrock.*

#435 **Poster Board Number 210**
Multidisciplinary Approach to Determination of C_{60} Fullerene Presence in Lipid Membranes. K. A. Russ[1], P. T. Williamson[3], P. Elvati[2], A. Dews[1], T. Adzemovic[1], M. Ray[1], A. Violi[2], P. Smith[4], and *M. A. Philbert*[1]. [1]Environmental Health Sciences, University of Michigan, Ann Arbor, MI; [2]Mechanical Engineering, University of Michigan, Ann Arbor, MI; [3]Centre for Biological Sciences, University of Southampton, Southampton, United Kingdom; [4]Institute for Life Sciences, University of Southampton, Southampton, United Kingdom.

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#436 **Poster Board Number 211**
Single-Walled Carbon Nanotubes Increase Influenza Virus Infectivity in Lung Cells. P. Sanpui[1], J. Loeb[1], J. Lednicky[1], N. Saleh[2], and *T. Sabo-Attwood*[1]. [1]Department of Environmental & Global Health, University of Florida, Gainesville, FL; [2]Department of Environmental Engineering, University of South Carolina, Columbia, SC.

#437 **Poster Board Number 212**
Accumulation of Lipids and Oxidatively Damaged DNA in Hepatocytes Exposed to Particles. P. Moller, L. K. Vesterdal, P. H. Danielsen, J. K. Folkmann, L. F. Jespersen, M. Roursgaard, and S. Loft. Department of Public Health, University of Copenhagen, Copenhagen K, Denmark. Sponsor: *M. Campen*.

#438 **Poster Board Number 213**
IL-4 and IL-13 Suppress IL-1*β* Production by Human THP-1 Macrophages after Exposure to Multiwalled Carbon Nanotubes. K. A. Shipkowski, A. J. Taylor, and *J. C. Bonner*. Toxicology, North Carolina State University, Raleigh, NC.

#439 **Poster Board Number 214**
Zinc Oxide Surface Modification of Multiwalled Carbon Nanotubes Enhances Chemokine and Growth Factor Production in Human Monocytes and Lung Fibroblasts *In Vitro*. A. J. Taylor[1], C. K. Devine[2], G. N. Parsons[2], and *J. C. Bonner*[1]. [1]Department of Environmental and Molecular Toxicology, North Carolina State University, Raleigh, NC; [2]Department of Chemical and Biomolecular Engineering, North Carolina State University, Raleigh, NC.

#440 **Poster Board Number 215**
Metabolomic Analysis of Liver Cells Exposed to Carbon Nanotubes and Graphene Oxide. *W. M. Henderson*[1], D. Bouchard[1], X. Chang[2], I. Chowdhury[3], B. Foster[2], S. Aronson[2], and Q. Teng[1]. [1]National Exposure Research Laboratory, Office of Research and Development, US EPA, Athens, GA; [2]Student Service Authority Contractor to US EPA, Athens, GA; [3]Grantee to US EPA via National Research Council Cooperative Agreement, Athens, GA.

#441 **Poster Board Number 216**
Physical Characterization of Multiwalled Carbon Nanotubes for Inhalation Studies. B. T. Chen, D. Schwegler-Berry, W. McKinney, S. Stone, J. L. Cumpston, S. Friend, *D. W. Porter*, *V. Castranova*, and D. G. Frazer. PPRB, NIOSH, Morgantown, WV.

#442 **Poster Board Number 217**
Cellular Responses Induced by Single-Wall Carbon Nanotubes with Varying Physical Properties in Alveolar Epithelial Cells. *K. Fujita*[1,2], M. Fukuda[2], S. Endoh[2], H. Kato[1,2], N. Shinohara[1,2], R. Nagano[2], M. Horie[3], S. Kinugasa[1,2], H. Hashimoto[1], and A. Kishimoto[1,2]. [1]AIST, Tsukuba, Japan; [2]TASC, Tsukuba, Japan; [3]University Occupational Environmental Health, Kitakyushu, Japan.

#443 **Poster Board Number 218**
Sonolytic Degradation of Pluronic® Surfactants to Toxic Byproducts: Implications for Nanotoxicity Testing. *R. K. Draper*[1,2], R. Wang[1,2], H. Tyler[1], S. Beck[1], S. Vakil[1], S. Li[1], and P. Pantano[2]. [1]Molecular & Cell Biology, University of Texas at Dallas, Richardson, TX; [2]Chemistry, University of Texas at Dallas, Richardson, TX.

Abstract #

#444 **Poster Board Number 219**
Effects of Carbon Black Nanoparticles on Human Pulmonary Cell Lines and Precision Cut Lung Slices. T. Hansen[1], J. Kopf[1], O. Danov[1], M. Ströbele[3], A. Braun[1], K. Sewald[1], P. Steinberg[4], and H. Fehrenbach[2]. [1]Fraunhofer Institute for Toxicology and Experimental Medicine, Hannover, Germany; [2]Research Center Borstel, Borstel, Germany; [3]Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany; [4]University of Veterinary Medicine Hannover, Hannover, Germany. Sponsor: *C. Dasenbrock*.

#445 **Poster Board Number 220**
Rho-Kinases Are Involved in Caspase-1-Mediated IL-1β Secretion following *In Vitro* Exposure to Multiwalled Carbon Nanotubes and Asbestos in Human Monocyte. *S. Kanno*[1], *S. Hirano*[2], S. Chiba[1], H. Takeshita[1], T. Nagai[1], M. Takada[1], and T. Mukai[1]. [1]Department of Legal Medicine, St. Marianna University School of Medicine, Kawasaki, Japan; [2]Research Center for Environmental Risk, National Institute for Environmental Studies, Tsukuba, Japan.

#446 **Poster Board Number 221**
Multiwalled Carbon Nanotubes Damage the Mitochondria to Increase Reactive Oxygen Radical Production, Activate NF-κB Signaling to Induce Inflammatory Cytokines, and Stimulate Transforming Growth Factor β1 and Platelet-Derived Growth Factor Expression to Promote Fibroblast-to-Myofibroblast Transformation. *X. He*[1], *S. Young*[2], D. Schwegler-Berry[2], *W. P. Chishom*[3], *J. E. Fernback*[4], and *Q. Ma*[1]. [1]Toxicology and Molecular Biology Branch, NIOSH, CDC, Morgantown, WV; [2]Pathology and Physiology Research Branch, NIOSH, CDC, Morgantown, WV; [3]Exposure Assessment Branch, NIOSH, CDC, Morgantown, WV; [4]Chemical Exposure & Measuring Branch, NIOSH, CDC, Cincinnati, OH.

#447 **Poster Board Number 222**
Functionalization-Associated Effects of Carboxylated Fullerenes on Cellular Aging. *J. Gao*, and *I. Rashi*. Bioscience Division, Los Alamos National Laboratory, Los Alamos, NM.

#448 **Poster Board Number 223**
An *In Vitro* Assay Detects Enhancement of Mouse T Cell Sensitization to Ovalbumin by Carbon Nanoparticles. D. E. Lefebvre[1], B. Pearce[1], E. Chomyshyn[1], N. Ross[1], S. Halappanavar[2], A. F. Tayabali[2], I. Curran[1], and *G. S. Bondy*[1]. [1]Bureau of Chemical Safety, Food Directorate, Health Products and Food Branch, Health Canada, Ottawa, ON, Canada; [2]Environmental Health Science and Research Bureau, Environmental and Radiation Health Sciences Directorate, Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, ON, Canada.

#449 **Poster Board Number 224**
Role of Transforming Growth Factor-β1 Pathway in Carbon Nanotube Stimulated Collagen Production in Human Lung Cells. *A. Mishra*[1,2], *T. A. Stueckle*[1], R. Derk[1], *V. Castranova*[1,2], Y. Rojanasakul[2], J. Yuan[3], and L. Wang[1,2]. [1]Pathology and Physiology Research Branch, Health Effects Laboratory Division, NIOSH, Morgantown, WV; [2]School of Pharmacy, West Virginia University, Morgantown, WV; [3]School of Public Health, Hebei United University, Tangshan, China.

Program Description (Continued)

Abstract #

#450 **Poster Board Number 225**
Factors Associated with the Releasability of Carbon Nanotubes (CNTs) from Nanocomposites in Potential Consumer or Industrial Applications. M. Kovochich, R. Avanasi, and *A. K. Madl*. ChemRisk, Aliso Viejo, CA.

#451 **Poster Board Number 226**
***In Vitro* Endothelial Exposure to Carbon Nanotubes Produce Reactive Oxygen Species.** Y. Rodriguez Yanez[1], I. Poblete-Naredo[1], B. Chavez-Munguía[2], B. Cisneros[3], and *A. Albores*[1]. [1]Toxicology, Cinvestav, Mexico City, Mexico; [2]Infectomics and Molecular Pathology, Cinvestav, Mexico City, Mexico; [3]Genetic and Molecular Biology, Cinvestav, Mexico City, Mexico.

#452 **Poster Board Number 227**
Transport of Inhaled MWCNT to the Pleura, Respiratory Muscles and Systemic Organs. R. R. Mercer, A. F. Hubbs, J. F. Scabilloni, L. Wang, L. A. Battelli, *V. Castranova*, and *D. W. Porter*. PPRB, NIOSH, Morgantown, WV.

#453 **Poster Board Number 228**
Genotoxicity of Long, Tangled Carbon Nanotubes in Mice. J. Catalán[1,2], H. Järventaus[1], S. Suhonen[1], K. Siivola[1], C. Moreno[2], E. Rossi[1], J. Koivisto[1], E. Vanhala[1], H. Wolff[1], H. Alenius[1], *K. Savolainen*[1], and H. Norppa[1]. [1]Nanosafety Research Centre, Finnish Institute of Occupational Health, Helsinki, Finland; [2]University of Zaragoza, Zaragoza, Spain.

#454 **Poster Board Number 229**
High-Fat Diet Leads to Increased Lung Inflammation and Airway Resistance following Multiwalled Carbon Nanotubes Exposure. *T. A. Brown*. Center for Environmental Health Sciences, University of Montana, Missoula, MT.

#455 **Poster Board Number 230**
Multiwalled Carbon Nanotubes Cause Mild Inflammation in the Aorta without Pulmonary Toxicity in a Rapidly Aging Mouse Model. K. Luyts, S. Smulders, and *P. H. Hoet*. Environment and Health, KULeuven, Leuven, Belgium.

#456 **Poster Board Number 231**
Investigation of the Pulmonary Bioactivity of Double-Walled Carbon Nanotubes. *T. M. Sager*[1], M. Wolfarth[1], *D. W. Porter*[1], and T. Steinbach[2]. [1]NIOSH, Morgantown, WV; [2]Experimental Pathology Laboratories, Sterling, VA.

#457 **Poster Board Number 232**
Multiwalled Carbon Nanotube-Induced Lung Tumors. L. Sargent[1], *D. W. Porter*[1], D. T. Lowry[1], L. Battelli[1], K. Siegrist[1], M. L. Kashon[1], B. T. Chen[1], D. Frazer[1], L. Staska[2], *A. F. Hubbs*[1], W. McKinney[1], M. Andrew[1], S. Tsuruoka[3], M. Endo[3], *V. Castranova*[1], and S. H. Reynolds[1]. [1]CDC/NIOSH, Morgantown, WV; [2]Integrated Laboratory Systems, Durham, NC; [3]Shinshu University, Nagano, Japan.

#458 **Poster Board Number 233**
Toxicological Evaluation of Pulmonary Exposure to Graphenes of Different Sizes. *J. R. Roberts*[1,2], A. Kenyon[1], S. S. Leonard[1,2], N. Fix[1], *D. W. Porter*[1,2], *T. Sager*[1,2], M. Wolfarth[1], *B. M. Yingling*[2,1], *I. S. Chaudhuri*[3], A. Kyrlidis[3], S. Bilgesu[1], R. R. Mercer[1,2], D. Schwegler-Berry[1], *V. Castranova*[1], and *A. Erdely*[1,2]. [1]NIOSH, Morgantown, WV; [2]West Virginia University, Morgantown, WV; [3]Cabot Corporation, Billerica, MA.

Abstract #

#459 **Poster Board Number 234**
A 28-Days Repeated Dose of Multiwalled Carbon Nanotubes (MWCNTs) in Sprague-Dawley Rats. J. Sung[2], B. Choi[2], K. Song[2], J. Kim[2], K. Ahn[3], G. Lee[3], J. Lee[5], J. Shin[5], J. Lee[1], K. Jeon[4,3], and *I. Yu*[1]. [1]Institute of Nanoproduct Safety Research, Hoseo University, Asan, Republic of Korea; [2]Bioconvergence Department, KCL, Incheon, Republic of Korea; [3]Mechanical Engineering, Hanyang University, Ansan, Republic of Korea; [4]HCT, Icheon, Republic of Korea; [5]Occupational Lung Diseases Institute, Korea Workers' Compensation Welfare Service, Icheon, Republic of Korea.

#460 **Poster Board Number 235**
Toxic Effects of MWCNT *In Vivo* and *In Vitro*. A. Schlichting[1], C. Ziemann[1], A. Leonhardt[2], R. Susanne[1], S. Dirk[1], and B. Bernd[1]. [1]Fraunhofer ITEM, Hannover, Germany; [2]Leibniz Institute for Solid State and Materials Research, Dresden, Germany. Sponsor: *C. Dasenbrock*.

#461 **Poster Board Number 236**
Carbon Nanotubes Enhance Metastatic Growth of Lung Carcinoma via Up-Regulation of Myeloid-Derived Suppressor Cells. M. Shurin[1], A. Tkach[2], E. Kisin[2], T. Khaliullin[2], S. Stanley[2], D. Gutkin[1], A. Star[4], Y. Chen[4], G. Shurin[1], *V. Kagan*[3], and *A. Shvedova*[2]. [1]Department of Pathology, University of Pittsburgh, Pittsburgh, PA; [2]PPRB, HELD, NIOSH, Morgantown, WV; [3]Department of Environmental and Occupational Health, University of Pittsburgh, Pittsburgh, PA; [4]Department of Chemistry, University of Pittsburgh, Pittsburgh, PA.

#462 **Poster Board Number 237**
IL-33 Modulates Chronic Airway Resistance Changes Induced by Multiwalled Carbon Nanotubes. *X. Wang*, *J. Shannahan*, and *J. M. Brown*. Pharmacology & Toxicology, East Carolina University, Greenville, NC.

#463 **Poster Board Number 238**
Pulmonary Toxicity Assessment of Multiwalled Carbon Nanotubes after Single Intratracheal Instillation in a One-Year Bioassay of Rats. *M. Naya*, N. Kobayashi, K. Honda, *M. Ema*, and J. Nakanishi. National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan.

#464 **Poster Board Number 239**
Thirteen-Week Inhalation Toxicity Study with a Multiwall Carbon Nanotube Test Material in Wistar Rats. D. Schuler[1], K. L. Reed[2], *M. P. DeLorme*[2], Y. Okazaki[1], Y. Muro[4], H. J. Chevalier[3], and *D. B. Warheit*[2]. [1]Harlan Laboratories Ltd., Fuellinsdorf, Switzerland; [2]DuPont Haskell Lab, Wilmington, DE; [3]Anapath GmbH., Oberbuchsiten, Switzerland; [4]Showa Denko K.K., Tokyo, Japan.

#465 **Poster Board Number 240**
Carbon Nanotube Dosimetry: From Workplace Exposure Assessment to Inhalation Toxicology. M. Dahm[1], *B. Chen*[2], M. E. Birch[1], D. E. Evans[1], M. K. Schubauer-Berigan[1], T. Hulderman[2], S. A. Bilgesu[2], H. D. Leonard[2], W. McKinney[2], D. G. Frazer[2], *J. M. Antonini*[2], *D. W. Porter*[2], *V. Castranova*[2], *P. C. Zeidler-Erdely*[2], and *A. Erdely*[2]. [1]NIOSH, Cincinnati, OH; [2]NIOSH, Morgantown, WV.

Program Description (Continued)

Abstract #

#466 **Poster Board Number 241**
Pharmacokinetics and Pharmacodynamics of C60 and Nanosilver in Nonpregnant, Pregnant, and Lactating Rats. R. Snyder[1], *S. Sumner*[1], S. Black[1], A. Lewin[1], *R. Tyl*[1], M. Levine[1], *C. Wingard*[2], and *T. Fennell*[1]. [1]Discovery Sciences, RTI International, Research Triangle Park, NC; [2]Department of Physiology, East Carolina University, Greenville, NC.

#467 **Poster Board Number 242**
Signal Transducer and Activator of Transcription 1 (STAT-1) Suppresses Pulmonary Inflammation following Allergen Sensitization and Exposure to Multiwalled Carbon Nanotubes. *E. E. Anderson Thompson*, A. J. Taylor, *E. E. Glista-Baker*, *B. C. Sayers*, and *J. C. Bonner*. Environmental and Molecular Toxicology, North Carolina State University, Raleigh, NC.

#468 **Poster Board Number 243**
Resolution of Inflammatory and Surfactant Alterations Mediated by Carbon Black and Silver Nanospheres. *D. Botelho*[1], S. Sarker[2], F. Chung[3], A. Porter[3], S. Schwander[2], and *A. Gow*[1]. [1]Toxicology, Rutgers The State University of New Jersey, Piscataway, NJ; [2]UMDNJ, Piscataway, NJ; [3]Imperial College London, London, United Kingdom.

#469 **Poster Board Number 244**
Biocompatibility of Graphene Nanoplatelets in Terminal Arterioles. S. Chowdhury[1], M. Frame[1], A. M. Dewar[1], S. Kanakia[1], J. Touissant[1], W. Moore[2], and B. Sitharaman[1]. [1]Biomedical Engineering, Stony Brook University, Stony Brook, NY; [2]Radiology, Stony Brook University, Stony Brook, NY. Sponsor: *T. Nurkiewicz*.

#470 **Poster Board Number 245**
***In Vitro* Penetration of Amine Terminated Dendrimer Nanoparticles into Pig and Human Skin.** *M. E. Kraeling*[1], V. D. Topping[1], X. Gao[1], O. A. Ogunsola[1], K. Schlick[2], E. Simanek[2], S. Man[3], A. K. Patri[3], R. L. Sprando[1], and *J. J. Yourick*[1]. [1]Office of Applied Research and Safety Assessment, US FDA, Laurel, MD; [2]Department of Chemistry, Texas Christian University, Fort Worth, TX; [3]Nanotechnology Characterization Laboratory, SAIC-Frederick, Frederick National Laboratory for Cancer Research, Frederick, MD.

#471 **Poster Board Number 246**
Identifying Data Gaps and Prioritizing Research Areas Necessary for Risk Assessment of Multiwalled Carbon Nanotubes. *K. Fedak*, A. Turner, A. Harris, and D. Burch. ICF International, Durham, NC.

Abstract #

Monday Afternoon, March 11
1:00 PM to 4:30 PM
Exhibit Hall C–D

PS

Poster Session: Epidemiology: Exposures and Associations

Chairperson(s): *Yudan Wei, Mercer University School of Medicine, Macon, GA, and Marc-Andre Verner, Harvard Medical School, Boston, MA.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *1:00 PM–2:45 PM*

#472 **Poster Board Number 247**
Association of Rice and Grain Consumption with Urinary Concentrations of Total Arsenic and Dimethylarsonic Acid in US Adults. *Y. Wei*[1], J. Zhu[2], and A. Nguyen[1]. [1]Department of Community Medicine, Mercer University School of Medicine, Macon, GA; [2]Department of Mathematics and Computer Science, Fort Valley State University, Fort Valley, GA.

#473 **Poster Board Number 248**
Prenatal Exposure to Inorganic Arsenic in Gómez Palacio, Mexico, Links to Contaminated Drinking Water. J. E. Laine[2], M. Rubio-Andrade[4], A. Olshan[2], M. Styblo[3], G. Garcia-Vargas[4], and *R. C. Fry*[1]. [1]Environmental Sciences and Engineering, University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]Epidemiology, University of North Carolina at Chapel Hill, Chapel Hill, NC; [3]Nutrition, University of North Carolina at Chapel Hill, Chapel Hill, NC; [4]Facultad de Medicina, Universidad Juarez del Estado de Durango, Gómez Palacio, Mexico.

#474 **Poster Board Number 249**
Is the Relationship between Prenatal Exposure to Polychlorinated Biphenyls (PCB) and Birthweight Attributable to Pharmacokinetics? *M. Verner*[1,2], *R. McDougall*[3], *A. Glynn*[4], *M. E. Andersen*[5], *H. J. Clewell*[5], and *M. P. Longnecker*[6]. [1]Channing Laboratory, Brigham and Women's Hospital, Harvard Medical School, Boston, MA; [2]Institute of Environmental Medicine, Karolinska Institutet, Stockholm, Sweden; [3]Faculty of Engineering and Applied Science, University of Ontario Institute of Technology, Oshawa, ON, Canada; [4]Swedish National Food Administration, Uppsala, Sweden; [5]The Hamner Institutes for Health Sciences, Research Triangle Park, NC; [6]Epidemiology Branch, NIEHS, Research Triangle Park, NC.

#475 **Poster Board Number 250**
Association of Serum Levels of PCBs with IL-8 mRNA Expression in Blood Samples from Asthmatic and Nonasthmatic Japanese Children. *M. Tsuji*[1,2], *T. Kawamoto*[2], C. Koriyama[3], S. Akiba[3], *C. Vogel*[1], Y. Hsu-Sheng[2], and F. Matsumura[1]. [1]Department of Environmental Toxicology and the Center for Health and the Environment, University of California Davis, Davis, CA; [2]Department of Environmental Health, University of Occupational and Environmental Health, Kitakyusyu, Japan; [3]Department of Epidemiology and Preventive Medicine, Kagoshima University Graduate School of Medical and Dental Sciences, Kagoshima, Japan.

#476 **Poster Board Number 251**
Pulmonary Function Testing in Emergency Responders. S. Harbison, *G. Johnson*, J. McCluskey, P. Xu, S. Morris, J. Wolfson, and *R. D. Harbison*. Environmental and Occupational Health, University of South Florida, Tampa, FL.

Program Description (Continued)

Abstract #

#477 **Poster Board Number 252**
Association between Copper, Iron, and Zinc Levels in Private Wells and Birth Defects Prevalence in North Carolina. A. P. Sanders[1], T. A. Desrosiers[1,2], A. H. Herring[1], D. Enright[2], A. F. Olshan[1], R. E. Meyer[2], and *R. C. Fry*[1]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]State Center for Health Statistics, Division of Public Health, Raleigh, NC.

#478 **Poster Board Number 253**
Lack of an Association between Cumulative Exposure to Diacetyl and Changes in Pulmonary Health among Workers at a Food Flavorings Manufacturer. C. J. Ronk, D. M. Hollins, M. J. Jacobsen, A. M. Foda, D. A. Galbraith, and *D. J. Paustenbach*. ChemRisk, San Francisco, CA.

#479 **Poster Board Number 254**
DDT/DDE and Breast Cancer: NHANES 1999–2004 Analyses and a Meta-Analysis. S. Z. Ingber, F. Scinicariello, H. R. Pohl, H. G. Abadin, and H. Murray. DTHHS, ATSDR/CDC, Chamblee, GA. Sponsor: *P. Ruiz*.

#480 **Poster Board Number 255**
Assessing Model Prediction Quality for a Dynamic Population Simulation Model (DPSM). J. P. Monteleone[1], R. Gunawan[1], and *K. Lee*[2]. [1]Pharsight Corporation, Cary, NC; [2]JT International SA, Geneva, Switzerland.

#481 **Poster Board Number 256**
Multiple Myeloma Risk and Benzene Exposure among Pliofilm Workers—A Reanalysis Using an Internal Reference Group. *S. Lamm*[1], *J. Britt*[2], and *R. James*[2]. [1]Consultants in Epidemiology and Occupational Health, Washington DC; [2]ToxStrategies, Tallahassee, FL.

#482 **Poster Board Number 257**
Expression of DNA Repair Genes in Breast Cancer Tumors from Puerto Rican Women. *J. L. Matta*[1], L. Morales[1], A. Cruz[2], M. Bayona[3], J. Dutil[4], A. Gjyshi[5], A. Monteiro[5], and E. Suarez[6]. [1]Pharmacology Physiology and Toxicology, Ponce School of Medicine and Health Sciences, Ponce, Puerto Rico; [2]Hematology-Oncology Fellowship Program, SJCH with VACHS, San Juan, Puerto Rico; [3]US FDA, Division of Epidemiology/OSB/CDRH, Silver Spring, MD; [4]Biochemistry, Ponce School of Medicine and Health Sciences, Ponce, Puerto Rico; [5]H. Lee Moffitt Cancer Center, Tampa, FL; [6]Cancer Epidemiology Program, University of Puerto Rico, Ponce, Puerto Rico.

Abstract #

Monday Afternoon, March 11
1:00 PM to 4:30 PM
Exhibit Hall C–D

PS

Poster Session: Pharmacokinetics and Disposition

Chairperson(s): *Gabriel Knudsen, NIEHS, Research Triangle Park, NC.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *2:45 PM–4:30 PM*

#483 **Poster Board Number 301**
Investigation of Route-Dependent Exposure and Metabolism of Bisphenol A (BPA) in Neonatal Mice following Oral and Subcutaneous Administration of ^{3}H-BPA. *D. Draganov*[1], D. Markam[2], *D. Beyer*[3], J. Moore[1], T. Riehl[1], *J. Waechter*[2], *S. Dimond*[4], *R. Shiotsuka*[5], *K. Ehman*[6], and *S. Hentges*[7]. [1]Metabolism, WIL Research, Ashland, OH; [2]The Dow Chemical Co., Midland, MI; [3]Bayer Healthcare AG, Wuppertal, Germany; [4]SABIC, Pittsfield, MA; [5]Bayer Material Science, Pittsburgh, PA; [6]TRS, Inc., Charlottesville, VA; [7]ACC, Washington DC.

#484 **Poster Board Number 302**
Disposition and Kinetics of Tetrabromobisphenol a (TBBPA) in Female Wistar-Han Rats. *G. A. Knudsen*, *J. M. Sanders*, A. M. Sadik, and *L. S. Birnbaum*. Toxicology and Toxicokinetics, NCI at NIEHS, Research Triangle Park, NC.

#485 **Poster Board Number 303**
Investigation of BPA-Glucuronide As a Substrate for Human BCRP, MDR1, MRP2, and MRP3 Transporters. M. V. Driscoll, and *A. L. Slitt*. Biomedical and Pharmaceutical Sciences, University of Rhode Island, Kingston, RI.

#486 **Poster Board Number 304**
A Physiologically-Based Pharmacokinetic Model for Bisphenol A in Rats at Different Developmental Ages. X. Yang, D. R. Doerge, and *J. W. Fisher*. National Center for Toxicological Research, US FDA, Jefferson, AR.

#487 **Poster Board Number 305**
Dose-Response Relationship of an Environmental Mixture of Pyrethroids following an Acute Oral Administration in the Rat. *M. F. Hughes*[1], D. G. Ross[1], J. M. Starr[2], *E. J. Scollon*[1,3], *M. J. Wolansky*[4], *K. M. Crofton*[1], and *M. J. DeVito*[1,5]. [1]ORD/NHEERL, US EPA, Research Triangle Park, NC; [2]ORD/NERL, US EPA, Research Triangle Park, NC; [3]OPP/HED, US EPA, Arlington, VA; [4]University of Buenos Aires, Buenos Aires, Argentina; [5]NIEHS/NTP, Research Triangle Park, NC.

#488 **Poster Board Number 306**
Partition Coefficients of Deltamethrin (DLM) and Cis-Permetrhrin (CIS) in Male Sprague-Dawley Rats. M. Amaraneni[1], D. Gullick[1], P. Sethi[1], T. Mortuza[1], *T. Osmitz*[2], *S. S. Anand*[3], *D. Gammon*[4], C. A. White[1], *J. V. Bruckner*[1], and *B. S. Cummings*[1]. [1]University of Georgia, Athens, GA; [2]Science Strategies, LLC, Charlottesville, VA; [3]DuPont Haskell, Newark, DE; [4]FMC, Ewing, NJ.

MONDAY

Program Description (Continued)

Abstract #

#489 **Poster Board Number 307**
Preliminary Toxicokinetics of N-Butylbenzenesulfonamide after a Single Intravenous or Gavage Administration to Harlan Sprague-Dawley Rats and B6C3F1/NMice. S. Hong[1], S. Gibbs[1], *S. Graves*[1], D. Kobs[1], C. Rider[2], A. Martone[2], and S. Waidyanatha[2]. [1]Battelle Memorial, Columbus, OH; [2]Division of National Toxicology Program, NIEHS, Research Triangle Park, NC.

#490 **Poster Board Number 308**
Gestational and Lactational Physiologically-Based Pharmacokinetic (PBPK) Models for the Herbicide Atrazine in Rats: Development and Optimization. *Z. Lin*[1,2], *J. W. Fisher*[3], and *N. M. Filipov*[1,2]. [1]Physiology and Pharmacology, University of Georgia, Athens, GA; [2]Interdisciplinary Toxicology Program, University of Georgia, Athens, GA; [3]National Center for Toxicological Research, US FDA, Jefferson, AR.

#491 **Poster Board Number 309**
Characterization of the Fate of β-Hexabromocyclododecane (HBCD) in Mice. *J. M. Sanders*, *G. A. Knudsen*, A. M. Sadik, and *L. S. Birnbaum*. NIH, NCI, Research Triangle Park, NC.

#492 **Poster Board Number 310**
OATs and OATPs Are Involved in the Disposition of Perfluoroalkyl Sulfonates in Rats. W. Zhao[1], J. Zitzow[2], *D. J. Ehresman*[2], *S. Chang*[2], *J. L. Butenhoff*[2], and *B. Hagenbuch*[1]. [1]Pharmacology, Toxicology and Therapautics, University of Kansas Medical Center, Kansas City, KS; [2]Medical Department, 3M Center, St. Paul, MN.

#493 **Poster Board Number 311**
Toxicokinetics of Inhalation, Metabolism and Elimination of 6: 2 FTOH and 8: 2 FTOH in Rats. *M. W. Himmelstein*, *T. L. Serex*, R. C. Buck, and M. H. Russell. E.I. DuPont de Nemours & Co Inc., Wilmington, DE.

#494 **Poster Board Number 312**
Absorption, Distribution, Metabolism, and Elimination of [^{14}C] 6: 2 Fluorotelomer Alcohol in the Rat. R. T. Mingoia[1], S. C. Carpenter[1], T. L. Whyte[1], *M. W. Himmelstein*[1], T. A. Snow[1], *L. Cox*[1], *S. A. Gannon*[1], and R. C. Buck[2]. [1]DuPont Haskell Global Centers for Health and Environmental Sciences, Newark, DE; [2]E. I. duPont de Nemours and Company, Inc., Chemicals and Fluoroproducts, Wilmington, DE.

#495 **Poster Board Number 313**
Analysis of tris(2-Chloroisopropyl)phosphate Metabolites in Rat Plasma for Toxicology Studies. *B. Collins*[2], *S. Waidyanatha*[2], *M. Stout*[2], A. Gutierrez[1], R. Mathias[1], C. Dillon[1], D. Slade[1], *C. Croutch*[1], K. Aillon[1], J. Algaier[1], and R. Harris[1]. [1]MRIGlobal, Kansas City, MO; [2]National Toxicology Program, NIEHS, Research Triangle Park, NC.

#496 **Poster Board Number 314**
***In Vitro-In Vivo* Extrapolation of 7-Ethoxycoumarin Metabolism Using 3D-Organotypic Liver Bioreactor.** *K. Choi*[1], *J. Campbell*[1], W. P. Pfund[2], *J. McKim*[3], *E. L. LeCluyse*[1], and *H. Clewell*[1]. [1]The Hamner Institutes for Health Sciences, Research Triangle Park, NC; [2]RealBio Technology, Inc., Kalamazoo, MI; [3]CeeTox Corp., Kalamazoo, MI.

Abstract #

#497 **Poster Board Number 315**
Enhanced Intranasal Delivery of Gemcitabine to the Central Nervous System. *M. Krishan*[1], G. Gudelsky[2], P. Desai[2], and *M. Genter*[1]. [1]Environmental Health, University of Cincinnati, Cincinnati, OH; [2]College of Pharmacy, University of Cincinnati, Cincinnati, OH.

#498 **Poster Board Number 316**
Altered Irinotecan Pharmacokinetics in Diet-Induced Obesity. P. Shah, A. Gandhi, and R. Ghose. Pharmaceutical and Pharmacological Sciences, University of Houston, Houston, TX. Sponsor: *R. Ghose*.

#499 **Poster Board Number 317**
Interaction of Immunosuppressants with Human Organic Anion Transporters 1 and 3 and Multidrug Resistance Proteins 2 and 4. R. Greupink[1], A. A. El-Sheikh[2], H. Wortelboer[3], J. J. Van den Heuvel[1], M. Schreurs[1], J. B. Koenderink[1], R. Masereeuw[1], and *F. G. Russel*[1]. [1]Department of Pharmacology and Toxicology, Radboud University Nijmegen Medical Centre, Nijmegen, Netherlands; [2]Department of Pharmacology, Faculty of Medicine, Minia University, Minya, Egypt; [3]TNO, Zeist, Netherlands.

#500 **Poster Board Number 318**
Accumulation of β-N-methylamino-L-Alanine in Tissues following Repeat Oral Administration to Harlan Sprague-Dawley Rats. C. Garner[1], C. J. Wegerski[1], *M. Doyle-Eisele*[1], J. Lucak[1], *S. Waidyanatha*[2], *J. D. McDonald*[1], and *J. Sanders*[2]. [1]Lovelace Respiratory Research Institute, Albuquerque, NM; [2]National Toxicology Program, NIEHS, Research Triangle Park, NC.

#501 **Poster Board Number 319**
Comparative Nonclinical Ocular Tissue Distribution of the Visual Cycle Modulator (VCM) Emixustat in Rats, Beagle Dogs, and Cynomolgus Monkeys. T. Podoll[1], *R. J. Eyre*[1], S. Al-Fayoumi[1], *E. Austin*[1], E. Prescott[2], G. Sun[2], M. Orme[1], and R. Kubota[1]. [1]Acucela Inc., Seattle, WA; [2]Covance, Madison, WI.

#502 **Poster Board Number 320**
Development of Sustained Release Buprenorphine for Use As an Improved Analgesic in Toxicology Studies: Assessment of Formulation Pharmacokinetics. L. Koetzner[1], *W. Stokes*[2], W. Lance[3], G. Wnorowski[1], N. South[4], and J. Boulet[1]. [1]Product Safety Labs, Dayton, NJ; [2]NICEATM, NIEHS, Research Triangle Park, NC; [3]Wildlife Pharmaceuticals, Fort Collins, CO; [4]Battelle, Columbus, OH.

#503 **Poster Board Number 321**
Acute Rat Inhalation Pharmacokinetic Study of 10.9 kD Protein with or without Pegylation. *J. Gould*[1], I. Carvajal[1], *T. Davidson*[1], A. Kozhich[1], J. Laporte[2], J. Li[1], N. Mathias[1], L. Schneeweis[1], S. Thompson-Iritani[1], *J. Valentine*[1], B. Wang[1], and *H. H. Haggerty*[1]. [1]Bristol-Myers Squibb, New Brunswick, NJ; [2]Charles River Laboratories Preclinical Services Montréal Inc, Senneville, QC, Canada.

#504 **Poster Board Number 322**
Simulation of Perfluoroacid Accumulation in Humans Exposed to Perfluorotelomer Alcohol Products. *W. Roth*, and P. Rice. Office of Food Additive Safety, US FDA, College Park, MD.

Program Description (Continued)

Abstract #

#505 **Poster Board Number 323**
Uptake and Disposition in Humans of Hydrofluorocarbons (HFCs) Used As Refrigerants. *L. Ernstgård*, B. Sjögren, and *G. Johanson*. Work Environmental Toxicology, Institute of Environmental Medicine, Karolinska Institutet, Stockholm, Sweden.

#506 **Poster Board Number 324**
Ethanol Toxicokinetics Resulting from Inhalation Exposure in Human Volunteers and Toxicokinetic Modeling. J. Dumas-Campagna, G. Charest-Tardif, *R. Tardif*, and *S. Haddad*. Environmental and Occupational Health, IRSPUM, Université de Montréal, Montréal, QC, Canada.

#507 **Poster Board Number 325**
Physiologically-Based Pharmacokinetic (PBPK) Modeling: Extrapolation from *In Vitro* to *In Vivo*, a Case Study Using a Novel Dermal Compartment. *M. V. Evans*[1], C. A. Wilson[2], L. J. Beesley[2], L. S. Leon[2], *R. A. Pegram*[1], *E. L. Croom*[1], C. R. Eklund[1], and M. E. Sawyer[2]. [1]PB, US EPA, Research Triangle Park, NC; [2]REU 2012, North Carolina State University, Raleigh, NC.

#508 **Poster Board Number 326**
Evaluation of Toxicity Adjustment Factors Used for the Risk Assessment of Chlorpyrifos Oxon in Drinking Water. *M. Bartels*[1], *M. Marty*[2], *J. E. Chambers*[3], J. J. Galligan[4], D. W. Lickfeldt[5], and *D. R. Juberg*[5]. [1]Toxicology, Dow Chemical, Midland, MI; [2]Toxicology, Dow Chemical, Midland, MI; [3]College of Veterinary Medicine, Mississippi State University, Mississippi State, MS; [4]Neuroscience Program, Michigan State University, East Lansing, MI; [5]Regulatory Laboratory, Dow AgroSciences LLC, Indianapolis, IN.

#509 **Poster Board Number 327**
Effects of Leucine Administration on Plasma and Brain Levels of Other Amino Acids. *K. Yu*, L. Narayanan, *J. Gearhart*, *J. Schlager*, F. Lobo-Menendez, D. Mahle, and P. Robinson. AFRL, Wright-Patterson AFB, Dayton, OH.

#510 **Poster Board Number 328**
Screening for Substrates of the P-Glycoprotein Transporter. R. A. Pegram[1], *E. L. Croom*[1], and J. A. Campbell[2]. [1]NHEERL/ORD, US EPA, Research Triangle Park, NC; [2]NCBA/SEE Program, Washington DC.

#511 **Poster Board Number 329**
Transport Mediated Mechanism for Nucleoside Penetration of the Blood-Testis Barrier. *D. M. Klein*[1], *R. N. Hardwick*[1], K. K. Evans[2], W. H. Dantzler[2], S. H. Wright[2], and *N. J. Cherrington*[1]. [1]Pharmacology/Toxicology, University of Arizona, Tucson, AZ; [2]Physiology, University of Arizona, Tucson, AZ.

#512 **Poster Board Number 330**
Pharmacokinetics and Bioavailability Testing of Levofloxacin in Rats. *K. K. Kabirov*, *A. Banerjee*, E. Onua, M. Hautmann, and *A. V. Lyubimov*. Toxicology Research Laboratory/University of Illinois at Chicago, Chicago, IL.

Abstract #

#513 **Poster Board Number 331**
Comparative Disposition and Metabolism of 2, 2'-Dithiobisbenzanilide following Dermal, Oral, and Intravenous Administration to Harlan Sprague-Dawley Rats and B6C3F1/N Mice. J. Lucak[1], C. Garner[1], C. J. Wegerski[1], *J. Sanders*[2], *M. Doyle-Eisele*[1], *J. D. McDonald*[1], and *S. Waidyanatha*[2]. [1]Lovelace Respiratory Research Institute, Albuquerque, NM; [2]National Toxicology Program, NIEHS, Research Triangle Park, NC.

#514 **Poster Board Number 332**
Effect of Vehicle on the Dermal Absorption of 2-Hydroxy-4-Methoxybenzophenone Harlan Sprague-Dawley Rats and B6C3F1/N Mice. C. J. Wegerski[1], C. Garner[1], *M. Doyle-Eisele*[1], *J. Sanders*[2], *J. D. McDonald*[1], *S. Auerbach*[2], and *S. Waidyanatha*[2]. [1]Lovelace Respiratory Research Institute, Albuquerque, NM; [2]National Toxicology Program, NIEHS, Research Triangle Park, NC.

#515 **Poster Board Number 333**
Lipophilicity and Membrane Affinity of Munitions Constituents Using Biolipid Beads. A. B. Goins[1], *D. R. Johnson*[2], C. Y. Ang[1], A. M. Scott[2], A. J. Bednar[2], T. M. Reese[3], and F. C. Hill[2]. [1]Environmental Laboratory, US Army Engineer Research & Development Center, Vicksburg, MS; [2]Badger Technical Services, Vicksburg, MS; [3]Jackson State University, Jackson, MS.

#516 **Poster Board Number 334**
Less Is More: Better Toxicity Data from Fewer Rodents Using Plasma Microsampling. G. Schmitt, A. Eichinger-Chapelon, D. Zaugg, and *T. Singer*. Toxicology, F. Hoffmann-La Roche, Basel, Switzerland.

#517 **Poster Board Number 335**
Using PBPK Modeling to Address Diurnal Variation and Age Differences in Hexavalent Chromium Toxicokinetics in Humans. C. R. Kirman[1], *C. M. Thompson*[2], *D. M. Proctor*[3], *M. Suh*[3], *L. C. Haws*[4], *M. A. Harris*[2], and *S. M. Hays*[5]. [1]Summit Toxicology LLP, Orange, OH; [2]ToxStrategies, Katy, TX; [3]ToxStrategies, Rancho Santa Margarita, CA; [4]ToxStrategies, Austin, TX; [5]Summit Toxicology LLP, Allenspark, CO.

#518 **Poster Board Number 336**
Advantages of Using Quadrupole Time-of-Flight (QTOF) in the Bioanalysis of Large Therapeutic Peptides. F. Garofolo. Bioanalytical Services, Algorithme Pharma, Laval, QC, Canada. Sponsor: *K. Draper*.

#519 **Poster Board Number 337**
A New Strategy to Effectively Reduce Matrix Effect Caused by Phospholipids in Plasma Samples under Hydrophilic Interaction Liquid Chromatography (HILIC). M. Raigneau, and F. Garofolo. Bioanalytical Services, Algorithme Pharma Inc., Laval, QC, Canada. Sponsor: *K. Draper*.

#520 **Poster Board Number 338**
Impact of Organic Solvent Additive on the Integrity of Plasma Samples over Time in Bioanalysis by LC-MS/MS. C. Dicaire, and F. Garofolo. Bioanalytical Services, Algorithme Pharma Inc., Laval, QC, Canada. Sponsor: *K. Draper*.

Program Description (Continued)

Abstract #

#521 **Poster Board Number 339**
Dried Blood Spots (DBS) On-Card Derivatization: An Easy and Alternative Form for Sample Handling to Overcome the Biological Matrix Instability of Thiorphan R. Sabelli, and F. Garofolo. Bioanalytical Services, Algorithme Pharma Inc., Laval, QC, Canada. Sponsor: *K. Draper*.

#522 **Poster Board Number 340**
Superparamagnetic Iron Oxide Loaded Cross-Linked Nanoassemblies Improve Tumor Accumulation and Magnetic Resonance Imaging *In Vivo*. *M. Dan*[1,2], M. T. Dickerson[1], P. A. Hardy[3], Y. Bae[1], and *R. A. Yokel*[1,2]. [1]Pharmaceutical Sciences, University of Kentucky, Lexington, KY; [2]Toxicology, University of Kentucky, Lexington, KY; [3]Anatomy and Neurobiology, University of Kentucky, Lexington, KY.

#523 **Poster Board Number 341**
Age-Dependent Capability of Drug Metabolism in Commerciall Avairable Human Hepatocytes. M. Sunouchi[1], K. Nakazawa[1], R. Kikura-Hanajiri[2], K. Kobayashi[3], H. Kojima[1], and M. Usami[1]. [1]Pharmacology, National Institute of Health Sciences, Tokyo, Japan; [2]Pharmacognosy and Phytochemistry, National Institute of Health Sciences, Tokyo, Japan; [3]Shizuoka Prefectural Agriculture and Forestry College, Iwata, Japan. Sponsor: *H. Kojima*.

Monday Afternoon, March 11
1:00 PM to 4:30 PM
Exhibit Hall C–D

PS

Poster Session: Epigenetics

Chairperson(s): *Edmond Creppy, University Bordeaux Segalen, Bordeaux, France, and Diego Montoya-Durango, University of Louisville, Louisville, KY.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *1:00 PM–2:45 PM*

#524 **Poster Board Number 343**
AhR-Mediated Epigenetic Modulation of CYP19 and BCRP in Human Breast Adipose Fibroblasts and MCF-7 Cells. *M. B. van Duursen*, S. M. Nijmeijer, M. de Dreu, and *M. van den Berg*. Institute for Risk Assessment Sciences, Utrecht University, Utrecht, Netherlands.

#525 **Poster Board Number 344**
The Ah Receptor Recruits Protein Kinases to Phosphorylate Ser10 in Histone H3 of the *CYP1A1* Promoter Chromatin. *H. Kurita*, and *A. Puga*. Department of Environmental Health, University of Cincinnati, Cincinnati, OH.

#526 **Poster Board Number 345**
Epigenetics of Arsenic Carcinogenesis and Location of Methylated DNA Sites Underlying Gene Expression Changes. *B. A. Merrick*[1], *E. J. Tokar*[1], D. P. Phadke[2], *R. R. Shah*[2], M. Wang[3], O. Gordon[3], G. M. Wright[3], M. Burke[3], S. A. Baxter[3], K. E. Pelch[1], *R. R. Tice*[1], and *M. P. Waalkes*[1]. [1]DNTP, NIEHS, Research Triangle Park, NC; [2]Bioinformatics, SRA, Durham, NC; [3]Genomics, DHMRI, Kannapolis, NC.

Abstract #

#527 **Poster Board Number 346**
Age- and Sex-Related Alterations in Renal Global DNA Methylation during the Life Cycle of Rats. T. Han, C. L. Moland, J. Kwekel, *V. G. Desai*, and *J. C. Fuscoe*. Division of Systems Biology, National Center for Toxicological Research, US FDA, Jefferson, AR.

#528 **Poster Board Number 347**
Phylogenetic Identification of Variably Methylated Transposons As Biomarkers for Early Environmental Exposures. *C. Faulk*, A. K. Barks, and *D. C. Dolinoy*. Environmental Health Sciences, University of Michigan, Ann Arbor, MI.

#529 **Poster Board Number 348**
Chromatin Context Modulates Genome-Wide p53 Sequence-Specific Occupancy and Exposure-Induced Gene Expression. D. A. Bell, D. Su, M. R. Campbell, and X. Wang. NIEHS, Research Triangle Park, NC. Sponsor: *B. McIntyre*.

#530 **Poster Board Number 349**
Mercury Exposure and DNA Methylation among Dental Professionals. *J. Goodrich*, *N. Basu*, A. Franzblau, and *D. C. Dolinoy*. Environmental Health Sciences, University of Michigan, Ann Arbor, MI.

#531 **Poster Board Number 350**
Alteration of Gene Methylation in the Testis of Rats and Mice Chronically Exposed to Low-Dose Cadmium. *B. Wang*[1,2,3], L. Yang[2], *Y. Tan*[3], and *C. Lu*[3]. [1]Department of Pathology, Inner Mongolia Forestry General Hospital, Hulunbuir, China; [2]Department of Pathophysiology, Jilin University, ChangChun, China; [3]Department of Pediatrics, University of Louisville School of Medicine, Louisville, KY.

#532 **Poster Board Number 351**
Epigenetic Modifications from Lead Exposure: Influences of Sex, Exposure Level, and Developmental Timing of Exposure on DNA Methyltransferases and Methyl Cytosine-Binding Proteins. S. Kidd, D. Anderson, and *J. Schneider*. Thomas Jefferson University, Philadelphia, PA.

#533 **Poster Board Number 352**
A Clinical Study to Clarify Effect of Blueberry (*Vaccinium spp.*) on Oxidative Stress and Global Methylation. M. Kim, and *M. Yang*. Sookmyung Women's University, Seoul, Republic of Korea.

#534 **Poster Board Number 353**
The Role of microRNAs in the Pathogenesis of MMPI-Induced Skin Fibrodysplasia. D. P. Tonge[1], *J. D. Tugwood*[2], and *T. W. Gant*[1]. [1]CRCE, Health Protection Agency, Oxford, United Kingdom; [2]Global Safety Assessment, AstraZeneca, Cheshire, United Kingdom.

#535 **Poster Board Number 354**
Exposure of Pregnant Mice to Chlorpyrifos-Methyl Alters Embryonic H19 Gene Methylation Patterns. *H. Kang*[1], H. Shin[1], J. Seo[1], S. Park[1], Y. Park[1], S. Son[1], *S. Jeong*[3], and *J. Kim*[2]. [1]Veterinary Toxicology and Chemistry, National Veterinary Research and Quarantine Service, Anyang, Republic of Korea; [2]Toxicology Laboratory, College of Veterinary Medicine, Konkuk University, Seoul, Republic of Korea; [3]GLP Research Center, College of Natural Science, Hoseo University, Asan, Republic of Korea.

Program Description (Continued)

Abstract #

#536 **Poster Board Number 355**
Autoimmune Disease Triggered by Trichloroethylene Is Associated with Epigenetic Alterations in Cd4+ T Cells. *K. Gilbert*[1], *S. Blossom*[1], and C. Cooney[2]. [1]University of Arkansas for Medical Sciences/Arkansas Children's Hospital Research Institute, Little Rock, AR; [2]Central Arkansas Veterans Healthcare System, Little Rock, AR.

#537 **Poster Board Number 356**
Is the Current Product Safety Assessment Paradigm Protective for Transgenerational Epigenetic Effects? *R. A. Alyea*[1], *M. J. LeBaron*[1], R. Sura[1], J. A. Murray[1], *I. P. Pogribny*[2], J. K. Passage[1], *R. G. Ellis-Hutchings*[1], *N. P. Moore*[3], *E. W. Carney*[1], *B. B. Gollapudi*[1], and *R. J. Rasoulpour*[1]. [1]The Dow Chemical Company, Midland, MI; [2]Division of Biochemical Toxicology, National Center for Toxicological Research, US FDA, Jefferson, AR; [3]Dow Europe GmbH, Horgen, Switzerland.

#538 **Poster Board Number 357**
Genome-Wide Methylation Profiling in Rat Tissues for Nongenotoxic Carcinogens Using Medip-Chip. *S. Ozden*[1], N. Turgut Kara[2], T. Chen[3], *B. Alpertunga*[1], K. Chipman[4], and *A. Mally*[5]. [1]Department of Pharmaceutical Toxicology, Faculty of Pharmacy, Istanbul University, Istanbul, Turkey; [2]Division of Molecular Biology and Genetics, Faculty of Science, Istanbul University, Istanbul, Turkey; [3]School of Public Health, Soochow University, Suzhou, China; [4]School of Biosciences, University of Birmingham, Birmingham, United Kingdom; [5]Department of Toxicology, University of Wüerzburg, Wüerzburg, Germany.

#539 **Poster Board Number 358**
Modulation of DNA (Cytosine-5)- Methylation in the Mouse Embryonic Stem Es-D3 Cell- and in the Human Intestinal CaCo2-Cells by Okadaic Acid. *E. E. Creppy*, S. Moukha, E. Renault, and B. Sangare-Tigori. Toxicology, University Bordeaux Segalen, Bordeaux, France.

#540 **Poster Board Number 359**
Methylation Profiles of CpG Islands Localized in the Upstream Regions of the Human Microsomal Epoxide Hydrolase Gene Promoters. *C. J. Omiecinski*, X. Cai, *S. Su*, and W. D. Hedrich. Center for Molecular Toxicology and Carcinogenesis, Pennsylvania State University, University Park, PA.

#541 **Poster Board Number 360**
Identification of Arsenic-Responsive microRNAs in Rats by Genome-Wide High-Throughput Sequencing. Y. Ge[1], *J. R. Olson*[1], *H. Wu*[2], and *X. Ren*[1]. [1]Social and Preventive Medicine & Pharmacology and Toxicology, The State University of New York at Buffalo, Buffalo, NY; [2]School of Environment and Public Health, Wenzhou Medical College, Wenzhou, China.

#542 **Poster Board Number 361**
Benzo(a)pyrene Enhances Line-1 Reactivation in the Absence of Retinoblastoma Proteins: Implications for Global Epigenetic Silencing and Heterochromatin Regulation. *D. E. Montoya-Durango*, and *K. S. Ramos*. Biochemistry and Molecular Biology, University of Louisville, Louisville, KY.

Abstract #

#543 **Poster Board Number 362**
DNA Methylation Patterns Represent "Environmental Footprints" of Transcription Factor Occupancy. D. Rojas[1,2], K. A. Bailey[2], A. Sanders[2], L. Smeester[2], B. Ahir[2], J. Rager[2], Z. Drobna[3], and *R. C. Fry*[1,2]. [1]Curriculum in Toxicology, UNC School of Medicine, University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]Department of Environmental Sciences and Engineering, UNC Gillings School of Global Public Health, University of North Carolina at Chapel Hill, Chapel Hill, NC; [3]Department of Nutrition, UNC Gillings School of Global Public Health, University of North Carolina at Chapel Hill, Chapel Hill, NC.

#544 **Poster Board Number 363**
Increased Growth Inhibition of Human Breast Cancer Cells by Co-Treatment with EGCG and 5-aza-2'deoxycytidine Is Modulated through Epigenetic Mechanisms. *T. Tyagi*, *J. N. Treas*, and *K. P. Singh*. Environmental Toxicology, Texas Tech University, Lubbock, TX.

#545 **Poster Board Number 364**
Differential Expression of Long Intervening Noncoding RNAs in the Livers of Female B6C3F1 Mice Exposed to the Carcinogen Furan. *L. Recio*[1], S. Phillips[1], T. Maynor[1], M. Waters[1], F. Jackson[2,3], and C. Yauk[2]. [1]ILS, Research Triangle Park, NC; [2]Environmental Health Science and Research Bureau, Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, ON, Canada; [3]Department of Biology, Carleton University, Ottawa, ON, Canada.

#546 **Poster Board Number 365**
ROS-Generation Leads to 5-Hydroxymethylcytosine Formation and DNA Demethylation. *J. B. Coulter*[1,2], C. M. O'Driscoll[1,2], and *J. P. Bressler*[1,2]. [1]Environmental Health Sciences, Johns Hopkins University Bloomberg School of Public Health, Baltimore, MD; [2]Neurology, Hugo Moser Research Institute at Kennedy Krieger, Baltimore, MD.

#547 **Poster Board Number 366**
A Critical Review of Epigenetic Transgenerational Inheritance following Environmental Exposures. *J. Heilman*, *E. Freeman*, and *B. Polakoff*. Exponent, Inc, Washington DC.

#548 **Poster Board Number 367**
Effect of Increased Reactive Oxygen Species on microRNA Expression in First Trimester Placental Trophoblasts. C. E. Cross, *C. M. Rondelli*, *M. Xu*, and *S. Z. Abdel-Rahman*. Obstetrics & Gynecology, University of Texas Medical Branch, Galveston, TX.

Program Description (Continued)

Abstract #

Monday Afternoon, March 11
1:00 PM to 4:30 PM
Exhibit Hall C–D

PS

Poster Session: Systems Biology and Toxicology

Chairperson(s): *Susan Tilton, Pacific Northwest National Laboratory, Richland, WA.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *2:45 PM–4:30 PM*

#549 **Poster Board Number 401**
Identification of Mode-of-Action Specific Toxicity Transcript Profiles *In Vitro* Using a Connectivity Mapping Approach. *J. M. Naciff*[1], *N. DeAbrew*[1], G. Overmann[1], R. Adams[1], G. Carr[1], *R. Settivari*[2], J. Tiesman[1], *C. Edward*[2], and *G. Daston*[1]. [1]Procter & Gamble, Cincinnati, OH; [2]Dow Chemical Company, Midland, MI.

#550 **Poster Board Number 402**
Analysis of Longitudinal Metabolomic Data from Endocrine Disruption Studies: The A-SCA Method. C. Canlet[1,2], M. Tremblay-Franco[1,2], N. J. Cabaton[1,2], R. Gautier[1,2], L. Debrauwer[1,2], A. M. Soto[3], and *D. Zalko*[1,2]. [1]INRA, UMR 1331 TOXALIM Research Center in Food Toxicology, Toulouse, France; [2]Université de Toulouse, INP, UMR1331, TOXALIM, F-31000, Toulouse, France; [3]Department of Anatomy and Cellular Biology, Tufts University School of Medicine, Boston, MA.

#551 **Poster Board Number 403**
A Systems Chemical Biology Approach to Predict Effects from Chemical Cocktail Exposure. K. Kongsbak[1,2], N. Hadrup[1], *A. Vinggaard*[1], and K. Audouze[2]. [1]National Food Institute, Technical University of Denmark, Søborg, Denmark; [2]Center for Biological Sequence Analysis, Department of Systems Biology, Technical University of Denmark, Kgs. Lyngby, Denmark.

#552 **Poster Board Number 404**
Modeling Species-Specific Metabolic Responses to TCDD in Mice and Rats Using a Reconstructed Metabolic Network. *R. Nault*[1,4], M. Wu[3], C. Chan[2,3,4], and *T. R. Zacharewski*[1,4]. [1]Center for Integrative Toxicology, Michigan State University, East Lansing, MI; [2]Chemical Engineering & Material Science, Michigan State University, East Lansing, MI; [3]Computer Science & Engineering, Michigan State University, East Lansing, MI; [4]Biochemistry & Molecular Biology, Michigan State University, East Lansing, MI.

#553 **Poster Board Number 405**
Multiscale Modeling for Individualized Spatiotemporal Prediction of Drug Effects. J. G. Diaz Ochoa, J. Bucher, J. Niklas, and K. Mauch. Insilico Biotechnology AG, Stuttgart, Germany. Sponsor: *C. Yang*.

#554 **Poster Board Number 406**
Toxicogenomic Analysis of Environmental PAH Mixtures in a Model of Transplacental Carcinogenesis. *S. C. Tilton*[1], L. K. Siddens[2], A. Larkin[2], B. N. Do[2], K. C. Dunn[2], E. P. Madeen[2], *S. K. Krueger*[2], *K. M. Waters*[1], *W. M. Baird*[2], and *D. E. Williams*[2]. [1]Pacific Northwest National Laboratory, Richland, WA; [2]Oregon State University, Corvallis, OR.

Abstract #

#555 **Poster Board Number 407**
Functional Profiling to Reveal Toxicity Pathways. *C. Vulpe*[1], W. Varsally[3], R. Thomas[2], I. Gerlovina[2], *B. Gaytan*[1], *V. De La Rosa*[1], *M. North*[1], A. Hubbard[2], P. Antczak[3], and F. Falciani[3]. [1]Nutritional Science and Toxicology, University of California Berkeley, Berkeley, CA; [2]Biostatistics, School of Public Health, University of California Berkeley, Berkeley, CA; [3]University of Liverpool, Liverpool, United Kingdom.

#556 **Poster Board Number 408**
Prenatal Exposure to Transition Metals in Ambient PM2.5 Up-Regulates Nitrotyrosine in Human Cord Blood. C. Barros Veguilla[1], J. Niu[2], B. Yan[2], N. Li[2], Q. Qu[1], and *L. Chen*[1]. [1]Nelson Institute of Environmental Medicine, New York University School of Medicine, Tuxedo, NY; [2]School of Public Health, Lanzhou University, Lanzhou, China.

#557 **Poster Board Number 409**
A Global Genomic Screening Strategy Reveals Genetic and Chemical Activators of Peroxisome Proliferator-Activated Receptor Alpha (PPARalpha). *C. Corton*[1], N. Vasani[1], *M. Rosen*[1], *B. D. Abbott*[1], *C. Lau*[1], W. Ward[1], *R. S. Thomas*[2], *D. Applegate*[3], and K. Oshida[1]. [1]US EPA, Research Triangle Park, NC; [2]The Hamner Institutes for Health Sciences, Research Triangle Park, NC; [3]Regenemed, San Diego, CA.

#558 **Poster Board Number 410**
Proteomic Analysis of Biological Responses from Exposures to Chemical Mixtures. M. E. Bruno[1], W. Winnik[2], A. Swank[2], K. Wallace[1], S. Leavitt[1], and Y. Ge[1]. [1]ISTD, US EPA, Research Triangle Park, NC, NC; [2]US EPA, Research Triangle Park, NC. Sponsor: *K. Kitchin*.

#559 **Poster Board Number 411**
Environmentally Relevant Concentrations of the Flame Retardant BDE-209 in Sediment Linked to Potential Developmental and Neurotoxic Effects on Zebrafish Embryos. *N. G. Reyero Vinas*[1], L. Escalon[2], E. Prats[3], J. Stanley[2], B. Thienpot[3], N. Melby[2], P. Babin[4], *E. Perkins*[2], and D. Raldua[3]. [1]Mississippi State University, Vicksburg, MS; [2]US Army, Vicksburg, MS; [3]CSIC, Barcelona, Spain; [4]University of Bordeaux, Bordeaux, France.

Program Description (Continued)

Abstract #

Monday Afternoon, March 11
1:00 PM to 4:30 PM
Exhibit Hall C–D

PS

Poster Session: Chemical Mixtures

Chairperson(s): *Moiz Mumtaz, CDC ATSDR, Atlanta, GA.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *1:00 PM–2:45 PM*

#560 **Poster Board Number 413**
The Induction of Oxidative Stress by Mixtures of Dichloroacetate and Trichloroacetate in the Livers of Mice after Subchronic Exposure. *E. Hassoun*, and *J. Cearfoss*. Pharmacology, University of Toledo, Toledo, OH.

#561 **Poster Board Number 414**
Ultrafine Particles Are Not Major Carriers of Carcinogenic PAHs and Their Genotoxicity in Size-Segregated Aerosols. *J. Topinka*[1], A. Milcova[1], J. Schmuczerova[1], J. Krouzek[2], and J. Hovorka[2]. [1]Genetic Ecotoxicology, Institute of Experimental Medicine AS CR, Prague, Czech Republic; [2]Institute for Environmental Studies, Faculty of Science, Charles University in Prague, Prague, Czech Republic.

#562 **Poster Board Number 415**
Acute, Five- and Ten-Day Inhalation Study of Hydroprocessed Esters and Fatty Acids-Mixed Fats (HEFA-F) Jet Fuel. *D. R. Mattie*[1], A. L. Carter[1], *P. R. Eden*[1], J. Z. Hezel[1], *T. R. Sterner*[2], *D. A. Dodd*[3], G. A. Wilson[4], *K. L. Mumy*[5], and *B. A. Wong*[5]. [1]711 HPW/RHDJ, Wright-Patterson AFB, OH; [2]HJF, Wright-Patterson AFB, OH; [3]The Hamner Institutes for Health Sciences, Research Triangle Park, NC; [4]EPL, Research Triangle Park, NC; [5]NAMRU-D, Wright-Patterson AFB, OH.

#563 **Poster Board Number 416**
Global Gene Expression Changes Induced by Organic Extracts of Air Pollutants in Human Lung Cells. H. Libalova[1], K. Uhlirova[1], J. Klema[2], M. Machala[3], M. Ciganek[3], *J. Topinka*[1], and R. J. Sram[1]. [1]Institute of Experimental Medicine AS CR, Prague, Czech Republic; [2]Czech Technical University, Prague, Czech Republic; [3]Veterinary Research Institute, Brno, Czech Republic.

#564 **Poster Board Number 417**
Evaluation of Additivity of Binary Mixtures of Perfluoroalkyl Acids (PFAAs) on Peroxisome Proliferator-Activated Receptor-Alpha (PPARα) Activation *In Vitro*. *C. J. Wolf*[1], *C. V. Rider*[2], *C. Lau*[1], and *B. D. Abbott*[1]. [1]Toxicity Assessment Division, US EPA, ORD, NHEERL, Research Triangle Park, NC; [2]National Toxicology Program, NIEHS, Research Triangle Park, NC.

#565 **Poster Board Number 418**
Reference Dose (RfD)-Based Chronic Human Health Hazard Ranking System for Complex Mixtures—Assessment of Polar Nonhydrocarbons in Groundwater at Biodegrading Petroleum Sites. *A. K. Tiwary*[1], R. I. Magaw[1], D. A. Zemo[2], K. T. O'Reilly[3], R. E. Mohler[1], and K. A. Synoweic[1]. [1]CETC, San Ramon, CA; [2]Zemo & Associates LLC, Incline Village, NV; [3]Exponent, Inc., Bellevue, WA.

Abstract #

#566 **Poster Board Number 419**
Repeat-Dose and Developmental Toxicity Assessment of Crude Oil. *R. H. McKee*[1], M. Nicolich[2], T. Roy[3,4], R. White[5], and *W. Daughtrey*[1]. [1]Toxicology and Environmental Sciences, ExxonMobil Biomedical Sciences, Inc., Annandale, NJ; [2]COGIMET, Lambertville, NJ; [3]Port Royal Research, Hilton Head, SC; [4]University of South Carolina, Beaufort, SC; [5]American Petroleum Institute, Washington DC.

#567 **Poster Board Number 420**
Insights from Initial Analysis for Harmful and Potentially Harmful Constituents (HPHC) in Tobacco Products. *M. Oldham*, D. DeSoi, K. A. Wagner, and M. J. Morton. Altria Client Services, Richmond, VA.

#568 **Poster Board Number 421**
Different Toxicity Outcomes in Rats Correlated with EPR and NMR Spectra of Crude Oil from Various Sources. *S. A. Meyer*[1], *S. Jaligama*[1], K. A. El Sayed[2], and *T. R. Dugas*[3]. [1]Toxicology, University of Louisiana-Monroe, Monroe, LA; [2]Basic Pharmaceutical Sciences, University of Louisiana-Monroe, Monroe, LA; [3]Pharmacology, Toxicology & Neurosciences, Louisiana State University Health Sciences Center, Shreveport, LA.

#569 **Poster Board Number 422**
Complex Mixtures of PaHs Are More Potent Than Benzo[a]pyrene at Inducing Cellular Inflammatory and DNA-Damage Response. K. Dreij[1], I. W. Jarvis[1], C. Bergvall[2], M. Bottai[1], G. A. Umbuzeiro[3], R. Westerholm[2], and U. Stenius[1]. [1]Institute Environmental Medicine, Karolinska Institutet, Stockholm, Sweden; [2]Department Analytical Chemistry, Stockholm University, Stockholm, Sweden; [3]Faculty of Technology, State University of Campinas, Limeira, Brazil. Sponsor: *G. Johanson*.

#570 **Poster Board Number 423**
Individual and Cumulative Health Risk Assessment of 17 PFASs in the Swedish Population. D. Borg[1], B. Lund[2], N. Lindquist[2], and *H. Håkansson*[1]. [1]Institute of Environmental Medicine (IMM), Karolinska Institutet, Stockholm, Sweden; [2]Swedish Chemicals Agency (KemI), Stockholm, Sweden.

#571 **Poster Board Number 424**
Mixtures of Benzo(A)Pyrene with Direct or Indirect Acting Mutagens Have a Nonmonotonic Mutation Profile. *R. David*, and *N. Gooderham*. Imperial College London, London, United Kingdom.

#572 **Poster Board Number 425**
Preliminary Steps in a Whole Mixture Strategy for Risk Evaluation. K. Joshi, and *C. Gennings*. Virginia Commonwealth University, Richmond, VA.

#573 **Poster Board Number 426**
Coexposure to Low-Dose Model Testicular Toxicants Induces Gene Alterations. *N. Catlin*, S. M. Huse, and *K. Boekelheide*. Brown University, Providence, RI.

#574 **Poster Board Number 427**
Development of a Portable *In Vitro* System for Lab and Field Aerosol Exposure Studies. J. Zavala, *K. Lichtveld*, *S. Ebersviller*, G. W. Walters, H. E. Jeffries, *K. G. Sexton*, W. Vizuete, *I. Rusyn*, and *I. Jaspers*. Environmental Sciences and Engineering, University of North Carolina at Chapel Hill, Chapel Hill, NC.

Program Description (Continued)

Abstract #

#575 **Poster Board Number 428**
Chemical Dispersants Used in the Gulf of Mexico Are Cytotoxic to Human Lung and Skin Fibroblasts. J. Wise[1,2], *S. Wise*[1,2,3], *H. Xie*[1,2,3], J. Griffitt[4], and *J. Wise*[1,2,3]. [1]Wise Laboratory of Environmental and Genetic Toxicology, University of Southern Maine, Portland, ME; [2]Maine Center for Toxicology and Environmental Health, University of Southern Maine, Portland, ME; [3]Department of Applied Medical Science, University of Southern Maine, Portland, ME; [4]Department of Coastal Sciences, University of Southern Mississippi, Ocean Springs, MS.

#576 **Poster Board Number 429**
Micronanoparticle Suspension Formulation Development for Medical Chemical Countermeasures. L. Cabell[1], J. McDonough[1], A. Clark[1], T. Belski[2], and L. Mobley[2]. [1]SWRI, San Antonio, TX; [2]CBSM /MITS, Frederick, MD. Sponsor: *J. Johnson*.

#577 **Poster Board Number 430**
Application of Generalized Concentration Addition to Receptors That Dimerize. *T. Webster*. Department Environmental Health, Boston University School of Public Health, Boston, MA.

#578 **Poster Board Number 431**
Generalized Concentration Addition Models Some but Not All Interactions of Mixtures of Androgen- and Estrogen-Receptor Active Compounds in High-Throughput Screening Assays. F. Parham[1], *M. DeVito*[1], R. Huang[2], *M. Xia*[2], *B. Collins*[1], *C. Rider*[1], and *R. Tice*[1]. [1]NTP, NIEHS, Research Triangle Park, NC; [2]NCATS, NIH, Bethesda, MD.

#579 **Poster Board Number 432**
Cumulative Risk Assessment of Radon and Confounder Mixtures. *M. Mumtaz*[1], L. Keith[1], D. Wohlers[2], and E. Murray[1]. [1]Division of Toxicology and Human Health Sciences, CDC ATSDR, Atlanta, GA; [2]SRC, Inc., North Syracuse, NY.

#580 **Poster Board Number 433**
90-Day Inhalation Toxicity Study with Hydroprocessed Esters and Fatty Acids Jet Fuel from Camelina (HEFA-C) in Rats. *K. L. Mumy*[1], *W. R. Howard*[1], *B. A. Wong*[1], and *D. R. Mattie*[2]. [1]Naval Medical Research Unit - Dayton, Wright Patterson Air Force Base, OH; [2]711 HPW/RHDJ, Wright Patterson Air Force Base, OH.

#581 **Poster Board Number 434**
Chemical Characterization of Complex Aromatic Flame Retardants for Toxicological Studies. R. Harris[1], M. Kroenke[1], J. Van Scoy[1], Q. Lawrence[1], B. O'Brien[1], A. Ammenhauser[1], L. Siemann[1], K. Aillon[1], J. Algaier[1], *B. Collins*[2], and *S. Waidyanatha*[2]. [1]MRIGlobal, Kansas City, MO; [2]National Toxicology Program NIEHS, Research Triangle Park, NC.

#582 **Poster Board Number 435**
Preparation of Toxicological Studies: Principal Component Analysis of Isopropylated Phenol Phosphate. J. Algaier[1], M. Kroenke[1], L. Lucas[1], K. Bauer[1], K. Aillon[1], L. Siemann[1], R. Harris[1], *B. Collins*[2], and *S. Waidyanatha*[2]. [1]MRIGlobal, Kansas City, MO; [2]National Toxicology Program, NIEHS, Research Triangle Park, NC.

Abstract #

Monday Afternoon, March 11
1:00 PM to 4:30 PM
Exhibit Hall C–D

PS

Poster Session: Pesticide Toxicology

Chairperson(s): *Derek Gammon, FMC Corporation, Ewing, NJ.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *2:45 PM–4:30 PM*

#583 **Poster Board Number 436**
The Effects of Atrazine Exposure on Genome Wide Expression Levels in Male *Drosophila melanogaster*. M. Xie[1], J. Walters[2], and A. Fiumera[1]. [1]Biological Sciences, Binghamton University, Binghamton, NY; [2]Ecology and Evolutionary Biology, University of Kansas, Lawrence, KS. Sponsor: *A. Fiumera*.

#584 **Poster Board Number 437**
Effects of Atrazine Exposure on Male Reproductive Performance in *Drosophila melanogaster*. A. R. Vogel, and A. C. Fiumera. Biological Sciences, Binghamton University, Vestal, NY. Sponsor: *A. Fiumera*.

#585 **Poster Board Number 438**
Effects of the Herbicide Trifluralin in HepG2 Cell Culture. M. F. Franco[1], and *D. J. Dorta*[2]. [1]Universidade de São Paulo (USP). Faculdade de Ciências Farmacêuticas de Ribeirão Preto (FCFRP), Ribeirão Preto, Brazil; [2]Departamento de Química, Universidade de São Paulo (USP). Faculdade de Filosofia, Ciências e Letras de Ribeirão Preto (FFCLRP), Ribeirão Preto, Brazil.

#586 **Poster Board Number 439**
Effect of p,p'-DDE on Adipogenesis and Macrophage Activation. *L. Mangum*[1], *G. E. Howell*[1,2], *S. B. Pruett*[1], *M. K. Ross*[1], and *J. E. Chambers*[1]. [1]Center for Environmental Health Sciences, Mississippi State University, Mississippi State, MS; [2]Biological Sciences, Mississippi College, Clinton, MS.

#587 **Poster Board Number 440**
Organophosphorus Pesticides Activate Mast Cells *Ex Vivo* and *In Vivo*. A. C. Grodzki, and *P. J. Lein*. Molecular Biosciences, University of California Davis, Davis, CA.

#588 **Poster Board Number 441**
Detection of Dichlorvos Targets in Hepatocytes. T. Bui-Nguyen[1], *W. Dennis*[2], *J. A. Lewis*[2], and *D. A. Jackson*[2]. [1]Oak Ridge Institute for Science and Education (ORISE), Frederick, MD; [2]US Army Center for Environmental Health Research, Frederick, MD.

#589 **Poster Board Number 442**
Neonicotinoid Insecticides: Formaldehyde Generation As a Proposed Mechanism of Mouse-Specific Hepatotoxicity and Hepatocarcinogenicity of Thiamethoxam. *T. Swenson*, and *J. Casida*. Graduate Group in Molecular Toxicology, University of California Berkeley, Berkeley, CA.

MONDAY

Program Description (Continued)

Abstract #

#590 **Poster Board Number 443**
Chiral Pesticide Pharmacokinetics: A Range of Values. J. F. Kenneke[1], *S. A. Marchitti*[1], S. Rawat[2], D. T. Chang[3], C. M. Grulke[3], C. S. Mazur[1], and M. R. Goldsmith[3]. [1]US EPA, Athens, GA; [2]Student Services Authority, Athens, GA; [3]US EPA, Research Triangle Park, NC.

#591 **Poster Board Number 444**
Alpha-Cypermethrin Metabolism and Exposure Assessment in Egyptian Agricultural Workers. *S. T. Singleton*[1], *J. B. Knaak*[1], L. Chi[1], B. P. McGarrigle[1], F. M. Farahat[2], and *J. R. Olson*[1]. [1]Pharmacology and Toxicology, University at Buffalo, Buffalo, NY; [2]Menoufia University, Shibin el Kom, Egypt.

#592 **Poster Board Number 445**
4'OH-Deltamethrin Metabolit-Induced Changes in Oxidative Stress Biomarkers in SH-SY5Y Cells and Alleviation Effect of Melatonin. M. R. Martinez-Larrañaga, A. Romero, E. Ramos, V. Castellano, M. A. Martinez, I. Ares, M. Martinez, and *A. Anadon*. Toxicology & Pharmacology, Complutense University, Madrid, Spain.

#593 **Poster Board Number 446**
Effect of Age on Plasma Protein Binding of Deltamethrin, Cis-Permethrin, and Trans-Permethrin in Rats. P. Sethi[1], S. Muralidhara[1], M. Amaraneni[1], T. Mortuza[1], C. Chen[1], *B. S. Cummings*[1], *J. V. Bruckner*[1], *N. Assaf*[2], *D. Minnema*[3], and C. A. White[1]. [1]Department of Pharmaceutical and Biomedical Sciences, University of Georgia, Athens, GA; [2]Valent BioSciences, Libertyville, IL; [3]Syngenta Crop Protection, Greensboro, NC.

#594 **Poster Board Number 447**
Assessment of an *In Vitro* Human Dermal Absorption Database for Pesticide Formulations to Establish Scientifically-Based Default Dermal Absorption Values. M. Aggarwal[1], A. Hueser[2], C. Strupp[3], C. Wiemann[4], P. Fisher[5], B. Parr-Dobrzanski[6], M. Soufi[7], and *R. Billington*[1]. [1]Dow AgroSciences, Abingdon, United Kingdom; [2]Dr Knoell Consult GmbH, Leverkusen, Germany; [3]Feinchemie Schwebda GmbH, Kleines Wiesental, Germany; [4]BASF Oesterreich GmbH, Vienna, Austria; [5]Bayer CropScience, Sophia-Antipolis, France; [6]Syngenta, Bracknell, United Kingdom; [7]DuPont de Nemours (Deutschland) GmbH, Neu-Isenburg, Germany.

#595 **Poster Board Number 448**
Determination of Pyrethroids in Rat Blood and Tissues Using Gas Chromatography (GC) Negative Chemical Ionization Mass Spectrometry. D. Gullick[1], X. Wang[1], *J. V. Bruckner*[1], *B. Cummings*[1], *D. Minema*[2], *M. Krolski*[3], and M. G. Bartlett[1]. [1]PBS, University of Georgia, Athens, GA; [2]Syngenta Crop Protection, Greensboro, NC; [3]Bayer Crop Science, Research Triangle Park, NC.

#596 **Poster Board Number 449**
Toxicokinetics of Low Doses of the Pyrethroid, Deltamethrin (DLM), in Rats. C. Chen[1], S. Muralidhara[1], D. Gullick[1], T. Mortuza[1], M. Amaraneni[1], P. Sethi[1], *D. Gammon*[2], *S. S. Anand*[3], *T. G. Osimitz*[4], C. A. White[1], *B. S. Cummings*[1], and *J. V. Bruckner*[1]. [1]PBS, University of Georgia, Athens, GA; [2]FMC, Ewing, NJ; [3]DuPont Haskell, Newark, DE; [4]Science Strategies LLC, Charlottesville, VA.

Abstract #

#597 **Poster Board Number 450**
Dislodgeable Foliar Metabolites of Malathion and Fenpropathrin May Contribute to Aggregate Harvester Exposure Estimates Using Urine Biomonitoring. *Y. Liu*[2], *G. Sankaran*[1,2], L. T. Tang[2], *L. Chen*[2], A. Krieger[2], *J. H. Ross*[3], H. Vega[2], and *R. Krieger*[1,2]. [1]University of California Riverside, Riverside, CA; [2]University of California Riverside, Riverside, CA; [3]Gem Quality Risk, Inc., Carmichael, CA.

#598 **Poster Board Number 451**
Soil Concentrations and Human Exposures to Contaminated Soil in the Remote First Nation Community of Fort Albany, Ontario, Canada. *E. N. Liberda*[1], E. S. Reyes[1], and L. J. Tsuji[2]. [1]School of Occupational and Public Health, Ryerson University, Toronto, ON, Canada; [2]Department of Environment and Resource Studies, University of Waterloo, Waterloo, ON, Canada.

#599 **Poster Board Number 452**
Effect of Soil Fumigation with Methyl Bromide against Earthworm, *Aporrectodea caliginosa*. N. S. Ahmed, S. S. Desouky, A. H. Elsebae, and *S. S. Soliman*. Pesticide Chemistry, Alexandria University, Alexandria, Egypt.

#600 **Poster Board Number 453**
Mechanism of Paraquat-Induced Pulmonary Fibrosis and Intervention of Pyrrolidine Dithiocarbamate. M. Huang[1,2], P. Zhang[3], X. Chang[2], Q. Wu[2], and *Z. Zhou*[2]. [1]Occupational Health Science, Ningxia Medical University, Yinchuan, China; [2]Occupational Health Science and Toxicology, Fudan University, Shanghai, China; [3]Occupational Health, Centers for Disease Control and Prevention-Jiading, Shanghai, China.

#601 **Poster Board Number 454**
Testicular Toxicity of Fluorochloridone in Adult Sprague-Dawley Rats. *L. Xu*[2,1], *Z. Zhou*[2], Q. Zhao[2], *D. Lou*[2], X. Chang[2], P. Xiao[3], X. Hong[3], and *X. Yu*[1]. [1]Department of Environmental Health Science, University of Georgia, Athens, GA; [2]School of Public Health, Fudan University, Shanghai, China; [3]Shanghai Municipal Center for Disease Control & Prevention, Shanghai, China.

#602 **Poster Board Number 455**
Carbofuran Is Not an Endocrine Disruptor—Weight-of-Evidence of US EPA's Tier 1 Endocrine Disruptor Screening Program Assays and Higher Tier Studies. *D. W. Gammon*, B. Sharma, *S. Longacre*, G. Mitchell, S. Mukhi, *M. Oh*, and *Z. Liu*. APG, FMC Corp, Ewing, NJ.

#603 **Poster Board Number 456**
Reproductive Outcomes in Women Para-Occupationally Exposed to Pesticides in an Agricultural Community in Southern Mexico. G. López-Manzanero[1], N. Pérez-Herrera[1], L. Dzib-Cocom[1,2], P. García-Molina[1,2], M. Vera-Avilés[1], T. Castillo-Burguete[3], L. González-Navarrete[1], J. Alvarado-Mejía[1], B. Jiménez-Delgadillo[1], J. Arias-León[1], V. Suárez-Solís[1], M. Cárdenas-Marrufo[1], I. Vado-Solis[1], C. Pérez-Osorio[1], *I. Hernández-Ochoa*[4], and *B. Quintanilla-Vega*[4]. [1]Faculty of Medicine, Automous University of Yucatán, Mérida, Mexico; [2]Faculty of Chemistry, Automous University of Yucatán, Mérida, Mexico; [3]Human Ecology Departament, CINVESTAV, Mérida, Mexico; [4]Toxicology Departament, CINVESTAV, Mexico City, Mexico.

MONDAY

Program Description (Continued)

Abstract #

Monday Afternoon, March 11
1:00 PM to 4:30 PM
Exhibit Hall C–D

PS

Poster Session: Biological Modeling: Target Tissues and Toxicants

Chairperson(s): *Miyoung Yoon, The Hamner Institutes for Health Sciences, Durham, NC, and Elaine Merrill, US Air Force Research Laboratory, Wright-Patterson AFB, Dayton, OH.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *1:00 PM–2:45 PM*

#604 **Poster Board Number 457**
Extension of a Nasal Dosimetry Model for Acetaldehyde to Account for Vasodilation. *P. M. Schlosser*[1], *M. H. Lumpkin*[2], and *J. B. Morris*[3]. [1]NCEA, US EPA, Research Triangle Park, NC; [2]ENVIRON International Corporation, Atlanta, GA; [3]School of Pharmacy, University of Connecticut, Storrs, CT.

#605 **Poster Board Number 458**
An *In Silico* Model of Spermatogenesis for Use in Predictive Toxicology. A. M. Frame, M. Leung, *T. Knudsen*, and *R. S. Judson*. US EPA, Research Triangle Park, NC.

#606 **Poster Board Number 459**
Development of PBPK Models for Gasoline in Adult and Pregnant Rats and Their Fetuses. *S. A. Martin*[1], W. M. Oshiro[1], P. A. Evansky[1], J. Ford[1], L. L. Degn[1], *H. El-Masri*[1], W. R. LeFew[1], *E. D. McLanahan*[2], D. MacMillan[1], *W. K. Boyes*[1], and *P. J. Bushnell*[1]. [1]National Health and Environmental Effects Research Laboratory, US EPA, Durham, NC; [2]National Center for Environmental Assessment, US EPA, Durham, NC.

#607 **Poster Board Number 460**
Strategy to Support Clearance Model of Inhaled Libby Amphibole Asbestos Fibers in Rat and Human Respiratory Tract. *B. Asgharian*[2], O. T. Price[2], *S. H. Gavett*[1], and *A. M. Jarabek*[1]. [1]US EPA, Research Triangle Park, NC; [2]ARA, Inc., Raleigh, NC.

#608 **Poster Board Number 461**
A Modified PBPK Model for RDX (hexahydro-1,3,5-trinitro-1,3,5-triazine) to Improve Rat to Human Toxicokinetic Extrapolation. *A. E. Loccisano*[1,3], *R. S. DeWoskin*[2], *P. M. Schlosser*[3], A. F. Sasso[3], and *L. J. D'Amico*[3]. [1]Oak Ridge Institute for Science & Education, Oak Ridge, TN; [2]ORD/NCEA, US EPA, Research Triangle Park, NC; [3]ORD/NCEA-IRIS, US EPA, Washington DC.

#609 **Poster Board Number 462**
Developing New Methods to Measure Reactive Oxygen Species Related to Aerosol Components. W. Huynh[1], E. Browne[2], and *R. E. Peltier*[1]. [1]Public Health - Environmental Health Sciences, University of Massachusetts Amherst, Amherst, MA; [2]Veterinary & Animal Sciences, University of Massachusetts Amherst, Amherst, MA.

Abstract #

#610 **Poster Board Number 463**
Designing Quantitative Structure Activity Relationships (QSAR) to Predict Specific Toxic Endpoints for Polybrominated Diphenyl Ethers (PBDE) in Mammalian Cell Culture Systems. S. Rawat[1,2], and *E. D. Bruce*[2,3]. [1]US EPA, Athens, GA; [2]Department of Environmental Science, Baylor University, Waco, TX; [3]Department of Civil Engineering, Texas A&M University, College Station, TX.

#611 **Poster Board Number 464**
A Preliminary Physiologically-Based Pharmacokinetic (PBPK) Model of Squalene in Vaccines. M. A. Tegenge, and *R. J. Mitkus*. CBER, US FDA, Rockville, MD.

#612 **Poster Board Number 465**
A Model for Elucidating the Role of the Aryl Hydrocarbon Receptor in TCDD-Mediated IgM Suppression in Human B Cells. *N. Kovalova*[1,2], *M. Manzan*[2], *R. Crawford*[2], and *N. Kaminski*[1,2]. [1]Pharmacology/Toxicology, Michigan State University, East Lansing, MI; [2]Center for Integrative Toxicology, Michigan State University, East Lansing, MI.

#613 **Poster Board Number 466**
The Impact of Variation in Scaling Factors on the Estimation of Internal Dose Metrics: A Case Study Using Bromodichloromethane. *E. M. Kenyon*[1], R. A. Pegram[1], C. Eklund[1], and *J. C. Lipscomb*[2]. [1]ORD/NHEERL, US EPA, Durham, NC; [2]ORD/NCEA, US EPA, Cincinnati, OH.

#614 **Poster Board Number 467**
Kinetic Modeling Reveals the Roles of ROS Scavenging and DNA-Repair Processes in Shaping the Dose-Response Curve of $KBrO_3$-Induced-DNA Damage. D. J. Miller, and M. A. Spassova. National Center for Environmental Assessment, US EPA, Washington DC. Sponsor: *S. Vulimiri*.

#615 **Poster Board Number 468**
A Compartmental Pharmacokinetic (PK) Model for Bromate in F344 Rats. *N. Kolisetty*[1], C. A. White[1], *R. J. Bull*[2], *J. A. Cotruvo*[3], *J. W. Fisher*[4], and *B. S. Cummings*[1]. [1]Pharmaceutical and Biomedical Sciences, University of Georgia, Athens, GA; [2]Mo Bull Consulting, Richland, WA; [3]Joseph Cotruvo & Assoc. LLC, Washington DC; [4]National Center for Toxicological Research, US FDA, Jefferson, AR.

#616 **Poster Board Number 469**
A Strategy for Developing a PBPK Model to Describe the Kinetics of Silver Nanoparticles. *M. Yoon*[1], *S. Sumner*[2], R. Snyder[2], *T. Fennell*[2], and *H. Clewell*[1]. [1]The Hamner Institutes for Health Sciences, Research Triangle Park, NC; [2]RTI International, Research Triangle Park, NC.

#617 **Poster Board Number 470**
A Physiologically-Based Pharmacokinetic Model to Describe the Pharmacokinetic Disposition for Hexamethyldisiloxane, a Linear Volatile Methyl Siloxane, following Inhalation Exposures in the Rat. *T. McMullin*, *J. Y. Domoradzki*, D. A. McNett, J. Durham, and *K. P. Plotzke*. Health and Environmental Sciences, Dow Corning Corporation, Midland, MI.

Program Description (Continued)

Abstract #

#618 **Poster Board Number 471**
Use of a Physiologically-Based Pharmacokinetic Model to Simulate the Time Course of 3-Hydroxybenzo(a)Pyrene Metabolite in Workers Exposed to Polycyclic Aromatic Hydrocarbons and Predict Most Plausible Exposure Scenarios. R. Heredia-Ortiz[1], A. Maître[2], and *M. Bouchard*[1]. [1]Department Environmental and Occupational Health, University of Montréal, Montréal, QC, Canada; [2]CHU de Grenoble, Université Joseph Fourier, Grenoble, France.

#619 **Poster Board Number 472**
Computational Modeling of the Pathway Linking Oxidant Exposure with a Fluorescent Reporter Protein in Human Airway Epithelial Cells. *W. Cheng*[1], J. M. Samet[2], and *R. B. Conolly*[3]. [1]Environmental Science and Engineering, University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]EPHD, US EPA, Chapel Hill, NC; [3]ISTD, US EPA, Chapel Hill, NC.

#620 **Poster Board Number 473**
Comparative Toxicokinetic and Toxicodynamic Study of Trichloroethylene and Tetrachloroethylene in the Mouse. V. Soldatow[1], H. Yoo[1], B. Wanda[1], L. Collins[1], *S. Kim*[2], K. Xia[1], W. Sun[1], *F. Wright*[1], W. Chiu[1], *K. Guyton*[3], and *I. Rusyn*[3]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]Seoul National University, Seoul, Republic of Korea; [3]NCEA, US EPA, Washington DC.

#621 **Poster Board Number 474**
A Mechanistic Model of GABAA-Receptor Trafficking during Status Epilepticus. E. Merrill[1], *J. Gearhart*[1], C. Ruark[1], D. Mahle[2], and P. Robinson[1]. [1]AFRL/RHDJ, Henry M. Jackson Foundation, Wright Patterson Air Force Base, OH; [2]Human Performan, AFRL/RHDJ, Wright Patterson Air Force Base, OH.

#622 **Poster Board Number 475**
Multichemical Bayesian Calibration of a Generic Physiologically-Based Pharmacokinetic (PBPK) Model to Calculate Biological Limit Values for Lipophilic Volatile Organic Compounds. *R. McDougall*[1], *M. Verner*[2,3], *G. Charest-Tardif*[4], *R. Tardif*[4], and *G. Johanson*[2]. [1]Faculty of Engineering and Applied Science, University of Ontario Institute of Technology, Oshawa, ON, Canada; [2]Institute of Environmental Medicine, Karolinska Institutet, Stockholm, Sweden; [3]Channing Laboratory, Brigham and Women's Hospital, Harvard Medical School, Boston, MA; [4]Département de santé environnementale et santé au travail, Université de Montréal, Montréal, QC, Canada.

#623 **Poster Board Number 476**
Development of a New 3D Human Small Intestinal Tissue Model. S. Ayehunie, Z. Stevens, T. Landry, *P. Hayden*, and M. Klausner. MatTek Corporation, Ashland, MA.

#624 **Poster Board Number 477**
Evaluating Dose-Response Parameters of an *In Vitro* DNA-Chemical Interaction Using a Mechanistic Biological Model. *A. Nong*, K. Lyon, J. M. Gavina, and Y. Feng. Environmental Health Science and Research Bureau, Health Canada, Ottawa, ON, Canada.

Abstract #

#625 **Poster Board Number 478**
Developing Predictive Approaches to Characterize Adaptive Responses of the Reproductive Endocrine Axis to Aromatase Inhibition: Computational Modeling. *M. Breen*[1,2], D. L. Villeneuve[3], G. T. Ankley[3], D. Bencic[4], M. S. Breen[5], K. H. Watanabe[6], A. L. Lloyd[2], and *R. Conolly*[1]. [1]ISTD, NHEERL, ORD, US EPA, Research Triangle Park, NC; [2]Biomathematics Program, Department of Mathematics, North Carolina State University, Raleigh, NC; [3]Mid-Continent Ecology Division, US EPA, Duluth, MN; [4]Ecological Exposure Research Division, US EPA, Cincinnati, OH; [5]NERL, US EPA, Research Triangle Park, NC; [6]Environmental and Biomolecular Systems, Oregon Health & Science University, Beaverton, OR.

Monday Afternoon, March 11
1:00 PM to 4:30 PM
Exhibit Hall C–D

PS

Poster Session: Liver

Chairperson(s): *Jose Manautou, University of Connecticut, Storrs, CT.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *2:45 PM–4:30 PM*

#626 **Poster Board Number 501**
Mitochondrial Dysfunction-Induced by Sertraline, an Antidepressant Agent. L. Couch[1], *Y. Li*[1], *J. Fang*[1], M. Higuchi[2], and *L. Guo*[1]. [1]NCTR, US FDA, Jefferson, AR; [2]Department of Biochemistry and Molecular Biology, University of Arkansas for Medical Sciences, Little Rock, AR.

#627 **Poster Board Number 502**
Mouse Liver Protein Sulfhydryl Depletion Induced by Acetaminophen Exposure. *X. Yang*[1], J. Greenhaw[1], *Q. Shi*[1], and *W. F. Salminen*[2]. [1]Division of Systems Biology, US FDA, National Center for Toxicological Research, Jefferson, AR; [2]PAREXEL, Benton, AR.

#628 **Poster Board Number 503**
Purinergic Receptor Antagonist A438079 Protects against Acetaminophen-Induced Liver Injury by Inhibiting P450 Isoenzymes Not Inflammasome Activation. *Y. Xie*, *C. Williams*, *M. R. McGill*, M. Leborfsky, *A. Ramachandran*, and *H. Jaeschke*. Pharmacology, Toxicology & Therapeutics, University of Kansas Medical Center, Kansas City, KS.

#629 **Poster Board Number 504**
The Role of Choline Depletion in Perfluorooctanesulfonate-Induced Hepatic Steatosis. *P. Krishnan*[1], *A. D. Patterson*[1], *D. J. Ehresman*[2], P. B. Smith[1], M. K. Scavello[1], *S. Chang*[2], *J. L. Butenhoff*[2], and *J. M. Peters*[1]. [1]Pennsylvania State University, University Park, PA; [2]3M Company, St. Paul, MN.

#630 **Poster Board Number 505**
Platelet Depletion Reduces Acetaminophen Hepatotoxicity in Mice. *K. Miyakawa*[1,2], R. Albee[3], M. Scott[1], *P. Ganey*[2,3], *J. Luyendyk*[1,2], and *R. Roth*[2,3]. [1]Department of Pathobiology and Diagnostic Investigation, Michigan State University, East Lansing, MI; [2]Center for Integrative Toxicology, Michigan State University, East Lansing, MI; [3]Department of Pharmacology and Toxicology, Michigan State University, East Lansing, MI.

Program Description (Continued)

Abstract #

#631 **Poster Board Number 506**
Acute Biliary Hyperplasia in F344 Rats Administered the Indole-3-Carbinol Analog, NSC 743380. *M. Davis*[1], *S. Eldridge*[1], K. Elsass[2], *T. Horn*[3], and J. Morris[1]. [1]DCTD, NCI, Bethesda, MD; [2]Battelle, Columbus, OH; [3]IITRI, Chicago, IL.

#632 **Poster Board Number 507**
Identifying Proregenerative Signaling after Acetaminophen-Induced Acute Liver Failure in Mice Using Incremental Dose Model. B. Bhushan, C. Walesky, P. Borude, G. Edwards, and *U. Apte*. Department of Pharmacology, Toxicology, and Therapeutics, University of Kansas Medical Center, Kansas City, KS.

#633 **Poster Board Number 508**
Potential Hepatoprotective Effects of Licorice Root (*Radix glycyrrhizae*) Extract against Carbon Tetrachloride-Induced Hepatotoxicity in Isolated Rat Hepatocytes. O. S. El-Tawil[1], A. A. Shalaby[2], and E. A. Mohamed[3]. [1]Department of Toxicology and Forensic Medicine, Faculty of Veterinary Medicine, Cairo University, Cairo, Egypt; [2]Department of Biochemistry, Faculty of Veterinary Medicine, Suez Canal University, Ismailia, Egypt; [3]Department of Pharmacology and Toxicology, Faculty of Pharmacy, Al-Azhar University, Cairo, Egypt. Sponsor: *A. Kadry*.

#634 **Poster Board Number 509**
Lack of Human Health Relevance of Increased Hepatocellular Adenoma in Male Cd1 Mouse Treated with Cyproconazole or Propiconazole. D. Cowie[1], R. Green[1], E. Barnes[1], R. Currie[1], and *R. Peffer*[2]. [1]Syngenta, Bracknell, United Kingdom; [2]Syngenta, Greensboro, NC.

#635 **Poster Board Number 510**
***In Vivo* Lead Hepatotoxicity in Mice Is Reversed by a Molluscan C-Reactive Protein Purified from *Achatina fulica* (Bowdich).** *S. Mukherjee*, S. Sarkar, S. Chatterjee, and *S. Bhattacharya*. Zoology, Visva Bharati University, Santiniketan, India.

#636 **Poster Board Number 511**
Eosinophils Not Neutrophils Mediate Halothane-Induced Liver Injury in Mice. W. R. Proctor, M. Chakraborty, J. C. Morrison, L. S. Chea, J. D. Berkson, K. Semple, *M. Bourdi*, and *L. R. Pohl*. Molecular and Cellular Toxicology Section, Laboratory of Molecular Immunology, National Heart, Lung and Blood Institute, Bethesda, MD.

#637 **Poster Board Number 512**
Effect of Ligand Activation of PPARβ/δ in Kupffer Cells. *G. Balandaram*[1], *J. M. Peters*[1], and *F. J. Gonzalez*[2]. [1]Veterinary and Biomedical Sciences, Pennsylvania State University, University Park, PA; [2]Laboratory of Metabolism, NCI, Bethesda, MD.

#638 **Poster Board Number 513**
Hepatocyte Tissue Factor Triggers the Procoagulant Response Associated with Acetaminophen-Induced Liver Injury and Hepatocyte Transplantation. *J. Luyendyk*[1], *A. K. Kopec*[1], N. Joshi[1], H. Cline[1], S. Bishop[1], K. M. Kassel[1], *C. Rockwell*[2], N. Mackman[3], and *B. P. Sullivan*[1]. [1]Pathobiology and Diagnostic Investigation, Michigan State University, East Lansing, MI; [2]Pharmacology and Toxicology, Michigan State University, East Lansing, MI; [3]Department of Medicine, University of North Carolina at Chapel Hill, Chapel Hill, NC.

Abstract #

#639 **Poster Board Number 514**
Hepatoprotective Effects of Fibrin(ogen) in Chronic Xenobiotic-Induced Cholestatic Liver Injury: Potential Involvement of Platelets. *N. Joshi*[2], K. M. O'Brien[2], B. L. Copple[2], K. J. Williams[1], and *J. P. Luyendyk*[1]. [1]Pathobiology and Diagnostic Investigation, Michigan State University, East Lansing, MI; [2]Pharmacology & Toxicology, Michigan State University, East Lansing, MI.

#640 **Poster Board Number 515**
Effects of Acetaminophen and Oxidative Stress on Primary Human Hepatocytes Derived from a Steatotic Liver. *M. J. Liguori*, D. J. Cugier, R. Ciurlionis, *A. C. Ditewig*, J. Lai-Zhang, G. D. Gagne, and E. A. Blomme. Department of Cellular and Molecular Toxicology, AbbVie, Abbott Park, IL.

#641 **Poster Board Number 516**
Meso-Dihydroguaiaretic Acid Inhibits Alcoholic and Nonalcoholic Fatty Liver by Antagonizing LXRα Activity. W. Sim[1], S. Park[1], K. Lee[1], Y. Jye[1], H. Yin[1,4], Y. Choi[1], S. Sung[1], S. Park[2], H. Park[2], K. Shin[3], and *B. Lee*[1]. [1]College of Pharmacy, Seoul National University, Seoul, Republic of Korea; [2]School of Pharmacy, Sungkyunkwan University, Suwon, Republic of Korea; [3]College of Pharmacy, The Catholic University, Bucheon, Republic of Korea; [4]Molecular Pharmacology and Physiology, University of South Florida Health Sciences Center, Tampa, FL.

#642 **Poster Board Number 517**
Toxicity of Diethylnitrosamine (DEN) in the Liver of Constitutive Andorostane Receptor (CAR)-Knockout (KO) Mice. K. Inoue[1], M. Takahashi[1], Y. Sakamoto[1], K. Tamura[1], S. Matsuo[1], Y. Kodama[2], and *M. Yoshida*[1]. [1]Division of Pathology, National Institute of Health Sciences, Tokyo, Japan; [2]Division of Toxicology, National Institute of Health Sciences, Tokyo, Japan.

#643 **Poster Board Number 518**
Leptin Modulates Toxicity Associated Steatohepatitis through Peroxynitrite in Kupffer Cells. *S. Das*[1], A. Kumar[2], D. Ganini[2], *E. J. Tokar*[3], J. Corbett[2], *M. Kadiiska*[2], *M. Waalkes*[3], A. Diehl[4], *R. P. Mason*[2], and *S. Chatterjee*[1,2]. [1]Environmental Health Sciences, University of South Carolina, Columbia, SC; [2]Laboratory of Toxicology and Pharmacology, NIEHS, Research Triangle Park, NC; [3]Inorganic Toxicology, NIEHS, Research Triangle Park, NC; [4]Gastroenterology, Duke University, Durham, NC.

#644 **Poster Board Number 519**
Occupational Vinyl Chloride Exposures Are Associated with Significant Changes to the Plasma Metabolome: Implications for Toxicant Associated Steatohepatitis. B. Wheeler[1], *M. Cave*[1,2], K. Falkner[1], and *C. McClain*[1,2]. [1]Department of Medicine/GI, University of Louisville, Louisville, KY; [2]Louisville VAMC, Louisville, KY.

#645 **Poster Board Number 520**
Pregnancy-Related Lactogenic Hormones Alter the Expression of Uptake and Efflux Transporters in Primary Human Hepatocytes. *J. E. Moscovitz*[1], *C. J. Gibson*[1], H. J. Chung[2], H. Y. Jeong[3], and *L. M. Aleksunes*[1,4]. [1]Department of Pharmacology and Toxicology, Rutgers University, Piscataway, NJ; [2]College of Pharmacy, Gyeongsang National University, Jinju, Republic of Korea; [3]Department of Pharmacy Practice, University of Illinois, Chicago, IL; [4]Environmental and Occupational Health Sciences Institute, Rutgers University, Piscataway, NJ.

Program Description (Continued)

Abstract #

#646 **Poster Board Number 521**
Acrolein Cytotoxicity in Hepatocytes Involves Endoplasmic Reticulum Stress, Mitochondrial Dysfunction, and Oxidative Stress. *M. Mohammad*[1], *D. Avila*[1], J. Zhang[1], *S. Barve*[1], *G. Arteel*[3], *C. McClain*[1,2], and *S. Joshi-Barve*[1]. [1]Department of Medicine/GI, University of Louisville, Louisville, KY; [2]Louisville VAMC, Louisville, KY; [3]Pharmacology and Toxicology, University of Louisville, Louisville, KY.

#647 **Poster Board Number 522**
Interstrain Differences in Progression from Simple Liver Steatosis to Fibrosis Are Associated with Altered Hepatic Iron Metabolism in Mice. S. Shpyleva[1], L. Muskhelishvili[2], M. Pogribna[1], C. Cozart[1], M. Bryant[1], F. A. Beland[1], and *I. Pogribny*[1]. [1]Division of Biochemical Toxicology, NCTR, US FDA, Jefferson, AR; [2]Toxicologic Pathology Associates, NCTR, US FDA, Jefferson, AR.

#648 **Poster Board Number 523**
Dose-Dependent Hepatic Physiological, Histopathological, and Gene Expression Responses in C57BL/6 Mice following Repeated TCDD Exposure. *T. R. Zacharewski*[1,3], K. A. Fader[1,3], *J. R. Harkema*[2,3], and *R. Nault*[1,3]. [1]Biochemistry & Molecular Biology, Michigan State University, East Lansing, MI; [2]Pathobiology and Diagnostic Investigations, Michigan State University, East Lansing, MI; [3]Center for Integrative Toxicology, Michigan State University, East Lansing, MI.

#649 **Poster Board Number 524**
Impaired Glycosylation and Membrane Localization of Uptake and Efflux Transporters in Human Nonalcoholic Fatty Liver Disease. *J. Clarke*[1], P. Novak[2], *A. D. Lake*[1], *R. Hardwick*[1], and *N. J. Cherrington*[1]. [1]Pharmacology and Toxicology, University of Arizona, Tucson, AZ; [2]Biology Centre ASCR, Institute of Plant Molecular Biology, Ceske Budejovice, Czech Republic.

#650 **Poster Board Number 525**
High Dietary Fructose Induced Copper Deficiency Contributes to Alcoholic Liver Disease Progression. M. Song[1], *T. Chen*[3], and *C. McClain*[1,2,3]. [1]Department of Medicine/GI, University of Louisville, Louisville, KY; [2]Louisville VAMC, Louisville, KY; [3]Pharmacology and Toxicology, University of Louisville, Louisville, KY.

#651 **Poster Board Number 526**
Steroid Sulfatase Enhances Hepatic Estrogen Activity and Protects Mice from Obesity and Type 2 Diabetes. *W. Xie*, and M. Jiang. University of Pittsburgh, Pittsburgh, PA.

#652 **Poster Board Number 527**
Effect of Diallyl Disulfide on the Cytokines Expression in Cadmium Chloride-Treated Liver Cells. S. Smith, C. Odewumi, V. Badisa, A. Abdulla, and L. M. Latinwo. Biology, Florida A&M University, Tallahassee, FL. Sponsor: *A. Becker*.

#653 **Poster Board Number 528**
The Effect of Fenugreek Leaf Extract on Gene Expression Profile of Cadmium Chloride Treated Normal Rat Liver Cells. R. L. Lyles, C. Odewumi, V. Badisa, and L. Latinwo. Biology, Florida A&M University, Tallahassee, FL. Sponsor: *A. Becker*.

Abstract #

#654 **Poster Board Number 529**
Evidence for a Functional Keap1-Nrf2 Cell Defence Pathway in Human Liver. I. M. Copple[1], C. Rowe[1], R. P. Jones[2,1], S. W. Fenwick[2], H. Z. Malik[2], C. Goldring[1], N. R. Kitteringham[1], and B. Park[1]. [1]MRC Centre for Drug Safety Science, University of Liverpool, Liverpool, United Kingdom; [2]Department of Hepatobiliary Surgery, Aintree University Hospital NHS Foundation Trust, Liverpool, United Kingdom. Sponsor: *D. Mendrick*.

#655 **Poster Board Number 530**
Dibenzofuran and Mitochondrial Function: Interaction with Adenine Nucleotide Translocator. *C. M. Palmeira*[1,2], F. V. Duarte[1,2], A. P. Gomes[1,2], J. S. Teodoro[1,2], A. T. Varela[1,2], A. J. Moreno[1], and A. P. Rolo[2,3]. [1]Department of Life Sciences, University of Coimbra, Coimbra, Portugal; [2]Center for Neurosciences and Cell Biology, University of Coimbra, Coimbra, Portugal; [3]Department of Biology, University of Aveiro, Aveiro, Portugal.

#656 **Poster Board Number 531**
Trovafloxacin-Induced TNF Expression in Raw Cells Is ATR-Dependent. *K. L. Poulsen*[1,2], *P. E. Ganey*[1,2], and *R. A. Roth*[1,2]. [1]Pharmacology and Toxicology, Michigan State University, East Lansing, MI; [2]Center for Integrative Toxicology, Michigan State University, East Lansing, MI.

#657 **Poster Board Number 532**
3,3'-Diindolylmethane Attenuates Lipopolysachharide/D-Galactosamine-Induced Fulminant Hepatic Failure by Inducing Changes in microRNA Expression in the Liver-Infiltrating Mononuclear Cells. *S. Tomar*, *P. Nagarkatti*, and *M. Nagarkatti*. Pathology, Microbiology and Immunology, School of Medicine, University of South Carolina, Columbia, SC.

#658 **Poster Board Number 533**
Multiple Mechanisms for the Appearance of Acetaminophen-Protein Adducts in Plasma: Basic Science and Clinical Implications. *M. R. McGill*, *Y. Xie*, M. Bajt, M. Yang, *C. Williams*, and *H. Jaeschke*. Pharmacology, Toxicology, and Therapeutics, University of Kansas Medical Center, Kansas City, KS.

#659 **Poster Board Number 534**
Insulin-Mimetic Effects of Arsenic: Modulation of FoxO Signaling to Affect Selenoprotein P Expression. I. Hamann, and *L. Klotz*. Faculty of Pharmacy and Pharmaceutical Sciences, University of Alberta, Edmonton, AB, Canada.

#660 **Poster Board Number 535**
The Role of Multidrug Resistance Protein 4 (Mrp4, Abcc4) in Protecting against Acetaminophen (APAP)-Induced Hepatotoxicity. *A. M. Bataille*, and *J. E. Manautou*. Pharmaceutical Sciences, University of Connecticut, Storrs, CT.

#661 **Poster Board Number 536**
Dual Role of Macrophages in Injury and Repair in Acetaminophen-Induced Hepatotoxicity. *C. R. Gardner*[1], H. M. Choi[1], *J. D. Laskin*[2], and *D. L. Laskin*[1]. [1]Rutgers University, Piscataway, NJ; [2]UMDNJ-RWJ Medical School, Piscataway, NJ.

Program Description (Continued)

Abstract #

#662 **Poster Board Number 537**
Induction of Hepatic Bcrp Transporter Expression in Mice Treated with Perfluorooctanoic Acid. M. Little[1,2], L. Eldasher[2], *X. Wen*[2], *K. M. Bircsak*[2], *L. L. Yacovino*[2], and *L. M. Aleksunes*[2,3]. [1]Department of Chemistry and Biochemistry, Montclair University, Montclair, NJ; [2]Department of Pharmacology and Toxicology, Rutgers University, Piscataway, NJ; [3]Toxicology Division, Environmental and Occupational Health Sciences Institute, Rutgers University, Piscataway, NJ.

#663 **Poster Board Number 538**
Xenosensors Mediated Regulation of ATP Binding Cassette Transporter B6 (ABCB6). *H. D. Chavan*, and P. Krishnamurthy. Pharmacolgy, Toxicology & Therapeutics, Kansas University Medical Center, Kansas City, KS.

#664 **Poster Board Number 539**
Hepatic Flavin-Containing Monooxygenase-3 (FMO3) Protein Is Inducible by Acetaminophen Treatment. *S. Rudraiah*, and *J. E. Manautou*. University of Connecticut, Storrs, CT.

#665 **Poster Board Number 540**
Vanin-1 Knockout Mice Exhibit Alterations in Compensatory Immune Infiltration and Hepatocyte Proliferation following Acetaminophen Toxicity. *D. Ferreira*[1], F. Galland[2], P. Naquet[2], and *J. E. Manautou*[1]. [1]Department of Pharmaceutical Sciences, University of Connecticut, Storrs, CT; [2]Centre d'Immunologie de Marseille-Luminy CNRS-INSERM, Université de la Méditerranée, Marseille, France.

Monday Afternoon, March 11
1:00 PM to 4:30 PM
Exhibit Hall C–D

PS

Poster Session: Gene Expression and Signal Transduction

Chairperson(s): *Russell Thomas, The Hamner Institutes for Health Sciences, Research Triangle Park, NC.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *1:00 PM–2:45 PM*

#666 **Poster Board Number 541**
Transcription Regulation by Novel Interaction of Kruppel-Like Factor 6 with Aryl Hydrocarbon Receptor at the NC-XRE. *A. D. Joshi*, D. P. Jackson, S. R. Wilson, and *C. J. Elferink*. Pharmacology and Toxicology, University of Texas Medical Branch, Galveston, TX.

#667 **Poster Board Number 542**
Mild Endoplasmic Reticulum Stress Preconditioning Attenuates Methylmercury-Induced Cellular Damage by Inducing Favorable Stress Responses. F. Usuki[1], M. Fujimura[2], and A. Yamashita[3]. [1]Clinical Medicine, National Institute for Minamata Disease, Minamata, Japan; [2]Basic Medical Sciences, National Institute for Minamata Disease, Minamata, Japan; [3]Molecular Biology, Yokohama City University School of Medicine, Yokohama, Japan. Sponsor: *A. Naganuma*.

Abstract #

#668 **Poster Board Number 543**
Differences in Regulation of Gene Expression Profiles of the Bone Marrow between C57BL/6 and C3H/He Mice after Benzene Treatment. *Y. Hirabayashi*[1], B. Yoon[2], K. Igarashi[1], *J. Kanno*[1], and *T. Inoue*[3,4]. [1]Cell & Molecular Toxicology Division, Biology Safety & Research Center, National Institute of Health Sciences, Tokyo, Japan; [2]Histology & Molecular Pathogenesis Laboratory, School of Veterinary Medicine, Kangwon National University, Chuncheon, Republic of Korea; [3]Function & Structural Medicine Department, Nihon University School of Medicine, Tokyo, Japan; [4]National Institute of Health Sciences, Tokyo, Japan.

#669 **Poster Board Number 544**
Biphasic Influence of Arsenic, Cadmium, Mercury, and Nickel on Aryl Hydrocarbon Receptor (AhR) Signaling. *A. Rannug*[1], A. Mohammadi-Bardbori[1], L. Vikström Bergander[1], and U. Rannug[2]. [1]Institute of Environmental Medicine, Karolinska Institutet, Stockholm, Sweden; [2]Department of Genetics, Microbiology and Toxicology, Stockholm University, Stockholm, Sweden.

#670 **Poster Board Number 545**
Differential Gene Expression Responses by Hepatic Lobe in Fischer Rats Treated with Carcinogens Phenobarbital and Diethylnitrosamine. B. Li[1], *M. W. Trimble*[2], D. Henderson[1], S. Stepaniants[1], M. L. Parrish[1], B. Kevin[2], A. Sharma[2], G. A. Boorman[3], and *S. Williams*[2]. [1]Covance Genomics Laboratories, Inc., Seattle, WA; [2]Covance Laboratories, Inc., Madison, WI; [3]Covance Laboratories, Inc., Chantilly, VA.

#671 **Poster Board Number 546**
***In Vitro* Effects of Aldehydes Present in Tobacco Smoke on Gene Expression in Human Lung Alveolar Epithelial Cells.** N. Cheah[1,2,4], J. Pennings[2], J. Vermeulen[2], F. J. van Schooten[1], and A. Opperhuizen[1,3]. [1]Toxicology, Maastricht University, Maastricht, Netherlands; [2]Laboratory for Health Protection Research, National Institute for Public Health and the Environment, Bilthoven, Netherlands; [3]Risk Assessment, Netherlands Food and Consumer Product Safety Authority, Utrecht, Netherlands; [4]Cigarette Testing Laboratory, Health Sciences Authority, Singapore, Singapore. Sponsor: *H. van Loveren*.

#672 **Poster Board Number 547**
Regulation of the Metabolic Switch between Ductal Carcinoma *In Situ* (DCIS) and Invasive Breast Cancer (IBC). *K. C. Scribner*[1], Y. Fan[2], M. Ragavan[3], R. Chapkin[2], C. Hilty[3], H. Payne[4], R. Mouneimne[4], F. Behbod[5], and W. Porter[1]. [1]Integrative Biosciences, Texas A&M University, College Station, TX; [2]Integrative Nutrition and Complex Diseases, Texas A&M University, College Station, TX; [3]Chemistry, Texas A&M University, College Station, TX; [4]Image Analysis Laboratory, Texas A&M University, College Station, TX; [5]Pathology and Laboratory Medicine, University of Kansas Medical Center, Kansas City, KS.

#673 **Poster Board Number 548**
Hypoxia Perturbs PCB-Induced Aryl Hydrocarbon Receptor Signaling and CYP1A1 Induction in Human Cells. *S. U. Vorrink*, and F. E. Domann. Human Toxicology, The University of Iowa, Iowa City, IA.

Program Description (Continued)

Abstract #

#674 **Poster Board Number 549**
Characterizing Chronic Nicotine Exposure-Induced Behaviors and Gene Regulations in *Caenorhabditis elegans*. J. R. Polli, F. A. Taki, M. A. Smith, and X. Pan. Biology, East Carolina University, Greenville, NC. Sponsor: *J. DeWitt*.

#675 **Poster Board Number 550**
TNIP1 Regulates the Cell Stress Response through Repression of Heat Shock Proteins A6 and A1A. *V. P. Ramirez*[1], M. Stamatis[2], A. Shmukler[2], C. Zhang[3], and B. J. Aneskievich[3]. [1]Pharmacology & Toxicology Program, University of Connecticut, Storrs, CT; [2]PharmD Program, University of Connecticut, Storrs, CT; [3]Department of Pharmaceutical Sciences, University of Connecticut, Storrs, CT.

#676 **Poster Board Number 551**
Erk1/2 Pathway Inhibition Attenuates BoNT/A-Induced Neurite Outgrowth in Motor Neurons. *L. Liu*, and J. A. Coffield. University of Georgia, Athens, GA.

#677 **Poster Board Number 552**
Inhibition of TGFbeta-Induced Integrin- Growth Receptor Cooperative Signaling by Cucurbitacin B, Causes Breast Cancer Growth Suppression. *P. Gupta*, and *S. K. Srivastava*. Texas Tech University Health Sciences Center, Amarillo, TX.

#678 **Poster Board Number 553**
High Content Live-Cell Imaging of Nrf2 and NF-κB Signaling Reporters As Predictive Tools to Classify Drug-Induced Liver Injury Responses. B. Herpers, L. Fredriksson, Z. Di, H. de Bont, and *B. van de Water*. Toxicology, Leiden University, Leiden, Netherlands.

#679 **Poster Board Number 554**
Translation Initiation Factor EIF4A1 Determines TNFα-Mediated Apoptosis in Drug-Induced Liver Injury through the Stress Protein Chop. L. Fredriksson, B. Herpers, S. Wink, J. Meerman, and *B. van de Water*. Toxicology, Leiden University, Leiden, Netherlands.

#680 **Poster Board Number 555**
The Effect of Thermal Stress on *Drosophila melanogaster* Gene Expression. K. Silkaitis[1,2], A. Branco[1], and B. Lemos[1]. [1]Molecular and Integrative Physiological Sciences, Department of Environmental Health, Harvard School of Public Health, Boston, MA; [2]Temple University, Philadelphia, PA. Sponsor: *V. Vaidya*.

#681 **Poster Board Number 556**
Dual Mechanisms for Controlling Chk1 Protein Levels. *F. Zhang, S. S. Lau*, and *T. J. Monks*. Department of Pharmacology and Toxicology, College of Pharmacy, University of Arizona Health Sciences Center, Tucson, AZ.

#682 **Poster Board Number 557**
Atrazine-Elicited Differential Gene Expression in BLTK1 Leydig Cells. *A. L. Forgacs*[1,2], and *T. R. Zacharewski*[1,2]. [1]Biochemistry & Molecular Biology, Michigan State University, East Lansing, MI; [2]Center for Integrative Toxicology, Michigan State University, East Lansing, MI.

Abstract #

#683 **Poster Board Number 558**
Hepatic Gene Expression Analysis of 2-Aminoanthracene-Exposed Fisher-344 Rats Reveal Patterns Indicative of Liver Carcinoma and Type 2 Diabetes. *W. E. Gato*[1], B. D. Hales[2], and *J. C. Means*[3]. [1]Chemistry, Augustana College, Rock Island, IL; [2]Physiology, Southern Illinois University Carbondale, Carbondale, IL; [3]Environmental Science & Management, University of California Santa Barbara, Santa Barbara, CA.

#684 **Poster Board Number 559**
Utilizing RNA Sequencing and the DNA-Damage Response to Model Chemical Toxicity: How PKC-Activating Tumor Promoters Create a Path of Their Own. K. P. Glover[1], *L. Markell*[1], E. Donner[1], Z. Chen[2], and *X. Han*[1]. [1]DuPont Haskell, Newark, DE; [2]DuPont Information & Computing Technologies, Wilmington, DE.

#685 **Poster Board Number 560**
Reactive Nitrogen Species Regulate Autophagy through ATM-AMPK-TSC2-Mediated Suppression of mTORC1. *D. N. Tripathi*[1], R. Chowdhury[2], L. J. Trudel[2], *G. N. Wogan*[2], and *C. L. Walker*[1]. [1]Center for Translational Cancer Research, IBT, Texas A&M Health Science Center, Houston, TX; [2]Department of Biological Engineering, Massachusetts Institute of Technology, Cambridge, MA.

#686 **Poster Board Number 561**
CYP2S1 Expression Influences Cytotoxicity of the Anticancer Prodrug, AQ4N, in Human Bronchial Epithelial Cells. *N. M. Singh*, and *A. M. Rowland*. Chemistry and Biochemistry, New Mexico State University, Las Cruces, NM.

#687 **Poster Board Number 562**
Transcriptome Analysis Reveals Novel Pathway Regulation in Response to Differential Expression of CYP2S1 in Human Lung Cells. *T. W. Madanayake*[1], *A. M. Rowland*[1], N. Devitt[2], and I. Lindquist[2]. [1]Chemistry and Biochemistry, New Mexico State University, Las Cruces, NM; [2]National Center for Genomics Research, Santa Fe, NM.

#688 **Poster Board Number 563**
In-Depth Examination of How Exposure to Long-Term Low-Dose Chromium Alters the Transcriptional Response to BaP. *J. Ovesen*, Y. Fan, and *A. Puga*. University of Cincinnati, Cincinnati, OH.

#689 **Poster Board Number 564**
Expression of the Nuclear Receptor Corepressor Tnip1 in Mouse Tissues. *N. Francis*, C. Zhang, and B. J. Aneskievich. University of Connecticut, Willimantic, CT.

#690 **Poster Board Number 565**
Evaluating the Role of Kinase Activation Involved in Chemical-Dependent p53 Response to DNA Damage. B. Reidel[1], B. Sun[1], A. Scott[2], Y. Adeleye[2], *M. E. Andersen*[1], and *R. A. Clewell*[1]. [1]The Hamner Institutes for Health Sciences, Durham, NC; [2]Unilever, PLC, London, United Kingdom.

Program Description (Continued)

Abstract #

#691 **Poster Board Number 566**
Global Transcriptional Analysis of Zebrafish Embryos following Acute Exposure to Cadmium. *M. J. Jenny*[1], E. E. Linney[2], B. O'Shields[1], *A. Holowiecki*[1], and A. McArthur[1]. [1]Department of Biological Sciences, University of Alabama, Tuscaloosa, AL; [2]Department of Molecular Genetics and Microbiology, Duke University Medical Center, Durham, NC.

#692 **Poster Board Number 567**
Role of Chromatin Structural Changes in Regulating Human CYP3A Ontogeny. N. L. Giebel[1], J. D. Shadley[1], K. Dorko[2], *S. C. Strom*[3], P. M. Simpson[1], K. Yan[1], and *R. N. Hines*[1]. [1]Pediatrics, Medical College of Wisconsin, Milwaukee, WI; [2]Pharmacology, Toxicology and Therapeutics, University of Kansas Medical Center, Kansas City, KS; [3]Laboratory Medicine, Karolinska University Hospital, Stockholm, Sweden.

#693 **Poster Board Number 568**
6-Formylindolo(3,2-b)carbazole (FICZ) Positively Regulates the Signalsome Responsible for Retinoic Acid (RA)-Induced Differentiation of Leukemic Blast Model Hl-60. *R. Bunaciu*, and A. Yen. Cornell University, Ithaca, NY.

#694 **Poster Board Number 569**
Nrf2 Gene Regulation during Oxidative Stress in Embryonic Development. *A. R. Timme-Laragy*[1,2], S. I. Karchner[1], R. C. Harbeitner[1], A. G. MacArthur[3], and *M. E. Hahn*[1]. [1]Biology, Woods Hole Oceanographic Institution, Woods Hole, MA; [2]Public Health, University of Massachusetts, Amherst, MA; [3]AGM Consulting, Hamilton, ON, Canada.

#695 **Poster Board Number 570**
On Breast Cancer Treatment, Synergistic Effects of Akt1 shRNA and Paclitaxel-Incorporated Conjugated Linoleic Acid-Coupled Poloxamer Thermosensitive Hydrogel. *S. Hong*[1], C. Cho[2], and *M. Cho*[1]. [1]Laboratory of Toxicology, Seoul National University, Seoul, Republic of Korea; [2]Agricultural Biotechnology, Seoul National University, Seoul, Republic of Korea.

#696 **Poster Board Number 571**
TBX5 As Targets for Treatment of Chronic Obstructive Pulmonary Disease. J. Lee, and *G. Acquaah-Mensah*. Massachusetts College of Pharmacy Health and Sciences, Worcester, MA.

#697 **Poster Board Number 572**
Suppressive Effect of HES1 (*Drosophila* Hairy and Enhancer of Split-1) on Human Hepatic Multidrug Resistance-Associated Protein 4 (MRP4) Gene Expression and Induction of HES1 by Oxidative Stress. *X. Gu*, and *J. E. Manautou*. Department of Pharmaceutical Sciences, University of Connecticut, Storrs, CT.

#698 **Poster Board Number 573**
Exposure to Metals Mixtures: Genomic Alterations of Infectious Disease Response Pathways in Children Exposed to Environmental Metals. J. Gruber[1,2], R. D. Patel[1], J. E. Rager[1], A. P. Sanders[1], S. Edwards[3], J. E. Gallagher[3], and *R. C. Fry*[1]. [1]Environmental Sciences and Engineering, University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]Department of Epidemiology, University of North Carolina at Chapel Hill, Chapel Hill, NC; [3]National Health and Environmental Effects Research Laboratory, US EPA, Research Triangle Park, NC.

Abstract #

#699 **Poster Board Number 574**
Transcriptomics Analysis of Lung Tissues of Brown Norway Rats Exposed to the Sensitizers Trimellitic Anhydride (TMA), Oxazolone (OXA) or Dinitrochlorobenzene (DNCB). F. Kuper[2], M. Radonjic[2], J. van Triel[1], Y. Staal[1], *R. Woutersen*[2], and R. Stierum[2]. [1]TNO Triskelion, Zeist, Netherlands; [2]The Netherlands Organisation for Applied Scientific Research, TNO, Zeist, Netherlands.

#700 **Poster Board Number 575**
***In Vivo* Expression of P16INK4a in Response to Toxicological Exposures.** *J. Sorrentino*[1,3], N. Sharpless[1,2,3], and C. Burd[4]. [1]Toxicology, University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]Departments of Medicine and Genetics, University of North Carolina at Chapel Hill, Chapel Hill, NC; [3]Lineberger Comprehensive Cancer Center, University of North Carolina at Chapel Hill, Chapel Hill, NC; [4]Molecular Genetics, Ohio State University, Columbus, OH.

#701 **Poster Board Number 576**
Reprogramming of the HepG2 Genome by Long Interspersed Nuclear Element-1: Regulatory Control of Epithelial to Mesenchymal Transition Is Independent of Reverse Transcriptase. P. Bojang[1], *M. Anderton*[2], *R. Roberts*[2], and *K. S. Ramos*[1,3]. [1]Biochemistry and Molecular Biology, University of Louisville, Louisville, KY; [2]General Toxicology Sciences, AstraZeneca, Manchester, United Kingdom; [3]Center for Environmental Genomics and Integrative Biology, University of Louisville, Louisville, KY.

Monday Afternoon, March 11
1:00 PM to 4:30 PM
Exhibit Hall C–D

PS

Poster Session: Risk Assessment I: Advances in Approaches and Technologies

Chairperson(s): *Janet Moser, Department of Homeland Security, Aberdeen Proving Ground, MD, and Mattias Öberg, Karolinska Institutet, Stockholm, Sweden.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *2:45 PM–4:30 PM*

#702 **Poster Board Number 577**
Interoperability Case Study: Connecting Models across Exposure and Dose-Response Arenas for Characterization of Vinyl Chloride Hepatotoxicity. D. S. Womack[1], S. M. Beaulieu[1], A. B. Parks[1], *M. M. Mumtaz*[2], *P. Ruiz*[2], J. Babendreier[3], and *A. M. Jarabek*[4]. [1]RTI, Research Triangle Park, NC; [2]ATSDR, Atlanta, GA; [3]US EPA, Athens, GA; [4]US EPA, Research Triangle Park, NC.

#703 **Poster Board Number 578**
Modeling Acute Exposure Guideline Levels (AEGLs). *M. T. Chu*, C. M. Nordberg, R. Manimaran, Y. Tie, and E. Demchuk. ATSDR, Atlanta, GA.

#704 **Poster Board Number 579**
Concentration-Time Relationships for Short-Term Inhalation Exposures to Hazardous Substances. R. Manimaran, and E. Demchuk. ATSDR, Atlanta, GA. Sponsor: *P. Ruiz*.

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Program Description (Continued)

Abstract #

#705 **Poster Board Number 580**
Refined Animal Toxicity Testing Using Unequally Sized Dose Groups and Benchmark Dose Analysis. M. Öberg, J. Ringblom, F. Kalantari, and *G. Johanson*. Institute of Environmental Maedicine, Karolinska Institutet, Stockholm, Sweden.

#706 **Poster Board Number 581**
A Novel Screening System for Classifying Potential Health and Environmental Impacts Associated with Hydraulic Fracturing Fluids. C. N. McFarland, and *D. B. Davies*. Intrinsik Environmental Inc., Calgary, AB, Canada.

#707 **Poster Board Number 582**
Analysis of the Validated Epiderm Skin Corrosion Test (EpiDerm SCT) and a Prediction Model for Sub-Categorization According to the UN GHS and EU CLP. S. Letasiova[2], H. Kandarova[2], T. Milasova[2], and M. Klausner[1]. [1]MatTek Corp, Ashland, MA; [2]MatTek IVLSL, Bratislava, Slovakia. Sponsor: *P. Hayden*.

#708 **Poster Board Number 583**
Physiologically-Based Pharmacokinetic (PBPK) Modeling for the Development of Provisional Advisory Levels (PALs): A Case Study with Fentanyl. H. Shankaran[1], *F. Adeshina*[3], and *J. Teeguarden*[2]. [1]Computational Biology and Bioinformatics, Pacific Northwest National Laboratory, Richland, WA; [2]Systems Toxicology, Pacific Northwest National Laboratory, Richland, WA; [3]National Homeland Security Research Center, US EPA, Washington DC.

#709 **Poster Board Number 584**
Pooled Analysis for Chronic Dietary Studies of Di-Isononyl Phthalate. *C. M. North*[1], M. J. Nicolich[2], *K. M. Kransler*[3], and R. A. Barter[1]. [1]ExxonMobil Biomedical Sciences, Annandale, NJ; [2]Cogimet, Lambertville, NJ; [3]ExxonMobil Chemical Company, Houston, TX.

#710 **Poster Board Number 585**
A Systematic Approach for Identifying, Evaluating, and Presenting Mode-of-Action Evidence in IRIS Toxicological Reviews. *M. E. Kushman*[1,3], *A. Kraft*[2], *K. Guyton*[2], *B. Sonawane*[2], *W. Chiu*[2], *S. Makris*[2], and *I. Rusyn*[3]. [1]ORISE/US EPA, Washington DC; [2]NCEA, US EPA, Washington DC; [3]University of North Carolina at Chapel Hill, Chapel Hill, NC.

#711 **Poster Board Number 586**
A Nonparametric Bayesian Approach for Benchmark Dose Estimation from Continuous Data. *K. Shao*[1], J. S. Gift[2], L. Kopylev[3], and *W. Chiu*[3]. [1]NCEA-ORISE, US EPA, Research Triangle Park, NC; [2]NCEA, US EPA, Research Triangle Park, NC; [3]NCEA, US EPA, Washington DC.

#712 **Poster Board Number 587**
Material Threat Assessment Chemical and Scenario Selection Process. *J. Moser*[1,2], D. Howell[1,2], and R. Jablonski[1,3]. [1]Chemical Security Analysis Center, Department of Homeland Security, Gunpowder, MD; [2]Battelle Memorial Institute, Columbus, OH; [3]Edgewood Chemical Biological Center, Aberdeen Proving Ground, MD.

Abstract #

#713 **Poster Board Number 588**
Use of REACH Registration Data for Improving Thresholds of Toxicological Concern (TTC). *V. Mostert*[1], N. Wieneke[1], C. Wiegand[1], C. Jakupoglu[1], M. Sica[1], G. Werle-Schneider[2], and N. Jägemann[2]. [1]ICB EHS TOX-L, Dr. Knoell Consult GmbH, Leverkusen, Germany; [2]ICB TOX-C, Dr. Knoell Consult GmbH, Mannheim, Germany.

#714 **Poster Board Number 589**
Evaluation of the Toxrtool for Assessing Quality of Toxicological Studies for Risk Assessments. D. Segal[1], *S. Makris*[1], D. Bergfelt[1], A. Kraft[1], *A. Bale*[1], *K. Raffaele*[1], *K. Crofton*[3], *M. Gilbert*[3], *M. Selgrade*[2], *R. Blain*[2], and *K. Fedak*[2]. [1]US EPA, Washington DC; [2]ICF International, Durham, NC; [3]US EPA, Research Triangle Park, NC.

#715 **Poster Board Number 590**
GO-Quant Systems-Based Quantitative Analysis of Dynamic Signaling Pathways during Neurodevelopment and Implication for Risk Assessment. *X. Yu*, and *L. Xu*. Environmental Heath Science, University of Georgia, Athens, GA.

#716 **Poster Board Number 591**
Safety Assessment of a Novel Antibiotic Using a Mouse Population-Based Approach Predicts Risk of DILI in Humans Where Classical Models Fail. *M. Mosedale*[1], C. Kurtz[1], J. Eaddy[1], *K. Adkins*[2], *H. Wu*[2], *P. B. Watkins*[1,3], and *A. H. Harrill*[1,3]. [1]The Hamner Institutes for Health Sciences, Research Triangle Park, NC; [2]Pfizer, Inc., Groton, CT; [3]The University of North Carolina at Chapel Hill, Chapel Hill, NC.

#717 **Poster Board Number 592**
An Investigation of Factors Associated with Mortality Patterns across the Midwestern United States. *M. P. Chan*. Environmental Sciences Program, Southern Illinois University Edwardsville, Edwardsville, IL.

#718 **Poster Board Number 593**
Establishment of the Cumulative Margin of Exposure for a Group of Polychlorinated Biphenyl (PCB) Congeners. F. Kalantari[1], *C. Bergkvist*[1], *M. Berglund*[1], *E. Fattore*[3], A. Glynn[2], *H. Håkansson*[1], and *S. Sand*[2]. [1]Karolinska Institutet, Stockholm, Sweden; [2]National Food Agency, Uppsala, Sweden; [3]Institute for Pharmacological Research, Milano, Italy.

#719 **Poster Board Number 594**
A Prototype for Integrating Toxicokinetics into the Human Health Risk Assessment Process for Agrochemicals: Sulfoxaflor. *C. Terry*[1], M. Aggarwal[1], A. T. McCoy[2], L. G. McFadden[2], *R. J. Rasoulpour*[2], *M. J. Bartels*[2], and *R. Billington*[1]. [1]Human Health, Dow AgroSciences, Oxfordshire, United Kingdom; [2]The Dow Chemical Company, Midland, MI.

#720 **Poster Board Number 595**
Refinement of the Exposure Component of the Human Health Risk Assessment Process for Agrochemicals: Development of a Simple Tool. A. T. McCoy[1], *C. Terry*[2], and G. Drummond[2]. [1]The Dow Chemical Company, Midland, MI; [2]Dow AgroSciences, Milton Park, United Kingdom.

Program Description (Continued)

Abstract #

#721 **Poster Board Number 596**
An Approach for Characterizing Uncertainty in Relative Potency Factors. H. Carlson-Lynch[1], *J. Stickney*[1], A. Bacom[1], *G. Diamond*[1], B. Thayer[1], P. McClure[1], *L. Flowers*[2], C. Chen[2], M. Gehlhaus[2], and M. Pratt[2]. [1]SRC, Inc., East Syracuse, NY; [2]US EPA, Washington DC.

#722 **Poster Board Number 597**
The Chemical Terrorism Risk Assessment Medical Mitigation Model: Approach, Toxicology, and Medical Endpoints. D. Winkel[1], M. T. Whitmire[2], K. Good[1], and J. A. Cox[2]. [1]Battelle Memorial Institute, Columbus, OH; [2]DHS Chemical Security Analysis Center, Gunpowder, MD. Sponsor: *H. Salem*.

#723 **Poster Board Number 598**
A Decision Tool for Assessing Polymers and Polymeric Substances with Potential Hazards to Human Health. *B. Gadagbui*[1], *A. Maier*[1], P. Nance[1], M. Jayjock[2], and C. Franklin[2]. [1]Toxicology Excellence for Risk Assessment, Cincinnati, OH; [2]The LifeLine Group, Annandale, VA.

Monday Afternoon, March 11
1:00 PM to 4:30 PM
Exhibit Hall C–D

PS

Poster Session: Animal Models of Disease

Chairperson(s): *Mala Chakraborty, NIH, Bethesda, MD.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *1:00 PM–2:45 PM*

#724 **Poster Board Number 601**
The h-NAG-1 Transgenic Mouse Serves As an Animal Model for Obesity. *G. J. Moser*[1], K. Chrysovergis[2], J. Kosak[2], J. Kim[2], M. Nixon[1], E. Gilas[1], M. Streicker[1], and T. Eling[2]. [1]Investigative Toxicology, Integrated Laboratory Systems, Inc., Durham, NC; [2]NIEHS, Research Triangle Park, NC.

#725 **Poster Board Number 602**
Extended Exenatide Treatment Causes Pancreatic Stress and Injury in a Rodent Model of Insulin Resistance. *R. L. Rouse*, S. R. Stewart, B. A. Rosenzweig, K. L. Thompson, K. I. Shea, D. G. Goodwin, and J. Zhang. CDER, US FDA, Silver Spring, MD.

#726 **Poster Board Number 603**
Adipose Deficiency of Nrf2 in *Ob/Ob* Mice Results in Severe Metabolic Syndrome. *P. Xue*, Y. Hou, Y. Chen, B. Yang, J. Fu, H. Zheng, K. Yarborough, C. G. Woods, *Q. Zhang*, *M. E. Andersen*, and *J. Pi*. The Hamner Institutes for Health Sciences, Durham, NC.

#727 **Poster Board Number 604**
Effect of a Purified Openstandard Diet (OSD) on Body Weight (BW), Adiposity, and Glucose Tolerance (GT) in Male C57BL/6 Mice. M. A. Pellizzon, M. R. Ricci, and E. A. Ulman. Research Diets, Inc., New Brunswick, NJ. Sponsor: *P. Marone*.

#728 **Poster Board Number 605**
Development of an Oral Exposure Model to Predict Drug Hypersensitivity Using Brown Norway Rat. A. Tamura, I. Miyawaki, *T. Yamada*, J. Kimura, and H. Funabashi. Safety Research Laboratories, Dainippon Sumitomo Pharma Co., Ltd., Osaka, Japan.

Abstract #

#729 **Poster Board Number 606**
Behavioral, Neurochemical and Histological Characterization of a Novel MitoPark Mouse Model for Neurotoxicity and Neuroprotection Studies. M. R. Langley, A. Ghosh, M. Ay, A. Kanthasamy, *H. Jin*, *V. Anantharam*, and *A. Kanthasamy*. Biomedical Sciences, Iowa Center for Advanced Neurotoxicology, Iowa State University, Ames, IA.

#730 **Poster Board Number 607**
Continuous Infusion in Genetically-Altered Down Syndrome Mice. H. van Wijk. Covance Laboratories Ltd., Harrogate, United Kingdom. Sponsor: *S. Kirk*.

#731 **Poster Board Number 608**
Generation and Characterization of a Humanized *C. elegans* Transgenic Animal That Results in Early Onset, Age-Dependent Complete Loss of DA Neurons. S. Jamadar, *N. VanDuyn*, and *R. M. Nass*. Pharmacology and Toxicology, Indiana University School of Medicine, Indianapolis, IN.

#732 **Poster Board Number 609**
Development of Animal Models of Idiosyncratic Drug-Induced Liver Injury. *I. G. Metushi*, and *J. Uetrecht*. Pharmacology and Toxicology, University of Toronto, Toronto, ON, Canada.

#733 **Poster Board Number 610**
Role of Myeloid-Derived Suppressor Cells in a Murine Model of Drug-Induced Liver Injury Mediated by the Adaptive Immune System. M. Chakraborty, L. S. Chea, J. D. Berkson, W. R. Proctor, J. C. Morrison, K. Semple, and *L. R. Pohl*. Molecular and Cellular Toxicology Section, Laboratory of Molecular Immunology, National Heart, Lung and Blood Institute, Bethesda, MD.

#734 **Poster Board Number 611**
Defective Platelet Function in a Mouse Model of Progressive Cholestasis. Y. Zhang[1], F. Li[2], S. Cheepala[1], Y. Wang[1], *F. J. Gonzalez*[2], and J. D. Schuetz[1]. [1]Pharmaceutical Sciences, St. Jude Children's Research Hospital, Memphis, TN; [2]Laboratory of Metabolism, Center for Cancer Research, NCI, NIH, Bethesda, MD.

#735 **Poster Board Number 612**
Validation of ROS As a Toxicity Marker in Zebrafish. W. Seng, *C. Li*, and P. McGrath. Phylonix, Cambridge, MA.

#736 **Poster Board Number 613**
The Effect of Fluoride on the Bones and Teeth of ICR-Derived Gromerulonephritis (ICGN) Mice by Subacute Exposure. M. Hosokawa[1], C. Sugaya[2], *M. Tsunoda*[2], K. Itai[3], Y. Kodama[4], Y. Sugita-Konishi[4], H. Ohta[5], Y. Ito[6], M. Shimahara[6], K. Yokoyama[1], and Y. Aizawa[7]. [1]Epidemiology and Environmental Health, Juntendo University, Tokyo, Japan; [2]Preventive Medicine, Kitasato University, Sagamihara, Japan; [3]Iwate Medical University, Morioka, Japan; [4]National Institute of Health Sciences, Tokyo, Japan; [5]Environmental, Occupational Health and Toxicology, School of Allied Health Science, Kitasato University, Tokyo, Japan; [6]Oral surgery, Osaka Medical College, Takatsuki, Japan; [7]Kitasato University, Tokyo, Japan.

MONDAY

Program Description (Continued)

Abstract #

#737 **Poster Board Number 614**
A Population-Level Mouse Model to Investigate the Genetic Determinants of Susceptibility to Environmental Toxicants. *M. C. DeSimone*[1], S. H. Jennings[2], A. B. Rogers[3], and *D. W. Threadgill*[1]. [1]Genetics, North Carolina State University, Raleigh, NC; [2]Veterinary Medicine, North Carolina State University, Raleigh, NC; [3]Pathology, University of North Carolina at Chapel Hill, Chapel Hill, NC.

#738 **Poster Board Number 615**
Human Antibodies Can Cross Guinea Pig Placenta and Bind Its Neonatal Fc Receptor: Implications for Evaluating Immune Therapy during Pregnancy. L. Ma[1], L. Zhong[1], D. M. Toibero[3], A. Hoglund[2], J. Beren[4], M. G. Norton[1], P. Zhang[1], and *E. B. Struble*[1]. [1]Laboratory of Plasma Derivatives, Division of Hematology, OBRR, CBER, US FDA, Bethesda, MD; [2]Division of Veterinary Services, CBER, US FDA, Bethesda, MD; [3]University of Maryland, College Park, MD; [4]OCTEC, CDER, US FDA, Silver Spring, MD.

#739 **Poster Board Number 616**
Gender and Perinatal Exposure to Bisphenol A Affect Markers of Inflammation in the Brain and Spleen of Young Rats. J. Rodriguez-Santiago[1], Z. Varguaz-Villarrubia[1], D. R. Mierke[3], *R. N. Sadowski*[2], *L. M. Wise*[2], and *S. N. Lavergne*[3]. [1]Aguadilla, University of Puerto Rico, Aguadilla, Puerto Rico; [2]Psychology, University of Illinois, Urbana, IL; [3]Comparative Biosciences, University of Illinois, Urbana, IL.

#740 **Poster Board Number 617**
Comparing Minimal Supportive Care Models of Hematopoietic Acute Radiation Syndrome in Nonhuman Primates. R. Guilmette, *M. Doyle-Eisele*, W. Weber, and D. Melo. Lovelace Respiratory Research Institute, Albuquerque, NM.

#741 **Poster Board Number 618**
Development of a Phosgene-Induced Acute Lung Injury in the Conscious Pig. S. Graham[1], A. J. Smith[1], R. L. Perrott[1], S. J. Rutter[1], P. Marshall[1], T. Mann[1], B. J. Jugg[1], and *A. M. Sciuto*[2]. [1]Biomedical Sciences, DSTL, Salisbury, United Kingdom; [2]Medical Toxicology, USAMRICD, Aberdeen Proving Ground, MD.

#742 **Poster Board Number 619**
Sex Differences in Inflammatory Response in a DAPM-Induced Rat Model of Pulmonary Hypertension. *M. A. Carroll Turpin*, *V. Hebert*, H. Wensler, T. Chotibut, C. Robinson, and *T. Dugas*. Pharmacology, Toxicology and Neuroscience, Louisiana State University Health Sciences Center-Shreveport, Shreveport, LA.

#743 **Poster Board Number 620**
Cynomolgus Macaque (*Macaca fascicularis*) As a Potential Animal Model for Studying Bleomycin-Induced Pulmonary Fibrosis. *M. Doyle-Eisele*[1], J. Villlalba[1], Y. Shi[1], *J. D. McDonald*[1], and I. O. Rosas[1,2]. [1]Lovelace Respiratory Research Institute, Albuquerque, NM; [2]Harvard Brigham and Women's Hospital, Boston, MA.

#744 **Poster Board Number 621**
Cue-Induced vs Cocaine+Cue-Induced Reinstatement: Two Different Animal Models of Relapse. D. Pushett, *G. Froget*, D. Virley, V. Castagné, and C. Froger-Colleaux. Porsolt SAS, Le Genest-St-isle, France.

Abstract #

#745 **Poster Board Number 622**
Early Juvenile Expposure to High-Dose Acetaminophen Impacts Adult Murine Social Behavior in a Strain-Dependent Manner. *G. G. Gould*[1], C. Smolik[1,2], T. Gu[1], M. Vitela[1], M. F. Valdez[2], J. Hensler[2], A. Seillier[2], A. Giuffrida[2], and S. T. Schultz[3]. [1]Physiology, University of Texas Health Science Center at San Antonio, San Antonio, TX; [2]Pharmacology, University of Texas Health Science Center at San Antonio, San Antonio, TX; [3]Family and Community Medicine, University of Texas Health Science Center at San Antonio, San Antonio, TX.

Monday Afternoon, March 11
1:00 PM to 4:30 PM
Exhibit Hall C–D

PS

Poster Session: Animal Models—Measurements and Validation

Chairperson(s): *Simon Authier, CIToxLAB North America, Laval, QC, Canada.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *2:45 PM–4:30 PM*

#746 **Poster Board Number 625**
Interlaboratory Comparison of Clearance Rates of Xenobiotics by Cryopreserved Trout Hepatocytes for the Prediction of Bioaccumulation Potential. *K. Fay*[1], R. T. Mingoia[2], I. Goeritz[3], D. L. Nabb[2], A. D. Hoffman[1], B. D. Ferrell[2], H. M. Peterson[2], *J. W. Nichols*[1], H. Segner[3], and *X. Han*[2]. [1]US EPA, Duluth, MN; [2]DuPont Haskell Global Centers for Health & Environmental Sciences, Newark, DE; [3]University of Bern, Bern, Switzerland.

#747 **Poster Board Number 626**
Pharmacokinetics of Dichloroacetate in a Canine Model. H. W. Maisenbacher[1], A. L. Shroads[2], G. Zhong[3], A. D. Daigle[1], M. M. Abdelmalak[2], I. Sosa Samper[1], B. D. Mincey[1], *M. O. James*[3], and P. W. Stacpoole[2]. [1]Small Animal Clinical Sciences, University of Florida, Gainesville, FL; [2]Medicine, University of Florida, Gainesville, FL; [3]Medicinal Chemistry, University of Florida, Gainesville, FL.

#748 **Poster Board Number 627**
Determination of Onset of Sexual Maturity in Female Göttingen Minipigs. B. Peter[1], H. Lorentsen[2], E. van Duijnhoven[1], M. van Tuyl[1], B. van Rozendaal[1], and *H. Emmen*[1]. [1]Toxicology, WIL Research Europe B.V., 's-Hertogenbosch, Netherlands; [2]Ellegaard Göttingen Minipigs A/S, Dalmose, Denmark.

#749 **Poster Board Number 628**
Recording of the Full-Field Electroretinogram in the Göttingen Minipig. *R. Forster*[1], A. Augsburger[2], V. Haag[1], and J. Legrand[1]. [1]CiToxLAB France, Evreux, France; [2]DMV Clinique Vétérinaire, Bois-Guillaume, France.

#750 **Poster Board Number 629**
Normal Physiological Ranges for Hanford Miniature Swine. J. Liu[1], L. D. Brown[1,2], T. J. Madsen[1], S. Schlink[1], M. Freeman[1], B. C. Hanks[1,2], A. Stricker-Krongrad[1], and *G. F. Bouchard*[1,2]. [1]Sinclair Research Center, LLC, Columbia, MO; [2]Sinclair BioResources LLC, Auxvasse, MO.

MONDAY

Program Description (Continued)

Abstract #

#751 **Poster Board Number 630**
A Six-Month Feeding Study for Wistarhannover gpt Delta Transgenic Rat. H. Takagi[1], Y. Nozaki[1], A. Kawada[1], M. Yamada[2], K. Masumura[2], and T. Nohmi[3]. [1]Biotechnical Center, Japan SLC, Inc., Hamamatsu, Japan; [2]Division of Genetics and Mutagenesis, National Institute of Health Sciences, Tokyo, Japan; [3]Biological Safety Research Center, National Institute of Health Sciences, Tokyo, Japan. Sponsor: *A. Nishikawa*.

#752 **Poster Board Number 631**
A Medium-Term Animal Model Using gpt Delta Rats for Predicting Chemical Carcinogenicity and Related Mechanisms of Action. K. Matsushita[1], Y. Ishii[1], S. Takasu[1], K. Kuroda[1], A. Kijima[1], T. Nohmi[2], K. Ogawa[1], *A. Nishikawa*[2], and T. Umemura[1]. [1]Division Path., National Institute Health Science, Tokyo, Japan; [2]BSRC, National Institute Health Science, Tokyo, Japan.

#753 **Poster Board Number 632**
Age-Related Changes in Body Composition in Laboratory Rats: Strain and Gender Comparisons. *R. C. MacPhail*, P. M. Phillips, *C. J. Gordon*, and K. A. Jarema. NHEERL, US EPA, Research Triangle Park, NC.

#754 **Poster Board Number 633**
Assessment of Cardio-Respiratory Function in Conscious Rats: Use of Combined Telemetry and Plethysmography. E. Hayes, S. Rompion, E. Gascoin, M. Maujeul, M. Lepage, and *G. Froget*. Porsolt SAS, Le Genest-St-isle, France.

#755 **Poster Board Number 634**
Comparison of Ophthalmologic Findings in Young Adult Crl: CD SD and Wister Han Rats. H. Kuno[1], S. McPherson[2], Q. Kong[2], S. Mason[2], and *Q. He*[2]. [1]NTO LLC, Abiko-shi, Japan; [2]WuXi AppTec Co. Ltd., Suzhou, China.

#756 **Poster Board Number 635**
Feasibility of 3-Month Intravenous Bolus Injections via the Femoral Vein and an External Access Port in Sprague-Dawley Rats. J. Perron[1], R. Tavcar[1], L. Armer[1], and *R. Forster*[2]. [1]CiToxLAB North America, Laval, QC, Canada; [2]CiToxLAB France, Evreux, France.

#757 **Poster Board Number 636**
Noninvasive Airway Resistance Measurements in Large Animals by High-Frequency Airwave Oscillometry. T. F. Schuessler[1], A. Robichaud[1], *R. Forster*[2], M. Pouliot[2], A. Ascah[2], E. Troncy[3], and S. Authier[2,3]. [1]SCIREQ Scientific Respiratory Equipments, Montréal, QC, Canada; [2]CiToxLAB North America, Laval, QC, Canada; [3]Faculty of Veterinary Medicine, University of Montréal, St-Hyacinthe, QC, Canada.

#758 **Poster Board Number 637**
Seizure Liability Models: Seizure Characterization and Automated Detection in Telemetered Nonhuman Primates. S. Authier[1,2], S. Maghezzi[1], M. Pouliot[1], S. Bernasconi[3], T. de Geyer d'Orth[3], P. Zitoun[3], and *R. Forster*[1]. [1]CIToxLAB North America, Laval, QC, Canada; [2]Faculty of Veterinary Medicine, University of Montréal, St-Hyacinthe, QC, Canada; [3]NOTOCORD, Croissy-sur-Seine, France.

Abstract #

#759 **Poster Board Number 638**
Comparing Data Obtained by Refined Restraint Methods to Traditional Methods in Nonhuman Primate Studies. *N. Lalayeva*[1], N. Bailey[1], J. Kenfield[1], *N. Makori*[1], P. Franklin[1], *T. Beck*[1], and *R. Nagata*[2]. [1]Safety Assessment, SNBL USA, Ltd., Everett, WA; [2]Corporate, Shin Nippon Biomedical Laboratories, Ltd., Kagoshima, Japan.

#760 **Poster Board Number 639**
Comparative Analysis of Noninvasive Blood Pressure Data by High-Definition Oscillometry (HDO) in Cynomolgus Monkeys of Mauritian and Asian Origin. B. Niggemann, and U. Zuehlke. Covance Laboratories GmbH, Muenster, Germany. Sponsor: *G. Weinbauer*.

#761 **Poster Board Number 640**
Procedure Refinement and Reduced Restraint Enables Extended 6-Hour-Daily Inhalation Dosing in Beagle Dogs. A. Dumais[1], M. Stoute[1], R. Tavcar[1], and *R. Forster*[2]. [1]CiToxLAB North America, Laval, QC, Canada; [2]CiToxLAB France, Evreux, France.

#762 **Poster Board Number 641**
Reducing Blood Volume for Hematology and Clinical Chemistry Analysis in Mice. A. Prefontaine, C. Copeman, L. Huard, D. Lourdel, K. Petitclerc, and F. Poitout. Charles River, Montréal, QC, Canada. Sponsor: *M. Vézina*.

Monday Afternoon, March 11
1:00 PM to 2:00 PM
Room 007 B

E

Exhibitor/Sponsor-Hosted Session: Cardiac Toxicity Assessment Using Stem Cell-Derived Cardiomyocytes

Presented by:
ACEA Biosciences, Inc.

Cardiac toxicity is a major concern in drug development. In this workshop, the utility of xCELLigence Cardio System with stem cell-derived cardiomyocytes for assessment of compound risk will be discussed. This cardio system provides a high-throughput, quantitative, and predictive assay that can be used earlier in drug discovery process.

Monday Afternoon, March 11
1:00 PM to 2:00 PM
Room 007 A

E

Exhibitor/Sponsor-Hosted Session: New Approaches to Follow up GeneTox Positive Results

Presented by:
BioReliance Corporation

High false positive rates in mammalian *in vitro* genetox assays lead to a large number of costly and time consuming follow up *in vitro* genotoxicity studies. BioReliance has qualified techniques that investigate MOA and help resolve positive *in vitro* studies, including Pig-a, FISH/CREST, Big Blue, 3D Skin, 96-well Flow MN, and Comet.

Program Description (Continued)

Monday Afternoon, March 11
1:00 PM to 2:00 PM
Room 007 C

E

Exhibitor/Sponsor-Hosted Session: Pathway-Focused Tools for Monitoring and Predicting Toxicity

Presented by:
QIAGEN

Several cellular pathways interconnect and cross-talk during toxicity. Understanding the mechanism behind this toxicity is critical for early assessment and requires both cell-based and gene/microRNA expression tools. In this session we will highlight the use of qPCR panels and cell-based assays to monitor and profile pathway activation during toxicity assessment.

Monday Afternoon, March 11
1:45 PM to 3:45 PM
Room 212

(Ticket Required; SOT Student and Postdoctoral members only, limited seating)

Postdoctoral Assembly Workshop: Tools for Bringing Creativity into Your Scientific Research

Chairperson(s): *Enrique Fuentes-Mattei, University of Texas MD Anderson Cancer Center, Houston, TX.*

Sponsor:
Postdoctoral Assembly

Presented by: *Rodney Dietert, Cornell University, Ithaca, NY, and Janice Dietert, Performance Plus Consulting, Ithaca, NY.*

When are Legos not just for kids? When they are a valuable problem-solving tool for your scientific research. Overcoming roadblocks during a research career can be a challenge particularly when you are using the same set of tools that got you into the roadblock in the first place. Traditional research training often emphasizes linear approaches and the value of greater focus and harder work. Yet, history tells us that many of the most remarkable scientific breakthroughs occur when our attention has been diverted. Nonlinear approaches to problem solving provide additional avenues for the budding researcher. This workshop on enhancing creativity in scientific research will provide lecture material and hands-on exercises including the use of play, meditation, sleep, music, dance, art, improv, language, body adjustments, concept maps, synchronicity, and strategies for becoming the observer of your own research progress.

Monday Afternoon, March 11
2:00 PM to 4:45 PM
Grand Ballroom C2

S

Symposium Session: Human Health and Environmental Concerns around Natural Gas Production Using Hydraulic Fracturing

Chairperson(s): *Ziad Naufal, Chevron Energy Technology Company, Houston, TX, and Angela Harris, Environ International Corporation, Little Rock, AR.*

Sponsor:
Occupational and Public Health Specialty Section

Endorsed by:
Lone Star Regional Chapter

Natural gas production from shale rock formations using hydraulic fracturing has expanded greatly over the last decade across the United States and other parts of the world. The expansion came as a result of advances in horizontal drilling technology which helped unlock large natural gas supplies in shale and other tight rock formations across the country. Calls to reduce greenhouse gas emissions, the high cost of energy, and other economic pressures also contributed to the rapid growth of shale gas drilling using hydraulic fracturing. As a result, natural gas production is the highest it has been in the United States in decades. However, with the expansion of hydraulic fracturing into rural communities and areas traditionally not familiar with oil and gas explorations, questions about public health and environmental impacts have been raised by some residents living in proximity to fracturing operations. Data gaps may exist since the growth of fracturing operations has outpaced the research efforts conducted by the broad scientific community around this issue. In general, recent research activities have focused on understanding the potential impacts of the chemical components of the fluids used to fracture rock formations. Other issues raised by the public include the increase in noise, air, and light pollution in hydraulic fracturing areas and the potential for accidental contamination of air or groundwater. This session will provide an overview of the current and projected extent of the use of hydraulic fracturing to meet energy needs, and a discussion of the questions surrounding the public health and environmental impacts of this technology.

Abstract #		
#763	2:00	**Human Health and Environmental Concerns around Natural Gas Production Using Hydraulic Fracturing.** *Z. Naufal*. Chevron Energy Technology Company, Houston, TX.
	2:00	**Introduction.** Ziad Naufal
#764	2:05	**Current Status of Tight Oil and Gas Development Using Hydraulic Fracturing.** J. Imse. ENVIRON International Corporation, Denver, CO. Sponsor: *Z. Naufal*.
#765	2:34	**An Assessment of Exposure Pathways and Potential Impacts to Human Health Associated with Shale Gas Drilling and Production Operations.** *A. Harris*. ENVIRON International Corporation, Little Rock, AR.
#766	3:03	**The Potential Toxicological Impacts of Shale Gas Drilling: An Overview.** *B. Goldstein*, and J. Kriesky. University of Pittsburgh, Graduate School of Public Health, Pittsburgh, PA.
#767	3:32	**Community Exposure and Risk Near Natural Gas Production Sites: Impacts and Research Needs.** J. Adgate. Colorado School of Public Health, University of Colorado, Aurora, CO. Sponsor: *A. Harris*.
#768	4:01	**Air Quality Impacts of Natural Gas Operations in Texas.** *M. Honeycutt*, *S. Ethridge*, and *T. Bredfeldt*. Texas Commission on Environmental Quality, Toxicology Division, Austin, TX.
	4:30	**Panel Discussion/Q&A.**

Program Description (Continued)

Abstract #

Monday Afternoon, March 11
2:00 PM to 4:45 PM
Grand Ballroom C3

S

Symposium Session: Role of Metabolic Syndrome and Perivascular Adipose in Exposure-Induced Vascular Dysfunction

Molecular Basis of Genetic Variability and Susceptibility to Toxicants

Chairperson(s): *Daniel J. Conklin, University of Louisville, Louisville, KY, and Matthew Campen, University of New Mexico, Albuquerque, NM.*

Sponsor:
Cardiovascular Toxicology Specialty Section

Endorsed by:
Inhalation and Respiratory Specialty Section

Recent epidemiological studies indicate that ambient air pollution enhances the progression from metabolic syndrome to diabetes but not by increasing obesity. Because vascular dysfunction and vascular insulin resistance are two early events associated with metabolic syndrome and air pollution exposure, the mechanisms by which these alterations occur in the vasculature could be informative of changes in overall cardiovascular disease risk. Similarly and increasingly, there is a growing recognition that the perivascular adipose tissue (PVAT) is an important regulator of vascular tone under normal homeostatic conditions and PVAT is altered during disease states, including metabolic syndrome and diabetes. The perivascular adipose tissue structure and function are changed to a proinflammatory state both by disease, angiotensin II, and by exposure to environmental pollutants, implicating these alterations in subsequent endothelial and vascular dysfunction. This symposium will provide both an introduction to the role of perivascular adipose tissue in health and metabolic disease states and draw on evidence from environmental and experimental model studies to emphasize specific alterations in perivascular adipose tissue and how these changes contribute to subsequent vascular dysfunction and potentially increase the risk of cardiovascular disease.

#769 2:00 **Role of Metabolic Syndrome and Perivascular Adipose in Exposure-Induced Vascular Dysfunction.** *D. J. Conklin*[1], and *M. J. Campen*[2]. [1]Cardiovascular Medicine, University of Louisville, Louisville, KY; [2]Department of Pharmaceutical Sciences, University of New Mexico, Albuquerque, NM.

2:00 **Introduction.** Daniel Conklin

#770 2:05 **Turning Vascular Disease Inside Out: Role of Perivascular Adipose Tissue in Coronary Artery Disease.** N. Weintraub. Division of Cardiovascular Diseases, University of Cincinnati, Cincinnati, OH. Sponsor: *D. Conklin*.

#771 2:45 **Perivascular Adipose and Vascular Dysfunction in Mice after Combined High-Fat Diet and Concentrated Ambient Particulate Matter Exposure.** *D. J. Conklin*, and *P. Haberzettl*. Cardiovascular Medicine, University of Louisville, Louisville, KY.

#772 3:15 **NADPH Oxidase and Perivascular Superoxide Production with Particulate Matter Exposure.** *Q. Sun*. Environmental Health Sciences, The Ohio State University, Columbus, OH.

#773 3:45 **Role of Perivascular Adipose in Regulation of Vascular Function by the Aryl Hydrocarbon Receptor.** *M. K. Walker*. Department of Pharmaceutical Sciences, University of New Mexico, Albuquerque, NM.

Abstract #

#774 4:15 **Role of Perivascular Adipose Tissue in Angiotensin II-Induced Vascular Diseases.** L. A. Cassis. Graduate Center for Nutritional Sciences, University of Kentucky, Lexington, KY. Sponsor: *D. Conklin*.

Monday Afternoon, March 11
2:00 PM to 4:45 PM
Room 217 C&D

W

Workshop Session: Environmental Factors in Neurodegenerative Diseases

Chairperson(s): *Evelyn Tiffany-Castiglioni, Texas A&M University, College Station, TX, and Anumantha Kanthasamy, Iowa State University, Iowa City, IA.*

Sponsor:
Neurotoxicology Specialty Section

Exposures to environmental pollutants are implicated in the development of neurodegenerative diseases and protein conformational diseases, including Parkinson's Disease (PD) and Alzheimer's Disease (AD). The purpose of this workshop is to bring together experts to discuss etiologic factors associated with PD and AD, particularly environmental pesticides, heavy metals, and other pollutants, and to discuss new directions for identifying suitable targets for therapeutic strategies. Two very promising lines of investigation into the mechanisms of dopaminergic cell death in PD will be discussed, as well as the interaction of senescence-related, genetic, and environmental factors likely contributes to the etiology of late-onset neurodegenerative diseases such as PD and AD. The interactions of heavy metals with chaperone proteins that regulate protein folding and cell death as related to protein conformational diseases will also be discussed. The workshop will address six questions: 1) Despite equivocal results, why are genetic factors still considered the primary etiological factor in late-onset neurodegenerative disease?; 2) How can existing models of neuronal cell death in neurodegenerative diseases be integrated?; 3) How can cell culture models be integrated into a better understanding neurodegenerative disease processes?; 4) Are there common pathways or mechanisms that are relevant to environmental exposures in protein folding diseases, including PD and AD?; 5) How do chemicals in a similar class of compounds elicit very different effects on the neurodegenerative processes?; 6) What is the evidence that early exposures to environmental factors predispose to neurodegenerative diseases?

#775 2:00 **Environmental Factors in Neurodegenerative Diseases.** *E. Tiffany-Castiglioni*[1], and *A. Kanthasamy*[2]. [1]Veterinary Integrative Biosciences, Texas A&M University, College Station, TX; [2]Biomedical Sciences, Iowa State University, Ames, IA.

2:00 **Introduction.** Evelyn Tiffany-Castiglioni

#776 2:05 **ER Chaperone-Metal Interactions: Links to Protein Folding Disorders.** *E. Tiffany-Castiglioni*, and Y. Qian. Veterinary Integrative Biosciences, Texas A&M University, College Station, TX.

#777 2:35 **Novel Oxidative Cell-Death Signaling in Neurotoxicity Models of Parkinson's Disease.** *A. G. Kanthasamy*. Department of Biomedical Sciences, Iowa State University, Ames, IA.

#778 3:05 **Industrial Toxicants and Parkinson's Disease.** *G. W. Miller*. Environmental Health, Emory University, Atlanta, GA.

#779 3:35 **Integrating Epidemiological and Basic Research to Assess the Role of Pesticide Exposure in Neurodegenerative Disease.** *J. Richardson*. Robert Wood Johnson Medical School, Piscataway, NJ.

4:05 **Panel Discussion/Q&A.**

Program Description (Continued)

Abstract #

Monday Afternoon, March 11
2:00 PM to 4:45 PM
Room 214 A&B

W

Workshop Session: Life-Course Models for Ensuring Children's Health Protection

Chairperson(s): *Sally P. Darney, US EPA, Research Triangle Park, NC, and Elaine Faustman, University of Washington, Seattle, WA.*

Sponsor:
Reproductive and Developmental Toxicology Specialty Section

Endorsed by:
Neurotoxicology Specialty Section
Occupational and Public Health Specialty Section
Risk Assessment Specialty Section
Scientific Liaison Coalition
Women in Toxicology Special Interest Group

New knowledge about environmental risks to human reproduction and development directly relevant to children's health protection derives from the fields of developmental and reproductive toxicology, exposure science, epidemiology, risk assessment, and public health. Together, this information highlights the importance of the intrauterine environment in setting the stage for lifelong health, along with the complexities of the physical, chemical, and social factors that operate during critical windows of development to impact health and wellbeing. For example, breakthroughs in genetic polymorphisms and epigenetics are extending our understanding of inherent and acquired susceptibility to effects of environmental contaminants and showing how various intrauterine stressors such as nutrition, toxicants, and social stress may alter developmental programming at the start and throughout life. These scientific advances point to the need for innovative cumulative risk assessment methods and public health intervention approaches in order to account for risks that accrue across the developmental continuum from cradle to cradle. This workshop brings together the interdisciplinary expertise needed to begin integrating new knowledge into life-course models for children's health and wellbeing. Topics include research findings from toxicity testing and epidemiology studies specific to critical windows of exposure during pre-conception, pregnancy, and early childhood life stages to stimulate discussion on the broad challenge of optimizing testing and risk assessment models and enabling analyses across the whole life course. The workshop also features an innovative approach for evaluating and communicating complex scientific information about reproductive risks and interventions to diverse audiences including health care providers, parents (present and future), and regulators.

#780	2:00	**Life-Course Models for Ensuring Children's Health Protection.** *S. P. Darney*[1], and *E. Faustman*[2]. [1]ORD, US EPA, Research Triangle Park, NC; [2]Environmental & Occupational Health Sciences, University of Washington, Seattle, WA.
	2:00	**Introduction.** Sally Darney
#781	2:05	**Today's Challenge for Protecting Children's Environmental Health for a Lifetime.** *E. M. Faustman*. University of Washington, Seattle, WA.
#782	2:34	**Periconception Parental Metal Exposures, Couple Fecundity, and Child Health: Delineating the Chicken and Egg Question.** G. M. Buck Louis, R. Sundaram, and J. Maisog. Division of Epidemiology, NICHD, Bethesda, MD. Sponsor: *S. Darney*.
#783	3:03	**Prenatal Pesticide Exposures and Children's Neurodevelopment across the Life-Course Continuum—Lessons from the Fields.** B. Eskenazi, A. Bradman, K. Harley, and N. Holland. Center for Environmental Research and Children's Health, University of California Berkeley, Berkeley, CA. Sponsor: *S. Darney*.

Abstract #

#784	3:32	**New Strategies for Addressing Toxicity Testing across the Lifespan.** *P. Foster*. National Toxicology Program (NTP), NIEHS, Research Triangle Park, NC.
#785	4:01	**Advancing Risk Communication and Decision Tools for Children's Health Protection.** T. J. Woodruff, and P. Sutton. Program on Reproductive Health and the Environment, University of California San Francisco, San Francisco, CA. Sponsor: *S. Darney*.
	4:30	**Panel Discussion/Q&A.**

Monday Afternoon, March 11
2:00 PM to 4:45 PM
Room 217 A&B

W

Workshop Session: NanoInformatics: Computational Challenges for Nanomaterial Hazard Assessment

Effects of Nanomaterials on Biological Systems

Chairperson(s): *Katrina M. Waters, Pacific Northwest National Lab, Richland, WA, and Stacey Harper, Oregon State University, Corvallis, OR.*

Sponsor:
Nanotoxicology Specialty Section

Endorsed by:
Biological Modeling Specialty Section

Hazard evaluation of the growing number of nanomaterials can be expedited and enhanced through the identification of underlying quantitative relationships between their structural, chemical, and physical properties and responses in key biological systems. The Toxicity in the 21st century testing paradigm holds particular promise for nanoparticles because whole animal testing is not economically practical or feasible for every new material introduced to the marketplace. Important advancements have been made in this emerging but critical field, yet many challenges remain. Distillation of the large amount of phenotypic data regarding *in vitro* cytotoxicity and inflammation down to *in vivo*-relevant adverse events is a daunting task, given the vast differences in microenvironment, temporal dynamics, and exposure. The use of systems biology approaches will enable the identification of relevant target organs/cell types, the development of mechanism-based assays for hazard assessment and computational modeling for predicting potential toxicity from human relevant exposures. This session will address computational challenges in data standards, data integration, and modeling of dose response and structure-activity relationships, including talks by experts in the areas of informatics, *in vitro* screening, *in vivo* exposures and PB/PK modeling. Included is an opening by the co-chair of the US-EU Nanoinformatics Community of Research, which seeks to facilitate intercommunication between researchers, regulators, and granting agencies on environmental health and safety issues for manufactured nanomaterials. Speakers will include current experimental and computational approaches as well as future research needs to identify relevant *in vitro* assays that are predictive for nanomaterial hazard assessment based on *in vivo* mode of action and realistic human exposures.

#786	2:00	**Nanoinformatics: Computational Challenges for Nanomaterial Hazard Assessment.** *K. M. Waters*[1], and *S. Harper*[2]. [1]Systems Toxicology, Pacific Northwest National Lab, Richland, WA; [2]Environmental & Molecular Toxicology, Oregon State University, Corvallis, OR.
	2:00	**Introduction.** Katrina Waters
#787	2:05	**US-EU Nanotechnology Databases and Ontology Community of Research.** N. A. Baker[1], and H. Rauscher[2]. [1]Pacific Northwest National Laboratory, Richland, WA; [2]DG Joint Research Centre Unit Nanobiosciences/TP 202, European Commission, Ispra, Italy. Sponsor: *K. Waters*.

Program Description (Continued)

Abstract #

#788 2:35 **High-Throughput Screening of Nanomaterial Bioactivity/Toxicity: The Computational Side Is Just As Important As the Testing Assays and Characterization.** *A. Wang*. US EPA, Research Triangle Park, NC.

#789 3:05 **Computational Dosimetry for Nanomaterial Risk Assessment from Transcriptomic and HTP Data.** *J. G. Teeguarden*[1], V. B. Mikeev[2], *J. G. Pounds*[1], and *B. D. Thrall*[1]. [1]Systems Toxicology, Pacific Northwest National Lab, Richland, WA; [2]Battelle Memorial Institute, Columbus, OH.

#790 3:35 **Integrative Nanotoxicology: Linking Rapid Assays and Informatics to Predict Nanomaterial-Biological Interactions.** *S. Harper*[1,2]. [1]Environmental and Molecular Toxicology, Oregon State University, Corvallis, OR; [2]Chemical, Biological and Environmental Engineering, Oregon State University, Corvallis, OR.

#791 4:05 **Usefulness of *In Vivo* Genomics for *In Vitro* Screening in Nanotoxicity.** *A. Erdely*, and *P. Zeidler-Erdely*. NIOSH, Morgantown, WV.

4:35 **Panel Discussion/Q&A.**

Monday Afternoon, March 11
2:00 PM to 4:45 PM
Room 214 C&D

W

Workshop Session: Scientific and Regulatory Advances in Genetic Toxicology Safety Assessment

Regulatory Science: Advancing New Approaches for Hazard Identification and Risk Assessment

Chairperson(s): *Marilyn J. Aardema, BioReliance Corporation, Fairfield, OH, and Brinda Mahadevan, Abbott Laboratories, Columbus, OH.*

Sponsor:
Regulatory and Safety Evaluation Specialty Section

Endorsed by:
Food Safety Specialty Section
***In Vitro* and Alternative Methods Specialty Section**
Risk Assessment Specialty Section
Women in Toxicology Special Interest Group

Recent reviews of genotoxicity assay performance, the use of these data in the safety evaluation process, and the development of new assays have led to important advancements in regulatory and scientific recommendations in the area of genetic toxicology. For instance, the International Conference on Harmonization (ICH) has recently finalized guidelines on genetic toxicology testing for drugs. The OECD is updating 15 year-old guidelines for genetic toxicology assays. International validation of new assays like the Comet assay have been completed. Workshops held by international expert groups on new approaches for genetic toxicology assessments highlight the importance of incorporating new approaches in drug safety evaluations. In recent years, significant progress has been made in incorporating quantitative approaches to genotoxicity dose response in order to identify a point of departure for application in risk assessment process. These important initiatives impact the science and practice of genetic toxicology safety assessments globally and across all sectors including drugs, chemicals, and consumer products. This workshop brings together international experts representing key geographies involved in leading these efforts. In an effort to discuss scientific and regulatory advances in genetic toxicology safety assessment, the following key aspects will be addressed in this workshop: (1) US FDA implementation of ICHS2 (R1) guidelines, (2) Latest updates and new approaches in international guidelines for genetic toxicology assays, (3) Outcomes on the JACVAM Comet validation and OECD guideline development, and (4) New approaches for genotoxicity assessments and guidance on dealing with positive results. In addition, this workshop will provide a forum to discuss the scientific advances that have led to the latest regulatory guideline changes, and their implementation.

Abstract #

#792 2:00 **Scientific and Regulatory Advances in Genetic Toxicology Safety Assessment.** *M. Aardema*[1], and *B. Mahadevan*[2]. [1]Toxicology, BioReliance, Rockville, MD; [2]Medical Safety & Surveillance, Abbott Laboratories, Columbus, OH.

2:00 **Introduction.** Marilyn Aardema

#793 2:05 **US FDA Implementation of the ICH S2(R1) Guideline.** *M. W. Powley*. CDER, US FDA, Silver Spring, MD.

#794 2:45 **New Approaches in International Guidelines for Genetic Toxicology Assays: Latest Updates on OECD Guidelines.** V. Thybaud[1], *J. van Benthem*[2], N. Delrue[3], *G. Douglas*[4], E. Lorge[5], *M. Moore*[6], *R. Schoeny*[7], and *T. Singer*[4]. [1]Drug Disposition, Preclinical Safety and Animal Research, Sanofi, Vitry-sur-Seine, France; [2]National Institute for Public Health and the Environment (RIVM), Bilthoven, Netherlands; [3]Organization for Economic Co-operation and Development (OECD), Paris, France; [4]Health Canada, Ottawa, ON, Canada; [5]Servier Group, Orleans-Gidy, France; [6]National Center for Toxicological Research, US FDA, Jefferson, AZ; [7]ORD, US EPA, Washington DC.

#795 3:25 **JACVAM Comet Validation and OECD Guideline.** *M. Hayashi*. Public Interest Incorporated Foundation, BioSafety Research Center, Shioshinden, Iwata, Japan.

#796 4:05 **New Approaches for Genotoxicity Assessment and Guidance on Dealing with Positive Results.** *B. Gollapudi*, V. Thybaud, and *J. Kim*. ILSI-HESI IVGT Project Committee, Washington DC.

Monday Afternoon, March 11
2:00 PM to 4:45 PM
Room 206

PL

Platform Session: Biomonitoring: Emerging Markers and Methods

Chairperson(s): *Lesa Aylward, Summit Toxicology, LLP, Falls Church, VA, and Maria Kadiiska, NIEHS, Research Triangle Park, NC.*

#797 2:00 **Early Markers for Screening Workers Exposed to Nephrotoxic Chemicals.** *F. M. Metwally*, and A. ElSafty. Enviromental & Occupational Medicine Department, National Research Center, Giza, Egypt.

#798 2:18 **Is Indoor Exposure to DEPH a Health Risk?** A. Gotti[1], *D. A. Sarigiannis*[1,2], and S. P. Karakitsios[1,2]. [1]Chemical Engineering, Aristotle University of Thessaloniki, Thessaloniki, Greece; [2]Chemical Process and Energy Resources Institute, Centre for Research and Technology Hellas, Thermi, Greece.

#799 2:36 **Identifying the Sources of Uncertainty in the Process of Reconstructing Exposures to Carbaryl Using Exposure-to-Dose Modeling.** *K. Holm*[1], R. McDougall[2], *M. Yoon*[3], B. Young[4], *H. Clewell*[3], R. Tornero-Velez[1], R. Goldsmith[1], D. Chang[1], C. Grulke[1], *M. Phillips*[1], *C. Dary*[5], and *C. Tan*[1]. [1]US EPA ORD NERL, Research Triangle Park, NC; [2]The AEgis Technologies Group, Oshawa, ON, Canada; [3]The Hamner Institute for Health Sciences, Research Triangle Park, NC; [4]Bayer CropScience, Research Triangle Park, NC; [5]US EPA ORD NERL, Las Vegas, NV.

Program Description (Continued)

Abstract #

#800 2:54 **A Novel Design of Experiments Approach to Assess Biomarker Usage with Experiments Involving PBPK Models.** J. Ivy, M. A. Lyons, *A. N. Mayeno*, and *B. Reisfeld*. Department of Chemical and Biological Engineering, Colorado State University, Fort Collins, CO.

#801 3:12 **Antioxidants and Oxidative Modification of Biomolecules: Can They Identify a Biomarker of Ozone Oxidative Stress?** *M. Kadiiska*. NIEHS/NIH, Research Triangle Park, NC.

#802 3:30 **Enhancing PM Epidemiological Concentration-Response Functions by Incorporating Lung Deposition and Oxidative Potential.** S. P. Karakitsios[1], *D. A. Sarigiannis*[1,2], V. Kalaitzis[1], and M. Kermenidou[1]. [1]Chemical Engineering, Aristotle University of Thessaloniki, Thessaloniki, Greece; [2]Chemical Process and Energy Resources Institute, Centre for Research and Technology Hellas, Thermi, Greece.

#803 3:48 **Continuous, Near Real-Time Toxicological Screening Using an Autonomously Bioluminescent Human Cell Line: A Transitory Preclinical Imaging Approach.** D. Close[1], T. Xu[2], J. Webb[2], *S. Ripp*[1], and G. Sayler[1]. [1]490 BioTech Inc., Knoxville, TN; [2]The University of Tennessee, Knoxville, TN.

#804 4:06 **Provisional Biomonitoring Equivalents for a Screening Level Evaluation of Urinary 3-Phenoxybenzoic Acid Concentrations in a Risk Assessment Context.** *L. Aylward*[1], *S. Hays*[2], K. Irwin[3], A. St-Amand[3], and *A. Nong*[3]. [1]Summit Toxicology, LLP, Falls Church, VA; [2]Summit Toxicology, LLP, Allenspark, CO; [3]Health Canada, Ottawa, ON, Canada.

#805 4:24 **Beyond Biological Equivalents to Biologically Effective Dose.** *D. A. Sarigiannis*[1,2], S. P. Karakitsios[1,2], and A. Gotti[1]. [1]Chemical Engineering, Aristotle University of Thessaloniki, Thessaloniki, Greece; [2]Chemical Process and Energy Resources Institute, Centre for Research and Technology Hellas, Thermi, Greece.

Monday Afternoon, March 11
2:00 PM to 4:45 PM
Room 205

PL

Platform Session: Mode of Action and Human Relevance of Rodent Tumors

Chairperson(s): *James Klaunig, Indiana University, Ellettsville, IN, and Lynne Haber, Toxicology Excellence for Risk Assessment (TERA), Cincinnati, OH.*

#806 2:00 **Liver Effects in CD1 Mice Prenatally-Exposed to Low Doses of Perfluorooctanoic Acid (PFOA): Novel Modes of Action.** *S. E. Fenton*[1], *A. J. Filgo*[1,4], C. A. Cummings[5], M. Hoenerhoff[2], D. Malarkey[2], and E. M. Quist[1,2,3]. [1]NTP Labs, DNTP, NIEHS, Research Triangle Park, NC; [2]Cellular and Molecular Pathology Branch, NIEHS, Research Triangle Park, NC; [3]Comparative Biomedical Sciences, College of Veterinary Medicine, North Carolina State University Raleigh, NC; [4]Curriculum in Toxicology, University of North Carolina at Chapel Hill, Chapel Hill, NC; [5]Experimental Pathology Labs, Inc, Research Triangle Park, NC.

Abstract #

#807 2:20 **Dose-Dependent Incidence of Murine Hepatic Tumors following Perinatal Bisphenol A Exposure.** C. Weinhouse[1], O. S. Anderson[1], I. L. Bergin[2], and *D. C. Dolinoy*[1]. [1]Environmental Health Sciences, University of Michigan, Ann Arbor, MI; [2]Unit for Laboratory Animal Medicine, University of Michigan, Ann Arbor, MI.

#808 2:40 **Liver Hypertrophy Is Not a Key Event in Constitutive Androstane Receptor (CAR)-Mediated Liver Tumor Development in Mice Treated with Triazoles.** K. Tamura[1], K. Inoue[1], M. Takahashi[1], S. Matsuo[1], K. Irie[1], Y. Kodama[2], S. Ozawa[3], and *M. Yoshida*[1]. [1]Division Pathology, National Institute Health Sciences, Setagaya-ku, Tokyo, Japan; [2]Division Toxicology National Institute Health Sciences, Setagaya-ku, Tokyo, Japan; [3]School Pharmacology, Iwate Medicine University, Morioka, Iwate, Japan.

#809 3:00 **Fluopyram: Mechanistic Investigations to Elucidate the MoA for Liver Tumor Formation in the Rat.** H. Tinwell[1], D. Rouquié[1], O. Blanck[1], P. Maliver[1], F. Schorsch[1], S. Wason[1], *D. Geter*[2], and *R. Bars*[1]. [1]Bayer CropScience, Sophia Antipolis, France; [2]Bayer CropScience, Research Triangle Park, NC.

#810 3:20 **Mechanistic Investigation of Technical Toxaphene (TT)-Induced Mouse Liver Tumors.** *Z. Wang*[1], B. H. Neal[2], *J. C. Lamb*[2], and *J. E. Klaunig*[1]. [1]Indiana University, Bloomington, IN; [2]Exponent Inc, Alexandria, VA.

#811 3:40 ***In Vitro* Cross-Species Comparative Analysis of Pharmacokinetic and Molecular Responses Mediated by a Labile AhR Activator.** *L. A. Murphy*[1], D. L. Rick[1], L. McClymont[1], J. McFadden[1], *M. J. Bartels*[1], *N. J. Stagg*[2], *R. Billington*[2], *R. J. Rasoulpour*[1], and *D. L. Eisenbrandt*[2]. [1]The Dow Chemical Company, Midland, MI; [2]Dow AgroSciences, LLC, Indianapolis, IN.

#812 4:00 **Developmental Exposure to 2,3,7,8 Tetrachlordibenzo-*p*-dioxin (TCDD) Affects Leukemeogenesis in Adult Tumor Prone Mice by Interacting with the Thymus Expressed Notch1.** *M. D. Laiosa*, *L. Ahrenhoerster*, D. Almagro, and P. A. Lakatos. Zilber School of Public Health, University of Wisconsin-Milwaukee, Milwaukee, WI.

#813 4:20 **Critical Evaluation of the Mode of Action of Carcinogenicity for Acrylonitrile.** *J. M. Fritz*, and A. M. Luke. ORD/NCEA/IRIS, US EPA, Washington DC.

Monday Afternoon, March 11
2:00 PM to 4:45 PM
Room 207

PL

Platform Session: Toxicity of Nanoparticles—Cerium Oxide

Chairperson(s): *Nigel J. Walker, NIEHS, Research Triangle Park, NC, and Vincent Castranova, NIOSH, Morgantown, WV.*

#814 2:00 **Long-Term Inhalation Study with Nanomaterials: Pulmonary Effects of Nanoscale CeO2 and BaSO4 in a Rat 28-Day Range Finding Study.** J. Keller[1], S. Gröteers[1], L. Ma-Hock[1], V. Straus[1], *K. Wiench*[2], *B. van Ravenzwaay*[1], and *R. Landsiedel*[1]. [1]Experimental Toxicology and Ecology, BASF SE, Ludwigshafen am Rhein, Germany; [2]Product Safety, BASF SE, Ludwigshafen am Rhein, Germany.

MONDAY

Program Description (Continued)

Abstract #

#815 2:23 **Pulmonary Responses in Rats after Inhalation Exposure to Cerium Oxide Nanoparticles Generated by the Harvard Versatile Engineered Nanomaterial Generating System (Venges).** *V. Castranova*[1], M. Barger[1], W. Goldsmith[1], D. Frazer[1], B. Hines[1], W. McKinney[1], G. Pyrgiotakis[2], S. Gass[2], P. Demokritou[2], and J. Ma[1]. [1]HELD, NIOSH, Morgantown, WV; [2]Harvard University, Boston, MA.

#816 2:46 **Gene Expression Profiling of Human Lung Epithelial Cell Lines Exposed to Manufactured CoO and CeO2 Nanoparticles.** I. Nelissen[1], S. Verstraelen[1], E. Casals[2], S. Remy[1], P. De Boever[1], H. Witters[1], and V. Puntes[2]. [1]Flemish Institute for Technological Research (VITO NV), Mol, Belgium; [2]Institut Català de Nanotecnologia (ICN), Barcelona, Spain. Sponsor: *P. Hoet*.

#817 3:09 **Mechanistic Insights into the Toxicity of Multiwalled Carbon Nanotubes and Cerium Dioxide Nanoparticles in Primary Human Bronchial Epithelial Cells.** S. Hussain[1], R. Snyder[1], S. M. Anderson[1], J. D. Marshburn[1], A. B. Rice[1], *N. J. Walker*[2], and S. Garantziotis[1]. [1]Clinical Research Program, NIEHS, NIH, Durham, NC; [2]DNTP, NIEHS, Research Triangle Park, NC.

#818 3:32 **Inflammatory and Free Radical Generation Characteristics of Nano-Cerium Dioxide.** *V. C. Minarchick*[1], *D. W. Porter*[2], N. R. Fix[2], S. S. Leonard[2], E. M. Sabolsky[3], and *T. R. Nurkiewicz*[1]. [1]Center for Cardiovascular and Respiratory Sciences, West Virginia University, Morgantown, WV; [2]NIOSH, Morgantown, WV; [3]Mechanical Engineering, West Virginia University, Morgantown, WV.

#819 3:55 **Nanoceria Distribution and Biopersistence in Rats Is Not Consistently Affected by Particle Size, Shape, Dose, or Dosing Schedule.** *R. A. Yokel*[1,2], *R. C. MacPhail*[5], J. M. Unrine[3], P. Wu[4], and E. A. Grulke[4]. [1]Pharmaceutical Sciences, University of Kentucky, Lexington, KY; [2]Graduate Center for Toxicology, University of Kentucky, Lexington, KY; [3]Plant and Soil Sciences, University of Kentucky, Lexington, KY; [4]Chemical and Materials Engineering, University of Kentucky, Lexington, KY; [5]Toxicology Assessment Division, US EPA, Research Triangle Park, NC.

#820 4:18 **Metal Oxide Nanoparticles Alter Spontaneous Activity and Pharmacological Responses in Neuronal Networks Grown on Microelectrode Arrays.** *J. D. Strickland*[3,2], *W. R. LeFew*[1], *K. Dreher*[2], and *T. J. Shafer*[1]. [1]IISTD, ORD, US EPA, Research Triangle Park, NC; [2]EPHD, ORD, US EPA, Research Triangle Park, NC; [3]North Carolina State University, Raleigh, NC.

Monday Afternoon, March 11
2:15 PM to 3:15 PM
Room 007 C

E

Exhibitor/Sponsor-Hosted Session: ICP-MS Use and Validation for Toxicological Applications

Presented by:
Chemical Solutions Ltd.

Understanding key factors and performance characteristics of ICP-MS instrumentation as applied to testing of common elements of concern in toxicological work. Discussion will include the role of DRC and KED modules in lowering detection limits and eliminating interferences.

Monday Afternoon, March 11
2:15 PM to 3:15 PM
Room 007 A

E

Exhibitor/Sponsor-Hosted Session: Skeletal Evaluations in Toxicology Studies: How and When?

Presented by:
Charles River

With advancements in our understanding of signaling pathways, the skeleton is implicated as target tissue for compounds in development for diverse therapeutic areas, including diabetes, obesity, and cancer. Using case studies, this session will highlight techniques and endpoints that can be used to assess the skeleton in both adults and juveniles.

Monday Afternoon, March 11
2:15 PM to 3:15 PM
Room 007 B

E

Exhibitor/Sponsor-Hosted Session: Zebrafish As a Predictive Model for Assessing Toxicity and Safety

Presented by:
Phylonix

The zebrafish animal model is increasingly used to assess compound toxicity, safety, and efficacy. In this workshop, methods for performing assays in whole transparent animals will be described. In addition, results for compounds characterized in mammals will be presented.

Monday Afternoon, March 11
3:00 PM to 4:00 PM
Room 215

Specialty Section Collaboration and Communication Group Meeting

Monday Afternoon, March 11
3:15 PM to 4:45 PM
Room 204

Government Liaison Groups Collaboration Meeting

Senior Leaders from SOT and officials from various federal government agencies will meet jointly to discuss mutual areas of collaboration, review strategic plans, training needs, and global outreach efforts.

Program Description (Continued)

Monday Afternoon, March 11
3:30 PM to 4:30 PM
Room 007 A

E

Exhibitor/Sponsor-Hosted Session: Efficient Integration of Chromosomal Damage and Gene Mutation Endpoints into Repeat-Dose Toxicology Studies

Presented by:
Litron Laboratories

Integration of genetic toxicology assays into general toxicology studies is increasingly important for drug/chemical safety programs. This session will cover two flow cytometric methods that measure chromosomal damage and gene mutation in blood samples and how these complementary assays can be practically executed in a 28-day repeat-dose study design.

Monday Afternoon, March 11
3:30 PM to 4:30 PM
Room 007 C

E

Exhibitor/Sponsor-Hosted Session: Improving the Bioanalysis of Endogenous Bile Acids As Biomarkers for Hepatobiliary Toxicity

Presented by:
Tandem Labs

Bile acids are produced in the liver and emulsify dietary fats, eliminate cholesterol, and regulate several biological processes. Monitoring the increase of bile acids in human plasma can be used as a biomarker of hepatobiliary toxicity and may aid in the identification of harmful side effects of future therapeutics.

Monday Afternoon, March 11
3:30 PM to 4:30 PM
Room 007 B

E

Exhibitor/Sponsor-Hosted Session: Juvenile Safety Assessment in Göttingen Minipigs

Presented by:
Ellegaard Göttingen Minipigs and Marshall BioResources

This presentation will describe the benefits of the Göttingen Minipig as an additional model in juvenile safety assessment studies; the physical and sensory development of piglets; and the potential for minipigs in evaluating the toxicity of certain compounds on the development of the nervous system, reproductive system, and immune system.

Monday Afternoon, March 11
4:45 PM to 6:00 PM
Grand Ballroom C1

FS

SOT/EUROTOX Debate: In the Near Foreseeable Future, Much of Toxicity Testing Can Be Replaced by Computational Approaches

Chairperson(s): *Norbert E. Kaminski, Michigan State University, East Lansing, MI, and Aristidis Tsatsakis, University of Crete, Heraklion, Greece.*

SOT Debater: *Rory B. Conolly, US EPA, Research Triangle Park, NC.*

EUROTOX Debater: *George Loizou, Health and Safety Laboratory, Buxton, United Kingdom.*

Endorsed by:
Society of Toxicology (SOT)
European Societies of Toxicology (EUROTOX)

Each year the SOT Annual Meeting includes a debate that continues a tradition that originated in the early 1990s in which leading toxicologists advocate opposing sides of an issue of great toxicological importance. This year, our debaters will address the proposition: In the Near Foreseeable Future, Much of Toxicity Testing Can Be Replaced by Computational Approaches.

During the past decade significant advances have been made in the development and application of mathematical modeling and computational simulation approaches to describing as well as predicting biological events. To a large extent, the application of computational approaches to biological systems has been driven by the exponential growth in knowledge of the underlying biological processes in living organisms. Similarly, major advances have also been made in the understanding of the molecular mechanisms by which xenobiotics modify biological processes, hence the vision and desire of applying computational approaches to toxicology. In fact, many benefits could be envisioned in applying *in silico* approaches to toxicity testing including a reduction in animal use, decreased costs of testing, and more rapid assessments of potential toxicity, to mention a few. In contrast, skepticism and serious concerns exist that the current understanding of the underlying biology and toxicology, especially at the organismal level, make replacement of toxicity testing by computational approaches a distant dream of the future. The debate will present some of the challenges investigators and regulators will face in the integration of computational approaches to toxicity testing.

Regardless of framework differences and personal convictions, each scientific 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, this debate will again take place in Interlaken, Switzerland during the 2013 Eurotox Annual Congress, September 1–4.

Monday Afternoon, March 11
4:45 PM to 6:30 PM
Marriott Rivercenter Grand Ballroom D

Korean Toxicologists Association in America Special Interest Group Annual Meeting

Program Description (Continued)

MONDAY EVENING

Monday Evening, March 11
5:00 PM to 6:00 PM
Grand Hyatt Texas Ballroom D

American Association of Chinese in Toxicology Special Interest Group Distinguished Chinese Toxicologist Lectureship Award and Seminar: Application of Biomarkers: Bridging Toxicology and Disease Prevention,
Lecturer: Jia-Sheng Wang, University of Georgia

Monday Evening, March 11
5:00 PM to 7:00 PM
The Wine Cellar

Lake Ontario Regional Chapter Mixer

Monday Afternoon, March 11
5:00 PM to 6:30 PM
Marriott Rivercenter Conference Room 17

Michigan and Allegheny-Erie Regional Chapter Joint Reception

Monday Evening, March 11
5:30 PM to 6:30 PM
Grand Hyatt Travis D

Comparative and Veterinary Specialty Section Officers Meeting

Monday Evening, March 11
6:00 PM to 9:00 PM
Grand Hyatt Texas Ballroom D

American Association of Chinese in Toxicology Special Interest Group Meeting/Reception

Monday Evening, March 11
6:00 PM to 9:00 PM
Spanish Governors Palace

National Capital Area and North Carolina Regional Chapters Joint Reception

Monday Evening, March 11
6:00 PM to 8:00 PM
Casa Rio Restaurant

Southeastern Regional Chapter Reception

Monday Evening, March 11
6:00 PM to 7:30 PM
Grand Hyatt
See room listing below.

Specialty Section Meetings/Receptions: Biotechnology (Lone Star Ballroom A), Cardiovascular Toxicology (Lone Star Ballroom B), Clinical and Translational Toxicology (Bowie A), Dermal Toxicology (Presidio B), Ethical, Legal, and Social Issues (Bowie B), Reproductive and Developmental Toxicology (Texas Ballroom A), Stem Cells (Bonham C)

Monday Evening, March 11
7:00 PM to 9:00 PM
Grand Hyatt Lone Star Ballroom F

Association of Scientists of Indian Origin Special Interest Group Meeting/Reception

Program Description (Continued)

TUESDAY MORNING

Tuesday Morning, March 12
6:30 AM
Hemisfair Park

Past Presidents' 5k Fun Run/Walk

Sponsors:
Millar Instruments
Seventh Wave Laboratories/PreClinical Research Services

Join us for the 3rd 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, all while showing support for SOT and its wonderful past presidents. Whether you're in it for some friendly competition (yes, this year's race will be a timed event) 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 $10, and all proceeds will go towards the SOT Endowment Fund.

Tuesday Morning, March 12
6:30 AM to 8:00 AM
Room 213 A

Stem Cells Specialty Section Officers Meeting

Tuesday Morning, March 12
7:45 AM to 9:00 AM
Grand Hyatt Lone Star Ballroom C

American Association of Chinese in Toxicology/Korean Toxicologists Association in America Special Interest Groups Career Development Workshop

Tuesday Morning, March 12
8:00 AM to 8:50 AM
Grand Ballroom C2

FS

Leading Edge in Basic Science Award Lecture: Human Organs on Chips As Replacements for Animal Testing

Lecturer: *Donald E. Ingber, Harvard University, Boston, MA.*

In this presentation, I will describe work we have been carrying out in the Biomimetic Microsystems platform at the Wyss Institute for Biologically Inspired Engineering at Harvard University. The goal of this platform is to engineer 'Organs-on-Chips': microchips lined by living human cells created with microfabrication techniques that recapitulate organ-level functions as a way to replace animal testing for drug development. I will review recent advances we have made in development of multiple organ chips, including human lung, gut and bone marrow chips. I will also describe our ongoing efforts to develop more than 10 different organ chips, to integrate them into a 'human body-on-a-chip', and to engineer an automated instrument for real-time analysis of cellular responses to pharmaceutics, toxins and other chemicals.

Tuesday Morning, March 12
8:30 AM to 9:30 AM
Room 007 B

E

Exhibitor/Sponsor-Hosted Session: Genetic Toxicity Assessment for the Modern Era: New Regulations, New Strategies, New Methods

Presented by:
WIL Research

Guiding potential human therapies through genetic toxicology testing can be a complicated process in light of recent changes in the ICH guidelines and advances in assay designs (such as the comet Assay). Strategies that provide for efficient yet scientifically and regulatory compliant approaches to genetic toxicity assessment will be presented.

Tuesday Morning, March 12
8:30 AM to 9:30 AM
Room 007 A

E

Exhibitor/Sponsor-Hosted Session: Moving towards Establishing Standardized Conditions for *In Vitro* Human Toxicity Testing

Presented by:
Promega Corporation

More effective *in vitro* toxicity testing strategies are currently needed for predicting human toxicities. In this presentation the challenges and opportunities for meeting this demand will be discussed with a focus on advances in tissue culture technology and the corresponding establishment of standardized testing conditions, analysis, and acceptance criteria.

Tuesday Morning, March 12
8:30 AM to 9:30 AM
Room 007 C

E

Exhibitor/Sponsor-Hosted Session: Why Do We Do What We Do? Pathology Endpoints in Repeat-Dose Toxicity Studies: A Review of Global Regulations

Presented by:
Vet Path Services, Inc.

An overview of the pathology endpoints specifically outlined in regulatory guidances issued from North America, Europe, and Japan for pharmaceutical toxicology studies. The pathology endpoints are parameters from clinical pathology, organ weights, macroscopic, and cause of death. Endpoints will also be put in the context of published literature and best practices considerations.

Program Description (Continued)

Abstract #

Tuesday Morning, March 12
9:00 AM to 11:45 AM
Grand Ballroom C1

Frontiers for Toxicology Session

Symposium Session: Systems and Computational Biology As Foundations for Toxicology Research

Application of Systems Biology to Toxicology

Chairperson(s): *Annie M. Jarabek, US EPA, Research Triangle Park, NC, and James L. Stevens, Eli Lilly & Company, Research Laboratories, Indianapolis, IN.*

Sponsor:
Scientific Program Committee

Systems and computational approaches are holistic methods to elucidate and understand the complex interactions among components of a biologic response network and are central to the comprehensive understanding of all biological processes. The field requires the integration of concepts from biology and physiology, computer science and applied mathematics, as well as physics and engineering. Toxicology is also a multidisciplinary science and application of systems and computational approaches can aid in unraveling the dynamic and complex nature of toxic responses. In light of the broad utility of systems biology approaches to toxicology and risk assessment, the goal of this session is to feature eminent scientists who have made seminal contributions and advances in systems and computational biology. The broad areas to be addressed include: general concepts of systems biology tools including network mapping and statistical challenges in assuring the validity of network analyses along with the newest tools and approaches for gaining insight into the regulation and function of complex systems; applications of systems biology approaches to studying fundamental biological responses such as cell signaling and kinase networks; perspectives on the application of systems networks to biomedical research and particularly for studying disease etiology and prevention; computational strategies that inform the prediction of pharmacologic and toxicologic responses including the prediction of adverse drug reactions; and, novel applications of machine learning and cell imaging to evaluate subcellular organization and function that inform hypothesis testing and translational details that may be useful in drug development.

#821 9:00 **Systems and Computational Biology As Foundations for Toxicology Research.** *L. D. Lehman-McKeeman*. Bristol-Myers Squibb Company, Princeton, NJ.

9:00 **Introduction.** Lois D. Lehman-McKeeman

#822 9:05 **Turning Protein Networks into Gene Ontologies.** T. Ideker. Department of Medicine, University of California San Diego, La Jolla, CA. Sponsor: *L. Lehman-McKeeman*.

#823 9:45 **Network2Canvas: Network Visualization on a Canvas with Enrichment Analysis.** A. Ma'ayan. Department of Pharmacology and Systems Therapeutics, Mount Sinai School of Medicine, New York, NY. Sponsor: *L. Lehman-McKeeman*.

#824 10:25 **Computational Approaches to Predicting Adverse Drug Reactions and Mitigating Off-Target Liabilities in Early-Stage Drug Discovery.** *L. Urban*[1], S. Whitebread[1], E. Lounkine[1], and P. Müller[2]. [1]Center for Proteomic Chemistry, Novartis Institutes for Biomedical Research, Cambridge, MA; [2]Preclinical Safety, Novartis Institutes for Biomedical Research, Cambridge, MA.

#825 11:05 **Image-Derived Models of Subcellular Organization and Perturbation.** R. F. Murphy. Biological Sciences, Carnegie Mellon University, Pittsburgh, PA. Sponsor: *L. Lehman-McKeeman*.

Abstract #

Tuesday Morning, March 12
9:00 AM to 11:45 AM
Room 214 C&D

Symposium Session: From Inhaled Particles to Cardiovascular Disease and Toxicity: Evidence from Studies in Volunteers, Experimental Animals, and Cell-Based Systems

Biomarkers for Exposure Assessment, Safety Evaluation, and Translational Medicine

Chairperson(s): *Flemming R. Cassee, National Institute for Public Health and the Environment (RIVM) - Centre for Environmental Health Research (MGO), Bilthoven, Netherlands, and Howard Kipen, University of Medicine and Dentistry of New Jersey, Robert Wood Johnson Medical School, Piscataway, NJ.*

Sponsor:
Inhalation and Respiratory Specialty Section

Endorsed by:
Cardiovascular Toxicology Specialty Section
Mixtures Specialty Section
Nanotoxicology Specialty Section

The adverse effects of air pollution on cardiovascular health have been established in a series of major observational studies. Even brief exposures to air pollution have been associated with marked increases in cardiovascular morbidity and deaths from myocardial ischemia, arrhythmia, and heart failure. The breadth, strength, and consistency of the evidence provide a compelling argument that air pollution, especially traffic-derived pollution, causes cardiovascular disease. However, these observational data are limited by imprecision in the measurement of pollution exposure, and the potential for environmental and social factors to confound these apparent associations. For a causal association to have scientific credence, a clear mechanism must be defined. What are the potential pathways through which air pollution mediates these adverse cardiovascular effects and diseases? And are the effects caused by the nano-sized particles? This session will focus on the underlying biological mechanisms of complex particle mixtures.

#826 9:00 **From Inhaled Particles to Cardiovascular Disease and Toxicity: Evidence from Studies in Volunteers, Experimental Animals, and Cell-Based Systems.** *F. R. Cassee*[1], and *H. Kipen*[2]. [1]Centre for Environmental Health Research (MGO), National Institute for Public Health and the Environment (RIVM), Bilthoven, Netherlands; [2]Environmental & Occupational Medicine, UMDNJ-Robert Wood Johnson Medical School, Piscataway, NJ.

9:00 **Introduction.** Flemming Cassee

#827 9:15 **Acute Increases in Exhaled Breath Condensate No Metabolites Suggests Oxidative Stress As a Mechanism for the Health Effects of Traffic-Related Pollutants.** *H. Kipen*[1], R. J. Laumbach[1], and A. J. Gow[2]. [1]Environmental & Occupational Medicine, UMDNJ-Robert Wood Johnson Medical School, Piscataway, NJ; [2]School of Pharmacy, Rutgers University, Newark, NJ.

#828 9:45 **Health Effects from Traffic Particles and Noise in Road Workers.** M. Riediker[1], R. Meier[1], *A. Ghio*[4], *F. R. Cassee*[2], and W. Cascio[3]. [1]Department Workers' Health, Institute for Occupational Health Sciences, Lausanne, Switzerland; [2]Centre for Environmental Health Research (MGO), National Institute for Public Health and the Environment (RIVM), Bilthoven, Netherlands; [3]Environmental Public Health Division, US EPA, Research Triangle Park, NC; [4]Human Studies Division, US EPA, Research Triangle Park, NC.

Program Description (Continued)

Abstract #

#829 10:15 **Air Pollution Is Associated with Chronic Progression of Cardiovascular Disease.** *A. K. Lund*. Lovelace Respiratory Research Institute, Albuquerque, NM.

#830 10:45 **Effects on the Vascular System of Source-Specific Particles.** M. E. Gerlofs-Nijland[1], *F. R. Cassee*[1,2], M. Steenhof[1,2], M. Strak[1,2], and N. A. Janssen[1]. [1]Centre for Environmental Health Research (MGO), National Institute for Public Health and the Environment (RIVM), Bilthoven, Netherlands; [2]Institute for Risk Assessment Sciences (IRAS), Utrecht University, Utrecht, Netherlands.

#831 11:15 **Diesel Exhaust: The Many Ways That Nanoparticles Can Impair Cardiovascular Health.** M. Miller, J. P. Langrish, N. L. Mills, K. Donaldson, P. W. Hadoke, and D. E. Newby. Centre for Cardiovascular Sciences, University of Edinburgh, Edinburgh, United Kingdom. Sponsor: *F. Cassee*.

Tuesday Morning, March 12
9:00 AM to 11:45 AM
Room 217 C&D

S

Symposium Session: The Dynamics of Neuroinflammation and Inflammatory Cell Responses in Neurologic Disease

Molecular Basis of Genetic Variability and Susceptibility to Toxicants

Chairperson(s): *G. Jean Harry, NIEHS, Research Triangle Park, NC, and Christine P. Curran, Northern Kentucky University, Department of Biological Sciences, Highland Heights, KY.*

Sponsor:
Neurotoxicology Specialty Section

Endorsed by:
Mechanisms Specialty Section
Metals Specialty Section

An increasing body of evidence indicates that neuroinflammation and activation of immune cells within the nervous system are associated with neurodegenerative disease, neurodevelopmental disorders, and potentially in reaction to environmental exposures. However, it is also increasingly obvious that these responses may be beneficial or detrimental, and discriminating between these has only recently been addressed. Understanding the process by which these responses are triggered and the spatiotemporal dynamics of the response is critical to developing a strategy for translating neuroinflammatory and immune response to effective prevention or treatment of neurologic disease/injury. Three well-known neurotoxicants: trimethyltin, manganese, and mercury will be used as chemical probes to explore differences in the timing of inflammatory effects and consequences in the brain. We will conclude by discussing approaches to manipulate the lesion microenvironment and/or brain macrophage such that inflammation favors tissue repair in the spinal cord.

#832 9:00 **The Dynamics of Neuroinflammation and Inflammatory Cell Responses in Neurologic Disease.** G. J. Harry[1], and *C. Curran*[2]. [1]NTP Laboratory, NIEHS, Research Triangle Park, NC; [2]Northern Kentucky University, Highland Heights, KY.

9:00 **Introduction.** Gaylia Harry

#833 9:05 **Microglia Heterogeneity in Neuroinflammation and Neurotoxicity.** G. J. Harry. NTP Laboratory, NIEHS, Research Triangle Park, NC. Sponsor: *C. Curran*.

Abstract #

#834 9:41 **Neuroinflammation and Developmental Vulnerability to Manganese.** *R. B. Tjalkens*[1,2]. [1]Center for Environmental Medicine, Colorado State University, Fort Collins, CO; [2]Toxicology Section, Department of Environmental and Radiological Health Sciences, Colorado State University, Fort Collins, CO.

#835 10:17 **Spontaneous and Mercury-Induced Antibodies to Brain Antigens Affect Fetal Brain Development.** *D. A. Lawrence*[1], Y. Zhang[1], *Y. Heo*[2], and D. Gao[1]. [1]Immunology, Wadsworth Center, Albany, NY; [2]Occupational Health, Catholic University of Daegu, Daegu, Republic of Korea.

#836 10:53 **Manipulating Microglia and Macrophages to Promote Repair of Injured Spinal Cord.** P. G. Popovich. Department of Neuroscience, The Ohio State University, Columbus, OH. Sponsor: *C. Curran*.

11:29 **Panel Discussion/Q&A.**

Tuesday Morning, March 12
9:00 AM to 11:45 AM
Room 206

W

Workshop Session: Advances in Carcinogenic Risk Assessment of Low-Level Genotoxic Impurities in Pharmaceuticals

Regulatory Science: Advancing New Approaches for Hazard Identification and Risk Assessment

Chairperson(s): *Warren W. Ku, Boehringer Ingelheim Inc., Ridgefield, CT, and David Jacobson-Kram, US FDA, Jefferson, AR.*

Sponsor:
Regulatory and Safety Evaluation Specialty Section

Endorsed by:
Occupational and Public Health Specialty Section
Risk Assessment Specialty Section

Pharmaceutical syntheses involve the use of reactive starting materials, intermediates, and reagents, some of which are known or potential genotoxicants and carcinogens. Therefore, genotoxic and potentially carcinogenic impurities may appear in the final drug product. Risk assessment approaches have focused on defining impurity limits which pose acceptable risk over a patient's duration of drug treatment. Over the past decade, regulatory guidances (EMA, US FDA draft) have been introduced. Drug-associated genotoxic impurities became an ICH guideline topic (M7) in 2009, and an Expert Working Group is currently developing a harmonized guideline. The ICH M7 effort presents an opportunity to review existing guidelines, evaluate new information and experiences since their introduction, and improve the integration of safety and quality aspects for detection, risk management and control. This workshop will provide a historical overview and introduce newer concepts to SOT members for discussion on several approaches being considered in M7. The workshop will cover the following topics along with case studies: (1) a brief overview of regulatory risk assessment approaches developed over the past decade and introduce current M7 concepts being considered; (2) review current *in silico* Q(SAR) and genotoxicity testing approaches to predict or identify hazards and qualify impurity risk; (3) introduce advances in the framework and rationale for applying less-than-lifetime acceptable risk limits during clinical development and marketing; (4) highlight differences in chemical space between pharmaceutical synthetic intermediates or impurities and that used to derive the original lifetime threshold of toxicological concern (TTC) limit, and its potential implications for risk characterization; and (5) review approaches for addressing risk of multiple genotoxic impurities in a drug product.

#837 9:00 **Advances in Carcinogenic Risk Assessment of Low-Level Genotoxic Impurities in Pharmaceuticals.** *W. W. Ku*[1], and *D. Jacobson-Kram*[2]. [1]Nonclinical Drug Safety US, Boehringer Ingelheim Inc., Ridgefield, CT; [2]Center for Drug Evaluation and Research, US FDA, Silver Spring, MD.

Program Description (Continued)

Abstract #		
	9:00	**Introduction.** Warren Ku
#838	9:05	**Genotoxic Impurities—Regulatory Advances in Risk Assessment Approaches.** P. Kasper. Federal Institute for Drugs and Medical Devices, Bonn, Germany. Sponsor: *W. Ku*.
#839	9:34	**Advances in Mutagenic Impurity Hazard Assessment: Best Practices and Current Developments.** K. Dobo. Drug Safety Research and Development, Pfizer Global Research and Development, Groton, CT. Sponsor: *W. Ku*.
#840	10:03	**Less Than Lifetime (LTL) Carcinogenic Risk Limits for Mutagenic Impurities during Clinical Development and in Marketed Products.** *L. Mueller*. Non-Clinical Drug Safety, F. Hoffmann-La Roche Ltd., Basel, Switzerland.
#841	10:32	**Many Potential Mutagens Used in Pharmaceutical Syntheses Are in Less Potent Classes Than the Carcinogens Used to Derive the TTC, Justifying Higher Levels without Increasing Risk.** S. Galloway. Merck Research Laboratories, West Point, PA. Sponsor: *W. Ku*.
#842	11:01	**Addressing Risks of the Potential Presence of Multiple Genotoxic/Carcinogenic Impurities in Pharmaceuticals.** *J. Bercu*. Amgen Inc., Thousand Oaks, CA.
	11:30	**Panel Discussion/Q&A.**

Tuesday Morning, March 12
9:00 AM to 11:45 AM
Room 214 A&B

W

Workshop Session: Health Risks of Sodium (Salt) Intake: Too Much or Too Little?

Chairperson(s): *Madhu Soni, Soni & Associates Inc., Vero Beach, FL, and P. Michael Bolger, Exponent, Annapolis, MD.*

Sponsor:
Food Safety Specialty Section

Endorsed by:
Association of Scientists of Indian Origin Special Interest Group
Cardiovascular Toxicology Specialty Section
Regulatory and Safety Evaluation Specialty Section
Women in Toxicology Special Interest Group

Public health advocates have been concerned for decades that Americans consume unhealthy amounts of dietary sodium. Recently, the Institute of Medicine (IOM) recommended a Tolerable Upper Intake Level of 2,300 mg sodium/day and an Adequate Intake of just 1,500 mg/day, based on risks of adverse health effects, particularly hypertension. However, the average sodium intake is estimated to be 3,500 mg/day. The risk for morbidity and mortality due to excessive or insufficient salt intake varies because of biochemical individuality. The available evidence from a wide variety of clinical trials shows a direct relation between salt intake and blood pressure. A recent meta-analysis suggests that salt reduction tended to increase levels of hormones (renin, aldosterone), cholesterol, and triglycerides, which are all thought to be risk factors for heart disease. It has been asserted that while the risks of consuming too much salt are real, the risks have been exaggerated for the general population, or that the studies done on the consumption of salt can be interpreted in many different ways. There have also been recent scientific debates upon whether "excess" sodium in our diet has any adverse effect at all on healthy individuals and whether the last 50 years of scientific research that strongly correlates salt intake and hypertension might just be a well intentioned misinterpretation of the scientific data. In an effort to broaden the understanding of the aforementioned issues pertaining to salt intake and risk, the following key aspects will be addressed in this session: (1) Health risks associated with sodium intake; (2) Should salts' GRAS status be modified? (3) Any unintended consequences of salt reduction. (4) Is there a sufficient evidence for salt reduction?

Abstract #		
#843	9:00	**Health Risks of Sodium (Salt) Intake: Too Much or Too Little?** *M. G. Soni*[1], and *P. M. Bolger*[2]. [1]Soni & Associates Inc, Vero Beach, FL; [2]Charles Street, Annapolis, MD.
	9:00	**Introduction.** Madhu Soni
#844	9:05	**Sodium Homeostasis and Cardiovascular Health.** *P. M. Bolger*. Charles Street, Annapolis, MD.
#845	9:34	**Strategies to Reduce Sodium Intake in the United States.** J. Henney. College of Medicine, University of Cincinnati, Cincinnati, OH. Sponsor: *M. Soni*.
#846	10:03	**The Effects of Sodium Reduction on Blood Pressure, Hormones, Lipids, and Mortality.** N. Graudal. Department of Internal Medicine/Infectious Medicine/Rheumatology, Copenhagen University Hospital, Copenhagen, Denmark. Sponsor: *M. Soni*.
#847	10:32	**Unintended Consequences of Salt Reduction.** M. Satin. Science and Research, Salt Institute, Alexandria, VA. Sponsor: *M. Soni*.
#848	11:01	**The Importance of Population-Wide Sodium Reduction As a Means to Prevent Cardiovascular Disease and Stroke.** D. Arnett. Department of Epidemiology, University of Alabama at Birmingham, Birmingham, AL. Sponsor: *M. Soni*.
	11:30	**Panel Discussion/Q&A.**

Tuesday Morning, March 12
9:00 AM to 11:45 AM
Room 217 A&B

W

Workshop Session: Unique Challenges in Biologic Drug Development: Separating Mechanism of Action from Mechanism of Toxicity

Chairperson(s): *Laura Andrews, Genzyme, Framingham, MA, and Marque Todd, Pfizer, Inc., Groton, CT.*

Sponsor:
Biotechnology Specialty Section

Endorsed by:
Comparative and Veterinary Specialty Section
Toxicologic and Exploratory Pathology Specialty Section

A common safety concern of biotherapeutic agents is toxicity associated with mechanism of action (MoA). The term MoA refers to the specific biochemical interaction through which a drug substance produces its pharmacological effect. This workshop will address areas of significant impact to biotherapeutic drug development where there is a known disassociation of MoA and MoT in toxicity studies and/or in translation to the clinic. Most nonclinical toxicity studies are conducted in healthy animals which may not predict the effects of a biotherapeutic when used in the patients with specific diseases. The latest paradigms for using animal disease models, including study conduct and interpretation, will be explored. For many years, the likelihood of off-target toxicity was considered to be very low for most biotherapeutics. Data will be presented highlighting that off-target toxicity, particularly hematotoxicity, can occur and may be more prevalent than previously thought. Effort has also been put into better understanding the development and impact of antidrug antibodies (ADA) in nonclinical toxicity studies and their relevance to clinical ADA. In addition to impacting biotherapeutic drug exposure, ADA may also cause a variety of non-MoA associated toxicities including acute hypersensitivity, immune complex disease, and neutralization of the endogenous target. The incidence of ADA-associated toxicities has been increasing and the current understanding of these toxicities and their clinical relevance with be discussed.

Program Description (Continued)

Abstract #

#849 9:00 **Unique Challenges in Biologic Drug Development: Separating Mechanism of Action from Mechanism of Toxicity.** *L. Andrews*[1], and *M. Todd*[2]. [1]Genzyme, Framingham, MA; [2]Pfizer, La Jolla, CA.

9:00 **Introduction.** Laura Andrews

#850 9:05 **Introduction to the Mechanism of Action/ Mechanism of Toxicity Challenges of Biotherapeutics.** C. Grimaldi. Boehringer Ingelheim, Ridgefield, CT. Sponsor: *L. Andrews*.

#851 9:45 **Use of Animal Models of Disease in Safety Assessments of Biotherapeutics—Is This the Future?** *J. Cavagnaro*. Access Bio, Boyce, VA.

#852 10:25 **Antidrug Antibodies: Interpreting Toxicology Studies and Translating Nonclinical Findings to the Clinic.** *C. Horvath*. Genzyme, Framingham, MA.

#853 11:05 **Unexpected Toxicities of Biotherapeutics on Peripheral Blood Cells.** N. Everds. Amgen, Seattle, WA. Sponsor: *L. Andrews*.

Tuesday Morning, March 12
9:00 AM to 12:30 PM
Exhibit Hall C–D

PS

Poster Session: Data Integration and Decision Support: Databases, Tools, and Ontologies

Chairperson(s): *Katrina M. Waters, Pacific Northwest National Lab, Richland, WA, and Jie Shen, US FDA, Jefferson, AR.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *9:00 AM–11:00 AM*

#854 **Poster Board Number 101**
Effectopedia: The Online Encyclopedia and Graphical Editor for AOPs. A. Clippinger[1], H. Aladjov[2], and G. Veith[3]. [1]People for the Ethical Treatment of Animals, Norfolk, VA; [2]Institute of Biophysics and Biomedical Engineering, Bulgarian Academy of Sciences, Sofia, Bulgaria; [3]International QSAR Foundation, Two Harbors, MN. Sponsor: *K. Sullivan*.

#855 **Poster Board Number 102**
Exposure Data Curation for Integration into the Comparative Toxicogenomics Database (CTD). *C. G. Murphy*, *C. J. Mattingly*, and *A. P. Davis*. Biology, North Carolina State University, Raleigh, NC.

#856 **Poster Board Number 103**
Expansion of Toxicity Reference Database (ToxRefDB) Study Data for *In Vivo* Phenotypic Modeling. K. W. McLaurin, S. Sneed, I. Thillainadarajah, and *M. T. Martin*. NCCT/ORD, US EPA, Durham, NC.

#857 **Poster Board Number 104**
Application of US FDA, Center for Food Safety and Applied Nutrition's Knowledge-Base to Two Use Cases for Food Contact Substances: FCS Inventory Assessment by Read-Across and Prediction Models. K. Arvidson[1], J. Aungst[1], S. Boyer[2], C. Hasselgren[2], *E. Matthews*[1], *K. Muldoon-Jacobs*[1], A. McCarthy[1], J. Rathman[3], and C. Yang[3]. [1]US FDA, College Park, MD; [2]AstraZeneca R&D, Mölndal, Sweden; [3]Altamira LLC, Columbus, OH.

Abstract #

#858 **Poster Board Number 105**
Flexible and Transparent Computational Workflows for the Prediction of Target Organ Toxicity. A. N. Richarz[1], S. J. Enoch[1], M. Hewitt[1], J. C. Madden[1], K. Przybylak[1], *C. Yang*[2], M. R. Berthold[3], T. Meinl[3], P. Ohl[3], and M. T. Cronin[1]. [1]School of Pharmacy and Chemistry, Liverpool John Moores University, Liverpool, United Kingdom; [2]Altamira LLC, Columbus, OH; [3]KNIME.com AG, Zurich, Switzerland.

#859 **Poster Board Number 106**
Chemotypes: A New Structure Representation Standard for Incorporating Atom/Bond Properties into Structural Alerts for Toxicity Effects and Mechanisms. *C. Yang*[1], K. Arvidson[2], A. Detroyer[3], J. Gasteiger[4], J. Marusczyk[4], J. Rathman[1], *A. Richard*[5], S. Ringeissen[3], C. Schwab[4], A. Tarkhov[4], and A. Worth[6]. [1]Altamira, LLC, Columbus, OH; [2]US FDA, College Park, MD; [3]L'Oréal, Aulnay S/S, France; [4]Molecular Networks, Erlangen, Germany; [5]US EPA, Research Triangle Park, NC; [6]JRC, Ispra, Italy.

#860 **Poster Board Number 107**
***In Silico* Models of Sequence-Specific Mutagenicity: Exploring Chemical-Mutation Site Associations.** *A. Sedykh*[1], *Y. Low*[1], *S. Chakravarti*[2], *R. Saiakhov*[2], and *A. Tropsha*[1]. [1]Eshelman School of Pharmacy, University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]MultiCASE, Beachwood, OH.

#861 **Poster Board Number 108**
ToxML: A Structured and Serialisable Exchange Standard for Toxicology. M. A. Ali[1], M. L. Patel[1], P. N. Judson[2], and *D. R. Benz*[3]. [1]Lhasa Limited, Leeds, United Kingdom; [2]Judson Consulting Service, Harrogate, United Kingdom; [3]US FDA Center for Drug Evaluation and Research, Silver Spring, MD.

#862 **Poster Board Number 109**
ToxCastTM Workflow: High-Throughput Screening Assay Data Processing, Analysis and Management. P. G. Kothiya[1,2], *M. T. Martin*[1], A. Frame[1], *A. M. Richard*[1], *R. S. Judson*[1], and *D. M. Reif*[1]. [1]National Center for Computational Toxicology, Office of Research and Development, US EPA, Research Triangle Park, NC; [2]Bioinformatics Program, North Carolina State University, Raleigh, NC.

#863 **Poster Board Number 110**
High-Throughput Electronic Literature Libraries (E-Libraries) to Support Development of Toxicity Prediction Models and Adverse Outcome Pathways (AOPs). N. C. Baker[1], *T. B. Knudsen*[2], and *K. M. Crofton*[2]. [1]Lockheed Martin/US EPA, Research Triangle Park, NC; [2]NCCT, US EPA, Research Triangle Park, NC.

#864 **Poster Board Number 111**
Interactive Web Application (Dashboards) to Integrate Data on Chemical Hazard and Exposure. S. Watford, *M. Martin*, A. Frame, *R. Judson*, N. Baker, *I. Shah*, *J. Wambaugh*, and *D. Reif*. National Center for Computational Toxicology, Office of Research and Development, US EPA, Research Triangle Park, NC.

#865 **Poster Board Number 112**
Literature Visualization and Navigation to Facilitate Development and Application of Computational Biological Models. N. Pena, *S. R. Crowell*, S. Dowson, D. McQuerry, and *J. Teeguarden*. Systems Toxicology, Pacific Northwest National Laboratory, Richland, WA.

TUESDAY

Program Description (Continued)

Abstract #

#866 **Poster Board Number 113**
Database of Chemicals Assayed for Estrogenic Activity in the US FDA's Endocrine Disrupting Knowledge Base (EDKB). J. Shen, L. Xu, *W. Tong*, and *H. Hong*. [1]University of Georgia, Athens, GA; [2]Jiangnan University, Wuxi, China.

#867 **Poster Board Number 114**
The Comparative Toxicogenomics Database. *C. Mattingly*[1], *C. G. Murphy*[1], R. Johnson[2], J. M. Lay[2], K. Lennon-Hopkins[2], C. Saraceni-Richards[1], D. Sciaky[2], B. L. King[2], M. C. Rosenstein[2], T. C. Wiegers[1], and *A. P. Davis*[1]. [1]North Carolina State University, Raleigh, NC; [2]MDIBL, Salisbury Cove, ME.

#868 **Poster Board Number 115**
Mode-of-Action Ontology: An Application Ontology for Risk Assessment Data Mining. K. L. Painter[1], and *L. D. Burgoon*[2]. [1]Oak Ridge Institute for Science and Education, Research Triangle Park, NC; [2]National Center for Environmental Assessment, US EPA, Research Triangle Park, NC.

#869 **Poster Board Number 116**
Development of a COSMOS Database to Support *In Silico* Modelling for Cosmetics Ingredients and Related Chemicals. J. Rathman[1,2], *C. Yang*[1], K. Arvidson[3], M. Cronin[5], S. Enoch[5], D. Hristozov[5], Y. Lan[6], J. Madden[5], D. Neagu[6], A. Richarz[5], M. Ridley[6], O. Sacher[4], C. Schwab[4], and L. Yang[6]. [1]Altamira, LLC, Columbus, OH; [2]The Ohio State University, Columbus, OH; [3]Office of Food Additive Safety, CFSAN US FDA, College Park, MD; [4]Molecular Networks, Erlangen, Germany; [5]Liverpool John Moores University, Liverpool, United Kingdom; [6]University of Bradford, Bradford, United Kingdom.

#870 **Poster Board Number 117**
The Toxbank Infrastructure Project to Support the Replacement for Repeated Dose Toxicity. G. J. Myatt[1], E. Benfenati[3], D. Bower[1], R. Ceder[2], K. Cross[1], R. C. Grafström[2], L. Healey[4], C. Helma[5], N. Jeliazkova[6], V. Jeliazkova[6], L. Kidane[4], P. Kohonen[2], S. Maggioni[3], S. Miller[1], M. Rautenberg[6], G. Stacey[4], J. Wiseman[8], and B. Hardy[7]. [1]R&D, Leadscope, Columbus, OH; [2]Karolinska Institutet, Stockholm, Sweden; [3]Istituto di Ricerche Farmacologiche Mario Negri, Milan, Italy; [4]National Institute for Biological Standards and Control, Potters Bar, United Kingdom; [5]*In Silico* Toxicology, Basel, Switzerland; [6]Ideaconsult, Sofia, Bulgaria; [7]Douglas Connect, Zeiningen, Switzerland; [8]Pharmatrope, Wayne, PA. Sponsor: *R. Benz*.

#871 **Poster Board Number 118**
Software for Integration of Experimental, Chemical, and Environmental Data. E. Peterson[1], K. Hobbie[2], *S. Tilton*[1], R. Tanguay[2], K. Anderson[2], and *K. Waters*[1]. [1]Pacific Northwest National Laboratory, Richland, WA; [2]Oregon State University, Corvallis, OR.

#872 **Poster Board Number 119**
Computational Methods to Reveal Cross-Species, Dose-Response Patterns in Nonclinical Studies. S. Nath, J. Kimball, S. Madhavan, V. Krishnan, and L. Prabhakar. PointCross Life Sciences, Foster City, CA. Sponsor: *R. Guy*.

Abstract #

#873 **Poster Board Number 120**
ToxCast High-Throughput Screening Assay Annotation Using Bioassay Ontology and Expanded Assay Target Information. J. Phuong[1,2], *K. A. Houck*[1], and *M. T. Martin*[1]. [1]NCCT, US EPA, Research Triangle Park, NC; [2]Environmental Science & Engineering, University of North Carolina at Chapel Hill, Chapel Hill, NC.

#874 **Poster Board Number 121**
A Novel Hybrid Approach in Combining a QSAR-Based Expert System and a Quantitative Read across Methodology to Achieve Better *In Silico* Genotoxicity Assessment of Drugs, Impurities and Metabolites. S. Chakravarti[1], R. Saiakhov[1], and *G. Klopman*[1,2]. [1]Multicase Inc., Beachwood, OH, OH; [2]Chemistry, Case Western Reserve University, Cleveland, OH.

#875 **Poster Board Number 122**
Systematic 'Omics Analysis Review Tool to Support Risk Assessment. *E. McConnell*[1], S. Bell[1], I. Cote[2], R. Wang[3], *E. Perkins*[4], N. Garcia-Reyero[5], P. Gong[4], and *L. Burgoon*[6]. [1]Oak Ridge Institute for Science and Education, Research Triangle Park, NC; [2]NCEA, US EPA, Washington DC; [3]NERL, US EPA, Cincinnati, OH; [4]USACE, Vicksburg, MS; [5]Mississippi State University, Starkville, MS; [6]NCEA, US EPA, Research Triangle Park, NC.

#876 **Poster Board Number 123**
Web-Based Benchmark Dose Modeling Module As a Prototype Component of an Informatics-Based System for Human Health Assessments of Chemicals. A. J. Shapiro[1,4], N. Cook[1], *P. Ross*[4], J. Fox[2], V. Cogliano[2], W. Chiu[2], *N. Wang*[2], *L. Zeise*[3], *K. Guyton*[2], and *I. Rusyn*[1]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]NCEA, US EPA, Washington DC; [3]Scientific Affairs Division, Cal/EPA, San Francisco, CA; [4]ICF International, Fairfax, VA.

#877 **Poster Board Number 124**
An Optimized Cheminformatics Method for Determining Hazard Communication Information for Research Samples. *N. M. Berdasco*, *D. M. Wilson*, *P. S. Price*, J. A. Hammond, and C. M. Thornton. TERC, The Dow Chemical Company, Midland, MI.

#878 **Poster Board Number 125**
California Communities Environmental Health Screening Tool (CalEnviroScreen). *G. V. Alexeeff*[1], J. Faust[1], L. August[1], R. Cendak[1], W. Wieland[1], T. Kadir[1], L. Cushing[2], K. Randles[1], C. Milanes[1], and *L. Zeise*[1]. [1]OEHHA, Cal/EPA, Oakland and Sacramento, CA; [2]Energy and Resources Group, University of California Berkeley, Berkeley, CA.

#879 **Poster Board Number 126**
Cellesis: A Novel System Biology Toxicology Tool. C. F. Biscarrat, P. Picamal, and N. A. Compagnone. Department of Toxicology, ICDD, Meyreuil, France. Sponsor: *Y. Will*.

TUESDAY

Program Description (Continued)

Abstract #

Tuesday Morning, March 12
9:00 AM to 12:30 PM
Exhibit Hall C–D

PS

Poster Session: Computational Toxicology: Liver and Life Stage Characterizations

Chairperson(s): *Eva McLanahan, US EPA, Research Triangle Park, NC, and Susan Crowell, Battelle Memorial Institute, Richland, WA.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *11:00 AM–12:30 PM*

#880 **Poster Board Number 131**
Development of a Systems Computational Model to Investigate Early Biological Events in Hepatic Activation of Constitutive Androstane Receptor (CAR) by Phenobarbital. *H. A. El-Masri*[1], *S. Hester*[1], C. E. Wood[1], I. Shah[2], *D. C. Wolf*[1], and *C. J. Corton*[1]. [1]NHEERL, US EPA, Research Triangle Park, NC; [2]NCCT, US EPA, Research Triangle Park, NC.

#881 **Poster Board Number 132**
Mechanistic Modeling Illuminates the Most Important Unknowns in Bile Acid Mediated DILI. J. L. Woodhead[1], K. Yang[2], *K. L. Brouwer*[2], *P. B. Watkins*[1], S. Q. Siler[1], and *B. A. Howell*[1]. [1]The Hamner-University of North Carolina Institute for Drug Safety Sciences, Research Triangle Park, NC; [2]University of North Carolina-Eshelman School of Pharmacy, Chapel Hill, NC.

#882 **Poster Board Number 133**
Quantitative Dose-Response in a Virtual Hepatic Lobule. *J. F. Wambaugh*[1], J. Jack[1], J. Liu[1], *H. el-Masri*[2], J. Davis[1], W. Setzer[1], and *I. Shah*[1]. [1]National Center for Computational Toxicology, US EPA, Research Triangle Park, NC; [2]National Health and Environmental Effects Research Laboratory, US EPA, Research Triangle Park, NC.

#883 **Poster Board Number 134**
Quantitative Extrapolation of *In Vitro* Data to Risk Management Decisions: Using Hepatic Ah Receptor and Its Agonists As an Example. *X. Chang*[1], *M. J. DeVito*[1], and M. Easterling[2]. [1]DNTP, NIEHS, Research Triangle Park, NC; [2]SRA International, Research Triangle Park, NC.

#884 **Poster Board Number 135**
Predicting Plasma Profiles following Oral Dosing for Drug Liver Transporter Substrates Using Physiologically-Based Pharmacokinetic Modeling. *H. A. Barton*[1], Y. Lai[1], J. R. Gosset[2], and H. M. Jones[2]. [1]Pharmacokinetics, Pharmacodynamics, and Metabolism, Pfizer, Inc., Groton, CT; [2]PDM, Pfizer, Inc., Cambridge, MA.

#885 **Poster Board Number 136**
A Mechanistic Approach to Understand Idiosyncratic Toxicity of Perhexiline and Sulindac. S. Das, R. Kumar, N. Rajeswara, S. Raghavan, Y. Chandrasekaran, N. Mandyam, S. Louha, A. Khanna, D. Srivastava, K. Ra, and *K. Subramanian*. Strand Life Sciences, Bangalore, India.

#886 **Poster Board Number 137**
An Integrated Structure-Based Systems Approach to Predict Hepatotoxicity. A. Das, N. Mandyam, N. Tiwari, and *K. Subramanian*. Strand Life Sciences, Bangalore, India.

Abstract #

#887 **Poster Board Number 138**
Application of an *In Silico* Approach to Predict Intrinsic *In Vitro* Cytotoxicity for Compounds in Primary Human Hepatocytes during Preclinical Development. *R. Pai*, B. Wei, P. Chang, J. Crawford, W. Young, D. Ortwine, *D. Misner*, and *D. Dambach*. Genentech Inc., S. San Francisco, CA.

#888 **Poster Board Number 139**
***In Vitro In Vivo* Correlation: Apparent or Ambiguous? Analysis of Pfizer Compounds in US EPA's ToxCast Chemicals-Assay Space.** F. Shah, and *N. Greene*. Compound Safety Prediction, Worldwide Medicinal Chemistry, Pfizer Worldwide Research and Development, Groton, CT.

#889 **Poster Board Number 140**
Improved *In Silico* Methods to Group Liver Toxicants Related to Adverse Outcome Pathways. M. T. Cronin, S. J. Enoch, M. Hewitt, J. C. Madden, M. Nelms, K. Przybylak, and A. N. Richarz. School of Pharmacy and Chemistry, Liverpool John Moores University, Liverpool, United Kingdom. Sponsor: *C. Yang*.

#890 **Poster Board Number 141**
Construction of a Human Hepatotoxicity Database for QSAR Modeling. N. L. Kruhlak, and X. Zhu. CDER/OPS/OTR/DDSR, US FDA, Silver Spring, MD. Sponsor: *R. Benz*.

#891 **Poster Board Number 142**
Virtual Liver: Mapping Pathways to Liver Injury by Linking *In Vitro* Assays to *In Vivo* Outcomes. *I. Shah*[1], J. Liu[1], *C. Corton*[2], *S. Hester*[2], *K. Houck*[1], *T. Knudsen*[1], *H. el-Masri*[2], *J. E. Simmons*[2], *J. Wambaugh*[1], and *C. Wood*[2]. [1]NCCT, US EPA, Durham, NC; [2]NHEERL, US EPA, Durham, NC.

#892 **Poster Board Number 143**
A Multiscale Dose-Response Model of AhR Toxicity Pathway Activation in the Human Liver. *S. Bhattacharya*, P. McMullen, and *M. E. Andersen*. Institute for Chemical Safety Sciences, The Hamner Institutes for Health Sciences, Research Triangle Park, NC.

#893 **Poster Board Number 144**
Evaluation of Perchlorate Intake on Maternal and Fetal Serum T4 Levels Using a BBDR Model. *A. Lumen*[1,3], *D. R. Mattie*[2], and *J. W. Fisher*[3]. [1]HJF, Rockville, MD; [2]711 HPW/RHDJ, Wright-Patterson AFB, OH; [3]US FDA/NCTR, Jefferson, AR.

#894 **Poster Board Number 145**
Cross-Species and Life Stage PBPK Modeling of Dibenzo[def,p]Chrysene. *S. R. Crowell*[1], S. Hanson-Drury[1], J. Soelberg[1], N. Sadler[1], A. Wright[1], A. Sharma[2], E. Madeen[3], *D. E. Williams*[3], and *R. A. Corley*[1]. [1]Pacific Northwest National Laboratory, Richland, WA; [2]Penn State University, Hershey, PA; [3]Oregon State University, Corvallis, OR.

#895 **Poster Board Number 146**
Evaluating Early-Life Sensitivity to Pyrethroids by Physiologically-Based Pharmacokinetic (PBPK) Modeling Using *In Vitro* to *In Vivo* Extrapolation. H. Wu[1], *M. Yoon*[1], *S. Anand*[2], *B. Lake*[3], *T. Osimitz*[4], N. Assaf[5], *A. Efremenko*[1], and *H. Clewell*[1]. [1]The Hamner Institute for Health Sciences, Research Triangle Park, NC; [2]DuPont Haskell, Newark, DE; [3]LFR Molecular Sciences, Leatherhead, United Kingdom; [4]Science Strategies, LLC, Charlottesville, VA; [5]Valent BioSciences, Libertyville, IL.

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Program Description (Continued)

Abstract #

#896 **Poster Board Number 147**
Evaluating Age-Related Sensitivity to Carbaryl-Induced Behavioral Changes by PBPK/PD Modeling. D. Billings[1], *M. Yoon*[1], *V. Moser*[2], *R. MacPhail*[2], and *H. Clewell*[1]. [1]The Hamner Institutes for Health Sciences, Research Triangle Park, NC; [2]TAD/NHEERL/ORD, US EPA, Research Triangle Park, NC.

#897 **Poster Board Number 148**
Interpreting Biomonitoring Data for Di-n-Butyl and Di-(2-Ethylhexyl) Phthalate Metabolites in Urine Using a Physiologically-Based Pharmacokinetic Model and Reverse Dosimetry: Estimation of Cumulative *In Utero* Exposure. *J. Campbell*, *R. Clewell*, *M. E. Andersen*, and *H. Clewell*. The Hamner Institutes for Health Sciences, Research Triangle Park, NC.

#898 **Poster Board Number 149**
Species Extrapolation of Life-Stage PBPK Models to Investigate Ethanol Developmental Toxicity Using *In Vitro* to *In Vivo* Methods. *E. D. McLanahan*[1], *S. A. Martin*[2], *S. Hunter*[2], and *H. El-Masri*[2]. [1]ORD/NCEA, US EPA, Research Triangle Park, NC; [2]ORD/NHEERL, US EPA, Research Triangle Park, NC.

Tuesday Morning, March 12
9:00 AM to 12:30 PM
Exhibit Hall C–D

PS

Poster Session: Neurotoxicology: General

Chairperson(s): *Prasada Rao Kodavanti, US EPA, Research Triangle Park, NC.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *9:00 AM–11:00 AM*

#899 **Poster Board Number 201**
A Simple *In Vitro* Approach for the Rapid Detection of Neurotoxicity. Q. Gu, S. Lantz, *M. G. Paule*, and L. Schmued. Division of Neurotoxicology, US FDA, National Center for Toxicological Research, Jefferson, AR.

#900 **Poster Board Number 202**
Evaluation of the Neuroactivity of ToxCast Compounds Using Multiwell Microelectrode Array Recordings of Primary Cortical Neurons. P. Valdivia[1,2], *M. Martin*[3], W. LaFew[4], *J. Ross*[2], *K. Houck*[3], and *T. J. Shafer*[4]. [1]Duke University, Durham, NC; [2]Axion Biosystems, Atlanta, GA; [3]NCCT, ORD, US EPA, Research Triangle Park, NC; [4]ISTD, ORD, US EPA, Research Triangle Park, NC.

#901 **Poster Board Number 203**
Development of an *In Vitro* Multiwell Microelectrode Array (MEA) Neurotoxicity Assay with Human IPS-Derived Neurons. J. Bradley[1], *J. Ross*[2], M. Brock[2], H. Luithardt[1], J. Gilbert[1], and C. Strock[1]. [1]Cyprotex, Watertown, MA; [2]Axion Biosystems, Atlanta, GA.

#902 **Poster Board Number 204**
***In Vitro* Neurotoxicy of Tetrabromobisphenol-A (TBBPA).** *R. H. Westerink*, R. G. van Kleef, *M. van den Berg*, and *H. S. Hendriks*. Neurotoxicology Research Group, Institute for Risk Assessment Sciences (IRAS) - Utrecht University, Utrecht, Netherlands.

Abstract #

#903 **Poster Board Number 205**
Modulation of Nicotinic Acetylcholine Receptor by Brominated and Alternative Halogen-Free Flame Retardants. *H. S. Hendriks*, R. van Kleef, and *R. H. Westerink*. Institute for Risk Assessment Sciences, Utrecht University, Utrecht, Netherlands.

#904 **Poster Board Number 206**
Neurotoxic Effects of Bisphenol AF by the Calcium-Induced ROS and MAPKs. *S. Kim*, and *S. Lee*. Pharmacology, Kyungpook National University Medical School, Daegu, Republic of Korea.

#905 **Poster Board Number 207**
Potent Induction of a Series of Endogenous Antioxidative Enzymes by Triterpenoid CDDO-IM Leads to Neuprotection against Oxidative and Electrophilic Injury. A. Speen, C. Jones, R. Patel, and *Z. Jia*. Department of Biology, University of North Carolina Greensboro, Greensboro, NC.

#906 **Poster Board Number 208**
1,3-Dinitrobenzene Induces Age-Specific Responses in Primary Neurons. *L. Maurer*[1], N. D. Hein[2], J. D. Latham[1], R. Landis[3], I. Speirs[1], and *M. A. Philbert*[1]. [1]Toxicology Program, University of Michigan, Ann Arbor, MI; [2]Neurology, University of Michigan, Ann Arbor, MI; [3]Kalamazoo College, Kalamazoo, MI.

#907 **Poster Board Number 209**
Magnetic Resonance Imaging and Spectroscopic Markers of Kainic Acid-Induced Excitotoxicity in the Rat Brain. *S. Liachenko*[1], J. Ramu[1], *M. G. Paule*[1], L. Schmued[1], and *J. Hanig*[2]. [1]Neurotoxicology, NCTR, US FDA, Jefferson, AR; [2]Office of Testing & Research, CDER, US FDA, White Oak, DC.

#908 **Poster Board Number 210**
Effect of Acute Administration of Beta-N-Methylaminoalanine (L-BMAA) on Rat Hippocampus Neurochemical Profile Determined with 1H Magnetic Resonance Spectroscopy (MRS). J. Ramu[1], *J. Hanig*[2], *E. C. Garner*[3], *M. Paule*[1], and *S. Liachenko*[1]. [1]Neurotoxicology, NCTR, US FDA, Jefferson, AR; [2]Office of Testing & Research, CDER/US FDA, White Oak, MD; [3]Lovelace Respiratory Research Institute, Albuquerque, NM.

#909 **Poster Board Number 211**
Pattern of Pathologic Changes Observed in the CNS of Chronic Toluene Abusers. *D. Pyatt*[1,2], and *P. Kerzic*[3]. [1]Summit Toxicology, Superior, CO; [2]Schools of Pharmacy and Public Health, University of Colorado, Denver, CO; [3]Cinpathogen, Los Angeles, CA.

#910 **Poster Board Number 212**
Effects of Short- and Long-Term Exposure to 1-Bromopropane on Neurogenesis in Adult Rats. L. Zhang[1], T. Nagai[2], K. Yamada[2], D. Ibi[2], S. Ichihara[3], K. Subramanian[1], *Z. Huang*[1], *S. Sheik Mohideen*[1], H. Naito[1], and *G. Ichihara*[1]. [1]Department of Occupational & Environmental Health, Nagoya University Graduate School of Medicine, Nagoya, Japan; [2]Neuropsychopharmacology, Nagoya University Graduate School of Medicine, Nagoya, Japan; [3]Mie University Graduate School of Regional Innovation Studies, Tsu, Japan.

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Program Description (Continued)

Abstract #

#911 **Poster Board Number 213**
Nitrosative Stress in Chemoconvulsant-Induced Epileptogenesis. *K. Ryan*[1,2], L. Liang[1], and *M. Patel*[1]. [1]Toxicology, Skaggs School of Pharmacy and Pharmaceutical Sciences; University of Colorado Anschutz Medical Campus, Aurora, CO; [2]NTP, NIEHS, Morrisville, NC.

#912 **Poster Board Number 214**
Ozone-Induced Changes in Oxidative Stress Parameters in Brains of Adult, Middle-Age, and Senescent Brown Norway Rats. *P. S. Kodavanti*, *J. E. Royland*, J. E. Richards, D. I. Agina-Obu, and *R. C. MacPhail*. NHEERL, US EPA, Research Triangle Park, NC.

#913 **Poster Board Number 215**
Protective Role of Carnosine against Ischemic Brain Damage through Modulation of Mitochondrial Function and Autophagy. *O. Bae*[1], S. Baek[2], and A. Majid[3]. [1]College of Pharmacy, Hanyang University, Ansan, Republic of Korea; [2]College of Pharmacy, Ajou University, Suwon, Republic of Korea; [3]Department of Neurology and Manchester Academic Health Sciences Centre, Salford Royal Hospital, Salford, United Kingdom.

#914 **Poster Board Number 216**
The Neurotoxic Effects of Tributyltin on Tokai High Avoider (THA) Rats Evaluated by the Sidman Electric Shock Avoidance Test. *M. Tsunoda*[1], T. Kido[2], M. Hosokawa[3], C. Sugaya[1], H. Endo[4], T. Watanabe[4], and Y. Aizawa[5]. [1]Preventive Medicine, Kitasato University School of Medicine, Sagamihara, Japan; [2]Public Health and Environmental Medicine, Jikei University School of Medicine, Tokyo, Japan; [3]Epidemiology and Environmental Health, Faculty of Medicine, Juntendo University, Tokyo, Japan; [4]Basic Clinical Science and Public Health, Tokai University School of Medicine, Isehara, Japan; [5]Kitasato University, Tokyo, Japan.

#915 **Poster Board Number 217**
Protein Biomarker Panel of Cisplatin-Induced Neurotoxicity in a Preclinical Model. O. Y. Glushakova[1], S. Mondello[1], D. Johnson[1], C. Heldermon[2], J. Streeter[1], and R. L. Hayes[1]. [1]Banyan Biomarkers, Inc., Alachua, FL; [2]University of Florida, Gainesville, FL. Sponsor: *C. Markgraf*.

#916 **Poster Board Number 218**
Effects of a Smokeless Tobacco, Gutkha on Neurotransmitter Levels and Associated Parameters in the Mouse Brain. D. E. Lauterstein[1], C. Hoffman[1], *M. Hossain*[3], *J. Richardson*[3], F. Ganey[2], and *J. Zelikoff*[1]. [1]Environmental Medicine, New York University, Tuxedo, NY; [2]Memorial Sloan-Kettering Cancer Center, New York, NY; [3]Rutgers University, New Brunswick, NJ.

#917 **Poster Board Number 219**
3,4-Methylenedioxymethamphetamine (Ecstacy)-Mediated Acute and Long-Term Effects Are Reduced in SERT-Knockout Rats. *L. E. Lizarraga*, A. B. Cholanians, *J. M. Herndon*, *S. S. Lau*, and *T. J. Monks*. Pharmacology and Toxicology, University of Arizona, Tucson, AZ.

Abstract #

#918 **Poster Board Number 220**
Structurally-Distinct Dopaminergic Neurotoxicants Acutely Decrease ATP-Dependent Calcium Signaling in Astrocytes by Inhibiting TRPC3. K. Streifel, A. Gonzales, *B. Trout*, B. Mohl, S. Earley, and *R. Tjalkens*. Environmental and Radiological Health Science, Colorado State University, Fort Collins, CO.

#919 **Poster Board Number 221**
Comparative Toxicity of Amphotericin B and Amphotericin B Methyl Ester in Oligodendrocytes *In Vitro* and *In Vivo*. *O. U. Nnodi*[1], C. P. Schaffner[2], and *K. R. Reuhl*[1]. [1]Pharmacology & Toxicology, Rutgers University, Piscataway, NJ; [2]Waksman Institute, Rutgers University, Piscataway, NJ.

#920 **Poster Board Number 222**
Effects of "Uptake 2" Blockade and/or Risperidone on Murine 5-HT Uptake, Social and Repetitive Behavior. C. Smolik[1,2], M. Javors[1], J. Hensler[1], W. Koek[1], L. Daws[1], and *G. Gould*[1]. [1]CBN, University of Texas Health Science Center at San Antonio, San Antonio, TX; [2]Biology, University of Texas at San Antonio, San Antonio, TX.

#921 **Poster Board Number 223**
Social Behaviors, Monoamine Transporter Function, and Brain Mitochondrial Efficiency in Insulin-Resistant Mice. R. Lozano[1,2], W. Q. Zhang[1], C. Smolik[1], P. A. Barba-Escobedo[1], M. Gamez[1], H. Van Remmen[3], L. C. Daws[1], and *G. G. Gould*[1]. [1]Physiology, University of Texas Health Science Center at San Antonio, San Antonio, TX; [2]Psychology, Texas A&M University, College Station, TX; [3]Barshop Institute, University of Texas Health Science Center at San Antonio, San Antonio, TX.

#922 **Poster Board Number 224**
Impact of Pair Housing and Selection of Photobeam-Based Motor Activity Parameters for Neurobehavioral Evaluation. P. Mukerji, *S. S. Anand*, L. A. Malley, N. P. Betts, and *S. E. Loveless*. DuPont Haskell Global Centers for Health & Environmental Sciences, Newark, DE.

#923 **Poster Board Number 225**
Feasibility Study of EEG Measurements in Chair Restrained Cynomolgus Monkeys. C. B. Rose, S. H. Korte, and B. Niggemann. Covance Laboratories GmbH, Muenster, Germany. Sponsor: *G. Weinbauer*.

Tuesday Morning, March 12
9:00 AM to 12:30 PM
Exhibit Hall C–D

PS

Poster Session: Biomarkers I: Preclinical and Translational Approaches

Chairperson(s): *Donna L. Mendrick, US FDA, Division of Systems Biology, Jefferson, AR.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *11:00 AM–12:30 PM*

#924 **Poster Board Number 301**
Characterization of Urinary microRNA in Cisplatin-Induced Nephrotoxicity in Rats. M. Kanki[1], A. Moriguchi[1], D. Sasaki[1], H. Mitori[1], A. Yamada[2], R. Hirota[1], and *Y. Miyamae*[1]. [1]Astellas Pharma Inc., Osaka, Japan; [2]Astellas Research Technologies Co., Ltd., Osaka, Japan.

Program Description (Continued)

Abstract #

#925 **Poster Board Number 302**
Circulating miR-208a As Potential Cardiac Toxicity Biomarker. J. Wang, *L. Ling*, S. Aquirre, W. Collette, M. Ko, F. Sace, Q. Peng, R. Yafawi, Q. Zong, and *A. John-Baptiste*. Drug Safety Research and Development, Pfizer, La Jolla, San Diego, CA.

#926 **Poster Board Number 303**
Evaluation of the Pancreas-Specific microRNAs, miR-216a, and miR-217 As Biomarkers of Acute Pancreatitis. D. G. Goodwin, J. Zhang, S. R. Stweart, L. Xu, B. A. Rosenzweig, K. L. Thompson, and *R. L. Rouse*. CDER, US FDA, Silver Spring, MD.

#927 **Poster Board Number 304**
Multilaboratory Assessment of Best Practices for Quantification of microRNAs Associated with Isoproterenol-Induced Myocardial Injury in the Urine and Plasma of Rats. *K. Thompson*[1], S. J. Nielsen[2], *T. Chen*[3], P. Couttet[4], *H. Ellinger-Ziegelbauer*[5], M. Kanki[6], J. Kelsall[7], E. Boitier[8], R. Nassirpour[9], G. Searfoss[10], C. Spire[11], P. Yuen[12], and *R. O'Lone*[13]. [1]CDER, US FDA, Silver Spring, MD; [2]Exiqon, Vedbæk, Denmark; [3]NCTR, US FDA, Jefferson, AR; [4]Novartis Pharma AG, Basel, Switzerland; [5]Bayer Pharma AG, Wuppertal, Germany; [6]Astellas Pharma Inc, Osaka, Japan; [7]AstraZeneca, Macclesfield, United Kingdom; [8]Sanofi, Vitry-sur-Seine, France; [9]Pfizer, Andover, MA; [10]Lilly, Indianapolis, IN; [11]Servier, Gidy, France; [12]NIDDK, NIH, Bethesda, MD; [13]ILSI Health and Environmental Sciences Institute, Washington DC.

#928 **Poster Board Number 305**
Circulating mIR-9* and mIR-384-5p As Potential Indicators for Trimethyltin-Induced Neurotoxicity. K. Ogata[1,2], K. Sumida[1], K. Miyata[1], M. Kushida[1], M. Kuwamura[2], and J. Yamate[2]. [1]Environmental Health Science Laboratory, Sumitomo Chemical Co., Ltd., Osaka, Japan; [2]Laboratory of Veterinary Pathology, Division of Veterinary Sciences, Graduate School of Life and Environmental Sciences, Osaka Prefecture University, Izumisano, Japan. Sponsor: *T. Yamada*.

#929 **Poster Board Number 306**
Assessment of microRNA 122 As a Preclinical and Clinical Biomarker of Hepatotoxicity Utilizing Affymetrix QuantiGene Technology. *S. J. Schomaker*[1], D. Burt[1], R. Warner[2], K. Johnson[2], and *J. Aubrecht*[1]. [1]Safety Sciences, Pfizer Inc, Groton, CT; [2]Department of Pathology, University of Michigan Medical School, Ann Arbor, MI.

#930 **Poster Board Number 307**
Urinary microRNA Profiles after Glomerular vs Proximal Tubular Injury. B. Riefke[2], *M. Pavkovic*[1], I. Groeticke[1], A. Frisk[2], F. McDonald[2], and H. Ellinger-Ziegelbauer[2]. [1]Bayer Pharma AG, Wuppertal, Germany; [2]Bayer Pharma AG, Berlin, Germany.

#931 **Poster Board Number 308**
Proposed Workflow for microRNA Analysis in Urine. *H. Ellinger-Ziegelbauer*[1], M. Pavkovic[1], B. Riefke[2], and R. Khan-Malek[3]. [1]Bayer Pharma AG, Wuppertal, Germany; [2]Bayer Pharma AG, Berlin, Germany; [3]Sanofi-Aventis, Bridgewater, NJ.

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#932 **Poster Board Number 309**
MiR-122 Is a Sensitive Indicator of Stem Cell-Derived Hepatocyte-Like Cell Maturity with Utility in Hepatotoxicity Screening. C. Rowe, C. Goldring, L. Kelly, N. Hanley, H. Malik, R. Jones, D. Tosh, R. Kia, N. Kitteringham, and B. Park. MRC Centre for Drug Safety Science, University of Liverpool, Liverpool, United Kingdom. Sponsor: *D. Mendrick*.

#933 **Poster Board Number 310**
Potential Utilization of microRNA As Circulating Biomarkers in Th2-Mediated Disorders Such As Asthma and Ulcerative Colitis. *H. Lin*[1], M. Kasaian[2], A. Brennan[2], and *S. Ramaiah*[1]. [1]DSRD, Pfizer Inc., Andover, MA; [2]Immunology & Autoimmunity, Pfizer Inc., Cambridge, MA.

#934 **Poster Board Number 311**
Circulating Nucleic Acids As Lead Exposure Biomarkers in a Mammalian Model System. S. Lee, and *M. E. Gillespie*. Pharmaceutical Sciences, St. John's University, Queens, NY.

#935 **Poster Board Number 312**
Examination of Oxidative Stress As a Possible Risk Factor for Colorectal Cancer Susceptibility. R. Sellamuth, S. Dickinson, *Z. Wang*, *S. Zhou*, and *J. Klaunig*. Indiana University, Bloomington, IN.

#936 **Poster Board Number 313**
Circulating mRNA Changes in Rat Serum Associated with Drug-Induced Vascular Injury. *M. Scicchitano*, *D. Dalmas*, *K. Roland*, and H. Thomas. GlaxoSmithKline, King of Prussia, PA.

#937 **Poster Board Number 314**
Identification and Quantitative Evaluation of Novel Circulating Liver-Specific mRNAs in Rats Treated with Various Hepatotoxic Compounds: Validation for Biomarkers of Drug-Induced Liver Injury. S. Okubo[1,2], M. Miyamoto[1,2], *K. Takami*[1,2], M. Kanki[2,3], A. Ono[2,4], N. Nakatsu[2], H. Yamada[2], Y. Ohno[4], and T. Urushidani[2,5]. [1]Drug Safety Research Laboratories, Takeda Pharmaceutical Company Limited, Kanagawa, Japan; [2]Toxicogenomics Informatics Project, National Institute of Biomedical Innovation, Osaka, Japan; [3]Astellas Pharmaceutical Incorporated, Osaka, Japan; [4]National Institute of Health Sciences, Tokyo, Japan; [5]Doshisha Women's College of Liberal Arts, Kyoto, Japan.

#938 **Poster Board Number 315**
Metabolomics and Transcriptomics Evaluation of Preclinical Biomarkers of Hepatotoxicity: An Update. *R. D. Beger*[1], *L. K. Schnackenberg*[1], S. Jinchun[1], L. Pence[1], T. Schmitt[1], Y. Ando[2], *X. Yang*[1], J. Greenhaw[1], S. Slavov[1], S. Bhattacharyya[1,3], *W. F. Salminen*[1], and *D. L. Mendrick*[1]. [1]NCTR, US FDA, Jefferson, AR; [2]Daiichi Sankyo Co. Ltd., Tokyo, Japan; [3]Arkansas Children's Hospital Research Institute, Little Rock, AR.

#939 **Poster Board Number 316**
Whole Transcriptome RNA-Seq of FFPE Liver. *S. S. Auerbach*[1], *B. Merrick*[1], R. R. Shah[2], D. Phadk[2], B. Xie[3], J. Shin[3], Y. Gao[3], and *R. R. Tice*[1]. [1]Division of the National Toxicology Program, NIEHS, Research Triangle Park, NC; [2]SRA International, Durham, NC; [3]Lieber Institute for Brain Development, Johns Hopkins University, Baltimore, MD.

TUESDAY

Program Description (Continued)

Abstract #

#940 **Poster Board Number 317**
Hepatic Hemangiosarcoma due to Occupational Vinyl Chloride Exposure Generates a Distinct Plasma Metabolite Profile. *M. Cave*[1,2], B. Wheeler[1], *K. Falkner*[1], and *C. McClain*[1,2]. [1]Department of Medicine/GI, University of Louisville, Louisville, KY; [2]Louisville VAMC, Louisville, KY.

#941 **Poster Board Number 318**
Metabolomic Biomarkers in Long-Term Smokers and Moist Snuff Consumers. G. L. Prasad[1], B. A. Jones[1], P. Chen[1], and A. D. Kennedy[2]. [1]R & D, RJ Reynolds Tobacco Co., Winston-Salem, NC; [2]Metabolon Inc, Durham, NC. Sponsor: *G. Krautter*.

#942 **Poster Board Number 319**
Effect of Benzo(a)pyrene Exposure Dose on Levels of Exposure Biomarkers, DNA Adducts, and Gene Expression in Rats. M. Moreau[1], *P. Ayotte*[2], and *M. Bouchard*[1]. [1]Department Environmental and Occupational Health, University of Montréal, Montréal, QC, Canada; [2]Institut National de Santé Publique du Québec, Québec, QC, Canada.

#943 **Poster Board Number 320**
Biomarker Discovery for Early Detection of Hepatocellular Carcinoma (HCC) in Hepatitis C (HCV) Infected Patients. G. M. Mustafa[1], J. R. Petersen[1], J. Hyunsu[1], L. Cicalese[1], N. Snyder[2], S. J. Haidacher[1], L. Denner[1], and *C. Elferink*[1]. [1]University of Texas Medical Branch, Galveston, Galveston, TX; [2]Kelsey Seybold Clinic, Galveston, TX.

#944 **Poster Board Number 321**
Effects of Acrylamide Exposure on Gene Expression in the Thyroid of Male and Female Rcchan Wistar Rats. R. C. Colli-Dula[1], M. A. Friedman[2], and *N. Denslow*[1]. [1]CEHT, University of Florida, Gainesville, FL; [2]TR Services, Oviedo, FL.

#945 **Poster Board Number 322**
Development of a Quantitative Proteomics Multiplexed Assay for the Predictive Assessment of Drug-Induced Organ Toxicity in the Preclinical Setting. M. Gharib[1,2], P. Thibault[2], A. Nelson[3], D. Chelsky[1], L. Di Donato[1], and L. McIntosh[1]. [1]Caprion Proteome Inc, Montréal, QC, Canada; [2]Université de Montréal, Montréal, QC, Canada; [3]ITR Canada, Baie d'Urfé, QC, Canada. Sponsor: *W. Lee*.

#946 **Poster Board Number 323**
Development of a LC/MS Serum Bile Acid Profiling Method for Sensitive Detection of Biliary Injury in Dogs. *J. M. Maher*, T. Sharapova, *R. Yeager*, E. Blomme, and S. Cepa. R45M, Abbott Laboratories, Abbott Park, IL.

#947 **Poster Board Number 324**
Lack of Concordance in Microarray Gene Expression Responses to Phenobarbital in Companion-Aged FFPE and Frozen Liver Samples. *S. Hester*, G. Carswell, B. Vallanat, *A. B. DeAngelo*, and C. E. Wood. US EPA, Durham, NC.

Abstract #

#948 **Poster Board Number 325**
Formaldehyde-Induced Changes in microRNA Signaling. *J. E. Rager*[1], *B. C. Moeller*[2], *M. Doyle-Eisele*[3], *J. A. Swenberg*[1,2], and *R. C. Fry*[1,2]. [1]Environmental Sciences and Engineering, The University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]Curriculum in Toxicology, The University of North Carolina at Chapel Hill, Chapel Hill, NC; [3]Lovelace Respiratory Research Institute, Albuquerque, NM.

#949 **Poster Board Number 326**
Dermal Sensitization to Toluene Diisocyanate in Mice Is Manifested by Early Changes in the Proteome of Auricular Lymph Nodes and Serum. S. Haenen[1,3], E. Clynen[2], V. De Vooght[1], L. Schoofs[3], B. Nemery[1], *P. Hoet*[1], and J. Vanoirbeek[1]. [1]Occupational, Environmental and Insurance Medicine, KU Leuven, Leuven, Belgium; [2]Biomedical Research Institute, Hasselt University, Diepenbeek, Belgium; [3]Research Group of Functional Genomics and Proteomics, KU Leuven, Leuven, Belgium.

#950 **Poster Board Number 327**
Smoking-Induced microRNA Changes in Human Sperm. E. L. Marczylo[1], J. Janus[3], A. A. Amoako[2], J. C. Konje[2], T. H. Marczylo[1], and *T. W. Gant*[1]. [1]CRCE, Health Protection Agency, Didcot, United Kingdom; [2]Reproductive Sciences, Leicester Royal Infirmary, Leicester, United Kingdom; [3]Cardiovascular Sciences, University of Leicester, Leicester, United Kingdom.

#951 **Poster Board Number 328**
New Data from Old Studies: Development of qRT-PCR Signature Assays for Assessment of Mode-of-Action from Formalin Fixed Paraffin Embedded Archival Tissues. S. Phillips[2,1], *L. Recio*[1,2], T. Maynor[1], and M. Waters[1]. [1]ILS, Research Triangle Park, NC; [2]ILS Genomics, Morrisville, NC.

#952 **Poster Board Number 329**
Identification of Novel Biomarkers for Drug-Induced Renal Papillary Necrosis in Rats by Toxicoproteomic Techniques. D. Sasaki[1,2], M. Kanki[1], K. Nishihara[1], M. Hiramoto[1], M. Yuri[1], H. Umeno[1], A. Moriguchi[1], H. Mitori[1], R. Hirota[1], J. Seki[1], *Y. Miyamae*[1], G. Hwang[2], and *A. Naganuma*[2]. [1]Astellas Pharma Inc., Osaka and Tsukuba, Japan; [2]Graduate School of Pharmaceutical Sciences, Tohoku University, Sendai, Japan.

#953 **Poster Board Number 330**
Determination of Formaldehyde Specific DNA-Protein-Crosslinks. *B. C. Moeller*[1], W. M. Bodnar[2], and *J. A. Swenberg*[1,2]. [1]Curriculum in Toxicology, University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]Environmental Sciences and Engineering, University of North Carolina at Chapel Hill, Chapel Hill, NC.

#954 **Poster Board Number 331**
Pulmonary Toxicity and Global Gene Expression Profile in Response to Crystalline Silica Exposure in Rats. *R. Sellamuthu*, C. Umbright, *J. R. Roberts*, *S. Young*, D. Richardson, W. McKinney, B. Chen, D. Frazer, S. Li, M. Kashon, and *P. Joseph*. National Institute for Occupational Safety and Health (NIOSH), Morgantown, WV.

Program Description (Continued)

Abstract #

Tuesday Morning, March 12
9:00 AM to 12:30 PM
Exhibit Hall C–D

PS

Poster Session: Alternative Models—Eye and Skin

Chairperson(s): *David Allen, ILS, Inc., Research Triangle Park, NC, and Andreas Schepky, Beiersdorf AG, Hamburg, Germany.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *9:00 AM–11:00 AM*

#955 **Poster Board Number 336**
Comparison of a New Skin Penetration System Containing an Automated Toxicokinetic Modul with Franz Diffusion Cells. *A. G. Schepky*, I. Herberz, M. Akhiani, S. Müller, H. Wenck, and D. Gerstel. 4218-Research Toxicology, Beiersdorf AG, Hamburg, Germany.

#956 **Poster Board Number 337**
Risk Assessment for Cosmetic Ingredients Using Alternative Methods—Skin Sensitization. T. Atobe[1], K. Tsujita[1], S. Oeda[1], M. Hirota[1], T. Ashikaga[1], H. Kouzuki[1], *T. Yoshida*[2], and S. Aiba[3]. [1]Safety Technology Development Group, Shiseido Research Center, Yokohama, Japan; [2]Department of Biochemical Toxicology, Showa University School of Pharmacy, Tokyo, Japan; [3]Department of Dermatology, Tohoku University Graduate School of Medicine, Sendai, Japan.

#957 **Poster Board Number 338**
Application of a Modified Keratinosens Assay to Predict Sensitization Hazard for Botanical Extracts. D. Gan[1], K. Norman[2], N. Barnes[2], *H. Raabe*[2], C. Gomez[1], and *J. W. Harbell*[1]. [1]Mary Kay Inc., Addison, TX; [2]IIVS, Gaithersburg, MD.

#958 **Poster Board Number 339**
Development of a Highly Reproducible Three-Dimensional Chinese Skin Reconstructed Model for Evaluating Drug and Cosmetic Skin Irritation. J. Wang[1], Z. Du[1], Z. Wang[2], and X. Zhang[1]. [1]Foreland Biopharma Co. Ltd., Beijing, China; [2]Boston University, Boston, MA. Sponsor: *J. Wang*.

#959 **Poster Board Number 340**
Incorporation of Reconstructed Human Epidermal Tissues into a Corporate Toxicology Laboratory: Use of *In Vitro* Test Data for Diverse Safety and Risk Assessment Applications. *L. M. Milchak*, *D. H. Brandwein*, and *J. Zappia*. Corporate Medical Department, 3M, St. Paul, MN.

#960 **Poster Board Number 341**
Intralaboratory Reproducibility of the Direct Peptide Reactivity Assay (DPRA) to Assess the Robustness of the Current Prediction Model. L. Foertsch, and *F. Gerberick*. Central Product Safety, Procter & Gamble Company, Cincinnati, OH.

#961 **Poster Board Number 342**
A Novel Animal-Free Approach to Dermal Sensitization Hazard Identification and Potency Assessment. J. McCauley. Toxicology Assessment & Compliance Assurance, 3M, St. Paul, MN. Sponsor: *D. Luebker*.

Abstract #

#962 **Poster Board Number 343**
Development of a Compromised Skin Model *In Vitro* Using a Tape Stripping Method. J. Heylings[2], D. Davies[2], M. C. Correa[1], and *T. J. McCarthy*[1]. [1]Johnson & Johnson, Skillman, NJ; [2]Dermal Technology Laboratory Ltd., Keele, United Kingdom.

#963 **Poster Board Number 344**
A Predictive High-Content Imaging Cell-Based Assay As an Alternative to the Local Lymph Node Assay for Skin Sensitization. R. N. Ghosh, M. J. Tomaszewski, M. L. Pietila, and *J. R. Haskins*. ThermoFisher Scientific, Pittsburgh, PA.

#964 **Poster Board Number 345**
Performance Standards and Alternative Assays: Practical Insights from Skin Sensitization. *D. A. Basketter*[2], S. N. Kolle[1], S. Casati[3], *W. S. Stokes*[4], *J. Strickland*[6], H. Vohr[5], *B. van Ravenzwaay*[1], and *R. Landsiedel*[1]. [1]Experimental Toxicology and Ecology, BASF SE, Ludwigshafen am Rhein, Germany; [2]DABMEB Consultancy Ltd., Sharnbrook, United Kingdom; [3]ECVAM, European Commission, Ispra, Italy; [4]Interagency Center for the Evaluation of Alternative Toxicological Methods, National Toxicology Program, NIEHS, Research Triangle Park, NC; [5]Bayer Health Care, Wuppertal, Germany; [6]Integrated Laboratory Systems, Inc, Research Triangle Park, NC.

#965 **Poster Board Number 346**
Alternative Method in Practice: Postvalidation Experience of the Skin Sensitization *In Vitro* Test Strategy. S. N. Kolle, *B. van Ravenzwaay*, and *R. Landsiedel*. Experimental Toxicology and Ecology, BASF SE, Ludwigshafen am Rhein, Germany.

#966 **Poster Board Number 347**
Alternative Methods in Practice: Testing of Acrylate and Methacrylate Esters with the Skin Sensitization *In Vitro* Test Strategy. *K. E. Wiench*[2], S. N. Kolle[1], H. Müllerschön[3], M. Pemberton[5], *L. Andrews*[4], and *R. Landsiedel*[1]. [1]Experimental Toxicology and Ecology, BASF SE, Ludwigshafen am Rhein, Germany; [2]Product Safety, BASF SE, Ludwigshafen am Rhein, Germany; [3]Chemicals Management, Evonik Industries, Darmstadt, Germany; [4]The Dow Chemical Company, Midland, MI; [5]Systox Ltd., Wilmslow, United Kingdom.

#967 **Poster Board Number 348**
IVSA: *In Vitro* Sensitization Assay. M. Troese, L. F. Pratt, D. R. Cerven, and *G. L. DeGeorge*. MB Research Laboratories, Spinnerstown, PA.

#968 **Poster Board Number 349**
Evaluation of Skin Irritation for Household Products Using a Reconstructed Human Epidermis Model. F. Yamaguchi, N. Takebuchi, and J. Sato. Lion Corporation, Odawara-shi, Japan. Sponsor: *H. Kojima*.

Program Description (Continued)

Abstract #

#969 **Poster Board Number 350**
Collaborative Project in JCIA for Testing Strategy of Skin Sensitization Using h-CLAT, DPRA and DEREK. O. Takenouchi[1,11], K. Okamoto[2,11], N. Imai[3,11], D. Kyotani[4,11], Y. Kato[5,11], T. Kasahara[6,11], A. Toyoda[7,11], S. Watanabe[8,11], Y. Seto[9,11], T. Ashikaga[10,11], and M. Miyazawa[1,11]. [1]Kao Co., Tochigi, Japan; [2]Kanebo Cosmetics Inc., Kanagawa, Japan; [3]Kose Co., Tokyo, Japan; [4]Cosmos Technical Co., Ltd., Tokyo, Japan; [5]Nippon Menard Cosmetic Co., Ltd., Aichi, Japan; [6]FujiFilm Co., Kanagawa, Japan; [7]Pola Chemical Industries, Inc., Kanagawa, Japan; [8]Lion Co., Kanagawa, Japan; [9]P&G Japan K.K., Hyogo, Japan; [10]Shiseido Co., Ltd., Kanagawa, Japan; [11]Working Group for *In Vitro* Skin Sensitization Evaluation in Japan Cosmetic Industry Association (JCIA), Tokyo, Japan. Sponsor: *J. Avalos*.

#970 **Poster Board Number 351**
Refinement of the Prediction Model of the Myeloid U937 Skin Sensitization Test (MUSST). C. Piroird, F. Ibanez, J. Faugere, C. Gomes, N. Alépée, and S. Martinozzi-Teissier. L'Oréal Research & Innovation, Aulnay sous Bois, France. Sponsor: *E. Dufour*.

#971 **Poster Board Number 352**
***In Vitro* Phototoxicity Screening Assay for Systemically-Administered Pharmaceuticals Using a Reconstructed Skin Model Epiderm.** *P. Hayden*, Y. Kaluzhny, M. W. Kinuthia, L. d'Argembeau-Thornton, *H. Kandarova*, and M. Klausner. MatTek Corporation, Ashland, MA.

#972 **Poster Board Number 353**
Validation of *In Vitro* and Clinical Safety Assessment of Behentrimonium Chloride-Containing Leave-On Body Lotions Using Postmarketing Adverse Event Data. *D. Cameron*[1], *G. Costin*[2], L. Kaufman[3], *J. Avalos*[1], M. Downey[1], W. Billhimer[1], *S. Gilpin*[1], N. Wilt[2], and A. F. Simion[1]. [1]Kao USA, Inc., Cincinnati, OH; [2]Institute for *In Vitro* Sciences, Inc. (IIVS), Gaithersburg, MD; [3]Scripterra Scientific, Cincinnati, OH.

#973 **Poster Board Number 354**
Collaboration Study on Eye Irritation Alternative Method with Human Corneal Mode: Labcyte Cornea-Model24. *H. Kojima*[1,2], N. Annaka[2], S. Tsuchiya[2], Y. Yoshitake[2], R. Xu[2], M. Suzuki[2], W. Shimatani[2], A. Kajita[2], M. Nakamura[2], M. Watanabe[2], M. Nakajima[2], K. Sakamoto[2], R. Takeda[2], M. Hisama[2], H. Ikeda[2], A. Inagaki[2], Y. Munechika[2], Y. Yamamoto[2], T. Kasahara[2], T. Fukuda[2], S. Nakahara[2], S. Watanabe[2], H. Kurata[2], S. Shinoda[2], and M. Katoh[3,2]. [1]Division of Pharmacology, National Institute of Health Sciences, Tokyo, Japan; [2]Japanese Society for Alternative to Animal Experiments, Tokyo, Japan; [3]Japan Tissue Engineering Co., Ltd., Aichi, Japan.

#974 **Poster Board Number 355**
Assessing Eye Irritation Potential of Cosmetic Products Using the STE Test. T. Abo[1], Y. Nukada[1], K. Ooshima[2], T. Hayashi[2], D. Araki[2], *D. Cameron*[3], *J. Avalos*[3], A. Simion[3], A. Kirst[4], A. Fuchs[4], R. Fautz[4], H. Sakaguchi[1], and N. Nishiyama[1]. [1]Kao Corporation, Tochigi, Japan; [2]Kanebo Cosmetics Inc., Kanagawa, Japan; [3]Kao USA, Cincinnati, OH; [4]Kao Germany, Darmstadt, Germany.

Abstract #

#975 **Poster Board Number 356**
The Interlaboratory Reproducibility of the STE Test for Assessing Eye Irritation of Cosmetic Products. Y. Nukada[1], T. Abo[1], A. Hilberer[2], A. Heppenheimer[3], M. Watanabe[4], K. Ooshima[5], *D. Cameron*[6], A. Kirst[7], H. Sakaguchi[1], and N. Nishiyama[1]. [1]Kao Corporation, Tochigi, Japan; [2]Institute for *In Vitro* Sciences, Inc., Gaithersburg, MD; [3]Harlan Cytotest Cell Research GmbH, Rossdorf, Germany; [4]Food and Drug Safety Center, Kanagawa, Japan; [5]Kanebo Cosmetics, Inc., Kanagawa, Japan; [6]Kao USA, Cincinnati, OH; [7]Kao Germany, Darmstadt, Germany.

#976 **Poster Board Number 357**
Choosing the Appropriate Solvent for Solid Materials Tested in the Bovine Corneal Opacity and Permeability (BCOP) *In Vitro* Assay. *G. Costin*[1], *Y. Jeong*[2], D. Anderson[2], J. Bader[1], L. Krawiec[1], J. R. Nash[1], and *H. Raabe*[1]. [1]Institute for *In Vitro* Sciences, Inc. (IIVS), Gaithersburg, MD; [2]The Dow Chemical Company, Midland, MI.

#977 **Poster Board Number 358**
Predicting Eye Irritation of Agrochemical Formulations According to Different Classification Schemes by *In Vitro* Methods. S. N. Kolle[1], A. Büchse[2], T. Knieriemen[3], M. Rey-Moreno[1], W. Meyer[3], *A. van Cott*[4], S. Gröters[1], *B. van Ravenzwaay*[1], and *R. Landsiedel*[1]. [1]Experimental Toxicology and Ecology, BASF SE, Ludwigshafen am Rhein, Germany; [2]Scientific Computing, BASF SE, Ludwigshafen am Rhein, Germany; [3]Agricultural Products Formulation Development, BASF SE, Ludwigshafen am Rhein, Germany; [4]Agricultural Products - Global Product Safety & Registration, BASF Corporation, Research Triangle Park, NC.

#978 **Poster Board Number 359**
A Preliminary Investigation in the Use of Porcine Corneas As a Substitute for Bovine Corneas in the BCOP Assay. D. Wolfinger, and D. R. Cerven. MB Research Laboratories, Spinnerstown, PA. Sponsor: *G. DeGeorge*.

#979 **Poster Board Number 360**
***In Vitro* Ocular Irritation Testing Strategy for Prototype Cleaning Products.** M. Bauman[1], K. Norman[2], G. Mun[2], and *H. Raabe*[2]. [1]S.C. Johnson & Son, Inc., Racine, WI; [2]Institute for *In Vitro* Sciences, Gaithersburg, MD.

#980 **Poster Board Number 361**
Development of a Human Corneal Full Thickness Tissue for Eye Irritation Testing. L. d'Argembeau-Thornton, Y. Kaluzhny, *H. Kandarova*, *P. Hayden*, and M. Klausner. MatTek Corporation, Ashland, MA.

#981 **Poster Board Number 362**
Validation of *In Vitro* Eye and Skin Irritation Assays for Structurally Complex Pharmaceutical Chemicals. N. Foglio[2], *C. Villano*[1], C. Risatti[1], *H. Raabe*[3], and *J. Gould*[1]. [1]Bristol-Myers Squibb, New Brunswick, NJ; [2]Rutgers University School of Pharmacy, Piscataway, NJ; [3]Institute for *In Vitro* Sciences, Gaithersburg, MD.

#982 **Poster Board Number 363**
Surfactant Responses in the Bovine Corneal Opacity and Permeability Assay: Points to Consider for *In Vitro* Eye Irritation Testing. J. E. Bader, *G. Costin*, A. Hilberer, G. Mun, J. R. Nash, K. Norman, N. Wilt, and *H. Raabe*. Institute for *In Vitro* Sciences, Gaithersburg, MD.

Program Description (Continued)

Abstract #

#983 **Poster Board Number 364**
New Detecting Method for Estimating the Eye Irritation Potential of Chemicals: An Alternative to the Draize Test. *S. Cho*, G. Nam, J. Kim, J. Cho, and K. Shin. AMOREPACIFIC Corporation R&D Center, Yongin-si, Republic of Korea.

Tuesday Morning, March 12
9:00 AM to 12:30 PM
Exhibit Hall C–D

PS

Poster Session: Developmental Basis of Adult Disease

Chairperson(s): *Katie Paul, US EPA, Research Triangle Park, NC.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *11:00 AM–12:30 PM*

#984 **Poster Board Number 401**
Neonatal Hyperoxia Promotes Lung Fibrosis Independent of Excessive Leukocyte Recruitment to the Lung following Influenza A Virus Infection. B. W. Buczynski[1], M. Yee[2], *P. Lawrence*[1], and M. A. O'Reilly[2]. [1]Environmental Medicine, The University of Rochester, Rochester, NY; [2]Pediatrics, The University of Rochester, Rochester, NY.

#985 **Poster Board Number 402**
Integrating Genome and Transcriptome Data to Understand Susceptibility to Postnatal Lung Injury. *J. Nichols*[1], A. Burkholder[1], J. Lu[1], Z. McCaw[1], O. Suzuki[2], D. Fargo[1], P. Bushel[1], T. Wiltshire[2], and S. R. Kleeberger[1]. [1]NIEHS, Durham, NC; [2]Eshelman School of Pharmacy, University of North Carolina at Chapel Hill, Chapel Hill, NC.

#986 **Poster Board Number 403**
Analysis of the Developmental Origins of Health and Disease (DOHaD) Grant Portfolio at the NIEHS. A. Haugen, T. Schug, and J. J. Heindel. Division of Extramural Research and Training, NIEHS, Research Triangle Park, NC. Sponsor: *M. Humble*.

#987 **Poster Board Number 404**
Effects of Gutkha Use during Pregnancy on Hepatic Parameters Later in Life. *S. P. Doherty-Lyons*[1], C. Hoffman[1], J. Odin[3], I. Fiel[3], F. Ganey[2], *D. Conklin*[4], and *J. T. Zelikoff*[1]. [1]Environmental Medicine, New York University School of Medicine, Tuxedo, NY; [2]Memorial Sloan-Kettering Cancer Center, New York, NY; [3]Mount Sinai School of Medicine, New York, NY; [4]University of Louisville, Louisville, KY.

#988 **Poster Board Number 405**
Transcriptomic Profiling of Embryos and Adult Female Brain Tissue Links a Developmental Origin of Atrazine-Induced Reproductive Alterations in Zebrafish. *G. J. Weber*[1], *S. M. Peterson*[1], *S. S. Lewis*[2], M. S. Sepulveda[2], and *J. L. Freeman*[1]. [1]Health Sciences, Purdue University, West Lafayette, IN; [2]Forestry and Natural Resources, Purdue University, West Lafayette, IN.

#989 **Poster Board Number 406**
Bisphenol A and Diethylstilbesterol Treated Mice Respond Differently to a Very High Fat Diet. *L. Chalifour*[1,2], B. Patel[1,2], and I. A. Sebag[1,2]. [1]Lady Davis Institute, Montréal, QC, Canada; [2]McGill University, Montréal, QC, Canada.

Abstract #

#990 **Poster Board Number 407**
Analysis of Transcriptional Profiles and Functional Clustering of Global Cardiovascular Gene Expression in Response to *In Utero* B(a)P Exposure. *G. E. Jules*[1], S. Pratap[2], *A. Ramesh*[3], and *D. B. Hood*[1]. [1]Neuroscience and Pharmacology, Meharry Medical College, Nashville, TN; [2]Microbiology & Immunology, Microarray/Bioinformatics Core, Meharry Medical College, Nashville, TN; [3]Biochemistry and Cancer Biology, Meharry Medical College, Nashville, TN.

#991 **Poster Board Number 408**
Maternal DDT Exposure Increases Risk of Metabolic Syndrome in Adult Offspring. *M. La Merrill*[1,4,2], and C. Buettner[3,2]. [1]Environmental Toxicology, University of California Davis, Davis, CA; [2]Metabolism Institute, Mount Sinai School of Medicine, New York, NY; [3]Endocrinology, Diabetes, Bone Disease, Mount Sinai School of Medicine, New York, NY; [4]Preventive Medicine, Mount Sinai School of Medicine, New York, NY.

#992 **Poster Board Number 409**
Mechanisms Underlying Neurodevelopmental Defects in Weanling and Adult Rats Associated with Prenatal Exposure to Methylmercury. D. De Groot[1], C. De Esch[1], M. De Groot[1], C. Kuper[1], R. Stierum[1], A. Wolterbeek[1], E. De Vries[2], N. Cappaert[3], M. Radonjic[1], and *R. Woutersen*[1]. [1]TNO the Netherlands, Zeist, Netherlands; [2]Groningen University Medical Center, Groningen, Netherlands; [3]University of Amsterdam, Amsterdam, Netherlands.

#993 **Poster Board Number 410**
Vulnerability Windows of the Developing Rat Brain to TBTO Demonstrated by Animal-Friendly MRI. M. Berk[1,2], S. Folkertsma[1], M. W. De Groot[1,3], A. Knaapen[1], I. Waalkens[1], A. Wolterbeek[1], *R. Woutersen*[1], A. Veltien[2], A. Heerschap[2], and D. De Groot[1]. [1]TNO, the Netherlands, Zeist, Netherlands; [2]Radboud University Medical Center Nijmegen, Nijmegen, Netherlands; [3]IRAS, Utrecht University, Utrecht, Netherlands.

#994 **Poster Board Number 411**
The Effects of Endocrine Disruption on the Maturation of the Developing Human Fetal Prostate. *C. Saffarini*[1], E. V. McDonnell[1], A. Amin[2], S. J. Hall[1], and *K. Boekelheide*[1]. [1]Pathology and Laboratory Medicine, Brown University, Providence, RI; [2]Pathology and Laboratory Medicine, Rhode Island Hospital, Providence, RI.

#995 **Poster Board Number 412**
Characterizing Later-Life Spatial Discrimination Deficit Phenotypes following *In Utero* Exposure to Benzopyrene. M. M. McCallister[1], M. Maguire[1], R. Rhoades[1], B. Hudsell[2], *A. Ramesh*[3], *M. Newland*[2], and *D. B. Hood*[1]. [1]Neuroscience and Pharmacology, Center for Molecular and Behavioral Neuroscience, Meharry Medical College, Nashville, TN; [2]Department of Psychology, Auburn University, Auburn, AL; [3]Department of Biochemistry and Cancer Biology, Meharry Medical College, Nashville, TN.

#996 **Poster Board Number 413**
Does the Barker Hypothesis Apply to Maternal Nanomaterial Exposure and Fetal Microvascular Function? *P. G. Stapleton*, *V. C. Minarchick*, *J. Yi*, C. R. McBride, K. Engles, and *T. R. Nurkiewicz*. Physiology and Pharmacology, West Virginia University, Morgantown, WV.

Program Description (Continued)

Abstract #

#997 **Poster Board Number 414**
The AhR Contributions to Cardiovascular Development, Developmental Toxicity, and Adult Disease. *V. S. Carreira*[1], *Y. Fan*[1], J. Rubinstein[2], M. Jiang[2], and *A. Puga*[1]. [1]Environmental Health, University of Cincinnati, Cincinnati, OH; [2]Internal Medicine, University of Cincinnati, Cincinnati, OH.

Tuesday Morning, March 12
9:00 AM to 12:30 PM
Exhibit Hall C–D

PS

Poster Session: Developmental Toxicity

Chairperson(s): *Nicole Kleinstreuer, US EPA, Research Triangle Park, NC.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *9:00 AM–11:00 AM*

#998 **Poster Board Number 417**
Exposure to 2,3,7,8-Tetrachlorodibenzo-*p*-dioxin (TCDD) Changes Morphology of Dendritic Spines in the Developing Anteroventral Periventricular Nucleus (AVPV). *J. Del Pino Sans*[1,2], and *S. Petersen*[2]. [1]Toxicologia y Farmacologia, University Complutense of Madrid, Madrid, Spain; [2]Veterinary and Animal Sciences, University of Massachusetts, Amherst, MA.

#999 **Poster Board Number 418**
Breast Cancer 1 (BRCA1)-Deficient Mice Develop Normally but Are More Susceptible to Ethanol- and Methamphetamine-Initiated Embryopathies. *A. M. Shapiro*[1], *L. Miller*[2], and *P. G. Wells*[1,2]. [1]Pharmaceutical Science, University of Toronto, Toronto, ON, Canada; [2]Pharmacology and Toxicology, University of Toronto, Toronto, ON, Canada.

#1000 **Poster Board Number 419**
Validation of a ToxCast Predictive Signature for Vascular Disruption in a Complex Angiogenesis Assay. *N. Kleinstreuer*[1], R. Sarkanen[2], T. Heinonen[2], and *T. Knudsen*[1]. [1]NCCT, US EPA, Research Triangle Park, NC; [2]FICAM, Tampere, Finland.

#1001 **Poster Board Number 420**
A Metabolite-Based Biomarker Approach to Predict Developmental Toxicity Using Human Embryonic Stem Cells. A. M. Smith, J. A. Palmer, P. R. West, K. R. Conard, L. A. Egnash, M. E. Ross, B. R. Fontaine, P. Bais, E. L. Donley, and R. E. Burrier. Stemina Biomarker Discovery, Inc., Madison, WI. Sponsor: *L. Recio*.

#1002 **Poster Board Number 421**
Metformin-Induced Folate Deficiency-Like Malformations in Cultured Rat Embryos: Potential for Novel Species Sensitivity. C. Zhang[1], J. Panzica-Kelly[1], G. Gong[2], and K. Augustine-Rauch[1]. [1]Bristol-Myers Squibb, Pennington, NJ; [2]Bristol-Myers Squibb Co., Princeton, NJ. Sponsor: *L. Lehman-McKeeman*.

#1003 **Poster Board Number 422**
Placental Transfer of ^{125}Iodinated Humanized Immunoglobulin G2Δa in the Sprague-Dawley Rat. *P. S. Coder*[1], J. A. Thomas[1], D. B. Stedman[2], and *C. J. Bowman*[2]. [1]WIL Research, Ashland, OH; [2]Pfizer Inc, Groton, CT.

Abstract #

#1004 **Poster Board Number 423**
Evidence That Perfluorooctanoic Acid (PFOA) Does Not Activate Estrogen Receptor (ER) Activities *In Vivo* or *In Vitro*. *P. Yao*[1], *D. J. Ehresman*[2], *J. M. Caverly-Rae*[3], *S. Chang*[2], *S. R. Frame*[3], *J. L. Butenhoff*[2], *G. L. Kennedy*[3], and *J. M. Peters*[1]. [1]The Pennsylvania State University, University Park, PA; [2]3M Company, St. Paul, MN; [3]Haskell Global Centers for Health and Environmental Sciences, Newark, DE.

#1005 **Poster Board Number 424**
Effects of Di(2-Ethylhexyl)-Phthalate Exposure during the Peripubertal Period: An Analysis of the Evidence. A. D. Kraft, D. Segal, and *S. Makris*. National Center for Environmental Assessment, US EPA, Washington DC.

#1006 **Poster Board Number 425**
Diet Acclimation of NZW Rabbits for Use in Embryo-Fetal Development Studies. K. Robinson[1], A. I. Martin[1], M. Freke[1], I. Primakova[1], R. Perras[2], E. Lewis[3], and *A. Hoberman*[3]. [1]Reproductive & Juvenile Toxicology, Charles River, Montréal, QC, Canada; [2]Charles River, St. Constant, QC, Canada; [3]Charles River, Horsham, PA.

#1007 **Poster Board Number 426**
Epigenetic and Physiologic Effects of Perinatal Lead Exposure. A. K. Barks, *C. Faulk*, *J. M. Goodrich*, O. S. Anderson, *K. E. Peterson*, and *D. C. Dolinoy*. Environmental Health Sciences, University of Michigan School of Public Health, Ann Arbor, MI.

#1008 **Poster Board Number 427**
Embryotoxic Potential of Epoxiconazole *In Vitro* and *In Vivo*. B. Flick[1], F. DiRenzo[2], S. Schneider[1], S. Stinchcombe[1], E. Menegola[2], and *B. van Ravenzwaay*[1]. [1]Experimental Toxicology and Ecology, BASF SE, Ludwigshafen am Rhein, Germany; [2]Department of Biology, University of Milan, Milan, Italy.

#1009 **Poster Board Number 428**
Perfluorooctanoic Acid-Induced Cytotoxicity in Primary Cardiomyocyte Culture. *Q. Jiang*, and *J. C. DeWitt*. Department of Pharmacology and Toxicology, East Carolina University, Greenville, NC.

#1010 **Poster Board Number 429**
Estradiol Modulates Paraoxonase-2 Expression in Mouse Brain. *G. Giordano*[1], *C. E. Furlong*[2], *T. B. Cole*[2], and *L. G. Costa*[1,3]. [1]Department Environmental Occupational Health Sciences, University of Washington, Seattle, WA; [2]Division of Medical Genetics and Department of Genome Sciences, University of Washington, Seattle, WA; [3]Department of Neuroscience, University of Parma, Parma, Italy.

#1011 **Poster Board Number 430**
Suppression of H19 Methylation in Mouse Exposed to Chlorpyrifos Methyl during Organogenesis Period. H. Shin[1], J. Seo[1], *S. Jeong*[2], S. Park[1], Y. Park[1], S. Son[1], and *H. Kang*[1]. [1]Toxicology & Residue Chemistry Division, QIA, Anyang, Republic of Korea; [2]GLP Research Center, Hoseo University, Asan, Republic of Korea.

#1012 **Poster Board Number 431**
***In Utero* Growth Restriction and Dibutyl Phthalate Exposure May Cooperatively Disrupt Steroidogenesis.** *J. Pike*[1], E. McDowell[2], A. Kisielewski[2], and *K. Johnson*[2]. [1]Biological Sciences, University of Delaware, Wilmington, DE; [2]AI Dupont Hospital for Children, Wilmington, DE.

TUESDAY

Program Description (Continued)

Abstract #

#1013 **Poster Board Number 432**
A Comparison of Social Housing Opportunities during Developmental Toxicity Evaluation in Cynomolgus Monkeys. *S. M. Henwood*[1], C. Luetjens[2], A. Fuchs[2], and *G. Weinbauer*[2]. [1]Nonclinical Safety Assessment, Covance Laboratories Inc., Madison, WI; [2]Noncinical Safety Assessment, Covance Laboratories GmbH, Munster, Germany.

#1014 **Poster Board Number 433**
Feasibility of Mouse Continuous Intravenous Infusion for Fertility and Embryo-Fetal Development Studies. R. S. Bartlett, and H. van Wijk. Covance Laboratories Ltd., Harrogate, United Kingdom. Sponsor: *S. Kirk*.

#1015 **Poster Board Number 434**
Addressing the Mode of Action for Developmental PFOA-Induced Mammary Gland Delays. *M. B. Macon*[1,2], and *S. E. Fenton*[2]. [1]Curriculum in Toxicology, University of North Carolina, Durham, NC; [2]NTP Labs, NIEHS, NIH, Research Triangle Park, NC.

#1016 **Poster Board Number 435**
Evaluation of Reproductive and Developmental Toxicity of Multiwall Carbon Nanotubes in Pregnant Mice after Intratracheal Instillation. N. Kobayashi[1], M. Kawabe[2], H. Nakashima[2], T. Numano[2,3], R. Kubota[1], N. Sugimoto[1], and *A. Hirose*[1]. [1]National Institute of Health Sciences, Setagaya, Japan; [2]DIMS Institute of Medical Science Inc., Ichinomiya, Japan; [3]Department of Molecular Toxicology, Nagoya City University Graduate School of Medical Sciences, Nagoya, Japan.

#1017 **Poster Board Number 436**
Histology of Selected Organs from the Göttingen Minipig Fetus from Days 60 (Midterm) and 110 (Term) of Gestation. M. Perron Lepage, *J. Briffaux*, C. Thuilliez, E. Marsden, and M. Leroy. Ricerca Biosciences SAS, St. Germain sur l'Arbresle, France.

#1018 **Poster Board Number 437**
Mono-Ethylhexyl Phthalate (MEHP) Exposure Reduces Embryonic Nutrition and Induces Structural Defects in Mouse Whole Embryo Culture. *K. E. Sant*, and *C. Harris*. Environmental Health Sciences, University of Michigan, Ann Arbor, MI.

#1019 **Poster Board Number 438**
Development and Validation of an Analytical Method for Monobutylphthalate, a Metabolite of Di-n-Butylphthalate, in Harlan Sprague-Dawley Rat Plasma and Amniotic Fluid by UPLC-MS/MS. V. G. Robinson[2], M. A. Silinski[1], T. A. Freed[1], R. A. Fernando[1], C. S. Smith[2], and S. Waidyanatha[2]. [1]RTI International, Research Triangle Park, NC; [2]Division of National Toxicology Program, NIEHS, Research Triangle Park, NC. Sponsor: *K. Levine*.

#1020 **Poster Board Number 439**
Developmental and Reproductive Studies in Sprague-Dawley Rats with Gevokizumab, a Novel Monoclonal Antibody Targeting IL-1 Beta. *C. Gasper*[1], B. Thorsrud[2], L. Cao[1], J. Chen[1], L. Wong[1], K. Der[1], J. Ma[1], A. Ahene[1], and *K. Meyer*[1]. [1]Nonclinical Safety Evaluation, XOMA (US) LLC, Berkeley, CA; [2]Developmental & Reproductive Toxicology, MPI Research, Mattawan, MI.

Abstract #

#1021 **Poster Board Number 440**
Weight of Evidence Considerations for Developmental Toxicity Classification of Boric Acid. *W. Ball*, and M. Harrass. Rio Tinto Minerals, Greenwood Village, CO.

#1022 **Poster Board Number 441**
Embryonic DNA Repair and Ethanol-Initiated Behavioural Deficits in Oxoguanine Glycosylase 1 (OGG1) Knockout Mice: A Role for Oxidatively-Damaged DNA and Protection by a Free Radical Spin Trapping Agent. *L. Miller*[1], D. J. Pinto[1], and *P. G. Wells*[1,2]. [1]Pharmacology and Toxicology, University of Toronto, Toronto, ON, Canada; [2]Pharmaceutical Sciences, University of Toronto, Toronto, ON, Canada.

#1023 **Poster Board Number 442**
Hyperactivity of Rat and Mouse Induced by Lactational Exposure to Hydorxylated PCB (OH-PCB106). *N. Koibuchi*, A. Haijima, R. Lesmana, I. Amano, Y. Takatsuru, T. Iwasaki, and N. Shimokawa. Department of Integrative Physiology, Gunma University Graduate School of Medicine, Maebashi, Japan.

#1024 **Poster Board Number 443**
Di-Isobutyl Phthalate (DIBP) Hazard Identification. S. Y. Euling[1], K. Hogan[1], G. Cooper[1], C. Cai[1], K. Y. Christensen[1], M. Lorber[1], *X. Arzuaga*[1], *C. Sheth*[1], A. Sasso[1], *M. Pratt*[1], *A. Hotchkiss*[2], and *J. C. Lambert*[3]. [1]NCEA, US EPA, Washington DC; [2]NCEA, US EPA, Research Triangle Park, NC; [3]NCEA, US EPA, Cincinnati, OH.

#1025 **Poster Board Number 444**
Establishment of a Molecular Embryonic Stem Cell Developmental Toxicity Assay. J. Panzica-Kelly[1], K. Brannen[2], Y. Ma[1], C. Zhang[1], *O. Flint*[1], *L. Lehman-McKeeman*[1], and K. Augustine-Rauch[1]. [1]Discovery Toxicology, Bristol-Myers Squibb, Princeton, NJ; [2]Charles River, Horsham, PA.

#1026 **Poster Board Number 445**
A Tiered Screening Platform for Optimizing Predictivity, Throughput and Cost Effectiveness of *In Vitro* Developmental Toxicity Assays. K. Augustine, C. X. Zhang, and P. Julie. Discovery Toxicology, Bristol-Myers Squibb, Pennington, NJ. Sponsor: *L. Lehman-McKeeman*.

#1027 **Poster Board Number 446**
The Devtox Project: A Comprehensive Source of Information on Developmental Abnormalities. J. Buschmann[1], I. Chahoud[3], R. Kellner[1], and R. Solecki[2]. [1]Fraunhofer ITEM, Hannover, Germany; [2]Federal Institute for Risk Assessment, Berlin, Germany; [3]Institute of Clinical Pharmacology and Toxicology, Berlin, Germany. Sponsor: *C. Dasenbrock*.

#1028 **Poster Board Number 447**
Reference Images for the Skeletal Examination of Cynomolgus Monkey Fetuses and Thalidomide-Induced Malformations. O. Foulon, F. Spezia, C. Dauzat, M. Da Silva, P. Barrow, B. Palate, and *R. Forster*. CiToxLAB, Evreux, France.

#1029 **Poster Board Number 448**
Regulatory Embryofetal Development Studies in Minipigs: Optimisation of Techniques. *A. Makin*, T. K. Andreassen, and J. Løgsted. CiToxLAB, Lille Skensved, Denmark.

Program Description (Continued)

Abstract #

#1030 **Poster Board Number 449**
Exploring the Role of the Mediator Gene 'Med31' in Proliferation and Limb Development during Mouse Embryogenesis. K. Wolton[2], J. Wright[1], R. Doran[1], and K. Henges[2]. [1]Faculty of Life Sciences, Manchester University, Manchester, United Kingdom; [2]Product Safety, Syngenta, Bracknell, United Kingdom. Sponsor: *P. Botham*.

#1031 **Poster Board Number 450**
Investigation of Methods for Anesthesitization and Euthanization of Rat and Rabbit Fetuses in Developmental Toxicity Studies. H. Kato, R. Katagiri, A. Arima, Y. Ooshima, and *R. Nagata*. Shin Nippon Biomedical Laboratories, Ltd., Drug Safety Research Laboratories, Kagoshima, Japan.

#1032 **Poster Board Number 451**
Acute Intravenous Exposure to Silver Nanoparticles during Pregnancy Induces Particle Size and Vehicle-Dependent Changes in Vascular Reactivity. *A. K. Vidanapathirana*[1], *L. C. Thompson*[1], M. Herco[1], J. O. Dawkins[1], *S. C. Sumner*[3], *T. R. Fennell*[3], *J. M. Brown*[2], and *C. J. Wingard*[1]. [1]Physiology, East Carolina University, Greenville, NC; [2]Pharmacology & Toxicology, East Carolina University, Greenville, NC; [3]RTI International, Research Triangle Park, NC.

#1033 **Poster Board Number 452**
Gamma Secretase Inhibition: Effects on Fertility and Embryo-Fetal Development in Rats. *L. Sivaraman*[1], *K. Thompson*[1], *G. Pilcher*[2], *T. Sanderson*[2], and *M. E. McNerney*[1]. [1]Bristol-Myers Squibb Co., New Brunswick, NJ; [2]Bristol-Myers Squibb Co., Mt. Vernon, IN.

#1034 **Poster Board Number 453**
Flubendazole Embryotoxicity in Rat Embryos and Fetuses. *P. A. Colombo*[1], M. Longo[1], S. Zanoncelli[1], M. Messina[1], R. Schnurbus[1], I. Scandale[2], and G. Mazué[3]. [1]Accelera, Nerviano MI, Italy; [2]DNDi, Geneve, Switzerland; [3]Consultant, Mantry, France.

#1035 **Poster Board Number 454**
Double-Staining Technique for Minipig Fetal Skeletons at Gestation Day 60. S. Baudet, *J. Briffaux*, C. Pique, P. Quesada, and A. Jocteur-Monrozier. Ricerca Biosciences SAS, St. Germain sur l'Arbresle, France.

Tuesday Morning, March 12
9:00 AM to 12:30 PM
Exhibit Hall C–D

PS

Poster Session: Skin

Chairperson(s): *Gunda Reddy, US Army Public Health Command, Army Institute of Public Health, Aberdeen Proving Ground, MD.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *11:00 AM–12:30 PM*

#1036 **Poster Board Number 455**
Retrospective Review of Skin Irritation and Corrosion Hazards on the Basis of Existing Human Data. *D. Basketter*[1], D. Jirova[2], and *H. Kandarova*[3]. [1]DABMEB Consultancy Ltd., Sharnbrook, United Kingdom; [2]National Institute of Public Health, Prague, Czech Republic; [3]MatTek IVLSL, Bratislava, Slovakia.

Abstract #

#1037 **Poster Board Number 456**
Influence of Acidic Extraction Conditions on Formazan Assay: Assessment of Test Substances Using *In Vitro* EpiSkin Skin Irritation Test Method by HPLC and Colorimetry. M. H. Grandidier, N. Alépée, B. Micheau, S. Grégoire, and J. Cotovio. L'Oréal Research & Innovation, Aulnay sous Bois, France. Sponsor: *E. Dufour*.

#1038 **Poster Board Number 457**
Cytotoxic Effects of Dicyclohexylamine and Three Metalworking Fluids on Human Epidermal Keratinocytes. *A. D. Linthicum*[1], *A. O. Inman*[2], *N. A. Monteiro-Riviere*[2], and *R. E. Baynes*[1]. [1]Center for Chemical Toxicology Research and Pharmacokinetics, North Carolina State University, Raleigh, NC; [2]Nanotechnology Innovation Center of Kansas State, Kansas State University, Manhattan, KS.

#1039 **Poster Board Number 458**
Aryl Hydrocarbon Receptor Repressor (AhRR) Function Revisited: Repression of Cyp1 Activity in Human Skin Fibroblasts Is Not Related to AhRr Expression. J. Tigges[1], H. Weithardt[1], G. Christine[1], I. Foerster[1], H. F. Merk[2], T. Haarmann-Stemmann[1], J. Krutmann[1], and *E. Fritsche*[1]. [1]Leibniz Institute for Environmental Medicine, Duesseldorf, Germany; [2]Dermatology and Allergology, University Clinic RWTH, Aachen, Germany.

#1040 **Poster Board Number 459**
Citotoxic Effect of the Temporary Hair Dye Basic Red 51 on Human Keratinocytes(HaCaT): Development and Application on a Reconstructed (3D) Artificial Skin. T. B. Zanoni[1], M. T. dos Santos[2], *S. Barro*[2], S. Maria-Engler[2], and *D. de Oliveira*[1]. [1]Enviromental Toxicology, University of São Paulo, Ribeirão Preto, Brazil; [2]Laboratory of Pathology and Clinical Cytology, University of São Paulo, São Paulo, Brazil.

#1041 **Poster Board Number 460**
Skin and Eye Lesions in the Long Evans Rat Produced by Oral 8-Methoxy-Psoralen (8-MOP) Application and Subsequent UV-A Irradiation. M. Sieber[1], C. Simon[1], K. Broich[1], C. Maraschiello[1], and K. Weber[2]. [1]Harlan Laboratories Ltd., Itingen, Switzerland; [2]AnaPath GmbH, Oberbuchsiten, Switzerland. Sponsor: *T. Ansai*.

#1042 **Poster Board Number 461**
13-Week Dermal Toxicity of Triclosan in B6C3F1 Mice. M. M. Vanlandingham[1], *J. Fang*[1], F. A. Beland[1], B. E. Juliar[1], G. R. Olson[1], *W. A. Harrouk*[2], and R. E. Patton[1]. [1]National Center for Toxicological Research, US FDA, Jefferson, AR; [2]Center for Drug Evaluation and Research, US FDA, Silver Spring, MD.

#1043 **Poster Board Number 462**
Dermal Toxicokinetic Studies of Triclosan in B6C3F1 Mice. *J. Fang*[1], M. M. Vanlandingham[1], F. A. Beland[1], and *W. A. Harrouk*[2]. [1]Division of Biochemical Toxicology, National Center for Toxicological Research, US FDA, Jefferson, AR; [2]Center for Drug Evaluation and Research, US FDA, Silver Spring, MD.

#1044 **Poster Board Number 463**
Confocal Raman Microscopy—The Future for Dermal Absorption Studies. T. Patel[1], A. Ghaemmaghami[1], P. Williams[1], J. Wright[2], C. Roberts[1], and F. Rose[1]. [1]School of Pharmacy, University of Nottingham, Nottingham, United Kingdom; [2]Syngenta Ltd., Bracknell, United Kingdom. Sponsor: *P. Botham*.

TUESDAY

Program Description (Continued)

Abstract #

#1045 **Poster Board Number 464**
Development of an Alternative Model for Assessing Barrier Function and Permeability for Infant Skin. *T. J. McCarthy*[1], N. K. Tierney[1], S. G. Raney[2], and P. A. Lehman[2]. [1]Johnson & Johnson, Skillman, NJ; [2]PRACS Institute, Fargo, ND.

#1046 **Poster Board Number 465**
Modelling Diffusion of Therapeutic Drugs through the Skin *In Vitro* Does the Model Need to Be Complicated? *J. Jenner*[1], O. Payne[1], C. Dalton[1], S. Graham[1], J. Azeke[2], E. Braue[2], and *J. Graham*[2]. [1]Biomedical Sciences, DSTL, Salisbury, United Kingdom; [2]USAMRICD, Edgewood, MD.

#1047 **Poster Board Number 466**
Prediction of Skin Disposition after Topical Application of Drugs—Simcyp Platform As a Tool for Capturing System Information and Safety Assessment. S. Polak[1,2], N. Patel[1], M. Jamei[1], and A. Rostami Hodjegan[1,3]. [1]Simcyp (a Certara Company), Sheffield, United Kingdom; [2]Faculty of Pharmacy, Jagiellonian University Medical College, Krakow, Poland; [3]School of Pharmacy and Pharmaceutical Sciences, University of Manchester, Manchester, United Kingdom. Sponsor: *B. Wetmore*.

#1048 **Poster Board Number 467**
***In Vitro* Human Epidermal Penetration of IMX-101 Munitions Chemicals.** *W. C. McCain*, *L. R. Williams*, and *G. Reddy*. Toxicology Portfolio, US Army Public Health Command, Army Institute of Public Health, Aberdeen Proving Ground, MD.

#1049 **Poster Board Number 468**
***In Vitro* Human Skin Penetration of Acetyl Hexapeptide-8 from a Cosmetic Formulation.** O. A. Ogunsola[1], W. Zhou[2], P. G. Wang[2], and *M. E. Kraeling*[1]. [1]Office of Applied Research and Safety Assessment, US FDA, Laurel, MD; [2]Office of Regulatory Science, US FDA, College Park, MD.

#1050 **Poster Board Number 469**
Nevirapine-Induced Skin Rash Is Caused by a Reactive Sulfate Metabolite Formed in the Skin. A. M. Sharma, and *J. P. Uetrecht*. Pharmacy, University of Toronto, Toronto, ON, Canada.

#1051 **Poster Board Number 470**
***In Vitro* Discrimination of Skin Sensitizing Haptens and Prohaptens in a Modified Keratinosens Assay with an Added Metabolic Activation Step.** A. Natsch[1], T. Haupt[1], and *G. Adamson*[2]. [1]Givaudan Schweiz AG, Duebendorf, Switzerland; [2]Givaudan US, East Hanover, NJ.

#1052 **Poster Board Number 471**
Toxicogenomic Characterization of Sensitizer and False-Positive Responses in the Local Lymph Node Assay (LLNA). *D. Adenuga*[1], *I. Kimber*[2], *R. Dearman*[2], *M. Woolhiser*[1], M. Black[3], *R. Thomas*[3], and *D. R. Boverhof*[1]. [1]The Dow Chemical Company, Midland, MI; [2]University of Manchester, Manchester, United Kingdom; [3]The Hamner Institutes for Health Sciences, Research Triangle Park, NC.

#1053 **Poster Board Number 472**
Inductive Effects on Reactivity of the Contact Allergen Benzoquinone and Its Derivatives to Proteins. *W. Mbiya*[1], *I. Chipinda*[2], *P. Seigel*[2], and R. Simoyi[1]. [1]Chemistry, Portland State University, Portland, OR; [2]Health Effects Laboratory Division, NIOSH, Morgantown, WV.

Abstract #

#1054 **Poster Board Number 473**
Interaction of Para-Phenylenediamine with Human N-Acetyltransferases. S. Scheitza, D. Dierolf, J. Bonifas, and *B. Blömeke*. Department of Environmental Toxicology, University Trier, Trier, Germany.

#1055 **Poster Board Number 474**
Pharmacodynamic Profiling of EGFR Inhibitors in HaCaT Cells. K. Balavenkatraman, P. Couttet, A. Vicart, B. Bertschi, M. Marcellin, N. Rathfelder, U. Hopfer, O. Grenet, R. Funhoff, S. Chibout, A. Lambert, J. Moggs, *F. Pognan*, and *A. Wolf*. Discovery and Investigative Safety, Novartis Institutes for Biomedical Research Basel, Basel, Switzerland.

Tuesday Morning, March 12
9:00 AM to 12:30 PM
Exhibit Hall C–D

PS

Poster Session: Liver and Model Systems

Chairperson(s): *Dennis Petersen, University of Colorado Denver, Pharmaceutical Sciences, Aurora, CO.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *9:00 AM–11:00 AM*

#1056 **Poster Board Number 501**
Cytokine-Induced Liver Hepatotoxicity of Trovafloxacin in Coculture of Hepatocytes and Kupffer Cells. *E. L. LeCluyse*[1], K. Rose[1], K. Freeman[2], S. S. Ferguson[2], and R. P. Witek[2]. [1]The Hamner Institutes for Health Sciences, Research Triangle Park, NC; [2]Life Technologies, Durham, NC.

#1057 **Poster Board Number 502**
Drugs Associated with Idiosyncratic Drug-Induced Liver Injury Synergize with Inflammatory Mediators to Produce Cytotoxicity in a Human Hepatoma Cell Line. *A. Maiuri*[1,2], R. Parkins[3], *P. Ganey*[1,2], and *R. Roth*[1,2]. [1]Pharmacology and Toxicology, Michigan State University, East Lansing, MI; [2]Center for Integrative Toxicology, Michigan State University, East Lansing, MI; [3]College of Veterinary Medicine, Michigan State University, East Lansing, MI.

#1058 **Poster Board Number 503**
Serial Survival Liver Biopsies in Dogs and Monkeys. *V. Dinkel*, M. Taschwer, J. Nelson, R. Haas, A. Wathen, A. Kamholz, J. Stuhler, J. Lindsay, and F. Thalacker. Covance Laboratories Inc., Madison, WI.

#1059 **Poster Board Number 504**
Quantitative Relationship between Intracellular Lithocholic Acid (LCA) and Toxicity in Rat Sandwich-Cultured Hepatocytes (SCH): Incorporation into a Mechanistic Model of Drug-Induced Liver Injury (DILI). K. Yang[1], *J. L. Woodhead*[2], R. St. Claire[3], *P. B. Watkins*[2], *S. Q. Siler*[2], *B. A. Howell*[2], and *K. L. Brouwer*[1]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]The Hamner-UNC Institute for Drug Safety Sciences, Research Triangle Park, NC; [3]Qualyst Transporter Solutions, Research Triangle Park, NC.

Program Description (Continued)

Abstract #

#1060 **Poster Board Number 505**
Transformation of CO_2 Evolution Assays into Multiwell Plate Format Assays to Assess Effects of Compounds on Substrate Oxidation in Rat Hepatoma H4IIE Cells. P. A. Cosgrove, and J. W. Lawrence. Comparative Biology and Safety Sciences, Amgen Inc., Thousand Oaks, CA. Sponsor: *S. Sawant*.

#1061 **Poster Board Number 506**
Effect of Trichloroethylene Exposure on Autoimmune-Mediated Cholangitis in NOD.c3c4 Mice. *A. Kopec*, *B. P. Sullivan*, and *J. Luyendyk*. Pathobiology and Diagnostic Investigation, Michigan State University, East Lansing, MI.

#1062 **Poster Board Number 507**
Identification and Categorization of Transcriptional Profiles and Potential Biomarkers of Liver Injuries Related to a Drug Pair. *Y. Wang*, W. Ge, Z. Liu, M. Lee, and *W. Tong*. Bioinformatics and Biostatistics, National Center for Toxicological Research, US FDA, Jefferson, AR.

#1063 **Poster Board Number 508**
***In Vitro* Assessment of Drug Induced Liver Injury (DILI) Using a High Content Cellular Imaging System.** M. L. Wolfe[1], S. Einhorn[2], V. Ott[2], and H. Ma[1]. [1]Cellular and Molecular Biology, MPI Research, Mattawan, MI; [2]Cellular Dynamics International, Madison, WI. Sponsor: *T. Rogers*.

#1064 **Poster Board Number 509**
Altered-Hepatic Catabolism of Branched Chain Amino Acids in Progressive Human Nonalcoholic Fatty Liver Disease. *A. D. Lake*[1], P. Novak[3], P. Shipkova[2], N. Aranibar[2], *D. Robertson*[2], M. D. Reily[2], *L. D. Lehman-McKeeman*[2], *R. R. Vaillancourt*[1], and *N. J. Cherrington*[1]. [1]Pharmacology & Toxicology, University of Arizona, Tucson, AZ; [2]Bristol-Myers Squibb Co., Princeton, NJ; [3]Institute of Plant Molecular Biology, Ceske Budejovice, Czech Republic.

#1065 **Poster Board Number 510**
Altered Hepatic and Renal Drug Transporter Expression in Multiple Rodent Models of Nonalcoholic Steatohepatitis. *M. Canet*, *R. N. Hardwick*, *A. D. Lake*, and *N. J. Cherrington*. Pharmacology and Toxicology, University of Arizona, Tucson, AZ.

#1066 **Poster Board Number 511**
Regulation of ABCC2 Internalization in Nonalcoholic Steatohepatitis. *A. L. Dzierlenga*, *R. N. Hardwick*, *J. D. Clarke*, and *N. J. Cherrington*. Pharmacology & Toxicology, University of Arizona, Tucson, AZ.

#1067 **Poster Board Number 512**
A RNA-Interference Screen Identifies Novel Regulators of the Ubiquitinase A20/TNFAIP3 As Critical Determinants of Drug-Induced Liver Injury Responses. *B. van de Water*, B. Herpers, L. Fredriksson, G. Benedetti, and M. de Graauw. Division of Toxicology, Leiden University, Leiden, Netherlands.

Abstract #

#1068 **Poster Board Number 513**
Hepatic Transporters in HepaRG Cells and Sandwich-Cultured Human Hepatocytes. C. Guguen-Guillouzo[1,2], P. Bachour-El Azzi[1,3], R. Li[2], A. Charanek[1], Z. Abdel-Razzak[3], A. Guillouzo[1], and C. Chesné[2]. [1]INSERM 991, Rennes University, Rennes, France; [2]BIOPREDIC, Rennes, France; [3]Lebanese University, Hadath, Lebanon. Sponsor: *M. Robin*.

#1069 **Poster Board Number 514**
Deep Sequencing of miRNA in Livers of Rats Exposed to Hepatotoxicants. *M. Flores Torres*[1], J. Wright[1], *R. Currie*[2], C. Koufaris[1], and *N. J. Gooderham*[1]. [1]Biomolecular Medicine, Imperial College London, London, United Kingdom; [2]Safety Assessment, Syngenta, Jealotts Hill, United Kingdom.

#1070 **Poster Board Number 515**
High-Content Imaging of Rat Hepatocytes Long-Term Cultures to Predict Specific Drug-Induced Liver Toxicity. D. Germano, M. Uteng, P. Couttet, O. Grenet, S. Chibout, *F. Pognan*, and *A. Wolf*. Discovery and Investigative Safety, Novartis Institutes for Biomedical Research Basel, Basel, Switzerland.

#1071 **Poster Board Number 516**
Gene Expression Profiling Identifies Molecular Mechanisms of Tamoxifen-Induced Hepatotoxicity in Mice. *V. Tryndyak*, T. Han, M. Churchwell, B. Montgomery, J. Fuscoe, J. R. Latendresse, F. A. Beland, and *I. P. Pogribny*. US FDA-NCTR, Jefferson, AR.

#1072 **Poster Board Number 517**
A 3D Coculture Model-Based Assay to Assess Liver Kupffer-Cell Activation and Functionality. S. Shetty[2], K. Adkins[2], M. Roy[2], I. Agarkova[1], J. M. Kelm[1], and S. Messner[1]. [1]InSphero AG, Zurich, Switzerland; [2]Drug-Safety R&D, Investigative Toxicology, Pfizer, Groton, MA. Sponsor: *A. Wolf*.

#1073 **Poster Board Number 518**
Organic Solute Transporter Ostα-Ostβ As a Potential Therapeutic Target for the Metabolic Syndrome. *S. Gorman*, *C. Hammond*, P. Hinkle, and *N. Ballatori*. Environmental Medicine, University of Rochester, Rochester, NY.

#1074 **Poster Board Number 519**
Predictivity of Drug-Induced Liver Toxicity Using High-Content Screening in 384-Well Cultures of HepG2 Cells and Primary Human Hepatocytes. K. F. Marcoe[1], H. J. Garside[2], J. Chesnut-Speelman[1], A. J. Foster[2], U. Warrior[1], J. Baumgartner[1], D. Muthas[3], J. G. Kenna[2], and J. Bowes[2]. [1]Eurofins Panlabs, Bothell, WA; [2]Global Safety Pharmacology, AstraZeneca, Macclesfield, United Kingdom; [3]Global Safety Assessment, AstraZeneca, Molndal, Sweden. Sponsor: *J. Valentin*.

#1075 **Poster Board Number 520**
Studying Drug-Induced Cholestasis with a Novel Cellular Model Coexpressing Major Bile Salt Transporters in the Liver. *M. S. Warren*, J. X. Zhang, J. Huang, P. Druzgala, and Y. Huang. Optivia Biotechnology Inc., Menlo Park, CA.

#1076 **Poster Board Number 521**
Use of a Multiplexed Endpoint Assay Strategy to Assess Model Bioactivated Compounds in Sandwich-Cultured Hepatocytes. K. Wille[1], A. Niles[2], J. J. Cali[2], and *E. L. LeCluyse*[1]. [1]The Hamner Institutes for Health Sciences, Research Triangle Park, NC; [2]Promega Corporation, Madison, WI.

Program Description (Continued)

Abstract #

#1077 **Poster Board Number 522**
Cytotoxic Interaction of Inflammagens with Trovafloxacin in Spheroid Cultures of Rat Liver Cells. *R. A. Roth*[1], *P. Wilga*[2,1], *K. L. Poulsen*[1], *K. M. Beggs*[1], J. Prezenger[2], *A. Maiuri*[1], *P. E. Ganey*[1], and *J. McKim*[2]. [1]Pharmacology and Toxicology, Michigan State University, East Lansing, MI; [2]CeeTox, Inc., Kalamazoo, MI.

#1078 **Poster Board Number 523**
Trovafloxacin Induces Cell Cycle Arrest and Sensitizes HepG2 Cells to TNF-Induced Cytotoxicity by an ATR-Dependent Mechanism. *K. M. Beggs*[1,3], *K. Miyakawa*[2,3], M. A. Scott[2], *P. E. Ganey*[1,3], and *R. A. Roth*[1,3]. [1]Pharmacology and Toxicology, Michigan State University, East Lansing, MI; [2]Pathobiology and Diagnostic Investigation, Michigan State University, East Lansing, MI; [3]Center for Integrative Toxicology, Michigan State University, East Lansing, MI.

#1079 **Poster Board Number 524**
MicroRNA Regulation of Alcoholic and Nonalcoholic Fatty Liver Disease. *S. Kondraganti*[1], T. K. Varma[2], *B. S. Kaphalia*[1], and *G. Ansari*[1]. [1]Pathology, The University of Texas Medical Branch, Galveston, TX; [2]Anesthesiology, The University of Texas Medical Branch, Galveston, TX.

#1080 **Poster Board Number 525**
Characterization of HepaRG-EP Cells As a Surrogate for Primary Human Hepatocytes. J. J. Cali[1], M. Sobol[1], D. Ma[1], and D. Steen[2]. [1]Research, Promega Corporation, Madison, WI; [2]Biopredic International, Overland Park, KS. Sponsor: *T. Riss*.

#1081 **Poster Board Number 526**
Use of a Multiparametric Assay on Isolated Mouse Liver Mitochondria to Predict Drug-Induced Liver Injury in Human. A. Borgne-Sanchez[1], M. Porceddu[1], N. Buron[1], C. Roussel[1], and B. Fromenty[2]. [1]Mitologics Research Laboratory, Mitologics SAS, Paris, France; [2]INSERM U991, Faculté de Pharmacie, Rennes, France. Sponsor: *N. Claude*.

#1082 **Poster Board Number 527**
CAR Activation Increases Bile Flow, Excretion of Major Bile Acids, and Bile Acid Synthesis, As Well As Transport Genes in Mice. *A. J. Lickteig*, *I. L. Csanaky*, M. Pratt-Hyatt, and *C. D. Klaassen*. Internal Medicine (Division Gastroenterology), University of Kansas Medical Center, Kansas City, KS.

#1083 **Poster Board Number 528**
Role of Aryl Hydrocarbon Receptor (AhR) in Maintaining Plasma Concentrations and Biliary Excretion of Bile Acids. *I. L. Csanaky*, *A. J. Lickteig*, M. Pratt-Hyatt, and *C. D. Klaassen*. Department of Internal Medicine, University of Kansas Medical Center, Kansas City, KS.

#1084 **Poster Board Number 529**
Screening of AMPK Activator from Herbal Extract. S. Lee, and M. Dong. School Lifesciences and Biotechnology, Korea University, Seoul, Republic of Korea. Sponsor: *B. Lee*.

#1085 **Poster Board Number 530**
Gender Differences in mRNA and Protein Expression of Nuclear Factor Erythroid 2-Related Factor 2 (Nrf2) and Nrf2-Dependent Genes. *P. Rohrer*, and *J. E. Manautou*. Department of Pharmaceutical Sciences, University of Connecticut, Storrs, CT.

Abstract #

#1086 **Poster Board Number 531**
Metabolomics Evaluating Protective Effects of Green Tea Extract on Acetaminophen-Induced Hepatotoxicity in Mice. J. Sun[1], Y. Lu[1,2], *X. Yang*[1], J. Greenhaw[1], *W. Salminen*[1,3], *D. L. Mendrick*[1], and *R. D. Beger*[1]. [1]NCTR/US FDA, Jefferson, AR; [2]Jiangsu Institute for Food and Drug Control, Jiangsu, China; [3]PAREXEL International, Boston, MA.

#1087 **Poster Board Number 532**
Oleanolic Acid Produces Cholestatic Liver Injury in Mice. *J. Liu*, Y. Lu, *Y. Zhang*, *K. C. Wu*, and *C. D. Klaassen*. Internal Medicine, University of Kansas Medical Center, Kansas City, KS.

#1088 **Poster Board Number 533**
Apoptogenic, Necrogenic, and Unique Patho-Morphological Changes Induced by Bio-Activation-Dependent Hepatotoxins. P. Patel, M. E. Kiersma, and *S. D. Ray*. Pharmaceutical Sciences, Manchester University College of Pharmacology, Fort Wayne, IN.

#1089 **Poster Board Number 534**
Cholestyramine Liver Effects in Healthy Human Subjects. *R. Singhal*[1], *A. Harrill*[3], F. Menguy-Vacheron[2], Z. Jayyosi[1], H. Benzerdjeb[2], and *P. Watkins*[3]. [1]Sanofi, Inc., Framingham, MA; [2]Sanofi, Chilly-Mazarin, France; [3]The Hamner Institute for Health Sciences, Research Triangle Park, NC.

#1090 **Poster Board Number 535**
Sterile Inflammation and Neutrophil Activation during Injury Resolution following Acetaminophen Overdose in Mice and Humans. *C. D. Williams*, M. R. Sharpe, *M. R. McGill*, M. Bajt, and *H. Jaeschke*. [1]University of Arkansas Medical School, Little Rock, AR; [2]Arkansas Children's Nutrition Center, Little Rock, AR.

Tuesday Morning, March 12
9:00 AM to 12:30 PM
Exhibit Hall C–D

PS

Poster Session: Carcinogenesis: Models and Mechanisms

Chairperson(s): *Reza J. Rasoulpour, The Dow Chemical Company, Midland, MI.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *11:00 AM–12:30 PM*

#1091 **Poster Board Number 536**
Ethyl *Tertiary*-Butyl Ether Induces Oxidative Stress and 8-OHdG Formation in the Liver of F344 Rats via Activation of CAR, PXR and PPAR Nuclear Receptors. A. Kakehashi[1], A. Hagiwara[2], N. Imai[2], Y. Doi[2], K. Nagano[3], *M. Banton*[4], F. Nishimaki[5], *H. Wanibuchi*[1], and *S. Fukushima*[6]. [1]Department Pathology, Osaka City University Graduate School of Medicine, Osaka, Japan; [2]DIMS Institute of Medical Science, Ichinomiya, Japan; [3]Nagano Toxicologic-Pathology Consulting, Kanagawa, Japan; [4]Toxicology and Risk Assessment, LyondellBasell Corporate HSE, Houston, TX; [5]Japan Petroleum Energy Center, Tokyo, Japan; [6]Japan Bioassay Research Center, JISHA, Kanagawa, Japan.

Program Description (Continued)

Abstract #

#1092 **Poster Board Number 537**
Expression Profiles of Hematopoietic Stem Cell, Endothelial Cell, and Myeloid Cell Antigens in Spontaneous and Chemically Induced Hemangiomas and Hemangiosarcomas in Mice. *S. Kakiuchi-Kiyota*[1,2], C. A. Torrie[3], *L. L. Arnold*[1], *K. L. Pennington*[1], *J. C. Cook*[2], D. E. Malarkey[4], and *S. M. Cohen*[1]. [1]Pathology and Microbiology, University of Nebraska Medical Center, Omaha, NE; [2]Drug Safety Research & Development, Pfizer Inc., Groton, CT; [3]Experimental Pathology Laboratories, Research Triangle Park, NC; [4]National Toxicology Program, NIEHS, Research Triangle Park, NC.

#1093 **Poster Board Number 538**
Role of the Circadian Clock in the Differential Susceptibility of Rat Strains to Mammary Carcinogenesis. *M. Fang*, and *H. Zarbl*. Environmental Occupational Medicine, University of Medicine and Dentistry of New Jersey, Piscataway, NJ.

#1094 **Poster Board Number 539**
Transcriptomic Profiling of Hepatoblastomas and Associated Hepatocellular Carcinomas in B6C3F1 Mice. *S. Bhusari*[1], A. Pandiri[1,4], Y. Wang[1], J. Foley[1], H. Hong[1], T. Ton[1], K. Shockley[2], S. Peddada[2], K. Gerrish[3], *D. Malarkey*[1], *R. Sills*[1], and M. Hoenerhoff[1]. [1]Cellular and Molecular Pathology, National Toxicology Program, NIEHS, Research Triangle Park, NC; [2]Biostatistics Branch, NIEHS, Research Triangle Park, NC; [3]Microarray Core, NIEHS, Research Triangle Park, NC; [4]Experimental Pathology Laboratories, Research Triangle Park, NC.

#1095 **Poster Board Number 540**
Methionine Sulfoxide Stimulates Hepatocarcinogenesis in Mouse: Possible Role of Free Radical-Mediated DNA Methylation. *K. Kawai*[1], H. Kasai[1,4], Y. Li[1], M. Song[1], A. Kakehashi[2], H. Wanibuchi[2], and A. Ootsuyama[3]. [1]Department of Environmental Oncology, University of Occupational and Environmental Health, Kitakyushu, Japan; [2]Department of Pathology, Osaka City University Medical School, Osaka, Japan; [3]Department of Radiation Biology, University of Occupational and Environmental Health, Kitakyushu, Japan; [4]OHG Institute, Kitakyushu, Japan.

#1096 **Poster Board Number 541**
Differential Activation of Mitogenic Signaling through the Insulin Receptor or the Insulin-Like Growth Factor 1 Receptor of Various Clinical Relevant Insulin Analogues. B. ter Braak[1], K. Siezen[3], *B. van de Water*[1], and J. van der Laan[2,3]. [1]Toxicology, LACDR, Leiden University, Leiden, Netherlands; [2]National Institute of Public Health and the Environment (RIVM), Bilthoven, Netherlands; [3]Medicines Evaluation Board (MEB), Utrecht, Netherlands.

#1097 **Poster Board Number 542**
Deletion of Hepatocyte Nuclear Factor 4 Alpha Promotes Diethylnitroasmine-Induced Hepatocellular Carcinoma. C. Walesky[1], S. Gunewardena[2], G. Edwards[1], P. Borude[1], and *U. Apte*[1]. [1]Pharmacology, Toxicology, and Therapeutics, University of Kansas Medical Center, Kansas City, KS; [2]Kansas Intellectual and Developmental Disabilities Research Center, University of Kansas Medical Center, Kansas City, KS.

Abstract #

#1098 **Poster Board Number 543**
EGCG Elicits Stage-Specific Sensitivity in a Novel Prostate Cancer Progression Model. M. A. Moses[1], W. A. Ricke[2], and *T. A. Gasiewicz*[3]. [1]Department of Pathology, University of Rochester, Rochester, NY; [2]Department of Urology, University of Wisconsin-Madison, Madison, WI; [3]Department of Environmental Medicine, University of Rochester, Rochester, NY.

#1099 **Poster Board Number 544**
Fluopyram: Mechanistic Investigations to Elucidate the MoA for Thyroid Tumor Formation in the Mouse. D. Rouquié[1], O. Blanck[1], H. Tinwell[1], P. Maliver[1], F. Schorsch[1], S. Wason[1], *D. Geter*[2], and *R. Bars*[1]. [1]Bayer CropScience, Sophia Antipolis, France; [2]Bayer CropScience, Research Triangle Park, NC.

#1100 **Poster Board Number 545**
Oncogene PKC Epsilon Inhibits Transcription Factor Nrf2 through Phosphorylation of Its Regulatory Molecule INrf2 (Keap1). S. K. Niture, and *A. K. Jaiswal*. Pharmacology, University of Maryland, Baltimore, MD.

#1101 **Poster Board Number 546**
A Weight-of-Evidence Approach to Determine the Leydig Cell Tumor Mode-of-Action (MoA) for Pronamide. *R. J. Rasoulpour*[1], A. K. Andrus[1], *M. J. LeBaron*[1], *S. Marty*[1], *L. H. Pottenger*[1], *S. Papineni*[2], and *D. L. Eisenbrandt*[2]. [1]The Dow Chemical Company, Midland, MI; [2]Dow AgroSciences, Indianapolis, IN.

#1102 **Poster Board Number 547**
Hepatic Nongenotoxic Carcinoge-Induced Temporal Changes in the Hepatic miRNAome. K. Chen[1], W. Jayne[2], *R. Currie*[2], C. Koufaris[1], and *N. J. Gooderham*[1]. [1]Biomolecular Medicine, Imperial College London, London, United Kingdom; [2]Safety Assessment, Syngenta, Jealotts Hill, United Kingdom.

#1103 **Poster Board Number 548**
Dietary Carcinogen PhIP Induces Early DNA Damage and p53 Pathway Activation in CYP1A-Humanized Transgenic Mice. *J. Chen*[1,2], G. Li[2], H. Wang[2], A. Liu[2], and C. S. Yang[2]. [1]Joint Graduate Program in Toxicology, UMDNJ-Rutgers University, Piscataway, NJ; [2]Department of Chemical Biology, Rutgers, The State University of New Jersey, Piscataway, NJ.

#1104 **Poster Board Number 549**
Reexamination of Initiator Dose in Ultra-Short-Term Carcinogenicity Study in RASH2 Mice. *H. Tsutsumi*[1], K. Urano[1], M. Suguro[2], M. Kawabe[2], T. Numano[2,3], and F. Furukawa[2]. [1]Testing department, Central Institute for Experimental Animals, Kawasaki, Japan; [2]DIMS Institute of Medical Science, Inc., Ichinomiya, Japan; [3]Nagoya City University Graduate School of Medical Sciences, Nagoya, Japan.

#1105 **Poster Board Number 550**
Modulation of Cocarcinogenic Effect of Aflatoxin B1 and Fumonisin B1 in a Short-Term Bioassay by Uniform Particle Size NovaSil Clay. *L. Tang*[1], *G. Qian*[1], S. Lin[1], Z. Yang[1], *M. Kang*[1], *N. Mitchell*[2], J. Su[1], W. Gelderblom[3], *R. Riley*[4], *T. Phillips*[2], and *J. Wang*[1]. [1]University of Georgia, Athens, GA; [2]Texas A&M University, College Station, TX; [3]Medical Research Council, Tygerberg, South Africa; [4]USDA ARS, Athens, GA.

TUESDAY

Program Description (Continued)

Abstract #

#1106 **Poster Board Number 551**
Validation of Cocarcinogenic Effects of Aflatoxin B1 and Fumonisin B1 in a Short-Term Bioassay. *J. Wang*[1], *G. Qian*[1], S. Lin[1], *L. Tang*[1], Z. Yang[1], *M. Kang*[1], *N. Mitchell*[2], J. Su[1], W. Gelderblom[3], *R. Riley*[4], and *T. Phillips*[2]. [1]University of Georgia, Athens, GA; [2]Texas A&M University, College Station, TX; [3]Medical Research Council, Tygerberg, South Africa; [4]USDA ARS, Athens, GA.

#1107 **Poster Board Number 552**
Tumor Promoter Action of Chromium-Containing Stainless Steel Welding Particulate Matter in the Lungs of A/J Mice. *P. C. Zeidler-Erdely*, T. G. Meighan, *A. Erdely*, L. A. Battelli, M. L. Kashon, M. Keane, and *J. M. Antonini*. HELD, NIOSH, Morgantown, WV.

#1108 **Poster Board Number 553**
Induction of 1,3-Dichloropropene Rat Liver Tumors through a Nongenotoxic Mode of Action. *S. C. Gehen*[1], *R. Billington*[2], *Z. Wang*[3], P. J. Klein[3], and *J. E. Klaunig*[3]. [1]Dow AgroSciences LLC, Indianapolis, IN; [2]Dow AgroSciences LLC, Abingdon, United Kingdom; [3]Indiana University, Bloomington, IN.

#1109 **Poster Board Number 554**
Effects of Long-Term Administration of the Tissue-Selective Estrogen Receptor Modulator Bazedoxifene on Survival and Tumor Formation in Rats. *D. J. Wright*[1], R. Perry[1], C. A. Thompson[2], N. J. Earnhardt[3], S. Bailey[1], B. Komm[4], D. R. Minck[5], and M. A. Cukierski[1]. [1]Drug Safety, Pfizer, Groton, CT; [2]Abbott Laboratories, Abbott Park, IL; [3]Pharmacokinetics, Dynamics, and Metabolism, Pfizer, La Jolla, CA; [4]Medical Affairs, Pfizer, Collegeville, PA; [5]Division of Metabolism and Endocrinology, US FDA, Silver Spring, MD.

#1110 **Poster Board Number 555**
Resveratrol Exposure Reduces Benzo(a)pyrene-DNA Adduct Concentrations in Apc^{Min} Mouse Model of Colon Cancer. *A. C. Huderson*, P. V. Rekhadevi, M. S. Niaz, S. E. Adunyah, and *A. Ramesh*. Biochemistry & Cancer Biology, Meharry Medical College, Nashville, TN.

#1111 **Poster Board Number 556**
Triclosan Promotes the Development of Hepatocellular Carcinoma in Mice. M. Yueh, V. Jiang, and *R. H. Tukey*. Laboratory of Environmental Toxicology, Departments of Chemistry & Biochemistry and Pharmacology, University of California San Diego, La Jolla, CA.

#1112 **Poster Board Number 557**
Kupffer Cells Modulate Wyeth-14,643 and Phenobarbital-Induced Hepatocyte Proliferation in Naïve and Diethylnitrosamine (DEN)-Initiated Mice. T. Peat, *Z. Wang*, *S. Zhou*, and *J. E. Klaunig*. Indiana University, Bloomington, IN.

#1113 **Poster Board Number 558**
Bioassay-Directed Fractionation of Diesel and Biodiesel Emissions. *E. Mutlu*[1,2], S. H. Warren[1], C. King[1], W. P. Linak[1], D. G. Nash[1,3], *M. I. Gilmour*[1], and D. M. DeMarini[1]. [1]US EPA, Research Triangle Park, Durham, NC; [2]University of North Carolina at Chapel Hill, Chapel Hill, NC; [3]ORISE, Oak Ridge, TN.

Abstract #

#1114 **Poster Board Number 559**
Phenotypic Characterization of CArG-box Binding Factor-A (CBF-A) Knock-out Mice. *J. T. Barrett*[1], *X. Zhang*[3], *J. R. Richardson*[1,2], *M. Fang*[1,2], and *H. Zarbl*[1,2,3]. [1]Environmental and Occupational Medicine, Robert Wood Johnson Medical School, UMDNJ, Piscataway, NJ; [2]Environmental and Occupational Health Sciences Institiute, Robert Wood Johnson Medical School, Piscataway, NJ; [3]Environmental and Occupational Health Sciences, Robert Wood Johnson Medical School, Seattle, WA.

#1115 **Poster Board Number 560**
Inhibition of Hepatocyte Nuclear Factor 1 and 4 Alpha (HNF1α and HNF4α As a Mechanism of Arsenic Carcinogenesis. A. Hernandez[1,2], A. Pastoret[1], and R. Marcos[1,2]. [1]Genetics and Microbiology, Autonomous University of Barcelona, Bellaterra, Spain; [2]CIBER-ESP, ISCIII, Madrid, Spain. Sponsor: *A. Sampayo-Reyes*.

#1116 **Poster Board Number 561**
Carcinogenicity of Diesel (DEE) and Gasoline Engine Exhausts (GEE). *L. Benbrahim-Tallaa*, R. Baan, Y. Grosse, B. Secretan-Lauby, F. El Ghissassi, V. Bouvard, N. Guha, D. Loomis, and K. Straif. IARC Monographs, IARC, Lyon, France.

#1117 **Poster Board Number 562**
Suicide Inhibition Is Responsible for the Paradoxical Absence of CYP2B10 Enzyme Activity in Mouse Liver following Nitrapyrin- or Pronamide-Induced CAR Activation. *M. J. LeBaron*[1], H. L. Kan[1], M. R. Schisler[1], *S. Papineni*[2], *D. L. Eisenbrandt*[2], and *B. B. Gollapudi*[1]. [1]The Dow Chemical Company, Midland, MI; [2]Dow AgroSciences, Indianapolis, IN.

#1118 **Poster Board Number 563**
Structure-Dependent Effect of Diindolylmethane Derivatives on Inactivation of the Oncogenic NR4A1/NR4A2 Receptor in Colon Cancer Cells. *X. Li*[1], S. Lee[2], and *S. Safe*[1,2,3]. [1]College of Medicine, Texas A&M Health Science Center, College Station, TX; [2]Institute of Biosciences & Technology, Texas A&M Health Science Center, College Station, TX; [3]Veterinary Physiology and Pharmacology, Texas A&M University, College Station, TX.

#1119 **Poster Board Number 564**
Evaluation of microRNAs in Blood for Detection of Chemical-Induced Carcinogenesis. *T. Chen*[1], *F. Meng*[1], J. Yan[1], and *K. L. Thompson*[2]. [1]National Center for Toxicological Research, US FDA, Jefferson, AR; [2]Center for Drug Evaluation and Research, US FDA, Silver Spring, MD.

Program Description (Continued)

Abstract #

Tuesday Morning, March 12
9:00 AM to 12:30 PM
Exhibit Hall C–D

PS

Poster Session: Cardiovascular Toxicity and Hemodynamics

Chairperson(s): *Samantha J. Snow, University of North Carolina at Chapel Hill, Carrboro, NC.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *9:00 AM–11:00 AM*

#1120 **Poster Board Number 568**
Hemodynamic Changes, Arrhythmias, and Sudden Death in Dogs following Repeated Dosing of AKT/pp70S6K Inhibitor. E. Blasi[1], P. Harris[1], M. Engwall[2], *S. Ralston*[3], and *L. Burns*[4]. [1]Drug Safety, Pfizer, San Diego, CA; [2]Drug Safety, Amgen, Thousand Oaks, CA; [3]Drug Safety, Abbott, Abbott Park, IL; [4]Drug Safety, Gilead, San Francisco, CA.

#1121 **Poster Board Number 569**
The Role of Endothelial Cell-Specific Nitric Oxide Synthase in Causing Drug-Induced Vascular Injury. *G. A. Tobin*[1], D. Goodwin[1], C. González[1], *J. Zhang*[1], L. Xu[1], S. Stewart[1], A. Knapton[1], *M. P. Lawton*[2], *B. E. Enerson*[2], and *J. L. Weaver*[1]. [1]Division of Drug Safety Research, US FDA, Silver Spring, MD; [2]Drug Safety Research and Development, Pfizer, Inc., Groton, CT.

#1122 **Poster Board Number 570**
Soluble Components of Ultrafine Particles Induce Cellular Procoagulant Activity through Oxidant Signaling. *S. J. Snow*[1], A. Wolberg[2], and M. Carraway[3]. [1]Toxicology, University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]Pathology and Laboratory Medicine, University of North Carolina at Chapel Hill, Chapel Hill, NC; [3]NHEERL, US EPA, Chapel Hill, NC.

#1123 **Poster Board Number 571**
Evaluation of Age and Sex Effects on Mitochondria-Related Gene Expression in Rat Heart. *V. Vijay*, T. Han, C. Moland, J. Kwekel, *J. Fuscoe*, and *V. Desai*. Systems Biology, National Center for Toxicological Research, US FDA, Jefferson, AR.

#1124 **Poster Board Number 572**
Assessment of Postmarket Cardiac Adverse Events in Patients Treated with Antipsychotic Drugs. *D. Bi*, *R. Benz*, J. Kerner, J. Willard, and T. Colatsky. Center for Drug Evaluation and Research, US FDA, Silver Spring, MD.

#1125 **Poster Board Number 573**
Ozone Coexposure Modifies Cardiac Function Responses to Fine and Ultrafine Particulate Matter in Mice. R. McIntosh-Kastrinsky[1], H. Tong[2], *N. Kurhanewicz*[1], *L. Walsh*[2], *A. K. Farraj*[2], and *M. S. Hazari*[2]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]Environmental Public Health Division, US EPA, Research Triangle Park, NC.

Abstract #

#1126 **Poster Board Number 574**
An Integrative Approach to Identify Functional, Structural and Pathological Biomarkers of Doxorubicin-Induced Cardiotoxicity. H. R. Mellor[1], L. Cove-Smith[2], J. Kirk[1], A. Hargreaves[1], S. Price[1], C. Betts[1], C. Dive[2], P. Hockings[1], and N. Woodhouse[1]. [1]Global Safety Assessment/PHB Imaging Group, AstraZeneca R&D, Macclesfield, United Kingdom; [2]The Paterson Institute For Cancer Research, University of Manchester, Manchester, United Kingdom. Sponsor: *R. Roberts*.

#1127 **Poster Board Number 575**
Both Vitamin D Excess and Deficiency Increase Blood Pressure, but Only Excess Increases Arterial Stiffness. N. Z. Mirhosseini[1], K. Bohaychuk[1], H. Vatanparast[2], G. George[3], and *L. P. Weber*[1]. [1]Veterinary Biomedical Sciences, University of Saskatchewan, Saskatoon, SK, Canada; [2]Nutrition and Pharmacy, University of Saskatchewan, Saskatoon, SK, Canada; [3]Geology Department, University of Saskatchewan, Saskatoon, SK, Canada.

#1128 **Poster Board Number 576**
Fatty Acids Down Regulate and Inhibit Secretion of Adiponectin in Adipocytes through Oxidative Stress. *S. R. Kotha*, T. O. Gurney, A. B. Shelton, S. I. Sherwani, U. J. Magalang, and N. L. Parinandi. Division of Pulmonary, Allergy, Critical Care, and Sleep Medicine, The Ohio State University College of Medicine, Columbus, OH.

#1129 **Poster Board Number 577**
Diesel Exhaust-Induced Cardiac Dysfunction Is Mediated by Sympathetic Dominance in Heart Failure-Prone Rats. *A. P. Carll*[1,2], *M. S. Hazari*[2], *C. M. Perez*[3,2], Q. Krantz[2], C. J. King[2], D. W. Winsett[2], *D. L. Costa*[4], and *A. K. Farraj*[2]. [1]Gillings School of Global Public Health, University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]Environmental Public Health Division, US EPA, Research Triangle Park, NC; [3]Curriculum in Toxicology, University of North Carolina at Chapel Hill, Chapel Hill, NC; [4]ORD, US EPA, Research Triangle Park, NC.

#1130 **Poster Board Number 578**
Remote Subcutaneous and Intravenous Administration in Large Animals: Impact on Cardiovascular Safety Pharmacology Data and Sensitivity. R. Mikaelian[1], S. Authier[1,2], A. Ascah[1], M. Pouliot[1], E. Troncy[2], and *R. Forster*[1]. [1]CiToxLAB North America, Laval, QC, Canada; [2]Faculty of Veterinary Medicine, University of Montréal, St-Hyacinthe, QC, Canada.

#1131 **Poster Board Number 579**
Acute Silver Nanoparticle Exposure Increases Cardiac Ischemic/Reperfusion Injury in Sprague-Dawley Rats. *C. J. Wingard*[1], *R. Urankar*[1], *J. Shananhann*[2], *A. K. Vidanapathirana*[1], *L. C. Thompson*[1], *S. Sumner*[3], *T. R. Fennell*[3], *J. M. Brown*[2], and R. M. Lust[1]. [1]Physiology, East Carolina University, Greenville, NC; [2]Pharmacology & Toxicology, East Carolina University, Greenville, NC; [3]RTI International, Research Triangle Park, NC.

#1132 **Poster Board Number 580**
Effect of Pulmonary Exposure to Welding Fumes on Cardiomyocyte Contractility. H. Kan[1], *J. M. Antonini*[1], M. Ye[1], W. Zheng[1], R. Salmen[1], R. Popstojanov[2], and *V. Castranova*[1]. [1]PPRB, NIOSH, Morgantown, WV; [2]West Virginia University, Morgantown, WV.

TUESDAY

Program Description (Continued)

Abstract #

#1133 **Poster Board Number 581**
Silver Nanoparticle Exposure Increases Vasoconstrictor Response in Nonpregnant Female Sprague-Dawley Rats. J. O. Dawkins[1], *A. K. Vidanapathirana*[1], *L. C. Thompson*[1], *S. J. Sumner*[3], *T. R. Fennell*[3], *J. M. Brown*[2], and *C. J. Wingard*[1]. [1]Physiology, East Carolina University, Greenville, NC; [2]Pharmacology & Toxicology, East Carolina University, Greenville, NC; [3]RTI International, Research Triangle Park, NC.

#1134 **Poster Board Number 582**
Intravenous vs Intratracheal Administration of C60 Differentially Promotes Constriction or Impairs Relaxation of the Isolated Coronary Artery. N. A. Holland[1], *L. C. Thompson*[1], *A. K. Vidanapathirana*[1], J. O. Dawkins[1], *S. J. Sumner*[3], *A. Lewin*[3], *T. R. Fennell*[3], *J. M. Brown*[2], and *C. J. Wingard*[1]. [1]Physiology, East Carolina University, Greenville, NC; [2]Pharmacology & Toxicology, East Carolina University, Greenville, NC; [3]RTI International, Research Triangle Park, NC.

#1135 **Poster Board Number 583**
Intratracheal Exposure to Silver Nanoparticles Promotes Enhanced Coronary Vascular Tone. *L. C. Thompson*[1], *A. K. Vidanapathirana*[1], J. O. Dawkins[1], *S. J. Sumner*[3], *T. R. Fennell*[3], *J. M. Brown*[2], and *C. J. Wingard*[1]. [1]Physiology, East Carolina University, Greenville, NC; [2]Pharmacology & Toxicology, East Carolina University, Greenville, NC; [3]RTI International, Research Triangle Park, NC.

#1136 **Poster Board Number 584**
Environmental Predictors of Oxidized Ldl Cholesterol (oxLDL) in Navajo Populations Exposed to Uranium-Contaminated Mining Sites. M. E. Harmon[1], C. Miller[2], *M. J. Campen*[1], C. Shuey[3], M. Cajero[2], B. Pacheco[2], *E. Erdei*[1], J. DeGroat[2], *G. Stark*[2], S. Henio-Adeky[3], S. Ramone[3], T. Nez[3], and *J. Lewis*[2]. [1]College of Pharmacy, University of New Mexico, Albuquerque, NM; [2]Community Environmental Health Program, University of New Mexico, Albuquerque, NM; [3]Southwest Research and Information Center, Albuquerque, NM.

#1137 **Poster Board Number 585**
Pulmonary Nanoparticle Exposure Enhances Cardiac Parasympathetic Signaling. *T. L. Knuckles*, *J. Yi*, and *T. R. Nurkiewicz*. Center for Cardiovascular and Respiratory Sciences, West Virginia University, Morgantown, WV.

#1138 **Poster Board Number 586**
Cigarette Smoke Induces Ventricular Remodeling through Activation of the Aryl Hydrocarbon Receptor. *J. Bradley*, M. C. El Hajj, and J. D. Gardner. Louisiana State University Health Science Center, New Orleans, LA.

#1139 **Poster Board Number 587**
The Association of Vascular Disease with Exposure to Diesel Exhaust. *M. Peterson*[1], *P. Valberg*[2], and C. Long[2]. [1]Gradient, Seattle, WA; [2]Gradient, Cambridge, MA.

#1140 **Poster Board Number 588**
FGF21 Expresses in Diabetic Hearts and Protects from Palmitate- and Diabetes-Induced Cardiac Cell Death *In Vitro* and *In Vivo* via Erk1/2-Dependent p38 MAPK/AMPK Signaling Pathway. *C. Zhang*[1,2], X. Li[2,1], and *L. Cai*[1,2]. [1]University of Louisville, Louisville, KY; [2]Wenzhou Medical College, Wenzhou, China.

Abstract #

#1141 **Poster Board Number 589**
Effects of Nicotine on Cardiovascular Remodeling in a Mouse Model of Systemic Hypertension. E. S. Colombo[1,2], J. Davis[1], M. Makvandi[1], M. Aragon[1], M. Paffett[1], and *M. Campen*[1]. [1]College of Pharmacy & Internal Medicine, University of New Mexico Health Science Center, Albuquerque, NM; [2]Internal Medicine, University of New Mexico, Albuquerque, NM.

#1142 **Poster Board Number 590**
Metallothionein Preservation of Akt2 Function by Down-Regulating TRB3 Restores Diabetic Inhibition of Cardiac Insulin Signaling. *Y. Tan*[1,2], Y. Wang[3,1], X. Li[2], and *L. Cai*[1,2,3]. [1]Pediatrics, University Louisville, Louisville, KY; [2]CARIDC, Wenzhou Medical College, Wenzhou, China; [3]Jilin University, Changchun, China.

#1143 **Poster Board Number 591**
Development of an Ultrasound Imaging Biomarker of Drug-Induced Vascular Injury. T. A. Swanson[1], *M. Lawton*[2], S. Portugal[2], L. Obert[2], J. Kreeger[2], and B. E. Enerson[2]. [1]Comparative Medicine, Pfizer Worldwide Research, Groton, CT; [2]Drug Safety Research, Pfizer Worldwide Research, Groton, CT.

#1144 **Poster Board Number 592**
Environmentally-Persistent Free Radicals (EPFRs) Exacerbate Cardiac Dysfunction during Ischemia-Reperfusion (I-R) Injury. B. Burn, S. Mahne, V. Subramaniam, and *K. Varner*. Pharmacology, Louisiana State University Health Sciences Center, New Orleans, LA.

#1145 **Poster Board Number 593**
The Role of Nickel in Systemic Inflammation and Blood Coagulative Effects Induced by PM2.5. *F. Deng*, P. Xia, and X. Guo. Occupational & Environmental Health Sciences, Peking University School of Public Health, Beijing, China.

#1146 **Poster Board Number 594**
Involvement of Shear Stress in Fenoldopam and Dopamine-Induced Mesenteric Medial Arterial Necrosis. *D. Dalmas*, K. Frazier, *H. Thomas*, and *M. Scicchitano*. Safety Assessment, GlaxoSmithKline, King of Prussia, PA.

#1147 **Poster Board Number 595**
Direct Interaction between Multiwalled Carbon Nanotubes and the Coronary Microcirculation. *T. R. Nurkiewicz*[1], B. T. Chen[2], D. Frazer[2], R. R. Mercer[2], J. Scabilloni[2], *V. Castranova*[2], and *P. G. Stapleton*[1]. [1]Physiology and Pharmacology, West Virginia University, Morgantown, WV; [2]NIOSH, Morgantown, WV.

#1148 **Poster Board Number 596**
Phosgene-Induced Lethal Lung Edema Correlate with Persistent Stimulation of Cardiopulmonary Reflexes. W. Li[1], and *J. Pauluhn*[2]. [1]Department of Toxicology, Fourth Military Medical University, Xi'an, China; [2]Toxicology, Bayer Pharma AG, Wuppertal, Germany.

TUESDAY

Program Description (Continued)

Abstract #

Tuesday Morning, March 12
9:00 AM to 12:30 PM
Exhibit Hall C–D

PS

Poster Session: Metals I

Chairperson(s): *Joshua Edwards, Midwestern University, Downers Grove, IL, and Arava Vijaya Bhaskara Rao, Pondicherry University, Puducherry, India.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *11:00 AM–12:30 PM*

#1149 **Poster Board Number 601**
Role of Nrf2 Antioxidant Defense in Mitigating Cadmium-Induced Oxidative Stress in the Olfactory System of Zebrafish. *L. Wang*, and *E. P. Gallagher*. Department of Environmental and Occupational Health Sciences, University of Washington, Seattle, WA.

#1150 **Poster Board Number 602**
Cadmium Enhances Instability of Lysyl Oxidase Messenger RNA. Y. Zhao, S. Gao, P. Toselli, and *W. Li*. Biochemistry, Boston University School of Medicine, Boston, MA.

#1151 **Poster Board Number 603**
Involvement of Inhibition of UBE2D Family Gene Expressions on Cadmium-Induced p53 Dependent Apoptosis in Human Proximal Tubular Cells. *M. Tokumoto*[1,2], *J. Lee*[2], Y. Fujiwara[2], and *M. Satoh*[2]. [1]Showa Pharmaceutical University, Machida, Japan; [2]School of Pharmacy, Aichi Gakuin University, Nagoya, Japan.

#1152 **Poster Board Number 604**
Serum and Hepatic Alkaline Phosphatase Activity in Rats Exposed Chronically to Cadmium. *E. Brambila*, S. Treviño-Mora, A. Andrade-García, B. León-Chávez, and P. Aguilar-Alonso. Clinical Chemistry Research Laboratory, Facultad de Ciencias Químicas, Benemérita Universidad Autónoma de Puebla, Puebla, Mexico.

#1153 **Poster Board Number 605**
The Cadmium-Responsive Genes *Numr-1* and *Numr-2* Are Regulated by Multiple Pathways. Q. Ding, and *J. H. Freedman*. NIEHS, Research Triangle Park, NC.

#1154 **Poster Board Number 606**
SRC Kinase Participation in MT-II Production and Acetylation STAT3 in Mouse Hepatocytes Exposed to Cadmium. K. Martínez[1], V. Souza[1], A. López[1], A. López-Reyes[2], D. Clavijo[1], L. Bucio[1], L. Gómez-Quiroz[1], and *M. Gutiérrez-Ruiz*[1]. [1]Ciencias de la Salud, Universidad Autónoma Metropolitana, Mexico City, Mexico; [2]Dirección de Investigación, Instituto Nacional de Rehabilitación, Mexico City, Mexico.

#1155 **Poster Board Number 607**
Overaccumulation of p53 and Induction of Apoptosis in Renal Tubules of C57BL/6 Mice Chronically-Exposed to Cadmium. *J. Lee*[1], *M. Tokumoto*[1,2], Y. Fujiwara[1], and *M. Satoh*[1]. [1]School of Pharmacy, Aichi Gakuin University, Nagoya, Japan; [2]Showa Pharmaceutical University, Tokyo, Japan.

Abstract #

#1156 **Poster Board Number 608**
Effects of Cadmium on the Urinary Excretion and Localization of Cystatin C in Kidney. *W. C. Prozialeck*[1], A. Van Dreel[1], S. Zawdzka[1], *J. R. Edwards*[1], C. D. Ackerman[1], and *V. S. Vaidya*[2]. [1]Department of Pharmacology, Midwestern University, Downers Grove, IL; [2]Renal Division, Brigham and Woman's Hospital, Harvard Medical School, Boston, MA.

#1157 **Poster Board Number 609**
Cadmium Exposure Affects Insulin Signaling in *Caenorhabditis elegans*. *Y. Sun*, and *J. H. Freedman*. BSB, DNTP, NIEHS, Research Triangle Park, NC.

#1158 **Poster Board Number 610**
Investigating a Protective Role of the Antioxidant N-Acetylcysteine against Cadmium-Induced Damage to Bone Extracellular Matrix. D. D. Wright, W. S. Wright, and *S. J. Heggland*. Biology, The College of Idaho, Caldwell, ID.

#1159 **Poster Board Number 611**
Cadmium Causes Injury to Pancreatic Islets That Is Associated with Caspase-3 Labeling. *J. Edwards*, and Y. Bahrami. Pharmacology, Midwestern University, Downers Grove, IL.

#1160 **Poster Board Number 612**
Regulation of Glutathione Synthesis in Cadmium-Treated Cultured Choroid Plexus. *S. Francis Stuart*, R. Young, and *A. Villalobos*. Interdisciplinary Faculty of Toxicology and Nutrition & Food Science, Texas A&M University, College Station, TX.

#1161 **Poster Board Number 613**
Stable Expression of FRET-Based $Cd(2^+)$ Biosensor for Advanced Research of Cytotoxic $Cd(2^+)$. *D. Yang*[1,2], and T. Chiu[2,1]. [1]Department of Medical Research & Education, Taipei Veterans General Hospital, Taipei, Taiwan; [2]Institute of Biophotonics & Biophotonics and Molecular Imaging Research Center (BMIRC), National Yang-Ming University, Taipei, Taiwan.

#1162 **Poster Board Number 614**
Blood Cadmium Level of Residents Living near the Abandoned Metal Mines in Korea. D. Kim[1], S. Ahn[1], J. Ryu[1], S. Yu[1], and D. Park[2]. [1]Environmental Health, National Institute of Environmental Research, Inchon, Republic of Korea; [2]Environmental Health, Korea National Open University, Seoul, Republic of Korea. Sponsor: *J. Park*.

#1163 **Poster Board Number 615**
One-Week and Four-Week Inhalation Toxicity Studies of Nickel Sulfate and Nickel Subsulfide in Rats. *D. E. Dodd*[1], *H. J. Clewell*[1], M. A. Sochaski[1], H. G. Wall[2], G. A. Willson[2], and *A. R. Oller*[3]. [1]The Hamner Institutes for Health Sciences, Research Triangle Park, NC; [2]Experimental Pathology Laboratories, Inc., Research Triangle Park, NC; [3]NiPERA, Inc., Durham, NC.

TUESDAY

Program Description (Continued)

Abstract #

#1164 **Poster Board Number 616**
Gene Expression Profiles in Peripheral Blood Mononuclear Cells of Chinese Nickel Refinery Workers with High Exposures to Nickel and Control Subjects. A. B. Munoz[1], *A. Arita*[1], J. Niu[1], Q. Qu[1], N. Zhao[2], Y. Ruan[2], K. Kiok[1], T. Kluz[1], H. Sun[1], *Y. Chervona*[1], H. A. Clancy[1], M. Shamy[3], and *M. Costa*[1]. [1]Environmental Medicine, New York University Graduate School of Arts and Sciences, New York, NY; [2]Lanzhou University School of Public Health, Lanzhou, China; [3]Environmental Sciences, King Abdulaziz University, Jeddah, Saudi Arabia.

#1165 **Poster Board Number 617**
Differential Severity of Chromium-Induced Hepatotoxicity in a Day. *N. Miura*[1], M. Togawa[2], and T. Hasegawa[2]. [1]National Institute of Occupational Safety and Health (JNIOSH), Kawasaki, Japan; [2]Yamanashi Institute Environmental Science, Yamanashi, Japan.

#1166 **Poster Board Number 618**
Speciation of Chromium Released from Metal-On-Metal Hip Implants. *K. Thuett*[1], *B. L. Finley*[1], P. K. Scott[2], and *D. J. Paustenbach*[1]. [1]ChemRisk, LLC., San Francisco, CA; [2]ChemRisk, LLC., Pittsburgh, PA.

#1167 **Poster Board Number 619**
E162 Protects against Chromium (VI)-Induced Cytotoxicity and Genotoxicity in Human Lung Fibroblast Cells. M. Braun[1,2], J. Lechner[2], and *J. Wise*[1,2,3]. [1]Wise Laboratory of Environmental and Genetic Toxicology, University of Southern Maine, Portland, ME; [2]Maine Center for Toxicology and Environmental Health, University of Southern Maine, Portland, ME; [3]Department of Applied Medical Science, University of Southern Maine, Portland, ME.

#1168 **Poster Board Number 620**
Method: Measuring Protein-Bound and Free Cobalt(II) in Human Serum—Size Exclusion Liquid Chromatography with ICP-MS. *B. D. Kerger*[1], *B. L. Finley*[2], and *D. J. Paustenbach*[2]. [1]ChemRisk, LLC., Aliso Viejo, CA; [2]ChemRisk, LLC., San Francisco, CA.

#1169 **Poster Board Number 621**
Chronic Exposure to Particulate Chromate Induces Persistent DNA Double-Strand Breaks in Human Lung Cells. *Q. Qin*[1,2,3], *H. Xie*[1,2,3], *A. Holmes*[1,2,3], *S. Wise*[1,2,3], and *J. Wise*[1,2,3]. [1]Wise Laboratory of Environmental and Genetic Toxicology, University of Southern Maine, Portland, ME; [2]Maine Center for Toxicology and Environmental Health, University of Southern Maine, Portland, ME; [3]Department of Applied Medical Science, University of Southern Maine, Portland, ME.

#1170 **Poster Board Number 622**
Repeated Particulate Chromate Exposure Induces Chromosome Instability, a DNA Double-Strand Break Repair-Deficient Phenotype, and Neoplastic Transformation in Human Lung Cells. *S. Wise*[1,2,3], *A. Holmes*[1,2,3], *H. Xie*[1,2,3], W. Thompson[2,3], and *J. Wise*[1,2,3]. [1]Wise Laboratory of Environmental and Genetic Toxicology, University of Southern Maine, Portland, ME; [2]Maine Center for Toxicology and Environmental Health, University of Southern Maine, Portland, ME; [3]Department of Applied Medical Science, University of Southern Maine, Portland, ME.

Abstract #

#1171 **Poster Board Number 623**
Fin Whale Cells Are More Resistant to Particulate Chromate Cytotoxicity Than Human Cells. C. Wise[1,2], *S. Wise*[1,2,3], *A. Holmes*[1,2,3], and *J. Wise*[1,2,3]. [1]Wise Laboratory of Environmental and Genetic Toxicology, University of Southern Maine, Portland, ME; [2]Maine Center for Toxicology and Environmental Health, University of Southern Maine, Portland, ME; [3]Department of Applied Medical Science, University of Southern Maine, Portland, ME.

#1172 **Poster Board Number 624**
Cellular Defense against Telomere Dysfunction Induced by Hexavalent Chromium. *H. C. Pope-Varsalona*, *F. Liu*, and P. L. Opresko. Environmental and Occupational Health, University of Pittsburgh, Pittsburgh, PA.

#1173 **Poster Board Number 625**
Reactive Oxygen Species Regulate PI3K/AKT-Dependent Activation of GSK-3β/β-Catenin and mTOR signaling in Cr(VI)-Induced Carcinogenesis. *Y. Son*, *J. Lee*, *P. Poyil*, *L. Wang*, and *X. Shi*. Graduate Center for Toxicology, University of Kentucky, Lexington, KY.

#1174 **Poster Board Number 626**
Instability of Metallothionein Inhibits Mitochondrial Activities following Exposure to Silver Nitrate in Human Bronchial Epithelial Cells. T. Miyayama[1], Y. Arai[2], N. Suzuki[2], and *S. Hirano*[1,2]. [1]Risk Center for Environmental Risk, National Institute for Environmental Studies, Tsukuba, Japan; [2]Graduate School of Pharmaceutical Sciences, Chiba University, Chiba, Japan.

#1175 **Poster Board Number 627**
Development and Optimization of a Procedure for the Determination of Indium-Tin Oxide Particle Size and Concentration in Cellular Media. *K. Levine*[1], L. Han[1], *W. M. Gwinn*[2], *D. L. Morgan*[2], A. S. Essader[1], R. A. Fernando[1], *C. S. Smith*[2], and *V. G. Robinson*[2]. [1]RTI International, Research Triangle Park, NC; [2]Division of National Toxicology Program, NIEHS, Research Triangle Park, NC.

#1176 **Poster Board Number 628**
Tungsten Exposure Increases Lung Metastases in an Orthotopic Murine Breast Cancer Model. *A. M. Bolt*[2,1], V. Sabourin[2,1], J. Janiak[2,1], *A. Kelly*[2,1], G. Ursini-Siegel[2,1], and *K. K. Mann*[2,1]. [1]McGill University, Montréal, QC, Canada; [2]The Lady Davis Institute for Medical Research, Montréal, QC, Canada.

#1177 **Poster Board Number 629**
Genetic Variation of Iron Metabolism in Mice. *K. E. Page*[1], D. W. Killilea[2], E. Eskin[3], A. J. Lusis[3], and *C. D. Vulpe*[1]. [1]Nutritional Sciences and Toxicology, University of Berkeley, Berkeley, CA; [2]Children's Hospital Oakland Research Institute, Oakland, CA; [3]David Geffen School of Medicine, University of California Los Angeles, Los Angeles, CA.

#1178 **Poster Board Number 630**
ICP-MS Determination of Tissue Iron Levels in the Rat. J. Bouchard[1], C. Sabadie[1], J. Decorde[1], L. Jaillet[1], P. Elford[2], and *R. Forster*[1]. [1]CiToxLAB, Evreux, France; [2]Azad Pharmaceuticals, Bern, Switzerland.

TUESDAY

Program Description (Continued)

Abstract #

#1179 **Poster Board Number 631**
Development of a Transportable Neutron Activation Analysis System to Quantify Manganese in Bone *In Vivo*—Feasibility and Methodology. Y. Liu[1], D. S. Koltick[2], P. Byrne[1,3], *W. Zheng*[1], and *L. H. Nie*[1]. [1]Health Sciences, Purdue University, West Lafayette, IN; [2]Physics, Purdue University, West Lafayette, IN; [3]Medical Physics Consultants, Indianapolis, IN.

#1180 **Poster Board Number 632**
Relative and Absolute Quantification of Metallothionein Isoforms in Human Kidney Cells Using Stable Isotope Labeling of Cysteines and MALDI-TOF/TOF Mass Spectrometry. A. Mehus[1,2], J. B. Shabb[2], W. W. Muhonen[2], *S. H. Garrett*[1], *S. Somji*[1], *M. Sens*[1], and *D. A. Sens*[1]. [1]Pathology, University of North Dakota, Grand Forks, ND; [2]Biochemistry, University of North Dakota, Grand Forks, ND.

#1181 **Poster Board Number 633**
Identification of Metallothionein-3 Interacting Proteins in the Human Proximal Tubule Cells. *A. Slusser*[1,2], C. Bathula[1], *J. R. Dunlevy*[1], J. Shabb[2], *D. A. Sens*[1], *S. Somji*[1], and *S. H. Garrett*[1]. [1]Pathology, University of North Dakota, Grand Forks, ND; [2]Biochemistry, University of North Dakota, Grand Forks, ND.

#1182 **Poster Board Number 634**
The Unique N and C-Terminal Domains of Metallothionein-3 Influence the Growth and Differentiation of MCF-7 Breast Cancer Cells. *B. Voels*, *D. A. Sens*, *S. H. Garrett*, and *S. Somji*. Pathology, University of North Dakota, Grand Forks, ND.

#1183 **Poster Board Number 635**
Fluoride, Aluminum, and Mixtures: Histological Changes in the Liver of Mouse, *Mus norvegicus albinus*. A. Vijaya Bhaskara Rao. Ecology and Environmental Sciences, Pondicherry University, Puducherry, India. Sponsor: *I. Rusyn*.

#1184 **Poster Board Number 636**
Both the Metal Moiety and the Organic Backbone of Ethylene Bisdithocarbamate Fungicides Maneb and Mancozeb Contribute to Toxicity in Human Colon Cells. *L. Hoffman*, and *D. Hardej*. Pharmaceutical Sciences, St. John's University, Queens, NY.

#1185 **Poster Board Number 637**
Signalling Pathways and Oxidative Stress Involved in Metal-Induced Cytokine Responses in Human Epithelial Lung Cells. M. Låg, J. Øvrevik, E. M. Lilleaas, A. Thormodsæter, A. I. Totlandsdal, J. A. Holme, P. E. Schwarze, and M. A. Refsnes. Department of Air Pollution and Noise, Norwegian Institute of Public Health, Oslo, Norway. Sponsor: *M. Løvik*.

Abstract #

#1186 **Poster Board Number 638**
Development of an Immortalized Urothelial Cell Line to Study Metal-Induced Bladder Carcinogenesis. *A. Holmes*[1,2,3], M. Hebert[1,2], C. Case[4], and *J. Wise*[1,2,3]. [1]Wise Laboratory of Environmental and Genetic Toxicology, University of Southern Maine, Portland, ME; [2]Maine Center for Toxicology and Environmental Health, University of Southern Maine, University of Southern Maine, Portland, ME; [3]Department of Applied Medical Science, University of Southern Maine, University of Southern Maine, Portland, ME; [4]Musculoskeletal Research Unit, University of Bristol, Bristol, United Kingdom.

#1187 **Poster Board Number 639**
Metallothionein Transcriptional Regulation, Aging, and the Insulin Signaling Pathway. *J. Hall*[1], M. McElwee[2], and *J. Freedman*[1,2]. [1]BSB, DNTP, NIEHS, Research Triangle Park, NC; [2]LTP, NIEHS, Research Triangle Park, NC.

#1188 **Poster Board Number 640**
Metal-Regulatory Transcription Factor-1 Regulates Metal-Responsive Transcription of *Fosl1*. *E. Braithwaite*, and *J. H. Freedman*. NIEHS, Research Triangle Park, NC.

Tuesday Morning, March 12
9:30 AM to 4:30 PM
Room 209

FS

Research Funding Session: Research Funding Information Room

Chairperson(s): *David Dorman, North Carolina State University, Raleigh, NC.*

Sponsor:
Research Funding Committee

Representatives from federal agencies funding research, including NIH program and review staff of the Center for Scientific Review and NIEHS, will be available in the Research Funding Room for individual conversations. Make an appointment with your program officer in advance or at their exhibit booth, or check the posted schedule, to meet with the staff member who can discuss with you aspects of scientific review or specific grant opportunities. New investigators are especially encouraged to meet with program staff. Schedules will be available in the Exhibit Hall.

TUESDAY

Program Description (Continued)

Tuesday Morning, March 12
9:45 AM to 10:45 AM
Room 007 A

E

Exhibitor/Sponsor-Hosted Session: Considerations for Developmental Immunotoxicity (DIT) in Preclinical Testing

Presented by:
Charles River

Developmental immunotoxicity testing (DIT) is required or recommended by regulatory agencies as part of safety assessments for chemicals and pharmaceuticals. A variety of assays/endpoints are available to evaluate DIT in rodent and nonrodent species. We will discuss study designs for DIT evaluation, including species, endpoints, data interpretation, and testing strategies.

Tuesday Morning, March 12
9:45 AM to 10:45 AM
Room 007 C

E

Exhibitor/Sponsor-Hosted Session: Navigating the Scientific Regulatory Maze for an Agrochemical from Candidate Selection to Product Registration

Presented by:
Huntingdon Life Sciences

The process from selection to authorization of a new agrochemical molecule is costly and time consuming. A case study will be discussed which highlights how the iterative process of testing and risk assessment looks to understand complex interactions between the biology and chemistry in man and the environment.

Tuesday Morning, March 12
9:45 AM to 10:45 AM
Room 007 B

E

Exhibitor/Sponsor-Hosted Session: Nonclinical Development of Biopharmaceuticals and Biosimilars—Lessons Learned

Presented by:
MPI Research

The increase in biopharmaceuticals in development has been impressive over the past 10 years. This talk will cover the differences in the nonclinical approach used for biopharmaceuticals compared to the traditional small molecule approach, evaluate study design aspects, and include lessons learned through the evaluation of completed biopharmaceutical nonclinical studies.

Tuesday Morning and Afternoon, March 12
10:30 AM to 2:30 PM
CC Exhibit Hall C *(Adjacent to SOT Pavilion)*

High School Poster Exposition

Chairperson(s): *Daniel E. Arrieta, Chevron Phillips Chemical Company LP, The Woodlands, TX.*

Sponsors:
Education Committee
K–12 Subcommittee

High school student research related to toxicology is featured in an area adjacent to the 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 12
11:00 AM to 12:00 Noon
Room 007 C

E

Exhibitor/Sponsor-Hosted Session: Carbonanotubes—A New Challenge in Toxicity Testing

Presented by:
Fraunhofer ITEM

The session will focus on the state of the art and future of *in vivo* and screening tests with carbonanotubes. Innovative systems of aerosol generation will be presented as well as novel experimental data on the genotoxic and carcinogenic potential of carbonanotubes.

Tuesday Morning, March 12
11:00 AM to 12:00 Noon
Room 007 A

E

Exhibitor/Sponsor-Hosted Session: New Method for Procedure-Related Handling of Nonhuman Primates: Contribution to Improved Animal Welfare and Minimizing Variability in Data

Presented by:
SNBL USA, Ltd.

Nonhuman primates (NHPs) are well-established animal models for nonclinical toxicology. Manual Restraint by Chair of NHPs increases data variability during routine studies. The Procedure Cage is an alternative to Chair Restraint. This presentation reviews data obtained using Procedure Cage and discusses the contribution to reduction in inter- and intra-animal data variability.

Tuesday Morning, March 12
11:00 AM to 12:00 Noon
Room 007 B

E

Exhibitor/Sponsor-Hosted Session: SEND Submissions to the US FDA: How Do I Get Ready for Prime Time?

Presented by:
PointCross Life Sciences

The US FDA will soon mandate SEND formatted nonclinical study data submissions. Industry participants from a SEND Simulation Environment over the past few months will provide practical guidance for data conversion from source systems, files and PDF reports into a harmonized representation both for SEND compliance and scientific R&D use.

Program Description (Continued)

TUESDAY AFTERNOON

Tuesday Afternoon, March 12
12:00 Noon to 1:30 PM
Room 212

FS

Research Funding Session: Strategies for Submitting Successful Grants: Brown Bag Luncheon

Chairperson(s): *David Dorman, North Carolina State University, Raleigh, NC.*

Sponsor:
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 12
12:00 Noon to 1:30 PM
Grand Hyatt Presidio B

Association of Scientists of Indian Origin Special Interest Group Lunch and Learn

Tuesday Afternoon, March 12
12:00 Noon to 1:30 PM
Grand Hyatt Republic B

Northeast Regional Chapter Student Luncheon

Tuesday Afternoon, March 12
12:00 Noon to 1:15 PM
Room 006 C
(Ticket Required)

Postdoctoral Assembly Luncheon

Chairperson(s): *Enrique Fuentes-Mattei, University of Texas MD Anderson Cancer Center, Houston, TX.*

Sponsor:
Postdoctoral Assembly

Amidst scrambling to attend all of the events at the meeting, this will be time for postdocs to kick back and relax! All postdoctoral scholars are invited to a casual luncheon organized by the Postdoctoral Assembly (PDA). Best Postdoctoral Publication Awards will be given and the postdocs who received awards this year from Specialty Sections and Regional Chapters will be recognized. The PDA Board members will present an overview of accomplishments and future directions for the PDA and will introduce the new board members for 2013–2014. There will be a drawing for door prizes.

Postdocs can purchase a ticket for $10 when they register for the Annual Meeting. The ticket charge is not refundable, reserves your place, and defrays some of the expenses for the luncheon. Lunch is served at the beginning of the event and service concludes before the main program begins. Meal service may not be available to guests who arrive after 12:30 pm.

Tuesday Afternoon, March 12
12:00 Noon to 1:30 PM

Networking Time

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

Tuesday Afternoon, March 12
12:00 Noon to 1:30 PM
See room listing below.

Specialty Section Meeting/Luncheons: Comparative and Veterinary (Room 216 A), *In Vitro* and Alternative Methods (Room 204)

Tuesday Afternoon, March 12
12:15 PM to 1:15 PM
Room 007 A

E

Exhibitor/Sponsor-Hosted Session: Advanced Techniques in Quantitative Whole Body Autoradiography and Cryo-Imaging

Presented by:
XenoBiotic Laboratories

Quantitative Whole Body Autoradiography (QWBA) is widely used to provide tissue distribution data of a radiolabeled drug as part of a nonclinical ADME program. Advancements in Cryo-imaging and Quantitative Autoradiography (CIQA) along with 3D modeling techniques provide an innovative approach for observing site-specific localization of drug and drug-induced or naturally occurring abnormalities.

Tuesday Afternoon, March 12
12:15 PM to 1:15 PM
Room 007 C

E

Exhibitor/Sponsor-Hosted Session: Electric Cell-Substrate Impedance Sensing: A Label Free, Noninvasive Method of Cell Measurement

Presented by:
Applied Biophysics, Inc.

An overview of the use of impedance (both simple and complex) to detect cell morphological changes. Emphasis will be placed on the use of different AC frequencies to distinguish cell parameters. Various ECIS applications.

Tuesday Afternoon, March 12
12:15 PM to 1:15 PM
Room 007 B

E

Exhibitor/Sponsor-Hosted Session: Introducing the First Fully Digital Wireless Solution for Large Animal Research

Presented by:
Data Sciences International

PhysioTel™ Digital advances research by simplifying study execution, enhancing animal welfare, and improving data accuracy. A panel of scientists will share experiences and perspectives using the first fully digital implantable telemetry system in multiple animal models. Discussion will focus on new technology implementation to maximize lab space, time, and investment.

Program Description (Continued)

Abstract #

Tuesday Afternoon, March 12
12:30 PM to 1:30 PM
Exhibit Hall C–D

ToxExpo Time!

ToxExpo is an important component of the SOT Annual Meeting. The Scientific Program Committee has therefore allotted this dedicated time for attendees to visit the Exhibit Hall C–D to stay abreast of the latest advances in technology, equipment, and services available to the toxicologist.

Tuesday Afternoon, March 12
1:00 PM to 4:30 PM
Exhibit Hall C–D

PS

Poster Session: Stems Cells: Emerging Applications in Toxicology

Regulatory Science: Advancing New Approaches for Hazard Identification and Risk Assessment

Chairperson(s): *Yvonne Will, Pfizer, Inc., Groton, CT.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *1:00 PM–2:45 PM*

#1189 **Poster Board Number 101**
Visualization of Reactive Oxygen Species (ROS) Using High-Content Image Analysis (HCA) in Undifferentiated Human Embryonic Stem Cells Exposed to Methyl Parathion (MP). J. S. Madren-Whalley, and *J. W. Sekowski*. ECBC, US Army RDECOM, Gunpowder, MD.

#1190 **Poster Board Number 102**
Pluripotency Factors Silence Expression of the Aryl Hydrocarbon Receptor in Embryonic Stem Cells. C. Ko, Q. Wang, and *A. Puga*. Environmental Health, University of Cincinnati, Cincinnati, OH.

#1191 **Poster Board Number 103**
Hypersensitivity of Stem Cells and Cancer Stem Cells to Cadmium Toxicity. *E. J. Tokar*, M. Rogers, and *M. P. Waalkes*. NTP, NIEHS, NIH, Research Triangle Park, NC.

#1192 **Poster Board Number 104**
Recruitment of Normal Stem Cells into an Oncogenic Phenotype by Noncontiguous Carcinogen-Transformed Malignant Epithelia Is Dependent on the Transforming Carcinogen. *Y. Xu*, *E. J. Tokar*, *R. J. Person*, R. Orihuela, and *M. P. Waalkes*. NTP, NIEHS, NIH, Research Triangle Park, NC.

#1193 **Poster Board Number 105**
Aberrant MicroRNA Expression Correlates with RAS Activation in Malignant Transformation of Human Prostate Epithelial and Stem Cells by Arsenic. *N. N. Ngalame*, *E. J. Tokar*, and *M. P. Waalkes*. NTP, NIEHS, NIH, Research Triangle Park, NC.

#1194 **Poster Board Number 106**
Aryl Hydrocarbon Receptor Contributes to Mouse Embryonic Stem Cell-Derived Cardiomyocyte Differentiation. Q. Wang, C. Ko, Y. Fan, Y. Wang, and *A. Puga*. University of Cincinnati, Cincinnati, OH.

Abstract #

#1195 **Poster Board Number 107**
Exposure to Concentrated Air Particles Depletes Bone Marrow Hematopoietic Stem Cells. *T. O'Toole*, W. Abplanalp, J. Lee, *D. Conklin*, and *A. Bhatnagar*. Diabetes and Obesity Center, University of Louisville, Louisville, KY.

#1196 **Poster Board Number 108**
Cadmium Concurrently Affects Cell Cycle, Total Histone Protein Production (THP) and H3 Histone Modification Pathways in Mouse Embryonic Stem Cells. *S. R. Gadhia*, and *F. A. Barile*. Pharmaceutical Sciences, St. John's University College of Pharmacy and Health Sciences, Queens, NY.

#1197 **Poster Board Number 109**
Cadmium Induces Up-Regulation of Genes Associated with Early Embryonic Development in Mouse Embryonic Stem Cells. A. Aliberti, and *F. A. Barile*. Pharmaceutical Sciences, St. John's University College of Pharmacy and Health Sciences, Queens, NY.

#1198 **Poster Board Number 110**
Colony-Forming Cell (CFC) Assays Predict for Increased Clinical Neutropenia Resulting from Combination Therapies. *E. Clarke*, A. Mergaert, and G. Dos Santos. ReachBio LLC, Seattle, WA.

#1199 **Poster Board Number 111**
The Effect of TCDD on the Development of Human Hematopoietic Stem Cells to Lineage-Committed B Cells. J. Li[1,2], *A. Phadnis*[1,2], *R. B. Crawford*[2,3], and *N. E. Kaminski*[1,2,3]. [1]Genetics Program, Michigan State University, East Lansing, MI; [2]Center for Integrative Toxicology, Michigan State University, East Lansing, MI; [3]Department of Pharmacology and Toxicology, Michigan State University, East Lansing, MI.

#1200 **Poster Board Number 112**
New Methodology for the Production of Thin-Layered Cardiomyocyte Tissue from Human-Induced Pluripotent Stem Cells (hiPSCs) Derived Cardiomyocytes for Use in High-Throughput Electrophysiological Platforms and High-Content Imaging Systems. *S. Yoshida*[1], K. Tsuzaki[2], S. Tomizawa[2], and Y. Asai[1]. [1]ReproCELL Inc., Kanagawa, Japan; [2]Drug Safety Testing Center Co., Ltd., Saitama, Japan.

#1201 **Poster Board Number 113**
Proteomic Analyses of Human Primary Hepatocytes and Stem Cell-Derived Hepatocytes Identifies Hepatocyte Maturity Markers and Shows Improved Phenotype Maintenance in an Air-Liquid Interface Culture Model. C. Rowe[1], C. Goldring[1], D. Gerrard[2], N. Hanley[2], M. Storm[3], D. Tosh[3], K. Piper Hanley[2], and B. Park[1]. [1]MRC Centre for Drug Safety Science, University of Liverpool, Liverpool, United Kingdom; [2]Centre for Endocrinology & Diabetes, University of Manchester, Manchester, United Kingdom; [3]Centre for Regenerative Medicine, University of Bath, Bath, United Kingdom. Sponsor: *D. Mendrick*.

Program Description (Continued)

Abstract #

#1202 **Poster Board Number 114**
Scalable, HTS/HCI-Amenable and NURR1-Expressing Dopaminergic Progenitor Cells Derived from Human Embryonic Stem Cells. *J. Chilton*[1], B. R. Culp[1], K. L. Galland[1], J. N. Le[1], J. A. McCabe[2], *Z. Lin*[2], *N. M. Filipov*[2], and *S. L. Stice*[1,2]. [1]ArunA Biomedical, Inc., Athens, GA; [2]University of Georgia, Athens, GA.

#1203 **Poster Board Number 115**
Conditions for Isolation and Maintenance of Rat Hepatic Stem/Progenitor Cell Colonies. *J. A. Harrill*[1], *J. Rowlands*[2], *R. S. Thomas*[1], and L. M. Reid[3]. [1]ICSS, The Hamner Institutes for Health Sciences, Research Triangle Park, NC; [2]TERC, The Dow Chemical Company, Midland, MI; [3]University of North Carolina at Chapel Hill, Chapel Hill, NC.

#1204 **Poster Board Number 116**
The *In Vitro* Human CFU Assay Combined with Automated Image Analysis of Colony Morphology Markedly Improves Assessment of Hematopoietic Toxicity of AZT and Other Nucleoside Inhibitors. M. Huber[1], D. Raj[1], C. Grande[1], J. Parrott[1], O. Egeler[1], K. Tse[1], C. Farzim[1], A. Eaves[1,2], and *J. Damen*[1]. [1]STEMCELL Technologies Inc, Vancouver, BC, Canada; [2]Terry Fox Laboratory, BC Cancer Agency, Vancouver, BC, Canada.

#1205 **Poster Board Number 117**
Investigation of a Redox-Sensitive Predictive Model of Mouse Embryonic Stem Cell Differentiation via Quantitative Nuclease Protection Assays and Glutathione Redox Status. *K. J. Chandler*[1], *J. M. Hansen*[2], *E. S. Hunter*[1], and *T. Knudsen*[1]. [1]NHEERL/NCCT, US EPA, Research Triangle Park, NC; [2]Department of Pediatrics, Emory University School of Medicine, Atlanta, GA.

#1206 **Poster Board Number 118**
Arsenic Trioxide Alters Regulation of Differentiation in Mouse Embryonic Stem Cells. T. Lee, and *F. A. Barile*. Pharmaceutical Sciences, St. John's University College of Pharmacy and Health Sciences, Queens, NY.

#1207 **Poster Board Number 119**
Vascular Endothelial Cells Exposed to PCB 153 Show Increased Expression of Stem Cell Markers. J. K. Das, and *Q. H. Felty*. Environmental & Occupational Health, Florida International University, Miami, FL.

#1208 **Poster Board Number 120**
Evaluation of Ionotropic and Chronotrpic Compounds *In Vitro* Using Human iPS-Derived Cardiomyocytes and Impedance-Based Contractility Assay. X. Zhang, B. Xi, X. Wang, X. Xu, and *Y. A. Abassi*. Acea Biosciences, San Diego, CA.

#1209 **Poster Board Number 121**
Selection of CYP3A4$^+$ hESC-Derived Hepatocytes for Drug Metabolism and Toxicity Assays. K. Bonham[1], R. Rodriguez[1], S. Ogawa[2], C. Blanco[1], H. Xian[1], R. Stull[3], G. Keller[2], and *R. Snodgrass*[1]. [1]VistaGen Therapeutics, Inc., South San Francisco, CA; [2]McEwen Centre for Regenerative Medicine, Toronto, ON, Canada; [3]Stem CentRx, South San Francisco, CA.

Abstract #

#1210 **Poster Board Number 122**
Adapting the MTT Assay for Use with Human Embryonic Stem Cells (hESC). *R. Z. Behar*, *V. Bahl*, Y. Wang, J. Weng, S. Lin, and *P. Talbot*. University of California Riverside, Riverside, CA.

#1211 **Poster Board Number 123**
Differential Regulation of Pluripotency Maintenance and Differentiation Genes in Undifferentiated Human Embryonic Stem Cells (hESC) Exposed to Methyl Parathion (MP) and Its Active Metabolite Methyl Paraoxon (MPO). *J. W. Sekowski*, and J. S. Madren-Whalley. ECBC, US Army RDECOM, Gunpowder, MD.

Tuesday Afternoon, March 12
1:00 PM to 4:30 PM
Exhibit Hall C–D

PS

Poster Session: Pharmaceutical Safety Assessment: Drug Development II

Chairperson(s): *Ruth A. Roberts, AstraZeneca, Macclesfield, United Kingdom.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *2:45 PM–4:30 PM*

#1212 **Poster Board Number 124**
IQ-PSLG Nonclinical to Clinical Translational Safety Database Initiative. *T. Monticello*[1], *V. Kadambi*[2], *M. Graziano*[3], M. Sommer[4], *K. Blanchard*[5], Q. Zhu[5], and M. Liu[6]. [1]Amgen, Thousand Oaks, CA; [2]Millennium: The Takeda Oncology Company, Cambridge, MA; [3]Bristol-Myers Squibb, Princeton, NJ; [4]Pfizer, Groton, CT; [5]Boehringer Ingelheim, Ridgefield, CT; [6]IQ, Washington DC.

#1213 **Poster Board Number 125**
Target Organ Toxicities in Studies Conducted to Support First Time in Human Dosing: An Analysis across Species and Therapy Areas. *R. Roberts*, D. Ryan, R. Callander, K. Stamp, S. Horner, and S. Robinson. Global Safety Assessment, AstraZeneca, Macclesfield, United Kingdom.

#1214 **Poster Board Number 126**
Quantitative Protein Expression Profiling of HepG2 Cells Treated with Compounds Implicated in Drug-Induced Liver Injury (DILI). A. Tavendale, C. Vazquez-Martin, D. Lamont, and P. Ajuh. Dundee Cell Products Ltd., Dundee, United Kingdom. Sponsor: *C. Elcombe*.

#1215 **Poster Board Number 127**
Demonstration of a Unique *In Vitro* to *In Vivo* to Clinical Correlation of Drug-Induced Phototoxicity. *T. Su*, P. Stetsko, J. Gong, W. Washburn, S. C. Griffen, and *T. Reilly*. Research & Development, Bristol-Myers Squibb, New Brunswick, Hopewell, and Lawrenceville, NJ.

#1216 **Poster Board Number 128**
Preclinical Profiling and Computational Differentiation of Human Vascular Response to 95 Drugs Using Next-Gen RNAseq Transcriptomics. R. Figler, M. J. Lawson, A. J. Mackey, E. L. Berzin, J. C. Anstey, P. D. Schoppee-Bortz, R. W. Tilghman, B. R. Blackman, and B. R. Wamhoff. HemoShear, LLC, Charlottesville, VA. Sponsor: *A. Dash*.

Program Description (Continued)

Abstract #

#1217 **Poster Board Number 129**
Towards a Platform of BAC-GFP Transgenomics-Based Pathway of Toxicity Reporters for Automated High-Content Imaging-Based Chemical Safety Assessment. S. Wink, B. Herpers, S. Hiemstra, and *B. van de Water*. Toxicology, LACDR, Leiden, Netherlands.

#1218 **Poster Board Number 130**
High-Throughput Respirometric Assay Identifies Predictive Toxicophore of Mitochondrial Injury. L. P. Wills[2], G. Beeson[1,2], R. Trager[1], C. Lindsey[1], Y. Peterson[1], C. Beeson[1,2], and *R. Schnellmann*[1]. [1]Medical University of South Carolina, Charleston, SC; [2]MitoHealth, Charleston, SC.

#1219 **Poster Board Number 131**
Nonclinical Toxicology Profiling of the First-In-Class Sodium-Glucose Co-Transporter 2 (SGLT2) Inhibitor Dapagliflozin. *M. Tirmenstein*[1], A. Bergholm[2], E. Janovitz[1], D. Hagan[1], J. Whaley[1], and *T. Reilly*[1]. [1]Bristol-Myers Squibb Research & Development, Princeton, NJ; [2]AstraZeneca Research & Development, Mölndal, Sweden.

#1220 **Poster Board Number 132**
Bone Assessments in Enhanced Pre-Postnatal Toxicity Study in Pregnant Cynomolgus Monkeys with up to 6-Months Postnatal Evaluation. A. Varela[1], S. Y. Smith[1], and G. Chellman[2]. [1]Bone Research, Charles River, Montréal, QC, Canada; [2]Charles River, Reno, NV. Sponsor: *M. Vézina*.

#1221 **Poster Board Number 133**
Characterization of Batracylin-Induced Renal and Bladder Toxicity in Rats. *L. Rausch*[1], D. Bunin[1], K. Altera[1], S. Samuelsson[1], R. Kinders[2], *M. Davis*[3], and *T. Parman*[1]. [1]SRI International, Menlo Park, CA; [2]SAIC-Frederick, Frederick, MD; [3]National Cancer Institute, Bethesda, MD.

#1222 **Poster Board Number 134**
NKTR-181, a Novel Opioid Agonist, Demonstrates Mu-Opioid Agonist Effects and Minimal CNS Side Effects in Both Rat and Dog. *E. Tonkin*, A. Odinecs, and *T. D. Sweeney*. Nektar Therapeutics, San Francisco, CA.

#1223 **Poster Board Number 135**
Safety Assessment of NU100 in a 6-Month Cynomolgus Monkey Study. *H. Hu*[1], V. Tammara[2], *D. Hobson*[3], E. Shaw[2], *D. Zeng*[2], and A. Brooks[1]. [1]Covance Laboratories Inc., Madison, WI; [2]Nuron Biotech Inc., Exton, PA; [3]LoneStar PharTox LLC, Boene, TX.

#1224 **Poster Board Number 136**
BPM31510 Is a Novel Regulator of Mitochondrial Function That Mitigates/Rescues Drug-Induced Toxicity—Evidence in Drug-Induced Cardiotoxicity and Cancer Chemotherapy Using *In Vitro* and *In Vivo* Models. *R. Sarangarajan*[1,2,3], T. Walshe[2], A. Lee[2], R. Ouro-djobo[2], L. M. Mauro[4], V. Vishnudas[1,2], J. J. Jimenez[4], and N. R. Narain[1,2,3]. [1]Berg Pharma LLC, Natick, MA; [2]Berg Biosystems, Natick, MA; [3]Berg Diagnostics, Natick, MA; [4]University of Miami, Miller School of Medicine, Miami, FL.

#1225 **Poster Board Number 137**
Etirinotecan Pegol Nonclinical Toxicology Studies Establish a Margin of Safety to Support an Every Three-Week Clinical Dosing Schedule. *T. D. Sweeney*, *E. Tonkin*, U. Hoch, and *C. Ji*. Nektar Therapeutics, San Francisco, CA.

Abstract #

#1226 **Poster Board Number 138**
Transient Thrombocytopenia without Coagulopathy in Rats following Single IV Bolus of Oxycyte®, a Perfluorocarbon (Pfc) Based Oxygen Carrier. *S. Anderson*[1], L. Bernard[2], J. Szabo[2], and T. Bradshaw[1]. [1]Oxygen Biotherapeutics, Morrisville, NC; [2]Ricerca Biosciences, Concord, OH.

#1227 **Poster Board Number 139**
Immunomodulatory Activity of Orphan Drug Elmiron® in Female B6C3F1/N Mice. *S. Thakur*[1], N. Abraham[2], *K. L. White*[3], M. J. Smith[3], W. Auttachoat[3], and *D. R. Germolec*[1]. [1]Division of National Toxicology Program, NIEHS, NIH, Research Triangle Park, NC; [2]Integrated Laboratory Systems, Research Triangle Park, NC; [3]Virginia Commonwealth University, Richmond, VA.

#1228 **Poster Board Number 140**
Assessment of Long-Term Preclinical Safety of Inhaled Technosphere® Particles and Afrezza® Inhalation Powder. *S. Greene*[1], *K. Nikula*[2], *D. Poulin*[3], *K. McInally*[4], and *J. Reynolds*[5]. [1]MannKind Corp, Valencia, CA; [2]Seventh Wave Laboratories, Chesterfield, MO; [3]Charles River Laboratories, Montréal, QC, Canada; [4]ITR Laboratories, Montréal, QC, Canada; [5]JA Reynolds & Associates, Madison, CT.

#1229 **Poster Board Number 141**
NF-κB Activation in the Hippocampus during Multiple Subthreshold Exposures to Seizurogenic Compounds. J. A. Miller[1], *K. S. Kirkley*[1], Y. H. Raol[2], *M. Patel*[3], *R. A. Bialecki*[4], and *R. B. Tjalkens*[1]. [1]Center for Environmental Medicine, Colorado State University, Fort Collins, CO; [2]Department of Pediatric Neurology, University of Colorado, Denver, CO; [3]Department of Pharmaceutical Sciences, University of Colorado, Denver, CO; [4]Safety Assessment, AstraZeneca, Boston, MA.

#1230 **Poster Board Number 142**
Starting Dose Selection for First-in-Human Trials Using Model-Based Approaches. *V. Kadambi*, S. Palani, A. Lynn, J. Senn, S. Ottinger, J. Mettetal, S. Chong, E. Fedyk, W. Shyu, and A. Chakravarty. Millennium: The Takeda Oncology Company, Cambridge, MA.

#1231 **Poster Board Number 143**
Application of Electroretinography (ERG) in Early Drug Development for Assessing Ocular Toxicity in Rats. W. W. Collette, M. Twamley, *Q. Peng*, *S. Aguirre*, *W. Huang*, *A. Sacaan*, and *A. John-Baptiste*. Worldwide Safety Sciences, Pfizer Inc., La Jolla, CA.

#1232 **Poster Board Number 144**
Absolute Quantitation of Low-Abundance Protein Adducts Using a Novel Accelerator Mass Spectrometry Liquid Sample Interface. *B. Stewart*[1], A. T. Thomas[2], T. Ognibene[2], *K. W. Turteltaub*[1], and G. Bench[2]. [1]Biosciences and Biotechnology Division, Lawrence Livermore National Laboratory, Livermore, CA; [2]Center for Accelerator Mass Spectrometry, Lawrence Livermore National Laboratory, Livermore, CA.

Program Description (Continued)

Abstract #

#1233 **Poster Board Number 145**
Evaluation of Respiratory Function in the Conscious, Nonrestrained Cynomolgus Monkey Using Respiratory Inductive Plethysmography. J. Le Bigot, J. Maucotel, F. El Amrani, S. Loriot, A. El Amrani, J. Legrand, and *R. Forster*. CiToxLAB France, Evreux, France.

#1234 **Poster Board Number 146**
Impact of Food and Fecal Contamination on Dog Urinalysis Data. M. Felx, V. Allegret, N. Oleas, S. Y. Smith, and F. Poitout. Charles River, Montréal, QC, Canada. Sponsor: *M. Vézina*.

#1235 **Poster Board Number 147**
High-Resolution Isotope Dilution (HRID) Quantitative Analysis: Metabolites in Safety Testing (MIST) Application to Diclofenac. *J. Vrbanac*[1], A. Hilgers[1], B. Shilliday[1], T. Dubnicka[1], D. Humphries[2], and *R. Hayes*[2]. [1]ADME, MPI Research, Mattawan, MI; [2]Analytical Sciences, MPI Research, Mattawan, MI.

#1236 **Poster Board Number 148**
12-Week Intrathecal Administration Study in Port Catheterized Juvenile Cynomolgus Monkeys. S. H. Korte[1], C. Rose[1], M. Niehoff[1], and M. Butt[2]. [1]Covance Laboratories GmbH, Muenster, Germany; [2]Tox Path Specialists, Frederick, MD. Sponsor: *G. Weinbauer*.

#1237 **Poster Board Number 149**
BMS-964210, a Pegylated Bispecific Adnectintargeting EGFR and IGF-1R, Demonstrates Improved Class-Specific Toxicity Profile in Cynomolgus Monkeys. *M. Guha*[1], *R. W. Lange*[1], J. Gokemeijer[2], R. White[1], B. Silver[2], N. Marsh[2], K. Manson[2], T. P. Sanderson[1], and *R. T. Bunch*[1]. [1]Drug Safety Evaluation, Bristol-Myers Squibb, Mount Vernon, IN; [2]Early Candidate Assessment, Adnexus, Waltham, MA.

#1238 **Poster Board Number 150**
Subcutaneous Injection Sites: Is the Quality of the Diagnosis Improved When More Than One Tissue Section Is Examined? *J. Briffaux*, C. Thuilliez, C. Clément, and M. Perron Lepage. Ricerca Biosciences SAS, St. Germain sur l'Arbresle, France.

Tuesday Afternoon, March 12
1:00 PM to 4:30 PM
Exhibit Hall C–D

PS

Poster Session: Exposure Assessment: New Characterizations, Methods, and Models

Chairperson(s): *Justin G. Teeguarden, Pacific Northwest National Laboratory, Richland, WA.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *1:00 PM–2:45 PM*

#1239 **Poster Board Number 201**
Internal Exposure of Common Environmental Pollutants in a Chinese Population. S. Chen[1], Y. Lei[1], S. Zhang[1], A. Wang[2], and W. Shi[1]. [1]Pharmacology & Toxicology and Biochemical Pharmaceutics, Zhejiang University, Hangzhou, China; [2]Hangzhou EPIE Bio-detection Technology Limited, Hangzhou, China. Sponsor: *D. Thomas*.

Abstract #

#1240 **Poster Board Number 202**
Occurrence of Gaseous Pesticides and Other Hazardous Volatiles in Sea Containers Arriving in Sweden. *G. Johanson*[1], and U. Svedberg[2]. [1]Work Environment Toxicology, Karolinska Institute, Stockholm, Sweden; [2]Occupational and Environmental Medicine, Sundsvall Hospital, Sweden.

#1241 **Poster Board Number 203**
Interactions between Urinary 4-Tert-Octylphenol Levels and Metabolism Enzyme Gene Variants on Idiopathic Male Infertility. Y. Qin[1], M. Chen[1], W. Wu[1], B. Xu[1], G. Du[1], *C. Lu*[1], J. D. Meeker[2], Z. Zhou[1], *Y. Xia*[1], and *X. Wang*[1]. [1]Nanjing Medical University, Nanjing, China; [2]University of Michigan School of Public Health, Ann Arbor, MI.

#1242 **Poster Board Number 204**
Smartphone Technologies Coupled with Environmental Models Allow for Large Scale Community Outreach and Risk Assessment. A. J. Larkin[1,2,3], S. K. Krueger[3,4], *D. E. Williams*[1,3,4], and *W. M. Baird*[1,3]. [1]Environmental and Molecular Toxicology, Oregon State University, Corvallis, OR; [2]Statistics, Oregon State University, Corvallis, OR; [3]Superfund Research Center, Oregon State University, Corvallis, OR; [4]Linus Pauling Institute, Oregon State University, Corvallis, OR.

#1243 **Poster Board Number 205**
A High-Throughput Analytical Method for Enhanced Toxicological Studies. *C. Y. Usenko*, E. M. Robinson, *E. D. Bruce*, and S. Usenko. Baylor University, Waco, TX.

#1244 **Poster Board Number 206**
Evaluating High-Throughput Exposure Models with NHANES Data. W. Setzer, and *J. Wambaugh*. National Center for Computational Toxicology, US EPA, Research Triangle Park, NC.

#1245 **Poster Board Number 207**
Haematology and Erythrocyte Osmotic Fragility Indices in Domestic Chicken following Exposure to a Polyvalent Iodophorous Disinfectant in Water Treatment. *O. I. Azeez*[1], *A. A. Oyagbemi*[1], and *O. T. Iji*[2]. [1]Department of Veterinary Physiology, Biochemistry and Pharmacology, University of Ibadan, Ibadan, Nigeria; [2]Federal College of Animal Health and Production Technology, Moor Plantation, Apata, Ibadan, Nigeria.

#1246 **Poster Board Number 208**
How Inaccurate Are Serum-Lipid Unadjusted Organochlorine Levels? S. Koifman, C. Freire, R. J. Koifman, A. S. Rosa, and P. N. Sarcinelli. National School Public Health/ FIOCRUZ, Rio de Janeiro, Brazil. Sponsor: *E. Silbergeld*.

#1247 **Poster Board Number 209**
Revised Methods for Estimating Potential Re-Entry Exposure Associated with Indoor Crack and Crevice Application. *J. H. Driver*[1], *J. H. Ross*[2], *S. Selim*[3], J. Sharp[4], and M. Pandian[5]. [1]risksciences.net, LLC, Manassas, VA; [2]risksciences.net, LLC, Sacramento, CA; [3]Selim & Associates, Inc., Fresno, CA; [4]McLaughlin Gormley King Company, Minneapolis, MN; [5]infoscientific.com, Inc., Henderson, NV.

TUESDAY

Program Description (Continued)

Abstract #

#1248 **Poster Board Number 210**
Derivation of Biomonitoring Equivalents for Chlorpyrifos Using a Pharmacokinetic/Pharmacodynamic Model of Oral Exposures. S. M. Arnold[1], A. Morriss[2], J. Velovitch[3], *D. Juberg*[3], *P. Price*[1], C. Burns[1], *M. Bartels*[1], A. McCoy[1], M. Aggarwal[2], and T. Poet[4]. [1]The Dow Chemical Company, Midland, MI; [2]Dow AgroSciences, Milton Park, United Kingdom; [3]Dow AgroSciences, Indianapolis, IN; [4]Battelle, Richland, WA.

#1249 **Poster Board Number 211**
Gene Expression of sFLT1 Links Prenatal Arsenic Exposure to Increased Risk on Small for Gestational Age. S. Remy[1,3], E. Govarts[1], B. Wens[1,3], L. Bruckers[2], M. Paulussen[1], E. Den Hond[1], and G. Schoeters[1,3]. [1]Flemish Institute for Technological Research (VITO), Mol, Belgium; [2]Hasselt University, Hasselt, Belgium; [3]Antwerp University, Antwerp, Belgium. Sponsor: *P. Hoet*.

#1250 **Poster Board Number 212**
Plasma Polybrominated Diphenyl Ethers (PBDEs) in Californian Women at High Risk for Birthing an Autistic Child. *Y. Lin*[1], I. Hertz-Picciotto[2], D. Tancredi[2], *I. N. Pessah*[1], and *B. Puschner*[1]. [1]Department of Molecular Biosciences, School of Veterinary Medicine, University of California Davis, Davis, CA; [2]Department of Public Health Sciences, School of Medicine, University of California Davis, Davis, CA.

#1251 **Poster Board Number 213**
Estimation of Dietary Lead Exposure for US Children Using a New Method: Implications for the Integrated Exposure Uptake Biokinetic Model for Lead in Children. M. Follansbee[1], M. Ballew[2], J. Brown[2], M. Burgess[2], M. Stifleman[2], and B. Thayer[1]. [1]SRC, Inc., East Syracuse, NY; [2]US EPA, Washington DC. Sponsor: *G. Diamond*.

#1252 **Poster Board Number 214**
Using Doubly-Labeled Water Energy Data for Estimating Ventilation Rates for the Integrated Exposure Uptake Biokinetic Model for Lead in Children. B. Thayer[1], M. Follansbee[1], J. Brown[2], M. Burgess[2], and M. Stifelman[2]. [1]SRC, Inc., East Syracuse, NY; [2]US EPA, Washington DC. Sponsor: *G. Diamond*.

#1253 **Poster Board Number 215**
Conducting Probabilistic Reverse Dosimetry Calculations to Estimate Exposure Concentrations from Biomarker Data—An Example of Perchlorate. *M. B. Phillips*[1], C. Grulke[1], *Y. Yang*[2], *K. Holm*[1], D. Chang[1], R. Goldsmith[1], R. Tornero-Velez[1], *C. Dary*[3], and *C. Tan*[1]. [1]US EPA ORD NERL, Research Triangle Park, NC; [2]The Hamner Institutes for Health Sciences, Research Triangle Park, NC; [3]US EPA ORD NERL, Las Vegas, NV.

#1254 **Poster Board Number 216**
The Effect of Clothing Care Activities on Textile Formaldehyde Content. *R. Novick*, *M. G. Lew*, M. A. McKinley, G. L. Anderson, and *J. J. Keenan*. ChemRisk, San Francisco, CA.

#1255 **Poster Board Number 217**
Exposure Associated with Power Stripping of Asbestos Containing Insulation from Electrical Cable. C. L. Blake[1], A. Jurkowski[1], *G. Johnson*[2], and *R. D. Harbison*[2]. [1]Bureau Veritas North America, Inc., Kennesaw, GA; [2]Environmental and Occupational Health, University of South Florida, Tampa, FL.

Abstract #

#1256 **Poster Board Number 218**
N,N'-Di-Tert-Butylacetamidine: Integrated Toxicity Testing Approach to Establish an Occupational Exposure Guideline. *J. A. Hotchkiss*, R. Sura, *S. Krieger*, J. Thomas, and *L. Andrews*. The Dow Chemical Company, Midland, MI.

#1257 **Poster Board Number 219**
Lipidomics of Subchronic Low Level Cadmium Exposure in the Rat. O. O. Ogunrinola, *O. Ademuyiwa*, A. D. Wusu, O. K. Afolabi, E. O. Abam, D. O. Babayemi, *E. A. Balogun*, and O. O. Odukoya. Biochemistry, University of Agriculture, Abeokuta, Nigeria.

#1258 **Poster Board Number 220**
Serum Great Lakes Pollutant Levels in Lake Ontario Fish and Wildlife Consumers. *F. D. Stephen*[1], L. A. Georger[1], M. R. Bonner[3], *P. J. Kostyniak*[2], *J. R. Olson*[2,3], M. S. Bloom[4], and J. E. Vena[5]. [1]Math & Natural Sciences, D'Youville College, Buffalo, NY; [2]Pharmacology & Toxicology, State University of New York Buffalo, Buffalo, NY; [3]Social & Preventive Medicine, State University of New York Buffalo, Buffalo, NY; [4]Environmental Health Sciences, State University of New York Albany, Albany, NY; [5]Epidemiology and Biostatistics, University of Georgia, Athens, GA.

#1259 **Poster Board Number 221**
Exposure to Environmental Tobacco Smoke Causes Endotoxin Tolerance. T. Muthumalage[2], K. Hunter[3,2], D. Redelman[4], K. Pritsos[1], and *C. A. Pritsos*[1,2]. [1]Agriculture, Nutrition and Veterinary Sciences, University of Nevada, Reno, Reno, NV; [2]Environmental Sciences Program, University of Nevada, Reno, Reno, NV; [3]Microbiology and Immunology, University of Nevada, Reno, Reno, NV; [4]Physiology and Cell Biology, University of Nevada, Reno, Reno, NV.

#1260 **Poster Board Number 222**
Mitochondrial-K^+-ATP Channel Activation Rescues of Phosgene-Induced Toxic Inhalational Lung Injury. *J. McDonald*. Lovelace Respiratory Research Institute, Albuquerque, NM.

#1261 **Poster Board Number 223**
Systematic Review of BPA "Low Dose" Literature in the Context of Human Dosimetry Exposes a Need to Set Standards for Responsible Communication of Both Toxicity and Exposure Data. S. Hanson-Drury, and *J. G. Teeguarden*. Systems Toxicology and Exposure Science, Pacific Northwest National Laboratory, Richland, WA.

#1262 **Poster Board Number 224**
Secondary Particulate Health Effects Research (SPHERES) Program: Secondary Organic Aerosol Effects on the Cardiovascular System. *A. Rohr*[2,1], and *J. McDonald*[1]. [1]Lovelace Respiratory Research Institute, Albuquerque, NM; [2]Electric Power Research Institute, Palo Alto, CA.

#1263 **Poster Board Number 225**
Pulmonary Toxicity of Oxygen and Carbon Dioxide Degraded Amines Used for Carbon Capture and Storage. D. Kracko, and *J. McDonald*. Lovelace Respiratory Research Institute, Albuquerque, NM.

Program Description (Continued)

Abstract #

#1264 **Poster Board Number 226**
Volatile Organic Compounds Released from Expanded Polystyrene. *N. Pajaro-Castro*, J. Perez-Romero, and *J. Olivero-Verbel*. Environmental and Computational Chemistry Group Pharmaceutical Sciences, University of Cartagena, Cartagena, Colombia.

#1265 **Poster Board Number 227**
Assessment of Biomarkers of Benzene Exposure and Effect in Petrochemical Workers. *S. Inayat-Hussain*[1,2], M. Sabtu[2], F. S. Chin[2], and *M. K. Chan*[1]. [1]Environmental Health and Industrial Safety Program, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia; [2]UKM Medical Molecular Biology Institute, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia.

#1266 **Poster Board Number 228**
Identification of Sulfated Metabolites of 4-Chlorobiphenyl (PCB3) in the Serum and Urine of Male Rats. *K. Dhakal*[1,4], *L. Hans-Joachim*[1,4], L. M. Teesch[2], *M. W. Duffel*[1,3], and *L. W. Robertson*[1,4]. [1]Interdisciplinary Graduate Program in Human Toxicology, The University of Iowa, Iowa City, IA; [2]High Resolution Mass Spectrometry Facility, The University of Iowa, Iowa City, IA; [3]Department of Pharmaceutical Sciences and Experimental Therapeutics, The University of Iowa, Iowa City, IA; [4]Department of Occupational and Environmental Health, The University of Iowa, Iowa City, IA.

#1267 **Poster Board Number 229**
Significant Megacluster of Total Cancer Mortality among the US Non-White Population. J. Beaubier[1], and L. Russell[2]. [1]US EPA, Washington DC; [2]US EPA, Washington DC. Sponsor: *J. Murphy*.

#1268 **Poster Board Number 230**
Airborne Diacetyl from Cooking and Consumption of Microwave Popcorn: Estimation of Consumer Exposure with a Two-Zone Near-Field/Far-Field Model. *H. M. Bolstad*[1], K. M. Unice[2], J. R. Maskrey[2], D. M. Hollins[1], *B. D. Kerger*[3], and *D. J. Paustenbach*[1]. [1]ChemRisk, San Francisco, CA; [2]ChemRisk, Pittsburgh, PA; [3]ChemRisk, Orange County, CA.

Tuesday Afternoon, March 12
1:00 PM to 4:30 PM
Exhibit Hall C–D

PS

Poster Session: Receptor-Mediated Toxicity

Chairperson(s): *Ruth A. Roberts, AstraZeneca, Macclesfield, United Kingdom.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *2:45 PM–4:30 PM*

#1269 **Poster Board Number 231**
Examination of Specificity of Retinoid-Like Compounds for RXRs, RARs and RORs. *P. P. Albrecht*[1], K. Toyokawa[1], E. Maddox[1], P. Cramer[1], B. Sherf[1], and *J. Vanden Heuvel*[1,2]. [1]Indigo Biosciences, State College, PA; [2]Department of Veterinary and Biomedical Sciences, Pennsylvania State University, University Park, PA.

Abstract #

#1270 **Poster Board Number 232**
Oxidative Formation of the High Affinity Endogenous Aryl Hydrocarbon Receptor Ligand 6-Formylidolo(3,2-*B*)Carbazole (FICZ). U. Rannug[1], A. Smirnova[1], L. Vikström Bergander[2], E. Wincent[2], T. Alsberg[3], and *A. Rannug*[2]. [1]Department of Genetics, Microbiology & Toxicology, Stockholm University, Stockholm, Sweden; [2]Institute of Environmental Medicine, Karolinska Institutet, Stockholm, Sweden; [3]Department of Applied Environmental Science, Stockholm University, Stockholm, Sweden.

#1271 **Poster Board Number 233**
The Aryl Hydrocarbon Receptor Regulates the Expression of Multiple Growth Factors in Highly Metastatic Head and Neck Squamous Cell Carcinoma Cell Lines. *K. John*[1,2], J. Hughes[1], *T. S. Lahoti*[1], K. Wagner[1], and *G. H. Perdew*[1]. [1]Center for Molecular Toxicology and Carcinogenesis, Pennsylvania State University, University Park, PA; [2]DuPont Haskell Global Centers for Health and Environmental Sciences, Newark, DE.

#1272 **Poster Board Number 234**
Hepatocarcinogenesis Induced by a Potent, High Affinity Human PPARα Agonist Is Diminished in PPARα-Humanized Mice. *J. E. Foreman*[1], *T. Koga*[1], *O. Kosyk*[2], L. R. Kramer[1], *F. J. Gonzalez*[3], *I. Rusyn*[2], and *J. M. Peters*[1]. [1]Pennsylvania State University, University Park, PA; [2]University of North Carolina at Chapel Hill, Chapel Hill, NC; [3]National Cancer Institute, Bethesda, MD.

#1273 **Poster Board Number 235**
Arsenic Inhibits 3T3-L1 Adipogenesis and Suppresses Induction of Nuclear Receptors during the Earliest Stages of Differentiation. F. Zandbergen[1], A. Adebayo[1,2], *M. Vantangoli*[1,2], V. Chatikavanij[1], and *J. W. Hamilton*[1,2]. [1]Marine Biological Laboratory, Woods Hole, MA; [2]Brown University, Providence, RI.

#1274 **Poster Board Number 236**
Liver X Receptor and Pregnane Xenobiotic Receptor Crosstalk on Direct Repeat 4 (DR4) Response Elements Is Sequence Dependent. *K. Falkner*[1], B. Wahlang[1], H. Bellis-Jones[1], H. Clair[1], *R. Prough*[3], and *M. Cave*[1,2]. [1]Department of Medicine/GI, University of Louisville, Louisville, KY; [2]Louisville VAMC, Louisville, KY; [3]Biochemistry, University of Louisville, Louisville, KY.

#1275 **Poster Board Number 237**
Selective Activation of Human Pregnane X Receptor, Vitamin D Receptor, and Glucocorticoid Receptor by Flavonols. *A. Lau*, and *T. K. Chang*. Faculty of Pharmaceutical Sciences, The University of British Columbia, Vancouver, BC, Canada.

#1276 **Poster Board Number 238**
A Novel Aryl Hydrocarbon Receptor 1 Sequence from Rainbow Trout (*Oncorhynchus mykiss*) Brain. A. M. Kalinoski, J. M. Preslar, M. M. DeRocher, D. M. Hollis, and *E. V. Hestermann*. Biology Department, Furman University, Greenville, SC.

TUESDAY

Program Description (Continued)

Abstract #

#1277 **Poster Board Number 239**
Ginsenosides Are Novel AH Receptor Ligands. Q. Hu[1], G. He[2], J. Zhao[2], A. Soshilov[2], *M. Denison*[2], H. Yin[3], Q. Xie[1], and *B. Zhao*[1]. [1]State Key Laboratory of Environmental Chemistry and Ecotoxicology, Research Center for Eco-Environmental Sciences, Beijing, China; [2]Department of Environmental Toxicology, University of California Davis, Davis, CA; [3]Xiyuan Hospital, China Academy of Chinese Medical Sciences, Beijing, China.

#1278 **Poster Board Number 240**
Comparison of Serum Chemistry and Tissue Phenotypes in Aryl Hydrocarbon Receptor Knockout Rats and Mice. *R. Budinksy*[2], *J. A. Harrill*[1], R. Hukkanen[2], *J. Rowlands*[2], and *R. S. Thomas*[1]. [1]ICSS, The Hamner Institutes for Health Sciences, Research Triangle Park, NC; [2]TERC, The Dow Chemical Company, Midland, MI.

#1279 **Poster Board Number 241**
Selective AhR Modulator-Mediated Suppression of Acute Joint Edema Associated with Gouty Arthritis. I. Murray, *T. S. Lahoti*, G. Krishnegowda, S. G. Amin, and *G. H. Perdew*. Pennsylvania State University, University Park, PA.

#1280 **Poster Board Number 242**
Aryl Hydrocarbon Receptor *(AhR)* Regulates Growth Factor Expression, Proliferation, Protease-Dependent Invasion and Migration in Primary Fibroblast-Like Synoviocytes from Rheumatoid Arthritis Patients. *T. S. Lahoti*[1], *K. John*[1,2], J. M. Hughes[1], *B. Zhu*[1], I. A. Murray[1], *J. M. Peters*[1], and *G. H. Perdew*[1]. [1]Veterinary Sciences, Penn State University, University Park, PA; [2]DuPont Haskell Global Centers for Health and Environmental Sciences, Newark, DE.

#1281 **Poster Board Number 243**
Pregnane X Receptor and Cytochrome P450 CYP2 and CYP3 Gene Responses to Potential Agonists for PXR and AhR2 in Developing Zebrafish. A. Kubota, *J. Goldstone*, B. Lemaire, M. Takata, B. Woodin, and *J. Stegeman*. Biology Department, Woods Hole Oceanographic Institution, Woods Hole, MA.

#1282 **Poster Board Number 244**
Aryl Hydrocarbon Receptor Reduces Cholesterol Absorption by Regulating NPC1L1 Expression. *R. Tanos*, A. Kusnadi, and *G. H. Perdew*. Pennsylvania State University, University Park, PA.

#1283 **Poster Board Number 245**
Generation and Characterization of a Hairless Mouse Model to Study the Role of Aryl Hydrocarbon Receptor Activation in Response to Ultraviolet Light Exposure. *K. J. Smith*, *T. S. Lahoti*, J. A. Boyer, K. Wagner, I. A. Murray, and *G. H. Perdew*. Center for Molecular Toxicology and Carcinogenesis, Pennsylvania State University, University Park, PA.

#1284 **Poster Board Number 246**
Inhibition of Heat Shock Protein-90 Prevents the Transactivation and Translocation of Human Constitutive Androstane Receptor. *T. Chen*, *E. M. Laurenzana*, *D. M. Coslo*, *F. Chen*, and *C. J. Omiecinski*. Center for Molecular Toxicology and Carcinogenesis, The Pennsylvania State University, University Park, PA.

Abstract #

#1285 **Poster Board Number 247**
Activation of Transient Receptor Potential Ankyrin-1 by Wood Smoke Particulate Material. D. Shapiro, *C. E. Deering-Rice*, *E. G. Romero*, *G. S. Yost*, *J. M. Veranth*, and *C. A. Reilly*. Pharm/Tox, University of Utah, Salt Lake City, UT.

#1286 **Poster Board Number 248**
Exploratory Phenotype and Molecular Analysis Study in ROR-Gamma Knockout Mice. *M. J. Horner*[1], R. Guzman[1], *C. Karbowski*[1], J. Schroeder[1], C. DiPalma[2], Y. He[2], and *C. Afshari*[1]. [1]Amgen Inc, Thousand Oaks, CA; [2]Amgen Inc., Seattle, WA.

#1287 **Poster Board Number 249**
Estrogen Receptor α and Aryl Hydrocarbon Receptor Are Not the Sole Determinants of Aminoflavone-Mediated Growth Inhibition. *A. M. Brinkman*[1,2], and *W. Xu*[1,2]. [1]Molecular and Environmental Toxicology Center, University of Wisconsin-Madison, Madison, WI; [2]Department of Oncology, University of Wisconsin-Madison, Madison, WI.

#1288 **Poster Board Number 250**
Understanding the Physiological Role of Aryl Hydrocarbon Receptor Repressor (AhRR) Using Gene Knock-Down and Targeted Mutagenesis in Zebrafish. *N. Aluru*[1], *S. I. Karchner*[1], *M. J. Jenny*[1,2], and *M. E. Hahn*[1]. [1]Biology, Woods Hole Oceanographic Institution, Woods Hole, MA; [2]Biological Sciences, University of Alabama, Tuscaloosa, AL.

#1289 **Poster Board Number 251**
Tissue-Specific Expression of Cytokines and Chemokines in TCDD-Treated B6 and Aryl Hydrocarbon Receptor Repressor Transgenic Mice. *C. Vogel*[1,2], D. Wu[2], J. Baek[2], S. Kado[2], T. Singh[2], G. Yang[3], P. Leung[3], E. Gershwin[3], *T. Herrmann-Stemmann*[4], and *F. Matsumura*[1,2]. [1]Environmental Toxicology, University of California Davis, Davis, CA; [2]Center for Health and the Environment, University of California Davis, Davis, CA; [3]Division of Rheumatology, Allergy and Clinical Immunology, University of California Davis, Davis, CA; [4]Institute for Environmental Research, University of Duesseldorf, Duesseldorf, Germany.

#1290 **Poster Board Number 252**
Caloric Restriction Induces Nrf2-Dependent Effects on Lipid Metabolism. *L. Armstrong*, *S. R. Kulkarni*, *J. Xu*, and *A. L. Slitt*. Biomedical and Pharmaceutical Sciences, University of Rhode Island, Kingston, RI.

#1291 **Poster Board Number 253**
Electrophilic Metabolites of Aromatic Hydrocarbons Cause AhR Activation and Up-Regulation of CYP1A1 in HepG2 Cells: Involvement of *S*-Arylation of Cellular Proteins. *Y. Abiko*[1,2], *A. Puga*[2], and *Y. Kumagai*[1]. [1]Environmental Medicine Section, University of Tsukuba, Tsukuba, Japan; [2]Environmental Health, University of Cincinnati Medical Center, Cincinnati, OH.

#1292 **Poster Board Number 254**
AhR-Independent Gene Regulation by TCDD in Mouse Liver and Kidney. T. M. Seibel[1], C. Lohr[1], K. Andresen[2], and *D. Schrenk*[1]. [1]Food Chemistry and Toxicology, University of Kaiserslautern, Kaiserslautern, Germany; [2]Institute of Biotechnology and Drug Research, Kaiserslautern, Germany.

Program Description (Continued)

Abstract #

#1293 **Poster Board Number 255**
Coexposure to Aryl Hydrocarbon Receptor and Thyroid Receptor Agonists Enhances Induction of Responsive Genes in Cultured Frog Cells and Prometamorphic Frogs. J. D. Taft, and *W. H. Powell*. Biology, Kenyon College, Gambier, OH.

#1294 **Poster Board Number 256**
A Global Genomic Screening Strategy Reveals Diverse Activators of Constitutive Activated Receptor (CAR). K. Oshida[1], N. Vasani[1], B. Chorley[1], *S. Hester*[1], W. Ward[1], *R. S. Thomas*[2], *D. Applegate*[3], *L. M. Aleksunes*[4], *C. Klaassen*[5], and *C. Corton*[1]. [1]US EPA, Research Triangle Park, NC; [2]The Hamner Institute for Health Sciences, Research Triangle Park, NC; [3]Regenemed, Inc, San Diego, CA; [4]Rutgers University, New Brunswick, NJ; [5]University of Kansas Medical Center, Kansas City, KS.

#1295 **Poster Board Number 257**
Effects of Munitions Compounds on Xenobiotic-Activated Nuclear Receptors and Cell Signaling Pathways. *D. R. Johnson*[1], C. Y. Ang[2], T. Habib[2], and *E. J. Perkins*[1]. [1]Environmental Laboratory, US Army Engineer Research & Development Center, Vicksburg, MS; [2]Badger Technical Services, Vicksburg, MS.

#1296 **Poster Board Number 258**
The Aryl Hydrocarbon Receptor Depletion in Human MDA-MB-231 Breast Cancer Cell Line Attenuates *In Vivo* Tumor Growth and Pulmonary Metastasis in a Nude Mouse Model. *G. Goode*, and *S. E. Eltom*. Biochemistry and Cancer Biology, Meharry Medical College, Nashville, TN.

#1297 **Poster Board Number 259**
Species Specificity of the Peroxisome Proliferator Response in Primary Hepatocytes. P. D. McMullen, *S. Bhattacharya*, C. G. Woods, *R. Clewell*, *E. LeCluyse*, K. M. Yarborough, L. Pluta, P. Lu, J. Dong, J. Pi, and *M. E. Andersen*. [1]Clinical Research Program, NIEHS, Durham, NC; [2]Cell Adhesion Group, NIEHS, Durham, NC; [3]Pharmacology and Toxicology, East Carolina University, Greenville, NC; [4]National Toxicology Program (NTP), NIEHS, Durham, NC.

#1298 **Poster Board Number 260**
Development of a Rapid, Cell-Based Screen for Disruptors of the Retinol (Vitamin A) Signaling Pathway. Y. Chen, and D. H. Reese. OARSA/CFSAN, US FDA, Laurel, MD. Sponsor: *T. Flynn*.

Abstract #

Tuesday Afternoon, March 12
1:00 PM to 4:30 PM
Exhibit Hall C–D

PS

Poster Session: Natural Products—*In Vivo* Safety Assessment

Chairperson(s): *Heather Kleiner-Hancock, Louisiana State University, Shreveport, LA.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *1:00 PM–2:45 PM*

#1299 **Poster Board Number 301**
Asian Ginseng (*Panax ginseng*) Potentiates Ethanol-Induced Cardiovascular Dysfunction in Medaka Embryogenesis (*Oryzias latipes*). *M. H. Haron*[2,1], L. A. Walker[1,2], I. A. Khan[1], and *A. K. Dasmahapatra*[1,2]. [1]National Center for Natural Product Research, University of Mississippi, University, MS; [2]Department of Pharmacology, University of Mississippi, University, MS.

#1300 **Poster Board Number 302**
Toxicology Profile of Virginia Cedarwood Oil Delivered via Dermal Application. *I. Surh*[1], R. A. Herbert[2], G. S. Travlos[2], M. Vallant[3], *L. M. Fomby*[4], *M. Hejtmancik*[4], and P. Chan[1]. [1]Toxicology Branch, Division of the National Toxicology Program, NIEHS, Research Triangle Park, NC; [2]Cellular and Molecular Pathology Branch, DNTP, NIEHS, Research Triangle Park, NC; [3]Program Operations Branch, DNTP, NIEHS, Research Triangle Park, NC; [4]Battelle, Columbus, OH.

#1301 **Poster Board Number 303**
Novel Antiplatelet Activity of Protocatechuic Acid through Inhibition of High Shear Stress-Induced Platelet Aggregation. K. Kim[1], K. Lim[1], J. Noh[1], S. Kang[1], K. Chung[2], O. Bae[3], and *J. Chung*[1]. [1]College of Pharmacy, Seoul National University, Seoul, Republic of Korea; [2]School of Pharmacy, Sungkyunkwan Universtiy, Suwon, Republic of Korea; [3]College of Pharmacy, Hanyang University, Ansan, Republic of Korea.

#1302 **Poster Board Number 304**
The Soy-Associated Phytoestrogen, Genistein, Does Not Protect against Alcohol-Induced Osteoporosis in Male Mice. C. Yang[1], K. Mercer[1], L. Suva[1], *T. Badger*[2,1], and *M. Ronis*[2,1]. The Hamner Institutes for Health Sciences, Research Triangle Park, NC.

#1303 **Poster Board Number 305**
Toxicological Safety Assessment of a Hydroethanolic Extract of *Caralluma fimbriata*. *J. R. Endres*[1], *A. G. Schauss*[1], and N. Deshmukh[2]. [1]AIBMR Life Sciences, Inc., Puyallup, WA; [2]INTOX Pvt. Ltd., Pune, India.

#1304 **Poster Board Number 306**
The Antidiabetic Activities of the Soft Drink Leaf Extract of *Phyllanthus amarus* (Order *Euphorbiales*; Family *Euphorbiaceae*) in Laboratory Animals. *A. A. Adedapo*, and S. O. Ofuegbe. Veterinary Physiology, Biochemistry and Pharmacology, University of Ibadan, Ibadan, Nigeria.

TUESDAY

Program Description (Continued)

Abstract #

#1305 **Poster Board Number 307**
Protective Effects of Methanolic Root Extract of *Balanites aegyptiaca* (L.) Delile on Carbon Tetrachloride (CCl4)-Induced Hepatotoxicity in Rats. *O. A. Salawu*[1], F. Tukur[2], A. Y. Tijani[1], J. Ejiofor[2], and S. Ahmed[3]. [1]Pharmacology and Toxicology, National Institute for Pharmaceutical Research and Development (NIPRD), Abuja, Nigeria; [2]Pharmacology and Therapeutics, Ahmadu Bello University, Zaria, Nigeria; [3]Pathology, Ahmadu Bello University Teaching Hospital, Zaria, Nigeria.

#1306 **Poster Board Number 308**
The Effects of Citrus Auraptene in Combination with All-Trans Retinoic Acid on Human Squamous Cell Carcinoma in a Xenograft Model. *H. E. Kleiner*[1], E. R. Lane[1], J. Mathis[2], J. McLarty[3], M. S. Prince[1], S. R. Crooks[1], J. L. Clifford[4], and E. A. Orchard[1]. [1]Department of Pharmacology Toxicology & Neuroscience, Louisiana State University Health Sciences Center, Shreveport, LA; [2]Anatomy and Cellular Biology, Louisiana State University Health Sciences Center, Shreveport, LA; [3]Medicine, Louisiana State University Health Sciences Center, Shreveport, LA; [4]Biochemistry & Molecular Biology, Louisiana State University Health Sciences Center, Shreveport, LA.

#1307 **Poster Board Number 309**
Toxicological Evaluation of the Aqueous Extract of *Morinda morindoides* Root Bark. M. O. Abatan[1,2], *J. O. Olukunle*[2], O. L. Ajayi[3], M. O. Olaniyi[3], and O. T. Adenubi[2]. [1]Veterinary Physiology, Biochemistry and Pharmacology, University of Ibadan, Ibadan, Nigeria; [2]Veterinary Physiology and Pharmacology, University of Agriculture, Abeokuta, Abeokuta, Nigeria; [3]Veterinary Pathology, University of Agriculture, Abeokuta, Abeokuta, Nigeria.

#1308 **Poster Board Number 310**
Antidiarrheal Evaluation of Aqueous and Ethanolic Leaf Extracts of *Acacia sieberiana* DC (*Fabaceae*) in Albino Rats. *C. J. Dawurung*, I. L. Elisha, N. V. Offiah, J. G. Gotep, *O. O. Oladipo*, M. S. Makoshi, S. Makama, and D. Shamaki. Drug development Unit, Biochemistry Division, National Veterinary Research Institute (NVRI) Vom, Jos, Nigeria.

#1309 **Poster Board Number 311**
Protection by Fish Oil against D-Galactosamine-Induced Hepatic Injury and Biochemical Alterations in the Plasma and Liver of Rats. Y. Shen, M. Parikh, and C. A. Lau-Cam. Pharmaceutical Sciences, St. John's University, Flushing, NY. Sponsor: *B. Billack*.

#1310 **Poster Board Number 312**
The Phototoxicity of Tagetes Oil and Absolute Evaluated Utilizing a Human Epidermal Model and Patch Testing. J. F. Lalko, and *A. Api*. Research Institute for Fragrance Materials Inc., Woodcliff Lake, NJ.

#1311 **Poster Board Number 313**
Saponins from *Platycodon grandiflorum* and Its Constituent *Platycodin* D Regulates Fatty Acid Metabolism via an AMP-Activated Protein Kinase Dependent Signaling Pathway. H. Pil[2,1], J. Choi[1], H. Kim[1], K. Tilak[1], Y. Chung[2], and *H. Jeong*[1]. [1]Pharmacy, Chungnam National University, Daejeon, Republic of Korea; [2]International University of Korea, Jinju, Republic of Korea.

Abstract #

#1312 **Poster Board Number 314**
***Platycodi radix* Attenuates Dimethylnitrosamine-Induced Liver Fibrosis in Rats.** J. Choi[1], S. Jin[1], Y. Hwang[2], C. Choi[3], Y. Chung[2], Y. Lee[4], and *H. Jeong*[1]. [1]Pharmacy, Chungnam National University, Daejeon, Republic of Korea; [2]International University of Korea, Jinju, Republic of Korea; [3]Natural Resources Research Institute, Jangheung-gun, Republic of Korea; [4]Jangsaeng Doraji Research Institute of Biotechnology, Jinju, Republic of Korea.

#1313 **Poster Board Number 315**
Protective Effects of Saponins Isolated from the Root of *Platycodon grandiflorum* against Ovalbumin-Induced Airway Inflammation in a Mouse Allergic Asthma Model. Y. Chung[2], J. Choi[1], H. Kim[1], Y. Lee[3], and *H. Jeong*[1]. [1]Pharmacy, Chungnam National University, Daejeon, Republic of Korea; [2]International University of Korea, Jinju, Republic of Korea; [3]Jangsaeng Doraji Research Institute of Biotechnology, Jinju, Republic of Korea.

#1314 **Poster Board Number 316**
Topical Application of Cultivated Ginseng Suppresses 2,4-Dinitrochlorobenzene-Induced Atopic Dermatitis in NC/Nga Mice. J. Choi[2], J. Choi[1], S. Jin[1], Y. Chung[2], and *H. Jeong*[1]. [1]Pharmacy, Chungnam National University, Daejeon, Republic of Korea; [2]International University of Korea, Jinju, Republic of Korea.

#1315 **Poster Board Number 317**
***Pleurotus eryngii* Extracts Inhibits 2,4-Dinitrochlorobenzene-Induced Atopic Dermatitis in NC/Nga Mice by the Regulation of Th1/Th2 Balance.** S. Chun[2], J. Choi[1], S. Jin[1], J. Choi[2], Y. Chung[2], and *H. Jeong*[1]. [1]Pharmacy, Chungnam National University, Daejeon, Republic of Korea; [2]International University of Korea, Jinju, Republic of Korea.

#1316 **Poster Board Number 318**
Chronic Oral Toxicity Study of the Extracts from Herbs in Phikud Navakot. K. Kanchana[1], K. Chaimongkolnukul[1], S. Cherdyu[1], S. Ampawong[2], and T. Ketjareon[2]. [1]Academic Services Office, National Laboratory Animal Center, Mahidol University, Nakorn Pathom, Thailand; [2]Veterinary Medical Office, National Laboratory Animal Center, Mahidol University, Nakorn Pathom, Thailand. Sponsor: -. *NA*.

#1317 **Poster Board Number 319**
Plum Consumption Modulate Gut Microbiota and Obesity in Zucker Rats. *G. Noratto*[1], J. Garcia-Mazcorro[2], H. Martino[3], D. Byrne[4], M. Markel[5], J. Suchodolski[5], J. Steiner[5], and S. Mertens-Talcott[6]. [1]School of Food Science, Washington State University, Pullman, WA; [2]Facultad de Medicina Veterinaria y Zootecnia, Universidad Autónoma de Nuevo León, Monterrey, Mexico; [3]Department of Nutrition and Health, University of Vicosa, Vicosa, Brazil; [4]Horticulture, Texas A&M University, College Station, TX; [5]Gastrointestinal Laboratory, Texas A&M University, College Station, TX; [6]Nutrition and Food Science, Texas A&M University, College Station, TX.

Program Description (Continued)

Abstract #

#1318 **Poster Board Number 320**
Kolaviron, a Biflavonoid of *Garcinia kola* Seed Offered Cardioprotection against Ischaemic/Reperfusion Injury by Up-Regulation of Prosurvival and Down-Regulation of Apoptotic Signaling Pathways. *A. A. Oyagbemi*[1,2,3], J. D. Bester[2,3], A. J. Esterhuyse[2,3], and *O. E. Farombi*[3,2]. [1]Veterinary Physiology, Biochemistry and Pharmacology, University of Ibadan, Ibadan, Nigeria; [2]Biochemistry, Univerrsity of Ibadan, College of Medicine, Ibadan, Nigeria; [3]Department of Biomedical Sciences, Faculty of Health and Wellness Sciences, Cape Peninsula University of Technology, Bellville, Cape Town, South Africa.

#1319 **Poster Board Number 321**
Antimalarial Activity of Methanolic Fraction of *Clerodendrum violaceum* Leaf Extract. J. O. Adebayo, A. Zailani, and *E. Balogun*. Biochemistry, University of Ilorin, Ilorin, Nigeria.

#1320 **Poster Board Number 322**
Effect of Probiotics (*Lactobacillus* and *Bifidobacterium*) on Growth Performance and Haematological Profile of *Clarias gariepinus* Juveniles. *S. O. Ayoola*[1], E. K. Ajani[1,2], and O. F. Fashae[1]. [1]Marine Sciences, University of Lagos, Akoka, Lagos, Lagos, Nigeria; [2]Aquaculture and Fisheries, University Ibadan, Oyo State, Ibadan, Nigeria.

#1321 **Poster Board Number 323**
Antifungal and Insecticidal Activities of Five Essential Oils from Plants of the Colombian Caribbean Coast. B. E. Jaramillo[1], E. Duarte Restrepo[1], and W. Delgado Ávila[2]. [1]Chemistry Program, University of Cartagena, Cartagena, Colombia; [2]Chemistry Program, National University of Colombia, Bogotá, Colombia. Sponsor: *B. Jaramillo*.

Tuesday Afternoon, March 12
1:00 PM to 4:30 PM
Exhibit Hall C–D

PS

Poster Session: Nanotoxicology—Silver and Gold

Chairperson(s): *Nancy A. Monteiro-Riviere, Kansas State University, Manhattan, KS.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *2:45 PM–4:30 PM*

#1322 **Poster Board Number 326**
Protein Binding Effects the Cellular Uptake of Silver Nanoparticles in Human Cells. *N. A. Monteiro-Riviere*[1,2,3], A. O. Inman[1,2], *M. E. Samberg*[2,3], S. Oldenburg[4], and *J. E. Riviere*[1,2]. [1]Nanotechnology Innovation Center of Kansas State, Kansas State University, Manhattan, KS; [2]Center for Chemical Toxicology Research and Pharmacokinetics, North Carolina State University, Raleigh, NC; [3]Joint Department of Biomedical Engineering at the University of North Carolina at Chapel Hill and North Carolina State University, North Carolina State University, Raleigh, NC; [4]nanoComposix, Inc, San Diego, CA.

Abstract #

#1323 **Poster Board Number 327**
Relationship between Silver Nanoparticle Intracellular Accumulation and Cytotoxicity in L-929 Fibroblasts. *B. E. Wildt*[1], *E. I. Maurer*[2], *G. Kumar*[1], H. A. Degheidy[1], *S. M. Hussain*[2], and *P. L. Goering*[1]. [1]US FDA, Silver Spring, MD; [2]711 HPW/RHDJ, AFRL, Wright-Patterson AFB, Dayton, OH.

#1324 **Poster Board Number 328**
Role of Sample Preparation in *In Vitro* Cytotoxicity Responses to Silver Nanoparticles. A. N. Clendaniel[2,1], G. Kumar[1], H. A. Degheidy[1], B. J. Casey[1], and *P. L. Goering*[1]. [1]CDRH, US FDA, Silver Spring, MD; [2]Richard Stockton College of New Jersey, Galloway, NJ.

#1325 **Poster Board Number 329**
Flow Cytometry Evaluation of Cell Cytotoxicity Induced by Silver Nanoparticles. G. Kumar[1], A. Clendaniel[2,1], H. Degheidy[1], *B. Wildt*[1], and *P. Goering*[1]. [1]CDRH, US FDA, Silver Spring, MD; [2]The Richard Stockton College of New Jersey, Pomona, NJ.

#1326 **Poster Board Number 330**
Incorporation of Silver Nanoparticles into a Degradable Poly(L-Lactide-Co-Epsilon-Caprolactone) Copolymer Scaffold for Skin Regeneration. *M. E. Samberg*[1], P. Mente[1], T. He[2], M. W. King[2], and *N. A. Monteiro-Riviere*[1,3]. [1]Joint Department of Biomedical Engineering at the University of North Carolina at Chapel Hill and North Carolina State University, North Carolina State University, Raleigh, NC; [2]College of Textiles, North Carolina State University, Raleigh, NC; [3]Nanotechnology Innovation Center of Kansas State, Kansas State University, Manhattan, KS.

#1327 **Poster Board Number 331**
Formation of a Protein Corona on Silver Nanoparticles Mediates Cellular Toxicity via Scavenger Receptors. *J. Shannahan*[1], R. Chen[2], *T. Fennell*[3], *C. Wingard*[1], P. Ke[2], and *J. M. Brown*[1]. [1]East Carolina University, Greenville, NC; [2]Clemson University, Clemson, SC; [3]RTI International, Durham, NC.

#1328 **Poster Board Number 332**
Importance of p38MAPK and pmk-1 a *Caenorhabditis elegans* Homologue, in Silver Nanoparticles-Induced DNA Damage Response and Apoptosis. J. Choi, N. Chatterjee, H. Eom, and J. Ahn. Faculty of Environmental Engineering, College of Urban Science, Seoul, Republic of Korea. Sponsor: *D. Ryu*.

#1329 **Poster Board Number 333**
Cytotoxicity and Genotoxicity of Silver Nanoparticles and Silver Ions to CHO K1 Cells. X. Jiang[1], *R. Foldbjerg*[2], T. Miclaus[3], C. Chen[1], *H. Autrup*[2], and C. Beer[2]. [1]National Center for Nanoscience and Technology, Chinese Academy of Science, Beijing, China; [2]Environmental and Occupational Medicine, Aarhus University, Aarhus, Denmark; [3]Interdisciplinary Nanoscience Center (iNANO), Aarhus University, Aarhus, Denmark.

Program Description (Continued)

Abstract #

#1330 **Poster Board Number 334**
Chronic Exposure to Realistic Doses of Silver Nanoparticles Demonstrated Differential Cellular Responses Than Acute Exposure in Human Keratinocytes. K. K. Comfort[1,2], L. K. Braydich-Stolle[1], and *S. M. Hussain*[1]. [1]Molecular Bioeffects Branch, Human Performance Wing, Air Force Research Laboratory, Wright-Patterson AFB, OH; [2]Chemical and Materials Engineering, University of Dayton, Dayton, OH.

#1331 **Poster Board Number 335**
Evaluation of Uptake and Cytotoxicity of Citrate Stabilised Gold Nanoparticles in Chinese Hamster Ovary (CHO) Cells prior to the *In Vitro* Mammalian Mutation Test. M. Vetten[1,2], and *M. Gulumian*[1,2]. [1]Toxicology and Biochemistry Section, National Institute for Occupational Health, Johannesburg, South Africa; [2]School of Pathology, University of the Witwatersrand, Johannesburg, South Africa.

#1332 **Poster Board Number 336**
Bioavailability of Silver Nanoparticles in Artificial Physiological Fluids: Coating and pH Impact on Degree of Ionic Dissociation. *L. Braydich-Stolle*, E. Breitner, E. Maurer, B. Stacy, and *S. Hussain*. 711 HPW/RHDJ, Wright-Patterson AFB, Dayton, OH.

#1333 **Poster Board Number 337**
Cytotoxic and Inflammatory Responses to Silver Nanoparticles in Hepatocyte-Kupffer Cell (HC-KC) Coculture and HepG2 Cells. *M. W. Betz*, *B. E. Wildt*, B. J. Casey, and *P. L. Goering*. CDRH, US FDA, Silver Spring, MD.

#1334 **Poster Board Number 338**
Evaluation of Genotoxicity of Silver Nanoparticles with *In Vitro* and *In Vivo* Standard Assays. *Y. Li*[1], J. Yan[1], *N. Mei*[1], *Y. Chen*[1], *M. G. Pearce*[1], *W. Ding*[1], C. Candice[2], P. C. Howard[2], P. Rice[3], *T. Zhou*[4], *R. K. Elespuru*[5], *M. M. Moore*[1], and *T. Chen*[1]. [1]Division of Genetic and Molecular Toxicology, US FDA, National Center for Toxicological Research, Jefferson, AR; [2]Nanotechnology Core Facility, US FDA, National Center for Toxicological Research, Jefferson, AR; [3]Center for Food Safety and Applied Nutrition, US FDA, College Park, MD; [4]Center for Veterinary Medicine, US FDA, Rockville, MD; [5]Center for Devices and Radiology Health, US FDA, Silver Spring, MD.

#1335 **Poster Board Number 339**
DNA-Dependent Protein Kinase Reduces Toxicity of Silver Nanoparticles in Mammalian Cells through JNK and Telomerase Pathways. H. Lim, and H. Manoor Prakash. Physiology, Yong Loo Lin School of Medicine, National University of Singapore, Singapore, Singapore. Sponsor: *S. Sawant*.

#1336 **Poster Board Number 340**
Determination of Nanosilver Dissolution Kinetics and Toxicity in an Environmentally Relevant Aqueous Medium. *A. Harmon*, A. J. Kennedy, A. R. Poda, A. J. Bednar, M. A. Chappell, and J. A. Steevens. US Army Corps of Engineers, Vicksburg, MS.

#1337 **Poster Board Number 341**
Silver Nanoparticles Induce Mast Cell Degranulation via Scavenger Receptors. A. Aldossari, *J. Shannahan*, S. Hilderbrand, and *J. M. Brown*. Pharmacology and Toxicology, East Carolina University, Greenville, NC.

Abstract #

#1338 **Poster Board Number 342**
High-Throughput Methods for Assessing the Molecular Toxicity of Nanomaterials in Bacteria. C. Kaweeteerawat[1,2], A. Ivask[2], C. Low-Kam[2,3], P. Holden[2,4], and *H. A. Godwin*[1,2]. [1]Molecular Toxicology, University of California Los Angeles, Los Angeles, CA; [2]University of California Center of Environmental Implication of Nanotechnology, University of California Los Angeles, Los Angeles, CA; [3]Department of Biostatistics, University of California Los Angeles, Los Angeles, CA; [4]Donald Bren School of Environmental Science and Management, University of California Santa Barbara, Santa Barbara, CA.

#1339 **Poster Board Number 343**
Role of microRNA in Toxicity of Silver Nanoparticles in Jurkat T Cells. H. Eom[1], J. Choi[1], and J. Lee[2]. [1]Faculty of Environmental Engineering, College of Urban Science, Seoul, Republic of Korea; [2]National Instrumentation Center for Environmental Management, Seoul, Republic of Korea. Sponsor: *D. Ryu*.

#1340 **Poster Board Number 344**
Assessing the Influence of Gold and Silver Nanoparticles on Conventional *In Vitro* Cytotoxicity Assays. K. Boodhia[1,3], L. Koekemoer[1,3], C. Andros[1,2], and *M. Gulumian*[1,2]. [1]Toxicology, National Institute for Occupational Health, Johannesburg, South Africa; [2]Hematology and Molecular Medicine, University of Witwatersrand, Johannesburg, South Africa; [3]Biochemistry, University of Johannesburg, Johannesburg, South Africa.

#1341 **Poster Board Number 345**
Realistic Assessment of Nanomaterial Toxicity *In Vitro* Using a Nanoaerosol Exposure Chamber. *C. Grabinski*[1,2], M. Sankaran[2], and *S. M. Hussain*[1]. [1]Molecular Bioeffects Branch, Air Force Research Laboratory, Wright-Patterson AFB, OH; [2]Department of Chemical Engineering, Case Western Reserve University, Cleveland, OH.

#1342 **Poster Board Number 346**
Influences of Capping Agent and Cell Type on Cellular Uptake of Silver Nanoparticles. F. Zhang, B. L. Lau, and *E. D. Bruce*. The Institute of Ecological, Earth and Environmental Sciences, Baylor University, Waco, TX.

#1343 **Poster Board Number 347**
Comparative Cytotoxicity of Silver Nanomaterials in a Murine Macrophage Cell Line. *T. D. Green*[1], A. Badawy[2], T. Tolaymat[3], and *D. J. Thomas*[1]. [1]ISTD, NHEERL, ORD, US EPA, Research Triangle Park, NC; [2]Department Civil & Environmental Engineering, University of Cincinnati, Cincinnati, OH; [3]LRPCD, NRMRL, ORD, US EPA, Cincinnati, OH.

#1344 **Poster Board Number 348**
Dispersion and Dissolution Behavior of Silver Nanoparticles in Artificial Biological Fluids. A. M. Mayo[1], *D. R. Johnson*[2], A. J. Bednar[2], and *J. A. Steevens*[2]. [1]Badger Technical Services, Vicksburg, MS; [2]Environmental Laboratory, US Army Engineer Research & Development Center, Vicksburg, MS.

TUESDAY

Program Description (Continued)

Abstract #

#1345 **Poster Board Number 349**
Correlating *In Vivo* Agglomeration State with Oral Bioavailability of Gold Nanoparticles. *G. K. Hinkley*[1], *S. M. Roberts*[1], and K. W. Powers[2]. [1]Center for Environmental and Human Toxicology, University of Florida, Gainesville, FL; [2]Particle Engineering Research Center, University of Florida, Gainesville, FL.

#1346 **Poster Board Number 350**
Comparison of Acute and Chronic Toxicity and Effects of Nanoparticles *Ceriodaphnia dubia*. A. J. Kennedy[1], *A. Harmon*[1], J. G. Laird[1], A. J. Bednar[1], C. Detzel[2], and J. A. Steevens[1]. [1]US Army Corps of Engineers, Vicksburg, MS; [2]NanoSafe, Blacksburg, VA.

#1347 **Poster Board Number 351**
Silver Nanoparticles Impair Neuronal Synaptic Function and Alter Neurotransmitter Content in the Brain. *K. Sriram*, *J. R. Roberts*, G. X. Lin, *J. M. Antonini*, A. Kenyon, and A. M. Jefferson. CDC-NIOSH, Morgantown, WV.

#1348 **Poster Board Number 352**
A Study of Mice Inhalation Exposures to Silver Nanoparticles Generated by Nebulization and Electrospray Methods. *A. Lao*[1], M. Zhong[1], K. Galdanes[1], D. Chen[2], *T. Gordon*[1], and *L. Chen*[1]. [1]Environmental Medicine, New York University, Tuxedo, NY; [2]Energy, Environmental and Chemical Engineering, Washington University in St. Louis, St. Louis, MO.

#1349 **Poster Board Number 353**
Estimation of Human Equivalent Exposure from Rat Inhalation Toxicity Study of Silver Nanoparticles Using Multipath Particle Dosimetry Model. J. Ji, and *I. Yu*. Institute of Nanoproduct Safety Research, Hoseo University, Asan, Republic of Korea.

#1350 **Poster Board Number 354**
Alterations in Lung Host Defense after Pulmonary Exposure to Silver Nanoparticles in Rats. *B. M. Yingling*[1,2], *C. McLoughlin*[2], *J. M. Antonini*[2,1], R. I. MacCuspie[3], V. A. Hackley[3], B. T. Chen[2], D. Schwegler-Berry[2], and *J. R. Roberts*[2,1]. [1]WVU, Morgantown, WV; [2]NIOSH, Morgantown, WV; [3]NIST, Gaithersburg, MD.

#1351 **Poster Board Number 355**
Exposure to Inhaled Silver-Nanoparticles Results in the Induction of Gene Expression Alterations in Oxidative Stress Pathway Components, in a Time-Dependent Manner. *M. A. Popovech*, K. Galdanes, *E. Saunders*, *M. Hernandez*, *L. Chen*, and *T. Gordon*. Environmental Medicine, New York University School of Medicine, Tuxedo, NY.

#1352 **Poster Board Number 356**
Genetic Influence of Pulmonary Response to Silver Nanoparticles Exposure. *M. N. Hernandez*, *E. Saunders*, and *M. Popovech*. Environmental Medicine, New York University, Tuxedo, NY.

#1353 **Poster Board Number 357**
Short- and Long-Term Effects of Commercially Available Gold Nanoparticles in Rodents. *J. Bahamonde*[1], B. Brenseke[1], and *M. R. Prater*[1,2]. [1]Biomedical Sciences and Pathobiology, Virginia Tech, Blacksburg, VA; [2]Biomedical Sciences, Edward Via College of Osteopathic Medicine, Blacksburg, VA.

Abstract #

#1354 **Poster Board Number 358**
Assessment of Genotoxicity of Silver Nanoparticles in Myh-Deficient and Wild Type Mice. *R. Reliene*, P. Kovvuru, P. E. Mancilla, and A. Shirode. University at Albany, State University of New York, Albany, NY.

#1355 **Poster Board Number 359**
Comparative Hepatotoxicity Study of Two Different Diameter Size Silver Nanoparticles in Sprague-Dawley Rats. *A. Patlolla*[1], and P. Tchounwou[2]. [1]Biology, Jackson State University, Jackson, MS; [2]Biology, Jackson State University, Jackson, MS.

#1356 **Poster Board Number 360**
Increased Mucus Production and Histopathological Gill Alterations after Exposure to Nanosilver and Silver Nitrate. *A. D. Hawkins*[1], C. Thornton[1], A. Harmon[2], A. J. Kennedy[2], *J. A. Steevens*[2], N. G. Reyero[2], K. Bu[3], J. Cizdziel[3], and *K. L. Willett*[1]. [1]Pharmacology/ Environmental Toxicology Research Program, University of Mississippi, Oxford, MS; [2]Environmental Lab, ERDC, Vicksburg, MS; [3]Chemistry, University of Mississippi, University, MS.

#1357 **Poster Board Number 361**
Impact of Silver Nanoparticles (AgNP) on Bacteria Species Isolated from Gastrointestinal (G.I.) Tract of Sprague-Dawley (SD) Rats. *M. S. Imam*[1], S. Khare[2], A. M. Paredes[3], and *M. D. Boudreau*[1]. [1]Division Biochemical Toxicology, NCTR, US FDA, Jefferson, AR; [2]Division of Microbiology, NCTR, US FDA, Jefferson, AR; [3]Office of Scientific Coordination, NCTR, US FDA, Jefferson, AR.

#1358 **Poster Board Number 362**
Influence of Dose, Size and Chemical Composition on Persistence of Silver Nanoparticles in the Rat Lung. D. S. Anderson, R. Silva, D. Lee, P. C. Edwards, *K. E. Pinkerton*, and *L. S. Van Winkle*. University of California Davis, Davis, CA.

#1359 **Poster Board Number 363**
Subtle Surface Variations Influence Biological Compatibility of Gold Nanoparticles. *K. Kim*[1], T. Zaikova[2], J. E. Hutchison[2], and *R. L. Tanguay*[1]. [1]Environmental and Molecular Toxicology, Oregon State University, Corvallis, OR; [2]Chemistry, University of Oregon, Eugene, OR.

#1360 **Poster Board Number 364**
Gold Nanoparticles in Central Nervous System of Mice: Localization and Inflammatory Markers. F. Fallahi[1,2], *S. M. Hussain*[1,2], I. E. Pavel[1], *J. O'Callaghan*[3], *M. Sharma*[1,2], R. Saadawi[4], and M. Morris[1]. [1]Pharmacology & Toxicology, Wright State University, Dayton, OH; [2]711 HPW/ RHDJ, AFRL, Wright-Patterson AFB, Dayton, OH; [3]CDC-NIOSH, Morgantown, WV; [4]Chemistry, University of Cincinnati, Cincinnati, OH.

#1361 **Poster Board Number 365**
Dissolution Kinetics of Inhaled Metal Nanoparticles in a Murine Model. *E. L. Saunders*, E. Bartnick, K. Galdanes, *M. Popovech*, *M. Hernandez*, *L. Chen*, and *T. Gordon*. Environmental Medicine, New York University, Tuxedo Park, NY.

#1362 **Poster Board Number 366**
Utility of the Greenscreen™ for Nanoscale Hazard Assessments: Nanosilver Case Study. *N. A. Linde*, T. L. McGrath, B. J. Lampe, and *J. C. English*. NSF International, Ann Arbor, MI.

Program Description (Continued)

Abstract #

#1363 **Poster Board Number 367**
The Role of Macrophage Scavenger Receptor A in the Disposition of Silver Nanoparticles. *J. N. Smith*[1], M. H. Littke[1], J. A. Klein[1], *C. W. Frevert*[2], *B. D. Thrall*[1], and *J. G. Pounds*[1]. [1]Systems Toxicology, Battelle Memorial Institute, Pacific Northwest Division, Richland, WA; [2]University of Washington, Seattle, WA.

#1364 **Poster Board Number 368**
Nanosilver-Induced Lung Inflammation Is Mouse Strain Dependent. *D. Botta*[1], S. C. Schmuck[1], *D. K. Scoville*[1], *C. C. White*[1], *C. M. Carosino*[1], C. M. Schaupp[1], W. C. Griffith[1], *E. M. Faustman*[1], *T. Gordon*[2], and *T. J. Kavanagh*[1]. [1]Department of Environmental and Occupational Health Sciences, University of Washington, Seattle, WA; [2]Department of Environmental Medicine, New York University, New York, NY.

#1365 **Poster Board Number 369**
Characterization and Toxicity of Silver Nanowires. A. Tagmount[1], B. Gilbert[2], *L. Scanlan*[1], C. Tran[1], C. Clark[1], and *C. Vulpe*[1]. [1]Nutrition Science and Toxicology, University of California Berkeley, Berkeley, CA; [2]Earth Science Division, LBNL, Berkeley, CA.

#1366 **Poster Board Number 370**
Examining Mechanisms of Toxicity and Uptake of Gold Nanoparticles to *Caenorhabditis elegans*. O. Tsyusko[1], J. Unrine[1], *R. Nass*[2], and B. Collin[1]. [1]Plant and Soil Sciences, University of Kentucky, Lexington, KY; [2]Stark Neuroscience Research Institute, Indiana University, Indianapolis, IN.

Tuesday Afternoon, March 12
1:00 PM to 4:30 PM
Exhibit Hall C–D

PS

Poster Session: Developmental Neurotoxicity

Chairperson(s): *Fang Liu, US FDA, Jefferson, AR.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *1:00 PM–2:45 PM*

#1367 **Poster Board Number 401**
Mouse Neural Progenitor Cells As a Functional Model for Developmental Neurotoxicity Testing: Intracellular Calcium Signaling. *M. M. Dingemans*, M. W. de Groot, and *R. H. Westerink*. Neurotoxicology Research Group, Toxicology Division, Institute for Risk Assessment Sciences (IRAS), Faculty of Veterinary Medicine, Utrecht University, Utrecht, Netherlands.

#1368 **Poster Board Number 402**
Ketamine-Induced Neuronal Damage and Altered N-methyl-D-aspartate (NMDA) Receptor Function in Rat Primary Forebrain Culture. *N. Sadovova*[1], *F. Liu*[2], *M. G. Paule*[2], *W. Slikker*[3], and *C. Wang*[2]. [1]Toxicologic Pathology Associates, Jefferson, AR; [2]Division of Neurotoxicology, National Center for Toxicological Research, US FDA, Jefferson, AR; [3]Office of Director, National Center for Toxicological Research, US FDA, Jefferson, AR.

Abstract #

#1369 **Poster Board Number 403**
L-Carnitine Ameliorates Propofol-Induced Toxicity in Rat Embryonic Neural Stem Cells. *M. G. Paule*[1], *F. Liu*[1], C. M. Fogle[1], *N. Sadovova*[2], *W. Slikker*[1], and *C. Wang*[1]. [1]Division Neurotox, National Center Toxicological Research, US FDA, Jefferson, AR; [2]Toxicology Pathology Associates, Inc., National Center Toxicological Research, US FDA, Jefferson, AR.

#1370 **Poster Board Number 404**
Determination of Neurotoxicity in the Developing Rat Induced by Dexmedetomidine. *J. Liu*. Anesthesia, Harvard Medical School, Boston, MA.

#1371 **Poster Board Number 405**
Nicotine-Induced Toxicity in Rat Embryonic Neural Stem Cells. *F. Liu*[1], *N. Sadovova*[2], C. M. Fogle[1], *M. G. Paule*[1], *W. Slikker*[1], and *C. Wang*[1]. [1]Division of Neurotoxicology, National Center for Toxicological Research NCTR, US FDA, Jefferson, AR; [2]Toxicologic Pathology Associates, Jefferson, AR.

#1372 **Poster Board Number 406**
Consequences of Nicotine Exposure on Larval Zebrafish Circadian Rhythms. *M. E. Wolter*, and *K. R. Svoboda*. Joseph J. Zilber School of Public Health, University of Wisconsin-Milwaukee, Milwaukee, WI.

#1373 **Poster Board Number 407**
Ethanol Pretreated Astrocytes Increase Synapses in Hippocampal Neurons. P. J. Roque[1], *G. Giordano*[1], A. Barria[2], *M. Guizzetti*[3], and *L. G. Costa*[1]. [1]DEOHS, University of Washington, Seattle, WA; [2]Physiology & Biophysics, University of Washington, Seattle, WA; [3]Department of Psychiatry, University of Illinois, Chicago, IL.

#1374 **Poster Board Number 408**
PCB 95 and IFN-gamma Exert Opposing Effects on Dendritic Growth in Cultured Rat Sympathetic Neurons. P. E. Goines, and *P. J. Lein*. Molecular Biosciences, University of California Davis, School of Veterinary Medicine, Davis, CA.

#1375 **Poster Board Number 409**
PCB 95 Stimulates Synaptogenesis via Ryanodine Receptor-Mediated miR132 Upregulation. *H. Chen*[1], A. Lesiak[2], M. Zhu[2], S. M. Appleyard[2], S. Impey[3], *D. A. Bruun*[1], G. A. Wayman[2], and *P. J. Lein*[1]. [1]Department of Molecular Biosciences, University of California Davis, Davis, CA; [2]Program in Neuroscience, Washington State University, Pullman, WA; [3]Vollum Institute, Oregon Health and Sciences University, Oregon Health and Sciences University, Portland, OR.

#1376 **Poster Board Number 410**
Developmental PCB 95 Exposure Affects Spatial Memory in Weanling Mice. *C. Barnhart*[1], *D. Yang*[1], *H. Chen*[1], L. Qi[2], and *P. Lein*[1]. [1]Molecular Biosciences, University of California Davis, Davis, CA; [2]Public Health Sciences, University of California Davis, Davis, CA.

#1377 **Poster Board Number 411**
Optimizing Methods to Quantify CYP1A Enzyme Activity in Mouse Brain following Developmental PCB Exposure. A. Ashworth, and *C. P. Curran*. Biological Sciences, Northern Kentucky University, Highland Heights, KY.

TUESDAY

Program Description (Continued)

Abstract #

#1378 **Poster Board Number 412**
Selective Dieldrin Toxicity to Differentiating Dopaminergic Neurons. S. Schildknecht, B. Zimmer, and *M. Leist*. University of Konstanz, Konstanz, Germany.

#1379 **Poster Board Number 413**
Differential Gene Expression in the Neonatal Rat Brain following Combined Maternal Exposure to Chlorpyrifos and Nicotine. *T. V. Damodaran*[1,2], J. Bradley[2], and *M. B. Abou-Donia*[2]. [1]Biology, North Carolina Central University, Durham, NC; [2]Pharmacology and Cancer Biology, Duke University Medical Center, Durham, NC.

#1380 **Poster Board Number 414**
The Effect of Embryonic Exposure to Deltamethrin on the Dopaminergic System and Swim Activity in the Zebrafish. *T. S. Kung*, *J. R. Richardson*, *K. R. Cooper*, and *L. A. White*. Rutgers University, UMDNJ, New Brunswick, NJ.

#1381 **Poster Board Number 415**
Dysregulation of Redox Homeostasis by Paraquat in Rat Developing Brain. M. Rathinam, *L. Chen*, A. Fowler, A. Riar, M. Narasimhan, L. Mahimainathan, and G. I. Henderson. Pharmacology and Neuroscience, Texas Tech University Health Sciences Center, Lubbock, TX.

#1382 **Poster Board Number 416**
Neonatal Bisphenol A (BPA) Exposure Alters Sex-Specific Estrogen Receptor 2 (ERβ) mRNA Expression in the Postnatal Rat Brain. *J. Cao*, L. Joyner, and *H. B. Patisaul*. Biology, North Carolina State University, Raleigh, NC.

#1383 **Poster Board Number 417**
Effects of Different Endocrine Disruptor Mixtures on Gene Expression in Neonatal Rat Brain Regions: Focus on Developing Excitatory Synapses. W. Lichtensteiger[1], C. Bassetti-Gaille[1], O. Faass[1], J. Boberg[2], S. Christiansen[2], U. Hass[2], A. Kortenkamp[3], and M. Schlumpf[1]. [1]GREEN Tox and Institute of Anatomy, University of Zurich, Zurich, Switzerland; [2]National Food Institute, Technical University of Denmark, Søborg, Denmark; [3]Institute for the Environment, Brunel University, Uxbridge, United Kingdom. Sponsor: *T. Slotkin*.

#1384 **Poster Board Number 418**
The Effect of Prenatal Exposure to Amorphous Nanosilica Particles on Neonatal Memory. Y. Morishita[1], *Y. Yoshioka*[1], K. Takao[2,3], Y. Ago[4], H. Satoh[1], N. Nojiri[1], T. Tanaka[1], K. Takuma[4], T. Yoshida[1], H. Nabeshi[5], *T. Yoshikawa*[1], S. Tsunoda[6,7], T. Matsuda[4], T. Miyakawa[2,3], K. Higashisaka[1], and *Y. Tsutsumi*[1,6,7]. [1]Laboratory of Toxicology and Safety Science, Graduate School of Pharmaceutical Sciences, Osaka University, Suita, Japan; [2]Division of Systems Medicine, Institute for Comprehensive Medical Science, Fujita Health University, Toyoake, Japan; [3]Section of Behavior Patterns, Center for Genetic Analysis of Behavior, National Institute for Physiological Sciences, Okazaki, Japan; [4]Laboratory of Medicinal Pharmacology, Graduate School of Pharmaceutical Sciences, Osaka University, Suita, Japan; [5]National Institute of Health Science, Setagaya-ku, Japan; [6]Laboratory of Biopharmaceutical Research, National Institute of Biomedical Innovation, Ibaraki, Japan; [7]MEI Center, Osaka University, Suita, Japan.

Abstract #

#1385 **Poster Board Number 419**
Sex-Dependent Impairment of Learning due to Exposure to Concentrated Ambient Particles. *J. L. Allen*, D. Weston, K. Conrad, *G. Oberdorster*, and *D. A. Cory-Slechta*. Environmental Medicine, University of Rochester Medical School, Rochester, NY.

#1386 **Poster Board Number 420**
Effects of Maternal Inhalation of Gasoline Evaporative Condensates on Sensory Function in Rat Offspring. L. L. Degn[1], D. F. Lyke[1], T. E. Beasley[1], P. A. Evansky[2], *S. A. Martin*[1], *W. K. Boyes*[1], *P. J. Bushnell*[1], and *D. W. Herr*[1]. [1]TAD/NB, US EPA, Durham, NC; [2]EPHD, US EPA, Durham, NC.

#1387 **Poster Board Number 421**
Abnormality in Fear-Related Emotional Function in Mice Perinatally Exposed to a Low Dose of TCDD. S. Benner[1], A. Haijima[1], Y. Zhang[1], R. Kobayakawa[2], K. Kobayakawa[2], M. Kakeyama[1], and *C. Tohyama*[1]. [1]Laboratory of Environmental Health Sciences, Center for Disease Biology and Integrative Medicine, Graduate School of Medicine, University of Tokyo, Tokyo, Japan; [2]Osaka Bioscience Institute, Osaka, Japan.

#1388 **Poster Board Number 422**
Neonatal Exposure to Perfluorohexane Sulfonate (PFHxS) in Mice Alters Neuroprotein Levels Essential for the Developing Brain. I. Lee, and *H. Viberg*. Environmental Toxicology, Uppsala University, Uppsala, Sweden.

#1389 **Poster Board Number 423**
Prenatal Exposure to 1-Bromopropane Changes Basic Excitability of the Hippocampus and Inhibits the Behaviors Induced by Kainic Acid and Pentylenetetrazole in the Rat Offspring during Lactation Period. *Y. Fueta*[1], S. Ueno[1], T. Ishidao[1], M. Kanemitsu[2], and H. Hori[1]. [1]University of Occupational and Environmental Health, Kitakyushu, Japan; [2]Kyushu Institute of Technology, Kitakyushu, Japan.

#1390 **Poster Board Number 424**
Neonatal Exposure to a Single Low Dose of Ionising Radiation Causes Persistent Disruptions in Cognitive Abilities and Increased Levels of Tau in Mice. S. Buratovic[1], B. Stenerlöw[2], S. Sundell-Bergman[3], A. Fredriksson[1], *H. Viberg*[1], and *P. Eriksson*[1]. [1]Environmental Toxicology, Organismal Biology, Uppsala, Sweden; [2]Radiology, Oncology and Radiation Science, Biomedical Radiation Sciences, Uppsala, Sweden; [3]Soil and Environment, Uppsala, Sweden.

#1391 **Poster Board Number 425**
CYP1A1_CYP1A2(-/-) Double Knockout Mice Exhibit Impaired Motor Function. A. Lang, H. Garber, C. Strohmaier, K. Taylor, and *C. P. Curran*. Biological Sciences, Northern Kentucky University, Highland Heights, KY.

#1392 **Poster Board Number 426**
Aryl Hydrocarbon Receptor (AhR) Deletion in Cerebellar Granule Neuron Precursors Impairs Motor Function and Neurogenesis. *D. P. Dever*, *K. Conrad*, *D. Cory-Slechta*, and *L. Opanashuk*. Environmental Medicine, University of Rochester, Rochester, NY.

Program Description (Continued)

Abstract #

#1393 **Poster Board Number 427**
Assessment of Brain Morphometry Data Using Multivariate Statistical Analysis Methodology. W. Miner, T. J. Vidmar, and *L. Freshwater*. BioSTAT Consultants, Portage, MI.

#1394 **Poster Board Number 428**
Mother's Environmental Tobacco Smoke Exposure during Pregnancy and Externalizing Behavior Problems in Children. *J. Liu*[1], P. Leung[2], L. McCauley[3], and J. Pinto-Martin[1]. [1]School of Nursing, University of Pennsylvania, Philadelphia, PA; [2]Chinese University of Hong Kong, Hong Kong, China; [3]Nell Hodgson School of Nursing, Emory University, Atlanta, GA.

Tuesday Afternoon, March 12
1:00 PM to 4:30 PM
Exhibit Hall C–D

PS

Poster Session: Neurotoxicology: Pesticides

Chairperson(s): *David Herr, US EPA, Durham, NC.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *2:45 PM–4:30 PM*

#1395 **Poster Board Number 429**
Patterns of Clinical Bioindicators in Rat Serum following Acute Exposure to Pesticides of Different Chemical Classes. *D. W. Herr*[1], N. A. Stewart[2], D. F. Lyke[1], K. L. McDaniel[1], and *V. C. Moser*[1]. [1]TAD/NB, US EPA, Durham, NC; [2]Contractor, Durham, NC.

#1396 **Poster Board Number 430**
Acute Triadimefon-Induced Changes in the EEG of Long-Evans Rats. D. F. Lyke, K. L. McDaniel, *V. C. Moser*, and *D. W. Herr*. TAD/NB, US EPA, Durham, NC.

#1397 **Poster Board Number 431**
***In Vitro* Assessment of Parkinsonian Neurodegeneration by Dinitrophenolic Herbicides in PC12 Cells.** *H. J. Heusinkveld*[1], A. C. van Vliet[1], P. C. Nijssen[2], and *R. H. Westerink*[1]. [1]Neurotoxicology Research Group, Institute for Risk Assessment Sciences, Faculty of Veterinary Medicine, Utrecht University, Utrecht, Netherlands; [2]Department of Neurology, Elisabeth Hospital, Tilburg, Netherlands.

#1398 **Poster Board Number 432**
Protein Cysteine Oxidation and Dopaminergic Cell Death Induced by Pesticides. J. Navarro-Yepes[1,2], *L. Del Razo*[1], R. Franco[2], and *B. Quintanilla-Vega*[1]. [1]Toxicology Department, CINVESTAV-IPN, Mexico City, Mexico; [2]Redox Biology Center, University of Nebraska-Lincoln, Lincoln, NE.

Abstract #

#1399 **Poster Board Number 433**
Aldehyde Dehydrogenase Dysfunction Increases Parkinson's Disease Risk via Gene-Environment Interactions. *A. G. Fitzmaurice*[1,2], S. L. Rhodes[3], M. Cockburn[4], B. Ritz[3], and J. M. Bronstein[1,2,5]. [1]Neurology, David Geffen School of Medicine at University of California Los Angeles, Los Angeles, CA; [2]Molecular Toxicology, University of California Los Angeles, Los Angeles, CA; [3]Epidemiology, University of California Los Angeles Fielding School of Public Health, Los Angeles, CA; [4]Preventive Medicine, Keck School of Medicine of University of California Los Angeles, Los Angeles, CA; [5]Greater Los Angeles Veterans Administration Medical Center, Los Angeles, CA.

#1400 **Poster Board Number 434**
Pesticide-Linked Parkinson's Disease: Using *Drosophila* to Build a Novel *In Vivo* Model of Paraquat, Maneb and Ziram Exposure. *C. A. Martin*[1], A. Barajas[2], and D. Krantz[1,2]. [1]Molecular Toxicology, University of California Los Angeles, Los Angeles, CA; [2]Neurobiology, University of California Los Angeles, Los Angeles, CA.

#1401 **Poster Board Number 435**
High i.p. Doses of Paraquat Do Not Result in a Loss of Dopaminergic Neurones in the Substantia Nigra of the Mouse. *M. Butt*[3], *P. Botham*[1], C. Breckenridge[2], *L. Smith*[1], N. Sturgess[1], and J. Wolf[4]. [1]Syngenta, Bracknell, United Kingdom; [2]Syngenta, Greensboro, NC; [3]Tox Path Specialists, Frederick, MD; [4]EPL, Sterling, VA.

#1402 **Poster Board Number 436**
Repeated Exposure to Paraquat Affects the Neural Behavior in Male C57BL/6 Mice. *D. Lou*[1], Q. Zhao[2], M. Huang[3,1], and *Z. Zhou*[1]. [1]Department of Occupational Health Sciences and Toxicology, Fudan University, Shanghai, China; [2]Center of Disease Control in Minhang District, Shanghai, China; [3]Department of Environmental and Occupational Health Sciences, Ningxia Medical University, Yinchuang, China.

#1403 **Poster Board Number 437**
Protective Effect of Edaravone Pretreatment against Mancozeb Cytotoxicity in Rat Hippocampal Astrocytes. *L. D. Trombetta*, and N. Ruparel. Pharmaceutical Sciences, St. John's University, Queens, NY.

#1404 **Poster Board Number 438**
Role of Alpha-Synuclein and Its Mutants on Dithiocarbamates Cytotoxicity. A. Stoll, and *S. Cheng*. Science, John Jay College of Criminal Justice, New York, NY.

#1405 **Poster Board Number 439**
The Role of RTP801 in Maneb and Mancozeb-Induced Cytotoxicity. *S. Cheng*, C. Ta, A. A. Calderone, and S. Oh. Sciecnes, John Jay College of Criminal Justice, New York, NY.

#1406 **Poster Board Number 440**
Nrf2 Protects Hippocampus against Oxidative Stress Caused by Maneb. *D. Kurzatkowski*, and *L. D. Trombetta*. Pharmaceutical Sciences, St. John's University, Queens, NY.

Program Description (Continued)

Abstract #

#1407 **Poster Board Number 441**
Neurotoxicity of the Dithiocarbamate Fungicide Ziram Is Dependent on Synuclein in Zebrafish: Implications for Parkinson's Disease. *A. Lulla*[1,2], L. Barnhill[1,2], M. Stahl[2], A. Fitzmaurice[1,2], S. Li[2], and J. Bronstein[2,1]. [1]Toxicology, University of California Los Angeles, Los Angeles, CA; [2]Neurology, University of California Los Angeles, Los Angeles, CA.

#1408 **Poster Board Number 442**
Linking Developmental Atrazine Exposure in Zebrafish to Long-Term Neurotransmission Alterations. C. Xiao, *G. J. Weber*, S. E. Watson, *J. L. Freeman*, and *J. R. Cannon*. School of Health Sciences, Purdue University, West Lafayette, IN.

#1409 **Poster Board Number 443**
Effects of the Long-Term Coexposure to the Herbicide Atrazine and Inorganic Arsenic (IAs) in the Nigrostriatal Dopaminergic System of the Albine Rat. *U. Bardullas*, M. Giordano, and *V. Rodríguez*. Departamento de Neurobiología Conductual y Cognitiva, Instituto de Neurobiología, Universidad Nacional Autonoma de Mexico, Queretaro, Mexico.

#1410 **Poster Board Number 444**
Glyphosate Treatment Suggests Offspring and Reproductive Toxicity in *Caenorhabditis elegans*. *R. Negga*, M. B. Johnson, K. A. McVey, I. B. Snapp, and *V. A. Fitsanakis*. Biology, King College, Bristol, TN.

#1411 **Poster Board Number 445**
Effects of the Subchronic Exposure to the Herbicide Glyphosate on Behavior and the Nigrostriatal and Mesolimbic Dopaminergic Areas of the Albine Rat. I. Hernandez-Plata[1], M. Diaz-Muñoz[2], M. Giordano[1], and *V. M. Rodriguez*[1]. [1]Neurobiologia Conductual y Cognitiva, Instituto de Neurobiologia, Queretaro, Mexico; [2]Neurobiologia Celular y Molecular, Instituto de Neurobiologia, Queretaro, Mexico.

#1412 **Poster Board Number 446**
Relationship between Administered Dose, Target Tissue Levels and Thermoregulatory Response Alterations after Acute Oral Exposure to the Potent Tremor-Inducing Pyrethroid Bifenthrin in Rats. M. Mosquera-Ortega[1], A. Pato[3], C. Sosa-Holt[3], A. Ridolfi[2], *M. J. Wolansky*[1], and E. Villaamil Lepori[2]. [1]Biological Chemistry, IQUIBICEN (CONICET); University of Buenos Aires, Buenos Aires, Argentina; [2]Toxicology, Pharmacy and Biochemistry, University of Buenos Aires, Buenos Aires, Argentina; [3]Biological Chemistry, University of Buenos Aires, Buenos Aires, Argentina.

#1413 **Poster Board Number 447**
Interactions of a Promoter/Potentiator of Neuropathy and Esterases of Membrane and Soluble Fractions of Brain. I. Mangas, J. Estévez, and *E. Vilanova*. Unit of Toxicology and Chemical Safety Institute of Bioengineering, University Miguel Hernández, Elche, Spain.

#1414 **Poster Board Number 448**
***In Vitro* Inhibition and Aging of Neuropathy Target Esterase (NTE) Caused by Fenamiphos and Acephate.** *G. L. Emerick*, L. S. Fernandes, N. G. Santos, and A. C. Santos. Departamento de Análises Clínicas, Toxicológicas e Bromatológicas, Universidade de São Paulo, Ribeirão Preto, Brazil.

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#1415 **Poster Board Number 449**
Inhibition and Aging of Neuropathy Target Esterase (NTE) in SH-SY5Y Human Neuroblastoma Cells As Screening for Inducers of Delayed Neuropathy. L. S. Fernandes, *G. L. Emerick*, N. G. Santos, and A. C. Santos. DACTB, Universidade de São Paulo, Ribeirão Preto, Brazil.

#1416 **Poster Board Number 450**
Use of a Human Haploid Cell-Based Loss of Functional Genetic Screening Model to Identify Human Susceptibility Genes for Chlorpyrifos Toxicity. A. Dubois, *J. Olson*, and *X. Ren*. Pharmacology & Toxicology, University at Buffalo The State University of New York, Buffalo, NY.

#1417 **Poster Board Number 451**
Pharmacological Modulation of Endocannabinoid Signaling Differentially Affects Acute Toxicity of Paraoxon and Chlorpyrifos Oxon in Rats. *J. Liu*, and *C. Pope*. Physiological Sciences, Oklahoma State University, Stillwater, OK.

#1418 **Poster Board Number 452**
Hippocampal Changes Induced by Noncholinergic Diisopropylfluorophosphate (DFP) Exposure in Fischer 344 Rat Brain. D. A. Mahle[1], A. Soto[1], V. T. Chan[1], and *N. V. Reo*[2]. [1]711 HPW/RHDJ, Wright-Patterson AFB, OH; [2]Wright State University, Fairborn, OH.

#1419 **Poster Board Number 453**
Dose-Dependent Behavioral Deficits in Egyptian Agricultural Workers with Chronic Organophosphorus Pesticide (OP) Exposures. W. K. Anger[1], F. M. Farahat[2], *P. J. Lein*[3], *J. R. Olson*[4], M. Lasarev[1], and *D. S. Rohlman*[1]. [1]Oregon Health & Science University, Portland, OR; [2]Menoufia University, Shebin Elkom, Egypt; [3]University of California Davis, Davis, CA; [4]University at Buffalo, Buffalo, NY.

#1420 **Poster Board Number 454**
Chlorpyrifos Exposure and Self-Reported Neurological Symptoms in Adolescent Pesticide Applicators. *D. Rohlman*[1], K. Khan[1], A. A. Ismail[2], G. Abdel Rasoul[2], M. R. Bonner[3], M. R. Lasarev[1], A. L. Crane[4], S. T. Singleton[4], and *J. R. Olson*[3,4]. [1]Occupational and Environmental Health, University of Iowa, Iowa City, IA; [2]Community Medicine & Public Health, Menoufia University, Shebin El-Kom, Egypt; [3]Social & Preventive Medicine, State University of New York at Buffalo, Buffalo, NY; [4]Pharmacology & Toxicology, State University of New York at Buffalo, Buffalo, NY.

#1421 **Poster Board Number 455**
Differential Antagonism of Tetramethylenedisulfotetramine-Induced Seizures by Agents Acting at NMDA and GABAA Receptors. M. Shakarjian[1,2], J. Velíšková[3,4,6], P. Stanton[3,6], and L. Velíšek[3,5,6]. [1]Environmental Health Science, New York Medical College, Valhalla, NY; [2]Medicine, UMDNJ-RWJMS, Piscataway, NJ; [3]Cell Biology & Anatomy, New York Medical College, Valhalla, NY; [4]Obstetrics & Gynecology, New York Medical College, Valhalla, NY; [5]Pediatrics, New York Medical College, Valhalla, NY; [6]Neurology, New York Medical College, Valhalla, NY. Sponsor: *D. Heck*.

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Program Description (Continued)

Abstract #

#1422 **Poster Board Number 456**
Postexposure Administration of Diazepam Blocks TETS-Induced Tonic Seizures and Death but Does Not Prevent Neuroinflammation. *D. Bruun*[1], S. Vito[2], B. Inceoglu[2], B. D. Hammock[2], and *P. J. Lein*[1]. [1]VM Molecular Bioscience, University of California Davis, Davis, CA; [2]Entomology, University of California Davis, Davis, CA.

Tuesday Afternoon, March 12
1:00 PM to 4:30 PM
Exhibit Hall C–D

PS

Poster Session: Autoimmunity and Hypersensitivity

Chairperson(s): *Xu Zhu, Pfizer, Inc., Groton, CT.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *1:00 PM–2:45 PM*

#1423 **Poster Board Number 457**
THC-Mediated Immunosuppression Leads to Decreased Th1 Response to Allogeneic Cells by Triggering Induction of MDSCs. *J. M. Sido*, *M. Nagarkatti*, and *P. Nagarkatti*. Pathology, Immunology & Microbiology, University of South Carolina School of Medicine, Columbia, SC.

#1424 **Poster Board Number 458**
Mechanistic Comparison of Asbestos-Associated Autoantibodies. *K. Serve*, A. Santin, and *J. Pfau*. Biological Sciences, Idaho State University, Pocatello, ID.

#1425 **Poster Board Number 459**
Cannabidiol-Induced Myeloid-Derived Suppressor Cells Lead to Amelioration of Experimental Autoimmune Encephalomyelitis. *D. M. Elliott*, *P. Nagarkatti*, and *M. Nagarkatti*. Pathology, Microbiology and Immunology, University of South Carolina School of Medicine, Columbia, SC.

#1426 **Poster Board Number 460**
Attenuation of Trichloroethene-Mediated Autoimmune Response in iNOS-null MRL^{+}/$^{+}$ Mice. G. Wang[1], M. Wakamiya[2], J. Wang[1], *G. Ansari*[1], and *M. Khan*[1]. [1]Pathology, University of Texas Medical Branch, Galveston, TX; [2]Institute for Translational Sciences and Animal Resource Center, University of Texas Medical Branch, Galveston, TX.

#1427 **Poster Board Number 461**
Mouse Model of Halogenated Platinum Salt Hypersensitivity. W. Williams[1], E. H. Boykin[1], C. Copeland[1], L. Copeland[1], S. J. Quell[3], *S. H. Gavett*[1], *M. Selgrade*[2], and *D. M. Lehmann*[1]. [1]US EPA, Research Triangle Park, NC; [2]ICF International, Durham, NC; [3]Independent, Research Triangle Park, NC.

#1428 **Poster Board Number 462**
Effect of Analgesic Administration on the Guinea Pig Maximization Test. *D. W. Rice*, L. C. Anderson, and J. H. Gass. Department of Toxicology, Baxter Healthcare Corporation, Round Lake, IL.

#1429 **Poster Board Number 463**
Chemical Assessment of "In-Use" Allergic Contact Dermatitis Patch Test Reagents from Dermatology Clinics. *P. D. Siegel*[1], J. F. Fowler[2], B. F. Law[1], E. M. Warshaw[3], and J. S. Taylor[4]. [1]NIOSH, CDC, Morgantown, WV; [2]University of Louisville, Louisville, KY; [3]University of Minnesota, Minneapolis, MN; [4]Cleveland Clinic, Cleveland, OH.

Abstract #

#1430 **Poster Board Number 464**
Adjuvant Effect of Dibutyl Phthalate (DBP) in an Animal Model of Contact Hypersensitivity. A. S. Lourenço[2], R. M. Zaia[2], A. Prudente[2], M. F. Otuki[2], and A. J. Martino-Andrade[1,2]. [1]Fisiologia, Universidade Federal do Paraná, Curitiba, Brazil; [2]Farmacologia, Universidade Federal do Paraná, Curitiba, Brazil. Sponsor: *E. Silbergeld*.

#1431 **Poster Board Number 465**
Characterization of the Mouse Allergy Model to Understand Mechanisms of Drug Allergy. X. Zhu, S. Cole, *T. Kawabata*, and *J. Whritenour*. Pfizer Inc. Immunotoxicology CoE, Drug Safety Research and Development, Groton, CT.

#1432 **Poster Board Number 466**
Characterization and Comparison of Methylene Diphenyl Diisocyanate Haptenated Human Serum Albumin and Hemoglobin. M. Mhike[1,2], J. M. Hettick[1], *I. Chipinda*[1], R. H. Simoyi[2], and *P. D. Siegel*[1]. [1]Health Effects Laboratory Division, NIOSH, CDC, Morgantown, WV; [2]Department of Chemistry, Portland State University, Portland, OR.

#1433 **Poster Board Number 467**
Dimethylfumarate: Potency Prediction and Clinical Experience. I. R. White[2], *D. Basketter*[1], *F. G. Burleson*[3], *G. Burleson*[3], and *I. Kimber*[4]. [1]DABMEB Consultancy Ltd., Sharnbrook, United Kingdom; [2]Department of Cutaneous Allergy, St. John's Institute of Dermatology, London, United Kingdom; [3]BRT - Burleson Research Technologies, Morrisville, NC; [4]Faculty of Life Sciences, University of Manchester, Manchester, United Kingdom.

#1434 **Poster Board Number 468**
Characterization of the Allergenic Potential of Proteins: An Assessment of the Kiwifruit Allergen Actinidin. L. Beresford[1], S. McClain[2], *I. Kimber*[1], and *R. J. Dearman*[2]. [1]Faculty of Life Sciences, Manchester University, Manchester, United Kingdom; [2]Syngenta Crop Protection, Durham, NC.

#1435 **Poster Board Number 469**
Risk of Allergic Reaction to Undeclared Milk Proteins in a Dietary Supplement. *J. Fleischer*, and *M. H. Whittaker*. ToxServices LLC, Washington DC.

#1436 **Poster Board Number 470**
Allergenic Antibiotics (Blactams and Sulfonamides) Induce Oxidative Stress in Keratinocytes. *B. E. Lucas*[1], A. E. Asangba[1], S. Mohammad[1], M. Gande[1], K. L. Voie[2], K. L. Campbell[2], and *S. N. Lavergne*[1]. [1]Comparative Biosciences, University of Illinois, Urbana, IL; [2]Veterinary Clinical Medicine, University of Illinois, Urbana, IL.

#1437 **Poster Board Number 471**
Activities of Xenobiotic Metabolizing Enzymes in Cell Lines Used for Skin Sensitization Testing *In Vitro*. D. Vogel[1,3], E. Fabian[1], T. Eltze[1,2], T. Ramirez[1], S. N. Kolle[1], *B. van Ravenzwaay*[1], and *R. Landsiedel*[1]. [1]Experimental Toxicology and Ecology, BASF SE, Ludwigshafen am Rhein, Germany; [2]Product Safety Paper Chemicals, BASF SE, Ludwigshafen am Rhein, Germany; [3]Food Chemistry and Toxicology, Technical University of Kaiserslautern, Kaiserslautern, Germany.

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Program Description (Continued)

Abstract #

#1438 **Poster Board Number 472**
Interleukin 17 Expression by Chemical Allergen-Activated Lymph Node Cells: Selectivity for Contact Allergens. *I. Kimber*, A. Metryka, M. D. Hayes, and *R. J. Dearman*. Faculty of Life Sciences, Manchester University, Manchester, United Kingdom.

#1439 **Poster Board Number 473**
Interleukin 17 Responses Induced in Mice by Chemical Allergens: A Functional Role for Gammadelta T Cells. *R. J. Dearman*[1], M. D. Hayes[1], B. Hunt[2], A. Hayday[2], and *I. Kimber*[1]. [1]Manchester University, Manchester, United Kingdom; [2]London Research Institute, London, United Kingdom.

#1440 **Poster Board Number 474**
IL-18 Secretion in Human 3D Organotypic Skin Models for the Identification of Contact Sensitizers. *E. Corsini*[1], S. Gibbs[2], V. Galbiati[1], S. Spiekstra[2], H. Kandarova[3], *P. J. Hayden*[4], C. Seaman[4], and *E. L. Roggen*[5]. [1]DiSFeB, Università degli Studi di Milano, Milan, Italy; [2]Vrije Universiteit Medical Center, Amsterdam, Netherlands; [3]MatTek Corporation, Ashland, MD; [4]GSK, Hertfordshire, United Kingdom; [5]3Rs Management and Consultancy, Kongens Lyngby, Denmark.

#1441 **Poster Board Number 475**
Animal Strains Usable to the LLNA: brdU-ELISA (OECD 442B). *T. Anzai*[1,2], Y. Nozaki[3], M. Kaminishi[1,2], *H. Takagi*[3], *T. Satoh*[1], R. Guest[4], and K. Sato[2]. [1]Harlan Laboratories Co., Ltd., Tokyo, Japan; [2]School of Medicine, Showa University, Tokyo, Japan; [3]Japan SLC, Hamamatsu, Japan; [4]Harlan Laboratories (UK), Derby, United Kingdom.

#1442 **Poster Board Number 476**
Elucidation of the Reason Underlying the Incorrect Sensitization Evaluation Results for Methyl Methacrylate, Methyl Salicylate and 2-Mercaptobenzothiazole by Nonradioactive Local Lymph Node Assay. W. Jang[1], K. Jung[1], Y. Lee[2], Y. Yum[2], Y. Heo[3], and *K. Lim*[1]. [1]Amorepacific R&D Center, Yong-in, Republic of Korea; [2]Korea FDA, Cheong-won, Republic of Korea; [3]Catholic University of Daegu, Daegu, Republic of Korea.

#1443 **Poster Board Number 477**
Polarized Immune Responses Induced by Chemical Allergens Display Differential DNA Methylation Patterns. V. Chapman[1], *J. Moggs*[2], R. Terranova[2], T. Zollinger[2], *I. Kimber*[1], and *R. J. Dearman*[1]. [1]Manchester University, Manchester, United Kingdom; [2]Novartis, Basel, Switzerland.

Abstract #

Tuesday Afternoon, March 12
1:00 PM to 4:30 PM
Exhibit Hall C–D

PS

Poster Session: Alternative High-Throughput Models I

Chairperson(s): *Frank Barile, St. Johns University, Queens, NY, and Hajime Kojima, National Institute of Health Sciences, Tokyo, Japan.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *2:45 PM–4:30 PM*

#1444 **Poster Board Number 501**
Chemicals Acute Toxicity Testing and Evaluation Based on Nematode *Caenorhabditis elegans* Model. Y. Li, K. Yang, S. Gao, H. Jing, L. Qi, J. Ning, Z. Tan, C. Zhao, L. Ma, and *G. Li*. Institute for Toxicology, Beijing Centers for Disease Control and Prevention, Beijing Research Center for Preventive Medicine, Beijing, China.

#1445 **Poster Board Number 502**
Predicting Developmental Neurotoxicity in Rodents from Larval Zebrafish—and Vice Versa. *V. C. Moser*, *R. C. MacPhail*, P. M. Phillips, M. E. Culbreth, K. L. McDaniel, K. A. Jarema, and *S. Padilla*. TAD & ISTD, NHEERL, US EPA, Research Triangle Park, NC.

#1446 **Poster Board Number 503**
Developmental and Reproductive Toxicity of Fusarium Mycotoxins in the Nematode *Caenorhabditis elegans*. *Z. Yang*[2,1], *L. Tang*[1], *G. Qian*[1], and *J. Wang*[1]. Toxicology and Environmental Research & Consulting, The Dow Chemical Company, Midland, MI.

#1447 **Poster Board Number 504**
Zebrafish As a Complementary Model in Toxicology. A. Menke[2], A. Wolterbeek[1], A. Beker[1], C. Snel[2], and D. de Groot[1]. [1]TNO, Zeist, Netherlands; [2]TNO Triskelion BV, Zeist, Netherlands. Sponsor: *R. Woutersen*.

#1448 **Poster Board Number 505**
Using Yeast Functional Toxicogenomics to Decipher the Toxicity of the Dieldrin Organochlorinated Pesticide. *B. Gaytan*[1], A. Loguinov[1], *S. Lantz*[1], *N. Denslow*[2], and *C. Vulpe*[1]. [1]University of California Berkeley, Berkeley, CA; [2]University of Florida, Gainesville, FL.

#1449 **Poster Board Number 506**
Evaluation of Epigenetic and Developmental Effects in *Danio rerio* Zebrafish Embryos following Diethylstilbestrol, 17β-Estradiol and/or 5-Azacytidine Treatment. *R. G. Ellis-Hutchings*, *R. A. Alyea*, V. A. Marshall, *M. J. LeBaron*, R. Sura, *N. P. Moore*, *B. B. Gollapudi*, and *R. J. Rasoulpour*. Toxicology and Environmental Research & Consulting, The Dow Chemical Company, Midland, MI.

#1450 **Poster Board Number 507**
A High-Throughput Mechanism-Based Toxicity Screen Using *C. elegans*. *R. B. Goldsmith*[2], J. R. Pirone[3], *W. A. Boyd*[2], M. V. Smith[3], and *J. H. Freedman*[1]. [1]NIH, Research Triangle Park, NC; [2]NTP, NIEHS, Research Triangle Park, NC; [3]SRA International, Durham, NC.

Program Description (Continued)

Abstract #

#1451 **Poster Board Number 508**
The Effects of Microcystin-LR on the Chemotaxis Indexes of *Caenorhabditis elegans*. *C. Moore*, and *B. Puschner*. Molecular Biosciences, University of California Davis School of Veterinary Medicine, Davis, CA.

#1452 **Poster Board Number 509**
Quantitative Assessment of Phase II ToxCast™ Chemical Toxicity in *C. elegans*. *W. A. Boyd*[1], M. V. Smith[2], J. R. Pirone[2], J. R. Rice[1], and *J. H. Freedman*[1,3]. [1]DNTP, NIEHS, NTP, Research Triangle Park, NC; [2]SRA International, Research Triangle Park, NC; [3]LTP, NIEHS, NIH, Research Triangle Park, NC.

#1453 **Poster Board Number 510**
Triazole-Induced Gene Expression Changes in the Zebrafish Embryo. S. A. Hermsen[1,2], T. E. Pronk[1], E. van den Brandhof[1], L. T. van der Ven[1], and A. Piersma[1,3]. [1]Health Protection, RIVM, Bilthoven, Netherlands; [2]Toxicogenomics, University, Maastricht, Netherlands; [3]IRAS, University, Utrecht, Netherlands. Sponsor: *H. van Loveren*.

#1454 **Poster Board Number 511**
Early-Life Exposure to Methylmercury and Multiple Stressors: *Daphnia pulex* As an Alternative Model System to Evaluate Long-Term Effects. D. Doke, and *J. M. Gohlke*. Environmental Health Sciences, University of Alabama at Birmingham, Birmingham, AL.

#1455 **Poster Board Number 512**
A Rapid Chemical Screening Platform in *C. elegans* for Assessing Environmental Germline Disruption. *P. Allard*[1], *N. Kleinstreuer*[3], *T. Knudsen*[3], and M. Colaiacovo[2]. [1]Environmental Health Sciences, University of California Los Angeles, Los Angeles, CA; [2]Genetics, Harvard Medical School, Boston, MA; [3]NCCT, US EPA, Research Triangle Park, NC.

#1456 **Poster Board Number 513**
Cytotoxic Effects of Methyl-Mercury in Whole Worms and Pan-Neuronal GFP-Expressing Embryonic Cultures of *Caenorhabditis elegans*. *K. Breithaupt*[1], R. K. Hajela[1,2], and *W. D. Atchison*[1,2]. [1]Neuroscience Program, Michigan State University, East Lansing, MI; [2]Pharm/Tox, Michigan State University, East Lansing, MI.

#1457 **Poster Board Number 514**
MTBE Disrupts HIF1-Vegf Regulated Angiogenesis in Zebrafish (*Danio rerio*). *J. A. Bonventre*[1,2], *T. S. Kung*[2], *L. A. White*[2], and *K. R. Cooper*[2]. [1]EMT, Oregon State University, Corvallis, OR; [2]JGPT, Rutgers University, New Brunswick, NJ.

#1458 **Poster Board Number 515**
An *In Vitro* Placental Model Using BeWo Cells for the Prediction of Placental Transfer of Compounds. H. Li[1], *B. van Ravenzwaay*[1,2], I. Rietjens[1], and J. Louisse[1]. [1]Division of Toxicology, Wageningen University, Wageningen, Netherlands; [2]Experimental Toxicology and Ecology, BASF SE, Ludwigshafen, Germany.

#1459 **Poster Board Number 516**
Controlled Hemodynamics and Transport in Primary Hepatocytes Shift Induction and Toxic Responses to Drugs Closer to *In Vivo* Concentrations. *A. Dash*, T. Deering, J. Thomas, B. R. Blackman, and B. R. Wamhoff. Liver Surrogate Systems, Ajit Dash, Charlottesville, VA.

Abstract #

#1460 **Poster Board Number 517**
Validation of *In Vitro* Systems to Explore Mechanisms of Striated Muscle Toxicity. W. Dott[1], J. Wright[2], P. Mistry[2], and K. Herbert[1]. [1]Cardiovascular Sciences, University of Leicester, Leicester, United Kingdom; [2]Product Safety, Syngenta, Bracknell, United Kingdom. Sponsor: *P. Botham*.

#1461 **Poster Board Number 518**
3D Liver Models for Investigating Drug-Induced Hepatotoxicity. E. Jain[1], *M. Ehrich*[2], T. Murali[3], and P. Rajagopalan[1]. [1]Department of Chemical Engineering, Virginia Tech, Blacksburg, VA; [2]Virginia-Maryland Regional College of Veterinary Medicine, Blacksburg, VA; [3]Department of Computer Science, Virginia Tech, Blacksburg, VA.

#1462 **Poster Board Number 519**
***In Vitro* Cell Models: Moving from Tumor Cell 'Monsters' to Differentiating Immortalized- or Stem Cells.** D. Gerhold, D. Kuo, Z. Tong, J. Braisted, *M. Xia*, A. Simeonov, and *C. P. Austin*. Tox21 Consortium, NIH-National Center for Advancing Translational Sciences (NCATS), Rockville, MD.

#1463 **Poster Board Number 520**
Potential Cholestatic Compounds Assessed by Membrane Transport Vesicle Assays As Well As Bile *Canaliculi* Inhibition in Primary Hepatocytes in Both Human and Rat. L. Qiu[1], M. Taimi[2], C. Strock[2], J. Gilbert[2], and *Y. Will*[1]. [1]Compound Safety Prediction, Pfizer Global Research & Development, Groton, CT; [2]Apredica, Watertown, MA.

#1464 **Poster Board Number 521**
Development of Alternative *In Vitro* Methods to Screen for Pulmonary Toxicities—Characterization of Epithelial-Macrophage Coculture and *In Vitro* Assay Conditions at the Air-Liquid Interface (ALI). *S. P. Ng*, and *D. B. Warheit*. DuPont Haskell Global Centers for Health & Environmental Sciences, Newark, DE.

#1465 **Poster Board Number 522**
Predicting Heart-Specific Toxicity Using Two Cell Models: Human iPS-Derived Cardiomyocytes and Human Liver Cells (HepaRG). *P. C. Wilga*, D. Keller, B. Franz, and *J. M. McKim*. CeeTox, Inc., Kalamazoo, MI.

#1466 **Poster Board Number 523**
Predicting Respiratory Sensitization Using Activation of Nrf2/ARE Genes in a Human Reconstructed Airway Model. J. A. Willoughby, D. Keller, *P. C. Wilga*, and *J. M. McKim*. CeeTox, Inc., Kalamazoo, MI.

#1467 **Poster Board Number 524**
Measurement of Phagocytic Activity in Rats with the Phagotest® Kit. J. Legrand[1], C. Mimouni[1], M. Valin[1], N. Pearson[1], *R. Forster*[1], and *J. Descotes*[2]. [1]CiToxLAB, Evreux, France; [2]Poison Center, Lyon, France.

#1468 **Poster Board Number 525**
Thirdhand Smoke: Extraction and Cytotoxicity. *V. Bahl*[1,2], P. Jacob[3], C. Havel[3], S. Schick[3], T. Mao[3], and *P. Talbot*[1]. [1]Department of Cell Biology and Neuroscience, University of California Riverside, Riverside, CA; [2]Environmental Toxicology Graduate Program, University of California Riverside, Riverside, CA; [3]University of California San Francisco, San Francisco, CA.

TUESDAY

Program Description (Continued)

Abstract #

#1469 **Poster Board Number 526**
Prevalidation of the *Ex Vivo* Model Precision Cut Lung Slices (PCLS) for the Prediction of Respiratory Toxicology. K. Sewald[1], L. Lauenstein[1], S. Vogel[2], A. Hess[2], X. Schneider[3], C. Martin[3], R. Pirow[4], M. Liebsch[4], R. Landsiedel[2], and A. Braun[1]. [1]Fraunhofer ITEM, Hannover, Germany; [2]BASF, Ludwigshafen, Germany; [3]RWTH, Aachen, Germany; [4]BfR ZEBET, Berlin, Germany. Sponsor: *C. Dasenbrock*.

#1470 **Poster Board Number 527**
High-Content Analysis of Drug-Specific Neurotoxic Effects on Rat Dorsal Root Ganglion Cells. *H. P. Behrsing*[1], F. M. Cutuli[1], *M. Davis*[2], and R. E. Parchment[1]. [1]Laboratory of Investigative Toxicology, Applied/Developmental Research Directorate, SAIC-Frederick, Frederick National Laboratory for Cancer Research, Frederick, MD; [2]Division of Cancer Treatment and Diagnosis, National Cancer Institute, Bethesda, MD.

#1471 **Poster Board Number 528**
Testing Nanomaterials in Precision-Cut Lung Slices: *In Vitro–In Vivo* Comparisons. S. Vogel[1], A. Aumann[1], W. Wohlleben[3,1], S. Treumann[1], U. G. Sauer[4], *K. Wiench*[2], S. Gröters[1], *B. van Ravenzwaay*[1], and *R. Landsiedel*[1]. [1]Experimental Toxicology and Ecology, BASF SE, Ludwigshafen am Rhein, Germany; [2]Product Safety, BASF SE, Ludwigshafen am Rhein, Germany; [3]Polymer Physics, BASF SE, Ludwigshafen am Rhein, Germany; [4]Scientific Consultancy - Animal Welfare, Neubiberg, Germany.

#1472 **Poster Board Number 529**
A Transcriptomic Comparison between the Neural and Cardiac Embryonic Stem Cell Tests (ESTn and ESTc). P. T. Theunissen[1,2], J. L. Pennings[1], D. A. van Dartel[3], J. F. Robinson[1,2], *J. C. Kleinjans*[2], and A. Piersma[1,4]. [1]Health Protection, RIVM, Bilthoven, Netherlands; [2]Toxicogenomics, University, Maastricht, Netherlands; [3]Human and Animal Physiology, University, Wageningen, Netherlands; [4]IRAS, University, Utrecht, Netherlands.

#1473 **Poster Board Number 530**
***In Vitro* Proliferation in Human and Rat Urothelial Cells.** E. L. Bowen[1], J. Southgate[1], S. Baker[1], and P. Rawlinson[2]. [1]Jack Birch Unit for Molecular Carcinogenesis, University of York, York, United Kingdom; [2]Syngenta, Bracknell, Berkshire, United Kingdom. Sponsor: *R. Peffer*.

#1474 **Poster Board Number 531**
***In Vivo-In Vitro* Comparison of Respiratory Tract Toxicity Using Human 3D Airway Models and Human A549 and Mouse 3T3 Monolayer Cell Systems.** U. G. Sauer[3], S. Vogel[1,2], A. Hess[1], S. N. Kolle[1], L. Ma-Hock[1], *B. van Ravenzwaay*[1], and *R. Landsiedel*[1]. [1]Experimental Toxicology and Ecology, BASF SE, Ludwigshafen am Rhein, Germany; [2]Performace Chemicals - Master Data, Product Safety, Product Stewardship, BASF SE, Ludwigshafen am Rhein, Germany; [3]Scientific Cansultancy - Animal Welfare, Neubiberg, Germany.

#1475 **Poster Board Number 532**
Neurotoxicity *In Vitro*: Assessment of the Predictivity of Neuronal Networks Coped to Microelectrode Arrays for Identification of Neurotoxicants. H. Hüner, T. Ramirez, T. Weisschu, N. Stein, *B. van Ravenzwaay*, and *R. Landsiedel*. Experimental Toxicology and Ecology, BASF SE, Ludwigshafen am Rhein, Germany.

Abstract #

#1476 **Poster Board Number 533**
A Human 3D Myocardial Microtissue Model for Cardiotoxicity Testing. C. Zuppinger[1], I. Agarkova[2], W. Moritz[2], and J. M. Kelm[2]. [1]University of Bern, Bern, Switzerland; [2]InSphero, Zürich, Switzerland. Sponsor: *A. Wolf*.

#1477 **Poster Board Number 534**
Use of An *In Vitro* Flow Cytometric Method As a Replacement for Live Animal Experimentation. J. Godin-Ethier[1], S. Thébaud[1], J. Leiva[1], C. Lévesque[1], A. Nelson[1], and *W. Lee*[2]. [1]Immunology, ITR International, Baie d'Urfe, QC, Canada; [2]Toxicology, ITR International, Baie d'Urfe, QC, Canada.

#1478 **Poster Board Number 535**
The Role of Facilitated Transport by Serum Protein in *In Vitro* Intrinsic Clearance. *B. J. Blaauboer*, J. Moulin, and N. Kramer. Institute for Risk Assessment Sciences, Utrecht University, Utrecht, Netherlands.

#1479 **Poster Board Number 536**
Screening of Cosmetics Ingredients for Phototoxic Potential Using the *In Vitro* 3T3 Neutral Red Uptake Phototoxicity Test. *R. Labib*[1], *E. Gilberti*[1], *S. Gettings*[1], and *H. Raabe*[2]. [1]Product Safety & Integrity, Avon Products, Suffern, NY; [2]Institute for *In Vitro* Sciences, Gaithersburg, MD.

#1480 **Poster Board Number 537**
Validation of a Cell Microelectronic Sensing Technique for Semi-Quantification of Cyanobacterial Toxins (Microcystins) in Recreational Water. V. Charoensuk[1], *D. Y. Huang*[1], W. Zhang[2], *S. Gabos*[3], and D. W. Kinniburgh[1]. [1]Physiology & Pharmacology, Alberta Centre for Toxicology, Calgary, AB, Canada; [2]Protection Branch, Family and Population Health, Alberta Health, Edmonton, AB, Canada; [3]Office of the Chief Medical Officer of Health, Alberta Health, Edmonton, AB, Canada.

#1481 **Poster Board Number 538**
Human Intestinal Microflora Reduces Butyl Paraben Toxicity in HepG2 Cell Cultures. W. Kang[2], T. Khanal[1], H. Kim[1], *T. Jeong*[2], and *H. Jeong*[1]. [1]Pharmacy, Chungnam National University, Daejeon, Republic of Korea; [2]Pharmacy, Yeungnam University, Gyeongsan, Republic of Korea.

#1482 **Poster Board Number 539**
Characterization of Cellular and Molecular Markers of Toxicity in C6-Glioma Cells Exposed to Modern Pyrethroids. *D. M. Romero*, *M. J. Wolansky*, and M. L. Kotler. Biological Chemistry, IQUIBICEN (CONICET); School of Sciences, University of Buenos Aires, Buenos Aires, Argentina.

Program Description (Continued)

Tuesday Afternoon, March 12
1:00 PM to 4:30 PM
Exhibit Hall C–D

PS

Poster Session: Genotoxicity Testing

Chairperson(s): *Nan Mei, US FDA, Jefferson, AR.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *1:00 PM–2:45 PM*

Abstract #

#1483 **Poster Board Number 540**
DNA Damage-Induced by Goldenseal Constituents. S. Chen[1], L. Wan[1,2], H. Lin[1], L. Couch[1], *N. Mei*[1], and *L. Guo*[1]. [1]NCTR, US FDA, Jefferson, AR; [2]Shanghai Institute for Food and Drug Control, Shanghai, China.

#1484 **Poster Board Number 541**
DNA Adduct Formation and Mutation Induction by Aristolochic Acid in Rat Spleen. *N. Mei*, *X. Guo*, P. McDaniel, and *T. Chen*. Division of Genetic and Molecular Toxicology, National Center for Toxicological Research, US FDA, Jefferson, AR.

#1485 **Poster Board Number 542**
***In Vitro* Genotoxicity of *Ginkgo biloba* Extract and Two of Its Major Components, Quercetin and Kaempferol.** *H. Lin*, *X. Guo*, *S. L. Dial*, C. E. Schulte, *M. G. Manjanatha*, *M. M. Moore*, and *N. Mei*. DGMT, NCTR/US FDA, Jefferson, AR.

#1486 **Poster Board Number 543**
Loss of Heterozygosity Analysis of the Tk Mutants Induced by Cigarette Smoke Condensates in Mouse Lymphoma Cells. *X. Guo*, *M. M. Moore*, and *N. Mei*. Division of Genetic and Molecular Toxicology, National Center for Toxicological Research, US FDA, Jefferson, AR.

#1487 **Poster Board Number 544**
Evaluation of Genotoxicity of Cyproterone Acetate in Both Sexes of Rats. *W. Ding*[1], M. E. Bishop[1], M. G. Pearce[1], G. A. White[2], L. Lyn-cook[1], and *M. G. Manjanatha*[1]. [1]Division of Genetic and Molecular Toxicology, US FDA/NCTR, Jefferson, AR; [2]Toxicology Pathology Associates, US FDA/NCTR, Jefferson, AR.

#1488 **Poster Board Number 545**
Assessment of Dosimetry and Biological Responses *In Vitro* Using a Vitrocell® Smoke Exposure System. D. Thorne[1], J. Kilford[2], B. Payne[2], K. Scott[1], J. Adamson[1], A. Dalrymple[1], *C. Meredith*[1], and D. M. Dillon[1]. [1]Group R&D, British American Tobacco, Southampton, United Kingdom; [2]Covance Laboratories Ltd., Harrogate, United Kingdom.

#1489 **Poster Board Number 546**
Evaluation of the Results of Several Genotoxicity Tests in Carvacrol and Thymol. J. Scognamiglio, *V. T. Politano*, and *A. Api*. Research Institute for Fragrance Materials, Woodcliff Lake, NJ.

#1490 **Poster Board Number 547**
No Direct Genotoxic Potential of Different Radiofrequency Electromagnetic Fields in MRC-5 Cells and B6C3F1 Mice. *C. Dasenbrock*[1], T. Tillmann[1], A. Oertel[1], H. Brockmeyer[1], M. Murbach[2], M. Capstick[2], N. Kuster[2], and C. Ziemann[1]. [1]Fraunhofer ITEM, Hannover, Germany; [2]IT'IS Foundation, Zurich, Switzerland.

Abstract #

#1491 **Poster Board Number 548**
***In Vitro* Evaluation of Cytotoxic and Genotoxic Effects of Ofloxacin.** V. Sekeroglu[1,2], Z. Atli Sekeroglu[1,2], M. Aksoy[2], and S. Kontas[2]. [1]Applied Medical Sciences, University of Southern Maine, Portland, ME; [2]Biology, University of Ordu, Ordu, Turkey. Sponsor: *J. Wise Sr.*

#1492 **Poster Board Number 549**
Genotoxic Effects in Children Environmentally Exposed to Particulate Matter. *M. Sánchez-Guerra*[1,2], A. Araujo[3], L. Serrano-García[3], L. Hernández-Cadena[4], R. Montero-Montoya[1], *I. Alvarado-Cruz*[1], *A. De Vizcaya-Ruiz*[1], *L. Rafael-Vázquez*[1], E. Jiménez-Mendoza[1,5], J. Torres-Arellano[1,5], V. Mugica[6], and *B. Quintanilla-Vega*[1]. [1]Toxicology Department, CINVESTAV-IPN, Mexico City, Mexico; [2]Exposure Epidemiology and Risk Program, Harvard School of Public Health, Boston, MA; [3]Instituto de Investigaciones Biomédicas, UNAM, Mexico City, Mexico; [4]INSP, Cuernavaca, Mexico; [5]FEZ-Iztacala, UNAM, Mexico City, Mexico; [6]UAM-Azcapotzalco, Mexico City, Mexico.

#1493 **Poster Board Number 550**
Bariatric Surgery Reduces Intestinal Toxicity in Man. *A. Alkandari*, *Q. Wu*, H. Ashrafian, and *N. J. Gooderham*. Surgery and Cancer, Imperial College London, London, United Kingdom.

#1494 **Poster Board Number 551**
The Tobacco-Specific nitrosamine 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanone (NNK) Induces Mitochondrial and Nuclear DNA Damage in *Caenorhabditis elegans*. R. K. Bodhicharla[1], P. Gaddamanugu[2], and *J. Meyer*[1]. [1]Nicholas School of the Environment, Duke University, Durham, NC; [2]R.J. Reynolds Tobacco Company, Winston-Salem, NC.

#1495 **Poster Board Number 552**
Meta-Analysis Evaluating the Association between Diseases Linked to Asbestos and Genetic Polymorphisms. *L. Lievense*[1], C. J. Ronk[2], *S. A. Gross*[3], and *C. A. Barlow*[3]. [1]ChemRisk LLC, Chicago, IL; [2]ChemRisk LLC, San Francisco, CA; [3]ChemRisk LLC, Boulder, CO.

#1496 **Poster Board Number 553**
Evaluation of the Mutagenicity of Dyed Fabrics with Direct Black 38. G. A. Oliveira[1], D. M. Leme[1], T. C. Santos[2], M. B. Zanoni[2], and *D. P. Oliveira*[1]. [1]Faculty of Pharmaceutical Sciences of Ribeirão Preto, University of São Paulo (USP), Ribeirão Preto, Brazil; [2]Institute of Chemistry, University Estadual Paulista (UNESP), Araraquara, Brazil.

#1497 **Poster Board Number 554**
Characterizing the Genotoxicity of the Trichloroethylene Metabolite Dichlorovinyl Cysteine. J. B. Asfaha, *V. De La Rosa*, and *C. Vulpe*. University of California Berkeley, Berkeley, CA.

#1498 **Poster Board Number 555**
Coexposure to LA Sweet Crude Oil and Dispersant Alters Genomic DNA Damage Occurrence in the Gulf Killifish. *K. E. Germ*, and *G. D. Mayer*. Environmental Toxicology, The Institute of Environmental and Human Health, Texas Tech University, Lubbock, TX.

Program Description (Continued)

Abstract #

#1499 **Poster Board Number 556**
Absence of Genotoxicity in a Series of 2'-O-Methyl Phosphorothioate Oligonucleotides. Y. Ponstein, C. den Besten, and S. de Kimpe. Prosensa, Leiden, Netherlands. Sponsor: *F. van Doesum-Wolters*.

#1500 **Poster Board Number 557**
Different Extraction Strategies to Evaluate the Genotoxicity of the Water Soluble Fraction of Air Particulate Matter. I. C. Palacio[2,1], R. L. Franklin[1], C. F. Suzuki[1], I. F. de Oliveira[1], D. A. Roubicek[1], and *S. B. Barros*[2]. [1]Departamento de Análises Ambientais, Companhia de Tecnologia de Saneamento Ambiental, São Paulo, Brazil; [2]Departamento de Análises Clínicas e Toxicológicas, Universidade de São Paulo, São Paulo, Brazil.

#1501 **Poster Board Number 558**
Time Course Study of Sulphur Mustard-Induced DNA Damages in Hairless Skh-1 Mice. M. Batal[1,2], I. Boudry[2], C. Cléry-Barraud[2], S. Mouret[2], and T. Douki[1]. [1]CEA, Grenoble, France; [2]IRBA, La Tronche, France. Sponsor: *J. McDonough*.

#1502 **Poster Board Number 559**
Acurate Assessment for the *In Vitro* CB Micronucleus Test by Comparison of Two Different Protocols Using Human Lymphocytes. S. Bohnenberger, *A. Poth*, and W. Voelkner. Genotoxicity and Alternative Toxicology, Harlan Cytotest Cell Research, Rossdorf, Germany.

#1503 **Poster Board Number 560**
Clastogenicity and Mutagenicity Testing of Gaseous Compounds. *C. S. Farabaugh*[1], *J. M. Randazzo*[2], M. M. Wells[1], M. L. Moy[1], and *M. J. Schlosser*[1]. [1]WIL Research, Skokie, IL; [2]WIL Research, Ashland, OH.

#1504 **Poster Board Number 561**
Quantitative Analysis of Specific DNA Adducts and *In Vivo* Mutagenicity following Exposure to the Hepatocarcinogen Estragole. Y. Ishii[1], S. Takasu[1], K. Matsushita[1], K. Kuroda[1], T. Nohmi[2], K. Ogawa[1], *A. Nishikawa*[1], and T. Umemura[1]. [1]Pathology, National Institute of Health Sciences, Tokyo, Japan; [2]Research and Development Promotion, National Institute of Biomedical Innovation, Osaka, Japan.

#1505 **Poster Board Number 562**
Mutagenic Activity of Allura Red AC and Tartrazine in *Salmonella typhimurium*. R. Naravaneni, S. Sharma, S. Visram, G. Lo, and *R. D. Mehta*. Genetic Toxicology, PBR Laboratories Inc, Edmonton, AB, Canada.

#1506 **Poster Board Number 563**
Genotoxicity of 2-Bromo-3'-Chloropropiophenone. *F. Meng*[1], *J. Yan*[1], *Y. Li*[1], *P. Fu*[2], *L. Fossom*[3], *R. Sood*[3], *D. Mans*[3], *P. Chu*[3], *M. Moore*[1], and *T. Chen*[1]. [1]Division of Genetic and Molecular Toxicology, NCTR/US FDA, Jefferson, AR; [2]Division of Biochemical Toxicology, NCTR/US FDA, Jefferson, AR; [3]CDER, US FDA, Silver Spring, MD.

#1507 **Poster Board Number 564**
Comparison of Mainstream Smoke (Mss) Cytotoxicity and Clastogenicity from Filtered Cigars with the Corresponding Data for the Mss from the Ky3r4f Reference Cigarette. *J. H. Lauterbach*[1], *F. Z. Sheabar*[2], D. Muldoon[2], G. Nelluru[2], T. Oshunwusi[2], and D. Powell[2]. [1]Lauterbach & Associates, LLC, Macon, GA; [2]Arista Laboratories, Richmond, VA.

Abstract #

#1508 **Poster Board Number 565**
Effects of Obesity on Spontaneous Reporter Gene Mutations in *Gpt* Delta Mice Fed a High-Fat Diet. S. Takasu[1], Y. Ishii[1], K. Matsushita[1], K. Kuroda[1], Y. Kodama[2], K. Ogawa[1], *A. Nishikawa*[3], and T. Umemura[1]. [1]Division of Pathology, National Institute of Health Sciences, Tokyo, Japan; [2]Division of Toxicology, National Institute of Health Sciences, Tokyo, Japan; [3]Biological Safety Research Center, National Institute of Health Sciences, Tokyo, Japan.

Tuesday Afternoon, March 12
1:00 PM to 4:30 PM
Exhibit Hall C–D

PS

Poster Session: Metals II

Chairperson(s): *John Wise, Maine Center for Toxicology and Environmental Health, Portland, ME, and Teresa Rodríguez Salazar, UNAM, Deleg Coyoacán, Mexico.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *2:45 PM–4:30 PM*

#1509 **Poster Board Number 568**
Community Lead (Pb) Domains and Exposure Disparities: Case Study of Pre- and Post-Katrina New Orleans. *H. W. Mielke*[1,2], C. R. Gonzales[3], E. T. Powell[3], and P. W. Mielke[4]. [1]Pharmacology, Tulane University School of Medicine, New Orleans, LA; [2]Chemistry, Tulane University, New Orleans, LA; [3]Lead Lab, Inc., New Orleans, LA; [4]Statistics, Colorado State University, Fort Collins, CO.

#1510 **Poster Board Number 569**
Portable XRF Technology to Quantify Lead and Strontium in Bone *In Vivo*—Calibration and Validation. A. J. Specht[1], *M. Weisskopf*[2], and L. Nie[1]. [1]Health and Human Sciences, Purdue University, West Lafayette, IN; [2]Public Health, Harvard University, Boston, MA.

#1511 **Poster Board Number 570**
The Effect of Environmental Exposure to Lead on Blood Pressure in Korean Adults. *J. Park*[1], S. Choi[1], S. Eom[2], D. Kim[1], H. Kim[2], *B. Choi*[1], K. Park[3], H. Pyo[3], *Y. Hong*[4], S. Sohn[5], and H. Kwon[6]. [1]Chung-Ang University, Seoul, Republic of Korea; [2]Chungbuk National University, Cheongju, Republic of Korea; [3]Korea Institute of Science and Technology, Seoul, Republic of Korea; [4]Dong-A University, Busan, Republic of Korea; [5]Chonnam National University, Gwangju, Republic of Korea; [6]Dankook University, Cheonan, Republic of Korea.

#1512 **Poster Board Number 571**
Induction of Autophagy and Aberrant MHC Class II Surface Expression in Lead-Exposed Murine Macrophage Raw 2674 Cells: Dysregulation in Mhc-Ii⁺ Compartment Exocytosis. *R. M. Gogal*[1], R. P. Kerr[1], T. M. Krunkosky[1], D. J. Hurley[2], *B. S. Cummings*[3], and *S. D. Holladay*[1]. [1]Department of Biosciences and Diagnostic Imaging, University of Georgia, Athens, GA; [2]Department of Population Health, University of Georgia, Athens, GA; [3]Department of Pharmaceutical and Biomedical Sciences, University of Georgia, Athens, GA.

TUESDAY

Program Description (Continued)

Abstract #

#1513 **Poster Board Number 572**
Exposure to Cobalt Causes Changes in Gene Expression and Protein Abundance in Two Rat Liver-Derived Cell Lines. M. Permenter[2], W. E. Dennis[1], J. A. Lewis[1], and *D. A. Jackson*[1]. [1]USACEHR, Fort Detrick, MD; [2]Excet, Inc., Fort Detrick, MD.

#1514 **Poster Board Number 573**
Dose-Response Relationships for Blood Cobalt Concentrations and Associated Health Effects. *A. Monnot*, S. Gaffney, *D. Paustenbach*, and *B. Finley*. ChemRisk, San Francisco, CA.

#1515 **Poster Board Number 574**
Loss of Hypoxia-Inducible Factor (HIF)-1α, and Not HIF-2α, in the Lung Alveolar Epithelium of Mice Leads to Enhanced Eosinophilic Inflammation in Cobalt-Induced Lung Injury. S. P. Proper, K. K. Greenwood, *J. R. Harkema*, and *J. J. LaPres*. Michigan State University, East Lansing, MI.

#1516 **Poster Board Number 575**
Can Zinc Reverse Uranium Toxicity? Potential for a Community-Based Intervention. L. G. Hudson, *K. L. Cooper*, R. Tsosie, D. Begay, and J. L. Lewis. Pharmaceutical Sciences, University of New Mexico, Albuquerque, NM.

#1517 **Poster Board Number 576**
Toxicological Properties of PM_1 from Pellet Combustion—Role of Zn. O. Uski[1,2], P. Jalava[2], M. Happo[2], T. Kaivosoja[2], H. Lamberg[2], J. Leskinen[2], T. Torvela[2], J. Tissari[2], O. Sippula[2], J. Jokiniemi[2,3], and M. Hirvonen[2,1]. [1]Department of Environmental Health, National Institute for Health and Welfare, Kuopio, Finland; [2]Department of Environmental Science, University of Eastern Finland, Kuopio, Finland; [3]Technical Research Centre of Finland, Espoo, Finland. Sponsor: *M. Viluksela*.

#1518 **Poster Board Number 577**
A Preliminary Study on Analytical Methodology for Determination of Zinc in Liver of Laboratory Rats, by ICP-QMS. L. V. Saldivar[1], H. Garcia[1], R. Leon[1], T. Rodríguez Salazar[1], M. G. Espejel[1], and T. I. Fortoul[2]. [1]Analytical Chemistry, UNAM Faculty of Chemistry, Mexico City, Mexico; [2]Cellular and Tisular Biology, UNAM Faculty of Medicine, Deleg Coyoacán, México City, Mexico. Sponsor: *D. Acosta*.

#1519 **Poster Board Number 578**
Effects of Tungsten Chemical Species on Biochemical Pathways and Mineralization in Bone. C. Y. Ang[1], *D. R. Johnson*[2], J. M. Seiter[2], A. R. Osterburg[3], G. F. Babcock[3], P. G. Allison[2], and A. J. Kennedy[2]. [1]Badger Technical Services, Vicksburg, MS; [2]Environmental Laboratory, US Army Engineer Research & Development Center, Vicksburg, MS; [3]Cincinnati Shriners Hospital for Children and the Unviersity of Cincinnati, Cincinnati, OH.

#1520 **Poster Board Number 579**
Accumulation of Manganese (Mn) in Rat Brain Ventricular Region following *In Vivo* Subchronic Mn Exposure: Effect on Copper (Cu) Status. S. L. O'Neal, *L. Hong*, and *W. Zheng*. School of Health Sciences, Purdue University, West Lafayette, IN.

#1521 **Poster Board Number 580**
Methylmercury-Induced Dopaminergic Neurotoxicity in *Caenorhabditis elegans*. *E. Martinez-Finley*, and *M. Aschner*. Vanderbilt University Medical Center, Nashville, TN.

Abstract #

#1522 **Poster Board Number 581**
Lactational Exposure to Mercury (Hg) and Evidence of Oxidative Stress. *I. Al-Saleh*, M. Abdel Jabbar, R. Al-Rouqi, R. Elkhatib, A. Alshabbaheen, and N. Shinwari. Environmental Health Section, Biological & Medical Research Department, King Faisal Specialist Hospital & Research Centre, Riyadh, Saudi Arabia.

#1523 **Poster Board Number 582**
Methylmercury Toxicity in KK-Ay Obese Type 2 Diabetic Mice. *M. Yamamoto*[1], R. Yanagisawa[1,2], E. Motomura[1], M. Nakamura[1], M. Sakamoto[1], M. Takeya[3], and K. Eto[4]. [1]National Institute Minamata Disease, Minamata, Japan; [2]National Institute Environment Studies, Tsukuba, Japan; [3]Kumamoto University, Kumamoto, Japan; [4]Jushindai, Tamana, Japan.

#1524 **Poster Board Number 583**
The Palmitoylation of Meh1, a Component of EGO Complex, Has an Important Role in the Reduction of Methylmercury Toxicity in Budding Yeast. G. Hwang, Z. Zhang, and *A. Naganuma*. Graduate School of Pharmaceutical Sciences, Tohoku University, Sendai, Japan.

#1525 **Poster Board Number 584**
Involvement of AAT Transporters in Methylmercury Toxicity in *Caenorhabditis elegans*. *S. W. Caito*, and *M. Aschner*. Department of Pediatrics/Pediatrics Toxicology, Vanderbilt University Medical Center, Nashville, TN.

#1526 **Poster Board Number 585**
Effects of Methylmercury on Heart Rate Variability in the Rat. M. Sasaki, *M. Yamamoto*, and M. Fujimura. Department of Basic Medical Sciences, National Institute for Minamata Disease, Minamata, Japan.

#1527 **Poster Board Number 586**
Sex Differences in Paraoxonase Activity in Subchronic Inorganic Mercury Exposure. A. D. Wusu[1], *O. Ademuyiwa*[1], O. O. Ogunrinola[1], O. K. Afolabi[1], E. O. Abam[1], D. O. Babayemi[1], *E. A. Balogun*[1], and O. O. Odukoya[2]. [1]Biochemistry, University of Agriculture, Abeokuta, Nigeria; [2]Chemistry, University of Agriculture, Abeokuta, Nigeria.

#1528 **Poster Board Number 587**
Ethylmercury Induces ER Stress and Mitochondria Dysfunction Mediated Autophagy. M. Dong, and J. Choi. School Lifesciences and Biotechnology, Korea University, Seoul, Republic of Korea. Sponsor: *B. Lee*.

#1529 **Poster Board Number 588**
Protective Role of Quercetin against Mercury-Induced Nephrotoxicity in Sprague-Dawley Rats. J. Kim[1], Y. Kim[2], W. Kim[3], Y. Shin[4], A. Won[4], E. Park[4], E. Lee[4], M. Yoo[4], Z. Lan[4], T. Kim[4], and *H. Kim*[4]. [1]College of Pharmacy, Pusan National University, Busan, Republic of Korea; [2]Gorton School, Farmers Row, Groton, MD; [3]The Hockaday School, Dallas, TX; [4]Sehwa High School, Seoul, Republic of Korea.

TUESDAY

Program Description (Continued)

Abstract #

#1530 **Poster Board Number 589**
Selenium Protects against the Toxic Effects of Methylmercury in Sperm Whale (*Physeter macrocephalus*) Skin Cells. *L. C. Savery*[1,2,4], *A. Holmes*[1,2,3], M. Braun[1,2], D. Evers[5], I. Kerr[2,4], R. Payne[2,4], W. Thompson[2,3], C. Perkins[6], T. Zheng[7], C. Zhu[7], and *J. Wise*[1,2,4]. [1]Wise Laboratory of Environmental and Genetic Toxicology, University of Southern Maine, Portland, ME; [2]Maine Center for Toxicology and Environmental Health, University of Southern Maine, Portland, ME; [3]Department of Applied Medical Sciences, University of Southern Maine, Portland, ME; [4]Ocean Alliance, Gloucester, MA; [5]Biodiversity Research Institute, University of Southern Maine, Portland, ME; [6]Center for Environmental Sciences and Engineering, University of Connecticut, Mansfield, CT; [7]Yale School of Public Health, New Haven, CT.

#1531 **Poster Board Number 590**
Selenium Compounds Cause Apoptosis and GSH Depletion in Rat Hippocampal Astrocytes. *S. Roy*, and *D. Hardej*. Pharmaceutical Sciences, St. John's University, Queens, NY.

#1532 **Poster Board Number 591**
Heavy Metal Hazards of Smokeless Tobacco in Nigeria. *O. Orisakwe*[2], Z. N. Igweze[1], and K. O. Okoro[1]. [1]Department of Pharmacology College of Health Sciences, University of Port Harcourt, Rivers State, Nigeria; [2]Toxicology Unit, Department of Experimental Pharmacology & Clinical Pharmacy, University of Port Harcourt, Rivers State, Nigeria.

#1533 **Poster Board Number 592**
Tobacco Cigarettes: A Source of Metals (Al, Cd, Co, Cr, Mn, Ni, Pb, Sr) for Humans. C. Rubio[1], T. Garcia[1], A. Soler[1], D. Glez-Weller[1], J. Gutiérrez[1], A. Hardisson[1], and *A. Anadon*[2]. [1]Toxicology, Universidad de La Laguna, La Laguna, Spain; [2]Farmacología y Toxicología, Universidad Complutense de Madrid, Madrid, Spain.

#1534 **Poster Board Number 593**
Metal Mobilization from Retained Embedded Fragments in a US Veteran: Biomonitoring Correlates with Fragment Content. J. Gaitens[1,2], *K. Squibb*[1,2], J. Centeno[3], M. Condon[1], and *M. McDiarmid*[1,2]. [1]VA Medical Center, Baltimore, MD; [2]School of Medicine, University of Maryland, Baltimore, MD; [3]Joint Pathology Center, Silver Spring, MD.

#1535 **Poster Board Number 594**
Baseline Blood Levels of Manganese (Mn), Lead (Pb), Cadmium (Cd), Copper (Cu), and Zinc (Zn) in Residents of Beijing Suburb. L. Zhang[1], L. Lu[1], Y. Pan[2], C. Ding[2], D. Xu[1], J. Zhao[1], *W. Zheng*[3], and H. Yan[2]. [1]Occupational Disease Control, Fengtai CDC, Beijing, China; [2]Institute of Occupational Health, China Center for Disease Control and Prevention, Beijing, China; [3]School of Health Sciences, Purdue University, West Lafayette, IN.

#1536 **Poster Board Number 595**
Effect of Long-Term Exposure of Heavy Metals on the Expression Profile of Cytoprotective Genes among Individuals Living in Mining Areas. I. M. Attafi, *S. A. Albakheet*, and H. M. Korashy. Pharmacology and Toxicology, King Saud University, Riyadh, Saudi Arabia.

Abstract #

#1537 **Poster Board Number 596**
Phytotoxicity and Trace Metal Accumulation from Long-Term Chicken Litter Amendment in Wilkes County, North Carolina: A Field Study. A. K. Hastings, S. Mouro, M. Brower, and S. Tuberty. Biology, Appalachian State University, Boone, NC. Sponsor: *G. LeBlanc*.

#1538 **Poster Board Number 597**
Association of 25-Hydroxyvitamin D and 1,25-Dihydroxyvitamin D with Metals in a Cohort of Adolescents in Torreon, Mexico. R. D. Zamoiski[1], E. Guallar[2,3], G. G. Garcia-Vargas[4], M. Rubio-Andrade[4], P. J. Parsons[5], A. J. Steuerwald[5], S. J. Rothenberg[6], A. Navas-Acien[1,2], C. Resnick[1], V. Weaver[1], and *E. K. Silbergeld*[1]. [1]Environmental Health Sciences, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD; [2]Epidemiology, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD; [3]Cardiovascular Epidemiology and Population Genetics, National Center for Cardiovascular Research, Madrid, Spain; [4]Facultad de Medicina, Universidad Juárez del Estado de Durango, Gómez Palacio, Mexico; [5]Inorganic and Nuclear Chemistry, Wadsworth Center, Albany, NY; [6]Centro de Investigación en Salud Poblacional, Instituto Nacional de Salud Publica, Cuernavaca, Mexico.

#1539 **Poster Board Number 598**
Is Genotoxic Metal Exposure Part of the Toxic Legacy of the Deepwater Horizon Oil Crisis? J. J. Wise[1,2,4], J. Wise[1,2,4], W. Thompson[2,3], C. Perkins[5], and *J. Wise*[1,2,4]. [1]Wise Laboratory of Environmental and Genetic Toxicology, University of Southern Maine, Portland, ME; [2]Maine Center for Toxicology and Environmental Health, University of Southern Maine, Portland, ME; [3]Department of Applied Medical Science, University of Southern Maine, Portland, ME; [4]Ocean Alliance, Gloucester, CT; [5]Center for Environmental Sciences and Engineering, University of Connecticut, Storrs, CT.

Tuesday Afternoon, March 12
1:00 PM to 4:30 PM
Exhibit Hall C–D

PS

Poster Session: Safety Assessment: Nonpharmaceuticals

Chairperson(s): *Lynea Murphy, The Dow Chemical Company, Midland, MI.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *1:00 PM–2:45 PM*

#1540 **Poster Board Number 601**
Broad Spectrum Safety of LOWAT: A Novel Weight Management Ingredient. *F. Lau*[1], Z. M. Saiyed[1], J. Lugo[1], G. Trimurtulu[2], A. V. Krishnaraju[2], and K. Sengupta[2]. [1]R&D, Interhealth Nutraceuticals, Benicia, CA; [2]Laila Nutraceuticals, Vijayawada, India.

#1541 **Poster Board Number 602**
Evaluation of Nose-Only Inhalation Exposure to Aerosolized Linalool in Sprague-Dawley Rats. *J. Randazzo*[1], *D. Vitale*[2], *D. Kirkpatrick*[1], *F. Burleson*[3], and *M. Singal*[2]. [1]WIL Research, Ashland, OH; [2]Research Institute for Fragrance Materials, Woodcliff Lake, NJ; [3]Burleson Research Technologies, Morrisville, NC.

Program Description (Continued)

Abstract #

#1542 **Poster Board Number 603**
Evaluation of Nose-Only Inhalation Exposure to Aerosolized Cinnamal in Sprague-Dawley Rats. *D. Vitale*[1], *J. Randazzo*[2], *D. Kirkpatrick*[2], *F. Burleson*[3], and *M. Singal*[1]. [1]Research Institute for Fragrance Materials, Woodcliff Lake, NJ; [2]WIL Research, Ashland, OH; [3]Burleson Research Technologies, Morrisville, NC.

#1543 **Poster Board Number 604**
Evaluation of Nose-Only Inhalation Exposure to Aerosolized Isoeugenol in Sprague-Dawley Rats. *M. Singal*[1], *J. Randazzo*[2], *D. Kirkpatrick*[2], *F. Burleson*[3], and *D. Vitale*[1]. [1]Research Institute for Fragrance Materials, Woodcliff Lake, NJ; [2]WIL Research, Ashland, OH; [3]Burleson Research Technologies, Morrisville, NC.

#1544 **Poster Board Number 605**
Toxicological Evaluation of 4,4,5,5,6,6,7,7,8,8,8-Undecafluoro Octanoic Acid (5: 3 Acid). *S. MacKenzie*[1], *T. Serex*[1], C. Carpenter[1], D. Nabb[1], R. Hoke[1], *S. Gannon*[1], D. Hoban[1], M. Donner[1], and R. Buck[2]. [1]DuPont Haskell Global Centers for Health and Environmental Sciences, Newark, DE; [2]E.I. du Pont de Nemours & Company, Inc., Chemicals and Fluoroproducts, Wilmington, DE.

#1545 **Poster Board Number 606**
A 28-Day Toxicity Study of PSOA by Oral Gavage in Rats Followed by a 14-Day Recovery Period. *T. O'Brien*[1], *N. Pechacek*[1], W. Aulmann[2], and K. Laidlaw[3]. [1]Ecolab, St. Paul, MN; [2]Ecolab, Düsseldorf, Germany; [3]Charles River, Edinburgh, United Kingdom.

#1546 **Poster Board Number 607**
Smokeless Tobacco (Gutkha)-Induced Toxicological Effects in a Mouse Model: A Nicotine Twist. D. Willis[1], *M. A. Popovich*[1], *F. Gany*[2], C. Hoffman[1], *J. Blum*[1], and *J. T. Zelikoff*[1]. [1]Environmental Medicine, New York University, Tuxedo Park, NY; [2]Memorial Sloan Kettering Cancer Center, New York, NY.

#1547 **Poster Board Number 608**
Safety Assessment of Dicamba Monooxygenase from the Biotechnology-Derived Soybean MON 87708. *M. Koch*, L. Burzio, J. Finnessy, T. Kaempfe, H. Kang, A. Silvanovich, C. Wang, and E. Bell. Monsanto Company, St. Louis, MO.

#1548 **Poster Board Number 609**
A 14-Day IV Infusion Exploratory Toxicity Study of Hydroxylamine in Rats. *J. Zhou*, R. Giovanelli, W. Reagan, and *M. D. Aleo*. Drug Safety R&D, Pfizer Worldwide Research and Development, Groton, CT.

#1549 **Poster Board Number 610**
Increased Hypothalamic Dopaminergic Neuron Tyrosine Hydroxylase Expression in Lean Wistar Rats. *S. M. Plummer*[1], M. Beltran[2], M. Millar[2], R. Wiegand[3], and J. Wright[4]. [1]MicroMatrices Associates Ltd., Dundee, United Kingdom; [2]MRC Centre for Reproductive Health, Edinburgh, United Kingdom; [3]MRC Centre for Inflammation Research, Edinburgh, United Kingdom; [4]Syngenta Ltd., Bracknell, United Kingdom.

#1550 **Poster Board Number 611**
Proposition 65 and Cancer Incidence in California. *L. A. Haighton*, H. Fikree, A. Pais, S. Prasad, and *J. W. Card*. Intertek Cantox, Mississauga, ON, Canada.

Abstract #

#1551 **Poster Board Number 612**
Alternatives to Bisphenol A in Thermal Paper: Analysis of Substitution Options and Trade-Offs. *C. Baier-Anderson*[1], J. Rhoades[2], M. Kawa[2], and J. Tunkel[2]. [1]US EPA, Washington DC; [2]SRC, Inc, Syracuse, NY.

#1552 **Poster Board Number 613**
Body-Residue Based Environmental Safety Assessment of Personal Care Product Ingredients: A Case Study with Benzophenone-3. *F. Liu*[1], *V. Tu*[1], and *N. Y. Wang*[2]. [1]Revlon Research Center, Edison, NJ; [2]Environmental Assessment Scientist Serving in a Personal Capacity, Cincinnati, OH.

#1553 **Poster Board Number 614**
Evaluation of the Potential for Establishing a Threshold for Chemical Ocular Irritation Using a Model of Repeated Topical Ocular Administration in Albino Rabbits. K. G. Eckles, J. Amin, *K. Krenzer*, and *M. E. Richardson*. Nonclinical Safety, Bausch & Lomb, Rochester, New York, NY.

#1554 **Poster Board Number 615**
Human Health Assessment of Scented Candle Emissions. *T. Petry*[2], *D. Vitale*[1], *L. Cruse*[3], *F. J. Joachim*[4], *R. Mascarenhas*[5], *S. Schneider*[6], *B. Smith*[7], and *M. Singal*[1]. [1]Research Institute for Fragrance Materials, Woodcliff Lake, NJ; [2]ToxMinds BVBA, Brussels, Belgium; [3]Procter & Gamble, Cincinnati, OH; [4]SC Johnson & Son, Racine, WI; [5]Reckitt-Benckiser, Hull, United Kingdom; [6]Firmenich SA, Princeton, NJ; [7]Firmenich SA, Geneva, Switzerland.

#1555 **Poster Board Number 616**
Cobalt Whole Blood Concentrations in Healthy Adult Volunteers following Two Weeks of Ingesting a Cobalt Supplement. *B. L. Finley*[2], *B. E. Tvermoes*[1], K. M. Unice[3], J. M. Otani[2], *D. J. Paustenbach*[2], and D. A. Galbraith[2]. [1]ChemRisk, Boulder, CO; [2]ChemRisk, San Francisco, CA; [3]ChemRisk, Pittsburgh, PA.

#1556 **Poster Board Number 617**
Multiparameter *In Vitro* Toxicity Testing of Crizotinib, Sunitinib, Erlotinib, and Nilotinib in Human Cardiomyocytes. *K. Doherty*[1], *R. L. Wappel*[1], D. R. Talbert[1], P. B. Trusk[1], D. M. Moran[1], *J. W. Kramer*[2], *A. M. Brown*[2], S. A. Shell[1], and S. Bacus[1]. [1]Quintiles, Westmont, IL; [2]ChanTest, Cleveland, OH.

#1557 **Poster Board Number 618**
Safety Assessment of Chemicals in Toys. M. Whitehead, J. Doran, *G. Goodfellow*, and *J. Daniels*. Intrinsik Health Sciences Inc., Mississauga, ON, Canada.

#1558 **Poster Board Number 619**
Health-Based Framework for Evaluating the Safety of Hydraulic Fracturing Products. *D. Wikoff*[1], L. Fitzgerald[1], *L. Haws*[1], and *M. Harris*[2]. [1]ToxStrategies, Austin, TX; [2]ToxStrategies, Houston, TX.

#1559 **Poster Board Number 620**
Novel Methodology in Hazard Assessment: Chemical Clustering for Read Across—The Phthalate Alternatives Case Study. M. Kawa[1], J. Rhoades[1], *C. Baier-Anderson*[2], T. Webb[1], K. Mayo-Bean[3], and J. Tunkel[1]. [1]SRC, Inc., East Syracuse, NY; [2]US EPA, DFE, Washington DC; [3]US EPA, OPPT, Washington DC.

TUESDAY

Program Description (Continued)

Abstract #

#1560 **Poster Board Number 621**
Transdermal Toxicity of the Phorbol Ester Isolated from Biodiesel Feedstock, Jatropha Curcas. M. Nakao, S. Kinoshita, and *Y. Ishihara*. Kurume University, Kurume, Japan.

#1561 **Poster Board Number 622**
Identifying No Observed Effect Levels (NOEL) and No Observed Adverse Effect Levels (NOAEL) through Metabolomics. G. Montoya[1], V. Straus[1], H. G. Kamp[1], W. Mellert[1], T. Walk[2], R. Looser[2], M. Herold[2], G. Krennrich[2], E. Peter[2], and *B. van Ravenzwaay*[1]. [1]Experimental Toxicology and Ecology, BASF SE, Ludwigshafen am Rhein, Germany; [2]metanomics, Berlin, Germany.

#1562 **Poster Board Number 623**
Metabolic Profile of Rats in Repeated Dose Toxicological Studies after Oral and Inhalative Exposure. E. Fabian[1], N. Bordag[2], M. Herold[2], H. G. Kamp[1], G. Krennrich[2], R. Looser[2], L. Ma-Hock[1], W. Mellert[1], E. Peter[2], A. Prokoudine[2], M. Spitzer[2], V. Strauss[1], T. Walk[2], J. Wiemer[2], and *B. van Ravenzwaay*[1]. [1]Experimental Toxicology and Ecology, BASF SE, Ludwigshafen am Rhein, Germany; [2]metanomics, Berlin, Germany.

#1563 **Poster Board Number 624**
Percellome Toxicogenomics Application to Sick Building Syndrome-Level Inhalation Toxicity. *J. Kanno*, K. Aisaki, K. Igarashi, Y. Taquahashi, and S. Kitajima. Division of Cellular and Molecular Toxicology, National Institute of Health Sciences, Tokyo, Japan.

Tuesday Afternoon, March 12
1:00 PM to 4:30 PM
Exhibit Hall C–D

PS

Poster Session: Regulatory Policy: Programs and Approaches

Chairperson(s): *Joyce Donohue, US EPA, Washington, DC, and Nancy Beck, American Chemistry Council, Washington, DC.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *2:45 PM–4:30 PM*

#1564 **Poster Board Number 625**
Ten-Year Retrospective Assessment of the Food Contact Notification Program. *A. P. Neal-Kluever*, J. Cooper, T. Zebovitz, and K. Butts. Division of Food Contact Notifications, US FDA, College Park, MD.

#1565 **Poster Board Number 626**
Development of a Regulatory Value for the Carcinogenic Potential of Isoprene via Inhalation Exposure. *T. D. Phillips*[1], *R. L. Sielken*[2], and C. Valdez-Flores[2]. [1]Toxicology Division, Texas Commission on Environmental Quality, Austin, TX; [2]Sielken & Associates Consulting, Inc., Bryan, TX.

#1566 **Poster Board Number 627**
Evaluation of Selected Nitrosamines As Candidates for Regulatory Determination Using a Group Approach. J. Donohue[1], M. Simic[1], Z. Bain[1], *A. Gebhart*[2], S. Goldhaber[2], and *R. Howd*[2]. [1]Office of Water, US EPA, Washington DC; [2]ToxServices, Washington DC.

Abstract #

#1567 **Poster Board Number 628**
Key Decisions in Establishing National Ambient Air Quality Standards. L. Fraiser[1], and *L. J. Bradley*[2]. [1]Environment, AECOM, Austin, TX; [2]Environment, AECOM, Chelmsford, MA.

#1568 **Poster Board Number 629**
Development of a Proposed 24-Hour Health-Protective Air Monitoring Comparison Value for Formaldehyde for Comparison to 24-Hour Monitoring Data in the Barnett Shale Area. *A. L. Curry*, *J. Haney*, and *D. McCant*. Toxicology Division, Texas Commission on Environmental Quality (TCEQ), Austin, TX.

#1569 **Poster Board Number 630**
Use of Other Scientifically-Relevant Information to Satisfy Tier 1 Testing Requirements in US EPA's Endocrine Disruptor Screening Program. P. L. Bishop[1], and *C. E. Willett*[2]. [1]People for the Ethical Treatment of Animals, Norfolk, VA; [2]The Humane Society of the United States, Washington DC.

#1570 **Poster Board Number 631**
A New Approach to Academic and Guideline Research: The CLARITY-BPA Research Program. A. F. Johnson[2], J. Aungst[4], *J. R. Bucher*[3], *C. Luisa*[5], *B. Delclos*[5], *J. J. Heindel*[1], *P. Howard*[5], D. Keefe[4], R. Newbold[3], *W. Nigel*[3], and T. T. Schug[1]. [1]Division of Extramural Science, NIEHS, Durham, NC; [2]Program Evaluation, MDB, Durham, NC; [3]NTP, NIEHS, Durham, NC; [4]Office of Food Safety, US FDA, College Park, MD; [5]Division of Biochemical Toxicology, National Center for Toxicological Research, US FDA, Jefferson, AR.

#1571 **Poster Board Number 632**
How Consistent Are the Derived No-Effect Levels (DNELs) in the European REACH Legislation? L. Schenk[1,2], U. Deng[1], and *G. Johanson*[1]. [1]Work Environment Toxicology, Karolinska Institute, Stockholm, Sweden; [2]Division of Philosophy, Royal Institute of Technology, Stockholm, Sweden.

#1572 **Poster Board Number 633**
Animal Use for Testing Involving Unrelieved Pain and Distress. M. Paris[1], *L. Rinckel*[1], *W. Casey*[2], and *W. Stokes*[2]. [1]ILS, Inc., Research Triangle Park, NC; [2]NTP/NICEATM, NIEHS, Research Triangle Park, NC.

#1573 **Poster Board Number 634**
A Reference Database for the Evaluation of Alternative Tests for Acute Dermal Systemic Toxicity. *J. Strickland*[1], F. Stack[1], M. Paris[1], *L. Rinckel*[1], *W. Casey*[2], and *W. Stokes*[2]. [1]ILS, Inc., Research Triangle Park, NC; [2]NTP/NICEATM, NIEHS, Research Triangle Park, NC.

#1574 **Poster Board Number 635**
Regulatory Acceptance of the BG1Luc Estrogen Receptor Transactivation Test Method. *W. Casey*[1], *P. Ceger*[2], *J. Strickland*[2], *L. Rinckel*[2], E. Grignard[3], S. Bremer[3], H. Kojima[4], S. Han[5], and *W. Stokes*[1]. [1]NTP/NICEATM, NIEHS, Research Triangle Park, NC; [2]ILS, Inc., Research Triangle Park, NC; [3]EURL ECVAM, Ispra, Italy; [4]JaCVAM, Tokyo, Japan; [5]KoCVAM, NIFDS/KFDA, Cheongwon-gun, Chungcheongbuk-do, Republic of Korea.

#1575 **Poster Board Number 636**
Quantitative Risk Assessment As the Basis for a Proposed NIOSH Recommended Exposure Limit for Hexavalent Chromium Compounds. K. MacMahon, R. Park, F. Rice, and K. Ashley. NIOSH, Cincinnati, OH. Sponsor: *D. Dankovic*.

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#1576 **Poster Board Number 637**
The Dermal Up-and-Down Procedure: An Alternative Test Method for Acute Dermal Systemic Toxicity Testing. *W. Stokes*[1], *J. Strickland*[2], R. Morris[3], L. Ho[3], J. Wilkerson[3], F. Stack[2], M. Paris[2], *L. Rinckel*[2], and *W. Casey*[1]. [1]NTP/NICEATM, NIEHS, Research Triangle Park, NC; [2]ILS, Inc., Research Triangle Park, NC; [3]SRA International, Research Triangle Park, NC.

#1577 **Poster Board Number 638**
Fatal Misuse of Humidifier Disinfectants in Korea: Importance of Screening Risk Assessment and Implications for Management of Chemicals in Consumer Products. J. Lee[1], J. Kwon[2], and Y. Kim[3]. [1]Institute of Environmental Safety and Protection, NeoEnBiz Co., Bucheon, Republic of Korea; [2]Department of Environmental Engineering, Ajou University, Suwon, Republic of Korea; [3]Korea Institute of Toxicology, Dajeon, Republic of Korea. Sponsor: *K. Park*.

#1578 **Poster Board Number 639**
Multiple Federal Hazard Assessment Programs—A Relevant Information or Redundant Efforts? *N. B. Beck*[1], *B. A. Richard*[1], and A. Twardowski[2]. [1]American Chemistry Council, Washington DC; [2]Concordia College, Moorehead, MN.

#1579 **Poster Board Number 640**
Utilization of Benzene Chromosomal Biomarkers by US Courts in Adjudicating Causation. *G. E. Marchant*. College of Law, Arizona State University, Tempe, AZ.

#1580 **Poster Board Number 641**
***In Vitro* Episkin Skin Corrosion As a Reference Test Method in OECD TG431 for the Assessment of Skin Corrosion in Subcategories 1A, 1B, and 1C.** N. Alépée, M. H. Grandidier, and J. Cotovio. L'Oréal Research & Innovation, Aulnay sous Bois, France. Sponsor: *E. Dufour*.

Tuesday Afternoon, March 12
1:30 PM to 4:15 PM
Grand Ballroom C3

S

Symposium Session: Application of Systems Biology to Identify Molecular Mechanisms and Biomarkers of Lead (Pb) Neurotoxicity: Implications in a Developmental Origin of Alzheimer's Disease

Application of Systems Biology to Toxicology

Chairperson(s): *Jennifer Freeman, Purdue University, School of Health Sciences, West Lafayette, IN, and Wei Zheng, Purdue University, School of Health Sciences, West Lafayette, IN.*

Sponsor:
Metals Specialty Section

Endorsed by:
Neurotoxicology Specialty Section

The heavy metal lead (Pb) can induce a wide-range of adverse health effects depending on dose and duration of exposure. During development the nervous system is most sensitive to Pb toxicity with epidemiological studies linking neurological deficits at and below the previous CDC blood Pb level of concern. Although the toxicity of Pb is extensively studied, the underlying genetic, epigenetic, and molecular mechanisms of Pb neurotoxicity are not completely understood. Moreover, recent studies link developmental Pb exposure with latent effects that do not appear until late in life, indicating a developmental origin of adult neurodegenerative disorders. More specifically, the latent overexpression of hallmark genes and proteins in Alzheimer's disease (AD) are reported in these studies. This session brings together a group of investigators that are actively applying systems biology (transcriptomics and epigenomics) and targeted approaches to define the mechanisms and identify biomarkers of both the developmental and late-life neurological alterations associated with a developmental Pb exposure in a variety of model systems and in human populations. Topics cover a study with the zebrafish model on the genetic mechanisms of developmental Pb neurotoxicity with an emphasis on transcriptomic alterations to a human comparative transcriptomic study in young adults aiming at establishing biomarkers between early-life Pb exposure and AD. The session also addresses the transcriptomic and epigenomic pathways of the developmental origin of Pb-induced neurodegenerative alterations with a specific focus on AD in rodent and primate models. Furthermore, the mechanism by which Pb increases the formation of amyloid β plaques in a transgenic mouse model is discussed. Overall, this session highlights the latest findings on the genetic, epigenetic, and molecular mechanisms of Pb neurotoxicity linking neurodevelopmental and later life impacts to further deduce the developmental origin of Pb-induced neurodegenerative disease with a specific focus on AD.

#1581 1:30 **Application of Systems Biology to Identify Molecular Mechanisms and Biomarkers of Lead (Pb) Neurotoxicity: Implications in a Developmental Origin of Alzheimer's Disease.** *J. L. Freeman*. Health Sciences, Purdue University, West Lafayette, IN.

1:30 **Introduction.** Jennifer Freeman.

#1582 1:35 **Genetic Mechanisms of Developmental Lead Neurotoxicity and Links to Adult Neurodegenerative Disease Pathogenesis.** *J. L. Freeman*. Health Sciences, Purdue University, West Lafayette, IN.

#1583 2:11 **Prenatal Lead Exposure and Biomarkers for Alzheimer's Disease in Humans.** M. Mazumdar[1,2]. [1]Environmental Health, Harvard School of Public Health, Boston, MA; [2]Neurology, Children's Hospital Boston, Boston, MA. Sponsor: *J. Freeman*.

#1584 2:47 **Do Epigenetic Pathways Initiate Late Onset Alzheimer's Disease (LOAD)?: Towards a New Paradigm.** *N. H. Zawia*. Biomedical and Pharmaceutical Sciences, University of Rhode Island, Kingston, RI.

#1585 3:23 **CNS Homeostasis of β-Amyloid, Plaque Formation, and Lead Toxicity.** *W. Zheng*. Health Sciences, Purdue University, West Lafayette, IN.

3:59 **Panel Discussion/Q&A.**

Tuesday Afternoon, March 12
1:30 PM to 4:15 PM
Room 207

S

Symposium Session: Bone As a Target Tissue for Environmental Toxicants

Chairperson(s): *Jennifer Schlezinger, Boston University School of Public Health, Boston, MA, and Koren Mann, McGill University, Montreal, QC, Canada.*

Sponsor:
Metals Specialty Section

Endorsed by:
Mechanisms Specialty Section

Bone brings to mind the strong, but light, organ that provides the skeleton for vertebrates. However, bone is more than just inert, osseous tissue. The bone marrow is a multifunctional organ that supports not only ongoing bone remodeling, but also provides the microenvironmental niche for

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Program Description (Continued)

Abstract #

hematopoiesis and regulates whole body energy homeostasis and as such, represents a significant target for environmental toxicants. Critical cell types in the bone marrow include multipotent mesenchymal stromal cells (MSCs) and hematopoietic stem cells (HSCs). MSCs are the source of both adipocytes and osteoblasts. HSCs are the source of all blood cell lineages and the bone-resorbing osteoclasts. The interaction between osteoblasts and osteoclasts creates a balance of bone formation and resorption, which is essential for maintenance of bone quality. There also is essential crosstalk between the mesenchymal and hematopoietic compartments that supports lifelong blood cell generation. Lymphocyte development, in particular, requires stromal cell support/interaction. Understanding how environmental toxicants disturb the interplay of bone marrow compartments requires attention given the rapidly aging population who are already at risk for loss of bone quality and immune suppression. We will explore new data suggesting that bone is responsive to many environmental toxicants, which may perturb the delicate balance between bone marrow cell types. A series of presentations will define interactions within both the mesenchymal and hematopoietic compartments and how exposure to toxicants may impact bone biology. Presentations will move from a broad, multispecies analysis of the effects of persistent organic pollutants on bone to more focused analyses of effects of ethanol and metals (lead, organotins, and tungsten) on bone and the bone marrow microenvironment.

#1586	1:30	**Bone As a Target Tissue for Environmental Toxicants.** *J. Schlezinger*. Environmental Health, Boston University School of Public Health, Boston, MA.
	1:30	**Introduction.** Jennifer Schlezinger
#1587	1:35	**Bone Tissue As a Target for POPs Acting As EDCs (an Overview from Wild Animals to Humans).** *M. Lind*. Occupational and Environmental Medicine, Uppsala University, Uppsala, Sweden.
#1588	2:07	**Lead Exposure and Skeletal Dysregulation: A Molecular Mechanism of Toxicity That Contributes to Osteoporosis and Other Bone Diseases.** *J. Puzas*, and *E. Beier*. Center for Musculoskeletal Research, University of Rochester, Rochester, NY.
#1589	2:39	**Role of Nadph Oxidases and Reactive Oxygen Species in Regulation of Bone Turnover and the Skeletal Toxicity of Alcohol.** *M. Ronis*[1,2], K. Mercer[1], L. Suva[2], T. Badger[1,2], and J. Chen[1,2]. [1]Arkansas Children's Nutrition Center, Little Rock, AR; [2]University of Arkansas for Medical Sciences, Little Rock, AR.
#1590	3:11	**Organotins: Unique Modulators of Bone Quality and the Bone Marrow Microenvironment.** *J. Schlezinger*[1], *A. Baker*[2], and L. Gerstenfeld[3]. [1]Environmental Health, Boston University School of Public Health, Boston, MA; [2]Medicine, Boston University School of Medicine, Boston, MA; [3]Orthopaedic Surgery, Boston University School of Medicine, Boston, MA.
#1591	3:43	**Tungsten: Effects on Bone Marrow and Lymphocyte Development.** *K. Mann*. Oncology, McGill University, Montréal, QC, Canada.

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Tuesday Afternoon, March 12
1:30 PM to 4:15 PM
Grand Ballroom C2

S

Symposium Session: Nonmonotonic Dose-Response Curves and Endocrine-Disrupting Chemicals: Fact or Falderal?

Regulatory Science: Advancing New Approaches for Hazard Identification and Risk Assessment

Chairperson(s): *Leon Earl Gray Jr., US EPA, Research Triangle Park, NC, and Paul M. Foster, NIEHS, Research Triangle Park, NC.*

Sponsor:
Reproductive and Developmental Toxicology Specialty Section

Endorsed by:
Molecular Biology Specialty Section

"All substances are poisons. It's the dose that makes the poison," (*Paracelsus*, 1493–1541) is a fundamental tenet in toxicology: the severity of a response to a toxicant increases proportionally to the dose. Furthermore, it is generally assumed that dose-response curves for noncancer effects display a threshold below which there is no effect. Currently these assumptions are being challenged by claims that endocrine-disrupting chemicals (EDCs) often display U-shaped or inverted U-shaped nonmonotonic dose-response curves (NMDRCs) at low, environmentally-relevant exposure levels; levels below traditional NOAELS ("Current Chemical Testing Missing Low-Dosage Effects of Endocrine-Disrupting Chemicals" Endocrinology Society, 2012). In addition, the US EPAs Endocrine Disruptor Screening program (EDC program) has been severely criticized, sometimes unfairly. This symposium will review the state of the science on EDCs concerning the shape of the dose-response curve in the low-dose range and the prevalence of NMDRCs. Talks will initially discuss mechanisms of action, the biologically plausibility for NMDRCs, and then focus on chemicals that disrupt the estrogen and androgen signaling pathways and the prevalence of *in vitro* and *in vivo* NMDRCs. Presentations will also discuss the shape of the dose-response curves from "case studies" of estrogenic chemicals. These "case studies" are robust, multigenerational studies conducted in a government laboratory using a protocol that had been "enhanced" to include several estrogen-sensitive endpoints in addition to the standard endpoints. Finally, we will discuss how some governmental agencies are addressing the NMDRC-low dose issue and views on how this might impact the risk assessment of EDCs and other chemicals. Changing how EDCs are tested to accommodate NMDRCs would significantly increase the resources need for testing as it would require the addition of several "low" dose groups and if NMDRCs are prevalent, then this would significantly impact several of the default assumptions used in risk assessment, including noncancer health effects displaying a threshold, and that adverse effects do not occur below the NOAELs.

#1592	1:30	**Nonmonotonic Dose-Response Curves and Endocrine-Disrupting Chemicals: Fact or Falderal?** *L. E. Gray*[1], and *P. M. Foster*[2]. [1]RTB, US EPA, Research Triangle Park, NC; [2]NTP, NIEHS, Research Triangle Park, NC.
	1:30	**Introduction.** Leon Gray
#1593	1:35	**Molecular Pharmacology of Steroid Hormone Action: Nonmonotonic Dose-Responses.** *W. R. Kelce*. Nonclinical Development, Novan Therapeutics, Durham, NC.
#1594	2:07	**Mechanistic Requirements for Nonmonotonic Dose-Response.** *R. Conolly*[1], *E. Gray*[1], and G. T. Ankley[2]. [1]US EPA, Research Triangle Park, NC; [2]US EPA, Duluth, MN.
#1595	2:39	**Nonmonotonic Dose-Response Curves (NMDRCs) Are Common after Estrogen or Androgen Signaling Pathway Disruption—Fact or Falderal?** *L. E. Gray*. Reproductive Toxicology Branch, NHEERL, US EPA, Research Triangle Park, NC.

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Program Description (Continued)

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#1596 3:11 **Comprehensive Studies Addressing Critical Questions in the Dose-Response Assessment of Endocrine-Active Compounds.** *K. Delclos*, D. R. Doerge, S. M. Lewis, M. Vanlandingham, and *L. Camacho*. NCTR, US FDA, Jefferson, AR.

#1597 3:43 **Low Dose and Nonmonotonic Dose-Response Curves for Endocrine Disruptors.** *L. S. Birnbaum*. NIEHS, Research Triangle Park, NC.

Tuesday Afternoon, March 12
1:30 PM to 4:15 PM
Room 217 A&B

S

Symposium Session: Understanding Toxicities of Abnormal Lipid Metabolism: Alcoholic, Nonalcoholic, and Toxicant-Induced Fatty Liver Disease

Molecular Basis of Genetic Variability and Susceptibility to Toxicants

Chairperson(s): *Mayurranjan S. Mitra, Bristol-Myers Squibb Co., Mount Vernon, IN, and Min You, University of South Florida, Tampa, FL.*

Sponsor:
Molecular Biology Specialty Section

Endorsed by:
Association of Scientists of Indian Origin Special Interest Group
Drug Discovery Specialty Section
Mechanisms Specialty Section

Accumulation of excess neutral lipids in the liver, referred to as fatty liver disease (FLD), is a major metabolic disorder and risk factor for development of hepatotoxicity. It is a progressive disease that initially manifests as reversible fatty liver, which upon infliction of inflammation advances to a nonreversible steatohepatitis, and finally leading to hepatic cirrhosis. FLD is generally categorized on the basis of its etiology, the two main types being alcohol-induced steatohepatitis (ASH) and obesity-induced (nonalcoholic steatohepatitis, NASH). Another class of FLD, drug/toxicant-induced FLD (TASH), is a major cause of pharmaceutical candidate attrition. The underlying pathogenic mechanisms of hepatic lipid accumulation and their implications are not completely understood. In this symposium, recent advances in the pathogenic role of microRNAs in the development of FLD will be introduced. The molecular mechanisms by which fatty liver promotes liver injury will be discussed using examples of drug overdose, hepatic ischemia-reperfusion, and obstructive cholestasis. Further, the implications of excess hepatic lipid accumulation in regards to altered drug metabolism and cellular uptake will be presented. The symposium will end with a comparative analysis of novel clinical biomarkers of ASH, NASH, and TASH. Students, as well as toxicologists working in academia, federal, and pharmaceutical industries interested in animal models, pathogenic mechanisms, biomarkers, and drug metabolism and toxicity of ASH, NASH, and TASH will benefit from this symposium.

#1598 1:30 **Understanding Toxicities of Abnormal Lipid Metabolism: Alcoholic, Nonalcoholic, and Toxicant-Induced Fatty Liver Disease.** *M. S. Mitra*[1], and M. You[2]. [1]Drug Safety Evaluations, Bristol-Myers Squibb, Mt. Vernon, IN; [2]Department of Molecular Pharmacology and Physiology, University of South Florida, Tampa, FL.

#1599 1:30 **Symposium Introduction—Pathogenesis of Hepatic Fat Accumulation.** *M. S. Mitra*. Drug Safety Evaluations, Bristol-Myers Squibb, Mt. Vernon, IN.

#1600 1:40 **miR-217-SIRT1 Signaling and Alcoholic Fatty Liver Disease.** M. You. Department of Molecular Pharmacology and Physiology, University of South Florida, Tampa, FL. Sponsor: *M. Mitra*.

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#1601 2:18 **Enhanced Susceptibility of Fatty Livers to Drug Hepatotoxicity and Innate Immune Responses.** *H. Jaeschke*. Department of Pharmacology, Toxicology & Therapeutics, The University of Kansas Medical Center, Kansas City, KS.

#1602 2:57 **Increased Risk of Drug Toxicity due to Altered Pharmacokinetics in Nonalcoholic Steatohepatitis.** *N. Cherrington*. Pharmacology and Toxicology, University of Arizona, Tucson, AZ.

#1603 3:36 **Biomarkers and Mechanisms for Steatohepatitis.** *C. McClain*. Pharmacology and Toxicology, University of Louisville, Louisville, KY.

Tuesday Afternoon, March 12
1:30 PM to 4:15 PM
Room 217 C&D

W

Workshop Session: "Air"-ing on the Side of Caution: Anticipating Impacts of Emerging Issues in the Health Effects of Air Pollution

Regulatory Science: Advancing New Approaches for Hazard Identification and Risk Assessment

Chairperson(s): *Aimen K. Farraj, US EPA, Research Triangle Park, NC, and Michelle L. Bell, Yale University, Environmental Health, New Haven, CT.*

Sponsor:
Inhalation and Respiratory Specialty Section

Endorsed by:
Cardiovascular Toxicology Specialty Section
Occupational and Public Health Specialty Section

Dramatic reductions in air pollution over the last three decades have largely been driven by the enactment of federal regulations (e.g., the Clean Air Act in the United States). Today, policymakers and air quality managers rely on cutting-edge science to reduce and control air pollution. Toxicology is at the fore-front of this effort providing critical input on health effects of air pollution including dose-dependence, the role of constituents and size, mode of action, and relative toxicity of air pollution sources. Despite these advances, serious adverse health effects including cardiopulmonary mortality are still measurable at ambient air levels to which millions of people are currently exposed. Risk assessment of these air sheds is likely to get further complicated in light of the uncertainty posed by several emerging issues that intersect air quality and health. Climate change is one such issue that may affect health via direct effects of weather (i.e., heat and precipitation) and indirectly through increasing concentrations in ground-level ozone and particulate matter, two key air pollutants linked to adverse health effects. The burgeoning increase in obesity and associated metabolic disorders, groups with exaggerated sensitivity to the adverse effects of air pollution, is likely to aggravate health outcomes. With the implementation of new fuel standards and increasing popularity of alternative fuels, it is unclear what impact these changes may have on health effects of traffic-related emissions. Finally, several methods of power generation, including modern coal technology, nuclear energy, and hydrofracking have recently captured public interest, yet their impacts on air quality are unknown. This workshop discusses the current state of the science including key toxicological findings and recent innovations as well as challenges in the study of these emerging issues. The workshop concludes with a prospective look at air pollution research with a discussion session that engages the audience in an effort to define data gaps and potential mitigation strategies.

#1604 1:30 **"Air"-ing on the Side of Caution: Anticipating Impacts of Emerging Issues in the Health Effects of Air Pollution.** *A. K. Farraj*. EPHD, NHEERL, US EPA, Durham, NC.

1:30 **Introduction.** Aimen Farraj

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#1605 1:35 **Health Impacts from Climate Change through Atmospheric Systems: Recent Findings and Challenges.** M. Bell. Environmental Health, Yale University, New Haven, CT. Sponsor: *A. Farraj*.

#1606 2:05 **Environmental Factors and Cardiometabolic Disease: Signals in the Air.** S. Rajagopalan. Cardiovascular Medicine, Ohio State University, Columbus, OH. Sponsor: *A. Farraj*.

#1607 2:35 **Implications of New Fuel Standards and Alternative Fuels on Traffic Emissions: Insight from the Chemistry and Health Effects of Soy Biodiesel Emissions.** *M. S. Hazari*. Environmental Public Health Division, US EPA, Research Triangle Park, NC.

#1608 3:05 **Fracking, Coal, and Nuclear Energy: Impacts of Contemporary Methods of Power Generation on Air Quality and Remediation Efforts.** *J. D. McDonald*. Toxicology, Lovelace Respiratory Institute, Albuquerque, NM.

#1609 3:35 **Predicting the Future: Getting Ahead of Problems—A Presentation and Discussion.** *D. L. Costa*. Office of Research & Development, US EPA, Research Triangle Park, NC.

Tuesday Afternoon, March 12
1:30 PM to 4:15 PM
Room 214 C&D

W

Workshop Session: Breaking the Routine: Is There Room for Modern Techniques of Neuropathology Assessment in Routine Preclinical Safety Studies?

Regulatory Science: Advancing New Approaches for Hazard Identification and Risk Assessment

Chairperson(s): *Christopher D. Toscano, US FDA, Silver Spring, MD, and James P. O'Callaghan, NIOSH, Neurotoxicology Laboratory, Morgantown, WV.*

Sponsor:
Regulatory and Safety Evaluation Specialty Section

Endorsed by:
Neurotoxicology Specialty Section
Toxicologic and Exploratory Pathology Specialty Section

Neurotoxicity in routine preclinical safety studies is traditionally assessed with three H&E-stained brain sections; an approach that is not optimal, considering the brain's complex neuroanatomy. The need to increase the sensitivity of this approach is supported by the finding that routine neuropathology assessments would fail to detect MPTP, ethanol and carbonyl sulfide induced-CNS lesions. Increasing the number of brain sections sampled and inclusion of additional histology stains have been recommended but there is no expert consensus on the feasibility of incorporating modern methods of assessment into routine preclinical safety studies. We will explore and comment on the adequacy of the traditional approach to neuropathology assessment in routine preclinical safety studies. We will also examine the current regulatory guidance on neurotoxicity assessment in routine preclinical safety studies and discuss the feasibility of changing the current approach. Examples of emerging methods, such as MRI-directed histology and detection of circulating biomarkers of CNS damage, along with strategies for incorporating these techniques into standard preclinical safety studies will also be discussed. Finally, we will attempt to build consensus on appropriate approaches for improving the sensitivity of neurotoxicity assessment in routine preclinical safety studies by fostering a discussion between the audience and panel members. This discussion will focus on the feasibility of employing the proposed new markers, endpoints, and approaches and potential issues with interpretation of results of these studies. In conclusion, we believe that by examining the adequacy of current approaches of neuropathology assessment, discussing possible improvements to regulatory guidance and presenting emerging approaches of neurotoxicity assessment that this workshop will allow for a much needed dialogue on the need and feasibility of improving the current methods of neuropathology assessment in routine preclinical safety studies.

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#1610 1:30 **Breaking the Routine: Is There Room for Modern Techniques of Neuropathology Assessment in Routine Preclinical Safety Studies?** *C. D. Toscano*[1], and *J. P. O'Callaghan*[2]. [1]CDER, OND, DNP, US FDA, Silver Spring, MD; [2]CDC, NIOSH, Neurotoxicology Laboratory, Morgantown, WV.

1:30 **Introduction.** Christopher Toscano

#1611 1:35 **Routine Neuropathology Analysis for Nonclinical General Toxicology Studies.** *B. Bolon*. Veterinary Biosciences, Ohio State University, Columbus, OH.

#1612 2:08 **A Regulatory Perspective on the Current State of Neuropathological Assessments in Drug Development.** R. Mellon. CDER, OND, DAAAP, US FDA, Silver Spring, MD. Sponsor: *C. Toscano*.

#1613 2:41 **Utilization of MRI Imaging to Optimize the Selection of Brain Sections for Assessment by Classical Neurohistopathology.** *J. P. Hanig*[1], *M. Paule*[2], *J. Ramu*[2], *L. Schmued*[2], and *S. Liachenko*[2]. [1]OTR, CDER, US FDA, Silver Spring, MD; [2]Neurotoxicology, NCTR, US FDA, Little Rock, AR.

#1614 3:14 **Translational Safety Biomarker Assessment of Neurotoxicity.** A. Jeromin. NextGen Sciences DX, Boston, MA. Sponsor: *C. Toscano*.

3:47 **Panel Discussion/Q&A.** James O'Callaghan

Tuesday Afternoon, March 12
1:30 PM to 4:15 PM
Room 214 A&B

W

Workshop Session: Drug Safety Assessment and Regulatory Landscape in Emerging Markets

Regulatory Science: Advancing New Approaches for Hazard Identification and Risk Assessment

Chairperson(s): *Peter Mu, TeamedOn LLC, Rockville, MD, and Gopala Krishna, Supernus Pharmaceuticals, Inc., Rockville, MD.*

Sponsor:
Association of Scientists of Indian Origin Special Interest Group

Endorsed by:
American Association of Chinese in Toxicology Special Interest Group
Drug Discovery Specialty Section
Hispanic Organization of Toxicologists Special Interest Group
Korean Toxicologists Association in America Special Interest Group
Regulatory and Safety Evaluation Specialty Section

With 85% of world's population and rapid economic growth, the emerging market countries are up and coming, and are now actively courted by large global pharmaceutical industries. Within the next decade, Asia is expected to overtake Europe in pharmaceutical sales. For example, China is predicted to be the second largest pharmaceutical market after the United States by 2015 (Nature Reviews Drug Discovery, 2010). Many large pharmaceutical companies have increased their presence in emerging markets for research and discovery, and are seeking to market their products locally. Due to the short history of innovative pharmaceutical research and development, many of the emerging countries have limited experience of first hand review of new drugs applications, hence rely mostly on the review decisions taken elsewhere to grant the approval in local markets. However, regulatory agencies of the emerging countries are working diligently to catch up with the international standards and in the process establishing the regulations that

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Abstract #

address their country specific needs to promote innovation and bring drugs that are appropriately tested to demonstrate safety for their own population. The establishment and expansion of regulatory agencies functions is creating local job opportunities for people with specialized skills, to help with the review of various components of the new drug applications while at the same time presenting challenges never experienced before due to the nature of innovation. This has sometimes led to regulations that are not well defined and open to interpretation. The drug safety assessment and regulatory landscape in China, India, Korea, and Brazil will be introduced during the presentations. The similarity and difference of the regulatory environment in the emerging countries will be compared with the major ICH guidelines. The challenges and possible solutions for companies seeking regulatory approval in emerging markets will be discussed. This will also provide an open forum for regulators from emerging markets to exchange ideas on how to tackle unique situation they experience.

#1615 1:30 **Drug Safety Assessment and Regulatory Landscape in Emerging Markets.** *P. Mu*[1], and *G. Krishna*[2]. [1]TeamedOn LLC, Rockville, MD; [2]Supernus Pharmaceuticals, Inc., Rockville, MD.

1:30 **Introduction.** Peter Mu

#1616 1:40 **Framing the Workshop Theme.** *S. Goel*. Supernus Pharmaceuticals, Inc., Rockville, MD.

#1617 1:55 **Current Status of Preclinical Safety Assessment of Drugs in China.** J. Wang. State FDA (SFDA), Bejing, China. Sponsor: *P. Mu*.

#1618 2:25 **Regulations and Developments in Safety Assessment of New Drugs in India.** Y. K. Gupta. All India Institute of Medical Sciences, New Delhi, India. Sponsor: *G. Krishna*.

#1619 2:55 **Safety Assessment and Regulatory Landscape in Korea.** S. Han[1], and *I. J. Yu*[2]. [1]Korea FDA, Osong, Republic of Korea; [2]Hoseo University, Asan, Republic of Korea.

#1620 3:25 **Regulatory Developments in Brazil to Address Market Needs.** D. Barbano. Brazilian Health Surveillance Agency (ANVISA), Brasília, Brazil. Sponsor: *S. Goel*.

#1621 3:55 **Workshop Summarization and Question and Answer Session.** *G. Krishna*. Supernus Pharmaceuticals, Inc., Rockville, MD.

Tuesday Afternoon, March 12
1:30 PM to 4:15 PM
Room 206

PL

Platform Session: Bioinformatics: Pathways, Profiles, and Predictions

Chairperson(s): *Thomas Knudsen, US EPA, Research Triangle Park, NC, and Russell Thomas, The Hamner Institutes for Health Sciences, Research Triangle Park, NC.*

#1622 1:30 **Cell-Level Model of Morphogenetic Tissue Fusion for Computational Toxicology.** M. Hutson[1], and *T. B. Knudsen*[2]. [1]Physics & Astronomy, Vanderbilt University, Nashville, TN; [2]NCCT, US EPA, Research Triangle Park, NC.

#1623 1:50 **Investigating Adverse Outcome Pathway Models for Mitochondrial Toxicity.** M. L. Patel, S. Canipa, and D. Portinari. Lhasa Limited, Leeds, United Kingdom. Sponsor: *C. Marchant*.

Abstract #

#1624 2:10 **Interactive Data Mining of Toxicogenomics and *In Vivo* Toxicity Databases Using Chemotypes to Improve Chemical-Disease Prediction Inferences and Mode-of-Action QSAR Models.** A. Mostrag-Szlichtying[1], *C. Yang*[1], J. Rathman[1,2], *C. Mattingly*[3], *A. Davis*[3], A. Planchart[3], and *A. Richard*[4]. [1]Altamira, LLC, Columbus, OH; [2]The Ohio State University, Columbus, OH; [3]North Carolina State University, Raleigh, NC; [4]US EPA, Research Triangle Park, NC.

#1625 2:30 **Cheminformatics Analysis of Compound-Cytochrome P450 Interaction Profiles.** D. Fourches[1], M. Elias[2], E. Muratov[1], L. Sheppard[3], P. Bradley[3], J. Reed[3], and A. Tropsha[1]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]The Hebrew University of Jerusalem, Jerusalem, Israel; [3]Instem Scientific, Cambridge, United Kingdom. Sponsor: *I. Rusyn*.

#1626 2:50 **Mechanistic Analysis of Welding Aerosol Toxicity Using Ingenuity Pathway Analysis (IPA).** S. Tugendreich[1], N. Ng[1], *P. C. Zeidler-Erdely*[2], *J. M. Antonini*[2], M. L. Kashon[2], and *A. Erdely*[2]. [1]Ingenuity Systems, Redwood City, CA; [2]NIOSH, Morgantown, WV.

#1627 3:10 **Insights into the TBX2 Role in Cellular Senescence in COPD: A Bayesian Structure Learning Approach.** U. Tran, and *G. Acquaah-Mensah*. Massachusetts College of Pharmacy and Health Sciences, Worcester, MA.

#1628 3:30 **Prediction of Metabolites Using Computational Approaches.** *M. Kansy*[1], L. T. Anger[1], *U. Gundert-Remy*[2], and A. Brigo[1]. [1]Non-Clinical Safety, F. Hoffmann-La Roche Ltd., Basel, Switzerland; [2]Institute of Clinical Pharmacology and Toxicology, Charité University Medical School Berlin, Berlin, Germany.

#1629 3:50 **Comparison of Microarray and RNA-Seq for Gene Expression Analyses of Dose-Response Experiments.** M. B. Black[1], E. Healy[1], B. B. Parks[1], L. Pluta[1], T. Chu[2], *R. D. Wolfinger*[2], and *R. S. Thomas*[1]. [1]The Hamner Institutes for Health Sciences, Research Triangle Park, NC; [2]SAS Institute, Cary, NC.

Tuesday Afternoon, March 12
1:30 PM to 2:30 PM
Room 007 A

E

Exhibitor/Sponsor-Hosted Session: Human-Induced Pluripotent and Embryonic Stem Cell-Derived Hepatocytes and Cardiomyocytes for Use in High-Content Toxicity Assessments

Presented by:
Cellectis Stem Cells

Cellectis stem cells' human pluripotent stem cell-derived hepatocytes and cardiomyocytes exhibit specific markers and functional similarities to adult human cells. With high homogeneity, availability in multiwall plate formats, and with low batch to batch variations, makes the cells excellent *in vitro* tools for safety pharmacology and toxicity assessments.

Program Description (Continued)

Tuesday Afternoon, March 12
1:30 PM to 2:30 PM
Room 007 B

E

Exhibitor/Sponsor-Hosted Session: Integrated Testing Strategies for Skin Sensitization: Safety Assessment for Cosmetics

Presented by:
L'Oréal Research & Innovation

The session will focus on the state of the art and the future of *in vitro* and *in silico* tests used in safety assessment for cosmetics. Specific emphasis will be placed on the Integrated Testing Strategies for Skin Sensitization, its challenges, and development.

Tuesday Afternoon, March 12
1:30 PM to 2:30 PM
Room 007 C

E

Exhibitor/Sponsor-Hosted Session: Multiplex Detection of Drug-Induced Kidney Toxicity with New Bio-Plex Pro™ RBM Assays

Presented by:
Bio-Rad Laboratories

Developed in conjunction with the Predictive Safety Testing Consortium's (PSTC) Nephrotoxicity Working Group, Myriad RBM's urine-based quantitative multiplex protein assays for detecting, monitoring, and characterizing kidney toxicity are now available in kit form for use with the Bio-Plex® Suspension Array System. Analytical validation and application examples will be presented.

Tuesday Afternoon, March 12
2:45 PM to 3:45 PM
Room 007 B

E

Exhibitor/Sponsor-Hosted Session: Implementing Systematic Review at the NTP

Presented by:
National Toxicology Program

The NTP has developed an approach to use systematic review methodology in reaching conclusions for literature-based evidence assessments. NTP scientists will discuss the approach for study identification, quality assessment, and integration of data across evidence streams (human, animal, *in vitro*) and demonstrate new web-based tools for graphical display of data.

Tuesday Afternoon, March 12
2:45 PM to 3:45 PM
Room 007 C

E

Exhibitor/Sponsor-Hosted Session: The Use of HepatoPac™, an *In Vitro* Microliver Platform, for Mechanistic Toxicology Studies

Presented by:
Hepregen Corporation

HepatoPac is a highly predictive *in vitro* microliver platform that retains high functionality over several weeks. The model has been extensively validated and has been demonstrated to improve sensitivity in toxicity studies. This session will provide examples where HepatoPac has been successfully used to study mechanistic hepatotoxicity.

Tuesday Afternoon, March 12
2:45 PM to 3:45 PM
Room 007 A

E

Exhibitor/Sponsor-Hosted Session: The Value of the Göttingen Minipig in the Development of New Biotherapeutics

Presented by:
Marshall BioResources and Ellegaard Göttingen Minipigs

This presentation discusses the Göttingen Minipig as a potential model in preclinical testing of biopharmaceuticals. Recent studies have demonstrated some similarity to human sensitivity to various biologically-derived compounds, including certain monoclonal antibodies. Sequencing of the Göttingen Minipig genome means genomic level target validation, and potential cross-reactivity, is now possible.

Tuesday Afternoon, March 12
3:00 PM to 4:15 PM
Room 203 A

Undergraduate Educator Network Meeting

Chairperson(s): *Sue M. Ford, St. John's University, Jamaica, NY.*

Sponsors:
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, or for those interested in including toxicology at the undergraduate level. Hear an update on initiatives for undergraduate faculty, provide your input, and network.

Tuesday Afternoon, March 12
4:30 PM to 5:50 PM
Room 214 A&B

EC

Education-Career Development Session: The Symbiosis of Mentoring: Getting the Most out of the Mentor-Mentee Relationship

Chairperson(s): *Kelly J. Chandler, US EPA, Research Triangle Park, NC, and Bethany R. Hannas, US EPA, Research Triangle Park, NC.*

Sponsor:
Postdoctoral Assembly

Endorsed by:
Career Resource and Development Committee
Committee on Diversity Initiatives
Education Committee

Mentoring is a critical element in the career development of all toxicologists, both in terms of making the most of potential mentors and developing effective mentoring skills. Whether through involvement in academia, or helping to develop the expertise of an early-career scientist, most toxicologists will provide mentoring at some point in their career. The mentor role serves to transfer knowledge, give advice and provide support to a trainee or developing scientist, while the mentee is relied upon by the mentor to provide active participation and input into the relationship. According to national polls, as well as SOT-specific surveys, one of the resounding topics of interest for developing scientists is mentoring from the broad perspectives of choosing the right mentor, down to developing the skills to become a sound mentor. Therefore, this session was designed to complement existing mentor matching opportunities offered through SOT. Speaker presentations will focus on: (1) the fundamentals of mentoring, including the different situations and roles in which the mentee-mentor dynamic may be encountered; (2) an introduction to the most commonly used mentoring techniques;

Program Description (Continued)

Abstract #

(3) identifying characteristics of a strong mentor-mentee relationship; and (4) mentoring towards the future of science and the challenge to overcome more complex scientific problems. Speaker perspectives will address the mentorship role within academia, government, and industry. Attendees of this session will learn to identify a healthy mentor-mentee relationship and understand the benefits to each member of the collaboration. Mentoring topics discussed in this session will be applicable to scientists at every career stage through highlighting the basics behind a strong, mutually-beneficial mentoring relationship.

#1630 4:30 **The Symbiosis of Mentoring: Getting the Most out of the Mentor-Mentee Relationship.** *B. Hannas*[1], *N. Walker*[2], *S. Safe*[3], *E. Carney*[4], and *O. Olivero*[5]. [1]Reproductive Toxicology Branch, US EPA, Research Triangle Park, NC; [2]NTP, NIEHS, Research Triangle Park, NC; [3]Molecular & Cellular Medicine, Texas A&M University, College Station, TX; [4]The Dow Chemical Company, Midland, MI; [5]Laboratory of Cancer Biology & Genetics, National Cancer Institute, Bethesda, MD.

4:30 **Introduction.** Bethany R. Hannas

4:35 **Supervisors, Mentors and Yodas: A Perspective on Their Role in Your Career Development.** Nigel J. Walker

4:50 **Approaches for Mentoring Graduate Students.** Stephen H. Safe

5:05 **The Two-Way Street of Mentoring: Reflections on Career Development in a Chemical Industry Toxicology Laboratory.** Edward W. Carney

5:20 **The Future: Mentoring Interdisciplinary Scientists.** Ofelia A. Olivero

5:35 **Q&A.** Panel Discussion

Tuesday Afternoon, March 12
4:30 PM to 6:00 PM
Pat O'Brien's Restaurant

Lone Star and South Central Regional Chapters Mixer

Tuesday Afternoon, March 12
4:30 PM to 6:30 PM
Blue Star Brewing Company

Midwest and Northland Regional Chapters Mixer

Tuesday Afternoon, March 12
4:30 PM to 6:00 PM
Grand Ballroom C1
(All SOT Members Invited)

SOT Annual Business Meeting

Members are invited and encouraged to attend the 52nd SOT Annual Business Meeting. The agenda includes discussion of plans for 2013–2014, a financial summary, and a review of the 2012–2013 activities.

Tuesday Afternoon, March 12
4:30 PM to 6:30 PM
Marriott Riverwalk Alamo Ballroom C

Women in Toxicology Special Interest Group Meeting/ Reception

TUESDAY EVENING

Tuesday Evening, March 12
6:00 PM to 7:00 PM
Grand Hyatt Texas Ballroom A

Regulatory and Safety Evaluation Specialty Section Meeting/Reception

Tuesday Evening, March 12
6:00 PM to 7:30 PM
Grand Hyatt
See room listing below.

Specialty Section Meeting/Receptions: Biological Modeling (Republic B), Drug Discovery Toxicology (Lone Star Ballroom B), Immunotoxicology (Texas Ballroom C), Inhalation and Respiratory (Lone Star Ballroom C), Mechanisms (Lone Star Ballroom A), Mixtures (Bowie), Neurotoxicology (Lone Star Ballroom F), Risk Assessment (Texas Ballroom D)

Tuesday Evening, March 12
7:00 PM to 7:30 PM
Grand Hyatt Texas Ballroom A

Regulatory and Safety Evaluation Specialty Section Great Debate: Any Potential Endocrine Effect due to Xenobiotic Exposure Should Be Used in Human or Environmental Risk Assessments *(All Attendees Invited)*

Tuesday Evening, March 12
7:00 PM to 10:00 PM
Zinc Bistro & Bar

Northern California Regional Chapter Reception

Tuesday Evening, March 12
7:30 PM to 9:00 PM
Marriott Riverwalk, Alamo Ballroom D

Tox ShowDown

Chairperson(s): *Sue M. Ford, St. John's University, Jamaica, NY, and Phil Wexler, NIH-NLM, Bethesda, MD.*

Sponsor:
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 the popular long-running show *It's Academic*. Teams of three contestants will compete at answering questions concerning toxicology not only in its scientific context, but as it relates to society, 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 13
8:00 AM to 9:00 AM
Grand Ballroom C1

FS

Keynote Medical Research Council (MRC) Lecture: Phenotyping the Patient Journey: Making Systems Medicine Work in the Real World

Lecturer: *Jeremy K. Nicholson, Imperial College London, London, United Kingdom.*

Systems biology tools can be applied at both individual and population levels to understand integrated biochemical function in relation to disease pathogenesis. Metabolic phenotyping offers an important window on systemic activity and both advanced spectroscopic approaches can be used to characterize disease processes and responses to therapy. There is now wide recognition that the extensive cross-talk and signalling between the host and the symbiotic gut microbiome links to both the responses to therapy and disease risk factors and indeed these also modulate drug toxicity. Such symbiotic supraorganismal interactions greatly increase the degrees of freedom of the metabolic system that poses significant challenges to fundamental notions on the nature of the human diseased state, the aetiopathogenesis of common diseases, and current systems modelling requirements for personalized medicine. We have developed scalable and translatable strategies for phenotyping the hospital patient journey using top-down systems biology tools that capitalize on the use of both metabolic modelling and pharmacometabonomics for diagnostic and prognostic biomarker generation to aid clinical decision making at point-of-care. Such diagnostics (including those for near real-time applications, as in surgery and critical care) can be extremely sensitive for the detection of diagnostic and prognostic biomarkers in a variety of conditions and are a powerful adjunct to conventional procedures for disease assessment that are required for future developments in precision medicine including understanding of the symbiotic influences on patient state. Many biomarkers also have deeper mechanistic significance and may also generate new therapeutic leads or metrics of efficacy for clinical trial deployment. Furthermore, the complex and subtle gene-environment interactions that generate disease risks in the general human population also express themselves in the metabolic phenotype, and, as such, the Metabolome Wide Association Study approach gives us a powerful new tool to generate disease risk biomarkers from epidemiological sample collections and for assessing the health of whole populations. Such population risk models and biomarkers can also feedback to individual patient healthcare models thus closing the personal and public healthcare modelling triangle.

Abstract #

Wednesday Morning, March 13
9:00 AM to 11:45 AM
Grand Ballroom C2

S

Symposium Session: Role of Systems Biology in Characterizing Risk of Developmental Origins of Disease

Application of Systems Biology to Toxicology

Chairperson(s): *David T. Szabo, US EPA, Washington, DC, and Tammy L. Palenski, University of Wisconsin-Madison, Madison, WI.*

Sponsor:
Postdoctoral Assembly

Endorsed by:
Graduate Student Leadership Committee
Hispanic Organization of Toxicologists Special Interest Group
Reproductive and Developmental Toxicology Specialty Section

Systems biology is the study of complex interactions of biological components, such as nucleic acids, proteins, chemical reactions, cells, and whole organisms, at multiple levels of organization. The National Research Council recommends implementing the use of systems biology approaches in the risk assessment process. While recent advances have been made to prioritize chemicals for further screening, to better understand mode of action, strengthen weight-of-evidence, and eventually replace traditional *in vivo* animal model data with *in vitro* and *in silico* methods, these data have not been systematically considered in mainstream approaches for risk assessment which also largely focuses on adult populations. The goal of this symposium is to consider emerging knowledge and information from systems biology to inform risk assessment and decision making in the arena of developmental origins of disease. Growing evidence suggests that chemical exposures in early life can have immediate and long-term effects on the structure and function of organ systems, leading to the development of disease later in life. Systems biology approaches can aid in understanding molecular, cellular, metabolic, and morphological changes resulting from such exposures. These approaches, which include analysis of complex data sets from multiple experimental sources, interdisciplinary 'omics tools, and computer simulation modeling, are increasingly being applied to better understand developmental origins of disease. We will present current systems biology approaches on how to better identify developmental origins of disease and its implications to the risk assessment process through several case studies.

#1631	9:00	**Role of Systems Biology in Characterizing Risk of Developmental Origins of Disease.** *D. T. Szabo*[1], and *T. Palenski*[2]. [1]National Center for Environmental Assessment, US EPA, Arlington, VA; [2]Molecular and Environmental Toxicology, University of Wisconsin-Madison, Madison, WI.
	9:00	**Introduction.** David Szabo
#1632	9:05	**Predictive Models of Developmental Toxicity.** *N. S. Sipes*, and *T. B. Knudsen*. National Center for Computational Toxicology, US EPA, Research Triangle Park, NC.
#1633	9:33	**Multiple Organ-Omic Integration for HBCD Developmental Neurotoxicity Hazard Identification.** *D. T. Szabo*[1], and *L. S. Birnbaum*[2]. [1]National Center for Environmental Assessment, US EPA, Arlington, VA; [2]NIEHS, NCI, Research Triangle Park, NC.
#1634	10:01	**Assessing Antiandrogenic Effects of *In Utero* Exposure to Dibutyl Phthalate and Other Xenobiotics.** *D. Spade*, and *K. Boekelheide*. Department of Pathology and Laboratory Medicine, Brown University, Providence, RI.

Program Description (Continued)

Abstract #

#1635 10:29 **Mechanistic Pathways Underlying Low-Dose PFOA Effects on Mammary Gland Growth.** *M. Macon*[1], and *S. Fenton*[2]. [1]Curriculum in Toxicology, University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]National Toxicology Program, NIEHS, Research Triangle Park, NC.

#1636 10:57 **Molecular Mechanisms Linking Maternal Diet-Induced Obesity to Offspring Metabolic Syndrome.** M. Alfaradhi, and S. Ozanne. Metabolic Research Laboratories, University of Cambridge, Cambridge, United Kingdom. Sponsor: *D. Szabo*.

11:25 **Panel Discussion/Q&A.**

Wednesday Morning, March 13
9:00 AM to 11:45 AM
Grand Ballroom C3

S

Symposium Session: Toxicoepigenomics, Disease Susceptibility, and Implications for Risk Assessment

Molecular Basis of Genetic Variability and Susceptibility to Toxicants

Chairperson(s): *Kristy Kutanzi, US FDA, Jefferson, AR, and Mukesh Verma, National Cancer Institute, Bethesda, MD.*

Sponsor:
Molecular Biology Specialty Section

Endorsed by:
Mechanisms Specialty Section
Reproductive and Developmental Toxicology Specialty Section
Risk Assessment Specialty Section
Women in Toxicology Special Interest Group

In the past, classical toxicology has largely focused on the genotoxic effects of environmental toxicants and chemicals. Recent studies have clearly indicated that environmental chemicals, along with their genotoxic abilities, can cause epigenetic alterations that, in concert, may lead to the development of a number of pathological states. The field of toxicoepigenomics has since emerged from the combination of epigenetics, which studies the methylation of DNA, histone modifications, and chromatin condensation, and toxicology. During the last few years, excellent progress has been made in detecting altered epigenomic profiles in response to various chemical insults. Future investigations, however, are needed to link chemical exposure to epigenetic alterations which develop over time, and, in turn, may increase the risk of disease. Although whole populations may be exposed to toxic substances, only a few people develop the disease, which may, in part, be due to the different epigenomic backgrounds of individuals. That is why the potential role of epigenetics in disease susceptibility, along with the potential opportunities for epigenetic biomarkers in the assessment of toxicity and carcinogenicity of chemicals have received a lot of attention recently. Specifically, the following key aspects need to be addressed: 1) How stable are the epigenetic alterations induced by environmental toxicants?; 2) What periods of development across the lifespan are windows of vulnerability and/or opportunity for an altered epigenome?; 3) How can exposure to toxicants *in utero* affect the epigenome and predispose individuals to various diseases throughout life?; 4) Are there methodological and measurement gaps to be filled to advance our understanding of toxicoepigenomics?; and 5) How can we develop risk prediction models? Evidence that epigenetic alterations can be potentially reversed may be helpful in developing treatment and preventative strategies.

#1637 9:00 **Toxicoepigenomics, Disease Susceptibility, and Implications for Risk Assessment.** *K. Kutanzi*[1], and M. Verma[2]. [1]Biochemical Toxicology, National Center for Toxicological Research, US FDA, Jefferson, AR; [2]Division of Cancer Control and Population Sciences, National Cancer Institute, NIH, Bethesda, MD.

9:00 **Introduction.** Kristy Kutanzi

Abstract #

#1638 9:05 **Epigenetic Alterations in Response to Exposure to Environmental Toxicants.** *I. Koturbash*. Department of Environmental and Occupational Health, College of Public Health, University of Arkansas for Medical Sciences, Little Rock, AR.

#1639 9:37 **Application of Cancer Toxicoepigenomics in Identifying High-Risk Populations.** M. Verma. National Cancer Institute, NIH, Rockville, MD. Sponsor: *K. Kutanzi*.

#1640 10:09 **Changes in Histone Tail Modifications and Gene Expression in PBMC from Subjects Exposed to Nickel and Arsenic.** *M. Costa*. Environmental Medicine, New York University School of Medicine, Tuxedo Park, NY.

#1641 10:41 **Chromatin Remodeling As a Driver and Target for Lung Cancer.** S. A. Belinsky. Lovelace Respiratory Research Institute, Albuquerque, NM. Sponsor: *K. Kutanzi*.

#1642 11:13 **Molecular Basis for Dioxin-Induced Cardiovascular Disease.** *A. Puga*. Environmental Health, University of Cincinnati College of Medicine, Cincinnati, OH.

Wednesday Morning, March 13
9:00 AM to 11:45 AM
Room 217 C&D

W

Workshop Session: Dietary Arsenic—Forms, Hazards, and Risks

Chairperson(s): *P. Michael Bolger, Exponent, Annapolis, MD, and Aaron Barchowsky, University of Pittsburgh, Pittsburgh, PA.*

Sponsor:
Food Safety Specialty Section

Endorsed by:
Cardiovascular Toxicology Specialty Section
Metals Specialty Section
Regulatory and Safety Evaluation Specialty Section

Arsenic, particularly inorganic arsenic, is a well known and ubiquitous environmental contaminant, particularly in drinking water, and it originates from both anthropogenic and natural sources. It demonstrates a myriad of toxicological effects across a broad spectrum of organ systems. It has generally been believed that arsenic in food occurs in organic forms that demonstrate minimal, if any, toxicological activity. This is particularly the case with the forms found in seafood (e.g., arsenosugars). However, there has been concern for some time that organic forms may not be the predominant forms in certain foods, like rice, where concentrations of inorganic forms in certain cultivars may be significant. In addition, other organic forms, like tri- and penta- mono- and dimethyl forms, may be found, and at levels that are not insignificant, and could potentially pose a health hazard. These organic forms may not be as innocuous as the organic forms found in seafood. This session will explore the current state of knowledge regarding the occurrence of various forms of arsenic found in foods, as well as their potential exposures, hazards (e.g., toxicological, epidemiological) and risks to public health, and what risk management options maybe available.

#1643 9:00 **Dietary Arsenic—Forms, Hazards, and Risks.** *P. M. Bolger*. Exponent, Annapolis, MD.

9:00 **Introduction.** Philip Bolger

#1644 9:05 **Noncancer Disease Risk Promoted by Low Level Arsenic Exposures.** *A. Barchowsky*. Environmental and Occupational Health, University of Pittsburgh, Pittsburgh, PA.

Program Description (Continued)

Abstract #

#1645 9:40 **Exposure Assessment Methods for Dietary Arsenic.** L. Barraj, and *N. Tran*. Exponent, Washington DC.

#1646 10:15 **Recent Epidemiologic Studies of Arsenic and How They Apply to the Health Evaluation of Arsenic in Food.** H. J. Gibb. Tetra Tech Sciences, Arlington, VA. Sponsor: *P. Bolger*.

#1647 10:50 **Potential Risks to Human Health from Arsenic in the Diet: A European Food Safety Authority (EFSA) Perspective.** *J. R. Schlatter*. Federal Office of Public Health (retired), Zurich, Switzerland.

11:25 **Panel Discussion/Q&A.**

Wednesday Morning, March 13
9:00 AM to 11:45 AM
Room 214 C&D

W

Workshop Session: Pulmonomics, the Exposome, and Microbiomes in Immunotoxicology

Biomarkers for Exposure Assessment, Safety Evaluation, and Translational Medicine

Chairperson(s): *Marc A. Williams, US EPA, Research Triangle Park, NC, and Joachim Pleil, US EPA, Research Triangle Park, NC.*

Sponsor:
Immunotoxicology Specialty Section

Endorsed by:
Biological Modeling Specialty Section
Clinical and Translational Toxicology Specialty Section
Inhalation and Respiratory Specialty Section

The exposome has revealed itself to be a powerful approach for assessing environmental exposures and their influences on human diseases. As we explore the origins of human disease, and the contributions made by environmental pollutants, a comprehensive understanding of systems biology is needed. This requires an integrated understanding of how environmental chemicals and other stressors of gene and protein expression are not only linked to a toxicological outcome but which may impact on chronic inflammatory diseases such as allergic asthma, COPD, and even lung cancer. Perturbations in normal cell cycle kinetics, apoptotic cell-death pathways, immune dysfunction, and a recent appreciation of the consequences of inadvertent dysregulation of the gut and lung microbiomes collectively distort normal systems biology homeostasis and the advent of adverse health effects. For the first time, this symposium presents emerging critical issues and paradigms that discuss the contributions and interplay of systems biology, the exposome, and microbiomes as they relate to immunotoxicology, dysregulation of inflammatory pathways, and chronic diseases. Invited speakers will place in context and share state-of-the-art approaches for advancing our understanding of the interplay of gene and environment and of the exposome in initiating and prolonging chronic inflammatory disease.

#1648 9:00 **Pulmonomics, the Exposome, and Microbiomes in Immunotoxicology.** *M. A. Williams*. US EPA, Research Triangle Park, NC.

9:00 **Introduction.** Marc Williams

#1649 9:10 **Breath Biomarkers from Viable Pulmonary Aerosols: Discovery of Human Microbiome Contributions.** *J. Pleil*. Methods Development and Applications Branch, National Exposure Research Laboratory (NERL), US EPA, Research Triangle Park, NC.

Abstract #

#1650 9:38 **Experimental Exposure of Mice to House Dust Alters Gut Microbiome and Attenuates Allergic Pulmonary Responses.** N. Lukacs. Pathology, University of Michigan Medical School, Ann Arbor, MI. Sponsor: *M. Williams*.

#1651 10:06 **Translating the Airway Transcriptome into Biomarkers of Tobacco-Related Lung Disease.** A. Spira. The Pulmonary Center, Boston University School of Medicine, Boston, MA. Sponsor: *M. Williams*.

#1652 10:34 **Immune-Mediated Adverse Effects of Drugs and Environmental Agents.** *J. Uetrecht*. Pharmacy, University of Toronto, Toronto, ON, Canada.

#1653 11:02 **Targeted 'Omics Research in the Regulatory Environment.** *J. Sobus*. Exposure Measurements and Analysis Branch, US EPA, Research Triangle Park, NC.

11:30 **Panel Discussion/Q&A.**

Wednesday Morning, March 13
9:00 AM to 11:45 AM
Room 217 A&B

W

Workshop Session: Standard and Nonstandard Animal Models for Evaluation of Drug Abuse Potential for Pharmaceutical Compounds with Novel Mechanisms

Regulatory Science: Advancing New Approaches for Hazard Identification and Risk Assessment

Chairperson(s): *Carrie G. Markgraf, Merck, Kenilworth, NJ, and Mausumee Guha, Bristol-Myers Squibb Co., Mount Vernon, IN.*

Sponsor:
Regulatory and Safety Evaluation Specialty Section

Endorsed by:
Drug Discovery Special Section
Neurotoxicology Specialty Section

Preclinical assessment of abuse liability potential for new drugs with central nervous system (CNS) activity has been a recent focus of both regulatory and industry interest. The standard animal models used for evaluation of abuse potential for these pharmaceutical candidates are self-administration and drug discrimination. These models have been well characterized in both rats and monkeys with known drugs of abuse. However, unique challenges encountered when evaluating drugs with novel mechanisms or with difficult pharmaceutical properties raise questions: How can reinforcing properties be evaluated if there is no acceptable IV formulation? What comparator drug is appropriate for a candidate compound with a novel CNS-active mechanism? In these situations, using a nonstandard model may offer an attractive alternative. The promise of such alternative animal models is balanced by the challenge in data interpretation and in incorporation of the data into a comprehensive risk assessment. This workshop will start with a discussion of the regulatory requirements and standard data collected for a preclinical abuse potential assessment, followed by presentations on conditioned place preference (CPP) and intracranial self stimulation (ICSS)—both nonstandard animal models of drug abuse potential in a regulatory setting. The scientific rationale for their use, how each compares to standard animal models, and the use of their data in risk assessment and in an abuse potential package for submission to health authorities will be discussed.

#1654 9:00 **Standard and Nonstandard Animal Models for Evaluation of Drug Abuse Potential for Pharmaceutical Compounds with Novel Mechanisms.** *C. G. Markgraf*[2], and *M. Guha*[1]. [1]Drug Safety Evaluation, Bristol-Meyers Squibb Co., Mt Vernon, IN; [2]DSS, Merck, Kenilworth, NJ.

9:00 **Introduction.** Carrie Markgraf

Program Description (Continued)

Abstract #

#1655 9:05 **Current Challenges in Abuse Liability Assessment of Drugs with Novel Mechanisms of Action.** *K. H. Horn*. Drug Safety Evaluation, Bristol-Meyers Squibb, Mt Vernon, IN.

#1656 9:34 **The Assessment of Abuse Liability: The Regulatory Perspective.** S. N. Calderon-Gutkind. CDER, US FDA, Silver Springs, MD. Sponsor: *M. Guha*.

#1657 10:03 **Conditioned Place Preference As a Tool for Assessing Abuse Liability.** C. L. Cunningham. Behavioral Neuroscience, Oregon Health & Science University, Portland, OR. Sponsor: *C. Markgraf*.

#1658 10:32 **Use of Intracranial Self-Stimulation for Abuse Liability Assessment.** T. J. Hudzik. Preclinical Safety, Abbott, Abbott Park, IL. Sponsor: *C. Markgraf*.

#1659 11:01 **Impact of Nonstandard Animal Models on Preclinical Study Design for Meeting Regulatory Requirements.** *M. Kallman*. Discovery and Translational Services, Covance, Greenfield, IN.

11:30 **Panel Discussion/Q&A.**

Wednesday Morning, March 13
9:00 AM to 11:45 AM
Room 214 A&B

W

Workshop Session: The Placenta in Toxicology: Target or Travel Agent?

Chairperson(s): *Christopher J. Bowman, Pfizer, Inc., Groton, CT, and Warren G. Foster, McMaster University, Hamilton, ON, Canada.*

Sponsor:
Reproductive and Developmental Toxicology Specialty Section

Endorsed by:
Comparative and Veterinary Specialty Section

The placenta is a fascinating organ in its dynamic form and function appearing as a transient and critical tissue in the reproductive cycle. It is a collaboration of maternal and zygotic cellular layers whose major function is a conduit between mother and fetus focused on the growth and viability of the next generation whilst preserving maternal well-being. The unique physiology of biodistribution and metabolism of the placenta also render it sensitive as a target of toxicity. The human placenta is a complicated organ and understanding the comparative physiology of nonclinical species can be a critical component for drug and chemical safety assessment; both as a potential target of toxicity and as a presumed barrier to undesirable xenobiotics. As in much of toxicology, it is important to appreciate different perspectives including clinical, epidemiological, basic research, industry, and regulatory. It is only when this information is integrated and applied that we can appreciate the value and importance of basic research and the views of regulatory and industrial sciences.

#1660 9:00 **The Placenta in Toxicology: Target or Travel Agent?** *C. J. Bowman*[1], and *W. Foster*[2]. [1]Developmental & Reproductive Toxicology, Pfizer Inc., Groton, CT; [2]Department of Obstetrics & Gynecology, McMaster University, Hamilton, ON, Canada.

9:00 **Introduction.** Christopher Bowman

#1661 9:05 **How Predictive Are Animal Studies in Detecting Fetal Risks in Humans?** G. Koren[1,2]. [1]The Hospital for Sick Children, The University of Toronto, Toronto, ON, Canada; [2]Molecular Toxicology, The University of Western Ontario, Toronto, ON, Canada. Sponsor: *C. Bowman*.

Abstract #

#1662 9:37 **Environmental Factors in Placental Toxicology and Women's Health.** M. M. Veras[1,2], and P. Saldiva[1,2]. [1]Pathology, University of São Paulo, São Paulo, Brazil; [2]National Institute of Integrated Analysis of Environmental Risk, São Paulo, Brazil. Sponsor: *C. Bowman*.

#1663 10:09 **The Placenta As Therapeutic Border Patrol for Unintended Populations.** *C. J. Bowman*. Developmental & Reproductive Toxicology, Pfizer Inc., Groton, CT.

#1664 10:41 **The Placenta As a Target Organ in Toxicology—A Case Study.** *B. van Ravenzwaay*. Experimental Toxicology and Ecology, BASF SE, Ludwigshafen, Germany.

#1665 11:13 **Regulatory Perspectives on Embryo-Fetal Developmental Studies: The Placenta in Pharmacological Studies and Toxicological Assessments.** L. Leshin. US FDA, Silver Spring, VA. Sponsor: *C. Bowman*.

Wednesday Morning, March 13
9:00 AM to 11:45 AM
Room 206

IS

Informational Session: K–12 Toxicology Outreach Activities: Regional Chapter Successes and Resources

Chairperson(s): *Courtney E. Sulentic, Wright State University, Dept of Pharmacology and Toxicology, Dayton, OH, and Rafael Ponce, Amgen Inc., Seattle, WA.*

Sponsor:
Education Committee

Endorsed by:
Career Resource and Development Committee
Communications Committee
Ethical, Legal, and Social Issues Specialty Section
Graduate Student Leadership Committee

K–12 activities are a vital component in our mission to educate the community regarding hazards and hazard communication. Several regional SOT chapters have very active K–12 community outreach programs and others are interested in establishing these programs within their communities. Facilitating this type of outreach across all regional chapters is a tactical goal of the Regional Chapter Collaboration and Communication Committee (RCCCC) and the Education Committee. This goal ties directly into the SOT strategic plan of promoting recognition of toxicology and communicating the benefit of toxicology to external audiences. The 2011 Education Summit sponsored by SOT underscored the need for enhancing the perception of toxicology as a valuable discipline among scientists and nonscientists alike, which is vital to maintaining the discipline of toxicology and the pipeline of future toxicologists. Community outreach at the K–12 level is an important component in increasing the visibility and perceived importance of toxicology. Regional SOT chapters can be and have been a vital resource in facilitating outreach activities among the membership-at-large. This session will highlight some of the successful K–12 outreach activities supported by regional chapters and will include hands-on demonstrations, one organized and implemented by graduate students, as well as an overview of efforts to update website resources for K–12 activities. This session will also provide pedagogical insights helpful to those new to educational outreach. Promoting and facilitating K–12 activities by regional chapters has the added potential of greater graduate student and postdoc engagement and therefore increased opportunities for skill development and pedagogical background for those trainees considering academic careers.

Program Description (Continued)

Abstract #

#1666 9:00 **K–12 Toxicology Outreach Activities: Regional Chapter Successes and Resources.** *C. E. Sulentic*[1], and *R. Ponce*[2]. [1]Pharmacology & Toxicology, Wright State University, Dayton, OH; [2]Amgen Inc, Seattle, WA.

9:00 **Introduction.** Courtney Sulentic

#1667 9:10 **Totally Toxic! A K–12 Outreach Program Based on the 5E Model of Science Education.** *C. P. Curran*. Biological Sciences, Northern Kentucky University, Highland Heights, KY.

#1668 9:35 **Inspector Tox Outreach Activity.** *D. Hardej*[1], and *A. Schatz*[2]. [1]Department of Pharmaceutical Sciences, St. John's University, Jamaica, NY; [2]Merck & Co., Whitehouse Station, NJ.

#1669 10:00 **Silly Science and Other Activities for K–12 Outreach.** *M. M. Bourgeois*. EOH, University of South Florida COPH, Tampa, FL.

#1670 10:25 **Exploring Toxicology: Designing Learning Goals and Evaluation Strategies for Outreach Activities.** *E. Shanle*, and *K. Blanke*. Molecular and Environmental Toxicology Center, University of Wisconsin-Madison, Madison, WI.

#1671 10:45 **Resources for Toxicology K–12 Education Outreach: Updating the SOT K–12 Website.** *M. R. Gwinn*. Office of Research & Development, US EPA, Washington DC.

11:10 **Panel Discussion/Q&A.**

11:20 **Open Exploration of Materials.**

Wednesday Morning, March 13
9:00 AM to 11:05 AM
Room 207

IS

Informational Session: The Regulatory Framework for Cosmetics: Current Status, Recent Science, and Future Prospects

Regulatory Science: Advancing New Approaches for Hazard Identification and Risk Assessment

Chairperson(s): *Philip Wexler, National Library of Medicine, Bethesda, MD, and Shayne C. Gad, Gad Consulting Services, Cary, NC.*

Sponsor:
***In Vitro* and Alternative Methods Specialty Section**
Women in Toxicology Special Interest Group

Endorsed by:
Dermal Toxicology Specialty Section
Ethical, Legal, and Social Issues Specialty Section
Regulatory and Safety Evaluation Specialty Section

Cosmetic products represent an immense global industry. It has been estimated that the $60 billion cosmetics industry uses some 12,500 unique chemical ingredients in personal care products. These products and their chemical components are subject to varying degrees of regulation globally. In the US, the US FDA's regulatory authority over cosmetics is relatively minimal and different from that of other products regulated by the Agency, such as drugs, biologics, and medical devices. Although the US FDA can inspect cosmetic manufacturing facilities, respond to complaints of adverse reactions, and conduct research on cosmetics and their ingredients to address safety concerns, the Food, Drug, and Cosmetic Act does not subject cosmetics to US FDA premarket approval. The regulation of cosmetics in the European Union is considerably more stringent. A Safe Cosmetics Act of 2011 was introduced in the US House of Representatives in June, 2011, with the aim of ensuring that all personal care products are safe. It would establish labeling requirements and a safety standard, and issue guidance prescribing good manufacturing practices for cosmetics and ingredients.

Abstract #

People, largely though not exclusively women, are exposed to vast quantities of cosmetics over their lifetimes. Compared with the safety of most other products, cosmetics are commonly believed to present a minimal, if any, risk, and are overlooked in discussions of hazardous substances. Are the regulations currently in place adequate? What is the US government's viewpoint? What is the stance of industry and advocacy groups on the cosmetics regulatory framework? How does the European Union handle issues involving the safety of cosmetics? Recent scientific issues surrounding production, safety, and testing of cosmetics could well influence the regulatory arena in years to come. These include 1) the increasing use of nanomaterials in cosmetic products and 2) computational and high-throughput alternative test methodologies. Both these topics will offer a backdrop to current and future regulatory approaches.

#1672 9:00 **The Regulatory Framework for Cosmetics: Current Status, Recent Science, and Future Prospects.** *P. Wexler*. Toxicology and Environmental Health Information Program, National Library of Medicine, Bethesda, MD.

9:00 **Introduction.** Philip Wexler

#1673 9:05 **Safety Evaluation of Nanoparticles and Skin.** *N. Monteiro-Riviere*. Anatomy and Physiology, Kansas State University, Manhattan, KS.

#1674 9:25 **US EPA Computational Toxicology Predicting Cancer and Noncancer Outcomes for Cosmetics and Industrial Chemicals.** *N. C. Kleinstreuer*. National Center for Computational Toxicology, US EPA, Research Triangle Park, NC.

#1675 9:45 **Cosmetics—US FDA Regulatory Perspectives.** P. A. Hansen. Office of Cosmetics and Colors, US FDA, College Park, MD. Sponsor: *P. Wexler*.

#1676 10:05 **Assessing the Safety of Cosmetics in the US.** H. Breslawec. Personal Care Products Council, Washington DC. Sponsor: *P. Wexler*.

#1677 10:25 **Safety Evaluation of Cosmetics and Their Ingredients in Europe: New Challenges Ahead.** V. Rogiers. Toxicology, Dermato-Cosmetology and Pharmacognosy, Vrije Universiteit Brussel, Brussels, Belgium. Sponsor: *P. Wexler*.

#1678 10:45 **Cosmetics: Health Risks, Choices, and Opportunities for Change.** S. Lunder. Environmental Working Group, Washington DC. Sponsor: *P. Wexler*.

Wednesday Morning, March 13
9:00 AM to 11:45 AM
Room 205

PL

Platform Session: Validation and Application of Neurotoxicology *In Vitro* Methods

Chairperson(s): *William Mundy, US EPA, Research Triangle Park, NC.*

#1679 9:00 **The DNT-EST: A Predictive Embryonic Stem Cell Test for Developmental Neurotoxicity Testing *In Vitro*.** A. E. Seiler, K. Gulich, K. Hayess, R. Pirow, B. Slawik, M. Steinfath, C. Riebeling, A. Visan, and A. Luch. ZEBET, Federal Institute for Risk Assessment, Berlin, Germany. Sponsor: *E. Fritsche*.

#1680 9:23 **Identification of Pathways of Developmental Neurotoxicity for High-Throughput Testing by Metabolomics.** *H. T. Hogberg*[1], M. Bouhifd[1], T. Dao[1], A. Kleensang[1], S. J. Nolan[1], S. Odwin-DaCosta[1], L. Smirnova[1], E. van Vliet[2], H. Welles[1], L. Zhao[1], and *H. Thomas*[1]. [1]The Johns Hopkins University, Bloomberg School of Public Health, Baltimore, MD; [2]University of Barcelona, August Pi i Sunyer Biomedical Research Institute, Barcelona, Spain.

Program Description (Continued)

Abstract #

#1681 9:46 **Reduced Nrf2 Signaling Contributes to Human Neuroprogenitor Cell (hNPC) Aging.** *E. Fritsche*, J. Schuwald, S. Giersiefer, and K. Gassmann. IUF, Duesseldorf, Germany.

#1682 10:09 **Effect of Organophosphorus Flame Retardants on Neuronal Development *In Vitro*.** *W. Mundy*[1], T. Freudenrich[1], K. Wallace[1], and *M. Behl*[2]. [1]ISTD, US EPA, Research Triangle Park, NC; [2]Kelly Government Solutions, NTP, NIEHS, Research Triangle Park, NC.

#1683 10:32 **PCB 95-Induced Dendritic Growth in Primary Cultures of Rat Hippocampal Neurons Is Dependent on mTOR Activation.** *G. W. Miller*, *H. Chen*, and *P. J. Lein*. Molecular Biosciences, University of California Davis, Davis, CA.

#1684 10:55 **Diazinon and Diazoxon Impair Glial-Neuronal Interactions and Production of Neuritogenic Proteins in Primary Astrocytes.** *D. M. Pizzurro*[1], *G. Giordano*[1], and *L. G. Costa*[1,2]. [1]Department of Environmental and Occupational Health Sciences, University of Washington, Seattle, WA; [2]Department of Neuroscience, University of Parma Medical School, Parma, Italy.

#1685 11:18 **Increased Oxidative Stress and Mitochondrial Dysfunction in a PARK2-Mutant iPSC Model of Environmental Risk in Parkinson's Disease.** *A. Aboud*[1], A. M. Tidball[1], K. K. Kumar[1], B. Han[1], G. G. Li[1], *K. M. Erikson*[2], P. Hedera[1], M. Neely[1], K. C. Ess[1], and *A. B. Bowman*[1]. [1]Neurology, Vanderbilt University, Nashville, TN; [2]University of North Carolina Greensboro, Greensboro, NC.

Wednesday Morning, March 13
9:00 AM to 12:30 PM
Exhibit Hall C–D

PS

Poster Session: Genetic Toxicology and DNA Repair

Chairperson(s): *Gladys Ouédraogo, L'Oréal, Aulnay sous bois, France.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *9:00 AM–11:00 AM*

#1686 **Poster Board Number 101**
Evaluation of the Ames II and 96-Well *In Vitro* Flow Micronucleus (MN) Assay Using 25 ToxCast™ Chemicals. *M. Aardema*[1], A. D. Kligerman[2], *K. A. Houck*[1], R. R. Young[3], L. F. Stankowski[3], K. Pant[3], and T. E. Lawlor[3]. [1]Marilyn Aardema Consulting; Chief Scientific Advisor Toxicology BioReliance by SAFC, Fairfield, OH; [2]US EPA, Office of Research and Development, Research Triangle Park, NC; [3]BioReliance by SAFC, Rockville, MD.

#1687 **Poster Board Number 102**
The Role of DNA Polymerase Eta in Oxidative Stress Response and Mutagenesis. *K. N. Herman*, and *S. D. McCulloch*. Toxicology, North Carolina State University, Raleigh, NC.

Abstract #

#1688 **Poster Board Number 103**
Different Micronucleus Induction of Mice Exposed to N-Ethyl-N-Nitrosourea at Light and Dark Dosing Times. K. Ito[1,2], S. Masumori[1], M. Nakajima[1], *M. Hayashi*[1], H. Sakakibara[3], and K. Shimoi[2,4]. [1]Public Interest Incorporated Foundation Biosafety Research Center, Iwata, Japan; [2]Graduate School of Integrated Pharmaceutical and Nutritional Sciences, University of Shizuoka, Shizuoka, Japan; [3]Graduate School of Agriculture, University of Miyazaki, Miyazaki, Japan; [4]Institute for Environmental Sciences, University of Shizuoka, Shizuoka, Japan.

#1689 **Poster Board Number 104**
The Use of Immunoflourescent Techniques in the CB Human Lymphocyte Micronucleus Test for Discrimination of Clastogenic and Aneugenic Compounds. *A. Poth*, and S. Bohnenberger. Genotoxicity and Alternative Toxicology, Harlan Cytotest Cell Research, Rossdorf, Germany.

#1690 **Poster Board Number 105**
Induction of Nucleotide Excision Repair Is Diminished in Heterozygous p53 Knockout Mice following Chronic Dietary Exposure to Aflatoxin B_1 *J. E. Mulder*[1], *R. Mehta*[2], *G. S. Bondy*[2], and *T. E. Massey*[1]. [1]Pharmacology and Toxicology, Queens University, Kingston, ON, Canada; [2]Toxicology Research Division, Health Canada, Ottawa, ON, Canada.

#1691 **Poster Board Number 106**
***XPC* Haplotypes Alter Nucleotide Excision Repair and Levels of UV-Induced Genetic Damage.** *C. M. Rondelli*[1,2], C. J. Etzel[3], *C. Cross*[2], *M. Xu*[2], and *S. Z. Abdel-Rahman*[2,1]. [1]Cell Biology & Environmental Toxicology, University of Texas Medical Branch, Galveston, TX; [2]Obstetrics and Gynecology, University of Texas Medical Branch, Galveston, TX; [3]Epidemiology, University of Texas MD Anderson Cancer Center, Houston, TX.

#1692 **Poster Board Number 107**
Evaluation of High-Throughput Mutation Test with Proprietary Pharmaceutical Candidates. H. Adachi, K. Kijima, *T. Yamada*, J. Kimura, and H. Funabashi. Dainippon Sumitomo Pharma Co., Ltd., Osaka, Japan.

#1693 **Poster Board Number 108**
Establishment of the Comet Assay and Micronucleus Test Using Chimeric PXB-Mice® with Humanized Liver. C. Tateno[1,2], Y. Ishida[1,2], M. Kakuni[1], M. Fukumuro[3], J. Tanaka[3], S. Masumori[3], M. Nakajima[3], and *M. Hayashi*[3]. [1]PhoenixBio Co., Ltd., Higashihiroshima, Japan; [2]Liver Research Project Center, Hiroshima University, Hiroshima, Japan; [3]Public Interest Incorporated Foundation, Biosafety Research Center, Iwata, Japan.

#1694 **Poster Board Number 109**
Reconstructed 3D Human Skin Micronucleus Assay: Preliminary Prevalidation Results. *R. Fautz*[1], S. Pfuhler[2], *M. Aardema*[3], G. Oueadraogo[4], B. Barnett[2], B. Faquet[4], G. Mun[5], N. J. Hewitt[6], S. Hoffmann[7], *R. Curren*[5], and J. Barroso[8]. [1]Kao Germany GmbH, Darmstadt, Germany; [2]Procter & Gamble Company, Cincinnati, OH; [3]Marilyn Aardema Consulting LLC, Fairfield, OH; [4]LOreal, Paris, France; [5]IIVS Inc., Gaithersburg, MD; [6]Hewitt Consutling, Erzhausen, Germany; [7]seh Consutling+Services, Koeln, Germany; [8]Cosmetics Europe, Brussels, Belgium.

Program Description (Continued)

Abstract #

#1695 **Poster Board Number 110**
Reduction of *Ataxia telangiectasia* Associated Death Rates in ATM KO Mice with Yel002. M. J. Davoren, and *R. Schiestl*. Environmental Health Science, University of California Los Angeles, Los Angeles, CA.

#1696 **Poster Board Number 111**
Classification of Genotoxic Mode of Action in TK6 Cells via a High Content, Flow Cytometric *In Vitro* Micronucleus Assay. S. Bryce, S. Avlasevich, J. Weber, E. Beha, and *S. Dertinger*. Litron Labs, Rochester, NY.

#1697 **Poster Board Number 112**
Qualification of 96-Well High-Throughput *In Vitro* Micronucleus and Comet Assays. T. E. Lawlor[1], K. Pant[1], *M. Aardema*[2], and L. F. Stankowski[1]. [1]BioReliance by SAFC, Rockville, MD; [2]Marilyn Aardema Consulting, Fairfield, OH.

#1698 **Poster Board Number 113**
Integration of Pig-a and Micronucleus Endpoints into a 28-Day Rodent Toxicity Assay with Urethane. L. F. Stankowski[1], *M. Aardema*[2], T. E. Lawlor[1], S. E. Miller[1], *S. Roy*[1], *Y. Xu*[1], and *R. H. Elbekai*[1]. [1]BioReliance by SAFC, Rockville, MD; [2]Marilyn Aardema Consulting, Fairfield, OH.

#1699 **Poster Board Number 114**
Reconstructed Skin Micronucleus (RSMN) Assay in Normal Human 3-Dimensional (NHu-3D) Skin Model. M. Klausner, Y. Kaluzhny, V. Karetsky, and J. DeLuca. MatTek Corporation, Ashland, MA. Sponsor: *P. Hayden*.

#1700 **Poster Board Number 115**
The Use of 3D Human Dermal Equivalents to Assess Genotoxicity of Textile Dyes. D. M. Leme[1], F. L. Primo[2], A. Tedesco[2], and *D. P. Oliveira*[1]. [1]Faculdade de Ciências Farmacêuticas de Ribeirão Preto (FCFRP/USP), Ribeirão Preto, Brazil; [2]Faculdade de Filosofia, Ciências e Letras de Ribeirão Preto (FFCLRP/USP), Ribeirão Preto, Brazil.

#1701 **Poster Board Number 116**
Comparison of Two High-Throughput Methods for *In Vitro* Micronucleus Assessment Comparison of Two High-Throughput Methods for *In Vitro* Micronucleus Assessment. B. Goodwin[1], *J. Bemis*[2], Z. Liu[3], S. Bryce[2], K. Luu[3], *K. L. Witt*[4], *C. P. Austin*[1], *R. R. Tice*[4], and *M. Xia*[1]. [1]NCGC, NCATS, NIH, Rockville, MD; [2]Litron Laboratories, Rochester, NY; [3]IntelliCyte Corporation, Albuquerque, NM; [4]Division of the National Toxicology Program, NIEHS, NIH, Raleigh, NC.

#1702 **Poster Board Number 117**
Genome Profiling of Carcinogen Resistance in Budding Yeast Expressing Human P450 Genes. M. Fasullo[1,3], P. Egner[2], and *T. Begley*[1,3]. [1]Nanobiosciences, College of Nanoscale Sciences and Engineering, Albany, NY; [2]Bloomberg School of Public Health, John Hopkins University, Baltimore, MD; [3]Biomedical Sciences, State University of New York, Albany, NY.

#1703 **Poster Board Number 118**
Roles for Telomeric Proteins in Regulating Nucleotide Excision Repair at Telomeres. *D. Parikh*, and *P. Opresko*. University of Pittsburgh, Pittsburgh, PA.

Abstract #

#1704 **Poster Board Number 119**
Oxidative Stress-Induced PIGO Mutations in DT40 Cells: Critical Role of NHEJ and TLS Repair Pathways in ROS-Induced Mutations. V. Sharma[1], L. Collins[1], *J. A. Swenberg*[1,2], and *J. Nakamura*[1]. [1]Department of Environmental Sciences and Engineering, University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]Curriculum in Toxicology, University of North Carolina at Chapel Hill, Chapel Hill, NC.

#1705 **Poster Board Number 120**
Evaluating the Role of p53 in Cellular Fate and Micronucleus Induction following Exposure to Etoposide and Mms. *R. A. Clewell*[1], *B. Sun*[1], S. M. Ross[1], A. Scott[2], Y. Adeleye[2], and *M. E. Andersen*[1]. [1]The Hamner Institutes for Health Sciences, Research Triangle Park, NC; [2]Unilever, Colworth, United Kingdom.

#1706 **Poster Board Number 121**
AZT-Induced Aneuploidy Is Mediated by Aberrant Stathmin1 Expression. A. Rivera-Rodriguez, M. Poirier, *O. Olivero*, and *V. Sanchez*. NCI, NIH, Bethesda, MD.

#1707 **Poster Board Number 122**
Dose Response and Temporality of Ethylene Oxide-Induced Macromolecular Changes and Genotoxicity in Mice. M. R. Schisler[1], *M. J. LeBaron*[1], F. Zhang[1], *Y. C. Jeong*[1], *M. J. Bartels*[1], R. Sura[1], *J. A. Hotchkiss*[1], *D. R. Geter*[1], *B. B. Gollapudi*[1], and N. P. Moore[2]. [1]Toxicology & Environmental Research & Consulting, The Dow Chemical Company, Midland, MI; [2]Toxicology & Environmental Research & Consulting, The Dow Chemical Company, Horgen, Switzerland.

#1708 **Poster Board Number 123**
***Cii* Mutant Frequencies and Types of Mutations in the Lung of Big Blue Mice Exposed to Ethylene Oxide for up to 12 Weeks by Inhalation.** *M. G. Manjanatha*[1], S. D. Shelton[1], Y. Chen[1], *B. L. Parsons*[1], *B. Gollapudi*[2], *N. Moore*[3], *L. T. Haber*[4], and *M. M. Moore*[1]. [1]Genetic and Molecular Toxicology, US FDA, NCTR, Jefferson, AR; [2]Toxicology & Environmental Research and Consulting, Midland, MI; [3]Dow Europe GmbH, Horgen, Switzerland; [4]TERA, Cincinnati, OH.

#1709 **Poster Board Number 124**
Gain and Loss of K-*Ras* Mutations in Mouse Lungs following Inhalation Exposure to Ethylene Oxide. *B. L. Parsons*[1], *M. G. Manjanatha*[1], *M. B. Myers*[1], K. L. McKim[1], Y. Wang[1], *B. Gollapudi*[2], N. Moore[3], *L. T. Haber*[4], and *M. M. Moore*[1]. [1]Division of Genetic and Molecular Toxicology, US FDA, NCTR, Jefferson, AR; [2]Toxicology & Environmental Research and Consulting, The Dow Chemical Company, Midland, MI; [3]Dow Europe GmbH, Horgen, Switzerland; [4]TERA, Cincinnati, OH.

#1710 **Poster Board Number 125**
Genotoxic and Epigenetic Effects of Tamoxifen Exposure in Mouse Liver. A. de Conti, *V. Tryndyak*, M. Churchwell, F. A. Beland, and *I. P. Pogribny*. US FDA, NCTR, Jefferson, AR.

Program Description (Continued)

Abstract #

Wednesday Morning, March 13
9:00 AM to 12:30 PM
Exhibit Hall C–D

PS

Poster Session: Cell Death/Apoptosis

Chairperson(s): *Salmaan Inayat-Hussain, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *11:00 AM–12:30 PM*

#1711 **Poster Board Number 126**
Acinar Cell Autophagy in Experimental Pancreatic Injury: Immunolocalization and Response of Relevant Proteins. *L. W. Zhang*, J. Zhang, K. I. Shea, G. A. Tobin, A. Knapton, and *R. L. Rouse*. CDER, US FDA, Silver Spring, MD.

#1712 **Poster Board Number 127**
Deciphering the Role of Trail in Altering Spermatogenesis by Controlling Germ Cell Apoptosis. *Y. Lin*, and *J. Richburg*. The University of Texas at Austin, Austin, TX.

#1713 **Poster Board Number 128**
Investigation of Sex-Dependent Toxicity of Cysteinyl Leukotriene Receptor 1 Antagonist Zafirlukast. Q. Shi, and Z. Weng. Division of Systems Biology, US FDA, NCTR, Jefferson, AR. Sponsor: *X. Yang*.

#1714 **Poster Board Number 129**
1,3-Dinitropyrene (1,3-DNP)- and 1,8-DNP-Induced DNA Damage and Cell Death: Possible Link to Carcinogenic Effects. J. A. Holme[1], H. E. Nyvold[1], V. M. Arlt[2], R. Becher[1], K. B. Gutzkow[1], A. Solhaug[3], L. Ekeren[1], M. Låg[1], P. E. Schwarze[1], M. Refsnes[1], and J. Øvrevik[1]. [1]Division of Environmental Medicine, Norwegian Institute of Public Health, Oslo, Norway; [2]King's College London, London, United Kingdom; [3]Norwegian Veterinary Institute, Oslo, Norway. Sponsor: *M. Løvik*.

#1715 **Poster Board Number 130**
Role of NOX Mediated Autophagy in Reducing Cytotoxic Effects of Erlotinib in Head and Neck Cancer Cells. *A. Sobhakumari*[1,2], E. V. Fletcher[1,2], A. Raeburn[2], L. Love-Homan[2], and *A. L. Simons*[2,1]. [1]Human Toxicology, University of Iowa, Iowa City, IA; [2]Department of Pathology, University of Iowa, Iowa City, IA.

#1716 **Poster Board Number 131**
The Aryl Hydrocarbon Receptor (AhR) Suppresses Apoptosis in UVB-Irradiated Keratinocytes and May Serve As a New Target for Chemoprevention. *T. Haarmann-Stemmann*[1], K. Frauenstein[1], J. Tigges[1], F. Engel[1], C. Wiek[2], H. Hanenberg[2], *E. Fritsche*[1], and J. Krutmann[1]. [1]Leibniz Research Institute for Environmental Medicine, Duesseldorf, Germany; [2]Otorhinolaryngology, Heinrich Heine University, Düsseldorf, Germany.

#1717 **Poster Board Number 132**
Role of Secretory Phospholipase A_2 in the Toxicity of Bile Acids to Prostate Cancer Cells. S. L. Wilding, and *B. S. Cummings*. University of Georgia, Athens, GA.

Abstract #

#1718 **Poster Board Number 133**
Etoposide-Induced Mitochondria-Dependent Apoptosis through C-Jun N-Terminal Kinases, Extracellular Signal-Regulated Kinases, and Glycogen Synthesis Kinase-3α/β Pathway in Pancreatic β-Cells. K. Lee[1], S. Hsieh[1], C. Su[2], *D. Hung*[3], K. Chen[4], T. Tseng[5], T. Lu[6], S. Liu[7], *Y. Chen*[6], and *C. Huang*[8]. [1]Department of Emergency, Buddhist Tzu Chi General Hospital, Taichung, Taiwan; [2]Department of Otorhinolaryngology, Head and Neck Surgery, Changhua Christian Hospita, Changhua, Taiwan; [3]Toxicology Center, China Medical University Hospital, Taichung, Taiwan; [4]Department of Urology, China Medical University Hospital, Taichung, Taiwan; [5]Department of Anatomy, China Medical University, Taichung, Taiwan; [6]Department of Physiology and Graduate Institute of Basic Medical Science, China Medical University, Taichung, Taiwan; [7]Institute of Toxicology, National Taiwan University, Taipei, Taiwan; [8]School of Chinese Medicine, China Medical University, Taichung, Taiwan.

#1719 **Poster Board Number 134**
Berberine Induces Human Tongue Squamous Carcinoma Cell Apoptosis through PI3K-Regulated ER Stress Pathway. C. Su[1], T. Lu[2], *D. Hung*[3], K. Chen[4], T. Tseng[5], *C. Huang*[6], and *Y. Chen*[2]. [1]Department of Otorhinolaryngology, Head and Neck Surgery, Changhua Christian Hospital, Changhua, Taiwan; [2]Department of Physiology and Graduate Institute of Basic Medical Science, China Medical University, Taichung, Taiwan; [3]Division of Toxicology, Trauma and Emergency Center, China Medical University Hospital, Taichung, Taiwan; [4]Department of Urology, China Medical University Hospital and China Medical University, Taichung, Taiwan; [5]Department of Anatomy, China Medical University, Taichung, Taiwan; [6]School of Chinese Medicine, China Medical University, Taichung, Taiwan.

#1720 **Poster Board Number 135**
Amiodarone-Induced Autophagy Protects Lung Epithelial Cancer Cells from Death. K. Lee[1], S. Oh[1], S. Oh[2], *B. Lee*[1], Y. Yang[3], M. Yang[3], and K. Lee[3]. [1]College of Pharmacy and Research Institue of Pharmaceutical Sciences, Seoul National University, Seoul, Republic of Korea; [2]Research Center for Resistant Cells, Chosun University, Gwangju, Republic of Korea; [3]Inhalation Toxicology Center, Korea Institute of Toxicology, Jeongeup, Republic of Korea.

#1721 **Poster Board Number 136**
Paraquat Causes Hepatocytes Death via Oxidative Stress-Induced JNK/ERK Activation Regulated Mitochondria-Dependent Apoptosis Pathway. *D. Hung*[1], T. Tseng[2], C. Su[3], K. Lee[4], K. Chen[5], S. Hsieh[4], T. Lu[6], L. Tsai[6], S. Liu[7], *Y. Chen*[6], and *C. Huang*[8]. [1]Division of Toxicology, Trauma & Emergency Center, China Medical University Hospital, Taichung, Taiwan; [2]Department of Anatomy, China Medical University, Taichung, Taiwan; [3]Department of Otorhinolaryngology, Head and Neck Surgery, Changhua Christian Hospital, Changhua, Taiwan; [4]Department of Emergency, Buddhist Tzu Chi General Hospital, Taichung, Taiwan; [5]Department of Urology, China Medical University Hospital and China Medical University, Taichung, Taiwan; [6]Department of Physiology and Graduate Institute of Basic Medical Science, China Medical University, Taichung, Taiwan; [7]Institute of Toxicology, National Taiwan University, Taipei, Taiwan; [8]School of Chinese Medicine, China Medical University, Taichung, Taiwan.

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#1722 **Poster Board Number 137**
Oxidative DNA Damage and Apoptosis Induction after Enniatin B Exposure in Caco2 Cells. M. Ruiz, A. Prosperini, A. Juan Garcia, and *G. Font*. Preventive Medicine, University of Valencia, Burjassot, Spain.

#1723 **Poster Board Number 138**
Mevalonate Pathway Plays a Major Role in Adriamaycin Resistance. T. Takahashi, S. Nakashima, T. Masuda, S. Yoneda, and *A. Naganuma*. Graduate School of Pharmaceutical Sciences, Tohoku University, Sendai, Japan.

#1724 **Poster Board Number 139**
Carbamazepine Suppresses Ischemia/Reperfusion Injury to Mouse Livers by Enhancing Autophagic Flux. *J. Kim*, J. Wang, and K. E. Behrns. Surgery, University of Florida, Gainesville, FL.

#1725 **Poster Board Number 140**
A Multiplexed Assay for Differentially Examining Cytostatic and Cytotoxic Effects. A. L. Niles[2], M. Zhou[1], *T. L. Riss*[2], and D. Lazar[2]. [1]Promega Biosciences, San Luis Obispo, CA; [2]Promega, Madison, WI.

#1726 **Poster Board Number 141**
Amiodarone-Induced Perturbations in Rat Pleural Mesotheial Cells. S. Chappidi, and J. M. Cerreta. PHS, St. John's University, Queens, NY. Sponsor: *L. Trombetta*.

#1727 **Poster Board Number 142**
Characterization of Cigarette Smoke and Menthol on Human Alveolar Adenocarcinomic (A549) Cells. *E. R. Esposito*, B. Greene, M. L. Coronel, and H. Tran. Pharmaceutical Sciences, Sullivan University College of Pharmacy, Louisville, KY.

#1728 **Poster Board Number 143**
Induction of Late-Apoptosis on Chinese Hamster Ovary Cells by Sandalwood (*Santalum album*) Essential Oil. *C. M. Ortiz-Sanchez*, L. Morales-Torres, and *J. Matta*. Physiology, Pharmacology and Toxicology, Ponce School of Medicine and Health Sciences, Ponce, Puerto Rico.

#1729 **Poster Board Number 144**
Investigating the Role of HO-1/BVR Expression on Apoptosis Regulation. *C. George*, and *M. J. Jenny*. Department of Biological Sciences, University of Alabama, Tuscaloosa, AL.

#1730 **Poster Board Number 145**
Role of BCL-2 Proteins in Heat Shock-Induced Apoptosis. I. M. Mahajan[1,2], M. Chen[1,2], I. Muro[2], *C. W. Wright*[2], and *S. B. Bratton*[1,2]. [1]Molecular Carcinogenesis, University of Texas at Austin, MD Anderson Cancer Center, Smithville, TX; [2]Pharmacology and Toxicology, University of Texas at Austin, Austin, TX.

#1731 **Poster Board Number 146**
SDF-1β Protects High Fat-Induced Cardiac Cell Apoptosis through Its Receptor CXCR7-Mediated AMPK Activation. Y. Zhao[1,2], *L. Cai*[2,1], and W. Li[1]. [1]Cancer Center, First Bethune Hospital of Jilin University, Changchun, China; [2]KCHRI, University of Louisville, Louisville, KY.

Abstract #

#1732 **Poster Board Number 147**
Paraoxon Induces Cell Death by the Activation of Caspases in Cultured Human Pulmonary Cells. *D. J. Angelini*[1,2], R. A. Moyer[3], A. Hajjaj[1,4], S. Cole[1,2,3], K. L. Willis[1,2,3], J. Oyler[5], R. M. Dorsey[1], and *H. Salem*[1,6]. [1]Edgewood Chemical Biological Center, Aberdeen Proving Ground, MD; [2]National Research Council, Washington DC; [3]Defense Threat Reduction Agency, Fort Belvoir, VA; [4]Science Applications International Corporation, Abingdon, MD; [5]US Army Medical Research Institute of Chemical Defense, Aberdeen Proving Ground, MD; [6]Department of Homeland Security, Chemical Security Assessment Center, Aberdeen Proving Ground, MD.

#1733 **Poster Board Number 148**
BDE-154 Decrease Cell Proliferation, Viability and Mitochondrial Membrane Potential Leading to HepG2 Cell Death. A. O. Souza[1], L. C. Pereira[2], M. Tasso[1], *D. P. Oliveira*[2], and *D. J. Dorta*[1]. [1]Química, FFCLRP-USP, Ribeirão Preto, Brazil; [2]Análises Clínicas, Bromatológicas e Toxicológicas, FCFRP-USP, Ribeirão Preto, Brazil.

Wednesday Morning, March 13
9:00 AM to 12:30 PM
Exhibit Hall C–D

PS

Poster Session: Nanotoxicology—*In Vitro*

Chairperson(s): *Justin G. Teeguarden, Pacific Northwest National Laboratory, Richland, WA.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *9:00 AM–11:00 AM*

#1734 **Poster Board Number 201**
Computational Dosimetry Driven Hazard Ranking of 25 Metal Oxide Nanomaterials Using Low- and High-Throughput *In Vitro* Toxicity Data. D. Telesca[2], *J. G. Teeguarden*[1], T. Xia[3], H. Zhang[3], A. Nel[3], *J. Pounds*[1], and *B. Thrall*[1]. [1]Biological Sciences, Pacific Northwest National Laboratory, Richland, WA; [2]Biostatistics, University of California Los Angeles, Los Angeles, CA; [3]Nanomedicine, California Nanosystems Institute, University of California Los Angeles, Los Angeles, CA.

#1735 **Poster Board Number 202**
Ranking and Profiling Nanomaterial (NM) Bioactivity by ToxCast High-Throughput Screening (HTS). *A. Wang*[1], E. L. Berg[2], M. Polokoff[2], J. Yang[2], A. El-Badawy[3], *D. Reif*[1], *N. C. Kleinstreuer*[1], S. Marinakos[4], A. Badireddy[4], *S. H. Gavett*[1], D. Rotroff[1], S. Gangwal[5], J. Rabinowitz[1], C. Matson[6], T. Tolavmat[3], M. Wiesner[4], and *K. H. Houck*[1]. [1]ORD, US EPA, Research Triangle Park, NC; [2]BioSeek, LLC, San Francisco, CA; [3]ORD, US EPA, Cincinnati, OH; [4]CEINT, Duke University, Durham, NC; [5]Xanofi, Raleigh, NC; [6]Environmental Science, Baylor University, Waco, TX.

#1736 **Poster Board Number 203**
Coating Nanoporous Alumina: Cellular Responses to Surface Layers of Zinc and Titanium Oxides. *P. E. Petrochenko*[2,1], G. Kumar[1], W. Fu[3], S. A. Skoog[2,1], *Q. Zhang*[1], J. Zheng[1], C. Liang[3], *P. L. Goering*[1], and R. J. Narayan[2]. [1]CDRH, US FDA, Silver Spring, MD; [2]Joint Department of Biomed Engineering, University of North Carolina at Chapel Hill, Chapel Hill, NC; [3]Chemical Sciences Division, Oak Ridge National Lab, Oak Ridge, TN.

Program Description (Continued)

Abstract #

#1737 **Poster Board Number 204**
Potential Phototoxicity of Aged Al(OH)$_3$-Coated TiO$_2$ Nanoparticles in Retinal Pigment Epithelial Cells. *J. N. Ortenzio*[1], L. Degn[2], *R. Zucker*[2], J. Virkutyte[3], S. R. Al-Abed[4], *H. Ma*[5], S. Diamond[6], *K. Dreher*[2], and *W. K. Boyes*[2]. [1]Contractor, Research Triangle Park, NC; [2]US EPA, Research Triangle Park, NC; [3]Contractor, Cincinnati, OH; [4]US EPA, Cincinnati, OH; [5]Contractor, Duluth, MN; [6]US EPA, Duluth, MN.

#1738 **Poster Board Number 205**
Silica and Gold Nanoparticle Exposure Decreases Phagocytosis in Mouse Raw 264.7 Cells. *S. Bancos*, and K. M. Tyner. US FDA, Silver Spring, MD.

#1739 **Poster Board Number 206**
Comprehensive Assessment of Property-Dependent Bioimpact of Engineered Nanomaterials Using Novel 'Bench-Top' Human Tissue Screening Platforms. *R. Iyer*[1], *J. Gao*[2], *A. Nagy*[2], S. Iyer[2], J. Hollingsworth[3], J. Drocco[4], J. Song[2], T. Sanchez[2], and H. Wang[5]. [1]Defense Systems and Analysis, Los Alamos National Laboratory, Los Alamos, NM; [2]Biosciences Division, Los Alamos National Laboratory, Los Alamos, NM; [3]MPA-CINT: Center for Integrated Nanotechnologies, Los Alamos National Laboratory, Los Alamos, NM; [4]Theoretical Division, Los Alamos National Laboratory, Los Alamos, NM; [5]Chemistry Division, Los Alamos National Laboratory, Los Alamos, NM.

#1740 **Poster Board Number 207**
Genotoxicity of TiO$_2$ Anatase Nanoparticles in B6C3F1 Male Mice *Pig-A* and Flow Cytometric Micronucleus Assays. J. Yan[1], R. Sadiq[2,1], *J. A. Bhalli*[1], *R. S. Woodruff*[3], M. G. Pearce[1], *Y. Li*[1], *T. Mustafa*[4], *F. Watanabe*[4], L. M. Pack[5], *A. S. Biris*[4], Q. M. Khan[2], and *T. Chen*[1]. [1]Division of Genetic and Molecular Toxicology, National Center for Toxicological Research, US FDA, Jefferson, AR; [2]National Institute for Biotechnology and Genetic Engineering, Faisalabad, Pakistan; [3]Division of Microbiology, Arkansas Regional Laboratory, US FDA, Jefferson, AR; [4]Nanotechnology Center, University of Arkansas at Little Rock, Little Rock, AR; [5]Nanotechnology Core Facility, National Center for Toxicological Research, US FDA, Jefferson, AR.

#1741 **Poster Board Number 208**
Comparative Assessment of Nanomaterial Definitions and Considerations for Implementation. *R. David*[4], *D. R. Boverhof*[1], *J. H. Butala*[2], S. Clancy[3], *M. Lafranconi*[5], and J. West[6]. [1]The Dow Chemical Company, Midland, MI; [2]Ferro Corp, Cleveland, OH; [3]Evonik Degussa, Parsipanny, NJ; [4]BASF Corp, Florham Park, NJ; [5]Procter & Gamble, Cincinnati, OH; [6]American Chemistry Council, Washington DC.

#1742 **Poster Board Number 209**
Cytotoxicity and Genotoxicity Studies in A549 Cells Cultured with Metal Oxide Nanoparticles. A. Miyajima-Tabata[1], K. Sakai[1], T. Kawakami[2], R. Kato[1], A. Matsuoka[1], and K. Isama[2]. [1]Division of Medical Devices, National Institute of Health Sciences, Tokyo, Japan; [2]Division of Environmental Chemistry, National Institute of Health Sciences, Tokyo, Japan. Sponsor: *A. Hirose*.

Abstract #

#1743 **Poster Board Number 210**
***In Vitro* Toxicity Evaluation of Chemical Biological Defense (CBD) Nanomaterials.** *C. J. Cao*, *A. O'Neill*, L. C. Crouse, and M. S. Johnson. Toxicology Portfolio, US Army Institute of Public Health, Aberdeen Proving Ground, MD.

#1744 **Poster Board Number 211**
Inhibition of Adipogenic Differentiation of Human Mesenchymal Stem Cells by TiO2 Nanoparticles. *Y. Zhang*[1], *L. Guo*[2], L. Yu[2], Y. Gao[2], Y. Jones[1], A. Keasling[1], B. Green[2], *D. Hansen*[2], *A. Inselman*[2], L. Shi[2], *P. Howard*[1], and B. Ning[2]. [1]NCTR/ORA Nanotechnology Core Facility, Office of Scientific Coordination, NCTR, US FDA, Jefferson, AR; [2]Division of Systems Biology, NCTR, US FDA, Jefferson, AR.

#1745 **Poster Board Number 212**
Comparison of Toxicity of Bare- and Phospholipid-Coated- Iron Oxide Nanoparticles in Different Cell Lines. E. Park[1], D. Choi[1], H. Umh[2], J. Kim[1], D. Kim[1], S. Kim[1], and Y. Kim[2]. [1]Department of Molecular Science and Technology, Ajou University, Suwon, Republic of Korea; [2]Department of Chemical Engineering, Kwangwoon University, Seoul, Republic of Korea. Sponsor: *E. Park*.

#1746 **Poster Board Number 213**
Mechanisms of Silica Nanoparticle-Induced Interleukin-8: Requirement of p38/TACE/TGF-α/EGFR-Cascade-and NF-κB Signalling in Lung Epithelial Cells. M. A. Refsnes, T. Skuland, J. Øvrevik, P. Schwarze, and M. Låg. Depatment of Air Pollution and Noise, Norwegian Institute of Public Health, Oslo, Norway. Sponsor: *M. Løvik*.

#1747 **Poster Board Number 214**
Role of Tungstate Nanoparticles in the Production of ROS and Induction of Cellular Damage. *K. M. Dunnick*[1,2], *M. A. Badding*[1], N. R. Fix[1], J. M. Patete[3], S. S. Wong[3,4], *V. Castranova*[1], and S. S. Leonard[1,2]. [1]HELD, NIOSH, Morgantown, WV; [2]Pharmaceutical and Pharmacological Sciences, West Virginia University, Morgantown, WV; [3]State University of New York at Stony Brook, Stony Brook, NY; [4]Brookhaven National Laboratory, Upton, NY.

#1748 **Poster Board Number 215**
Comparative *In Vitro* Toxicity Study of Bismuth and Bismuth-Derivatives Nanoparticles. *A. De Vizcaya-Ruiz*[1], M. Esquivel-Gaón[1,6], O. Barbier[1], M. Uribe-Ramirez[1], J. Narváez-Morales[1], J. Muñoz-Saldaña[2], S. Velumani[3], Y. Matsumoto[3], D. Diaz[4], E. Berea[5], K. Dawson[6], and S. Anguissola[6]. [1]Toxicology, Cinvestav, Mexico City, Mexico; [2]Unidad Queretaro, Cinvestav, Queretaro, Mexico; [3]Electrical Engineering Department, Cinvestav, Mexico City, Mexico; [4]Facultad de Quimica, UNAM, Mexico City, Mexico; [5]Farmaquimia, Mexico City, Mexico; [6]CBNI, University College Dublin, Dublin, Ireland.

#1749 **Poster Board Number 216**
Long-Term Inhalation Study with Nanomaterials: Characterization of As-Produced Properties and Persistence Simulation Assays. W. Wohlleben[3,1], L. Ma-Hock[1], J. Keller[1], *K. Wiench*[2], and *R. Landsiedel*[1]. [1]Experimental Toxicology and Ecology, BASF SE, Ludwigshafen am Rhein, Germany; [2]Product Safety, BASF SE, Ludwigshafen am Rhein, Germany; [3]Polymer Physics, BASF SE, Ludwigshafen am Rhein, Germany.

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#1750 **Poster Board Number 217**
Intracellular Generation of Reactive Oxygen Species As a Central Parameter for the Interaction of Manganese Oxide Nanoparticles with Lung Epithelial Cells. U. Sydlik[1], C. Bieschke[1], D. Stöckmann[1], M. Gotic[2], S. Music[2], and K. Unfried[1]. [1]IUF, Duesseldorf, Germany; [2]Institute Ruder Boskovic, Zagreb, Croatia. Sponsor: *T. Haarmann-Stemmann*.

#1751 **Poster Board Number 218**
The Effects of Ceria Nanoparticles on Primary Human Monocyte-Derived Macrophages and Bronchial Macrophages. J. D. Marshburn[1], A. B. Rice[1], M. D. George[1], S. M. Anderson[1], *N. J. Walker*[2], S. Garantziotis[1], and S. Hussain[1]. [1]Clinical Research Program, NIEHS, NIH, Durham, NC; [2]National Toxicology Program (NTP), NIEHS, Durham, NC.

#1752 **Poster Board Number 219**
Structural Basis for the Toxic Potential of Cellulose Nanocrystals. *F. L. Sinche*[1], J. Simonsen[3], and *S. L. Harper*[1,2]. [1]Environmental and Molecular Toxicology, Oregon State University, Corvallis, OR; [2]Chemical, Biological and Environmental Engineering, Oregon State University, Corvallis, OR; [3]Wood Science & Engineering College of Forestry, Oregon State University, Corvallis, OR.

#1753 **Poster Board Number 220**
Identification of Metal and Silicate Particles Including Nanoparticles in Electronic Cigarette Fluid and Aerosol. *M. T. Williams*[1], A. Villarreal[1], K. Bozhilov[2], *S. Lin*[1], and *P. Talbot*[1]. [1]Cell Biology and Neuroscience, University of California Riverside, Riverside, CA; [2]Central Facility for Advanced Microscopy, University of California Riverside, Riverside, CA.

#1754 **Poster Board Number 221**
Does Nanostructured Synthetic Amorphous Silica Disintegrate after Oral Uptake? M. Maier[1], F. Babick[2], R. R. Retamal Marin[2], and M. Stintz[2]. [1]Evonik Industries AG, Hanau, Germany; [2]Technical University Dresden, Dresden, Germany. Sponsor: *D. Warheit*.

#1755 **Poster Board Number 222**
***In Situ* Characterization of Nanoparticles: Surface Properties Affecting Agglomeration and Particle's Corona.** A. Haase[1], M. D. Driessen[1], C. Schulze[2], M. Wiemann[3], H. Galla[4], M. Lehr[2,5], A. Luch[1], and W. Wohlleben[6]. [1]Federal Institute for Risk Assessment (BfR), Berlin, Germany; [2]Saarland University, Saarbrücken, Germany; [3]IBE, Münster, Germany; [4]University of Münster, Münster, Germany; [5]Helmholtz Institute for Pharmaceutical Research, Saarbrücken, Germany; [6]BASF SE, Ludwigshafen, Germany. Sponsor: *M. Pallardy*.

#1756 **Poster Board Number 223**
Possible Adjuvant Role of Manufactured Nanoparticles in Chemical-Induced Sensitization. B. Baré[1], N. Lambrechts[1], *P. Hoet*[2], and I. Nelissen[1]. [1]Environmental Risk and Health Unit, Flemish Institute for Technological Research (VITO NV), Mol, Belgium; [2]Lung Toxicology Unit, Catholic University Leuven (KULeuven), Leuven, Belgium.

Abstract #

#1757 **Poster Board Number 224**
Zinc Oxide Particles Induced Migration of Monocytes and Increased Macrophage Cholesterol Uptake. Y. Suzuki[1], S. Tada-Oikawa[1], *G. Ichihara*[2], and S. Ichihara[1]. [1]Graduate School of Regional Innovation Studies, Mie University, Tsu, Japan; [2]Department of Occupational & Environmental Health, Nagoya University Graduate School of Medicine, Nagoya, Japan.

#1758 **Poster Board Number 225**
Comparison of Cellular Uptake of Titanate Nanomaterials by Human Monocytes. S. Boonrungsiman, W. Suchaoin, and *R. Maniratanachote*. National Nanotechnology Center, National Science and Technology Development Agency, Pathum Thani, Thailand.

#1759 **Poster Board Number 226**
Air-Liquid Interface Exposure of Lung Cells to Metal Nanoparticles Generated by a Spark Discharge System. *J. Kim*, J. Park, T. M. Peters, and *P. S. Thorne*. Occupational and Environmental Health, The University of Iowa, Iowa City, IA.

#1760 **Poster Board Number 227**
Engineered Nanoparticles Enhanced CD8+ T Cell Cytokine Production. *B. F. Kaplan*[1,4], *W. Chen*[2,4], Q. Zhang[3], G. L. Baker[3], and *N. E. Kaminski*[1,4]. [1]Pharmacology and Toxicology, Michigan State University, East Lansing, MI; [2]Microbiology and Molecular Genetics, Michigan State University, East Lansing, MI; [3]Chemistry, Michigan State University, East Lansing, MI; [4]Center for Integrative Toxicology, Michigan State University, East Lansing, MI.

#1761 **Poster Board Number 228**
Biological Impacts of Ferroelectric Nanoparticles: Comparison between Lead and Bismuth. M. Esquivel-Gaón[1,3], M. Uribe-Ramirez[1], E. Herrera-Jimenez[2], J. Muñoz-Saldaña[2], *L. Del Razo*[1], M. Monopoli[3], K. Dawson[3], S. Anguissola[3], and *A. De Vizcaya-Ruiz*[1]. [1]Toxicology, Cinvestav, Mexico City, Mexico; [2]Unidad Queretaro, Cinvestav, Queretaro, Mexico; [3]CBNI, University College Dublin, Dublin, Ireland.

#1762 **Poster Board Number 229**
Role of Lung Surfactant Lipid and Protein Corona in Airborne Positively Charged Nanoparticle Exposure. *Y. Xie*, A. Tolic, W. Chrisler, C. Mihai, C. Szymanski, D. Hu, and *G. Orr*. Pacific Northwest National Laboratory, Richland, WA.

#1763 **Poster Board Number 230**
Metastatic Capacity Induced by Cells Exposed to Titanium Dioxide Nanoparticles. A. Déciga-Alcaraz[1], V. Freyre-Fonseca[1,2], E. I. Medina-Reyes[1], N. L. Delgado-Buenrostro[1], and *Y. I. Chirino*[1]. [1]Facultad de Estudios Superiores Iztacala, Universidad Nacional Autonoma de Mexico, Mexico City, Mexico; [2]Departamento de Graduados e Investigación en Alimentos, Escuela Nacional de Ciencias Biológicas, Instituto Politécnico Nacional, Mexico City, Mexico.

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#1764 **Poster Board Number 231**
Phenotypic Polarization and Attenuation of Toll Receptor Signaling Functions in Macrophages Exposed to Engineered Nanoparticles. *V. K. Kodali*[1], M. H. Littke[1], *S. C. Tilton*[2], *J. G. Teeguarden*[1], L. Shi[1], C. W. Frevert[3], W. Wang[4], *J. G. Pounds*[1], and *B. D. Thrall*[1]. [1]Systems Toxicology, Pacific Northwest National Laboratory, Richland, WA; [2]Computational Sciences Division, Pacific Northwest National Laboratory, Richland, WA; [3]Department of Comparative Medicine, University of Washington, Seattle, WA; [4]Bioscience Division, Oak Ridge National Laboratory, Oak Ridge, TN.

#1765 **Poster Board Number 232**
Intracellular Trafficking and Accumulation Dynamics of Zinc Ions in Alveolar Epithelial Cells Exposed to Airborne ZnO Nanoparticles at the Air-Liquid Interface. C. Mihai, W. Chrisler, *Y. Xie*, C. Szymanski, A. Tolic, D. Hu, B. Tarasevich, and *G. Orr*. Pacific Northwest National Laboratory, Richland, WA.

#1766 **Poster Board Number 233**
Aggregation Dynamics and Structure Measurements of Nanomaterials in Biologically Relevant Conditions. *N. B. Saleh*[1], *S. M. Hussain*[2], and A. Afrooz[1]. [1]Civil and Environmental Engineering, University of South Carolina, Columbia, SC; [2]Wright-Patterson AFB, US Air Force, Dayton, OH.

#1767 **Poster Board Number 234**
Targeting Alternatively Activated Rat Macrophages Using Mannose Functionalized Nanocarriers. *P. Chen*[1], X. Zhang[1], A. Venosa[2], Z. Szekely[1], *D. L. Laskin*[2], and *P. J. Sinko*[1]. [1]Pharmaceutical Science, Rutgers University, Piscataway, NJ; [2]Department of Pharmacology & Toxicology, Rutgers University, Piscataway, NJ.

#1768 **Poster Board Number 235**
Synthesis, Characterization and Toxicological *In Vitro* Activity of Nanomaterials Containing Active Ingredients of *Matricaria chamomilla* L. A. Vera[1], L. A. Flores[1], F. M. Mercado[1], R. Vazquez[1], J. A. Soriano[1], R. L. Ortega[1], A. Jain[2], P. Sengar[2], G. A. Hirata[3], R. E. Cachau[4], R. Hernandez[5], U. Pal[6], Z. N. Juarez[1], M. C. Miranda[1], and *T. D. Palacios-Hernandez*[1]. [1]Ciencias Biológicas, UPAEP, Puebla, Mexico; [2]School of Biosciences and Technology, VIT, Vellore, India; [3]Centro de Nanociencias y Nanotecnologia, UNAM, Ensenada, Mexico; [4]Frederick National Laboratory for Cancer Research, Frederick, MD; [5]Ciencias Quimico-Biologicas, UDLAP, Puebla, Mexico; [6]Instituto de Fisica, BUAP, Puebla, Mexico.

#1769 **Poster Board Number 236**
Comparative *In Vitro* Cell Uptake of Bismuth and Bismuth-Derivatives Nanoparticles in Lung Cells. *L. M. Del Razo*[1], *B. Quintanilla-Vega*[1], O. Barbier[1], M. Esquivel-Gaón[1,2], M. Uribe-Ramirez[1], A. Barrera-Hernández[1], L. C. Sánchez-Peña[1], K. A. Dawson[2], S. Anguissola[2], and *A. DeVizcaya-Ruiz*[1]. [1]Toxicology, Cinvestav-Instituto Politecnico Nacional, D.F., Mexico; [2]CBNI, University College Dublin, Dublin, Ireland.

Abstract #

#1770 **Poster Board Number 237**
Oxidative Stress, Cell Viability and Types of Cell Death Induced by Transition Metal Oxide Nanoparticles Depend on Surface Charge, Available Surface Binding Site, and Ion Dissolution. *Y. Huang*[1], C. C. Chusuei[2], C. Wu[1], S. Mallavarapu[2], J. G. Winiarz[3], and R. S. Aronstam[1]. [1]Biological Sciences, Missouri University of Science and Technology, Rolla, MO; [2]Chemistry, Middle Tennessee State University, Murfreesboro, TN; [3]Chemistry, Missouri University of Science and Technology, Rolla, MO.

#1771 **Poster Board Number 238**
Cytotoxic and Antitumor Effect of Vitamin E Analogues Functionalized to Magnetite Nanoparticles. A. Angulo Molina[1,2,3], J. Reyes Leyva[3], J. Hernández[1], *T. Palacios Hernández*[2,4], M. A. Méndez Rojas[2], M. Cerro López[2], J. Flores[3], F. Ruiz[5], O. Contreras[5], and G. Hirata[5]. [1]Centro de Investigación en Alimentación y Desarrollo, CIAD, AC, Hermosillo, Mexico; [2]Universidad de las Américas Puebla, UDLAP, Puebla, Mexico; [3]Centro de Investigaciones Biomédicas de Oriente CIBIOR, IMSS, Metepec, Puebla, Mexico; [4]Universidad Popular Autónoma del Estado de Puebla, UPAEP, Puebla, Mexico; [5]Centro de Nanociencias y Nanotecnología, CNYN, Ensenada, Mexico.

#1772 **Poster Board Number 239**
Cellular Internalization and Trafficking of Individual Nanoparticles Investigated with Nanometer Resolution Using Super Resolution Fluorescence Microscopy. *G. Orr*, D. Hu, A. Tolic, *Y. Xie*, C. Mihai, C. Szymanski, M. Markillie, L. Cosimbescu, and B. Tarasevich. Pacific Northwest National Laboratory, Richland, WA.

#1773 **Poster Board Number 240**
Signaling Pathways and microRNA Changes in Nano-TiO2 Treated Human Lung Epithelial (BEAS-2B) Cells. S. Thai, C. P. Jones, K. Wallace, H. Ren, R. Y. Prasad, W. O. Ward, M. J. Kohan, and C. F. Blackman. US EPA, Research Triangle Park, NC. Sponsor: *C. Corton*.

#1774 **Poster Board Number 241**
***In Vitro* Coculture System to Examine the Effects of Inhaled Nanoparticles.** K. B. Donohue[1], A. M. Mayo[2], *D. R. Johnson*[1], R. Nellums[3], S. F. Son[3], and *J. A. Steevens*[1]. [1]Environmental Laboratory, US Army Engineer Research & Development Center, Vicksburg, MS; [2]Badger Technical Services, Vicksburg, MS; [3]Purdue University, West Lafayette, IN.

#1775 **Poster Board Number 242**
Metabolomic Studies of the Nanotoxicity of TiO2 and CeO2. *K. T. Kitchin*[1], B. Robinette[1], B. Castellon[1], and R. Michalek[2]. [1]US EPA, Durham, NC; [2]Metabolon, Durham, NC.

#1776 **Poster Board Number 243**
Neurotoxicity of Au-NPs in an *In Vitro* Blood Brain Barrier (BBB) Model. *M. Sharma*[1,2], *C. Sulentic*[2], *J. J. Schlager*[1], and *S. M. Hussain*[1,2]. [1]711 HPW/RHDJ, AFRL, Wright-Patterson AFB, Dayton, OH; [2]Department of PharmTox, WSU, Dayton, OH.

WEDNESDAY

Program Description (Continued)

Abstract #

#1777 **Poster Board Number 244**
Effect of Surface Modification of Metal Oxide Nanoparticles upon Cell Viability and Genotoxicity of Epithelial Breast Cells. *T. D. Palacios-Hernandez*[1], E. Gonzalez[2], M. A. Mendez[3], G. A. Hirata[4], D. Momot[5], *E. E. Hernandez*[5], A. Marogi[5], *M. Poirier*[5], *O. A. Olivero*[5], and R. E. Cachau[6]. [1]Biological Sciences, UPAEP, Puebla, Mexico; [2]Chemistry Center, ICUAP, Puebla, Mexico; [3]Chemical and Biological Sciences, UDLAP, Puebla, Mexico; [4]Nanosciences and Nanotechnology Center, UNAM, Ensenada, Mexico; [5]National Cancer Institute, NIH, Bethesda, MD; [6]Frederick National Laboratory of Cancer Research, Frederick, MD.

#1778 **Poster Board Number 245**
Synthesis, Characterization and Evaluation of Biological *In Vitro* Activity of Eu3+ Doped Hydroxyapatite. J. Delgado-Jimenez[1], *T. D. Palacios-Hernandez*[2], *A. Angulo Molina*[1], J. L. Varela[3], R. Agustin[3], and E. Rubio-Rosas[3]. [1]Ciencias Quimico-Biologicas, UDLAP, Puebla, Mexico; [2]Ciencias Biológicas, UPAEP, Puebla, Mexico; [3]Centro de Vinculacion Universitaria y Transferencia de Tecnologia, BUAP, Puebla, Mexico.

Wednesday Morning, March 13
9:00 AM to 12:30 PM
Exhibit Hall C–D

PS

Poster Session: Natural Products—*In Vitro*

Chairperson(s): *Saura Sahu, US FDA, Laurel, MD.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *11:00 AM–12:30 PM*

#1779 **Poster Board Number 301**
Interactive Toxicity of Usnic Acid and Lipopolysaccharide in Human Liver HepG2 Cells. *S. C. Sahu*, M. W. O'Donnell, and R. L. Sprando. Toxicology, US FDA, Laurel, MD.

#1780 **Poster Board Number 302**
Dihydroartemisinin Inhibits PMA-Induced Cyclooxygenase-2 Expression through Downregulating AKT and MAPK Signaling Pathways in Murine Macrophages. E. Han[1], H. Kim[1], J. Choi[1], Y. Hwang[2], and *H. Jeong*[1]. [1]Pharmacy, Chungnam National University, Daejeon, Republic of Korea; [2]Korea International University, Jinju, Republic of Korea.

#1781 **Poster Board Number 303**
Protective Role of Silymarin against Oxidative Stress Induced in Human Neuroblastoma Cell Line SH-SY5Y. *A. Anadon*, M. A. Martinez, E. Ramos, V. Castellano, I. Ares, M. Martinez, M. R. Martinez-Larrañaga, and A. Romero. Toxicology & Pharmacology, Complutense University, Madrid, Spain.

#1782 **Poster Board Number 304**
Thymoquinone, a Bioactive Component of *Nigella sativa*, Modulates Redox Status and Insulin Secretion from Pancreatic Beta Cells. *J. P. Gray*[1,3], R. Follmer[1], R. Rebar[1], N. Seeram[2], and E. Heart[3]. [1]Science, US Coast Guard Academy, New London, CT; [2]Bioactive Botanical Research Laboratory, University of Rhode Island, Kingston, RI; [3]Cellular Dynamics, Marine Biological Laboratory, Woods Hole, MA.

Abstract #

#1783 **Poster Board Number 305**
Antioxidant and DPPH-Scavenging Activities of Compounds and Ethanolic Extract of the Leaf and Twigs of *Caesalpinia bonduc* (L.) Roxb. *O. O. Olubanke*[1], *O. E. Ogunlana*[2], A. T. Lawa[1], J. O. Olagunju[3], A. A. Akindahunsi[4], and N. H. Tan[5]. [1]Biological Sciences, Covenant University, Ota, Nigeria; [2]Biological Sciences, Crawford University, Igbesa, Nigeria; [3]Medical Biochemistry, College of Medicine, Lagos State University, Ikeja, Nigeria; [4]Biochemistry, Federal University of Technology, Akure, Nigeria; [5]State Key Laboratory of Phytochemistry and Plant Resources, Kunming Institute of Botany, Kunming, China.

#1784 **Poster Board Number 306**
Selective Elimination of Malignant Melanomas through Autophagic and Mitochondria-Based Mechanisms by the Antitumor Agent Osw-1. K. Riaz Ahmed, C. Garcia-Prieto, L. Feng, and P. Huang. Molecular Pathology, University of Texas MD Anderson Cancer Center, Houston, TX. Sponsor: *M. Smith*.

#1785 **Poster Board Number 307**
3-Caffeoyl, 4-Dihydrocaffeoylquinic Acid from *Salicornia herbacea* Attenuates High Glucose-Induced Hepatic Lipogenesis in Human HepG2 Cells. H. Chun[2], Y. Hwang[3,1], J. Choi[1], H. Kim[1], Y. Chung[3], and *H. Jeong*[1]. [1]Pharmacy, Chungnam National University, Daejeon, Republic of Korea; [2]Korea Research Institute of Bioscience and Biotechnology, Jeongeup, Republic of Korea; [3]International University of Korea, Jinju, Republic of Korea.

#1786 **Poster Board Number 308**
Effects of Saponins from the Roots of *Platycodon grandiflorum* on TGF-β1-Induced Epithelial-Mesenchymal Transition in in A549 Cells. C. Ho[1], H. Kim[1], Y. Hwang[2], Y. Chung[2], and *H. Jeong*[1]. [1]Pharmacy, Chungnam National University, Daejeon, Republic of Korea; [2]International University of Korea, Jinju, Republic of Korea.

#1787 **Poster Board Number 309**
Platycodin D Regulates Hepatic Lipogenesis via an AMP-Activated Protein Kinase Dependent Signaling Pathway in Human HepG2 Cells. H. Lee[2], Y. Hwang[3,1], J. Choi[1], H. Kim[1], Y. Chung[3], and *H. Jeong*[1]. [1]Pharmacy, Chungnam National University, Daejeon, Republic of Korea; [2]Korea Research Institute of Bioscience and Biotechnology, Daejeon, Republic of Korea; [3]International University of Korea, Jinju, Republic of Korea.

#1788 **Poster Board Number 310**
Rutaecarpine Suppresses LPS-Induced Inflammation in Mouse Macrophages: A Possible Pathway through the Induction of Heme Oxygenase-1 Expression. S. Jin[1], Y. Hwang[2], H. Kim[2], J. Choi[1], H. Kim[1], Y. Chung[2], and *H. Jeong*[1]. [1]Pharmacy, Chungnam National University, Daejeon, Republic of Korea; [2]International University of Korea, Jinju, Republic of Korea.

#1789 **Poster Board Number 311**
Cultivated Ginseng Inhibits Tarc Expression by Suppressing the Activation of NF-κB and STAT1 in Human Keratinocyte Cells. B. Park[1], J. Choi[1], J. Choi[2], Y. Chung[2], and *H. Jeong*[1]. [1]Pharmacy, Chungnam National University, Daejeon, Republic of Korea; [2]International University of Korea, Jinju, Republic of Korea.

Program Description (Continued)

Abstract #

#1790 **Poster Board Number 312**
Mollugin Inhibits Proliferation and Induces Apoptosis by Inhibiting HER2 Expression in HER2-Overexpressing Breast and Ovarian Cancer Cells. M. Do, T. Tran, M. Na, and *H. Jeong*. Pharmacy, Chungnam National University, Daejeon, Republic of Korea.

#1791 **Poster Board Number 313**
Multiple Signaling Pathways Involved in Suppression of MDR1 by Mollugin from *Rubica cordifolia*. T. Tran, H. Kim, M. Do, S. Jin, E. Shim, H. Han, M. Na, and *H. Jeong*. Pharmacy, Chungnam National University, Daejeon, Republic of Korea.

#1792 **Poster Board Number 314**
Liver Kinase B1 Is Required for Phillyrin-Induced AMPK Activation in Human HepG2 Hepatocytes. H. Han, M. Do, H. Kim, T. Khanal, T. Tran, M. Na, and *H. Jeong*. Pharmacy, Chungnam National University, Daejeon, Republic of Korea.

#1793 **Poster Board Number 315**
Prevention of Free Fatty Acid-Induced Hepatic Steatosis by S-Allyl Cysteine through AMPK Pathways. *H. Jeong*[1], Y. Hwang[2], H. Kim[1], J. Choi[1], and Y. Chung[2]. [1]Pharmacy, Chungnam National University, Daejeon, Republic of Korea; [2]Korea International University, Jinju, Republic of Korea.

#1794 **Poster Board Number 316**
Cyto-/Genotoxic Effect of Extract from *Bufo bufo bargarizans Cantor* in Human T Cell Leukemia Cells. S. Lee, Y. Lee, Y. Choi, and H. Chung. School of Public Health, Seoul National University, Seoul, Republic of Korea. Sponsor: *J. Chung*.

#1795 **Poster Board Number 317**
Potentially Toxic Minerals Used in South African Traditional Medicine. R. Street, and M. P. Cele. University of KwaZulu-Natal, Durban, South Africa. Sponsor: *A. Ndifor*.

#1796 **Poster Board Number 318**
Safety Assessment of Botanical Extracts in Cosmetics. *J. Song*, and Y. Yang. L'Oreal R&I, Shanghai, China.

#1797 **Poster Board Number 319**
Effects of Crocetin and Safranal, Constituents of Saffron, in 22Rv1 Prostate Cancer Cells. *F. F. Albaqami*, and *K. L. Willett*. Department of Pharmacology and ETRP, University of Mississippi, University, MS.

#1798 **Poster Board Number 320**
Kahweol Induces Apoptosis Trough Inhibition of STAT3 Phosphorylation in Human Lung Adenocarcinoma A549 Cells. H. Kim[1], J. Choi[1], K. Tilak[1], Y. Hwang[1,2], and *H. Jeong*[1]. [1]Pharmacy, Chungnam National University, Daejeon, Republic of Korea; [2]International University of Korea, Jinju, Republic of Korea.

#1799 **Poster Board Number 321**
***In Vitro* Antioxidant Activities of Fractions of *Clerodendrum violaceum* Leaf Extract.** *E. A. Balogun*, A. Zailani, and J. O. Adebayo. Biochemistry, University of Ilorin, Ilorin, Nigeria.

Abstract #

Wednesday Morning, March 13
9:00 AM to 12:30 PM
Exhibit Hall C–D

PS

Poster Session: Pharmaceutical Safety Assessment: Drug Development I

Chairperson(s): *Rodney Prell, Genentech, South San Francisco, CA.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *9:00 AM–11:00 AM*

#1800 **Poster Board Number 326**
Comparative Pharmacodynamic Effects of Rituximab-EU (MabThera®) and Rituximab-Pfizer in Cynomolgus Monkeys. A. M. Ryan[1], S. Sokolowski[1], M. Collinge[1], A. Shen[1], J. Arrington[2], T. Cummings[1], *S. Ploch*[2], S. Stephenson[2], N. Tripathi[2], S. Hurst[1], *G. Finch*[1], and M. Leach[1]. [1]Pfizer WRD, Groton, CT; [2]Covance, Madison, WI.

#1801 **Poster Board Number 327**
Brain Microhemorrhage Assessment of an Antiamyloid Beta Peptide (Aβ) Monoclonal Antibody (mAb) Using a Transgenic Mouse Model of Alzheimer's Disease (AD). *L. A. Buckley*[1], D. Hall[1], J. Douville[2], W. H. Jordan[3], D. Koger[1], W. H. Anderson[1], D. G. Waters[1], and R. B. DeMattos[1]. [1]Eli Lilly & Co., Indianapolis, IN; [2]Charles River Laboratories, Montréal, QC, Canada; [3]Vet Path Services, Inc., Mason, OH.

#1802 **Poster Board Number 328**
Safety Assessment of REGN1001 a Monoclonal Antibody against Angiopoietin-Like 4 (AngPTL4) in Cynomolgus Monkey Toxicology Studies under Normal and High-Fat Diet Feeding Regimens. *J. Trejos*[1], *R. Soltys*[1], *T. Daly*[1], *T. O'Neill*[2], K. Mozzachio[2], and *A. Arulanandam*[1]. [1]Drug Safety, Regeneron Pharmaceuticals, Tarrytown, NY; [2]General Toxicology, WIL Research, Ashland, OH.

#1803 **Poster Board Number 329**
Thirteen-Week Toxicity Study of an Anti-Interleukin-6 Antibody (MEDI5117) by Every Other Week Intravenous or Subcutaneous Injection to Cynomolgus Monkeys. *T. S. Manetz*[1], *P. Ryan*[1], R. Faggioni[2], Z. Yao[2], R. Lee[2], A. Schneider[2], I. Vainshtein[2], C. Nhan[2], K. Mojica[2], C. Chavez[2], *K. McKeever*[1], and *R. Dixit*[1]. [1]Translational Sciences, MedImmune, LLC, Gaithersburg, MD; [2]Translational Sciences, MedImmune, LLC, Hayward, CA.

#1804 **Poster Board Number 330**
Mavrilimumab (CAM-3001): A Novel Anti-GMCSF Receptor Alpha Monoclonal Antibody for the Treatment of Rheumatoid Arthritis. *P. C. Ryan*[1], M. Sleeman[2], M. Rebelatto[1], B. Wang[3], H. Lu[3], X. Chen[3], C. Wu[3], L. Roskos[3], D. Close[2], H. Towers[2], *K. McKeever*[1], and *R. Dixit*[1]. [1]Biologics Safety Assessment, MedImmune, Gaithersburg, MD; [2]Research and Development, MedImmune, Cambridge, United Kingdom; [3]Clinical Pharmacology and DMPK, MedImmune, Hayward, CA.

Program Description (Continued)

Abstract #

#1805 **Poster Board Number 331**
Preclinical Safety and Pharmacodynamics of an Anti-GM-CSF Monoclonal Antibody in Cynomolgus Macaques. *D. Blanset*, *E. Musvasva*, A. Avakian, S. van Tongeren, *J. Phillips*, C. Grimaldi, and S. Cannan. Boehringer-Ingelheim, Ridgefield, CT.

#1806 **Poster Board Number 332**
Nonclinical Safety Evaluation of Anti-PD-L1 (MDPL3280A) in Mice and Cynomolgus Monkeys. *R. Prell*, R. Fuji, R. Deng, *R. Pai*, N. Ma, and J. McBride. Genentech, S. San Francisco, CA.

#1807 **Poster Board Number 333**
Investigation of the Potential Role of Immunogenicity in Abatacept-Related Lymphocytic Inflammation in Adult and Juvenile Rats. *J. Li*[1], J. Mysore[1], D. A. DeVona[1], M. Abbott[2], M. P. Bernard[1], S. M. Eble[1], *W. J. Freebern*[1], and *H. G. Haggerty*[1]. [1]Drug Safety Evaluation, Bristol-Myers Squibb, New Brunswick, NJ; [2]Drug Safety Evaluation, Bristol-Myers Squibb, Syracuse, NY.

#1808 **Poster Board Number 334**
Assessment of Biocomparability of NU100 and Betaferon in Cynomolgus Monkeys. *A. M. Brooks*[1], V. Tammara[2], *D. Hobson*[3], E. Shaw[2], *D. Zeng*[2], *F. Burleson*[4], and *H. Hu*[1]. [1]Toxicology, Covance Laboratories Inc., Madison, WI; [2]Nuron Biotech Inc., Exton, PA; [3]LoneStar PharmTox LLC, Boerne, TX; [4]Burleson Research Technologies, Morrisville, NC.

#1809 **Poster Board Number 335**
Preclinical Development and Safety Assessment of the First Inhaled Nanobody ALX-0171. S. Jacobs[1], E. Depla[1], S. Rossenu[2], S. Priem[1], E. Vanheule[1], A. Schoolmeester[1], K. Allosery[1], S. De Boever[1], L. Detalle[1], *V. H. Chen*[3], and J. Baumeister[1]. [1]Ablynx NV, Zwijnaarde, Belgium; [2]MSD BV, Oss, Netherlands; [3]Boehringer Ingelheim, Ridgefield, CT.

#1810 **Poster Board Number 336**
The Occurrence of Microscopic Vacuoles in Toxicology Studies with Marketed Pegylated Proteins Is Associated with High Doses, High Clinical Multiples, and Accumulation. *L. S. Kaufman*[1], C. Conover[2], and A. Buchbinder[2]. [1]PDS, Mt Arlington, NJ; [2]Enzon Pharmaceuticals, Piscataway, NJ.

#1811 **Poster Board Number 337**
TAS-116, an Orally Highly Potent HSP90α/β Selective Inhibitor, Leads Minimized Ocular Toxicity in Both Albino and Pigmented Rats. H. Hitotsumachi[1], Y. Kodama[2], S. Ohkubo[2], K. Yonekura[2], K. Besshi[1], F. Morita[1], and T. Hayashi[1]. [1]Tokushima Research Center, Taiho Pharmaceutical Co., Ltd., Tokushima, Japan; [2]Tsukuba Research Center, Taiho Pharmaceutical Co., Ltd., Tsukuba, Japan. Sponsor: *M. Takahashi*.

#1812 **Poster Board Number 338**
ETEC Vaccines: An 85-Day Intradermal Repeat Dose Toxicity Study of Three Candidates in Guinea Pigs. *C. S. Godin*[1], M. Maciel[2], and S. Savarino[2]. [1]AVANZA Laboratories, Gaithersburg, MD; [2]Naval Medical Research Center, Silver Spring, MD.

Abstract #

#1813 **Poster Board Number 339**
The Inhibin B Response to a Motilin Receptor Agonist in Male Rats. *M. K. Ziejewski*[1], *J. D. Vidal*[2], *D. J. Stanislaus*[1], A. R. Apostoli[1], *P. Chowdhury*[3], and *S. Laffan*[1]. [1]Safety Assessment - Reproductive Toxicology, GlaxoSmithKline, King of Prussia, PA; [2]Safety Assessment - Pathology, GlaxoSmithKline, King of Prussia, PA; [3]Safety Assessment - Toxicology, GlaxoSmithKline, Ware, United Kingdom.

#1814 **Poster Board Number 340**
Preclinical Safety Evaluation of JNJ-35815208, a Selective Estrogen-Related Receptor Alpha Modulator. *J. Zhou*, *F. Selan*, L. Hall, R. Mamidi, M. Duvall, and C. Louden. Drug Safety Sciences, Janssen Research & Development, LLC, Raritan, NJ.

#1815 **Poster Board Number 341**
Humanized Mice: A New Animal Model for Risk Assessment of Biologics. K. E. Howard[1], X. H. Li[1], C. M. Gonzalez[1], and J. A. Ragheb[2]. [1]CDER/OTR, US FDA, Silver Spring, MD; [2]CDER/OBP, US FDA, Bethesda, MD. Sponsor: *J. Weaver*.

#1816 **Poster Board Number 342**
Evaluation of Antisense Oligonucleotides in Human Pbmcs and Association of Release of IL-6 *In Vitro* to Constitutional Symptoms. *H. S. Younis*, T. Machemer, D. A. Norris, and *S. P. Henry*. Preclinical Development, ISIS Pharmaceuticals, Carlsbad, CA.

#1817 **Poster Board Number 343**
Mechanistic Basis of the Species-Specific Complement Activation in Cynomolgus Monkeys with Oligonucleotide Treatment. *L. Shen*[1], *A. Frazer-Abel*[2], *P. C. Giclas*[2], and *S. P. Henry*[1]. [1]Isis Pharmaceuticals, Inc., Carlsbad, CA; [2]National Jewish Health, Denver, CO.

#1818 **Poster Board Number 344**
Perturbation of Autophagy by Basic Lipophilic Compounds: Correlation of LC3 and P62 Abundance Employing U2OS-GFP Cells. R. L. Yafawi, *S. Lu*, *B. Jessen*, and A. John-Baptiste. Drug Safety, Pfizer Global Research and Development, San Diego, CA.

#1819 **Poster Board Number 345**
Effects of Tyrosine Kinase 2 Inhibitors on Megakaryocyte Development. *H. Uppal*[1], *D. Danilenko*[1], *E. Harstad*[1], *J. Tarrant*[1], *E. Clarke*[2], P. Dhawan[1], A. Kauss[1], B. McCray[1], *D. Misner*[1], and *J. Singh*[1]. [1]Safety Assessment, Genentech Inc., San Ramon, CA; [2]ReachBio LLC, Seattle, WA.

#1820 **Poster Board Number 346**
Application of Canine Kidney Tissue Slices to Detect the Toxicity of Prototypical Nephrotoxic Agents. K. Kowalkowski, M. Klapczynski, D. Cugier, E. A. Blomme, W. R. Buck, and *M. J. Liguori*. Cellular and Molecular Exploratory Toxicology, AbbVie, Abbott Park, IL.

#1821 **Poster Board Number 347**
Investigation of Protein Kinase C Inhibitor-Induced Steroid Hormonal Perturbation in Rat. H. Schadt, M. Schwald, D. Ledieu, U. Junker Walker, F. Spence, S. Chibout, *A. Wolf*, and *F. Pognan*. Preclinical Safety, Novartis Pharma AG, Basel, Switzerland.

Program Description (Continued)

Abstract #

#1822 **Poster Board Number 348**
Comparison of *In Vivo* Central Corneal Thickness (CCT) Measurements in Dogs, Rabbits, and Nonhuman Primates Using a Handheld Ultrasound Pachymeter or Specular Microscope. *M. Vézina*[1], S. Wise[1], K. Tenneson[1], and M. Bussières[2]. [1]Charles River, Montréal, QC, Canada; [2]V&O Services, St. Lazare, QC, Canada.

#1823 **Poster Board Number 349**
***In Vivo* Evaluation of the Corneal Endothelial Cell Layer Using Specular Microscopy.** K. Tenneson, and *M. Vézina*. Ocular and Neuroscience, Charles River, Montréal, QC, Canada.

#1824 **Poster Board Number 350**
Therapeutic Effect of MG132 on Diabetic Cardiomyopathy Is Associated with the Suppression of Proteasome Activities: Roles of Nrf2 and NF-κB. *W. Sun*[1], Y. Fu[2], and *L. Cai*[1]. [1]University of Louisville, Louisville, KY; [2]Jilin University, Changchun, China.

#1825 **Poster Board Number 351**
MG132 Prevents the Progression of Diabetes-Induced Pathological Damage to Aorta Is Associated with Its Up-Regulation of Nrf2 and Its Down-Stream Antioxidant Proteins. *X. Miao*[1,2], G. Su[2], and *L. Cai*[1]. [1]University of Louisville, Louisville, KY; [2]Jilin University, Changchun, China.

#1826 **Poster Board Number 352**
Characterization of mIR-208a Responses in Isoproterenol-Induced Cardiac Injury in Sod2^{+}/- and C57BL/6J Mice. *L. Liu*. Pfizer, San Diego, CA.

Wednesday Morning, March 13
9:00 AM to 12:30 PM
Exhibit Hall C–D

PS

Poster Session: Children's Health and Juvenile Toxicity

Biomarkers for Exposure Assessment, Safety Evaluation, and Translational Medicine

Chairperson(s): *Christopher J. Bowman, Pfizer, Inc., Groton, CT, and S. Satheesh Anand, DuPont Haskell, Newark, DE.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *11:00 AM–12:30 PM*

#1827 **Poster Board Number 357**
Polybrominated Diphenyl Ethers Exposure and Intrauterine Growth Restriction: A Case-Control Study in Chinese Newborns. Y. Zhang[1], Y. Zhao[1], H. Ao[1], and X. Meng[2]. [1]Fudan University, Shanghai, China; [2]Tongji University, Shanghai, China. Sponsor: *Z. Liu*.

Abstract #

#1828 **Poster Board Number 358**
Maternal and Child Polybrominated Diphenyl Ether (PBDE) Levels in US National Children's Study (NCS) Formative Research. *A. J. Schecter*[1], D. Cherry[2], L. S. Hynan[3], D. Cheng[1], N. Imran[1], M. Hommel[1], K. Kannan[4], L. Wang[4], S. H. Yun[4], N. Thiex[5], B. Specter[5], J. Moye[6,7,8], and *L. Birnbaum*[9,8,10]. [1]The University of Texas School of Public Health, Dallas, TX; [2]The University of Texas, Tyler, TX; [3]The University of Texas Southwestern Medical Center, Dallas, TX; [4]New York Health Department, Albany, NY; [5]South Dakota State University, Brookings, SD; [6]NCS, Bethesda, MD; [7]NICHD, Bethesda, MD; [8]NIH, Bethesda, MD; [9]NIEHS, Research Triangle Park, NC; [10]NCI, Bethesda, MD.

#1829 **Poster Board Number 359**
Effect of Body-Weight Loading onto the Articular Cartilage on the Occurrence of Quinolone-Induced Chondrotoxicity in Juvenile Rats. K. Goto, M. Imaoka, M. Goto, I. Kikuchi, T. Suzuki, T. Jindo, and *W. Takasaki*. Medicinal Safety Research Laboratories, DaiichiSankyo Co., Ltd., Tokyo, Japan.

#1830 **Poster Board Number 360**
Effects of Maternal Exposure to Phthalates and Bisphenol A on Neonates. *A. M. Vetrano*[1], F. E. Archer[1], S. W. Marcella[2], B. Buckley[3], D. Wartenberg[1,3], M. G. Robson[3,4], L. Wang[5], D. Q. Rich[5], and B. Weinberger[1]. [1]UMDNJ-Robert Wood Johnson Medicine School, New Brunswick, NJ; [2]UMDNJ-School of Public Health, Piscataway, NJ; [3]Environmental and Occupational Health Sciences Institute - UMDNJ and Rutgers University, Piscataway, NJ; [4]School of Biological and Environmental Sciences - Rutgers University, New Brunswick, NJ; [5]University of Rochester, Rochester, NY.

#1831 **Poster Board Number 361**
Intravenous Dose Range-Finding Toxicity of Allopregnanolone (ALLO) in Neonatal Dogs. *K. L. Steinmetz*[1], *L. Rausch*[1], M. Patrick[1], J. M. Brune[1], S. H. Mellon[2], and *P. S. Terse*[3]. [1]SRI Intl, Menlo Park, CA; [2]Department OB GYN, University of California San Francisco, San Francisco, CA; [3]NCATS, NIH, Bethesda, MD.

#1832 **Poster Board Number 362**
Oxidative and Genetic Damage in School Children from a Heavily Polluted City. *I. Alvarado-Cruz*[1], *M. Sánchez-Guerra*[1,2], L. Hernández-Cadena[3], L. Espinosa-Juárez[1], N. Pelallo-Martínez[1], *L. Rafael-Vázquez*[1], R. Angulo-Olais[1], M. J. Solís-Heredia[1], *A. De Vizcaya-Ruiz*[1], V. Mugica[4], and *B. Quintanilla-Vega*[1]. [1]Toxicology Department, CINVESTAV-IPN, Mexico City, Mexico; [2]Public Health School, Harvard University, Boston, MA; [3]INSP, Cuernavaca, Morelos, Mexico; [4]UAM-Azcapotzalco, Mexico City, Mexico.

#1833 **Poster Board Number 363**
Developmental Immunotoxicity Testing for Hazard Identification. E. C. Tonk[1,2], A. Verhoef[1], E. R. Gremmer[1], *H. van Loveren*[1,2], and A. Piersma[1,3]. [1]RIVM, Bilthoven, Netherlands; [2]Health Protection, RIVM, Bilthoven, Netherlands; [3]Toxicogenomics, University, Maastricht, Netherlands.

#1834 **Poster Board Number 364**
Feasibility of Continuous Intravenous Infusion in Postweaning Juvenile Rats. L. Allais, *J. Briffaux*, C. Gerhardy, P. Vignand, S. David, and P. Fant. Ricerca Biosciences SAS, St. Germain sur l'Arbresle, France.

Program Description (Continued)

Abstract #

#1835 **Poster Board Number 365**
Lung Function in Children Chronically Exposed to Arsenic in Drinking Water. R. Recio-Vega[1], E. Olivas-Calderon[1], T. Gonzalez-Cortes[1], C. Gonzalez-De Alba[1], G. Ocampo-Gomez[1], *J. A. Gandolfi*[2], and *R. C. Lantz*[3,4]. [1]Environmental Health, University of Coahuila, Torreon, Mexico; [2]Pharmacology and Toxicology, College of Pharmacy, University of Arizona, Tucson, AZ; [3]Cell Biology and Anatomy, University of Arizona, Tucson, AZ; [4]Southwest Environmental Health Science Center, University of Arizona, Tucson, AZ.

#1836 **Poster Board Number 366**
Blood and Urine Cadmium Concentrations and Micronucleus Frequency in Buccal Epithelium from Children in Three Populations in Yucatan, Mexico. N. Pérez-Herrera[1], J. Perera-Rios[1], A. Rodriguez-Uc[1], J. Gordillo-Mena[1], J. Uicab-Ventura[1], J. Alvarado-Mejía[1], L. González-Navarrete[1], L. Fargher[2], R. Moo-Puc[3], L. Yañez-Estrada[4], and F. Arcega-Cabrera[5]. [1]Faculty of Medicine, Autonomous University of Yucatán, Mérida, Mexico; [2]Human Ecology Departament, CINVESTAV, Mérida, Mexico; [3]Research Unit, Mexican Institute of Social Security, Mérida, Mexico; [4]Faculty of Medicine, Autonomous University of San Luis Potosí, San Luis Potosí, Mexico; [5]Faculty of Chemistry, National Autonomous University of Mexico, Mérida, Mexico. Sponsor: *B. Quintanilla-Vega*.

Wednesday Morning, March 13
9:00 AM to 12:30 PM
Exhibit Hall C–D

PS

Poster Session: Manganism, Parkinson's, and Other Neurodegenerative Diseases

Chairperson(s): *Richard Nass, Indiana University School of Medicine, Indianapolis, IN.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *9:00 AM–11:00 AM*

#1837 **Poster Board Number 401**
Orellanine, a Bipyridyl Mycotoxin, Induces Apoptosis in a Cell Culture Model of Parkinson's Disease. P. Anantharam[1], B. Taiwo[1], J. Luo[2], *V. Anantharam*[2], *A. Kanthasamy*[2], *A. Kanthasamy*[2], E. Whitley[3], and *W. K. Rumbeiha*[1]. [1]VDPAM, Iowa State University, Ames, IA; [2]Biomedical Sciences, Iowa State University, Ames, IA; [3]Pathology, Iowa State University, Ames, IA.

#1838 **Poster Board Number 402**
Trichostatin A (TSA), a Histone Deactylase Inhibitor, Mediates Dopaminergic Cell Death via an NF-κB Dependent Mechanism. *V. Lawana*, N. Singh, G. Huh, P. Chandramani-Shivalingappa, *H. Jin*, *V. Anantharam*, *A. G. Kanthasamy*, and *A. Kanthasamy*. Biomedical Science, Iowa State University, Ames, IA.

#1839 **Poster Board Number 403**
Chemically-Induced Aging of PC12 Cells to Study *In Vitro* Neurodegeneration. M. de Groot, and *R. H. Westerink*. Neurotoxicolgy Research Group, Institute for Risk Assessment Sciences, Faculty of Veterinary Medicine, University of Utrecht, Utrecht, Netherlands.

Abstract #

#1840 **Poster Board Number 404**
Differential Alternate Splicing of L-Type Calcium Channel in Brain Regions: Implication in Parkinson's Disease. A. Verma, and V. Ravindranath. Centre for Neuroscience, Indian Institute of Science, C.V. Raman Avenue, Bangalore, India. Sponsor: *B. Moorthy*.

#1841 **Poster Board Number 405**
Development of a Cellular Model to Assess Catecholamine Transport and Toxicity. K. Stout, *A. Bernstein*, and *G. Miller*. Environmental Health, Emory University, Atlanta, GA.

#1842 **Poster Board Number 406**
Alpha-Synuclein Protein Aggregates Activate Microglia and Contribute to Neurotoxicity in the Nigral Dopaminergic System through a Fyn Kinase Dependent Mechanism. N. Panicker[1], K. Kanthasamy[2], *D. Harishchandra*[1], H. Saminathan[1], R. Gordon[1], *V. Anantharam*[1], *A. Kanthasamy*[1], and *A. Kanthasamy*[1]. [1]Biomedical Sciences, Iowa State University, Ames, IA; [2]Biochemistry & Cell Biology, Rice University, Houston, TX.

#1843 **Poster Board Number 407**
Loss of NF-κB p50 Enhances LPS-Induced Systemic Inflammation and Early Microglial Activation. T. Taetzsch, S. Levesque, C. McGraw, M. Surace, and *M. L. Block*. Anatomy & Neurobiology, Virginia Commonwealth University, Richmond, VA.

#1844 **Poster Board Number 408**
Fungal Volatile Organic Compound(s): Potential Environmental Agent(s) for the Pathogenesis of Parkinson's Disease? *A. A. Inamdar*[1], *M. Hossain*[2], *J. Richardson*[2], and J. Bennett[1]. [1]Plant Bio and Pathology, Rutgers, The State University of New Jersey, New Brunswick, NJ; [2]EOHSI, Rutgers, The State University of New Jersey, Piscataway, NJ.

#1845 **Poster Board Number 409**
Mutations in *pink-1* and *pdr-1* Result in Reduced Dopaminergic Neurodegeneration after Chemical Insult in *Caenorhabditis elegans*. C. P. Gonzalez, R. K. Bodhicharla, and *J. N. Meyer*. Nicholas School of the Environment, Duke University, Durham, NC.

#1846 **Poster Board Number 410**
Identification of Novel Genes and Epigenetic Mechanisms in *C. elegans* Models of Idiopathic Parkinson's Disease and Manganism. *R. M. Nass*[1], S. Ghosh[2], K. Shah[2], J. Trinidad[3], and *N. VanDuyn*[1]. [1]Pharmacology and Toxicology, Indiana University School of Medicine, Indianapolis, IN; [2]Chemistry, Purdue University, West Lafayette, IN; [3]Chemistry, Indiana University, Bloomington, IN.

#1847 **Poster Board Number 411**
Decreased Mitochondrial Biogenesis and Suppression of Mitochondrial Gene Expression Induced by Environmental Toxicants in *Caenorhabditis elegans* Model of Parkinsonism. *S. Zhou*, *Z. Wang*, and *J. E. Klaunig*. Indiana University, Bloomington, IN.

#1848 **Poster Board Number 412**
A Genome-Wide RNAi-Based Screen for Enhancers and Suppressors of Manganese Toxicity in *Caenorhabditis elegans*. P. Chen[1,2], T. T. Nguyen[2,3], and *M. Aschner*[1,2,3]. [1]Pediatric Toxicology, Vanderbilt University, Nashville, TN; [2]Neuroscience, Vanderbilt University, Nashville, TN; [3]Pharmacology, Vanderbilt University, Nashville, TN.

Program Description (Continued)

Abstract #

#1849 **Poster Board Number 413**
Loss of *Pdr-1/Parkin* Alters Manganese Homeostasis in *C. elegans*. *S. Chakraborty*[1,2], and *M. Aschner*[2,3]. [1]Neuroscience Graduate Program, Vanderbilt University, Nashville, TN; [2]Center for Molecular Toxicology, Vanderbilt University, Nashville, TN; [3]Pediatrics, Vanderbilt University, Nashville, TN.

#1850 **Poster Board Number 414**
Manganese Accumulations in Gill Mitochondria of *Crassostrea virginica*. A. Nuhar, B. Boisette, *M. A. Carroll*, and *E. J. Catapane*. Biology, Medgar Evers College, Brooklyn, NY.

#1851 **Poster Board Number 415**
Manganese Treatments Decreases Immunofluorescence Emissions of Postsynaptic Dopamine D2 Receptors. Y. Chekayev, R. Opoku, *M. A. Carroll*, and *E. J. Catapane*. Biology, Medgar Evers College, Brooklyn, NY.

#1852 **Poster Board Number 416**
Chelating Agents Reverse Neurotoxic Effects of Manganese on Dopaminergic Innervation of Gill of the Bivalve Mollusc *Crassostrea virginica*. C. Ojo, K. Rogers, T. Adams, *E. J. Catapane*, and *M. A. Carroll*. Biology, Medgar Evers College, Brooklyn, NY.

#1853 **Poster Board Number 417**
Effects of Antioxidants and Anti-Inflammatory Agents on Neurotoxic Effects of Manganese on Dopaminergic Innervation of Gill of the Bivalve Mollusc *Crassostrea virginica*. K. LaFleur, M. Rotibi, *E. J. Catapane*, and *M. A. Carroll*. Biology, Medgar Evers College, Brooklyn, NY.

#1854 **Poster Board Number 418**
Neurotoxic Effects of Manganese on GABAergic Innervation in the Bivalve Mollusc *Crassostrea virginica*. J. Ogunnoiki, K. Jackson, *E. J. Catapane*, and *M. A. Carroll*. Biology, Medgar Evers College, Brooklyn, NY.

#1855 **Poster Board Number 419**
Optimization of Fluorescence Assay of Cellular Manganese Status for High-Throughput Screening. K. K. Kumar[1,3], *A. Aboud*[1], D. K. Patel[1], *M. Aschner*[2], and *A. B. Bowman*[1,2]. [1]Department of Neurology, Vanderbilt University, Nashville, TN; [2]Department of Pediatrics, Vanderbilt University, Nashville, TN; [3]Medical Scientist Training Program, Vanderbilt University, Nashville, TN.

#1856 **Poster Board Number 420**
Manganese Exposure Alters Mitochondrial Biogenesis in Dopaminergic Neuronal Cells. M. Ay, *A. Kanthasamy*, H. Jin, *D. Kim*, *V. Anantharam*, and *A. G. Kanthasamy*. Iowa State University, Ames, IA.

#1857 **Poster Board Number 421**
Manganese Exposure Induces Release of α-Synuclein and Promotes Exosome Mediated Cell to Cell Transmission of Synuclein Aggregates in Neurotoxicity Models. *D. Harischandra*, H. Jin, A. Kanthasamy, *V. Anantharam*, and *A. Kanthasamy*. Biomedical Science, Iowa State University, Ames, IA.

#1858 **Poster Board Number 422**
Trp73 Gene in Dopaminergic Neurons Is Highly Susceptible to Manganese Neurotoxicity. *D. Kim*, *H. Jin*, *V. Anantharam*, R. Gordon, *A. Kanthasamy*, and *A. Kanthasamy*. Biomedical Science Department, Iowa State University, Ames, IA.

Abstract #

#1859 **Poster Board Number 423**
Mechanism of Manganese-Induced Inhibition of Glutamate Transporter GLAST Function. A. North[1], A. Webb[1], D. Son[1], *M. Aschner*[2], and E. Lee[1]. [1]Physiology, Meharry Medical College, Nashville, TN; [2]Pediatrics, Vanderbilt University Medical Center, Nashville, TN.

#1860 **Poster Board Number 424**
Analysis of Brain Mn Distribution Influenced by Disease Stage in Mouse Models of Huntington's Disease. T. V. Bichell[1,2], M. Wegrzynowicz[1,2], M. S. Cardone[1], M. Uhouse[1], *M. Aschner*[1,2,3], and *A. B. Bowman*[1,2,3]. [1]Department of Neurology, Vanderbilt University, Nashville, TN; [2]Center for Molecular Toxicology, Vanderbilt University, Nashville, TN; [3]Department of Pediatrics, Vanderbilt University, Nashville, TN.

#1861 **Poster Board Number 425**
Verification of Manganese-Related Choroid Plexus Differentially Expressed Proteins *In Vitro*. *G. J. Li*, Y. Dong, J. Liu, Y. Liu, H. Jing, C. Zhao, and L. Ma. Institute for Toxicology, Beijing Centers for Disease Control and Prevention, Beijing Research Center for Preventive Medicine, Beijing, China.

#1862 **Poster Board Number 426**
Expression and Aggregation of a-Synuclein in the Blood-CSF Barrier: New Evidence for the Effects of Toxic Intracellular Manganese and Copper Levels. *C. A. Bates*[1], *X. Fu*[1], D. Ysselstein[2], J. Rochet[2], H. Gu[3], Y. Du[3], and *W. Zheng*[1]. [1]Health Sciences, Purdue University, West Lafayette, IN; [2]Medicinal Chemistry and Molecular Pharmacology, Purdue University, West Lafayette, IN; [3]Neurology, Indiana University School of Medicine, Indianapolis, IN.

#1863 **Poster Board Number 427**
Reduced Copper (Cu) Efflux across the Blood-CSF Barrier (BCB) following Manganese Exposure: Effect on Cu Transporters ATP7A and ATP7B. *X. Fu*, *Y. Zhang*, W. Jiang, and *W. Zheng*. School of Health Sciences, Purdue University, West Lafayette, IN.

#1864 **Poster Board Number 428**
Bone Manganese (Mn) Concentrations in Sprague-Dawley Rats following Subchronic Manganese Exposure. *L. Hong*, S. O. Neal, *L. Nie*, and *W. Zheng*. Purdue University, West Lafayette, IN.

#1865 **Poster Board Number 429**
Effects of Chronic Manganese Exposure on Cognitive Functioning in Nonhuman Primates. *J. Schneider*[1], C. Williams[1], M. Ault[1], and *T. R. Guilarte*[2]. [1]Thomas Jefferson University, Philadelphia, PA; [2]Columbia University, New York, NY.

Program Description (Continued)

Abstract #

#1866 **Poster Board Number 430**
Neurochemical Alterations in the Nonhuman Primate Brain during Chronic Exposure to Manganese: A 1H MRS Study. S. Dharmadhikari[1,2], *J. L. McGlothan*[3], R. Edden[4,5], P. Barker[4,5], *J. Schneider*[6], *U. Dydak*[1,2], and *T. R. Guilarte*[3]. [1]School of Health Sciences, Purdue University, W Lafayette, IN; [2]Department of Radiology, Indiana University School of Medicine, Indianapolis, IN; [3]Department of Environmental Health Sciences, Columbia University Mailman School of Public Health, New York, NY; [4]Russell H. Morgan Department of Radiology and Radiological Science, Johns Hopkins University, Baltimore, MD; [5]F.M. Kirby Center for Functional Brain Imaging, Kennedy Krieger Institute, Baltimore, MD; [6]Department of Pathology, Anatomy and Cell Biology, Thomas Jefferson University, Philadelphia, PA.

#1867 **Poster Board Number 431**
What Is the Mechanistic Evidence for Trichloroethylene As a Cause of Parkinson's Disease? *D. G. Dodge*[1], and *B. D. Beck*[2]. [1]Gradient, Bend, OR; [2]Gradient, Cambridge, MA.

#1868 **Poster Board Number 432**
Neuroprotective Efficacy and Pharmacokinetics of Novel Para-Phenyl Substituted Diindolylmethanes in a Model of Parkinson's Disease. *B. Trout*[1], J. Miller[1], R. Hansen[1], *S. Safe*[2], D. Gustafson[1], and *R. Tjalkens*[1]. [1]Center of Environmental Medicine, Environmental Radiological and Health Science, Colorado State University, Fort Collins, CO; [2]Center for Environmental and Genetic Medicine, Institute of Biosciences and Technology, Texas A&M Health Science Center, Houston, TX.

#1869 **Poster Board Number 433**
Neurotoxicity Study of Lipopolysaccharide (LPS) Induced Mouse Model of Parkinson's Disease. Z. Nan[1], *W. Wang*[2], and W. Low[1]. [1]Neurosurgery, University of Minnesota, Minneapolis, MN; [2]Global Regulatory, HB Fuller, St. Paul, MN.

#1870 **Poster Board Number 434**
Neuroinflammation and Microglial Dysfunction. *M. Entezari*[1], and M. Javdan[2]. [1]Natural Sciences, LaGuardia Community College, Long Island City, NY; [2]Biological Sciences and Geology, Queensborough Community College, Bayside, NY.

#1871 **Poster Board Number 435**
Translocator Protein 18 KDA (TSPO) in Sandhoff Disease: An Update on a Preclinical Biomarker of Neurodegeneration. M. Loth[1], *J. Choi*[1], *J. McGlothan*[1], H. Wang[2], M. Pomper[2], and *T. Guilarte*[1]. [1]Environmental Health & Safety, Columbia University, New York, NY; [2]Radiology, Johns Hopkins University, Baltimore, MD.

#1872 **Poster Board Number 436**
Characterization of Mice with Overexpression of the Vesicular Monoamine Transporter 2 (VMAT2; Slc18a2). *K. Lohr*[1], *A. I. Bernstein*[1], *T. Guillot*[1], *K. Stout*[1], E. Heath[1], M. Wang[1], Y. Li[1], A. Salahpour[2], and *G. W. Miller*[1]. [1]Environmental Health, Emory University, Atlanta, GA; [2]University of Toronto, Toronto, ON, Canada.

Abstract #

#1873 **Poster Board Number 437**
Background Survival of Transgenic Mouse Models of Alzheimer's Disease in Our Laboratories. J. Douville, and C. Copeman. Charles River, Montréal, QC, Canada. Sponsor: *M. Vézina*.

#1874 **Poster Board Number 438**
Oxidative Damage and Age-Related Alterations in Kainic Acid-Induced Excitotoxicity. *R. C. Gupta*[1], S. Zaja-Milatovic[2], and *D. Milatovic*[3]. [1]Toxicology, Murray State University, Hopkinsville, KY; [2]University of Virginia, Charlottesville, VA; [3]Vanderbilt University Medical Center, Charlottesville, VA.

Wednesday Morning, March 13
9:00 AM to 12:30 PM
Exhibit Hall C–D

PS

Poster Session: Biomarkers II: Preclinical and Translational Approaches

Biomarkers for Exposure Assessment, Safety Evaluation, and Translational Medicine

Chairperson(s): *William B. Mattes, PharmPoint Consulting, Poolesville, MD.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *11:00 AM–12:30 PM*

#1875 **Poster Board Number 439**
Rapid Immunoassay Development and Evaluation of ICAM-1 and E-Selectin As Potential Biomarkers of Vascular Injury in Rats. M. J. Cameron[1], *H. W. Smith*[2], *J. L. Weaver*[4], N. King[5], *N. Vansell*[3], and *B. E. Enerson*[3]. [1]Immunology, MPI Research, Mattawan, MI; [2]Investigative Toxicology, Eli Lilly and Company, Indianapolis, IN; [3]Drug Safety Research and Development, Pfizer Inc, Groton, CT; [4]DDSR/OTR/OPS/CDER, US FDA, Silver Spring, MD; [5]Predictive Safety Testing Consortium, Critical Path Institute, Tucson, AZ.

#1876 **Poster Board Number 440**
Synthesis and Characterization of PEG-Ylated Meso-Porphyrins for Targeting the Epidermal Growth Factor Receptor in CRC. R. J. Ledet[1], K. R. Fontenot[2], and G. H. Vicente[2]. [1]Chemistry and Biology, Southern University and A&M College, Baton Rouge, LA; [2]Chemistry, Louisiana State University and A&M College, Baton Rouge, LA. Sponsor: *W. Gray*.

#1877 **Poster Board Number 441**
Multiplex Analysis of Urinary Protein Biomarkers for the Detection of Vancomycin Induced Sub-Acute Nephrotoxicity. W. Zheng[1], T. C. Fuchs[2], I. Yoon[1], D. Droll[1], X. Qiang[1], and *P. Hewitt*[2]. [1]R&D, EMD Millipore, St. Charles, MO; [2]Non-Clinical Safety R&D, Merck Serono, Darmstadt, Germany.

#1878 **Poster Board Number 442**
Association of the Cumulative Body Burden of Estrogen-3,4-Quinone with Body Mass Index and Breast Cancer Risk Using Albumin Adducts As Biomarkers. *P. Lin*[1], D. Chen[2], C. Lin[1,2], W. Hsieh[3], W. Yu[3], C. Lin[1], M. Go[1], and C. Juan[1]. [1]Environmental Engineering, National Chung Hsing University, Taichung, Taiwan; [2]Comprehensive Breast Cancer Center, Changhua Christian Hospital, Changhua, Taiwan; [3]Department of Laboratory Medicine, Da-Chien General Hospital, Miaoli, Taiwan.

Program Description (Continued)

Abstract #

#1879 **Poster Board Number 443**
Biomarker-Based Evaluation of Diesel Exhaust Emissions from 2007-Compliant Engines in Rats and Mice Exposed for Defined Time Periods. L. M. Hallberg[1], *J. Parks*[1], C. M. Norton[2], C. Hernandes[1], *J. B. Ward*[1], *B. T. Ameredes*[1], and *J. K. Wickliffe*[2]. [1]University of Texas Medical Branch, Galveston, TX; [2]Tulane University Health Sciences Center, New Orleans, LA.

#1880 **Poster Board Number 444**
Investigation of Early Biomarkers of Doxorubicin (DOX)-Induced Cardiac Tissue Injury in B6C3F1 Mice. *V. Desai*[1], *E. Herman*[2], C. Moland[1], S. Lewis[3], K. Davis[4], N. George[5], S. Kerr[6], and *J. Fuscoe*[1]. [1]Division of Systems Biology, NCTR, US FDA, Jefferson, AR; [2]Division of Applied Pharmacology Research, CDER, US FDA, Silver Spring, MD; [3]Division of Scientific Coordination, NCTR, US FDA, Jefferson, AR; [4]Toxicologic Pathology Associates, NCTR, US FDA, Jefferson, AR; [5]Division of Bioinformatics and Biostatistics, NCTR, US FDA, Jefferson, AR; [6]Arkansas Heart Hospital, Little Rock, AR.

#1881 **Poster Board Number 445**
Investigation on Plasma Bile Acids As Biomarkers of Cholestasis Induced by Bsep Inhibition in Preclinical Animals. M. Miyake[1], T. Shimizu[1], M. Kobayashi[1], M. Yamazaki[2], H. Satou[1], T. Honda[1], T. Tomari[1], and N. Masutomi[1]. [1]Safety Research Laboratories, Research Division, Mitsubishi Tanabe Pharma Corporation, Chiba, Japan; [2]Advanced Medical Research Laboratories, Research Division, Mitsubishi Tanabe Pharma Corporation, Saitama, Japan. Sponsor: *J. Sugimoto*.

#1882 **Poster Board Number 446**
Kidney Injury Biomarkers Lipocalin-2, Clusterin and Albumin, but Not Kidney Injury Molecule 1, Are More Sensitive Than Traditional Markers of Gentamicin-Induced Kidney Injury in Beagles. *M. Wagoner*[1], L. Cheatham[1], D. Eisinger[2], *F. Sace*[3], *K. M. Lynch*[4], *J. McDuffie*[5], *M. Sonee*[5], K. Marshall[2], M. Damour[2], L. Stephen[2], *Y. Dragan*[1], *J. Fikes*[1], and *L. B. Kinter*[1]. [1]Safety Assessment, AstraZeneca Pharmaceuticals, Waltham, MA; [2]Myriad RBM, Saranac Lake, NY; [3]Pfizer, San Diego, CA; [4]GlaxoSmithKline, King of Prussia, PA; [5]Janssen Pharmaceuticals, La Jolla, CA.

#1883 **Poster Board Number 447**
Bio-Monitoring of Multimycotoxin Exposure in Human Urine Samples from Cameroon Using a Multibiomarker Approach. *W. A. Abia*[1,2], B. Warth[2], M. Sulyok[2], R. Krska[2], A. Tchana[1], *P. B. Njobeh*[3], P. C. Turner[4], C. Kouanfack[5], M. Dutton[3], and *P. F. Moundipa*[1]. [1]Biochemistry, University of Yaounde I, Yaounde, Cameroon; [2]Department for Agrobiotechnology (IFA-Tulln), University of Natural Resources and Life Sciences, Vienna, Austria; [3]Food, Environment and Health Research Group (FEHRG), University of Johannesburg, Doornfontein, South Africa; [4]MIAEH, School of Public Health, University of Maryland, College Park, MD; [5]Day Hospital, Central Hospital, Yaounde, Cameroon.

#1884 **Poster Board Number 448**
Development of a New Oxidative Stress Biomarker Dityrosine ELISA. K. Sakai[1], M. Takeuchi[1], T. Ochi[1], R. Rathnam[2], and Y. Kato[3]. [1]Japan Institute for the Control of Aging, Fukuroi, Japan; [2]Genox Corporation, Baltimore, MD; [3]School of Human Science and Environment, University of Hyogo, Himeji, Japan. Sponsor: *K. Rao*.

Abstract #

#1885 **Poster Board Number 449**
Method Development of Serum Canine Inhibin B Enzyme-Linked Immuosorbent Assay (ELISA). *R. Kuk*[1], D. Kumar[2], and *S. B. Laffan*[1]. [1]Reproductive Toxicology, Safety Assessment, GlaxoSmithKline, King of Prussia, PA; [2]Assay Development, Bristol-Myers Squibb, Syracuse, NY.

#1886 **Poster Board Number 450**
Mitigation of Fumonisin Biomarkers by Green Tea Polyphenols. *K. Xue*[1], *L. Tang*[1], *Q. Cai*[2], *L. Xu*[1], J. Su[3], and *J. Wang*[1]. [1]University of Georgia, Athens, GA; [2]Texas Tech University, Lubbock, TX; [3]Guangxi Cancer Institute, Nanning, China.

#1887 **Poster Board Number 451**
Variation of Urinary Creatinine. *H. Na*, and *M. Yang*. Sookmyung Women's University, Seoul, Republic of Korea.

#1888 **Poster Board Number 452**
Cardiolipin As a Biomarker of Mitochondrial Dysfunction Associated with Parkinson's Disease. *Y. Tyurina*[1,2], D. Winnica[1,2], V. Kapralova[1,2], V. Tyurin[1,2], and *V. Kagan*[1,2]. [1]Department of Environmental and Occupational Health, University of Pittsburgh, Pittsburgh, PA; [2]Center for Free Radical and Antioxidant Health, Pittsburgh, PA.

#1889 **Poster Board Number 453**
Evaluation of Insulin-Like Growth Factor Acid-Labile Subunit As a Novel Biomarker of Effect to the Mycotoxin Deoxynivalenol. *B. Flannery*[1,2], *C. J. Amuzie*[2], and *J. Pestka*[1,2,3]. [1]Food Science and Human Nutrition, Michigan State University, East Lansing, MI; [2]Center for Integrative Toxicology, Michigan State University, East Lansing, MI; [3]Microbiology and Molecular Genetics, Michigan State University, East Lansing, MI.

#1890 **Poster Board Number 454**
Validation of a Meso Scale Discovery Immunoassay for KIM-1 Renal Biomarker in Cynomologus Monkey (*Macaca fascicularis*) Urine. D. Fix, and W. J. Reagan. Drug Safety, Pfizer, Groton, CT. Sponsor: *J. Aubrecht*.

#1891 **Poster Board Number 455**
Evaluation of a Three-Dimensional Oral Cell Model for the Assessment of Tobacco Products. W. Fields, K. Fowler, and B. R. Bombick. R. J. Reynolds Tobacco Company, Winston-Salem, NC. Sponsor: *S. Theophilus*.

#1892 **Poster Board Number 456**
Assessment of Cardiac Biomarkers in Cynomolgus Macaques. *T. Parman*, N. Chini, D. Vuong, M. Patrick, B. Schneider, K. Tinajero, L. Tang, D. Fairchild, K. Lopez, and *J. C. Mirsalis*. SRI International, Menlo Park, CA.

#1893 **Poster Board Number 457**
A Comparative Study on Renal Toxicity of Industrial Chelates Using Novel Urinary Protein Biomarkers As Early Predictors of Nephrotoxicity. *R. Krishnaraj*[1], *E. C. Bisinger*[1], N. Edgerton[2], *D. E. Dodd*[2], and J. Mapes[3]. [1]AkzoNobel Services, Inc., Chicago, IL; [2]The Hamner Institutes for Health Sciences, Research Triangle Park, NC; [3]Myriad RBM, Inc., Austin, TX.

Program Description (Continued)

Abstract #

#1894 **Poster Board Number 458**
Identifying Biomarkers of Kidney and Liver Toxicity by Integrating Toxicogenomics Datasets with Biological Networks. *P. Hewitt*[1], T. C. Fuchs[1], *R. B. Russell*[2], *D. Mitic*[2], and *G. Apic*[2]. [1]Merck KGaA, Darmstadt, Germany; [2]Cambridge Cell Networks Ltd., Cambridge, United Kingdom.

#1895 **Poster Board Number 459**
Evaluation of Novel Biomarkers of Nephrotoxicity in Monkeys Treated with Gentamicin. *J. Gautier*[1], X. Zhou[2], Y. Yang[3], T. Gury[1], Z. Qu[2], J. Léonard[1], J. Wang[2], P. Detilleux[1], and B. Li[2]. [1]Preclinical Safety, Sanofi, Vitry-sur-Seine, France; [2]National Center for Safety Evaluation of Drugs, Beijing, China; [3]Preclinical Safety, Sanofi, Shanghai, China.

#1896 **Poster Board Number 460**
Restricted Diet Prevents Negative Effects of OVX on Soft Tissue Composition. R. Samadfam, and S. Y. Smith. Bone Research, Charles River, Montréal, QC, Canada. Sponsor: *M. Vézina*.

#1897 **Poster Board Number 461**
3,3',4,4',5-Pentachlorobiphenyl (PCB 126) Decreased the Ratios of Epoxide Metabolites to Their Corresponding Diols in Male Rodents. *X. Wu*[1], J. Yang[2], C. Morisseau[2], *L. Robertson*[1], *B. Hammock*[2], and *H. Lehmler*[1]. [1]Department of Occupational and Environmental Health, University of Iowa, Iowa City, IA; [2]Department of Entomology, University of California Davis, Davis, CA.

#1898 **Poster Board Number 462**
Identification of Neural Biomarkers of Altered Sexual Differentiation following Gestational Exposure. *G. W. Louis*[1,2], D. R. Hallinger[1], and *T. E. Stoker*[1]. [1]Endocrine Toxicology Branch, Toxicity Assessment Division, US EPA, Research Triangle Park, NC; [2]ORISE Program, Department of Energy, Oak Ridge, TN.

#1899 **Poster Board Number 463**
Biomarkers of Exposure and Effect in Long-Term Smokers and Moist Snuff Consumers. B. A. Jones[1], G. L. Prasad[1], P. Chen[1], and D. W. Graff[2]. [1]R & D, RJ Reynolds Tobacco Co., Winston-Salem, NC; [2]Celerion, Lincoln, NE. Sponsor: *G. Krautter*.

#1900 **Poster Board Number 464**
Mechanistic Biomarkers Provide Early Detection of Acetaminophen-Induced Acute Liver Injury at First Presentation. D. Antoine[1], C. Goldring[1], P. Starkey-Lewis[1], J. Dear[2], J. Moggs[3], V. Platt[1], and B. Park[1]. [1]MRC Centre for Drug Safety Science, University of Liverpool, Liverpool, United Kingdom; [2]NPIS Edinburgh, University of Edinburgh, Edinburgh, United Kingdom; [3]Preclinical Safety, Novartis Institutes for Biomedical Research (NIBR), Basel, Switzerland. Sponsor: *D. Mendrick*.

#1901 **Poster Board Number 465**
Lead Concentrations Correlation between Fingernails and Whole Blood. *K. P. Olympio*[1], C. A. Cardoso[2], M. C. Rodrigues[2], I. Ramires[2], M. S. Luz[3], L. G. Albuquerque[3], F. Barbosa[4], M. A. Cardoso[1], P. V. Oliveira[3], W. R. Günther[1], and M. A. Buzalaf[2]. [1]Faculdade de Saúde Pública - USP, São Paulo, Brazil; [2]Faculdade de Odontologia de Bauru - USP, Bauru, Brazil; [3]Instituto de Química - USP, São Paulo, Brazil; [4]Faculdade de Ciências Farmacêuticas - USP, Ribeirão Preto, Brazil.

Abstract #

#1902 **Poster Board Number 466**
Detecting and Quantifying Endogenous and Exogenous Formaldehyde Adducted Hemoglobin Utilizing Selected Reaction Monitoring. G. L. Andrews Kingon[1], *B. C. Moeller*[1], and *J. A. Swenberg*[1,2]. [1]Curriculum in Toxicology, University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]Environmental Sciences and Engineering, University of North Carolina at Chapel Hill, Chapel Hill, NC.

#1903 **Poster Board Number 467**
Assessment of the Relative Performance of Ten Urinary Biomarkers for Renal Safety across Twenty-Two Rat Toxicology Studies. *Z. Erdos*, *K. Vlasakova*, H. Jin, K. McNulty, L. Phadtare, V. Chapeau, N. Mokrzycki, *S. P. Troth*, N. Muniappa, E. Wang, D. Holder, *W. J. Bailey*, *F. D. Sistare*, *W. E. Glaab*, and *Y. Gu*. Safety Assessment and Laboratory Animal Resources, Merck Research Laboratories, West Point, PA.

#1904 **Poster Board Number 468**
Drug-Induced Kidney Injury Urinary Biomarker Response in Rats after Treatment with Nonnephrotoxicants. *L. Besenhofer*, *M. Wagoner*, L. Cheatham, F. McGrath, P. Bentley, *J. Fikes*, and *L. Kinter*. Safety Assessment US, AstraZeneca, Waltham, MA.

#1905 **Poster Board Number 469**
Urinary Biomarker Response to Hepsera-Induced Kidney Toxicity in Rats. *Y. Yang*, S. Morgan, C. Thompson, D. Desmond, *D. Zhao*, *R. Yeager*, and E. Blomme. Abbott Laboratories, Abbott Park, IL.

#1906 **Poster Board Number 470**
Novel Noninvasive Biomarker of Irradiation-Induced Gastro-Intestinal Injury. *A. Banerjee*[1], N. Sieracki[2], A. Zakharov[1], M. Bonini[2], and *A. Lyubimov*[1]. [1]Toxicology Research Laboratory, University of Illinois at Chicago, Chicago, IL; [2]Pharmacology, University of Illinois at Chicago, Chicago, IL.

#1907 **Poster Board Number 471**
Exploring Challenges in Reconstructing Doses or Estimating Blood Concentrations from Urinary Biomarker Data Using a Pharmacokinetic Model for Perchlorate. *C. Tan*, *M. B. Phillips*, and J. Sobus. US EPA, ORD NERL, Research Triangle Park, NC.

#1908 **Poster Board Number 472**
Fecal and Blood Biomarkers for Gastrointestinal Injury and Subsequent Recovery. *A. Lyubimov*[1], Y. Chen[2], J. Anwer[2], A. Zakharov[1], and *A. Banerjee*[1]. [1]Toxicology Research Laboratory, University of Illinois at Chicago, Chicago, IL; [2]Center for Biomedical Testing, Chicago, IL.

#1909 **Poster Board Number 473**
Clearance Rates of Organophosphate Metabolites in an Occupationally-Exposed Cohort of Farmworkers. W. C. Griffith[1], *Z. N. Guerrette*[1], B. Thompson[2], G. D. Coronado[2], D. B. Barr[3], E. M. Vigoren[1], and *E. M. Faustman*[1]. [1]Institute for Risk Analysis and Risk Communication, University of Washington, Seattle, WA; [2]Fred Hutchinson Cancer Research Center, Seattle, WA; [3]Rollins School of Public Health, Emory University, Atlanta, GA.

#1910 **Poster Board Number 474**
Assessment of MMP-3 and MMP-9 As Preclinical Biomarkers of Drug-Induced Vascular Injury. R. J. Gonzalez, B. Bednar, S. Lin, B. Connolly, S. Patel, G. Mesfin, *T. Johnson*, H. Miyazaki, *W. Glaab*, and *F. Sistare*. Merck & Co., West Point, PA.

Program Description (Continued)

Abstract #

#1911 **Poster Board Number 475**
Molecular, Cellular, and Histological Changes in Mice Living on Sand Contaminated with Coal Dust under Laboratory Conditions. *K. Caballero-Gallardo*, L. Carranza-Lopez, and *J. Olivero-Verbel*. Environmental and Computational Chemistry Group Pharmaceutical Sciences, University of Cartagena, Cartagena, Colombia.

#1912 **Poster Board Number 476**
Advancing Adoption of Novel Safety Biomarkers into Drug Development through Voluntary Submission of Data at US FDA, EMA, and PMDA. *E. G. Walker*, M. Brumfield, and E. H. Dennis. Critical Path Institute, Tucson, AZ.

#1913 **Poster Board Number 477**
Growth Hormone and IGF-1 Measurements in Beagle Dogs by ELISA: Assay Implementation and Variations in Baseline Levels. C. Gauthier, J. Leiva, G. Gonzalez, and A. Nelson. Immunology, ITR International, Baie d'Urfe, QC, Canada. Sponsor: *W. Ruddick*.

Wednesday Morning, March 13
9:00 AM to 12:30 PM
Exhibit Hall C–D

PS

Poster Session: Endocrine Toxicology

Chairperson(s): *Lars Lind, Uppsala University, Department of Medicine, Uppsala, Sweden.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *9:00 AM–11:00 AM*

#1914 **Poster Board Number 501**
Evaluation of Iodide Deficiency in the Lactating Rat and Pup Using a Biologically-Based Dose Response (BBDR) Model. *J. W. Fisher*[1], S. Li[2], *K. Crofton*[3], R. Zoeller[4], *E. McLanahan*[3], *A. Lumen*[1], and *M. Gilbert*[3]. [1]US FDA, NCTR, Jefferson, AR; [2]Georgia Health Sciences University, Augusta, GA; [3]US EPA, ORD, Research Triangle Park, NC; [4]University of Massachusetts, Amherst, MA.

#1915 **Poster Board Number 502**
An Animal Model of Marginal Iodine Deficiency during Development: The Thyroid Axis and Neurodevelopmental Outcome. *M. E. Gilbert*[1], J. Hedge[1], L. Valentin-Blasini[2], *B. Blount*[2], K. Kannan[3], J. Tietge[4], *R. T. Zoeller*[5], *K. Crofton*[1], J. Jarrett[2], and *J. W. Fisher*[6]. [1]US EPA, Research Triangle Park, NC; [2]CDC, Atlanta, GA; [3]State University of New York, Albany, NY; [4]US EPA, Duluth, MN; [5]University of Massachusetts, Amherst, MA; [6]US FDA, Jefferson, AR.

#1916 **Poster Board Number 503**
Association of Paraoxonase-1 Activity and Gene Polymorphisms with Type 2 Diabetes Mellitus. *P. Eden*[1,2], E. Olsen[3], J. Watt[3], and *J. Chambers*[2]. [1]711th Human Performance Wing, Wright-Patterson AFB, OH; [2]Mississippi State University, Starkville, MS; [3]81st Medical Group, Keesler AFB, MS.

Abstract #

#1917 **Poster Board Number 504**
Effect of Dioxin on the Nursing Behavior of Dams and the Growth of Pups: A Study for the Mechanism Focusing on Damage to Maternal Prolactin and Fetus/Infant Growth Hormone. M. Fujii[1], T. Takeda[1], J. Taura[1], Y. Hattori[1], Y. Ishii[1], H. Uchi[2], K. Tsukimori[3], M. Furue[2], and H. Yamada[1]. [1]Graduate School of Pharmaceutical Sciences, Kyushu University, Fukuoka, Japan; [2]Kyushu University Hospital, Fukuoka, Japan; [3]Fukuoka Children's Hospital, Fukuoka, Japan. Sponsor: *Y. Kumagai*.

#1918 **Poster Board Number 505**
Effects of Perfluorooctane Sulfonate (PFOS) on the Hypothalamic-Pituitary-Testicular Axis Activity in Adult Male Rat. *M. A. Lafuente*, and N. Pereiro. Laboratory of Toxicology, University of Vigo, Orense, Spain.

#1919 **Poster Board Number 506**
Conditional Knockout of the Aryl Hydrocarbon Receptor in the Liver Alters Mouse Phenotype As Well As Glucose and Lipid Homeostasis. D. Carter, and *C. Elferink*. Pharmacology and Toxicology, University of Texas Medical Branch, Galveston, TX.

#1920 **Poster Board Number 507**
Endocrine Modulatory Effects of Cadmium and Activation of MAPK Signaling. *I. Ali*[1], P. Damdimopoulou[2], S. I. Mäkelä[3], M. Berglund[1], *U. Stenius*[1], A. Adamsson[4], A. Åkesson[1], *H. Håkansson*[1], and *K. Halldin*[1]. [1]Institute of Environmental Medicine, Karolinska Institute, Stockholm, Sweden; [2]Department of Biosciences and Nutrition, Karolinska Institute, Huddinge, Sweden; [3]Department of Cell Biology and Anatomy and Turku Center for Disease Modeling, Institute of Biomedicine, University of Turku, Turku, Finland; [4]Department of Physiology, Institute of Biomedicine, University of Turku, Turku, Finland.

#1921 **Poster Board Number 508**
Bisphenol A (BPA) Levels Were Associated with Increased Estrogen. *M. Lind*[1], T. Naessen[2], J. Bergquist[3], M. M. Kushnir[3,4], and L. Lind[5]. [1]Occupational and Environmental Medicine, Uppsala University, Uppsala, Sweden; [2]Department of Women's and Children's Health, Section for Obstetrics and Gynecology, Uppsala University, Uppsala, Sweden; [3]Analytical Chemistry/Department of Physical and Analytical Chemistry, Uppsala University, Uppsala, Sweden; [4]ARUP Institute for Clinical and Experimental Pathology, Salt Lake City, UT; [5]Department of Medical Sciences, Acute and Internal Medicine, Uppsala University, Uppsala, Sweden.

#1922 **Poster Board Number 509**
A Comparison of RIA and LC-MS/MS Methods to Quantify Steroids in Rat Serum and Urine following Exposure to an Endocrine Disrupting Chemical. *B. W. Riffle*[1,2], *S. C. Laws*[1], and *W. Henderson*[3]. [1]ETB, TAD, NHEERL, ORD, US EPA, Research Triangle Park, NC; [2]ORISE, US Department of Energy, Oak Ridge, TN; [3]ERD, NERL, ORD, US EPA, Athens, GA.

Program Description (Continued)

Abstract #

#1923 **Poster Board Number 510**
Exposure of Pregnant Fischer 344 Rats to Low Levels of Dietary Zeranol Induces Precocious Puberty and Decreased Mammary Tumor Latency in F1 and F2 Progeny. *C. Lewis*[1], *J. T. Barrett*[1], *M. A. Gallo*[1,2], and *H. Zarbl*[1,2]. [1]Environmental and Occupational Medicine, Robert Wood Johnson Medical School, UMDNJ, Piscataway, NJ; [2]Environmental and Occupational Health Sciences Institute, Robert Wood Johnson Medical School, Piscataway, NJ.

#1924 **Poster Board Number 511**
P-p-DDE Levels Are Associated with Reduced Testosterone Levels in Elderly Males. L. Lind[1], T. Neassen[2], J. Bergquist[2], M. Kushnir[3], and *M. Lind*[2]. [1]Department of Medicine, Uppsala, Sweden; [2]Uppsala University, Uppsala, Sweden; [3]ARUP Institute for Clinical and Experimental Pathology, Salt Lake City, UT.

#1925 **Poster Board Number 512**
***In Utero* Bisphenol A (BPA) Exposure, the Developing Immune System and Memory.** *J. N. Franklin*, Q. Hu, and *J. C. DeWitt*. Pharmacology & Toxicology, East Carolina University, Greenville, NC.

#1926 **Poster Board Number 513**
Low-Dose Evaluation of the Antiandrogen Flutamide in a 28-Day Toxicity Study in the Rat. A. Sarrabay[1], H. Tinwell[1], O. Blanck[1], F. Schorsch[1], *M. Pallardy*[2], *R. Bars*[1], and D. Rouquié[1]. [1]Bayer CropScience, Sophia Antipolis, France; [2]Faculty of Pharmacy, University Paris-Sud, INSERM UMR 996, Chatenay-Malabry, France.

#1927 **Poster Board Number 514**
Investigation of Vinclozolin at Environmentally-Relevant Concentrations. S. Gröters[1], S. Schneider[1], K. C. Fussel[1], V. Strauss[1], M. Frericks[2], S. Melching-Kolmuss[2], B. Siddeek[3], M. Benahmed[3], and *B. van Ravenzwaay*[1]. [1]Experimental Toxicology and Ecology, BASF SE, Ludwigshafen am Rhein, Germany; [2]Product Safety, BASF SE, Ludwigshafen am Rhein, Germany; [3]U895, équipe 5, Bâtiment Universitaire Archimed, Centre Méditerranéen de Médecine Moléculaire (C3M), Inserm, Nice, France.

#1928 **Poster Board Number 515**
Investigation of Flutamide at Environmentally-Relevant Concentrations. S. Melching-Kolmuss[2], *S. Schneider*[1], K. C. Fussel[1], S. Gröters[1], V. Strauss[1], B. Siddeek[3], M. Benahmed[3], M. Frericks[2], and *B. van Ravenzwaay*[1]. [1]Experimental Toxicology and Ecology, BASF SE, Ludwigshafen am Rhein, Germany; [2]Product Safety, BASF SE, Ludwigshafen am Rhein, Germany; [3]U895, équipe 5, Bâtiment Universitaire Archimed, Centre Méditerranéen de Médecine Moléculaire (C3M), Inserm, Nice, France.

#1929 **Poster Board Number 516**
The Effects of 2,3,7,8-Tetrachlorodibenzo-*p*-dioxin (TCDD) on Hypothalamus-Pituitary-Gonadal (HPG) Axis in Female Rat Primary Cultures. K. Solak, F. Wijnolts, *B. Blaauboer*, *M. van den Berg*, and *M. B. van Duursen*. Institute for Risk Assessment Sciences, Utrecht University, Utrecht, Netherlands.

Abstract #

#1930 **Poster Board Number 517**
BPA and TBBPA Target ATP Binding Cassette Transporters in the Blood-Testis Barrier and Impair Leydig Cell Steroidogenesis. M. J. Roelofs[1], A. C. Dankers[2], *A. H. Piersma*[1,3], F. G. Russel[2], R. Masereeuw[2], and *M. B. van Duursen*[1]. [1]Institute for Risk Assessment Sciences, Utrecht University, Utrecht, Netherlands; [2]Department of Pharmacology and Toxicology, Radboud University Nijmegen Medical Centre (RUNMC), Nijmegen, Netherlands; [3]Center for Health Protection, National Institute for Public Health and the Environment (RIVM), Bilthoven, Netherlands.

#1931 **Poster Board Number 518**
Effects of GPER Activation on (Xeno) Estrogen-Induced Cellular Responses. *L. C. Smith*[1], K. Ralston-Hooper[2], P. Ferguson[2], and *T. Sabo-Attwood*[1]. [1]Department of Physiological Sciences, Environmental & Global Health and Center for Environmental and Human Toxicology, University of Florida, University of Florida, Gainesville, FL; [2]Department of Civil and Environmental Engineering and Nicholas School of the Environment, Duke University, Durham, NC.

#1932 **Poster Board Number 519**
Antiproliferative, Antiandrogenic, and Cytotoxic Effects of Novel Synthetic Derivatives of Caffeic Acid in LNCaP Human Androgen-Dependent Prostate Cancer Cells. *T. Sanderson*[1], H. Clabault[1], C. Patton[1], L. M. LeBlanc[2], M. Hébert[2], and M. Touaibia[2]. [1]INRS-Institut Armand-Frappier, Laval, QC, Canada; [2]Département de Chimie et Biochimie, Université de Moncton, Moncton, NB, Canada.

#1933 **Poster Board Number 520**
Cadmium Content in Human Pancreatic Insulin Producing Beta Cells. M. El Muayed[1], K. W. MacRenaris[2], and W. L. Lowe[1]. [1]Division of Endocrinology, Northwestern University Medical School, Chicago, IL; [2]The Chemistry of Life Processes Institute, Northwestern University, Chicago, IL. Sponsor: *J. Bolton*.

#1934 **Poster Board Number 521**
Formulation Development and Analysis Methods for Bisphenol AF in 5K96 Verified Casein Feed. K. Aillon[1], V. Ault[1], A. Sullivan[1], R. Mathias[1], J. Algaier[1], R. Harris[1], *B. Collins*[2], and *S. Waidyanatha*[2]. [1]MRIGlobal, Kansas City, MO; [2]National Toxicology Program, NIEHS, Research Triangle Park, NC.

#1935 **Poster Board Number 522**
Silencing of Testisin through CpG Methylation from Exposure to Phthalates in Ntera-2 Cells. *J. Gomes*, J. Kapongo, B. Nguyen, and *D. Krewski*. University of Ottawa, Ottawa, ON, Canada.

#1936 **Poster Board Number 523**
An Examination of the Effects of Methyltriclosan on Early-Emrbyonic Development in the South African Clawed Frog (*Xenopus laevis*). M. Cromie[1], M. Wages[2], B. Perafan[1], E. Smith[2], and J. Carr[1]. [1]Biological Sciences, Texas Tech University, Lubbock, TX; [2]The Institute of Environmental and Human Health, Texas Tech University, Lubbock, TX. Sponsor: *W. Gao*.

Program Description (Continued)

Abstract #

#1937 **Poster Board Number 524**
No Evidence of Endocrine Disruption by Glyphosate in Male and Female Pubertal Assays. J. Bailey[1,2], J. Hauswirth[2], and *D. Stump*[3]. [1]Dow AgroSciences, LLC, Indianapolis, IN; [2]Joint Glyphosate Task Force, Raleigh, NC; [3]WIL Research Laboratories, LLC, Ashland, OH.

#1938 **Poster Board Number 525**
Exposure to G-1, a Selective Agonist for G Protein-Coupled Estrogen Receptor 1 (GPER), Results in Elevated Levels of Vitelloginin in Adult Fathead Minnows (*Pimephales promelas*). *S. Jayasinghe*[1], *K. Kroll*[1], *N. Denslow*[1], and *T. Sabo-Attwood*[2]. [1]Department of Physiological Sciences, Center for Environmental and Human Toxicology, University of Florida, Gainesville, FL; [2]Department of Environmental and Global Health, Center for Environmental and Human Toxicology, University of Florida, Gainesville, FL.

#1939 **Poster Board Number 526**
Study on the Subchronic Oral Toxicity of the Circuit Board Powder in Rats. *N. Wu*. Institute of Hygiene, Zhejiang Academy of Medical Sciences, Hangzhou, Zhejiang, China.

#1940 **Poster Board Number 527**
Activation of the Hypothalamic-Pituitary-Adrenal (HPA) Axis following Extended Exposure to Atrazine (ATR). *S. C. Laws*[1], R. Cooper[1], and B. Riffle[1,2]. [1]ETB, TAD, NHEERL, ORD, US EPA, Research Triangle Park, NC; [2]ORISE, US Department of Energy, Oak Ridge, TN.

#1941 **Poster Board Number 528**
2-Isopropylthioxantone (ITX) Induces Endocrine Disrupting Effects and Increases Liver Weight during Puberty in Male Wistar Rats. P. Hendriksen, E. Kramer, M. Groot, J. C. Rijk, R. L. Hoogenboom, and A. A. Peijnenburg. Toxicology, RIKILT Institute of Food Safety, WUR, Wageningen, Netherlands. Sponsor: *S. Rangarajan*.

Wednesday Morning, March 13
9:00 AM to 12:30 PM
Exhibit Hall C–D

PS

Poster Session: Risk Assessment II: Critical Considerations and Characterizations

Chairperson(s): *Virunya Bhat, University of California Riverside, Riverside, CA, and Robinan Gentry, Environ International Corporation, Monroe, LA.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *11:00 AM–12:30 PM*

#1942 **Poster Board Number 532**
***In Vivo* Human Pharmacokinetics of Dibenzo[DEF,P]Chrysene (DBC) following Microdosing—Bridging the Gap between High-Dose Animal Data and Environmentally-Relevant Human Exposures.** *E. P. Madeen*[1,4], *R. Corley*[3], *K. Turteltaub*[2], *T. Ognibene*[2], *M. Malfatti*[2], *M. Garrard*[1,4], *K. Sudakin*[1,4], *T. Mcquistan*[1,4], and *D. E. Williams*[1,4]. [1]Oregon State University, Corvallis, OR; [2]Lawrence Livermore National Lab, Livermore, CA; [3]Pacific Northwest National Lab, Richland, WA; [4]Linus Pauling Institute, Corvallis, OR.

Abstract #

#1943 **Poster Board Number 533**
Evaluation of Tumor Pathology Concordance between Epidemiological and Rodent Studies. *J. Wan*[1], *J. W. Card*[1], H. Fikree[1], *L. A. Haighton*[1], V. Lee-Brotherton[1], and B. Sangster[2]. [1]Intertek Cantox, Mississauga, ON, Canada; [2]ASAT Foundation, Leidschendam, Netherlands.

#1944 **Poster Board Number 534**
Benchmark Dose Models for Benzene Genotoxicity Using the Diversity Outbred Mouse. K. L. Witt[1], G. E. Kissling[1], *D. L. Morgan*[1], K. R. Shockley[1], D. M. Gatti[2], G. A. Churchill[2], and *J. E. French*[1]. [1]DNTP, NIEHS, Research Triangle Park, NC; [2]Center for Genome Dynamics, The Jackson Laboratory, Bar Harbor, ME.

#1945 **Poster Board Number 535**
Is There a Subset of Susceptible Individuals in Controlled Air Pollution Studies? *M. Seeley*, and *J. E. Goodman*. Gradient, Cambridge, MA.

#1946 **Poster Board Number 536**
Concordance of Transcriptional and Apical Benchmark Dose Levels for Conazole-Induced Liver Effects in Mice. *V. S. Bhat*[1], *S. D. Hester*[2], S. Nesnow[2], and *D. A. Eastmond*[1]. [1]Environmental Toxicology, University of California Riverside, Riverside, CA; [2]NHEERL, US EPA, Research Triangle Park, NC.

#1947 **Poster Board Number 537**
Assessment Factors for Susceptible Populations—Analysis of Airway Response during Short-Term Exposure to Volatile Chemicals. M. Johansson, *G. Johanson*, and M. Öberg. Institute of Environmental Medicine, Stockholm, Sweden.

#1948 **Poster Board Number 538**
Thermal Constraints and Chemical Exposure in the Workplace: Prioritization of Occupations for Better Prevention. A. Adam-Poupart[1], G. Truchon[2], M. Lévesque[1], M. Busque[2], P. Duguay[2], R. Bourbonnais[3], and *J. Zayed*[1,2]. [1]Environmental and Occupational Health, Université de Montréal, Montréal, QC, Canada; [2]Institut de recherche Robert-Sauvé en santé et sécurité du travail (IRSST), Montréal, QC, Canada; [3]ROH Consultant, Laval, QC, Canada.

#1949 **Poster Board Number 539**
Acute and Chronic Noncancer Inhalation Toxicity Factors for Acrylonitrile. J. Lee, *R. L. Grant*, and *S. Shirley*. Toxicology, Texas Commission on Environmental Quality, Austin, TX.

#1950 **Poster Board Number 540**
Hexavalent Chromium Carcinogenicity: Use of a Nonlinear-Threshold Assessment to Develop a Cancer-Based Chronic Inhalation Reference Value. *N. Erraguntla*[1], *J. T. Haney*[1], R. L. Sielken[2], and C. Valdez-Flores[2]. [1]Toxicology Division, Texas Commission on Environmental Quality, Austin, TX; [2]Sielken & Associates Consulting, Bryan, TX.

#1951 **Poster Board Number 541**
Hypothesis-Based Weight-of-Evidence Evaluation of the Human Carcinogenicity of Toluene Diisocyanate. *R. L. Prueitt*[1], *J. E. Goodman*[2], and *L. R. Rhomberg*[2]. [1]Gradient, Seattle, WA; [2]Gradient, Cambridge, MA.

Program Description (Continued)

Abstract #

#1952 **Poster Board Number 542**
Evaluation of Toxic Effects of 3-MCPD and Associated Esters in Rats. S. Onami[1], Y. Cho[1], T. Toyoda[1], Y. Ishii[1], T. Umemura[1], M. Yoshida[1], K. Horibata[2], M. Honma[2], T. Nohmi[3], *A. Nishikawa*[3], and K. Ogawa[1]. [1]Pathology, NIHS, Tokyo, Japan; [2]Genetics and Mutagenesis, NIHS, Tokyo, Japan; [3]Biological Safety Research Center, NIHS, Tokyo, Japan.

#1953 **Poster Board Number 543**
A Simulation Study Investigating the Risk of Obtaining BMDs Which Are Higher Than the "True" BMD. J. Ringblom, *G. Johanson*, and M. Öberg. Karolinska Institutet, Institute of Environmental Medicine, Stockholm, Sweden.

#1954 **Poster Board Number 544**
Characterizing the Impacts of Uncertainty and Scientific Judgment in Exposure Limit Development. *A. Maier*[1], *R. Sussman*[2], *B. Naumann*[3], and *R. Roy*[4]. [1]Toxicology Excellence for Risk Assessment, Cincinnati, OH; [2]SafeBridge Consultants, Inc., New York, NY; [3]Merck and Co., Whitehouse Station, NJ; [4]Corporate Toxicology, 3M, St. Paul, MN.

#1955 **Poster Board Number 545**
Chemical-Induced Methemoglobin Formation and Exploration on Its Biological Threshold. *Z. Yan*[1], and *Q. Zhao*[2]. [1]ORISE, Cincinnati, OH; [2]NCEA, US EPA, Cincinnati, OH.

#1956 **Poster Board Number 546**
Analysis of Possible Changes to the Levels of Concern for Polycyclic Aromatic Hydrocarbons in Seafood. *R. E. Weil*, *L. D. Stuchal*, *A. S. Kane*, and *S. M. Roberts*. University of Florida, Gainesville, FL.

#1957 **Poster Board Number 547**
The Use of Genetically Modified Mice in Cancer Risk Assessment: Challenges and Limitations. *S. V. Vulimiri*[1], *D. A. Eastmond*[2], *J. E. French*[3], and B. Sonawane[1]. [1]National Center for Environmental Assessment, US EPA, Washington DC; [2]Cell Biology & Neuroscience, University of California Riverside, Riverside, CA; [3]NIEHS, Research Triangle Park, NC.

#1958 **Poster Board Number 548**
Integrating Local Communities in the Health Risk Assessment Process following the Deepwater Horizon Oil Spill—A Focus on Vietnamese-Americans. *M. J. Wilson*[1], S. Frickel[4], D. Nguyen[5], J. Howard[1], B. Simon[3], and *J. Wickliffe*[1,2]. [1]Pharmacology and Toxicology, Rutgers University, Piscataway, NJ; [2]Environmental and Occupational Medicine, UMDNJ-Robert Wood Johnson Medical School, Piscataway, NJ.

#1959 **Poster Board Number 549**
Challenges in Safety Assessment of Botanicals in Cosmetics: A Possible Risk Assessment Strategy. *B. Mukerji*, *P. Hepburn*, E. Antignac, T. Ashikaga, *D. Chavez*, *K. Khoo*, P. Sinhaseni, and A. Khaiat. Safety and Toxicology, Asean Cosmetic Association, Singapore, Singapore.

Abstract #

#1960 **Poster Board Number 550**
Simulation of Acute Reference Dose (ARfD) Setting for Pesticides in Japan. *M. Yoshida*[1], D. Suzuki[1], *K. Matsumoto*[2], K. Inoue[1], M. Takahashi[1], *T. Morita*[3], *M. Shirota*[4], and *A. Ono*[5]. [1]Department of Pathology, National Institute of Health Sciences, Tokyo, Japan; [2]Research Center for Human and Environmental Sciences, Shinshu University, Nagano, Japan; [3]Division of Safety Information on Drug, Food and Chemicals, National Institute of Health Sciences, Tokyo, Japan; [4]Laboratory of Comparative Toxicology, School of Veterinary Medicine, Azabu University, Kanagawa, Japan; [5]Division of Risk Assessment, National Institute of Health Sciences, Tokyo, Japan.

#1961 **Poster Board Number 551**
Tumour and In-Life Data from CD-1 Mouse Dietary and Oral Gavage Tumorigenicity Studies, Completed over the Period of 1995 to 2011. W. N. Hooks[1], and I. Taylor[2]. [1]Safety Assessment, Huntingdon Life Sciences, Huntingdon, United Kingdom; [2]Pathology, Huntingdon Life Sciences, Huntingdon, United Kingdom. Sponsor: *D. Mitchell*.

#1962 **Poster Board Number 552**
Factors Influencing the Outcome of Developmental Neurotoxicity Studies of Bisphenol A—Implications for Regulatory Testing and Risk Assessment. A. Beronius[1], N. Johansson[1], C. Rudén[2], and A. Hanberg[1]. [1]Institute of Environmental Medicine, Karolinska Institutet, Stockholm, Sweden; [2]Department of Applied Environmental Science, Stockholm University, Stockholm, Sweden. Sponsor: *G. Johanson*.

#1963 **Poster Board Number 553**
Development of Human Health Benchmarks for Pesticides. *S. Ramasamy*[1], *E. Doyle*[1], B. Behl[1], B. May[2], M. Goodis[2], and S. Knizner[3]. [1]Office of Water, US EPA, Washington DC; [2]Office of Pesticide Programs, US EPA, Arlington, VA; [3]Office of Environmental Information, US EPA, Washington DC.

#1964 **Poster Board Number 554**
Differences between US EPA Iris Inhalation Reference Concentrations (RfCs) and European Chemicals Agency (ECHA) Long-Term Inhalation Derived No Effect Levels (DNELs) for the General Population. *M. Jackson*[1], *R. Lemus-Olalde*[2], *C. Inhof*[2], *Z. Yin*[2], *B. Locey*[1], *B. Magee*[3], and *K. Connor*[3]. [1]ARCADIS, Brighton, MI; [2]ARCADIS, Cincinnati, OH; [3]ARCADIS, Chelmsford, MA.

#1965 **Poster Board Number 555**
Assessment Factors in Human Health Risk Assessment and Their Associated Level of Safety. S. Escher[2], S. Hoffmann-Doerr[1], M. Batke[2], and I. Mangelsdorf[2]. [1]BASF Personal Care and Nutrition GmbH, Duesseldorf, Germany; [2]Fraunhofer Institute for Toxicology and Experimental Medicine - ITEM, Hannover, Germany. Sponsor: *K. Wiench*.

#1966 **Poster Board Number 556**
Associations between Carcinogenic and Immune Suppression Activities of PaHs: Insights into Improving Cancer Risk Assessment for PAH Mixtures. *K. Zaccaria*, and P. McClure. SRC, Inc., Syracuse, NY.

Program Description (Continued)

Abstract #

#1967 **Poster Board Number 557**
Potential Involvement of Oxidative Stress and Iron Disturbance in the Development of Oral Cavity Tumors in Rats Exposed to Hexavalent Chromium. *M. Suh*[1], *C. T. Thompson*[1], G. Hixon[1], *M. A. Harris*[1], *C. R. Kirman*[2], *S. M. Hays*[2], *L. C. Haws*[1], and *D. M. Proctor*[1]. [1]ToxStrategies, Katy, TX; [2]Summit Toxicology, Allenspark, CO.

#1968 **Poster Board Number 558**
Estimating the Relative Bioavailability of Polycyclic Aromatic Hydrocarbons (PAHs) from Soil at Environmentally-Relevant Concentrations. J. W. Munson[1], *Y. W. Lowney*[2,1], *M. V. Ruby*[3], and *S. M. Roberts*[1]. [1]CEHT, University of Florida, Gainesville, FL; [2]Exponent, Boulder, CO; [3]Integral Consulting, Louisville, CO.

#1969 **Poster Board Number 559**
Mode-of-Action Evaluation for Lung Tumors in Mice Exposed to Ethylene Oxide via Inhalation. *L. T. Haber*[1], *B. L. Parsons*[2], *N. Moore*[3], *B. Gollapudi*[4], *M. G. Manjanatha*[2], *M. LeBaron*[4], and *M. M. Moore*[2]. [1]Toxicology Excellence for Risk Assessment (TERA), Cincinnati, OH; [2]Division of Genetic and Molecular Toxicology, National Center for Toxicological Research, US FDA, Jefferson, AR; [3]Dow Europe GmbH, Horgen, Switzerland; [4]Toxicology & Environmental Research and Consulting, Dow Chemical Company, Midland, MI.

#1970 **Poster Board Number 560**
Challenges in Estimating Safe Levels of Nanomaterials for Humans from Animal Toxicology Experiments. A. Bacom[1], M. Odin[1], P. McClure[1], K. Salinas[1], P. Wood[2], D. Bottimore[2], and T. Thomas[3]. [1]SRC, Inc., East Syracuse, NY; [2]Versar, Inc., Springfield, VA; [3]US Consumer Product Safety Commission, Bethesda, MD. Sponsor: *G. Diamond*.

#1971 **Poster Board Number 561**
Quality Assurance and Quality Control for an xCelligence High-Throughput Risk Assessment Assay. M. Stampfl[1], F. Ackah[2], V. Charoensuk[3], T. Pan[4], *C. Jin*[1], Y. A. Abassi[1], X. Xu[1], X. Wang[1], B. Huang[4], D. Kinniburgh[3], W. Zhang[2], and *S. Gabos*[2]. [1]Acea Biosciences, Inc, San Diego, CA; [2]Alberta Health and Wellness, Edmont, AB, Canada; [3]Alberta Centre for Toxicology, University of Calgary, Calgary, AB, Canada; [4]University of Alberta, Edmont, AB, Canada.

#1972 **Poster Board Number 562**
Advancing Human Health Risk Assessment: Charting a Course through Committee Recommendations. *M. Dourson*[1], *R. Becker*[2], *L. Haber*[1], *L. Pottenger*[3], *T. Bredfeldt*[4], and *P. Fenner-Crisp*[5]. [1]Toxicology Excellence for Risk Assessment, Cincinnati, OH; [2]American Chemistry Council, Washington DC; [3]The Dow Chemical Company, Midland, MI; [4]Texas Commission on Environmental Quality, Austin, TX; [5]Independent Consultant, North Garden, VA.

#1973 **Poster Board Number 563**
Assessment on Health Risk and Risk Factors Related to Lead Exposure by Ingestion of Aquatic Animals from the Overflow Marsh. *S. Chaikliang*[1], and S. Kiatsayomphu[2]. [1]Environmental Health Science, Faculty of Public Health, Khon Kaen University, Muang, Thailand; [2]Central Laboratory, Faculty of Public Health, Khon Kaen University, Muang, Thailand.

Abstract #

#1974 **Poster Board Number 564**
Integrating Hazard Characterization Approaches for Evaluating the Potential of Consumer Products to Cause Asthma. *J. Patterson*, *A. Maier*, M. J. Vincent, and *B. K. Gadagbui*. TERA, Cincinnati, OH.

#1975 **Poster Board Number 565**
Assessment of the Impacts of Changes in Regulatory Toxicology of Polycyclic Aromatic Hydrocarbons on Site Assessments. J. H. Salatas[1], *M. R. Garry*[1], and Y. W. Lowney[2]. [1]Exponent, Bellevue, WA; [2]Exponent, Boulder, CO.

#1976 **Poster Board Number 566**
Rapid Risk-Based Response to a Crude Oil Spill. *K. Phillipps*, and *D. B. Davies*. Intrinsik Environmental Sciences Inc., Calgary, AB, Canada.

#1977 **Poster Board Number 567**
Validation Oral Slope Factors for Benzo(a)pyrene Using Whole Mixture Results. *K. T. Connor*, and *B. H. Magee*. Risk Assessment, ARCADIS, Chelmsford, MA.

#1978 **Poster Board Number 568**
Cytotoxicity Test for Hazardous Substances by Using the RTCATM High-Throughput Assay. Y. Li[1], *D. Y. Huang*[1], W. Zhang[2], *S. Gabos*[3], and D. Kinniburgh[1]. [1]Alberta Centre for Toxicology, University of Calgary, Calgary, AB, Canada; [2]Health Protection Branch, Family and Population Health, Alberta Health, Edmonton, AB, Canada; [3]Canadian Institute of Public Health Inspectors - Alberta Branch, Edmonton, AB, Canada.

#1979 **Poster Board Number 569**
Advancements in Arsenic Research Suggest a Dose-Dependent Transition Concentration for Cancer Endpoints. *R. Gentry*[1], *H. J. Clewell*[2], *P. Balbuena*[2], *A. Efremenko*[2], M. Black[2], and *J. W. Yager*[3]. [1]ENVIRON International Corporation, West Monroe, LA; [2]The Hamner Institutes for Health Sciences, Research Triangle Park, NC; [3]University of New Mexico, Albuquerque, NM.

#1980 **Poster Board Number 570**
Refining the Application of a Database Uncertainty Factor in Human Health Risk Assessment. *C. Fleming*[1], *Z. Yan*[1], *J. Lambert*[2], and *Q. Zhao*[2]. [1]ORISE, Cincinnati, OH; [2]US EPA, Cincinnati, OH.

Program Description (Continued)

Wednesday Morning, March 13
9:00 AM to 12:30 PM
Exhibit Hall C–D

PS

Poster Session: Persistent Organic Pollutants

Chairperson(s): *Marian Pavuk, CDC ATSDR, Atlanta, GA, and Senthilkumar Perumal Kuppusamy, The University of Iowa, IIHR, Iowa City, IA.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *9:00 AM–11:00 AM*

Abstract #

#1981 **Poster Board Number 571**
Short-Term Exposure to Perfluoroalkyl Acids Causes Increase of Hepatic Lipid and Triglyceride in Conjunction with Liver Hypertrophy. K. P. Das[1], C. R. Wood[1], M. B. Rosen[2], *C. Lau*[1], and *B. D. Abbott*[1]. [1]Toxicity Assessment Division, ORD, NHEERL, US EPA, Research Triangle Park, NC; [2]Integrated Systems Toxicology Division, ORD, NHEERL, US EPA, Research Triangle Park, NC.

#1982 **Poster Board Number 572**
Structure-Activity Relationships for Perfluoroalkane-Induced Interference with Rat Liver Mitochondrial Respiration. *K. B. Wallace*[1], G. E. Kissling[2], R. Melnick[3,4], and *C. R. Blystone*[3]. [1]Biochemistry & Molecular Biology, University of Minnesota Medical School, Duluth, MN; [2]Biostatistics Branch, NIEHS, Research Triangle Park, NC; [3]National Toxicology Program, NIEHS, Research Triangle Park, NC; [4]Ron Melnick Consulting, LLC, Chapel Hill, NC.

#1983 **Poster Board Number 573**
Determination of Polychlorinated Biphenyls (PCBs) and Hydroxylated Metabolites (OH-PCBs) in Human Blood Serum from Two Populations in East Chicago, Indiana and Columbus Junction, Iowa. W. Koh[1], R. Marek[2], J. DeWall[3], P. S. Thorne[1,3], and K. C. Hornbuckle[1,2]. [1]Interdisciplinary Graduate Program in Human Toxicology, The University of Iowa, Iowa City, IA; [2]Department of Civil and Environmental Engineering, The University of Iowa, Iowa City, IA; [3]Department of Occupational and Environmental Health, The University of Iowa, Iowa City, IA. Sponsor: *L. Robertson*.

#1984 **Poster Board Number 574**
Associations among Polychlorinated Biphenyls (PCBs) and Chlorinated Pesticides and Serum Lipids in Residents of Anniston, Alabama. M. Pavuk[1], Z. Aminov[2], R. Haase[2], D. O. Carpenter[3,2], and W. E. Turner[4]. [1]ATSDR/CDC, Atlanta, GA; [2]School of Public Health, University at Albany, Rensselaer, NY; [3]Institute for Health and the Environment, University at Albany, Rensselaer, NY; [4]NCEH/CDC, Atlanta, GA. Sponsor: *N. Karch*.

#1985 **Poster Board Number 575**
Persistent Organic Pollutants and Transthyretin-Bound Thyroxin in Plasma of Inuit Women of Childbearing Age. Y. Audet-Delage[1], R. Dallaire[1], N. Ouellet[1,2], Dewailly[1], and *P. Ayotte*[1,2]. [1]Axe en Santé des Populations et Environnementale, Centre de Recherche du CHUQ, Québec, QC, Canada; [2]Laboratoire de Toxicologie, Institut National de Santé Publique du Québec, Québec, QC, Canada.

Abstract #

#1986 **Poster Board Number 576**
Effect of TCDD on Peripheral Hormones Regulating Feed Intake and Energy Balance in Rats. R. Pohjanvirta[1], S. Lensu[2], and J. Lindén[1]. [1]Department of Food Hygiene and Environmental Health, University of Helsinki, Helsinki, Finland; [2]Department of Biology of Physical Activity, University of Jyvaskyla, Jyvaskyla, Finland. Sponsor: *M. Viluksela*.

#1987 **Poster Board Number 577**
Effects of Developmental PCB Exposure on Energy Metabolism in Adult and Aged Mice. A. Brown, A. Ashworth, K. Smith, and *C. P. Curran*. Biological Sciences, Northern Kentucky University, Highland Heights, KY.

#1988 **Poster Board Number 578**
Parent PBDEs and the Hydroxylated Congeners Alter Normal Thyroid Activity. *E. D. Bruce*, and *C. Y. Usenko*. Biology, Baylor University, Waco, TX.

#1989 **Poster Board Number 579**
Search for the Basis of PCB126-Triggered Disruption of Hepatic Metal Homeostasis in Rodents. *W. D. Klaren*[1,2], *I. K. Lai*[1,2], and *L. W. Robertson*[1,2]. [1]Interdisciplinary Graduate Program in Human Toxicology, University of Iowa, Iowa City, IA; [2]Occupational and Environmental Health, College of Public Health, University of Iowa, Iowa City, IA.

#1990 **Poster Board Number 580**
Aroclor 1254-Induced Modulation of Osteoblast Differentiation Is Predominantly AhR-Dependent. M. Herlin[1], M. Korkalainen[2], J. Ringblom[1], M. Öberg[1], *M. Viluksela*[2], and *H. Håkansson*[1]. [1]Institute of Environmental Medicine, Karolinska Institutet, Stockholm, Sweden; [2]National Institute of Health and Welfare, Kuopio, Finland.

#1991 **Poster Board Number 581**
Adduction of Cytochrome C by Quinoid Metabolites of Polychlorinated Biphenyls (PCBs). *M. Li*[1], L. Teesch[3], D. Murry[1,4], *L. W. Robertson*[1,2], and *G. Ludewig*[1,2]. [1]Interdisciplinary Graduate Program in Human Toxicology, University of Iowa, Iowa City, IA; [2]Department of Occupational and Environmental Health, University of Iowa, Iowa City, IA; [3]High Resolution Mass Spectrometry Facility, University of Iowa, Iowa City, IA; [4]College of Pharmacy, University of Iowa, Iowa City, IA.

#1992 **Poster Board Number 582**
Alterations in Xenobiotic Metabolizing Enzyme and Immune Relevant Genes following Administration of Brominated and Chlorinated Dioxins and Furans in Female B6C3F1 Mice. *R. Frawley*[1], *M. Smith*[2], *K. White Jr*[2], *N. Walker*[1], *L. Birnbaum*[1,3], T. Maynor[4], *M. DeVito*[1], and *D. Germolec*[1]. [1]DNTP, NIEHS, Research Triangle Park, NC; [2]Virginia Commonwealth University, Richmond, VA; [3]NCI, Research Triangle Park, NC; [4]ILS, Inc, Research Triangle Park, NC.

#1993 **Poster Board Number 583**
PBDE-100 Induces Mitochondrial and HepG2 Impairment. L. C. Pereira[1], A. O. Souza[2], M. J. Tasso[2], and *D. J. Dorta*[2]. [1]FCFRP, Faculdade de Ciências Farmacêuticas de Ribeirão Preto, Ribeirão Preto, Brazil; [2]FFCLRP, Faculdade de Filosofia, Ciências e Letras de Ribeirão Preto, Ribeirão Preto, Brazil.

Program Description (Continued)

Abstract #

#1994 **Poster Board Number 584**
Genomic Plasticity and Polychlorinated Biphenyls: Telomerase Reactivation and AhR Desensitization in Human Keratinocytes after Long-Term Exposure to PCB126. *S. Pk*, *L. Robertson*, and *G. Ludewig*. Human Toxicology, The University of Iowa, Iowa City, IA.

#1995 **Poster Board Number 585**
Exposure to PCB 126 Triggers Antioxidant Defense through Cross-Talk of Caveolae and Nrf2 Signaling. *M. C. Petriello*, *B. Hennig*, and *S. Han*. Toxicology, University of Kentucky, Lexington, KY.

#1996 **Poster Board Number 586**
Fibroblast Growth Factor 21 (FGF21) Is a Target Gene of the Aryl Hydrocarbon Receptor (AhR). *X. Cheng*[1,2], and *C. D. Klaassen*[2]. [1]Pharmaceutical Sciences, St. John's University, Queens, NY; [2]Internal Medicine, University Kansas Medical Center, Kansas City, KS.

#1997 **Poster Board Number 587**
Human Transcription Factor Activation by Polychlorinated Biphenyls and Organochlorine Pesticides. B. Wahlang[1], L. Al-Eryani[1], K. Falkner[1], H. Bellis-Jones[1], H. Clair[1], *R. Prough*[3], and *M. Cave*[1,2]. [1]Department of Medicine/GI, University of Louisville, Louisville, KY; [2]Louisville VAMC, Louisville, KY; [3]Biochemistry, University of Louisville, Louisville, KY.

#1998 **Poster Board Number 588**
Validation of QuEChERS-Based Extraction for the Determination of Organochlorine Pesticides in Liver and Serum Using GC-MS/MS. M. Bokhart[1], A. Lehner[2], M. Johnson[2], and *J. P. Buchweitz*[2,3]. [1]Chemistry, Michigan State University, East Lansing, MI; [2]Diagnostic Center for Population and Animal Health, Michigan State University, East Lansing, MI; [3]Pathobiology and Diagnostic Investigation, Michigan State University, East Lansing, MI.

#1999 **Poster Board Number 589**
Development of Weighted Distributions of Relative Potency Estimates for Dioxin-Like Compounds. *L. Haws*[1], G. Hixon[1], *M. DeVito*[2], *N. Walker*[2], L. Kuriakose[3], *L. Birnbaum*[4], *M. Harris*[3], and *D. Wikoff*[1]. [1]ToxStrategies, Austin, TX; [2]NIEHS, Research Triangle Park, NC; [3]ToxStrategies, Houston, TX; [4]NCI, Research Triangle Park, NC.

#2000 **Poster Board Number 590**
Uptake and Systemic Relative Effect Potencies of 4-PECDF, PCB-126, PCB-118 and PCB-156 in Female Mice after Acute Exposure. K. I. van Ede[1], P. Andersson[2], K. P. Gaisch[1], *M. van den Berg*[1], and *M. B. van Duursen*[1]. [1]Institute for Risk Assessment Sciences, Utrecht University, Utrecht, Netherlands; [2]Faculty of Science and Technology, Umeå University, Umeå, Sweden.

Abstract #

Wednesday Morning, March 13
9:00 AM to 12:30 PM
Exhibit Hall C–D

PS

Poster Session: Oxidative Injury and Redox Biology

Chairperson(s): *Scott Burchiel, University of New Mexico, Albuquerque, NM.*

Displayed: *9:00 AM–12:30 PM*

Author Attended: *11:00 AM–12:30 PM*

#2001 **Poster Board Number 601**
Phenylethyl Isothiocyanate and Dithiocarbamate Restore Proangiogenic Properties of Cyp1b1-Deficient Vascular Cells through Decreased NF-κB Activity and Oxidative Stress. *T. L. Palenski*[1], C. M. Sorenson[2], and *N. Sheibani*[1]. [1]Ophthalmology & Visual Sciences, University Wisconsin-Madison, Madison, WI; [2]Pediatrics, University Wisconsin-Madison, Madison, WI.

#2002 **Poster Board Number 602**
***Cyp1b1*-Deficiency Alters Structure and Function of Trabecular Meshwork via Increased Oxidative Stress.** *Y. Zhao*[1], S. Wang[1], C. M. Sorenson[2], D. M. Peters[1,3], L. Teixeira[5], R. R. Dubielzig[5], and N. Sheibani[1,4]. [1]Departments of Ophthalmology and Visual Sciences, University of Wisconsin-Madison, Madison, WI; [2]Pediatrics, University of Wisconsin-Madison, Madison, WI; [3]Pathology, University of Wisconsin-Madison, Madison, WI; [4]Pharmacology, University of Wisconsin-Madison, Madison, WI; [5]Comparative Ocular Pathology Laboratory of Wisconsin, University of Wisconsin-Madison, Madison, WI.

#2003 **Poster Board Number 603**
Macrophage Toxicity in Response to Particles Collected from Indium-Tin Oxide Production. *M. A. Badding*[1], N. R. Fix[1], *K. M. Dunnick*[1], K. J. Cummings[2], *V. Castranova*[1], and S. S. Leonard[1]. [1]Health Effects Laboratory Division, NIOSH, Morgantown, WV; [2]Division of Respiratory Disease Studies, NIOSH, Morgantown, WV.

#2004 **Poster Board Number 604**
Role of Cytochrome P450 (CYP)1A Enzymes in Sex-Specific Differences in Hyperoxic Lung Injury. K. Lingappan, W. Jiang, L. Wang, X. Couroucli, and *B. Moorthy*. Pediatrics, Baylor College of Medicine, Houston, TX.

#2005 **Poster Board Number 605**
Towards Elucidating the Pathophysiological Role of Reactive γ-Ketoaldehydes Formed through the Isoprostane Pathway of Lipid Peroxidation. T. T. Nguyen[1,2], *P. Chen*[2,3], *M. Aschner*[1,2,3], and L. Roberts[1,4]. [1]Pharmacology, Vanderbilt University Medical Center, Nashville, TN; [2]Pediatrics, Vanderbilt University Medical Center, Nashville, TN; [3]Neuroscience, Vanderbilt University Medical Center, Nashville, TN; [4]Medicine, Vanderbilt University Medical Center, Nashville, TN.

#2006 **Poster Board Number 606**
High-Content Imaging Assay to Detect Drug-Induced Reactive Oxygen Species Generation. *Y. Will*, R. Swiss, and *S. Nadanaciva*. Pfizer Inc, Groton, CT.

Program Description (Continued)

Abstract #

#2007 **Poster Board Number 607**
The Antioxidant Lipoic Acid Exacerbates Paraquat-Induced Cytotoxicity. *Z. Suntres*[1,2], R. Pycko[2], and J. Coccimiglio[2]. [1]Northern Ontario School of Medicine, Thunder Bay, ON, Canada; [2]Biology, Lakehead University, Thunder Bay, ON, Canada.

#2008 **Poster Board Number 608**
Lipid Droplets with Oxygenated Fatty Acids and Triglycerides in Dendritic Cells: Possible Role in Antigen Presentation in Cancer. V. Tyurin[1,2], W. Cao[3], J. Loomen[3], *V. Kagan*[1,2], and D. Gabrilovich[3]. [1]Department of Environmental and Occupational Health, University of Pittsburgh, Pittsburgh, PA; [2]Center for Free Radical and Antioxidant Health, University of Pittsburgh, Pittsburgh, PA; [3]Department of Immunology, H. Lee Moffitt Cancer Center, Tampa, FL.

#2009 **Poster Board Number 609**
Mitochondrial Cardiolipin As a Substrate for Cytochrome C-Catalyzed Production of Oxygenated Lipid Mediators. *V. Kagan*[1], V. Tyurin[1], S. Poloyac[2], M. Epperly[3], J. Greenberger[3], H. Bayir[4], and *Y. Tyurina*[1]. [1]Department of EOH, University of Pittsburgh, Pittsburgh, PA; [2]Pharmaceutical Science, University of Pittsburgh, Pittsburgh, PA; [3]Radiation Oncology, University of Pittsburgh, Pittsburgh, PA; [4]Critical Care Medicine, University of Pittsburgh, Pittsburgh, PA.

#2010 **Poster Board Number 610**
Development of a Mitochondria-Targeted Nano-Complex of Imidazole-Substituted Oleic Acid As a Radiomitigator. A. Star[1,3], *A. Kapralov*[2,3], A. Amoscato[2,3], V. Tyurin[2,3], W. Seo[1,3], M. Epperly[4,3], J. Greenberger[4,3], *Y. Tyurina*[2,3], and *V. Kagan*[2,3]. [1]Department of Chemistry, University of Pittsburgh, Pittsburgh, PA; [2]Department of Environmental and Occupational Health, University of Pittsburgh, Pittsburgh, PA; [3]Center for Medical Countermeasures against Radiation, University of Pittsburgh, Pittsburgh, PA; [4]Radiation Oncology, University of Pittsburgh, Pittsburgh, PA.

#2011 **Poster Board Number 611**
XBP1, SYVN1 and Nrf2: At the Crossroads of ER Stress and Oxidative Stress. *T. Wu*, and *D. D. Zhang*. College of Pharmacy, University of Arizona, Tucson, AZ.

#2012 **Poster Board Number 612**
Sulforaphane Stimulates Basal but Inhibits Glucose-Stimulated Insulin Secretion in Beta-Cells: Role of Reactive Oxygen Species and Induction of Endogenous Antioxidants. *J. Fu*[1], *Q. Zhang*[1], C. G. Woods[1], H. Zheng[1], B. Yang[1,2], *M. E. Andersen*[1], and *J. Pi*[1]. [1]Institute for Chemical Safety Sciences, The Hamner Institutes for Health Sciences, Durham, NC; [2]College of Basic Medical Science, China Medical University, Shenyang, China.

#2013 **Poster Board Number 613**
Generation of Reactive Oxygen Species by Process Materials from Indium-Tin Oxide Production. N. R. Fix[1], *K. M. Dunnick*[1], *M. A. Badding*[1], A. B. Stefaniak[2], K. J. Cummings[2], *V. Castranova*[1], and S. S. Leonard[1]. [1]Health Effects Laboratory Division, NIOSH, CDC, Morgantown, WV; [2]Division of Respiratory Disease Studies, NIOSH, CDC, Morgantown, WV.

Abstract #

#2014 **Poster Board Number 614**
Lower Expression of Nrf2 Promotes Proliferation, Migration and Invasion of Prostate Cancer Cells. *R. Khatri*, and *A. K. Jaiswal*. Pharmacology and Experimental Therapeutics, University of Maryland Baltimore, Baltimore, MD.

#2015 **Poster Board Number 615**
Mechanisms of Oxidative Stress Promoted by 1,4-Diamino-2-Butanone in Trypanosoma cruzi and Mammalian Cells. *E. J. Bechara*[1,2], C. O. Soares[2], W. Colli[2], and M. M. Alves[2]. [1]Ciências Exatas e da Terra, Universidade Federal de São Paulo, Diadema, Brazil; [2]Bioquímica, Universidade de São Paulo, São Paulo, Brazil.

#2016 **Poster Board Number 616**
Receptor-Mediated Reactive Oxygen Species Contribute to Impaired Coronary Vasodilation following Acute Ozone Exposure in Rat. *M. Paffett*[1], S. Robertson[1], S. Lucas[1], T. Anderson[2], M. Nysus[2], J. Norenberg[2], and *M. Campen*[1]. [1]Pharmaceutical Sciences, University of New Mexico, Albuquerque, NM; [2]Radiopharmaceutical Sciences, University of New Mexico, Albuquerque, NM.

#2017 **Poster Board Number 617**
***In Vitro* Modification of Plasminogen by Methylglyoxal Disrupts Normal Zymogen Activation.** *O. R. Kinsky*, *M. J. Kimzey*, *T. J. Monks*, and *S. S. Lau*. Southwest Environmental Health Sciences Center, Department of Pharmacology & Toxicology, College of Pharmacy, University of Arizona, Tucson, AZ.

#2018 **Poster Board Number 618**
Oxidative Stress-Dependent Destruction of Cdc25C As a Novel Chemotherapeutic Strategy for the Targeted Induction of Cell Cycle Arrest. S. Qiao[1,2], and G. T. Wondrak[1,2]. [1]Pharmacology and Toxicology, University of Arizona, Tucson, AZ; [2]Arizona Cancer Center, University of Arizona, Tucson, AZ. Sponsor: *W. Klimecki*.

#2019 **Poster Board Number 619**
Selective Detoxification of Hypothiocyanite by Mammalian Thioredoxin Reductase, the Missing Link in Lung Innate Immunity and Antioxidant Defense. *J. D. Chandler*[1,2], R. J. Hondal[3], and *B. J. Day*[1,2]. [1]Pharmaceutical Sciences, University of Colorado Denver, Denver, CO; [2]Medicine, National Jewish Health, Denver, CO; [3]Biochemistry, University of Vermont, Burlington, VT.

#2020 **Poster Board Number 620**
GRP78 Contributes to the Selective Cytoprotection Afforded by All-Trans-Retinoic Acid against Renal Injury. *J. Sapiro*, A. C. Gallegos, I. Y. Rojas, A. B. Romans, *R. D. Canatsey*, *T. J. Monks*, and *S. S. Lau*. SWEHSC, Pharmacology & Toxicology, University of Arizona, Tucson, AZ.

#2021 **Poster Board Number 621**
Sulfur Dioxide Modulates Oxidative Stress Responses in IL-10-Deficient Mice with Airway Inflammation. *A. L. Reno*[1], L. M. Hallberg[2], W. C. Spear[1], J. L. Parks[1], A. P. Chaparro[3], E. G. Brooks[3], and *B. T. Ameredes*[1]. [1]Internal Medicine, University of Texas Medical Branch, Galveston, TX; [2]Preventive Medicine and Community Health, University of Texas Medical Branch, Galveston, TX; [3]Pediatrics, University of Texas Health Science Center, San Antonio, TX.

Program Description (Continued)

Abstract #

#2022 **Poster Board Number 622**
Statin-Induced Cytotoxicity in C2C12 Myoblasts Is Accompanied by Mitochondrial Dysfunction and Excessive ROS Production. T. Schirris[1,3], J. J. Nabers[1,3], J. D. Beyrath[2,3], J. A. Smeitink[2,3], and *F. G. Russel*[1,3]. [1]Pharmacology and Toxicology, Radboud University Nijmegen Medical Centre, Nijmegen, Netherlands; [2]Pediatrics, Radboud University Nijmegen Medical Centre, Nijmegen, Netherlands; [3]Centre for Systems Biology and Bioenergetics, Nijmegen, Netherlands.

#2023 **Poster Board Number 623**
Screening and Characterization of Aldehydes on the Basis of Protein Carbonylation. *H. Dhot*[1,2], and P. J. O'Brien[2]. [1]Institute of Environmental Medicine, Karolinska Institutet, Stockholm, Sweden; [2]Faculty of Pharmacy, University of Toronto, Toronto, ON, Canada.

#2024 **Poster Board Number 624**
Autophagy Is Protective against CYP2E1-Dependent Arachidonic Acid, Buthionine-Sulfoximine, and Carbon Tetrachloride Cytotoxicity in E47 HepG2 Cells through Preventing Mitochondrial Dysfunction. D. Wu, and A. I. Cederbaum. Pharmacology & Systems Therapeutics, Mount Sinai School of Medicine, New York, NY. Sponsor: *Y. Lu*.

#2025 **Poster Board Number 625**
Absence of Upstream Consensus Regulatory Element Sequences for Nrf2 in Human Glutathione S-Transferase Genes. C. M. Schaupp[1], *T. K. Bammler*[2], R. P. Byer[2], *T. J. Kavanagh*[1,2], and *D. L. Eaton*[1,2]. [1]Environmental and Occupational Health Sciences, University of Washington, Seattle, WA; [2]Center for Ecogenetics & Environmental Health, University of Washington, Seattle, WA.

#2026 **Poster Board Number 626**
Pharmacological Inhibition of Thioredoxin Reductase I Attenuates Hyperoxic Lung Injury by Augmenting Glutathione Synthesis. *L. K. Rogers*[1,3], *R. D. Britt*[1], T. E. Tipple[1,3], and M. Velten[1,2]. [1]Center for Perinatal Research, The Research Institute at Nationwide Children's Hospital, Columbus, OH; [2]Anesthesiology and Intensive Care, Rheinische Friedrich-Wilhlems University, Bonn, Germany; [3]Pediatrics, The Ohio State University, Columbus, OH.

#2027 **Poster Board Number 627**
Aniline Up-Regulates Cyclins via Induction of Oxidative Stress in Rat Spleen. J. Wang, G. Wang, H. Ma, and *M. Khan*. University of Texas Medical Branch, Galveston, TX.

#2028 **Poster Board Number 628**
Understanding the Role of UCP2 in Fatty Acid Beta-Oxidation and Drug-Induced Liver Injury. J. E. Montanez[1], P. B. Smith[2], and *A. D. Patterson*[1,2]. [1]Veterinary and Biomedical Science, The Pennsylvania State University, University Park, PA; [2]Center for Molecular Toxicology and Carcinogenesis, The Pennsylvania State University, University Park, PA.

Abstract #

#2029 **Poster Board Number 629**
Real-Time Monitoring of Xenobiotic-Induced Intracellular Redox Changes Using Ozone As a Model Oxidant. *E. A. Gibbs-Flournoy*[1], S. O. Simmons[2], P. A. Bromberg[3], and J. M. Samet[4]. [1]Curriculum in Toxicology, University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]ISTD/NHEERL, US EPA, Research Triangle Park, NC; [3]Center for Environmental Medicine, Asthma, and Lung Biology, University of North Carolina at Chapel Hill, Chapel Hill, NC; [4]EPHD/NHEERL, US EPA, Chapel Hill, NC.

#2030 **Poster Board Number 630**
Formation 4-Hydroxynonenal, an Electrophilic Lipid Peroxidation End Product, in Rabbit Corneal Organ Cultures Treated with Nitrogen Mustard. *A. T. Black*[1], R. Zheng[1], I. Po[1], *D. E. Heck*[2], *D. L. Laskin*[1], *D. R. Gerecke*[1], *M. K. Gordon*[1], and *J. D. Laskin*[3]. [1]Pharmacology & Toxicology, Rutgers University, Piscataway, NJ; [2]Environmental Science, New York Medical College, Valhalla, NY; [3]Environmental & Occupational Medicine, UMDNJ-Robert Wood Johnson Medical School, Piscataway, NJ.

#2031 **Poster Board Number 631**
Isoniazid-Induced Cellular Challenge in HL-60 Cells: An In-Depth Proteomic Perspective. M. R. Khan[1], A. Baghdasarian[1], R. P. Fahlman[2], and *A. Siraki*[1]. [1]Pharmacy & Pharmaceutical Sciences, University of Alberta, Edmonton, AB, Canada; [2]Biochemistry, University of Alberta, Edmonton, AB, Canada.

#2032 **Poster Board Number 632**
Attenuation of Experimental Retinopathy of Prematurity by Vitamin A in the Newborn Rat. *X. Couroucli*[1], Y. Liang[1], *G. Zhou*[2], W. Jiang[1], and *B. Moorthy*[1]. [1]Pediatrics, Baylor College of Medicine, Houston, TX; [2]Institute of Biosciences and Technology, Texas A&M University Health Science Center, Houston, TX.

#2033 **Poster Board Number 633**
Systemic Nerve Growth Factor Modulates the Transcription of Amino Acid Transporters and Glutathione (GSH) Synthesis in Mice Striatum. *C. Valdovinos-Flores*, and *M. E. Gonsebatt*. Universidad Nacional Autonoma de Mexico, Mexico City, Mexico.

#2034 **Poster Board Number 634**
HMGB1 Mediates Hyperoxia-Induced Impairment of *Pseudomonas aeruginosa* Clearance and Inflammatory Lung Injury in Mice. V. S. Patel[1], *R. Sitapara*[1], A. Gore[1], B. Phan[1], L. Sharma[1], V. Sampat[1], J. Li[2], H. Yang[2], S. Chavan[2], H. Wang[2], K. Tracey[2], and *L. Mantell*[1,2,3]. [1]Pharmaceutical Sciences, Saint John's University, Fresh Meadows, NY; [2]Center for Inflammation and Immunology, The Feinstein Institute for Medical Research, North Shore-LIJ Health Science, Manhasset, NY; [3]Center for Heart and Lung Research, The Feinstein Institute for Medical Research, North Shore-LIJ Health Science, Manhasset, NY.

#2035 **Poster Board Number 635**
Exposure to Perfluorooctanoic Acid (PFOA) Causes Oxidative Stress in the Mouse Pancreas. *Q. Wu*, A. A. Bond, *L. M. Kamendulis*, and *B. A. Hocevar*. Environmental Health, Indiana University School of Public Health, Bloomington, IN.

Program Description (Continued)

Abstract #

#2036 **Poster Board Number 636**
Chronic Over-Expression of Receptor Tyrosine Kinase ErbB2 in the Heart Alters Redox-Sensitive Molecules in the Mitochondria. *F. Belmonte*[1,2], S. Das[3], V. Sivakumaran[3], P. Sysa Shah[2], C. Steenbergen[3], and *K. Gabrielson*[2]. [1]Environmental Health Sciences-Molecular and Translational Toxicology, Johns Hopkins University, Baltimore, MD; [2]Molecular and Comparative Pathology, Johns Hopkins University, Baltimore, MD; [3]School of Medicine, Johns Hopkins University, Baltimore, MD.

#2037 **Poster Board Number 637**
The Role of NO and the Glutathione Pathway in Menadione-Induced Oxidative Stress. *P. Venkatakrishnan*, *B. Masters*, and L. J. Roman. Biochemistry, University of Texas Health Science Center at San Antonio, San Antonio, TX.

#2038 **Poster Board Number 638**
Synthesis and Crystal Structure of N-Acetyl-5-Chloro-3-Nitro-L-Tyrosine Ethyl Ester. T. T. Mutahi[1], B. J. Edagwa[2], F. R. Fronczek[2], and *R. M. Uppu*[1]. [1]Environmental Toxicology, Southern University and A&M College, Baton Rouge, LA; [2]Chemistry, Louisiana State University, Baton Rouge, LA.

#2039 **Poster Board Number 639**
Oxidative Stress Mediates Chlorpromazine-Induced Cholestasis in Human HepaRG Cells. A. Guillouzo[1], S. Antherieu[1], P. Bachour-El Azzi[1,2], J. Dumont[1], Z. Abdel-Razzak[2], C. Guguen-Guillouzo[1], B. Fromenty[1], and *M. Robin*[1]. [1]Inserm 991, University of Rennes, Rennes, France; [2]Lebanese University, EDST-PRASE and EDST-AZM Center-LBA3B, Hadath, Lebanon.

#2040 **Poster Board Number 640**
Evaluation of Thiotaurine for Effects against Ethanol-Induced Oxidative Stress in the Presence and Absence of Inhibitors of Ethanol Metabolism in the Rat. M. C. Parikh, Y. Shen, and C. A. Lau-Cam. Pharmaceutical Sciences, St. John's University, Jamaica, NY. Sponsor: *B. Blase*.

Wednesday Morning, March 13
9:15 AM to 10:15 AM
Room 007 A

E

Exhibitor/Sponsor-Hosted Session: Alternative Methods in Preclinical Toxicology: 3Rs in Practice

Presented by:
Charles River

Charles River is committed to the 3Rs (Replacement, Reduction, and Refinement) and continues to apply these principles in preclinical toxicology. In this session, we demonstrate novel aspects of applying these guiding principles in the use of candidate selection, microsampling and *in vitro* models, which provide significant gains in increased efficiencies.

Wednesday Morning, March 13
9:15 AM to 10:15 AM
Room 007 C

E

Exhibitor/Sponsor-Hosted Session: Applications of High Content Analysis in Pharmaceutical and Consumer Products Safety Testing

Presented by:
Thermo Scientific

High content analysis using automated microscopy, image analysis, and primary or immortalized cells, offers superior performance to animal testing at a fraction of the expense. This technology screens for drug/chemical induced liver injury, reproductive, genetic, neuro, and immunotoxicity. This seminar will detail the validation of several assays and cases.

Wednesday Morning, March 13
9:15 AM to 10:15 AM
Room 007 B

E

Exhibitor/Sponsor-Hosted Session: Immunological Considerations of Intravenously Administered Drugs: Addressing Challenges in the Development of Intravenous Drugs Series

Presented by:
Covance

New regulatory guidelines require assessment of immune "function" for certain drug classes in the preclinical environment. Many challenges are associated with such assessment, particularly for intravenously administered drugs. This session discusses strategies for conducting intravenous studies and ways to avoid common pitfalls associated with managing immunological concerns.

Wednesday Morning, March 13
9:30 AM to 4:30 PM
Room 209

FS

Research Funding Session: Research Funding Information Room

Chairperson(s): *David Dorman, North Carolina State University, Raleigh, NC.*

Sponsor:
Research Funding Committee

Representatives from federal agencies funding research, including NIH program and review staff of the Center for Scientific Review and NIEHS, will be available in the Research Funding Room for individual conversations. Make an appointment with your program officer in advance or at their exhibit booth, or check the posted schedule, to meet with the staff member who can discuss with you aspects of scientific review or specific grant opportunities. New investigators are especially encouraged to meet with program staff. Schedules will be available in the Exhibit Hall.

Program Description (Continued)

Wednesday Morning, March 13
10:00 AM to 11:00 AM
Room 216 A

(Ticket Required; SOT Student and Postdoctoral members only, limited seating)

Trainee Discussion with Medical Research Council (MRC) Lecturer: Prof. Nicholson

Chairperson(s): *Enrique Fuentes-Mattei, University of Texas MD Anderson Cancer Center, Houston, TX.*

Lecturer: *Jeremy K. Nicholson, Imperial College London, London, United Kingdom.*

Prof. Nicholson will meet informally for discussion with graduate students and postdoctoral scholars after his Keynote MRC Lecture (*see page 267*). Room occupancy is limited, and participants register for a ticket with their Annual Meeting registration.

Wednesday Morning and Afternoon, March 13
10:30 AM to 2:30 PM
CC Exhibit Hall C *(Adjacent to SOT Pavilion)*

High School Poster Exposition

Chairperson(s): *Daniel E. Arrieta, Chevron Phillips Chemical Company LP, The Woodlands, TX.*

Sponsors:
Education Committee
K–12 Subcommittee

High school student research related to toxicology is featured in an area adjacent to the 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.

Wednesday Morning, March 13
10:30 AM to 11:30 AM
Room 007 B

E

Exhibitor/Sponsor-Hosted Session: Human Embryonic Stem (hES) Cells for Predictive Toxicology

Presented by:
Stemina Biomarker Discovery, Inc.

More predictive *in vitro* developmental toxicity screens are needed to provide early safety assessments. Human embryonic stem (hES) cells provide an all human system to predict developmental toxicity. Attendees will learn about Stemina's new targeted, fast, highly predictive assay using specific biomarkers identified from a metabolomics-based developmental toxicity screen: devTOX.

Wednesday Morning, March 13
10:30 AM to 11:30 AM
Room 007 C

E

Exhibitor/Sponsor-Hosted Session: IPA the Fast Path to Toxicity Targets of Interest

Presented by:
Ingenuity Systems

Learn how IPA can help you quickly filter down to specific toxicity targets of interest, understand the related genetic and biomarker evidence, and create gene panels for phenotypes of interest. With IPA, you can discover plausible signaling cascades from predicted upstream regulators that can explain the gene expression changes in your transcriptional profiling experiments.

Wednesday Morning, March 13
10:30 AM to 11:30 AM
Room 007 A

E

Exhibitor/Sponsor-Hosted Session: New Drugs for the Treatment of Inflammation and Chronic Viral Infection—Assessing the Safety of Drugs Designed to Modify TLR Pathways

Presented by:
Huntingdon Life Sciences

Toll-like receptors play a major role in the innate immune system. Drugs that interact with TLRs have potential to treat a wide range of diseases. The talk will focus upon pathway biology, selection of relevant nonclinical species and performance of safety studies designed to collect clinically translatable readouts.

Wednesday Morning, March 13
11:45 AM to 12:45 PM
Room 007 C

E

Exhibitor/Sponsor-Hosted Session: A Novel Method for Tetherless Monitoring and Analysis of Seizures

Presented by:
emka TECHNOLOGIES, Inc.

We will present a new and unique wireless technology to monitor EEG, EMG, ECG, activity, and temperature from freely moving, single or group housed subjects. In addition, specific analysis tools for seizure detection and sleep scoring will be introduced. Finally, results from ongoing case studies will be presented to current users.

Wednesday Morning, March 13
11:45 AM to 12:45 PM
Room 007 A

E

Exhibitor/Sponsor-Hosted Session: MicroRNA in Biofluids—Robust Biomarkers for Disease Toxicology or Injury Studies

Presented by:
Exiqon, Inc.

MicroRNA in biofluids—Robust biomarkers for disease, toxicology, or injury studies. The LNA—based microRNA qPCR platform for accurate detection of microRNAs in biofluids and their utility as toxicity biomarkers. Case study: identification of microRNA biomarkers in rat urine following nephrotoxin administration.

Wednesday Morning, March 13
11:45 AM to 12:45 PM
Room 007 B

E

Exhibitor/Sponsor-Hosted Session: The Preclinical Development of Gene Therapy Medicinal Products (GTMPs)

Presented by:
Aptuit

Gene Therapies (GTs) are emerging therapeutic opportunities to treat life-threatening diseases. The preclinical development to make GTs ready for patients is presented, from fit-for purpose study design, conjugating classical toxicological paradigms with qPCR biodistribution to assess safety endpoints, to quality evaluation, in a continuously evolving regulatory framework.

Program Description (Continued)

Abstract #

WEDNESDAY AFTERNOON

Wednesday Afternoon, March 13
12:00 Noon to 1:20 PM
Room 214 A&B

R

Roundtable Session: Skeptically Examining the Limits of Toxicology Evidence in the Courtroom

Chairperson(s): *George B. Corcoran, Wayne State University, Department of Pharmaceutical Sciences, Detroit, MI, and John P. Norman, ExxonMobil Biomedical Sciences Inc, Annandale, NJ.*

Sponsor:
Ethical, Legal, and Social Issues Specialty Section

The opposing orientation of toxicology experts and select evidence can skew the accuracy and value of testimony in court. Lawyers and judges are acquiring increasing skills to evaluate technical and scientific assertions with skepticism. Scholarly scientific approaches are required to establish whether techniques and methods asserted to be scientifically sound are valid and support justice. An introduction briefly covers topics helpful to understanding what happens to experts in litigation. This includes the law's theory of expert evidence, rules of evidence and procedure relating to expert testimony, alternative admissibility rules (Frye v Daubert trilogy), the NRC report and Canadian parallels, a law-science syllogism, the adversary process in theory and practice, ethical principles, clashes of ethics, data (especially quantitative), disclosure of evidence helpful to the other side, and for whom the litigation expert works. The toxicology expert must address relevant science in a fair, representative manner and communicate effectively. The use of Bradford-Hill Criteria (1964) has been promoted to address general causation in toxic torts. While comprehensive, it poses challenges including jargon and communication. Recently, a five question approach was introduced to address specific causation. Explanations and examples of causation will be reviewed. Finally, the 2009 National Academies report recommends that forensic sciences look to academic scientific models for reliable practice and technique validation to support court testimony. Lawyers and courts have become more skeptical of unsupported opinions and increasingly aware of how to combat them. Academic toxicology can offer much to advance the legitimacy of admitted evidence, including in the area of forensics. A discussion will include foibles and solutions.

#2041 12:00 **Skeptically Examining the Limits of Toxicology Evidence in the Courtroom.** *G. B. Corcoran*[1], *J. Norman*[2], M. J. Saks[3], *S. M. Bobst*[4], and R. T. Kennedy[5]. [1]Pharmaceutical Sciences, Wayne State University, Detroit, MI; [2]ExxonMobil Biomedical Sciences, Annandale, NJ; [3]Sandra Day O'Connor College of Law, Arizona State University, Tempe, AZ; [4]Nexeo Solutions, The Woodlands, TX; [5]New Mexico Court of Appeals, Albuquerque, NM.

12:00 **Introduction.** George B. Corcoran

12:08 **Understanding and Attenuating the Forces in the Litigation Process That Can Distort Knowledge.** Michael J. Saks

12:26 **Addressing Skepticism by Judge and Jury with a Specific Causation—A Five Question Approach.** Sol M. Bobst

12:44 **Judicial Perspective: How Can Ethical Toxicology Inform Forensic Toxicology for Use in Court?** Roderick T. Kennedy

1:02 **Q&A.** Panel Discussion

Abstract #

Wednesday Afternoon, March 13
12:00 Noon to 1:20 PM
Room 217 A&B

IS

Informational Session: Harnessing Electronic Standards and Informatics to Transform the Use of Regulatory Toxicological Data

Regulatory Science: Advancing New Approaches for Hazard Identification and Risk Assessment

Chairperson(s): *Laine P. Myers, US FDA, Office of New Drugs, Silver Spring, MD, and Leigh Ann Burns Naas, Gilead Sciences, Inc., San Diego, CA.*

Sponsor:
Biotechnology Specialty Section

Endorsed by:
Regulatory and Safety Evaluation Specialty Section

One of the major efforts in nonclinical regulatory informatics has centered on the development and testing of the electronic data submission standard, also called SEND (Standard for Exchange of Nonclinical Data). This standard was developed by the Clinical Data Interchange Standards Consortium's (CDISC) SEND Team for nonclinical data collected from animal toxicology studies and allows for the electronic submission of tabulated toxicology data in an electronic format. The initial pilot project began in 2003 and was followed by a second pilot in 2007 focused on CDER-regulated projects. The production of the SEND 3.0 Implementation Guide in 2011 was a major step forward for the electronic submission and exchange of standardized data and enablement of data warehousing efforts that better support scientific review and regulatory science initiatives. However, it is recognized that data standards are simply enablers to support the broader goals of better exploring and exploiting diverse study data and metadata in order to answer important scientific review and regulatory science questions. The range of needs and challenges in the regulatory pharmacology and toxicology field can be daunting but many of the challenges are shared among key stakeholders (e.g., the US FDA, sponsors, and CROs). These challenges, which range from warehousing to analysis to QA/GLP ramifications, are laying the foundation for a compliant exchange of data and opportunities for collaboration through public/private partnerships. This session will discuss the current computational science initiatives at the US FDA and in industry, existing partnerships, challenges and successes, as well as the transformative effect on the CRO model.

#2042 12:00 **Harnessing Electronic Standards and Informatics to Transform the Use of Regulatory Toxicological Data.** *L. P. Myers*[1], *L. A. Burns Naas*[2], *T. Kropp*[1], A. Nanzer[3], and T. Smyrnios[4]. [1]Center for Drug Evaluation and Research, US FDA, Silver Spring, MD; [2]Gilead Sciences, Inc., Foster City, CA; [3]F. Hoffmann-La Roche Ltd., Basel, Switzerland; [4]MPI Research, Inc., Mattawan, MI.

12:00 **Introduction.** Laine Peyton Myers

12:05 **US FDA/PhUSE Computational Sciences: Nonclinical Standards and SEND Implementation.** Timothy J. Kropp

12:25 **Standardization and Integration: Exploring the Full Value of Nonclinical Safety Data.** Alain Nanzer

12:45 **CROs, SEND, and Data Standardization…Oh My!** Troy Smyrnios

1:05 **Q&A.** Panel Discussion

Program Description (Continued)

Abstract #

Wednesday Afternoon, March 13
12:00 Noon to 1:20 PM
Room 214 C&D

EC

Education-Career Development Session: Regulatory Science and Risk Assessment: Lessons for Early-Career Scientists on What to Expect and How to Pursue This Career Path

Regulatory Science: Advancing New Approaches for Hazard Identification and Risk Assessment

Chairperson(s): *Betina J. Lew, Procter & Gamble Company, PS&RA, Cincinnati, OH, and Jose A. Torres, Texas Southern University, Environmental Toxicology, Houston, TX.*

Sponsor:
Postdoctoral Assembly

Endorsed by:
Career Resource and Development Committee
Education Committee
Risk Assessment Specialty Section

During academic training, postdoctoral and graduate students generally are not provided with opportunities for interacting with toxicologists who are involved in risk assessment and regulatory affairs. The educational training mainly focuses on basic sciences or solving mechanistic problems and thus lacks the practical aspects of risk assessment and regulatory preparation. This concern was discussed at the Education Summit in October 2011, which was organized by the Education Committee of the SOT. Dr. John Doull's comment that, "toxicology is what we do, but risk assessment is why we do it," shows the importance for trainees to become aware of both. Unfortunately, when it is time for the trainee to make the decision on what will be the next step in their careers, they are well prepared on what we do, but fall short on why we do it. The objectives of this session are to provide postdoctoral and graduate students with basic understanding of approaches in risk assessment and regulatory affairs in some of the sectors and to educate them about necessary preparative steps in this field. In this 80-minute Education-Career Development Session, trainees will become more familiar with the routine job of toxicologists outside of the academic setting. Further, there will be a panel discussion on steps that can be taken during graduate school and postdoctoral training to improve the preparation for a career in risk assessment and regulatory fields. Thus, the participants are expected to gain a basic knowledge of risk assessment and regulatory preparation in the life of a toxicologist and how to pursue this field.

#2043	12:00	**Regulatory Science and Risk Assessment: Lessons for Early-Career Scientists on What to Expect and How to Pursue This Career Path.** *B. J. Lew*[1], *J. A. Torres*[2], *D. L. Bjerke*[1], *J. C. Lipscomb*[3], *A. Maier*[4], and *D. Jacobson Kram*[5]. [1]PS&RA, Procter & Gamble Company, Cincinnati, OH; [2]Environmental Toxicology, Texas Southern University, Houston, TX; [3]NCEA, US EPA, Cincinnati, OH; [4]Toxicology Excellence for Risk Assessment (TERA), Cincinnati, OH; [5]CDER, US FDA, Silver Spring, MD.
	12:00	**Introduction.** Betina J. Lew
	12:05	**Risk Assessment in the Private Sector.** Donald L. Bjerke
	12:20	**The Role of US EPA on Risk Assessment.** John C. Lipscomb
	12:35	**Getting Ready for a Career As a Risk Assessor in a Global Environment.** Andrew Maier
	12:50	**Regulations and Assessment for New Drugs by the US FDA.** David Jacobson Kram
	1:05	**Q&A.** Panel Discussion

Wednesday Afternoon, March 13
12:00 Noon to 1:30 PM
Room 215

Regional Chapter Collaboration and Communications Committee Meeting

Wednesday Afternoon, March 13
12:00 Noon to 1:30 PM
See room listing below.

Specialty Section Meeting/Luncheons: Medical Device (Room 212), Occupational and Public Health (Room 213)

Wednesday Afternoon, March 13
12:30 PM to 1:20 PM
Grand Ballroom C2

FS

Distinguished Toxicology Scholar Award Lecture: Mitochondria: Crossroads of Cell Survival, Death, and Transformation

Lecturer: *John J. Lemasters, Medical University of South Carolina, Charleston, SC.*

Increased Ca^{2+}, formation of reactive oxygen and nitrogen species, and oxidation of pyridine nucleotides and glutathione promote a phenomenon called the mitochondrial permeability transition that in turn leads to mitochondrial depolarization and swelling with outer membrane rupture. The MPT initially promotes degradation of mitochondria by autophagy (mitophagy). However, excess MPT induction causes both ATP depletion-dependent necrotic cell death and caspase-dependent apoptosis during reperfusion injury, hepatotoxicity and other stresses. Cellular stresses also cause lysosomal alkalinization and/or disintegration, leading to release of iron, which is taken into mitochondria by the mitochondrial calcium uniporter to enhance hydroxyl radical formation and MPT onset. Suppressed mitochondrial metabolism with activation of glycolysis called the Warburg phenomenon is a hallmark feature of transformed cancer cells. Free tubulin, which is high in proliferating cells, blocks voltage dependent anion channels (VDAC) in the mitochondrial outer membrane, which accounts for this global mitochondrial suppression. Thus, both increases and decreases of mitochondrial membrane permeability contribute to pathobiology. Understanding these processes offers new strategies to rescue cells and tissues from irreversible toxic and ischemic injury and to develop anti-proliferative, anti-Warburg cancer drugs.

Program Description (Continued)

Abstract #

Wednesday Afternoon, March 13
1:00 PM to 4:30 PM
Exhibit Hall C–D

PS

Poster Session: Clinical and Translational Toxicology

Biomarkers for Exposure Assessment, Safety Evaluation, and Translational Medicine

Chairperson(s): *Eun-Young Lee, Penn State School of Medicine, Hershey, PA.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *1:00 PM–2:45 PM*

#2044 **Poster Board Number 101**
Surgical Alternatives for Multiple CSF Sampling in Conscious Cynomolgus Monkeys: A Novel Approach. J. Sternberg, S. H. Korte, and C. Rose. Covance Laboratories GmbH, Muenster, Germany. Sponsor: *G. Weinbauer*.

#2045 **Poster Board Number 102**
Hydration with Saline Decreases Toxicity of Calcitriol-Injected Mice in Preclinical Studies. A. Azari, M. Kanavi, S. Darjatmoko, V. Lee, H. Potter, *L. Teixeira*, and D. Albert. Ophthalmology, University of Wisconsin-Madison, Madison, WI.

#2046 **Poster Board Number 103**
Identification of Behaviorally Active Doses of Morphine and Evaluation of Its Analgesic Effects in the Rhesus Monkey. T. Wolinsky[1], C. Cruz[2], I. Hubert[2], *G. Froget*[1,2], M. Lemaire[1], and D. Virley[1,2]. [1]Porsolt SAS, Le Genest-St-isle, France; [2]Porsolt Inc. USA, San Antonio, TX.

#2047 **Poster Board Number 104**
Pharmacodynamic Glycemia Effects from Rapid and Long-Acting Insulins Administered at Mealtime to Alloxan-Induced Diabetic Miniature Yucatan Swine. L. D. Brown[1,2], T. J. Madsen[1], E. C. Blair[1], B. C. Hanks[1,2], K. P. Horlen[1], J. Hiemstra[2], A. Stricker-Krongrad[1], J. Liu[1], and *G. F. Bouchard*[1,2]. [1]Sinclair Research Center, LLC, Columbia, MO; [2]Sinclair BioResources LLC, Auxvasse, MO.

#2048 **Poster Board Number 105**
Toxicity Mechanisms of Anti-Inflammatory Kinase Inhibitors. E. Berg, M. A. Polokoff, A. O'Mahony, J. Melrose, and D. Nguyen. BioSeek LLC, South San Francisco, CA. Sponsor: *K. Houck*.

#2049 **Poster Board Number 106**
Evaluation of PBPK Models for Medical Decision Making upon Acute Chemical Exposure: Dichloromethane (DCM) As an Example. R. Z. Boerleider[1,2], C. C. Hunault[1], J. C. van Eijkeren[3], I. de Vries[1], *J. G. Bessems*[3], and J. Meulenbelt[1,2]. [1]National Poisons Information Center, University Medical Center Utrecht, Utrecht, Netherlands; [2]IRAS, Utrecht University, Utrecht, Netherlands; [3]RIVM, National Institute for Public Health, Bilthoven, Netherlands.

Abstract #

#2050 **Poster Board Number 107**
Specificity Protein (Sp) 1 Transcription Factor Modulates Long Noncoding RNA Expression in Liver Cancer Cells. *S. Gandhy*[1,2], and *S. Safe*[2,3]. [1]College of Medicine, Texas A&M College of Medicine Health Sciences Center, Houston, TX; [2]Institute of Biosciences and Technology, Texas A&M College of Medicine Health Sciences Center, Houston, TX; [3]Department of Veterinary Physiology and Pharmacology, Texas A&M College of Medicine Health Sciences Center, Houston, TX.

#2051 **Poster Board Number 108**
The Third Trimester: The Critical Phase of the Deleterious Effects of Cadmium in Pregnancy. *J. I. Anetor*, P. Tawari-Eebi, M. Charles-Davies, and A. Arowojolu. Chemical Pathology, College of Medicine, University of Ibadan, Ibadan, Nigeria.

#2052 **Poster Board Number 109**
Ethanol Is a Significant Cofactor in HAART-Induced Hepatotoxicity. H. Donde[1], *S. Ghare*[1], J. Zhang[1], I. Kirpich[1], *S. Joshi-Barve*[1], *C. McClain*[1,2], and *S. Barve*[1]. [1]Department of Medicine/GI, University of Louisville, Louisville, KY; [2]Louisville VAMC, Louisville, KY.

#2053 **Poster Board Number 110**
Acute Exposure to Acrolein, a Ubiquitous Environmental Pollutant, and Anti-HIV HAART Medication Leads to Hepatotoxicity. *S. Ghare*[1], H. Donde[1], *S. Joshi-Barve*[1], *C. McClain*[1,2], and *S. Barve*[1]. [1]Department of Medicine/GI, University of Louisville, Louisville, KY; [2]Louisville VAMC, Louisville, KY.

#2054 **Poster Board Number 111**
Solubility Enhancement Studies for a Potential Cyanide Antidote. M. Negrito, K. Kovacs, M. Ancha, M. Jane, S. Lee, S. Angalakurthi, S. Rasheed, and *I. Petrikovics*. Chemistry, Sam Houston State University, Huntsville, TX.

#2055 **Poster Board Number 112**
Chemical Hazards Emergency Medical Management (CHEMM): Chemical Specific Acute Patient Care Guidelines for Prehospital and Emergency Department/Hospital Management. *P. Hakkinen*[1], D. Siegel[2], *A. Maier*[3], F. Chang[1], A. Wullenweber[3], J. Strawson[3], A. Willis[3], P. Nance[3], O. Kroner[3], and *R. Sandhu*[3]. [1]NLM, NIH, Bethesda, MD; [2]NIH, NICHD, Bethesda, MD; [3]Toxicology Excellence for Risk Assessment, Cincinnati, OH.

#2056 **Poster Board Number 113**
Manganese Accumulation in the Brain of Asymptomatic Welders and Its Functional Consequences. E. Lee[1], M. R. Flynn[2], G. Du[1], M. Lewis[1], and *X. Huang*[1]. [1]Neurology, Pennsylvania State University, Hershey, PA; [2]Environmental Sciences and Engineering, University of North Carolina at Chapel Hill, Chapel Hill, NC.

#2057 **Poster Board Number 114**
Ethanol-Induced Reductions of Antimicrobial Peptide LL-37 in THP-1 Cells and Bal Fluid of Ethanol Fed Mice. *M. McCaskill*, H. Hottor, M. Sapkota, and T. Wyatt. Department of Environmental, Agricultural, Occupational Health, University of Nebraska Medical Center, Omaha, NE.

Program Description (Continued)

Abstract #

#2058 **Poster Board Number 115**
Utility of Intranasal Fentanyl Powder Formulation: Pharmacokinetics-Pharmacodynamics Relationship in Rhesus Monkeys. K. Yunomae, N. Yanagida, M. Nishizono, T. Kamenosono, S. Haruta, Y. Ooshima, H. Sameshima, K. Fukuzaki, and *R. Nagata*. Shin Nippon Biomedical Laboratories (SNBL), Ltd., Kagoshima, Japan.

Wednesday Afternoon, March 13
1:00 PM to 4:30 PM
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PS

Poster Session: Immunotoxicity Methods

Chairperson(s): *Amy Sharma, University of Toronto, Toronto, ON, Canada.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *2:45 PM–4:30 PM*

#2059 **Poster Board Number 116**
Better Prediction of Immunogenicity of Biopharmaceuticals, Is It Possible? G. M. van Mierlo[3], F. J. Tielen[2], R. Klein Entink[1], A. Penninks[3], M. Sauerborn[3], S. Folkertsma[1], E. Reefman[2], and B. Fabriek[1]. [1]Quality and Safety, TNO, Zeist, Netherlands; [2]Metabolic Health Resarch, TNO, Leiden, Netherlands; [3]Toxicology Applied Pharmacology, TNO Triskelion, Zeist, Netherlands. Sponsor: *R. Woutersen*.

#2060 **Poster Board Number 117**
Improved Efficacy of Delivery of Antigen Using a Novel Injection Device in the Rabbit. N. Hebert[1], S. Gariepy[1], I. Brochu[1], A. Caron-Laramée[2], M. Brouillette[2], and C. Hébert[2]. [1]Charles River, Sherbrooke, QC, Canada; [2]University of Sherbrooke, Sherbrooke, QC, Canada. Sponsor: *M. Vézina*.

#2061 **Poster Board Number 118**
Development of a Protocol to Determine the T Cell Dependent Antibody Response (TDAR) to Klh in the Mouse—A Comparison between the CD-1 and C57BL/6N Strains. *S. Kirk*, A. Lucock, and K. Troth. Covance Laboratories Ltd., Harrogate, United Kingdom.

#2062 **Poster Board Number 119**
T Cell Dependent Antibody Responses in the Rat: Forms and Sources of Keyhole Limpet Hemocyanin Matter. *H. Lebrec*[1], M. B. Hock[2], J. Sundsmo[3], D. Mytych[2], H. Chow[3], *L. Carlock*[1], M. K. Joubert[2], and *J. Bussiere*[2]. [1]Amgen, Seattle, WA; [2]Amgen, Thousand Oaks, CA; [3]Stellar Biotechnologies, Port Hueneme, CA.

#2063 **Poster Board Number 120**
Use of the T Cell-Dependent Antibody Response to Evaluate Immunostimulation. M. S. Piché[1], *J. Shenton*[2], C. Dumont[1], R. Bourgeois[1], I. Brochu[1], A. J. Grenier[1], E. Marcotte[1], L. Durette[1], M. Poirier[1], L. de Haan[2], and *L. LeSauteur*[1]. [1]Immunology, Charles River, Montréal, QC, Canada; [2]Medimmune, Cambridge, United Kingdom.

Abstract #

#2064 **Poster Board Number 121**
Assessment of Hepatitis B Surface Antigen and Tetanus Toxoid-Specific T Cell-Dependent Antibody Responses in Cynomolgus Monkeys. B. Wang[1], D. A. DeVona[1], M. P. Bernard[1], Q. Wang[2], C. Gleason[3], *H. G. Haggerty*[1], and *W. J. Freebern*[1]. [1]Immunotoxicology, Bristol-Myers Squibb, New Brunswick, NJ; [2]Rutgers University, New Brunswick, NJ; [3]Global Biometric Sciences, Bristol-Myers Squibb, Syracuse, NY.

#2065 **Poster Board Number 122**
Development of a Delayed Type Hypersensitivity (DTH) Model in Cynomolgus Monkeys. G. Bannish[1,5], H. Babbe[2], A. Curran[6], L. A. Coney[5], L. Hall[3], J. Zhou[3], J. Ma[4], M. Perpetua[1], J. Doughty[1], A. Beavis[1], and M. Scully[2]. [1]Biologics and Biomarker Analysis, Huntingdon Life Sciences, East Millstone, NJ; [2]Janssen R&D, LLC, Radnor, PA; [3]Janssen R&D, LLC, Raritan, NJ; [4]Janssen R&D, LLC, La Jolla, CA; [5]Group Strategic Marketing, Huntingdon Life Sciences, Huntingdon, United Kingdom; [6]Safety Assessment, Huntingdon Life Sciences, East Millstone, NJ. Sponsor: *C. Auletta*.

#2066 **Poster Board Number 123**
Validation of a 7-Color Flow Cytometry Panel for Lymphocyte Phenotyping in Peripheral Blood from Cynomolgus Monkeys. S. Eble[1], B. Wang[1], D. A. DeVona[1], C. Thompson[1], C. Gleason[2], *H. G. Haggerty*[1], *W. J. Freebern*[1], and M. P. Bernard[1]. [1]Bristol-Myers Squibb, New Brunswick, NJ; [2]Global Biometric Sciences, Bristol-Myers Squibb, Syracuse, NY.

#2067 **Poster Board Number 124**
Testing the Use of CD107a and IFN-γ As Markers of Cynomolgus Cytotoxic T Lymphocyte Activation. L. Anest, A. Guerrero, *M. Fort*, and *P. Narayanan*. Discovery Toxicology, Amgen, Seattle, WA.

#2068 **Poster Board Number 125**
Validation of Assays for Phagocytic Function of Polymorphonuclear Neutrophils and Monocytes in Whole Blood from Cynomolgus Macaque. M. Perpetua[1], and *G. Bannish*[2,1]. [1]Biologics and Biomarker Analysis, Huntingdon Life Sciences, East Millstone, NJ; [2]Group Strategic Marketing, Huntingdon Life Sciences, East Millstone, NJ.

#2069 **Poster Board Number 126**
Flow Cytometry Immunophenotyping of Lymphocyte Subsets in a Large Cohort of Beagle Dogs. *J. Descotes*[2], C. Mimouni[1], J. Legrand[1], and R. Forster[1]. [1]Marketing, CiToxLAB, Evreux, France; [2]Poison Center, Lyon, France.

#2070 **Poster Board Number 127**
Development of Molecular Classifiers for Distinguishing between True Sensitizers and False Positives in the Local Lymph Node Assay. *D. R. Boverhof*[1], *D. Adenuga*[1], *M. Woolhiser*[1], *I. Kimber*[2], *R. Dearman*[2], M. Black[3], and *R. Thomas*[3]. [1]The Dow Chemical Company, Midland, MI; [2]University of Manchester, Manchester, United Kingdom; [3]The Hamner Institutes for Health Sciences, Research Triangle Park, NC.

Program Description (Continued)

Abstract #

#2071 **Poster Board Number 128**
Development of an *Ex Vivo* BrdU-Labeling Procedure for the Murine Llna. *D. M. Lehmann*[1], C. Copeland[1], E. H. Boykin[1], S. J. Quell[2], L. Copeland[1], and W. C. Williams[1]. [1]NHEERL, US EPA, Research Triangle Park, NC; [2]Independent, Research Triangle Park, NC.

Wednesday Afternoon, March 13
1:00 PM to 4:30 PM
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Poster Session: Immunotoxicity—Biochemical/Molecular

Chairperson(s): *Kathleen M. Gilbert, University of Arkansas for Medical Sciences, Arkansas Children, Little Rock, AR.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *1:00 PM–2:45 PM*

#2072 **Poster Board Number 131**
A Proteomics Approach to Elucidate the Role of Nrf2 in Primary Bone-Marrow-Derived Dendritic Cells of Mice upon Activation by Contact Allergens. A. Haase[1], F. Mussotter[1], Z. El Ali[2], S. Kerdine- Römer[2], J. Tomm[3], *M. Pallardy*[2], M. von Bergen[3], and A. Luch[1]. [1]Federal Institute for Risk Assessment (BfR), Berlin, Germany; [2]University of Paris- Sud, INSERM UMR-996, Paris, France; [3]Department of Proteomics and Metabolomics, Helmholtz Centre for Environmental Research (UFZ), Leipzig, Germany.

#2073 **Poster Board Number 132**
Nrf2-Dependent and -Independent Effects of tBHQ on Early T Cell Activation. *C. E. Rockwell*[1], P. E. Fields[3], *C. D. Klaassen*[2], J. W. Zagorski[1], A. Turley[1], and H. Dover[1]. [1]Pharmacology & Toxicology, Michigan State University, East Lansing, MI; [2]Pharmacology, Toxicology & Therapeutics, University of Kansas Medical Center, Kansas City, KS; [3]Pathology & Laboratory Medicine, University of Kansas Medical Center, Kansas City, KS.

#2074 **Poster Board Number 133**
Activation of Nrf2 by TBHQ Inhibits IL2 Production, but Not CD69 Expression, in Human Jurkat T Cells. J. W. Zagorski[1,2], A. E. Turley[2], K. R. Vandenberg[2], J. Compton[2], H. E. Dover[2], and *C. E. Rockwell*[2,1]. [1]Cellular and Molecular Biology, Michigan State University, East Lansing, MI; [2]Pharmacology and Toxicology, Michigan State University, East Lansing, MI.

#2075 **Poster Board Number 134**
Inhibition of Early Cytokine Production by the Nrf2 Activator, tBHQ, in Human Primary Blood Mononuclear Cells. A. E. Turley[1,2], J. W. Zargorski[1], and *C. E. Rockwell*[1,2]. [1]Pharmacology and Toxicology, Michigan State University, East Lansing, MI; [2]Center for Integrative Toxicology, Michigan State University, East Lansing, MI.

#2076 **Poster Board Number 135**
Diethylstilbestrol (DES)-Regulated microRNA-30a May Induce Autophagy by Regulating Beclin1 in Thymic Cells of Neonatal Mice. *N. P. Singh*, U. P. Singh, I. K. Abbas, *P. Nagarkatti*, and *M. Nagarkatti*. Pathology, Microbiology, and Immunology, University of South Carolina School of Medicine, Columbia, SC.

Abstract #

#2077 **Poster Board Number 136**
Δ⁹Tetrahydrocannabinol (THC) Rescues Mice from Staphylococcal Enterotoxin B (SEB)-Induced Acute Lung Injury (ALI) and Subsequent Mortality by the Induction of Regulatory T Cells and the Down-Regulation of microRNA-182. *R. Rao*, *P. Nagarkatti*, and *M. Nagarkatti*. University of South Carolina, Columbia, SC.

#2078 **Poster Board Number 137**
Identification of microRNA That Affect Multiple Pathways of TCDD-Induced T Cell Dysregulation. P. Mehrpouya, *P. Nagarkatti*, and *M. Nagarkatti*. Department of Pathology, Microbiology and Immunology, University of South Carolina School of Medicine, Columbia, SC.

#2079 **Poster Board Number 138**
Quantitative Phosphoproteomic Analysis of the Dynamic Signaling Network Mediating Proinflammatory Response in the Spleen of Mice under Deoxynivalenol-Induced Ribotoxic Stress. *X. Pan*[1,2], D. Whitten[3], C. Wilkerson[1,3], and *J. Pestka*[2,4]. [1]Department of Biochemistry and Molecular Biology, Michigan State University, East Lansing, MI; [2]Center for Integrative Toxicology, Michigan State University, East Lansing, MI; [3]Proteomics Core Facility, Michigan State University, East Lansing, MI; [4]Department of Food Science and Human Nutrition, Michigan State University, East Lansing, MI.

#2080 **Poster Board Number 139**
Targeted Proteomic Analysis of Phospho-Lyn in Hg Intoxicated B Cells. J. A. Caruso[1], P. M. Stemmer[1], *M. J. McCabe*[2], and *A. J. Rosenspire*[3]. [1]Institute of Environmental Health Sciences, Wayne State University, Detroit, MI; [2]Environmental Medicine, University of Rochester, Rochester, NY; [3]Immunology and Microbiology, Wayne State University, Detroit, MI.

#2081 **Poster Board Number 140**
Penicillium Mycotoxins Alter the Expression of Genes Coding Enzymes That Regulate Epigenetic Programming in Bovine Macrophages. S. Oh[1], R. Cliff[1], C. G. Balch[1], B. S. Sharma[1], *H. J. Boermans*[2], S. Haladi[3], and N. A. Karrow[1]. [1]Animal & Poultry Science, University of Guelph, Guelph, ON, Canada; [2]Biomedical Sciences, University of Guelph, Guelph, ON, Canada; [3]Alltech Inc., Guelph, ON, Canada.

#2082 **Poster Board Number 141**
Genipin-Induces Cyclooxygenase-2 Expression through Upregulating NF-κB, C/EBP and AP-1 Signaling Pathways in Murine Macrophages. T. Khanal, H. Kim, J. Choi, and *H. Jeong*. Pharmacy, Chungnam National University, Daejeon, Republic of Korea.

#2083 **Poster Board Number 142**
The Role of Transcription Factor FoxO1 in Asbestos-Induced Apoptosis of MT-2 Cells. H. Matsuzaki[1], S. Lee[1], M. Maeda[2], N. Kumagai-Takei[1], *Y. Nishimura*[1], and *T. Otsuki*[1]. [1]Department of Hygiene, Kawasaki Medical School, Kurashiki, Japan; [2]Laboratory of Functional Glycobiochemistry, Department of Biofunctional Chemistry, Division of Agricultural and Life Science, Graduate School of Environmental and Life Science, Okayama University, Okayama, Japan.

Program Description (Continued)

Abstract #

#2084 **Poster Board Number 143**
BCL-6 and SHP-1: Putative Regulators of TCDD-Mediated Impaired Human B Cell Activation. *A. Phadnis*[1,2], *R. Crawford*[2,3], *R. S. Thomas*[4], and *N. E. Kaminski*[2,3]. [1]Genetics, Michigan State University, East Lansing, MI; [2]Center for Integrative Toxicology, Michigan State University, East Lansing, MI; [3]Department of Pharmacology and Toxicology, Michigan State University, East Lansing, MI; [4]The Hamner Institutes for Health Sciences, Research Triangle Park, NC.

#2085 **Poster Board Number 144**
Paradox of Epithelial Early Growth Response 1 in Epithelial Inflammatory Signaling under Ribosomal Insults. K. Do, H. Choi, J. Kim, S. Park, C. Oh, and *Y. Moon*. Lab.of Mucosal Exposome and Biomodulation, Department Microbiology and Immunology, Pusan National University School of Medicine and Medical Research Institute, Yangsan, Republic of Korea.

#2086 **Poster Board Number 145**
TCDD-Induced Modulation of Ig Expression in a Human B Lymphocyte Cell Line. B. Johnson, *J. Liu*, and *C. E. Sulentic*. Pharmacology & Toxicology, Wright State University, Dayton, OH.

#2087 **Poster Board Number 146**
Comparison of the Effects of Deoxynivalenol and Tributyltin Oxide to That of Model Compounds Inducing Endoplasmic Reticulum Stress, Ribotoxic Stress and T Cell Activation. P. C. Schmeits[1], M. R. Katika[1], A. A. Peijnenburg[1], *H. van Loveren*[2], and P. J. Hendriksen[1]. [1]Toxicology and Effect Monitoring, RIKILT Institute of Food Safety, Wageningen, Netherlands; [2]Laboratory for Health Protection Research, National Institute of Public Health and the Environment, Bilthoven, Netherlands.

Wednesday Afternoon, March 13
1:00 PM to 4:30 PM
Exhibit Hall C–D

PS

Poster Session: Reproductive Toxicity

Chairperson(s): *Vickie Wilson, US EPA, Research Triangle Park, NC.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *2:45 PM–4:30 PM*

#2088 **Poster Board Number 201**
Bidirectional Impact of Atrazine-Induced Elevations in Progesterone (P4) on the LH Surge in the Ovariectomized (OVX), Estradiol (E2)-Primed Rat. *J. M. Goldman*[1], *L. K. Davis*[2], A. S. Murr[1], and R. L. Cooper[1]. [1]Endocrine Toxicology Branch, Toxicology Assessment Division, NHEERL, ORD, US EPA, Research Triangle Park, NC; [2]Impact Pharmaceutical Services, Research Triangle Park, NC.

#2089 **Poster Board Number 202**
Chloroethylaziridine: An Ovotoxic Metabolite of Cyclophosphamide? *J. A. Madden*, and *A. F. Keating*. Iowa State University, Ames, IA.

#2090 **Poster Board Number 203**
Role of Connexin Proteins during the Ovarian Response to 7,12-Dimethylbenz[A]Anthracene Exposure in Rat Ovaries. S. Ganesan, and *A. Keating*. Animal Science, Iowa State University, Ames, IA.

Abstract #

#2091 **Poster Board Number 204**
Endocrine Modulation Potential of Steroids for Possible Applications in Contraception. K. Kim, A. Wang, and *K. L. Steinmetz*. SRI International, Menlo Park, CA.

#2092 **Poster Board Number 205**
Dioxin-Produced Imprinting of Sexual Immaturity through Fixing the Status of a Reduction in the Hypothalamic Expression of Gonadotropin-Releasing Hormone. T. Takeda[1], M. Fujii[1], J. Taura[1], M. Yamamoto[2], M. Himeno[2], Y. Ishii[1], and H. Yamada[1]. [1]Graduate School of Pharmaceutical Sciences, Kyushu University, Fukuoka, Japan; [2]Faculty of Pharmaceutical Sciences, Nagasaki International University, Sasebo, Japan. Sponsor: *Y. Kumagai*.

#2093 **Poster Board Number 206**
Bisphenol A Down-Regulates Cytochrome P45011a1 prior to Inhibiting Steroidogenesis in Mouse Antral Follicles. *J. Peretz*, and *J. A. Flaws*. Comparative Biosciences, University of Illinois, Urbana, IL.

#2094 **Poster Board Number 207**
Di(2-Ethylhexyl) Phthalate Alters the Expression of Phosphatidylinositol 3-Kinase Signaling Proteins Involved in Early Ovarian Folliculogenesis *In Vivo*. *P. R. Hannon*, and *J. A. Flaws*. Department of Comparative Biosciences, University of Illinois, Urbana, IL.

#2095 **Poster Board Number 208**
Humoral Immunity in Infant Cynomolgus Monkeys: Control Background Data. *S. Oneda*[1], *N. Lalayeva*[1], *R. Watson*[1], *N. Makori*[1], P. Franklin[1], *T. Beck*[1], K. Fukuzaki[1], and *R. Nagata*[2]. [1]SNBL USA, Ltd., Everett, WA; [2]Shin Nippon Biomedical Laboratories, Ltd., Tokyo, Japan.

#2096 **Poster Board Number 209**
Bisphenol A Treatment of Cultured Mouse Ovarian Antral Follicles May Affect the Aryl Hydrocarbon Receptor Signaling Pathway. *A. Ziv-Gal*, *Z. R. Craig*, *W. Wang*, and *J. A. Flaws*. Comparative Biosciences, University of Illinois, Urbana, IL.

#2097 **Poster Board Number 210**
Oral Two-Generation Reproduction Toxicity Study with Synthetic Amorphous Silica, NM200 in Wistar Rats. A. Wolterbeek[1], S. Schneider[2], R. Landsiedel[2], D. de Groot[1], I. Waalkens[1], M. Wouters[3], R. van Ee[3], and H. van de Sandt[1]. [1]TNO, Zeist, Netherlands; [2]BASF, Ludwigshafen, Germany; [3]TNO, Eindhoven, Netherlands. Sponsor: *R. Woutersen*.

#2098 **Poster Board Number 211**
Toxicological Profile and Tolerability of Pixantrone (Pixuvri) in Newborn Mice Comparative Study with Doxorubicin (DOX). A. M. Giusti[1], *P. A. Colombo*[1], M. Longo[1], P. Della Torre[1], A. Morisetti[2], C. Allievi[2], and J. Singer[3]. [1]Accelera, Nerviano Milano, Italy; [2]CTI Advisor, Milano, Italy; [3]Cell Therapeutics, Seattle, WA.

#2099 **Poster Board Number 212**
Murine Uterine Receptivity Markers Are Affected by Particulate Air Pollution in a Dose Response Manner. K. R. Castro[1], G. Ribeiro Jr[1], M. Peres[1], P. Saldiva[1], M. Matsuda[2], and M. Veras[1]. [1]Pathology - LIM05, University of São Paulo, São Paulo, Brazil; [2]Oftalmology - LIM33, University of São Paulo, São Paulo, Brazil. Sponsor: *S. Barros*.

Program Description (Continued)

Abstract #

#2100 **Poster Board Number 213**
Functional Assessment of Sexual Maturity in Female Cynomolgus Monkey (*Macaca fascicularis*). C. Luetjens, and *G. F. Weinbauer*. Covance Laboratories GmbH, Muenster, Germany.

#2101 **Poster Board Number 214**
Air Pollution Accelerate Atherosclerosis Progression on Predisposed Mice. M. Peres[1], K. R. Castro[1], N. Costa[1], G. Ribeiro Jr[1], F. César[2], M. Cavalcante[2], D. Abdalla[2], P. Saldiva[1], and M. Veras[1]. [1]Pathology, University of São Paulo, São Paulo, Brazil; [2]Toxicology, University of São Paulo, São Paulo, Brazil. Sponsor: *S. Barros*.

#2102 **Poster Board Number 215**
Brominated Diphenyl Ether-47 Induces Oxidative Stress-Stimulated Pro-Inflammatory Pathways in Human Extravillous Trophoblasts. *H. Park*, and *R. Loch-Caruso*. Environmental Health Sciences, University of Michigan, Ann Arbor, MI.

#2103 **Poster Board Number 216**
One-Generation Reproduction Study of Isobornyl Acetate in Rats, with an Evaluation through Sexual Maturity in the F1 Generation. *V. T. Politano*[1], *E. M. Lewis*[2], *A. M. Hoberman*[2], *R. M. Diener*[3], and *A. Api*[1]. [1]Research Institute for Fragrance Materials, Inc., Woodcliff Lake, NJ; [2]Charles River Laboratories, Horsham, PA; [3]Argus International, Inc., Horsham, PA.

#2104 **Poster Board Number 217**
Di (2-Ethylhexyl) Phthalate Is Not Genotoxic to Oocytes, but May Induce Apoptosis in Two-Cell Zygotes. S. Vargas-Marín, *L. Vega*, M. Solís-Heredia, B. Ramos-Robles, *B. Quintanilla-Vega*, and *I. Hernández-Ochoa*. Department of Toxicology, Cinvestav-IPN, Mexico City, Mexico.

#2105 **Poster Board Number 218**
Inhaled Ambient Particulate Matter Induces Preterm Birth and Low-Birth Weight in a Mouse Model of Pregnancy. *J. L. Blum*, *L. Chen*, and *J. T. Zelikoff*. Environmental Medicine, New York University School of Medicine, Tuxedo, NY.

#2106 **Poster Board Number 219**
***In Utero* Exposure to Bisphenol A Increases Germ Cell Apoptosis in the Neonatal Mouse Ovary.** *W. Wang*, *Z. R. Craig*, *J. Peretz*, and *J. A. Flaws*. Comparative Bioscience, University of Illinois, Urbana, Urbana, IL.

#2107 **Poster Board Number 220**
Enhanced Pre-Postnatal Toxicity Study of AMG 162 Administered by SC Injection to Pregnant Cynomolgus Monkeys with up to 6-Months Postnatal Evaluation. *J. L. Bussiere*[1], *R. Boyce*[1], *I. Pyrah*[1], D. Branstetter[2], *M. Loomis*[1], C. Farmin[3], L. Chouinard[4], G. Elliott[5], A. Varela[4], and *G. Chellman*[5]. [1]Amgen Inc., Thousand Oaks, CA; [2]Amgen Inc., Seattle, WA; [3]Genentech Inc, S. San Francisco, CA; [4]Charles River -PCS, Montréal, QC, Canada; [5]Charles River -PCS, Reno, NV.

#2108 **Poster Board Number 221**
Impact of Feed Choice When Performing Generational Reproduction Studies. *A. Milius*, R. Read, J. Waldschmidt, and *D. Dandekar*. Toxicology, Xenometrics, Stilwell, KS.

Abstract #

#2109 **Poster Board Number 222**
***In Vitro* Exposure to Di-n-Butyl Phthalate (DBP) Decreases the Expression of Cell Proliferation Transcripts in Cultured Mouse Ovarian Antral Follicles.** *Z. R. Craig*, T. DelValle, *W. Wang*, and *J. A. Flaws*. Comparative Biosciences, University of Illinois, Urbana, IL.

#2110 **Poster Board Number 223**
Evaluating Benzo[a]pyrene Effects on Steroidogenesis and Reproduction. *F. T. Booc*[1], C. Thornton[1], *X. Fang*[1], A. Lister[2], D. MacLatchy[2], and *K. L. Willett*[1]. [1]Pharmacology, University Mississippi, University, MS; [2]Biology, Wilfrid Laurier University, Waterloo, ON, Canada.

#2111 **Poster Board Number 224**
Comparison of Estrogen Mixtures *In Vitro* vs *In Vivo*. *B. Hannas*, J. Furr, *E. Gray*, and *V. S. Wilson*. RTB, US EPA, Research Triangle Park, NC.

#2112 **Poster Board Number 225**
Bisphenol A May Affect the Fertilizing Ability of Mouse Oocytes via Mechanisms Involving Events from Sperm Penetration into the Oocyte to Formation of 1-Cell Zygote. B. Ramos-Robles[1], M. Sánchez-Gutiérrez[2], S. Vargas-Marín[1], *D. Acuña-Hernández*[1], B. Piña-Guzmán[3], and *I. Hernández-Ochoa*[1]. [1]Department of Toxicology, Cinvestav-IPN, Mexico, Mexico; [2]Instituto de Ciencias de la Salud, UAEH, Pachuca, Mexico; [3]Departamento de Bioprocesos, UPIBI-IPN, Mexico City, Mexico.

#2113 **Poster Board Number 226**
Amphoteric Fluorotelomer-Based Surfactant: 28-Day Subchronic and One-Generation Reproduction Toxicity in Rats. *J. OConnor*[1], *T. L. Serex*[1], and R. C. Buck[2]. [1]Haskell, DuPont, Newark, DE; [2]Chemicals & Fluoroproducts, DuPont, Wilmington, DE.

#2114 **Poster Board Number 227**
Effects of Zearalenone with or without Proprietary Binders on Vaginal Morphology of Prepubertal Gilts. D. Bradley, *T. J. Evans*, D. Ledoux, and G. Rottinghaus. University of Missouri, Columbia, MO.

#2115 **Poster Board Number 228**
Effect of Bisphenol A (BPA) and Ethinyl Estradiol (EE2) in the Gene Expression of Estrogen Receptors (ER) and ER-Related Receptors in the Rat Prostate and Mammary Gland. *L. Camacho*, *M. Basavarajappa*, R. Prabhu, S. M. Lewis, M. Vanlandingham, and *K. B. Delclos*. NCTR, US FDA, Jefferson, AR.

#2116 **Poster Board Number 229**
A Combined Repeated Dose and Reproductive/Developmental Toxicity Screening Study of Perfluoroundecanoic Acid in Rats. A. Ono[1], M. Ikeya[2], T. Suzuki[3], T. Nishimura[4], T. Kawamura[1], M. Takahashi[1], M. Matsumoto[1], H. Kato[1], M. Hirata-Koizumi[1], and *A. Hirose*[1]. [1]Division of Risk Assessment, National Institute of Health Sciences, Tokyo, Japan; [2]Bozo Research Center Inc., Tokyo, Japan; [3]Tokyo Metropolitan Institute of Public Health, Tokyo, Japan; [4]Teikyo Heisei University, Chiba, Japan.

Program Description (Continued)

Abstract #

#2117 **Poster Board Number 230**
The Detrimental Effect of Bisphenol A on Mouse Two-Cell Zygote May Depend on the Dose. *T. Moore-Ambriz*[1], *D. Acuña-Hernández*[1], B. Ramos-Robles[1], S. Vargas-Marín[1], M. Sánchez-Gutiérrez[2], and *I. Hernández-Ochoa*[1]. [1]Department of Toxicology, Cinvestav-IPN, Mexico City, Mexico; [2]Instituto de Ciencias de la Salud, Universidad Autonoma del Estado de Hidalgo, Pachuca, Mexico.

#2118 **Poster Board Number 231**
Body Burden and Preliminary Effects in Rats following Low-Dose Drinking Water Exposure to a VOC Mixture during Pregnancy and Adolescence. *A. J. Filgo*[1,3], D. M. Chambers[2], E. M. Quist[1,4], B. C. Blount[2], and *S. E. Fenton*[1]. [1]NTP Laboratory, DNTP, NIEHS, NIH, DHHS, Research Triangle Park, NC; [2]National Center for Environmental Health, CDC, Atlanta, GA; [3]Curriculum in Toxicology, University of North Carolina at Chapel Hill, Chapel Hill, NC; [4]Comparative Biomedical Sciences, College of Veterinary Medicine, North Carolina State University, Raleigh, NC.

Wednesday Afternoon, March 13
1:00 PM to 4:30 PM
Exhibit Hall C–D

PS

Poster Session: Male Reproductive Toxicology

Chairperson(s): *Gerhard Weinbauer, Covance Laboratories GmbH, Muenster, Germany.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *1:00 PM–2:45 PM*

#2119 **Poster Board Number 232**
The Inhibin B (InhB) Response to the Testicular Toxicants Mono-2-Ethylhexyl Phthalate (MEHP), 1, 3 Dinitrobenzene (DNB) or Carbendazim (CBZ) following Short-Term Repeat Dosing in the Male Rat. *W. Breslin*[1], A. Paulman[2], D. Sun-Lin[1], K. Goldstein[1], and A. Derr[2]. [1]Eli Lilly and Company, Indianapolis, IN; [2]Covance Laboratories Inc., Greenfield, IN.

#2120 **Poster Board Number 233**
Poor Correlation between Rat Testis Histology and Serum Inhibin B after Treatment with Two Drug Candidates. W. J. Reagan[1], *R. E. Chapin*[1], J. A. Alvey[1], R. A. Goldstein[1], M. G. Dokmanovich[1], K. Johnson[2], and F. J. Geoly[1]. [1]Drug Safety R&D, Pfizer, Inc, Groton, CT; [2]Arbor Analytics, Ann Arbor, MI.

#2121 **Poster Board Number 234**
Assessment of Inhibin B As a Biomarker of Testicular Injury following Administration of Carbendazim, Cetrorelix, or 1,2-Dibromo-3-Chloropropane in Wistar Han Rats. L. S. Her, A. M. Mineo, *J. A. Phillips*, M. S. Thibodeu, and *J. S. Moffit*. Nonclinical Drug Safety US, Boehringer Ingelheim Pharmaceuticals Inc., Ridgefield, CT.

#2122 **Poster Board Number 235**
The Inhibin B Response in Male Rats Treated with a GnRH Agonist and an Endothelin Receptor Antagonist. T. Mitchard, M. Coulson, S. Bickerton, J. Harris, C. Betts, and J. Stewart. Safety Assessment, AstraZeneca R&D, Macclesfield, United Kingdom. Sponsor: *R. Roberts*.

Abstract #

#2123 **Poster Board Number 236**
Inhibin B As a Marker of Sertoli Cell Damage and Spermatogenic Disturbance in the Rat. T. Pfaff[2], *G. F. Weinbauer*[1], J. Rhodes[3], and M. Bergmann[4]. [1]Covance Laboratories GmbH, Muenster, Germany; [2]AiCuris GmbH & Co. KG, Wuppertal, Germany; [3]Covance Ltd., Harrogate, United Kingdom; [4]Department for Anatomy, Giessen, Germany.

#2124 **Poster Board Number 237**
The Inhibin B Response to Testicular Toxicants Ethylene Glycol Monomethyl Ether or Dibromoacetic Acid in Male Rats. B. Enright[1], B. Tornesi[1], H. Lorenz[2], and K. Whitney[1]. [1]Abbott Laboratories, Abbott Park, IL; [2]Abbott GmbH &Co. KG, Ludwigshafen, Germany. Sponsor: *R. Yeager*.

#2125 **Poster Board Number 238**
The Inhibin B Response to the Testicular Toxicant, 1, 3 Dinitrobenzene in Rats and the Analytical Evaluation of Inhibin B ELISA Kit. N. Bogdan[1], M. Sonee[1], M. Singer[1], L. Hall[1], *S. Bryant*[1], and P. Vinken[2]. [1]Drug Safety Sciences, Janssen Research and Development, LLC, Raritan, NJ; [2]Drug Safety Sciences, Janssen Research and Development, LLC, Beerse, Belgium.

#2126 **Poster Board Number 239**
The Inhibin B (InhB) Response to the Testicular Toxicants Hexachlorophene, Ethane Dimethane Sulfonate (EDS), Dibutylphthalate (DBP), Nitrofurazone, Dl-Ethionine, 17-Alpha Ethinylestradiol, 2,5-Hexanedione, or Carbendazim (CBZ) following Short-Term Dosing in the Male Rat. *L. P. Saldutti*[1], Z. Erdos[1], K. Pearson[1], M. Goedken[2], K. Menzel[1], *K. Turner*[3], and *W. E. Glaab*[1]. [1]Merck Pharmaceuticals, West Point, PA; [2]Merck Pharmaceuticals, Kenilworth, NJ; [3]Research Triangle Institute, Research Triangle Park, NC.

#2127 **Poster Board Number 240**
Simvastatin and Dipentyl Phthalate Lower Testosterone Production and Exhibit Dose Additive Effects on the Fetal Testis via Distinct Mechanistic Pathways. *B. Beverly*[1], *C. Lambright*[1], *J. Furr*[1], H. Sampson[1], *B. McIntyre*[2], *P. Foster*[2], G. Travlos[2], *V. Wilson*[1], and *L. E. Gray*[1]. [1]US EPA, ORD, NHEERL, TAD, Research Triangle Park, NC; [2]NIH, NIEHS, NTP, Research Triangle Park, NC.

#2128 **Poster Board Number 241**
Postnatal Effects of Dipentyl Phthalate on Male Rat Reproductive Development. J. R. Furr, and *L. Gray*. NHEERL, Toxicity Assessment Division, Reproductive Toxicology Branch, US EPA, Research Triangle Park, NC.

#2129 **Poster Board Number 242**
Changes of Expression Levels of Oxidative Stress-Related Genes in Mouse Epididymides by Neonatal Exposure to Low-Dose Decabromodiphenyl Ether. M. Nakamoto[1], H. Miyaso[1], M. Komiyama[1], Y. Matusno[1,2], and *C. Mori*[1,2]. [1]Department of Bioenvironmental Medicine, Graduate School of Medicine, Chiba University, Chiba-shi, Japan; [2]Center for Preventive Medical Science, Chiba University, Chiba-shi, Japan.

Program Description (Continued)

Abstract #

#2130 **Poster Board Number 243**
Structural Changes in Various Organs of Male Rats Caused by Long-Term Oral Administration of Chlorpyrifos. *S. Tripathi*, and A. K. Srivastav. Department of Zoology, DDU Gorakhpur University, Gorakhpur, India.

#2131 **Poster Board Number 244**
Assessment of Phthalate-Induced Changes in Fetal Rat Testis Gene Expression Using a rt-PCR Array. C. Lambright[1], H. Sampson[2], J. Furr[1], *B. Hannas*[1], N. Evans[1], *L. E. Gray*[1], and *V. Wilson*[1]. [1]ORD/RTD, US EPA, Research Triangle Park, NC; [2]ORISE/US EPA Fellow, Research Triangle Park, NC.

#2132 **Poster Board Number 245**
Modulation by Antioxidants of Chemotherapeutic Drugs-Induced Alterations in Steroidogenic Enzyme Activities in the Testis. *N. Kilarkaje*[1], and M. Al-Bader[2]. [1]Department Anatomy, Faculty of Medicine, Kuwait University, Safat, Kuwait; [2]Physiology, Faculty of Medicine, Kuwait University, Safat, Kuwait.

#2133 **Poster Board Number 246**
Comparison of Fetal Testosterone Production in Various Tissues of the Male Sprague-Dawley Rat Dosed *In Utero* with Dipentyl Phthalate during the Critical Window of Sexual Differentiation. K. R. Tatum-Gibbs[1], J. Furr[2], C. S. Lambright[2], N. Evans[2], *B. R. Hannas*[2], *B. W. Riffle*[1], H. Sampson[1], *A. K. Hotchkiss*[3], *V. S. Wilson*[2], and *L. E. Gray*[2]. [1]ORISE, US DOE, Oak Ridge, TN; [2]Reproductive Toxicology, US EPA, Research Triangle Park, NC; [3]NCEA, US EPA, Research Triangle Park, NC.

#2134 **Poster Board Number 247**
Cumulative Effects of a 9 Phthalate Mixture on Charles River-Sprague-Dawley (CR-SD) Fetal Rat Testis Testosterone (T) Production and Gene Expression. *V. S. Wilson*, J. Furr, C. Lambright, *B. R. Hannas*, and *L. E. Gray*. Reproductive Toxicology Branch, US EPA, ORD, NHEERL, TAD, Research Triangle Park, NC.

#2135 **Poster Board Number 248**
Impact of Clinically Relevant Cisplatin Treatment on the Undifferentiated Spermatogonia Population and Niche. *J. Harman*, and *J. Richburg*. University of Texas at Austin, Austin, TX.

#2136 **Poster Board Number 249**
Using a Rat Primary Epididymal Cell Model to Evaluate Drug-Induced Inflammation and Granulomas. K. Stachelek[2], W. Nowland[1], T. Winton[1], S. Kumpf[1], *S. N. Campion*[1], *R. E. Chapin*[1], and *M. E. Hurtt*[1]. [1]Drug Safety Research and Development, Pfizer Inc., Groton, CT; [2]College of Pharmacy, University of Rhode Island, Kingston, RI.

#2137 **Poster Board Number 250**
Evaluation of an *In Vitro* Model of Spermatogenesis for Predicting Testicular Toxicity. K. M. Goldstein[1], M. Perrard[2], P. Durand[2], T. K. Baker[1], and D. E. Seyler[1]. [1]Investigative Toxicology, Eli Lilly & Co., Indianapolis, IN; [2]Kallistem, Lyon, France. Sponsor: *C. Thomas*.

#2138 **Poster Board Number 251**
Vinclozolin Alters the Testosterone Homeostasis by Regulating the Rat Liver Cytochrome P450. *D. C. Escobar-Wilches*, C. L. Zazueta-Beltran, M. L. Lopez-Gonzalez, and *A. Sierra-Santoyo*. Toxicology, CINVESTAV-IPN, Mexico City, Mexico.

Abstract #

#2139 **Poster Board Number 252**
Sperm mRNAs Are Molecular Markers of Testicular Injury in Rats. *L. Anderson*[1], *E. Dere*[2], and *K. Boekelheide*[1]. [1]Department of Pathology and Laboratory Medicine, Brown University, Providence, RI; [2]Department of Urology, Rhode Island Hospital, Providence, RI.

#2140 **Poster Board Number 253**
Effect of Neonatal Exposure to Decabromodiphenyl Ether on Transcript Levels of Splicing Factors in Mouse Testes. H. Miyaso[1], N. Nakamura[2], Y. Matsuno[3,1], M. Komiyama[1], and *C. Mori*[1,3]. [1]Department of Bioenvironmental Medicine, Graduate School of Medicine, Chiba University, Chiba, Japan; [2]Department of Pharmacology, Physiology and Toxicology, Marshall University, Huntington, WV; [3]Center for Preventive Medical Science, Chiba University, Chiba, Japan.

#2141 **Poster Board Number 254**
RSPOs Counteract TCDD Inhibition of Canonical Wnt Signaling during Fetal Mouse Prostate Development. *A. Branam*[1,2], N. M. Davis[1,2], *R. W. Moore*[1,2], A. J. Schneider[1,2], C. M. Vezina[1,3], and *R. E. Peterson*[1,2]. [1]University of Wisconsin-Madison, Madison, WI; [2]Pharmacy, University of Wisconsin-Madison, Madison, WI; [3]Comparative Biosciences, University of Wisconsin-Madison, Madison, WI.

#2142 **Poster Board Number 255**
Sensitivity of Toxicological Endpoints to Detect Alterations in the Male Reproductive System of Nonhuman Primates. *G. D. Cappon*[1], D. Potter[1], *M. E. Hurtt*[1], *G. F. Weinbauer*[2], and *C. J. Bowman*[1]. [1]Pfizer Worldwide Research & Development, Groton, CT; [2]Covance Laboratories GmbH, Muenster, Germany.

Wednesday Afternoon, March 13
1:00 PM to 4:30 PM
Exhibit Hall C–D

PS

Poster Session: Metal Neurotoxicity: Methylmercury, Lead, Aluminum, and Iron

Chairperson(s): *Venugopal Ramalingam, Pondicherry University, K.M.Centre for Post Graduate Studies, Puducherry, India.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *2:45 PM–4:30 PM*

#2143 **Poster Board Number 301**
Contribution of PI3K/Akt/DAF-16 Activity in *C. elegans* to Gene-Environment Interactions following MeHg Exposure. *S. J. Fretham*, and *M. Aschner*. Pediatric Toxicology, Vanderbilt University Medical Center, Nashville, TN.

#2144 **Poster Board Number 302**
Low-Dose Postnatal MeHg Exposure Alters mRNA Levels of Rat Brainstem Glutamate Receptors and Voltage Gated Calcium Channels. *A. Colon-Rodriguez*, R. K. Hajela, S. Escudero, Y. Yuan, and *W. D. Atchison*. Pharm/Tox, Michigan State University, East Lansing, MI.

Program Description (Continued)

Abstract #

#2145 **Poster Board Number 303**
Effects of Chronic Postnatal Methylmercury Exposure on mRNA Expression of Calcium Regulatory Proteins in Adult Mouse Brain Stem. J. A. Musser[1,2], *A. Colón-Rodríguez*[1], and *W. D. Atchison*[1,2]. [1]Department Pharmacology/Toxicology, Michigan State University, East Lansing, MI; [2]College of Veterinary Medicine, Michigan State University, East Lansing, MI.

#2146 **Poster Board Number 304**
Perinatal Exposure to Low-Dose Methylmercury Induces Dysfunction of Motor Coordination with Decreases in Synaptophysin Expression in the Cerebellar Granule Cells of Rats. M. Fujimura. Basic Medical Sciences, National Institute for Minamata Disease, Minamata, Japan. Sponsor: *A. Naganuma*.

#2147 **Poster Board Number 305**
Striatal Synaptosome Mitochondrial Function Is Not Altered following a 6mo MeHg Treatment in Male BALB/c Mice. *S. M. Fox*[1,2], and *W. D. Atchison*[1,2]. [1]Pharmacology and Toxicology, Michigan State University, East Lansing, MI; [2]Center for Integrative Toxicology, Michigan State University, East Lansing, MI.

#2148 **Poster Board Number 306**
Identification and Characterization of Plasma Membrane and Intracellular Transporters Involved in MeHg-Induced Whole Animal and DA Neuron Pathology. *N. VanDuyn*, and *R. M. Nass*. Pharmacology and Toxicology, Indiana University School of Medicine, Indianapolis, IN.

#2149 **Poster Board Number 307**
Biochemical Alterations of Rat Brain Mitochondrial Enzymes Induced by Aluminium Chloride. *R. Venugopal*[1], K. Arumugam[1], V. Dhasal[1], P. Subbarayalu[2], and S. Viswanadhapalli[3]. [1]Zoology, K.M.Centre for Post Graduate Studies, Puducherry, India; [2]Greehey Children's Cancer Research Institute, University of Texas Health Science Center at San Antonio, San Antonio, TX; [3]Medicine, University of Texas Health Science Center at San Antonio, San Antonio, TX.

#2150 **Poster Board Number 308**
Effects of Mercuric Chloride on Cell Surface Expression of Dopamine Transporter in PC12 Cells. C. Hui, A. Carpi, and *S. Cheng*. Sciecnes, John Jay College of Criminal Justice, New York, NY.

#2151 **Poster Board Number 309**
Changes in Gene Induction Associated with Lead Acetate Mediated Oxidative Stress and Mitochondrial Dysfunction in Neuronal PC12 Cells. *H. Kim*[1], Z. Paras[1], G. Tsai[1], M. J. Kim[1], *M. P. Shakarjian*[1,2,3], and *D. E. Heck*[1]. [1]New York Medical College, Valhalla, NY; [2]Medicine, UMDNJ-Robert Wood Johnson Medical School, Piscataway, NJ; [3]Environmental and Occupational Medicine, UMDNJ-Robert Wood Johnson Medical School, Piscataway, NJ.

#2152 **Poster Board Number 310**
Effects of Pb^{2+} in the Neural Differentiation of Mouse Embryonic Stem Cells. F. J. Sanchez-Martin, and *A. Puga*. Department of Environmental Health, University of Cincinnati, Cincinnati, OH.

Abstract #

#2153 **Poster Board Number 311**
Developmental Lead (Pb^{2+}) Exposure and Mutant DISC1 Interact to Produce Schizophrenia-Like Neurobehavioral Abnormalities and Brain Volume Changes in Mice: A Gene-Environment Interaction Study. *T. R. Guilarte*[1,3], *J. L. McGlothan*[1], B. Abazyan[2], C. Yang[2], K. Hua[3], S. Mori[3], and M. Pletnikov[3]. [1]Environmental Health Sciences, Columbia University Mailman School of Public Health, New York, NY; [2]Psychiatry, Johns Hopkins School of Medicine, Baltimore, MD; [3]Radiology, Johns Hopkins School of Medicine, Baltimore, MD.

#2154 **Poster Board Number 312**
Reduced Parvalbumin Expression in the Striatum, Frontal Cortex, and Hippocampus after Developmental $Pb2^{+}$ Exposure: Examining Early Life $Pb2^{+}$ Exposure As a Risk Factor for Schizophrenia. *K. Stansfield*[1], K. Ruby[2], *J. McGlothan*[1], and *T. Guilarte*[1]. [1]EHS, Columbia University, New York, NY; [2]Lake Erie College of Osteopathic Medicine, Erie, PA.

#2155 **Poster Board Number 313**
Effects of Developmental Lead Exposure on Associative Learning and Memory Are Modified by Sex, Developmental Window of Exposure, and Level of Exposure. D. Anderson, W. Mettil, S. Kidd, and *J. Schneider*. Thomas Jefferson University, Philadelphia, PA.

#2156 **Poster Board Number 314**
Sex- and Hemisphere-Dependent Neurochemical Changes Produced by Lead, Prenatal Stress, and the Combination. *D. A. Cory-Slechta*, D. Weston, S. Liu, and *J. L. Allen*. Environmental Medicine, University of Rochester Medical School, Rochester, NY.

#2157 **Poster Board Number 315**
Sex-Dependent Changes in the Effects of Lead and Prenatal Stress on Impulsivity and Neurochemical Substrate. H. Weston, D. Weston, S. Liu, *J. L. Allen*, and *D. A. Cory-Slechta*. Environmental Medicine, University of Rochester Medical School, Rochester, NY.

#2158 **Poster Board Number 316**
Investigation of the Combined Neurotoxicity of Developmental Iron Deficiency and Lead Exposure. *A. Greminger*[1], *D. Cory-Slechta*[1], and M. Mayer-Proschel[2]. [1]Environmental Medicine, University of Rochester, Rochester, NY; [2]Biomedical Genetics, University of Rochester, Rochester, NY.

#2159 **Poster Board Number 317**
Bcl-xL-Mediated Remodeling of Rod and Cone Photoreceptor (PR) Synaptic Mitochondria (mt) after Postnatal Lead Exposure (PLE): Structure and Function. *D. A. Fox*[1], G. A. Perkins[2], M. H. Ellisman[2], and J. E. Johnson[3]. [1]University of Houston, Houston, TX; [2]University of California San Diego, La Jolla, CA; [3]University of Houston-Downtown, Houston, TX.

Program Description (Continued)

Abstract #

#2160 **Poster Board Number 318**
Alpha-Synuclein-Mediated Activation of c-Abl and Dopamine Depletion in Dopaminergic Neuronal Cells Treated with Iron-Oxide Nanoparticles or Methamphetamine. *S. Lantz*[1], *Z. Binienda*[1], L. Mohammed Saeed[1,2], B. Robinson[1], *M. G. Paule*[1], *A. S. Burris*[2], *S. F. Ali*[1], and *S. Z. Imam*[1]. [1]US FDA/NCTR, Jefferson, AR; [2]Nanotechnology Center, University of Arkansas, Little Rock, AR.

#2161 **Poster Board Number 319**
Identification of Iron Regulatory Proteins Differentially Expressed in Brains with Alzheimer Disease by Quantitative Proteomics. B. D. Minjarez[1], L. Valero[2], *A. D. Rios-Perez*[4], M. Sanchez del Pino[2], R. Mena[3], and J. P. Luna-Arias[1]. [1]Biologia Celular, CINVESTAV, Mexico City, Mexico; [2]Proteomica, Centro de Investigación Príncipe Felipe, Valencia, Spain; [3]Fisiología, Biofísica y Neurociencias, CINVESTAV, Mexico City, Mexico; [4]Toxicologia, CINVESTAV, Mexico City, Mexico.

Wednesday Afternoon, March 13
1:00 PM to 4:30 PM
Exhibit Hall C–D

PS

Poster Session: Pharmaceutical Safety Assessment: Drug Discovery

Chairperson(s): *Daland R. Juberg, Dow AgroSciences LLC, Indianapolis, IN.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *1:00 PM–2:45 PM*

#2162 **Poster Board Number 322**
Prediction of Drug-Induced Liver Injury Using High-Content Screening Assay of Rat Hepatocytes. *M. Chen*[1], T. Chun-Wei[1], *Q. Shi*[1], *L. Guo*[1], H. Fang[2], L. Shi[1], and *W. Tong*[1]. [1]US FDA, NCTR, Jefferson, AR; [2]ICF International at NCTR, US FDA, Jefferson, AR.

#2163 **Poster Board Number 323**
Oral Toxicity Study of the Novel Optimized HCV Protease Inhibitor in Rats and Monkeys. Z. J. Zhan[1], H. Yan[1], S. McPherson[2], S. Neu[3], and *Q. He*[2]. [1]AB Pharma Ltd., Shanghai, China; [2]WuXi AppTec Co. Ltd., Suzhou, China; [3]Vet Path Services, Inc., Mason, OH.

#2164 **Poster Board Number 324**
Physicochemical Properties and Compound Accumulation in Lysosomes and Mitochondria. *S. Lu*[1], A. Sistla[2], P. Hoerter[2], *B. Jessen*[1], and *Y. Will*[3]. [1]Drug Safety Research & Development, Pfizer Inc, San Diego, CA; [2]Pharmaceutical Sciences, Pfizer Inc, San Diego, CA; [3]Compound Safety Prediction, Pfizer Inc, Groton, CT.

#2165 **Poster Board Number 325**
Lack of Retinal Pathology in a BACE1 Knockout Mouse or in Rats after Intravitreal Injections of BACE1 Inhibitors. *C. Somps*, C. Houle, T. Brown, J. Harney, *J. Brady*, and D. Karanian. Drug Safety, Pfizer Global R&D, Groton, CT.

Abstract #

#2166 **Poster Board Number 326**
Peptide Analysis Using Dry Blood Spot Technology Combined with Mass Spectrometry for Toxicology Studies: A Practical Approach for Minimizing Animal Use. *W. Ruddock*, *P. Aughton*, J. Chapdelaine, and G. Bain. ITR Laboratories Canada, Baie-D'Urfe, QC, Canada.

#2167 **Poster Board Number 327**
Early and Progressive Changes in the Urinary Biomarker Profile of Cisplatin-Induced Kidney Injury in Cynomolgus Macaques. *Y. Chen*[1], W. Luo[2], H. Yu[4], Q. Qin[4], J. Qiao[4], F. Chang[1], D. Thurman[1], M. Pinches[3], S. Gales[3], *N. Barrass*[3], *J. Valentin*[3], *L. Kinter*[1], and *R. Bialecki*[1]. [1]AstraZeneca R&D, Waltham, MA; [2]Discovery Statistics, Waltham, MA; [3]AstraZeneca R&D, Alderley Park, United Kingdom; [4]Shanghai Institute of Materia Medica, Shanghai, China.

#2168 **Poster Board Number 328**
A Case Study for Exploring Rodent Models to Assess Risk of Hypotension. M. Pannirselvam, D. Hodges, J. Jones, *J. Prezioso*, K. Tanner, *H. Gao*, E. Inett, F. Berlioz-Seux, C. Barnes, *G. Smith*, M. Sanders, U. Germann, and *D. Brewster*. Vertex Pharmaceuticals, Cambridge, MA.

#2169 **Poster Board Number 329**
MDR1, MRP2 and BCRP Transporter Gene Knockout in CACO-2 Cells. K. E. Sampson, J. Blasberg, A. Brinker, J. Pratt, N. Venkatraman, Y. Xiao, M. Bourner, and *D. C. Thompson*. Sigma-Aldrich, St. Louis, MO.

#2170 **Poster Board Number 330**
Target Promiscuity and Physiochemical Properties Contribute to Pharmacologically-Induced ER-Stress. E. Koslov-Davino, X. Wang, and T. Schroeter. Pfizer, Groton, CT. Sponsor: *N. Greene*.

#2171 **Poster Board Number 331**
Enhancing the Safety of Antiviral Compounds by Assessing Mitochondrial and Nuclear Transcriptional Regulation Using a Multiplex Branched DNA Screen. *M. Crosby*, and *Y. Dragan*. Global Safety Assessment, AstraZeneca Pharmaceuticals LP, Waltham, MA.

#2172 **Poster Board Number 332**
Comparison of *In Vitro* Models for Prediction of Hepatotoxicity of Pharmaceutical Drug Candidates. *C. McGinnis*[1], T. Sachnik[1,2], X. Ang[1,3], J. Johnson[4], E. Viturro[2], and *A. Odermatt*[3]. [1]Non-Clinical Safety, Hoffmann-La Roche, Basel, Switzerland; [2]Technische Universität München, Munich, Germany; [3]Division of Molecular and Systems Toxicology, University of Basel, Basel, Switzerland; [4]Hepregen Corporation, Medford, MA.

#2173 **Poster Board Number 333**
Bioassays to Explore Mitochondrial Functions and Anticipate Drug Toxicity. E. Robert, P. Picamal, and N. A. Compagnone. Department of Toxicology, ICDD, Meyreuil, France. Sponsor: *Y. Will*.

#2174 **Poster Board Number 334**
Glucose-Induced Gene Expression Changes Influence Barrier Function in Human Retinal Pigment Epithelial (RPE) Cells. G. L. Gong, L. Lecureux, and *L. Lehman-McKeeman*. Bristol-Myers Squibb, Princeton, NJ.

Program Description (Continued)

Abstract #

#2175 **Poster Board Number 335**
Towards an Integrated Risk Assessment of Hepatotoxic Drugs via Covalent Binding and Cellular Stress in Primary Hepatocytes. M. Teppner[1], *F. Boess*[1], B. Ernst[2], and A. Paehler[1]. [1]Non Clinical Safety, Hoffmann-La Roche Ltd., Basel, Switzerland; [2]Institute of Molecular Pharmacy, University of Basel, Basel, Switzerland.

#2176 **Poster Board Number 336**
Aneugenicity Associated with Aurora Kinase Inhibition in a Novel Series of JAK1-Selective Kinase Inhibitors. *E. Harstad*, *K. Ford*, M. Zak, R. Mendonca, S. Ubhayakar, G. Deshmukh, J. Kenny, W. Blair, and *D. Diaz*. Genentech, South San Francisco, CA.

#2177 **Poster Board Number 337**
Evaluation of High Content Mechanism Screening As a Prediction Tool for Organ Toxicity. *W. Pennie*[2], *S. Lu*[1], C. Strock[3], J. Gilbert[3], and *Y. Will*[2]. [1]Drug Safety Research and Development, Pfizer Inc, San Diego, CA; [2]Compound Safety Prediction, Pfizer Inc, Groton, CT; [3]Apredica, Watertown, MA.

#2178 **Poster Board Number 338**
Consequences of Mrp2 Deficiency for Diclofenac-Induced Toxicity in Rat Intestine *In Vitro*. *X. Niu*, D. van de Vegte, M. Langelaar, I. de Graff, and G. Groothuis. Pharmacy, Groningen Research Institute of Pharmacy, Groningen, Netherlands.

#2179 **Poster Board Number 339**
Effects of Nicotinamide Phosphoribosyltransferase (NAMPT) Inhibitors on Platelet Development. *J. Singh*[1], T. Zabka[1], *H. Uppal*[1], *D. Diaz*[1], J. Tarrant[1], E. Clarke[2], T. Lin[1], N. La[1], B. McCray[1], T. Nguyen[1], P. Dhawan[1], E. Doudement[1], A. Kauss[1], *D. Dambach*[1], and *D. Misner*[1]. [1]Safety Assessment, Genentech, South San Francisco, CA; [2]ReachBio, Seattle, WA.

#2180 **Poster Board Number 340**
Structural Optimization of the Rac GTPase Inhibitor EHop-016. *E. Velez*, E. Hernandez, and C. Vlaar. University of Puerto Rico Medical Science Campus, San Juan, Puerto Rico.

Wednesday Afternoon, March 13
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PS

Poster Session: Kidney

Chairperson(s): *Monica Valentovic, Marshall University School of Medicine, Huntington, WV.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *2:45 PM–4:30 PM*

#2181 **Poster Board Number 343**
Role of Renal Cytochrome P450 Isozymes in the Bioactivation of 3,5-Dichloroaniline *In Vitro*. *C. Racine*, T. Ferguson, S. Baksi, D. Preston, D. Anestis, and *G. Rankin*. Pharmacology, Physiology and Toxicology, Marshall University, Huntington, WV.

Abstract #

#2182 **Poster Board Number 344**
Studying Drug Effects on Renal Tubular Secretion of Creatinine with a Novel Cellular Model Coexpressing Major Creatinine Transporters OAT2, OCT2, OCT3 and MATE1. J. X. Zhang, *M. S. Warren*, J. Huang, and Y. Huang. Optivia Biotechnology Inc., Menlo Park, CA.

#2183 **Poster Board Number 345**
Proximal Tubular Transport of Mercuric Species following Compensatory Tubular Hypertrophy. *C. Bridges*[1], D. W. Barfuss[2], L. Joshee[1], and *R. K. Zalups*[1]. [1]Division of Basic Medical Sciences, Mercer University, Macon, GA; [2]Department of Biology, Georgia State University, Atlanta, GA.

#2184 **Poster Board Number 346**
Suramin Attenuates Hyperglycemia-Induced Renal Oxidative Stress, Inflammation and Fibrosis in Rats. *M. Korrapati*[1], B. E. Shaner[1], B. A. Neely[2], J. L. Alge[2], J. M. Arthur[2,3], and *R. G. Schnellmann*[1,3]. [1]Drug Discovery and Biomedical Sciences, Medical University of South Carolina, Charleston, SC; [2]Medicine, Division of Nephrology, Medical University of South Carolina, Charleston, SC; [3]Veterans Administration Medical Center, Charleston, SC.

#2185 **Poster Board Number 347**
Resveratrol Alters Subcellular Changes in Oxidative Stress Mediated by Cisplatin in Rat Renal Tissue. *M. Valentovic*[1], J. G. Ball[1], J. Wolfe[1], S. Van Meter[1], M. Wright[1], B. Lamyaithong[2], and B. Brown[1]. [1]Pharmacology, Physiology and Toxicology, Marshall University School of Medicine, Huntington, WV; [2]Wheeling Jesuit University, Wheeling, WV.

#2186 **Poster Board Number 348**
Diglycolic Acid Induces Cytotoxicity in Human Proximal Tubule Cells via Preferential Inhibition of Succinate Dehydrogenase and Oxidative Phosphorylation. *G. M. Landry*, C. L. Dunning, T. V. Dupree, M. J. Hitt, and *K. McMartin*. Pharmacology, Toxicology & Neuroscience, Louisiana State University Health Sciences Center, Shreveport, LA.

#2187 **Poster Board Number 349**
Chronic Ethanol Ingestion in Mice Induces Renal Inflammation and Injury through the Platelet-Activating Factor Receptor. *C. Latchoumycandane*[1], J. Liu[1], L. E. Nagy[2], and T. M. McIntyre[1]. [1]Department of Cellular and Molecular Medicine, Lerner Research Institute, Cleveland Clinic, Cleveland, OH; [2]Department of Pathobiology, Lerner Research Institute, Cleveland Clinic, Cleveland, OH.

#2188 **Poster Board Number 350**
Nephrotoxicity of Epigenetic Inhibitors Used for the Treatment of Cancer. N. E. Scholpa, M. Moore, and *B. S. Cummings*. Pharmaceutical and Biomedical Sciences, University of Georgia, Athens, GA.

#2189 **Poster Board Number 351**
hTERT-Immortalized Renal Proximal Tubule Epithelial Cells: A Model for Testing Cadmium's Role in the Development of Renal Cancer. B. R. Simon. Global Environmental Health Sciences, Tulane University, New Orleans, LA. Sponsor: *J. Wickliffe*.

Program Description (Continued)

Abstract #

#2190 **Poster Board Number 352**
BUN and Serum CRE Alterations in Higa and BALB/c Mice after Subacute Administration of Fluoride via Drinking Water. T. Kido[1,2], *M. Tsunoda*[2], C. Sugaya[2], H. Yanagisawa[1], and Y. Aizawa[3]. [1]Public Health and Environmental Medicine, The Jikei University School of Medicine, Tokyo, Japan; [2]Preventive Medicine, Kitasato University School of Medicine, Sagamihara, Japan; [3]Kitasato University, Tokyo, Japan.

#2191 **Poster Board Number 353**
Performance Evaluation of Urinary Complement Biomarker for the Immune-Mediated Glomerular Injury. M. Ko[1], E. Nagiec[2], D. Fix[3], B. L. Homer[2], and A. John-Baptiste[1]. [1]Drug Safety, Research & Development, Pfizer, San Diego, CA; [2]Drug Safety, Research & Development, Pfizer, Cambridge, MA; [3]Drug Safety, Research & Development, Pfizer, Groton, CT. Sponsor: *W. Huang*.

#2192 **Poster Board Number 354**
Miniaturized Multiplex Protein Nanoarray Assays for Early Detection of Drug-Induced Nephrotoxicity in Mice and Rats. A. W. Kherzai, R. G. Sanedrin, P. Han, N. A. Amro, R. Helfrich, S. Aziz, N. Patel, D. Mikos, and H. Jamil. Nano BioDiscovery, Nanoink INC, Skokie, IL. Sponsor: *S. Devi*.

#2193 **Poster Board Number 355**
Magnetic Resonance Imaging (MRI) Assessment of Renal Glomerular Filtration Rate (GFR). M. Uteng[1], A. Mahl[1], A. Piaia[1], J. Cunliffe[1], E. Persohn[1], E. Tritto[1], D. Ledieu[1], P. Moulin[1], N. Shangari[1], S. Chibout[1], *A. Wolf*[1], L. Li[1], *F. Pognan*[1], and N. Beckmann[2]. [1]Novartis Institutes for BioMedical Research, Novartis, Basel, Switzerland; [2]Global Imaging Group, Novartis, Basel, Switzerland.

#2194 **Poster Board Number 356**
Identification of 3-Indoxyl Sulfate As an Early Biomarker for Nephrotoxicant-Induced Acute Kidney Injury. A. Won[1], T. Kim[1], Y. Shin[1], *B. Lee*[2], *S. Kim*[3], and H. Kim[1]. [1]College of Pharmacy, Pusan National University, Pusan, Republic of Korea; [2]College of Pharmacy, Sungkyunkwan University, Suwon, Republic of Korea; [3]Department of Chemistry and Chemistry Institute for Functional Materials, Pusan National University, Busan, Republic of Korea.

#2195 **Poster Board Number 357**
A Quantitative High-Throughput Screening Platform for Predictive Kidney Toxicity. *M. Adler*[1], E. Gottwald[1], *B. L. Goodwin*[2], *M. Xia*[2], and *V. S. Vaidya*[1]. [1]Renal Division, Department of Medicine, Brigham and Women's Hospital, Harvard Medical School, Boston, MA; [2]National Center for Advancing Translational Sciences, National Institutes of Health, Bethesda, MD.

#2196 **Poster Board Number 358**
Systems Biology Approach Identifies Transcriptional Regulator of Kidney Injury Molecule-1. *A. K. Ajay*[1,3], T. Kim[2,3], P. J. Park[2,3], V. Ramirez[1,3], and *V. S. Vaidya*[1,3]. [1]Renal Dision, Brigham and Women's Hospital, Boston, MA; [2]Centre for Biomedical Informatics, Harvard Medical School, Boston, MA; [3]Department of Medicine, Harvard Medical School, Boston, MA.

Abstract #

#2197 **Poster Board Number 359**
Kidney miRNAs Show Age and Sex Differences in Expression during the Rat Life Cycle. J. C. Kwekel, V. G. Desai, T. Han, C. L. Moland, and *J. C. Fuscoe*. Personalized Medicine Branch, US FDA, National Center for Toxicological Research, Jefferson, AR.

#2198 **Poster Board Number 360**
Mice Deficient in microRNA-155 Have Greater Susceptibility to Cisplatin-Induced Kidney Toxicity. *K. L. Pellegrini*, V. Bijol, and *V. S. Vaidya*. Renal Division, Department of Medicine, Brigham and Women's Hospital, Harvard Medical School, Boston, MA.

#2199 **Poster Board Number 361**
Urinary microRNAs As Translational Biomarkers to Detect Acute Kidney Injury. K. Ramachandran, *J. Saikumar*, *S. S. Waikar*, and *V. S. Vaidya*. Renal Division, Department of Medicine, Brigham and Women's Hospital, Harvard Medical School, Boston, MA.

#2200 **Poster Board Number 362**
Genetic Reduction in Fibrinogen Protects from Progression of Acute Kidney Injury to Chronic Kidney Disease. *F. Craciun*, *A. K. Ajay*, and *V. S. Vaidya*. Department of Medicine, Renal Division, Brigham and Women's Hospital, Harvard Medical School, Boston, MA.

#2201 **Poster Board Number 363**
Urinary Levels of N-Acetyl-β-D-Glucosaminidase (NAG), Glutathione-S-Transferase (GST), Blood Lead and Plasma Creatinine As Early Indicators of Lead Nephropathy in Occupationally Exposed Subjects. *I. O. Omotosho*[1], and G. O. Ademowo[2]. [1]Chemical Pathology, College of Medicine, University of Ibadan, Ibadan, Nigeria; [2]Institute of Advanced Medical Research, College of Medicine, University of Ibadan, Ibadan, Nigeria.

#2202 **Poster Board Number 364**
Early Postnatal Gentamicin Treatment Reduces Glomerular Number in Extra Uterine Growth Restricted Wistar Rats. R. R. Bueters, A. Klaasen, L. P. van den Heuvel, and M. F. Schreuder. Pediatric Nephrology, Radboud University Nijmegen Medical Centre, Nijmegen, Netherlands. Sponsor: *F. Russel*.

#2203 **Poster Board Number 365**
Resistance to Dioxin-Induced Hydronephrosis in a Mouse Strain Having Unresponsive Microsomal Prostaglandin E Synthase-1. K. Aida-Yasuoka, *W. Yoshioka*, T. Kawaguchi, S. Ohsako, and *C. Tohyama*. University of Tokyo, Tokyo, Japan.

Program Description (Continued)

Abstract #

Wednesday Afternoon, March 13
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PS

Poster Session: Toxicology Education

Chairperson(s): *Christine P. Curran, Northern Kentucky University, Department of Biological Sciences, Highland Heights, KY.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *1:00 PM–2:45 PM*

#2204 **Poster Board Number 401**
Escape from Toxic Island: Learning Toxicology Concepts through Informational Posters and a Board Game. *D. Hardej*[1,2], *L. Hoffman*[1,2], and *A. R. Schatz*[1]. [1]Mid-Atlantic Society of Toxicology (MASOT), Bordentown, NJ; [2]Pharmaceutical Sciences, St. John's University, Queens, NY.

#2205 **Poster Board Number 402**
A *C. elegans* Dose-Response Protocol and Inquiry Lab in an Undergraduate Toxicology Course. *M. J. Pomeroy-Black*. Biology, LaGrange College, LaGrange, GA.

#2206 **Poster Board Number 403**
The Best of the Worst: A Novel Approach to Teaching Environmental Toxicology. *C. P. Curran*. Biological Sciences, Northern Kentucky University, Highland Heights, KY.

#2207 **Poster Board Number 404**
Risk Assessment Capstone Project for Seniors in an Undergraduate Toxicology Program. *S. M. Ford*. College of Pharmacy & Allied Health Professions, St. Johns University, Jamaica, NY.

#2208 **Poster Board Number 405**
Development of a Summer Undergraduate Research Program in Toxicology and Environmental Health Sciences. *L. M. Aleksunes*[1,3], L. Liang[2,3], E. Caswell[2], and *D. L. Laskin*[1,3]. [1]Department of Pharmacology and Toxicology, Rutgers University, Piscataway, NJ; [2]Department of Health Systems and Policy, University of Medicine and Dentistry of New Jersey-School of Public Health, Piscataway, NJ; [3]NIEHS Center for Environmental Exposures and Disease, Piscataway, NJ.

#2209 **Poster Board Number 406**
Incorporation of Toxicology and Risk Assessment Principles into an Environmental Health Course. R. N. Phalen. Health Science, California State University, San Bernardino, San Bernardino, CA. Sponsor: *T. Dodd-Butera*.

#2210 **Poster Board Number 407**
Poisoning Principles: Clinical Toxicology and Undergraduate Nursing Education. *T. Dodd-Butera*[1], and M. Broderick Pritty[2]. [1]Nursing, California State University, San Bernardino, College of Natural Sciences, San Bernardino, CA; [2]California Poison Control System, San Diego, CA.

Abstract #

Wednesday Afternoon, March 13
1:00 PM to 4:30 PM
Exhibit Hall C–D

PS

Poster Session: Risk Assessment III: New Derivations and Updated Estimates

Chairperson(s): *J. Caroline English, NSF International, Santa Cruz, CA, and Carol S. Wood, Oak Ridge National Laboratory, Oak Ridge, TN.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *2:45 PM–4:30 PM*

#2211 **Poster Board Number 409**
Coal Ash Material Safety—A Health Risk-Based Evaluation of USGS Coal Ash Data from Five US Power Plants. *L. J. Bradley*. AECOM, Chelmsford, MA.

#2212 **Poster Board Number 410**
Provisional Advisory Levels (PALs) for Chloroethanol (Ethylene Chlorohydrin). *S. Milanez*[1], *P. McGinnis*[2], *L. Koller*[3], and *F. Adeshina*[4]. [1]Oak Ridge National Laboratory, Oak Ridge, TN; [2]RG York and Associates, Syracuse, NY; [3]Environmental Health & Toxicology, Corvallis, OR; [4]US EPA, Washington DC.

#2213 **Poster Board Number 411**
Provisional Advisory Level (PAL) Development for Lewisite and Sulfur Mustard. C. Bast[1], *R. Young*[2], *P. M. McGinnis*[3], C. Baird[4], and *F. Adeshina*[5]. [1]Oak Ridge National Laboratory (ORNL), Oak Ridge, TN; [2]ORNL, Oak Ridge, TN; [3]RG York & Associates, Syracuse, NY; [4]US Army Public Health Command, Aberdeen, MD; [5]US EPA, Washington DC.

#2214 **Poster Board Number 412**
Provisional Advisory Level (PAL) Development for Fentanyl. *C. S. Wood*[1], C. Baird[2], *L. Koller*[3], and *F. Adeshina*[4]. [1]Oak Ridge National Laboratory, Oak Ridge, TN; [2]US Army Public Health Command, Aberdeen, MD; [3]Environmental Health and Toxicology, Corvallis, OR; [4]US EPA, Washington DC.

#2215 **Poster Board Number 413**
Development of a Chronic Reference Concentration for Decalin. *L. D. Stuchal*, *R. E. Weil*, and *S. M. Roberts*. Center for Environmental and Human Toxicology, University of Florida, Gainesville, FL.

#2216 **Poster Board Number 414**
Weight-of-Evidence Evaluation of Methyl Methacrylate Olfactory Effects in Humans and Derivation of an Occupational Exposure Level. *M. Pemberton*[1], *L. A. Bailey*[2], and *L. R. Rhomberg*[2]. [1]Systox, Cheshire, United Kingdom; [2]Gradient, Cambridge, MA.

#2217 **Poster Board Number 415**
An Updated Dose-Response Evaluation of Aldrin and Dieldrin. *E. Hooker*, H. J. Gibb, and K. G. Fulcher. Tetra Tech Sciences, Arlington, VA.

#2218 **Poster Board Number 416**
Benzene: Development of a 24-Hour, Health-Protective Comparison Value. *J. T. Haney*. Toxicology Division, Texas Commission on Environmental Quality, Austin, TX.

Program Description (Continued)

Abstract #

#2219 **Poster Board Number 417**
Derivation of a Guidance Limit for Cadmium in Children's Jewelry: Health Canada's Perspective. G. Barrett[1], P. Chantal[2], S. Wright[3], P. Chowhan[4], P. Pelletier[1], H. Ryan[1,2], and J. Field[1]. [1]Toxicology and Flammability Risk Assessment Unit, Consumer Product Safety Directorate, Health Canada, Ottawa, ON, Canada; [2]Product Safety Laboratory, Consumer Product Safety Directorate, Health Canada, Ottawa, ON, Canada; [3]Compliance and Enforcement Division, Consumer Product Safety Directorate, Health Canada, Ottawa, ON, Canada; [4]Risk Management Strategies Division, Consumer Product Safety Directorate, Health Canada, Ottawa, ON, Canada. Sponsor: *G. Chen*.

#2220 **Poster Board Number 418**
Assessment of Risks to the US Population Posed by Exposure to Gold and Ceramic Dental Restorations. R. E. Peters[1], M. Richardson[2], S. Clemow[3], K. James[1], and S. D. Siciliano[1]. [1]University of Saskatchewan, Saskatoon, SK, Canada; [2]Stantec Consulting Ltd., Ottawa, ON, Canada; [3]SNC-Lavalin Environment, Ottawa, ON, Canada. Sponsor: *L. Weber*.

#2221 **Poster Board Number 419**
Development of an Oral Cancer Slope Factor for Acrylamide Based on Tumors Relevant to Humans. *J. D. Urban*[1], *C. M. Thompson*[2], *R. Deskin*[3], M. Waite[3], and *L. C. Haws*[1]. [1]ToxStrategies, Inc., Austin, TX; [2]ToxStrategies, Inc., Houston, TX; [3]Cytec Industries, Inc., Woodland Park, NJ.

#2222 **Poster Board Number 420**
An Evaluation of the Human Carcinogenic Potency of Methyl Tert-Butyl Ether (MTBE): Considering New Data and Mode of Action. P. Sheehan, and *K. Bogen*. Exponent, Oakland, CA.

#2223 **Poster Board Number 421**
Development of a 24-Hour Air Monitoring Comparison Value (AMCV) for 1,3-Butadiene and Comparison of 1-Hour, 24-Hour, and Chronic AMCVs to Observed Adverse Effect Levels. *R. L. Grant*, and *R. E. Jones*. Toxicology Division, Texas Commission on Environmental Quality (TCEQ), Austin, TX.

#2224 **Poster Board Number 422**
Health-Based 24-Hour Air Monitoring Comparison Value (AMCV) for Acrolein in Ambient Air: Comparison to Air Monitoring Data Collected in Texas. *A. Jenkins*. Toxicology Division, Texas Commission on Environmental Quality, Austin, TX.

#2225 **Poster Board Number 423**
Protection against Toxic Effects of Arsenic by Vitamin E: Characterization of Transplacental Arsenic Species and Effects. *A. Sampayo-Reyes*[1], R. Marcos[2], and A. Hernandez[2]. [1]Departamento de Toxicogenética, Centro de Investigación Biomédicas del Noreste, Monterrey, Mexico; [2]Departament de Genètica i de Microbiologia, Universitat Autònoma de Barcelona, Bellaterra, Spain.

#2226 **Poster Board Number 424**
Approaches for Deriving an OEL for Peracetic Acid and Occupational Risk Management Considerations. *N. Pechacek*[1], *A. Maier*[2], and *L. Haber*[2]. [1]Ecolab, St. Paul, MN; [2]Toxicology Excellence for Risk Assessment, Cincinnati, OH.

Abstract #

#2227 **Poster Board Number 425**
An Inhalation Risk Assessment for Measured Ambient Air Concentrations of 6: 2 Fluorotelomer Alcohol. *T. L. Serex*, *M. W. Himmelstein*, R. C. Buck, and M. H. Russell. E.I. duPont de Nemours & Co. Inc., Wilmington, DE.

#2228 **Poster Board Number 426**
Derivation of an Occupational Exposure Limit for Inorganic Borates Using a Weight of Evidence Approach. M. J. Vincent[1], *A. Maier*[1], *E. Hack*[2], P. Nance[1], and *W. Ball*[3]. [1]TERA, Cincinnati, OH; [2]The Henry Jackson Foundation, Bethesda, MD; [3]Rio Tinto Minerals, Greenwood Village, CO.

#2229 **Poster Board Number 427**
US EPA Decabromodiphenyl Ether Alternatives Hazard Assessment Results. J. Rhoades[1], M. Kawa[1], E. Lavoie[2], *C. Baier-Anderson*[2], and J. Tunkel[1]. [1]SRC, Inc., East Syracuse, NY; [2]US EPA, OPPT, DfE, Washington DC.

#2230 **Poster Board Number 428**
Predicting Bioavailability of Arsenic in Mining Soils. *V. L. Mitchell*[1], N. T. Basta[2], *S. W. Casteel*[3], S. Whitacre[2], L. E. Naught[3], and P. A. Myers[1]. [1]Toxic Substances Control, Cal EPA, Sacramento, CA; [2]Ohio State University, Columbus, OH; [3]University of Missouri, Columbia, MO.

#2231 **Poster Board Number 429**
A Quantitative Risk Assessment of 1-Bromopropane, Based on Tumor Data. *D. A. Dankovic*[1], and *G. Dotson*[2]. [1]Risk Evaluation Branch, CDC/NIOSH, Cincinnati, OH; [2]Document Development Branch, CDC/NIOSH, Cincinnati, OH.

#2232 **Poster Board Number 430**
Human Health Risk Assessment of Inhaled Acudyne™ Shine Polymer in Hair Care Products. *S. M. Krieger*, W. Shade, R. Sura, *J. A. Hotchkiss*, and *G. A. Hazelton*. The Dow Chemical Company, Midland, MI.

#2233 **Poster Board Number 431**
Derivation of Acceptable Drinking Water Levels for Bromine and Bromide-Releasing Antimicrobial Agents. *J. C. English*, *V. S. Bhat*, and *C. J. McLellan*. NSF International, Ann Arbor, MI.

#2234 **Poster Board Number 432**
Low-Level Arsenic in Drinking Water and Bladder Cancer Risk: Meta-Analysis Update and Risk Assessment Implications. *J. S. Tsuji*[1], D. D. Alexander[2], and V. Perez[3]. [1]Exponent, Bellevue, WA; [2]Exponent, Boulder, CO; [3]Exponent, Chicago, IL.

#2235 **Poster Board Number 433**
A Chronic Oral Reference Dose for Hexavalent Chromium. *C. M. Thompson*[1], C. R. Kirman[2], *D. M. Proctor*[3], *M. Suh*[3], *S. M. Hays*[4], *L. C. Haws*[5], and M. A. Harris[1]. [1]ToxStrategies, Katy, TX; [2]Summit Toxicology, Orange Village, OH; [3]ToxStrategies, Rancho Santa Margarita, CA; [4]Summit Toxicology, Allenspark, CO; [5]ToxStrategies, Austin, TX.

#2236 **Poster Board Number 434**
Mode-of-Action Evaluation for Hexavalent Chromium-Induced Lung Cancer. *D. M. Proctor*[1], *M. Suh*[1], *C. M. Thompson*[2], and *M. A. Harris*[2]. [1]ToxStrategies, Rancho Santa Margarita, CA; [2]ToxStrategies, Katy, TX.

Program Description (Continued)

Abstract #

#2237 **Poster Board Number 435**
A Screening Level Assessment of the Health and Environmental Hazards of Organohalogen Flame Retardants. *D. A. Eastmond*, *V. S. Bhat*, and K. Capsel. Environmental Toxicology Graduate Program, University of California Riverside, Riverside, CA.

#2238 **Poster Board Number 436**
Air Quality and Human Health Risks Along the Texas Gulf Coast. *T. Bredfeldt*, and *D. McCant*. Toxicology, Texas Commission On Environmental Quality, Austin, TX.

#2239 **Poster Board Number 437**
Assessment of Potential Perchlorate Exposures from the Use of Household Chlorine Bleach. *T. Lewandowski*[1,2]. [1]Gradient, Seattle, WA; [2]Health and Nutrition Sciences, Brooklyn College/City University of New York, Brooklyn, NY.

#2240 **Poster Board Number 438**
Derivation of a Reference Dose for Resorcinol. *B. H. Magee*. Risk Assessment, ARCADIS, Chelmsford, MA.

#2241 **Poster Board Number 439**
Risk Estimates for Dioxins, Furans, and PCBs in Edible Fish and Shellfish at the San Jacinto River Waste Pits, Texas, USA. *E. S. Williams*, S. Usenko, and *B. W. Brooks*. Environmental Science, Baylor University, Waco, TX.

#2242 **Poster Board Number 440**
Evaluation of the Glyphosate Developmental Toxicity Database: Absence of Potential for Cardiovascular Malformations. *A. Williams*, G. Kimmel, *C. Kimmel*, and *J. DeSesso*. Exponent, Alexandria, VA.

#2243 **Poster Board Number 441**
Oral Risk Assessment for Isooctane—A Class-Based Approach Using the Surrogate n-Hexane. *B. Wang*[1], *P. Undesser*[2], and *M. Whittaker*[1]. [1]ToxServices LLC, Washington DC; [2]Water Quality Association, Lisle, IL.

#2244 **Poster Board Number 442**
Deriving Dermal Safe Harbor Levels for DEHP Relevant to Consumer Products for Adults. T. Jonaitis, *J. W. Card*, and *L. Haighton*. Intertek Cantox, Mississauga, ON, Canada.

Abstract #

Wednesday Afternoon, March 13
1:00 PM to 4:30 PM
Exhibit Hall C–D

PS

Poster Session: Alternative High-Throughput Models II

Chairperson(s): *Patrick Allard, Harvard Medical School, Boston, MA, and Cathy Z. Yang, CertiChem, Inc., Austin, TX.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *1:00 PM–2:45 PM*

#2245 **Poster Board Number 443**
Microfluidic Steroidogenesis Assays for *In Vitro* Toxicant Screening. A. B. Theberge[1,2,3], E. Berthier[4], C. J. Hedman[5], B. P. Casavant[2], N. P. Keller[1,4], W. A. Bushman[1,3], and D. J. Beebe[1,2]. [1]Molecular and Environmental Toxicology, University of Wisconsin-Madison, Madison, WI; [2]Biomedical Engineering, University of Wisconsin-Madison, Madison, WI; [3]Urology, University of Wisconsin-Madison, Madison, WI; [4]Medical Microbiology and Immunology, University of Wisconsin-Madison, Madison, WI; [5]Institute for Clinical and Translational Research, University of Wisconsin-Madison, Madison, WI. Sponsor: *C. Bradfield*.

#2246 **Poster Board Number 444**
An Improved *In Vitro* Method for Determining Chemical Effects on Steroidogenesis Using LC/MS/MS to Monitor Multiple Steroid Hormones Combined with Gene Expression. C. M. Toole[1], H. Wagner[1], K. Lewis[2], and *J. M. McKim*[1]. [1]CeeTox, Inc., Kalamazoo, MI; [2]OpAns, LLC, Durham, NC.

#2247 **Poster Board Number 445**
Mapping Pathways of Endocrine Disruption in MCF-7 Cells: 2D and 3D Culture Systems. *M. M. Vantangoli*, S. Hall, and *K. Boekelheide*. Brown University, Providence, RI.

#2248 **Poster Board Number 446**
Cell-Specific Control of Estrogen Response Mechanisms in HeLa-9903 and T47D-KBluc Cell Lines. D. Blakeman, B. Meyer, A. Hulett, *J. M. McKim*, and C. M. Toole. CeeTox, Inc., Kalamazoo, MI.

#2249 **Poster Board Number 447**
Profiling of ERα-Coregulator Binding As a Means for Functional Classification of Unknown Endocrine Disruptors. R. Houtman[1], S. Wang[2,3], J. M. Aarts[2,3], W. Westerink[4], *B. J. Blaauboer*[5], T. Bovee[2], and R. van Beuningen[1]. [1]PamGene International BV, Den Bosch, Netherlands; [2]RIKILT-Institute of Food Safety, Wageningen UR, Wageningen, Netherlands; [3]Division of Toxicology, Wageningen UR, Wageningen, Netherlands; [4]Wil Research, Den Bosch, Netherlands; [5]Division of Toxicology, Institute for Risk Assessment Sciences, Utrecht, Netherlands.

Program Description (Continued)

Abstract #

#2250 **Poster Board Number 448**
Validation of the Yeast Estrogen and Yeast Androgen Screens for Endocrine Active Substances: Interlaboratory Ring Trial. C. Woitkowiak[1], T. Ramirez[1], H. Hüner[1], C. Schönlau[2], H. Hollert[2], S. Broschk[3], O. Zierau[3], G. Vollmer[3], M. Jäger[4], *A. Poth*[4], E. Higley[5], M. Hecker[5], *B. van Ravenzwaay*[1], and *R. Landsiedel*[1]. [1]Experimental Toxicology and Ecology, BASF SE, Ludwigshafen am Rhein, Germany; [2]RWTH, University of Aachen, Aachen, Germany; [3]Technical University Dresden, Dresden, Germany; [4]Harlan Cytotest Cell Research GmbH, Roβdorf, Germany; [5]University of Saskatchewan, Saskatoon, SK, Canada.

#2251 **Poster Board Number 449**
Comparison of the Manual and Quantitative High-Throughput Versions of the BG1Luc Estrogen Receptor Transactivation Test Method. *P. Ceger*[1], *W. Casey*[2], *J. Strickland*[1], *L. Rinckel*[1], and *W. Stokes*[2]. [1]ILS, Inc., Research Triangle Park, NC; [2]NTP/NICEATM, NIEHS, Research Triangle Park, NC.

#2252 **Poster Board Number 450**
Reconstructed Vaginal-Ectocervical and Endocervical Tissue Models for HSV-2, Chlamydia, and Gonorrhea Infections. T. Landry[1], K. LaRosa[1], J. Pudney[2], R. Ingalls[2], D. Anderson[2], *P. Hayden*[1], M. Klausner[1], and S. Ayehunie[1]. [1]MatTek Corporation, Ashland, MA; [2]Boston Medical School, Boston, MA.

#2253 **Poster Board Number 451**
Combining Pathway-Based *In Vitro* Assays to Prioritize 1848 Environmental Chemicals for Estrogenic Potential. D. Rotroff[1,2], *D. Reif*[1], *N. Sipes*[1], *T. Knudsen*[1], P. Kothia[1], *M. Martin*[1], *K. Houck*[1], and *R. Judson*[1]. [1]NCCT, US EPA, Research Triangle Park, NC; [2]Environmental Sciences and Engineering, University of North Carolina at Chapel Hill, Chapel Hill, NC.

#2254 **Poster Board Number 452**
Identification of Compounds That Activate Aryl Hydrocarbon Receptor Using a qHTS Platform. N. R. Miller[1], R. Huang[1], *K. Houck*[2], *M. S. Denison*[3], and *M. Xia*[1]. [1]NCGC, NIH, Rockville, MD; [2]US EPA, Research Triangle Park, NC; [3]Environmental Toxicology, University of California Davis, Davis, CA.

#2255 **Poster Board Number 453**
Comet and Nucleotide Postlabeling Results in the Chicken Egg Genotoxicity Assay. *A. M. Jeffrey*[1], *U. Deschl*[2], J. Duan[1], *K. D. Brunnemann*[1], E. Vock[2], *M. J. Iatropoulos*[1], and *G. M. Williams*[1]. [1]Department of Pathology, New York Medical College, Valhalla, NY; [2]Boehringer Ingelheim Pharma GmbH & Co. KG, Biberach, Germany.

Abstract #

#2256 **Poster Board Number 454**
Development of Hazard Evaluation Support System (HESS) and the Attached Database (HESS DB) for Repeated-Dose Toxicity of Chemical Substances. T. Yamada[1], T. Abe[1], R. Hasegawa[1], Y. Sakuratani[1], J. Yamada[1], T. Yamashita[2], Y. Yamazoe[3], O. Mekenyan[4], *A. Hirose*[5], and *M. Hayashi*[6]. [1]Chemical Management Center, National Institute of Technology and Evaluation, Tokyo, Japan; [2]BioIT Business Development Office, Fujitsu Limited, Chiba, Japan; [3]Graduate School of Pharmaceutical Sciences, Tohoku University, Sendai, Japan; [4]Laboratory of Mathematical Chemistry, University "Prof. Assen Zlatarov" Bourgas, Bourgas, Bulgaria; [5]Biological Safety Research Center, National Institute of Health Sciences, Tokyo, Japan; [6]BioSafety Research Center, Iwata, Japan.

#2257 **Poster Board Number 455**
Mitochondrial Bioenergetics and Drug-Induced Toxicity in a Panel of Mouse Embryonic Fibroblasts with Mitochondrial DNA Single Nucleotide Polymorphisms. C. V. Pereira[1], P. J. Oliveira[1], *Y. Will*[2], and *S. Nadanaciva*[2]. [1]CNC- Center for Neuroscience and Cell Biology, University of Coimbra, Coimbra, Portugal; [2]Pfizer Inc, Groton, CT.

#2258 **Poster Board Number 456**
Assessment of Drug-Induced Inhibition of Fatty Acid Oxidation in Intact Cells. *S. Nadanaciva*, L. Qiu, and *Y. Will*. Pfizer Inc, Groton, CT.

#2259 **Poster Board Number 457**
Cytotoxicity and Genotoxicity of 2,6-dichloro-3-methyl-1,4-benzoquinone (DCMBQ) Involves Reactive Oxygen Species Production *In Vitro*. *C. F. McGuigan*, X. Li, and X. Le. Division of Analytical & Environmental Toxicology, University of Alberta, Edmonton, AB, Canada.

#2260 **Poster Board Number 458**
Intra- and Interlaboratory Validation Studies on Reactive Oxygen Species Assay for Photosafety Evaluation of Pharmaceuticals. T. Toda[1], S. Onoue[2], Y. Seto[2], H. Takagi[3], N. Osaki[3], S. Kawakami[4], Y. Matsumoto[5], Y. Iwase[6], T. Yamamoto[6], S. Wakuri[7], K. Hosoi[8], *K. Nakamura*[1], and *H. Kojima*[9]. [1]Shionogi & Co., Ltd., Osaka/Tokyo, Japan; [2]University of Shizuoka, Shizuoka, Japan; [3]Taisho Pharmaceutical Co., Ltd., Saitama, Japan; [4]Asahi Kasei Pharma Corporation, Shizuoka, Japan; [5]Aska Pharmaceutical Co., Ltd., Kanagawa, Japan; [6]Mitsubishi Tanabe Pharma Corporation, Saitama/Chiba, Japan; [7]Hatano Research Institute, Food and Drug Safety Center, Kanagawa, Japan; [8]Santen Pharmaceutical Co., Ltd., Nara, Japan; [9]National Institute of Health Sciences, Tokyo, Japan.

#2261 **Poster Board Number 459**
Investigating the Role of Mitochondrial Dysfunction in Zoniporide Toxicity. P. Rana, S. Rachel, and *Y. Will*. Compound Safety Prediction, Pfizer Global Research & Development, Groton, CT.

#2262 **Poster Board Number 460**
Validation of an HTS-Amenable Assay to Detect Drug-Induced Mitochondrial Toxicity. R. Swiss[1], A. Niles[2], J. Cali[2], and *Y. Will*[1]. [1]Compound Safety Prediction, Pfizer Global Research & Development, Groton, CT; [2]Promega, Madison, WI.

Program Description (Continued)

Abstract #

#2263 **Poster Board Number 461**
Establishing a Link between Redox Cycling and Cell Death for Quinone and Flavin Chemotypes. L. Jones, P. Rana, R. Swiss, R. Naven, and *Y. Will*. Compound Safety Prediction, Pfizer Global Research & Development, Groton, CT.

#2264 **Poster Board Number 462**
Identification and Characterization of Potential Mitochondrial Liabilities Using a Multitiered *In Vitro* Rat Primary Hepatocyte Screening Paradigm. *D. D. Baker*, *B. D. Jeffy*, and *M. A. Breider*. Exploratory Toxicology, Celgene, Inc., San Diego, CA.

#2265 **Poster Board Number 463**
Impact of Exposure Profile on Toxic Response Using Hepatocytes (HepaRG) Cocultured with Intestinal Cells (Caco-2). K. Yuki, N. Ikeda, T. Kasamatsu, and N. Nishiyama. Kao Corporation, Haga-gun Tochigi, Japan. Sponsor: *J. Avalos*.

#2266 **Poster Board Number 464**
Combinatorial High-Throughput Gene Transfection on a Chip for Metabolism-Induced Toxicity Screening. *M. Lee*[4], S. Kwon[1], D. Lee[2], D. Shah[1], B. Ku[2], D. S. Clark[3], and J. S. Dordick[1]. [1]Department of Chemical and Biological Engineering, Rensselaer Polytechnic Institute, Troy, NY; [2]Central R & D Institute, Samsung Electro-Mechanics Co., Suwon, Republic of Korea; [3]Department of Chemical and Biomolecular Engineering, University of California Berkeley, Berkeley, CA; [4]Solidus Biosciences, Inc., San Francisco, CA.

#2267 **Poster Board Number 465**
Validation of High-Throughput and High-Content (HT/HC) Assays to Support 21st Century Toxicity Evaluations. *R. Becker*[1], G. Patlewicz[2], *T. Simon*[3], *K. Goyak*[4], *R. Phillips*[4], *J. Rowlands*[5], and *S. Seidel*[6]. [1]American Chemistry Council, Washington DC; [2]DuPont Haskell Global Centers for Health and Environmental Sciences, Newark, DE; [3]Ted Simon LLC, Winston, GA; [4]ExxonMobil Biomedical Sciences Inc., Annandale, NJ; [5]The Dow Chemical Company, Midland, MI; [6]Dow Corning Corporation, Midland, MI.

#2268 **Poster Board Number 466**
Performance Evaluation of Publicly Available QSAR Software Platforms for Toxicology Endpoints: Case Study Involving VEGA, OPENTOX, and OECD QSAR Toolbox. *S. Bobst*[1], and M. Vracko[2]. [1]Product Safety, Nexeo Solutions LLC, The Woodlands, TX; [2]Laboratory of Chemometrics, National Institute of Chemistry, Ljubljana, Slovenia.

#2269 **Poster Board Number 467**
Use of a Cell-Based Assay to Monitor the Stability of the Tox21 10K Compound Library. R. Huang[1], J. Zhao[1], *M. Xia*[1], K. L. Witt[2], *K. Houck*[3], *R. R. Tice*[2], *D. Dix*[3], and C. P. Austin[1]. [1]NCATS, NIH, Rockville, MD; [2]NTP, NIEHS, NIH, Research Triangle Park, NC; [3]NCCT, US EPA, Research Triangle Park, NC.

#2270 **Poster Board Number 468**
Application of Metabolomics *In Vitro* for Identification of Toxicological Modes of Action. T. Ramirez[1], N. Bordag[2], W. Mellert[1], H. G. Kamp[1], T. Walk[2], R. Looser[2], and *B. van Ravenzwaay*[1]. [1]Experimental Toxicology and Ecology, BASF SE, Ludwigshafen am Rhein, Germany; [2]Metanomics, Berlin, Germany.

Abstract #

#2271 **Poster Board Number 469**
Functional Genomics Approach in Yeast and the DT40 Avian Cell Line Identify Conserved Mechanisms of Trichloroethylene Toxicty. *V. De La Rosa*, and *C. Vulpe*. University of California Berkeley, Berkeley, CA.

#2272 **Poster Board Number 470**
The Value of Pharmacological Data to Support Systemic Acute Toxicity Evaluation of Compounds: A Profile Analysis. R. R. Note, H. Noçairi, L. Bourouf, G. Ouédraogo, and J. Cotovio. Department for The Development of Predictive Models and Methods, L'Oréal, Aulnay sous Bois, France. Sponsor: *E. Dufour*.

#2273 **Poster Board Number 471**
Development of *In Vitro* Organotypic 3D Epithelial Models for High-Throughput Screening of Toxicological, Immunological and Developmental Signaling Pathways. C. Mankus, G. Jackson, J. Bolmarcich, *P. Hayden*, and M. Klausner. Mattek Corporation, Ashland, MA.

#2274 **Poster Board Number 472**
***In Vitro* Predictive Toxicology for Breast Cancer.** *R. Rudel*[1], J. Ackerman[1], and *C. Vulpe*[2]. [1]Silent Spring Institute, Newton, MA; [2]University of California Berkeley, Berkeley, CA.

#2275 **Poster Board Number 473**
***In Vitro* to *In Vivo* Extrapolation Using Data from ToxCast.** *M. DeVito*[1], *S. S. Auerbach*[1], *A. Merrick*[1], K. Witt[1], K. Janardhan[3], D. Malarkey[1], H. Nagai[4], *I. Shah*[2], *C. Corton*[2], and *R. Judson*[2]. [1]NTP, NIEHS, Research Triangle Park, NC; [2]ORD, US EPA, Research Triangle Park, NC; [3]ILS, Research Triangle Park, NC; [4]Nihon Nohayaku Co. Ltd., Tokyo, Japan.

#2276 **Poster Board Number 474**
The *In Vitro* 3T3 Neutral Red Uptake Phototoxicity Test: What to Do with UVB Absorbers? *D. B. Learn*, M. D. Schwartz, M. E. Dougherty, and *A. M. Hoberman*. Center for Photobiology, Charles River Laboratories Preclinical Services, Horsham, PA.

#2277 **Poster Board Number 475**
Comparison of Multiple Assay Formats to Measure Kinase Inhibitor Activity. *K. Leach*, and *D. Puppala*. Compound Safety Prediction, Pfizer, Groton, CT.

Wednesday Afternoon, March 13
1:00 PM to 4:30 PM
Exhibit Hall C–D

PS

Poster Session: Arsenic

Chairperson(s): *Adrienne Klinger, University of North Dakota, Grand Forks, ND, and Fei Zhao, University of Arizona, Tucson, AZ.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *2:45 PM–4:30 PM*

#2278 **Poster Board Number 501**
Mouse Cecal Microbiota Converts Monomethylarsonic Acid (MMA) to an Array of Oxy- and Thio-Arsenical Metabolites. M. J. Kohan[2], *D. J. Thomas*[2], T. Pinyavev[1], M. Mantha[1], K. M. Herbin-Davis[2], and J. T. Creed[1]. [1]MCEARD, NERL, US EPA, Cincinnati, OH; [2]ISTD, NHEERL, US EPA, Research Triangle Park, NC.

Program Description (Continued)

Abstract #

#2279 **Poster Board Number 502**
Paraoxonase Activity in Subchronic Low-Level Inorganic Arsenic Exposure. *O. Ademuyiwa*[1], O. K. Afolabi[1], A. D. Wusu[1], O. O. Ogunrinola[1], E. O. Abam[1], D. O. Babayemi[1], *E. A. Balogun*[1], and O. O. Odukoya[2]. [1]Biochemistry, Federal University of Agriculture, Abeokuta, Nigeria; [2]Chemistry, Federal University of Agriculture, Abeokuta, Nigeria.

#2280 **Poster Board Number 503**
Comparative Early Oncogenic Effects of Cadmium and Arsenic in Human Lung Epithelial Cells. *R. J. Person*, *E. J. Tokar*, and *M. P. Waalkes*. NTP, NIEHS, NIH, Research Triangle Park, NC.

#2281 **Poster Board Number 504**
Metallothionein Blocks Arsenic-Induced Oxidative DNA Damage. *W. Qu*, and *M. P. Waalkes*. NTP, NIEHS, NIH, Research Triangle Park, NC.

#2282 **Poster Board Number 505**
Increase Blood Pressure, Changes of Left Ventricular Geometry, and Function in Children Environmentally Exposed to Inorganic Arsenic. *C. Osorio-Yañez*[1], J. Ayllon-Vergara[2], *L. Arreola-Mendoza*[3], G. Aguilar-Madrid[4], E. Hernández-Castellanos[1], A. Barrera-Hernández[1], L. C. Sanchez-Peña[1], and *L. M. Del Razo*[1]. [1]Toxicology, Cinvestav-IPN, Mexico City, Mexico; [2]Español Hospital, D.F., Mexico; [3]CIIEMAD-IPN, Mexico City, Mexico; [4]Health and Work, IMSS, Mexico City, Mexico.

#2283 **Poster Board Number 506**
Reduction of Dimethylarsenate to the Supertoxic Dimethylarsenite by Rats and Rat Liver Cytosol. *Z. Gregus*, and B. Németi. University of Pécs, Pécs, Hungary.

#2284 **Poster Board Number 507**
Fibronectin Expression in Human Bladder Cells (UROtsa) Exposed to or Malignantly Transformed by Arsenic or Cadmium. A. R. Klinger[1], M. E. Jeno[1], K. J. Wilt[1], *H. M. Hewitt*[1], *X. Zhou*[2], *S. Somji*[2], *S. H. Garrett*[2], *D. A. Sens*[2], and *J. R. Dunlevy*[1]. [1]Anatomy, University of North Dakota, Grand Forks, ND; [2]Pathology, University of North Dakota, Grand Forks, ND.

#2285 **Poster Board Number 508**
Gene Expression Changes Induced by Various Arsenicals *In Vitro*. *P. R. Dodmane*, *L. L. Arnold*, K. L. Pennington, and *S. M. Cohen*. Pathology and Microbiology, University of Nebraska Medical Center, Omaha, NE.

#2286 **Poster Board Number 509**
Effects of Treatment with Dimethylarsinous Acid (DMAIII) on the Urinary Bladder Epithelium of Female Arsenic Methyltransferase (As3mt) Knockout Mice and C57Bl/6 Mice. *L. L. Arnold*, *P. R. Dodmane*, K. L. Pennington, and *S. M. Cohen*. Pathology and Microbiology, University of Nebraska Medical Center, Omaha, NE.

#2287 **Poster Board Number 510**
Arsenite Inhibits DNA Repair through S-Nitrosation of Poly (ADP-Ribose) Polymerase 1. X. Zhou, K. Cooper, *L. Hudson*, and *K. Liu*. College of Pharmacy, University of New Mexico, Albuquerque, NM.

Abstract #

#2288 **Poster Board Number 511**
Paradoxical Effects of Ongoing Arsenic Exposure on an Arsenic-Transformed Bladder Cancer Model. *F. Zhao*, S. Pacheco, *A. J. Gandolfi*, and *W. T. Klimecki*. Pharmacology and Toxicology, University of Arizona, Tucson, AZ.

#2289 **Poster Board Number 512**
Effects of Arsenic on Expressions of Ube2d Family and Accumulation of p53 in Renal Tubular Cells and Vascular Endothelial Cells. *M. Satoh*[1], *J. Lee*[1], *M. Tokumoto*[1,2], Y. Fujiwara[1], and *C. Watanabe*[3]. [1]School of Pharmacy, Aichi Gakuin University, Nagoya, Japan; [2]Showa Pharmaceutical University, Tokyo, Japan; [3]Graduate School of Medicine, University of Tokyo, Tokyo, Japan.

#2290 **Poster Board Number 513**
A Common Arsenic (+3 Oxidation State) Methyltransferase (AS3MT) Polymorphism Affects Urinary Metabolite Profiles of Arsenic in a US Population. *D. J. Thomas*[4], *Z. Drobna*[1], *M. Styblo*[1], R. L. Calderon[2], X. Lu[3], X. Le[3], and E. E. Hudgens[2]. [1]Nutrition, University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]EPHD, NHEERL, US EPA, Research Triangle Park, NC; [3]Environmental Health Sciences, University of Alberta, Edmonton, AB, Canada; [4]ISTD, NHEERL, US EPA, Research Triangle Park, NC.

#2291 **Poster Board Number 514**
Arsenic Increases Atherosclerosis by LXRα-Dependent and LXRα-Independent Mechanisms. *M. Lemaire*[1], C. A. Lemarié[2], M. Flores Molina[1], and *K. K. Mann*[1]. [1]Oncology, Lady Davis Institute for Medical Research, McGill University, Montréal, QC, Canada; [2]Medicine, Lady Davis Institute for Medical Research, McGill University, Montréal, QC, Canada.

#2292 **Poster Board Number 515**
Induction of Cytochrome P450 1A1 (CYP1A1) by Pentavalent Methylated Arsenicals in Human Hepatoma HepG2 Cells. A. Anwar-Mohamed, O. Elshenawy, and *A. O. El-Kadi*. University of Alberta, Edmonton, AB, Canada.

#2293 **Poster Board Number 516**
Comparative Oxidation State Specific Analysis of Arsenic by High-Performance Liquid Chromatography-Inductively Coupled Plasma-Mass Spectrometry and Hydride Generation-Cryotrapping-Atomic Absorption Spectrometry. *J. Currier*[1], R. Saunders[2], L. Ding[2], W. Bodnar[3], P. Cable[3], T. Matoušek[4], J. Creed[5], and *M. Styblo*[2]. [1]Curriculum in Toxicology, University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]Department of Nutrition, University of North Carolina at Chapel Hill, Chapel Hill, NC; [3]Department of Environmental Sciences and Engineering, University of North Carolina at Chapel Hill, Chapel Hill, NC; [4]Institute of Analytical Chemistry of the ASCR, Brno, Czech Republic; [5]Microbiological and Chemical Exposure Assessment Research Division, NERL, US EPA, Cincinnati, OH.

Program Description (Continued)

Abstract #

#2294 **Poster Board Number 517**
The Retention of Trivalent Arsenic Metabolites in Urothelial Cells Is Associated with Markers of As Exposure and Diabetes. *M. Styblo*[5], *J. Currier*[1], C. González-Horta[2], *L. M. Del Razo*[3], B. Sánchez-Ramírez[2], L. Ballinas-Casarrubias[2], G. García-Vargas[4], M. C. Ishida[2], R. Saunders[5], *Z. Drobna*[5], and D. Loomis[6]. [1]Curriculum in Toxicology, University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]Universidad Autónoma de Chihuahua, Chihuahua, Mexico; [3]CINVESTAV-IPN, Mexico City, Mexico; [4]Universidad Juárez del Estado de Durango, Durango, Mexico; [5]University of Nebraska Medical Center, Omaha, NE; [6]Department of Nutrition, University of North Carolina at Chapel Hill, Chapel Hill, NC.

#2295 **Poster Board Number 518**
Oxidation State Specific Analysis of Arsenic Species in Tissues of Wildtype and Arsenic (+3 Oxidation State) Methyltransferase (*As3mt*) Knockout Mice. C. Douillet[2], *J. Currier*[1], R. Saunders[2], *Z. Drobna*[2], and *M. Styblo*[2]. [1]Curriculum in Toxicology, University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]Department of Nutrition, University of North Carolina at Chapel Hill, Chapel Hill, NC.

#2296 **Poster Board Number 519**
Photo-Activatable GFP-Labeled Rat Glucocorticoid Receptor (paGFP-rGR) As Model to Study Effects of Arsenic on Endocrine Receptor Activation and Cellular Localization. S. K. Schmaling[1,3], F. Zandbergen[1], A. Adebayo[1,2], C. M. Connolly[1,4], V. Chatikavanij[1], J. E. Bodwell[5], and *J. W. Hamilton*[1,2]. [1]Marine Biological Laboratory, Woods Hole, MA; [2]Brown University, Providence, RI; [3]Bridgewater State University, Bridgewater, MA; [4]Valdosta State University, Valdosta, RI; [5]Dartmouth Medical School, Lebanon, NH.

#2297 **Poster Board Number 520**
***In Utero* Arsenic Exposure and Epigenetic Changes in the Mouse Liver: Comparisons with Transcriptional Modulation.** K. Bailey[1], D. Rojas[2], *Z. Drobná*[3], and *R. C. Fry*[1,2]. [1]Environmental Sciences and Engineering, University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]Curriculum in Toxicology, University of North Carolina at Chapel Hill, Chapel Hill, NC; [3]Department of Nutrition, University of North Carolina at Chapel Hill, Chapel Hill, NC.

#2298 **Poster Board Number 521**
Arsenic Compromises Airway Epithelial Barrier Properties in Primary Mouse and Immortalized Human Cell Cultures. *C. L. Sherwood*[1,4,5], A. Liguori[1,4,5], C. Olsen[1,4], *C. Lantz*[2,4,5], J. Burgess[4,6], and *S. Boitano*[1,3,4]. [1]Arizona Respiratory Center, Arizona Health Sciences Center, Tucson, AZ; [2]Cell and Molecular Medicine, Arizona Health Sciences Center, Tucson, AZ; [3]Physiology, Arizona Health Sciences Center, Tucson, AZ; [4]Southwest Environmental Health Sciences Center, University of Arizona, Tucson, AZ; [5]Bio5 Institute, University of Arizona, Tucson, AZ; [6]Mel & Enid Zuckerman College of Public Health, University of Arizona, Tucson, AZ.

Abstract #

#2299 **Poster Board Number 522**
Associations of Single Nucleotide Polymorphisms and Haplotypes in Arsenic [+3 Oxidation State] Methyltransferase (AS3MT)) with Arsenic Metabolism: A Case Study in Arsenic Contaminated Areas from Vietnam. T. Agusa[1], T. Kunito[2], N. M. Tue[1], V. M. Lan[3], T. B. Minh[4,5], P. K. Trang[3], J. Fujihara[6], H. Takeshita[6], S. Takahashi[1], P. H. Viet[3], S. Tanabe[1], and *H. Iwata*[1]. [1]Center for Marine Environmental Studies (CMES), Ehime University, Matsuyama, Japan; [2]Shinshu University, Matsumoto, Japan; [3]Center for Environmental Technology and Sustainable Development (CETASD), Vietnam National University, Hanoi, Vietnam; [4]Faculty of Chemistry, Vietnam National University, Hanoi, Vietnam; [5]United Nations Industrial Development Organization (UNIDO), Hanoi, Vietnam; [6]Shimane University Faculty of Medicine, Izumo, Japan.

#2300 **Poster Board Number 523**
Mechanism of Arsenic Carcinogenesis in Normal Human Lung Cells. *H. Xie*[1,2,3], *J. Wise*[1,2,3], S. Martin[1], and S. Huang[1]. [1]Wise Laboratory of Environmental and Genetic Toxicology, University of Southern Maine, Portland, ME; [2]Maine Center for Toxicology and Environmental Health, University of Southern Maine, Portland, ME; [3]Applied Medical Sciences, University of Southern Maine, Portland, ME.

#2301 **Poster Board Number 524**
Gene Expression Alterations among Adults with Chronic Arsenic Exposure in Bangladesh. *Y. Chervona*[1], A. Muñoz[1], T. Kluz[1], M. V. Gamble[2], and *M. Costa*[1]. [1]Environmental Medicine, New York Univesity School of Medicine, New York, NY; [2]Environmental Health Sciences, Mailman School of Public Health, Columbia University, New York, NY.

#2302 **Poster Board Number 525**
Changes in Regulation of Lipid Metabolism from Low-Dose Arsenic Exposure. *A. Adebayo*[1,2], F. Zandbergen[2], and *J. W. Hamilton*[1,2]. [1]Brown University, Providence, RI; [2]Marine Biological Laboratory, Woods Hole, MA.

#2303 **Poster Board Number 526**
Survey of Arsenic in Drinking Water in the Southern Gobi Region of Mongolia. P. B. Olkhanud[1], and *E. K. Silbergeld*[2]. [1]Department of Environmental Health Sciences, HSUM, Ulaanbaatar, Mongolia; [2]Department of Environmental Health Sciences, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD.

#2304 **Poster Board Number 527**
The Role of miRNA-29B in Dysregulation of Mesenchymal Stem Cell Differentiation to Adipocytes by Low-Dose Arsenic Exposure. *K. Beezhold*, L. R. Klei, *Y. Garciafigueroa*, and *A. Barchowsky*. Environmental and Occupational Health, University of Pittsburgh, Pittsburgh, PA.

#2305 **Poster Board Number 528**
Human Exposure to Arsenic in Drinking Water Is Associated with Increased Protein Halogenation in Blood and Sputum. *R. Zangar*[1], *R. Lantz*[2], R. B. Harris[2], J. L. Burgess[2], M. K. O'Rourke[2], M. M. Montenegro[3], M. M. Matzke[1], B. Webb-Robertson[1], and *J. G. Pounds*[1]. [1]Pacific Northwest National Laboratory, Richland, WA; [2]University of Arizona, Tucson, AZ; [3]Instituto Tecnológico de Sonora, Tucson, Mexico.

Program Description (Continued)

Abstract #

#2306 **Poster Board Number 529**
Evaluating Arsenic Speciation in Fish, Shellfish, and Seaweed Using LC-ICPMS. *B. D. Laird*, and *L. Chan*. Department of Biology, University of Ottawa, Ottawa, ON, Canada.

#2307 **Poster Board Number 530**
Reduction of Arsenite-Enhanced Ultraviolet Radiation DNA Damage by Supplemental Zinc. *K. L. Cooper*, B. S. King, M. M. Sandoval, K. Liu, and L. G. Hudson. Pharmaceutical Sciences, University of New Mexico, Albuquerque, NM.

#2308 **Poster Board Number 531**
Arsenic-Stimulated Adipose Fat Metabolism Is Mediated by G-Protein Coupled Receptors. *Y. Garciafigueroa*, L. R. Klei, and *A. Barchowsky*. Environmental and Occupational Health, University of Pittsburgh, Pittsburgh, PA.

#2309 **Poster Board Number 532**
Autophagy Is a Cell Self-Protective Mechanism against Arsenic-Induced Cell Transformation. *G. Chen*, T. Zhang, and Y. Qi. University of Kentucky, Lexington, KY.

#2310 **Poster Board Number 533**
***In Utero* Low-Level Arsenite Exposure Alters Blood Biochemistry in Adult Mice Predisposing for Liver Steatosis.** *P. Sanchez Soria*[1], S. Quach[1], *R. N. Hardwick*[1], and *T. D. Camenisch*[1,2,3]. [1]College of Pharmacy, University of Arizona, Tucson, AZ; [2]Steele Children's Research Center, University of Arizona, Tucson, AZ; [3]Southwest Environmental Health Sciences Center, University of Arizona, Tucson, AZ.

#2311 **Poster Board Number 534**
Arsenic Impairs Adult Muscle Stem Cells and Skeletal Muscle Integrity. A. Roperti[1], D. Stoltz[2], B. Goodpaster[3], E. Brown[4], G. Distefano[4], *A. Barchowsky*[5], and F. Ambrosio[4]. [1]Bioengineering, University of Pittsburgh, Pittsburgh, PA; [2]Cell Biology and Physiology, University of Pittsburgh, Pittsburgh, PA; [3]Medicine, University of Pittsburgh, Pittsburgh, PA; [4]Physical Medicine and Rehabilitation, University of Pittsburgh, Pittsburgh, PA; [5]Environmental and Occupational Health, University of Pittsburgh, Pittsburgh, PA.

#2312 **Poster Board Number 535**
Arsenic Induces Premature Senescence and Vascular Calcification *In Vivo* and *In Vitro*. V. Sorribas, C. Sosa, and A. Martin-Pardillos. Laboratory of Molecular Toxicology, University of Zaragoza, Zaragoza, Spain. Sponsor: *A. Anadon*.

#2313 **Poster Board Number 536**
Prolonged iAs Exposure Leads to Aberrant Insulin Signaling in L6 Myocytes. *I. L. Druwe*, J. J. Sollome, J. Gonzales, and *R. R. Vaillancourt*. Department of Pharmacology & Toxicology, The University of Arizona, Tucson, AZ.

#2314 **Poster Board Number 537**
Gene Expression Changes Associated with Chronic Low-Level Monomethylarsonous Acid Exposure in Human Urothelial Cells. *M. Medeiros*[1], T. Minh le[1], D. J. Troup[1], P. Novak[2], and *A. Gandolfi*[1]. [1]Pharmacology and Toxicology, University of Arizona, Tucson, AZ; [2]Biology Centre ASCR, Institute of Plant Molecular Biology, Ceske Budejovice, Czech Republic.

Abstract #

#2315 **Poster Board Number 538**
Multidrug Resistance Protein 1 Confers Resistance to Organic Arsenic Compound in HL-60 Cells. H. Narenmandula, S. Xu, and Y. Zhang. Department of Pharmacology, Toxicology, and Biochemical Pharmaceutics, Zhejiang University, Hangzhou, China. Sponsor: *D. Thomas*.

Wednesday Afternoon, March 13
1:00 PM to 4:30 PM
Exhibit Hall C–D

PS

Poster Session: Food Safety and Nutrition

Chairperson(s): *Roger Coulombe, Utah State University, Logan, UT.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *1:00 PM–2:45 PM*

#2316 **Poster Board Number 543**
Integrative Toxicopathological Evaluation of Aflatoxin B1 Exposure in F344 Rats. *G. Qian*[1], F. Wang[1], *L. Tang*[1], M. E. Massey[1], *N. J. Mitchell*[2], J. Su[1], *J. H. Williams*[3], *T. D. Phillips*[2], and *J. Wang*[1]. [1]Environmental Health Science, University of Georgia, Athens, GA; [2]Veterinary Integrative Biosciences, Texas A&M University, College Station, TX; [3]Peanut Collaborative Research Support Program, University of Georgia, Griffin, GA.

#2317 **Poster Board Number 544**
Ethoxyquin Protective Effect against Aflatoxins Chronic Intoxication in Laying Hens. A. G. Valdivia[1], M. C. De Luna[1], *R. Ortiz*[1], A. Martinez de Anda[1], T. Quezada[1], F. Jaramillo[2], and J. Reyes[3]. [1]Agricultural Sciences Centre, Aguascalientes Autonomous University, Aguascalientes, Mexico; [2]Physiology and Toxicology, Basic Sciences Centre of UAA, Aguascalientes, Mexico; [3]Cellular Physiology, Research and Advanced Studies Centre of IPN, Mexico City, Mexico.

#2318 **Poster Board Number 545**
Aflatoxin Exposure in Human Populations of Uganda. *M. Kang*[1], P. Nkurunziza[2], R. Muwanika[3], *G. Qian*[1], *L. Tang*[1], J. Seeley[2], J. Williams[1], and *J. Wang*[1]. [1]University of Georgia, Athens, GA; [2]British Medical Research Council Uganda Unit, Entebbe, Uganda; [3]Raikai Health Science Program, Entebbe, Uganda.

#2319 **Poster Board Number 546**
Immunological and Pathomorphological Study of Combined Effects of Fumonisin B1 and Ochratoxin A on Piglets. M. Mwanza[1,2], *M. M. Dutton*[2], and S. D. D. Stoev[3]. [1]Animal Health, North West University, Mmabatho, South Africa; [2]Food, Environment and Health Research Group, Faculty of Health Science, University of Johannesburg, Johannesburg, South Africa; [3]Department of General and Clinical Pathology, Faculty of Veterinary Medicine, Trakia University, Trakia, Bulgaria.

Program Description (Continued)

Abstract #

#2320 **Poster Board Number 547**
Deoxynivalenol (DON)-Induced Secretion of the Gut Satiety Hormone Cholecystokinin (CCK) in the STC-1 Enteroendocrine Cell Model Is Mediated by the Calcium Sensing Receptor (CaSR) and Transient Receptor Potential Ankyrin-1 (TRPA1). H. Zhou[1], and *J. Pestka*[1,2,3]. [1]Food Science and Human Nutrition, Michigan State University, East Lansing, MI; [2]Center for Integrative Toxicology, Michigan State University, East Lansing, MI; [3]Department of Microbiology and Molecular Genetics, Michigan State University, East Lansing, MI.

#2321 **Poster Board Number 548**
Red Clover Exhibits Multifaceted Activity on Breast Cancer Cells. B. M. Dietz, J. Eskra, M. Darji, S. Chen, G. F. Pauli, and *J. L. Bolton*. Medicinal Chemistry and Pharmacognosy, University of Illinois at Chicago, Chicago, IL.

#2322 **Poster Board Number 549**
Occurrence of T-2 Toxin, HT-2 Toxin and Zearalenone in Retail Foods in Japan. T. Yoshinari[1], K. Aoyama[2], M. Nakajima[3], M. Taniguchi[3], H. Takeuchi[4], S. Hashiguchi[5], S. Kai[6], S. Tabata[7], T. Tanaka[8], and *Y. Sugita-Konishi*[1]. [1]National Institute of Health Sciences, Tokyo, Japan; [2]Food and Agricultural Materials Inspection Center, Sendai, Japan; [3]Nagoya City Public Health Research Institute, Nagoya, Japan; [4]Mie Prefecture Health and Environment Research Institute, Mie, Japan; [5]Kawasaki City Institute for Public Health, Kawasaki, Japan; [6]Kanagawa Prefectural Institute of Public Health, Kanagawa, Japan; [7]Tokyo Metropolitan Institute of Public Health, Tokyo, Japan; [8]Kobe Institute of Health, Kobe, Japan.

#2323 **Poster Board Number 550**
***In Vitro* Metabolism and Interaction of Zearalenone and Its Metabolites in Mammalian Cells.** *G. Font*[1], E. Tatay[2], G. Meca[3], and M. Ruiz[4]. [1]Preventive Medicine, University of Valencia, Burjassot, Spain; [2]Preventive Medicine, University of Valencia, Burjassot, Spain; [3]Preventive Medicine, University of Valencia, Burjassot, Spain; [4]Preventive Medicine, University of Valencia, Burjassot, Spain.

#2324 **Poster Board Number 551**
Role of Peptide YY3-36 (PYY) and 5-Hydroxytryptamine (5-HT) in Emesis Induction by Deoxynivalenol (Vomitoxin). M. Bates[1], *W. Wu*[1,5], *S. Bursian*[3,2], *B. Flannery*[1], *H. Zhou*[1], J. Link[3], H. Zhang[5], and *J. J. Pestka*[1,2,4]. [1]Food Science and Human Nutrition, Michigan State University, East Lansing, MI; [2]Center for Integrative Toxicology, Michigan State University, East Lansing, MI; [3]Animal Science, Michigan State University, East Lansing, MI; [4]Microbiology and Molecular Genetics, Michigan State University, East Lansing, MI; [5]College of Veterinary Medicine, Nanjing Agricultural University, Nanjing, China.

#2325 **Poster Board Number 552**
Dietary Inclusion of Montmorillonite Clay Mitigates Bioavailability of Aflatoxin, Fumonisin and Aflatoxin/Fumonisin Mixtures in Fischer 344 Rats. *N. J. Mitchell*[1], K. Xue[2], *A. Marroquin-Cardona*[1], K. A. Brown[1], S. E. Elmore[1], S. Lin[2], *L. Tang*[2], *J. Wang*[2], and *T. D. Phillips*[1]. [1]College of Veterinary Medicine, Texas A&M University, College Station, TX; [2]Department of Environmental Health Sciences, University of Georgia, Athens, GA.

Abstract #

#2326 **Poster Board Number 553**
Development and Validation of an Analytical Method for Vomitoxin in Gavage Dose Formulations Used in Rodent Toxicology Studies. J. C. Blake[1], D. P. Coleman[1], J. Gilliam[1], M. A. Silinski[1], R. A. Fernando[1], C. S. Smith[2], B. J. Collins[2], and V. G. Robinson[2]. [1]RTI International, Research Triangle Park, NC; [2]Division of National Toxicology Program, NIEHS, Research Triangle Park, NC. Sponsor: *K. Levine*.

#2327 **Poster Board Number 554**
Comparative Hepatic Glutathione S-Transferase Mediated Detoxification of Aflatoxin B1 in Chickens. *B. R. Bunderson*[1], C. Rowe[1], S. J. Lamont[2], and *R. A. Coulombe*[1]. [1]Toxicology Graduate Program, Utah State University, Logan, UT; [2]Department of Animal Science, Iowa State University, Ames, IA.

#2328 **Poster Board Number 555**
Bisphenol A (BPA) Levels in Liquid Supernatants of Canned Foods Determined by Highly Sensitive BPA ELISA. *H. Kim*[1,2], A. Joiakim[1], D. Kaplan[1], K. Friedrick[1], and D. Putt[1]. [1]Detroit R&D, Inc., Detroit, MI; [2]Institute of Environmental Health Sciences, Wayne State University, Detroit, MI.

#2329 **Poster Board Number 556**
Perinatal BPA Exposure at Low Doses Impairs Oral Tolerance and Immunization to Ovalbumin in Offspring Rats at Adulthood. S. Ménard, V. Braniste, M. Leveque, C. Lencina, M. Naturel, L. Moussa, S. Sekkal, C. Harkat, E. Gaultier, V. Theodorou, and E. Houdeau. INRA, Toulouse, France. Sponsor: *D. Zalko*.

#2330 **Poster Board Number 557**
Perinatal BPA Exposure at Low Doses Impairs Immune Homeostasis and Promotes Intestinal Parasite Infection in Young Rats. V. Theodorou, S. Ménard, C. Lencina, M. Leveque, M. Olier, V. Braniste, M. Naturel, S. Sekkal, C. Harkat, and E. Houdeau. INRA, Toulouse, France. Sponsor: *D. Zalko*.

#2331 **Poster Board Number 558**
Perinatal Peripubertal Exposure to Bisphenol A Increases Hepatic Steatosis in Immature and Adult Mice. P. Shimpi[1], *A. Donepudi*[1], *V. More*[1], *M. Paranjpe*[2], S. DaFonte[2], *B. Rubin*[2], and *A. Slitt*[1]. [1]Biomedical and Pharmaceutical Sciences, University of Rhode Island, Kingston, RI; [2]Sackler School of Graduate Biomedical Sciences, Tufts University, Boston, MA.

#2332 **Poster Board Number 559**
Leaching of Chemicals with Estrogenic Activity from BPA-Free Materials after Common Use Stresses. G. D. Bittner[2,1,3], C. Z. Yang[2], *M. Stoner*[2], and D. Klein[1]. [1]PlastiPure, Inc., Austin, TX; [2]CertiChem, Inc., Austin, TX; [3]University of Texas, Austin, TX.

#2333 **Poster Board Number 560**
Microsomal Metabolism of Asarone Isomers. A. T. Cartus, and *D. Schrenk*. Food Chemistry and Toxicology, University of Kaiserslautern, Kaiserslautern, Germany.

#2334 **Poster Board Number 561**
Histamine in Scombrotoxin Fish Poisoning: Toxicology, Epidemiology and Dose-Response Analysis. *Y. Zang*, and *P. Bolger*. US FDA, College Park, MD.

Program Description (Continued)

Abstract #

#2335 **Poster Board Number 562**
Carrageenan-Induced Disruption of Mucosal Barrier via Regulation of Proinflammatory NF-κB and Early Growth Response Gene 1: A Mechanistic Implication of Food-Borne Inflammatory Bowel Disease. J. Kim, H. Choi, K. Do, S. Park, and *Y. Moon*. Laboratory of Mucosal Exposome and Biomodulation, Department of Microbiology and Immunology, Pusan National University School of Medicine and Medical Research Institute, Yangsan, Republic of Korea.

#2336 **Poster Board Number 563**
Comparison of the Estrogenic Activity of Licorice Species with Hops in Botanical Dietary Supplement Formulations for Women's Health. *A. Hajirahimkhan*, C. Simmler, Y. Yuan, D. Nikolic, S. Chen, B. M. Dietz, G. F. Pauli, R. B. van Breemen, and *J. L. Bolton*. Medicinal Chemistry and Pharmacognosy, University of Illinois at Chicago, Chicago, IL.

#2337 **Poster Board Number 564**
Acrylamide and Acrolein: Heat-Induced Contaminants in Food. *G. Eisenbrand*[1], N. Watzek[1], D. Scherbl[1], M. Baum[1], F. Berger[1], U. Fuhr[2], O. Doroshyenko[2], D. Tomalik-Scharte[2], and E. Richling[1]. [1]Chemistry, Division of Food Chemistry and Toxicology, Kaiserslautern, Germany; [2]Pharmacology, University Hospital of Cologne, Cologne, Germany.

#2338 **Poster Board Number 565**
Sex Hormone Modulation of Long-Term Induction and Short-Term Inhibition of CYP1A1/2 by Genistein in HepG2/C3A Cells. *Y. Liu*[1,3], *T. Flynn*[1], M. Ferguson[2], and *M. Garcia*[1]. [1]Division of Toxicology, Center for Food Safety and Applied Nutrition, US FDA, Laurel, MD; [2]Division of Public Health and Biostatistics, Center for Food Safety and Applied Nutrition, US FDA, College Park, MD; [3]Oak Ridge Institute for Science and Education, Oak Ridge, TN.

#2339 **Poster Board Number 566**
Safety Evaluation of Optimash BG from T. Reesei for Use in Grain, Brewing, and Carbohydrate Processing. N. K. Muntean, V. Sewalt, and *Q. Bui*. DuPont Industrial Biosciences, Palo Alto, CA.

#2340 **Poster Board Number 567**
A 13-Week Subchronic Toxicity Study of Glycidol Fatty Acid Esters in F344 Rats. T. Toyoda[1], Y. Cho[1], S. Onami[1], J. Akagi[1], *A. Nishikawa*[2], and K. Ogawa[1]. [1]Division of Pathology, National Institute of Health Sciences, Tokyo, Japan; [2]Biological Safety Research Center, National Institute of Health Sciences, Tokyo, Japan.

#2341 **Poster Board Number 568**
Modes of Action Underlying Citirinin-Induced Renal Carcinogenesis. K. Kuroda[1], M. Watanabe[2], Y. Ishii[1], S. Takasu[1], K. Matsushita[1], A. Kijima[1], K. Ogawa[1], T. Nomi[3], *A. Nishikawa*[3], Y. Sugita-Konishi[2], and T. Umemura[1]. [1]Division of Pathology, National Institute of Health Sciences, Tokyo, Japan; [2]Division of Microbiology, National Institute of Health Sciences, Tokyo, Japan; [3]Biological Safety Research Center, National Institute of Health Sciences, Tokyo, Japan.

Abstract #

#2342 **Poster Board Number 569**
The Dynamics of a Harmful Algal Bloom and Paralytic Shellfish Toxins in Juneau, Alaska. D. W. Chamberlin[1], G. L. Eckert[2], and S. L. Tamone[3]. [1]Department of Biology, Appalachian State University, Boone, NC; [2]School of Fisheries and Ocean Sciences, University of Alaska Fairbanks, Juneau, AK; [3]Department of Natural Sciences, University of Alaska Southeast, Juneau, AK. Sponsor: *G. LeBlanc*.

#2343 **Poster Board Number 570**
Acute and 28-Day Oral Toxicity Evaluation of siRNAs and Longer Double-Stranded RNAs in Mice. *J. S. Petrick*[1], *B. S. Wahle*[2], W. M. Moore[1], R. Shah[1], D. Eveleigh[3], *J. H. Sherman*[1], *W. F. Heydens*[1], and *S. L. Lemke*[1]. [1]Monsanto Company, St. Louis, MO; [2]Xenometrics, LLC, Stilwell, KS; [3]Asuragen, Inc, Austin, TX.

#2344 **Poster Board Number 571**
The Global Burden of Disease Caused by Arsenic in Food. *S. Oberoi*, *A. Barchowsky*, and F. Wu. Environmental and Occupational Health, University of Pittsburgh, Pittsburgh, PA.

#2345 **Poster Board Number 572**
Hydrogen Peroxide Levels in Freshly Brewed Coffee and Effects on Storage. S. N. Uppu[2], B. London[1], S. N. Murthy[1], and *R. M. Uppu*[1]. [1]Environmental Toxicology, Southern University and A&M College, Baton Rouge, LA; [2]Science, Dutchtown High School, Geismer, LA.

#2346 **Poster Board Number 573**
Toxicologic Evaluation of the Calcium Binding Protein Apoaequorin. *P. Marone*[1], *M. R. Bauter*[1], H. Hofman-Huther[2], and D. Moran[3]. [1]Toxicology, Eurofins Product Safety Laboratories, Dayton, NJ; [2]BSL Bioservice Scientific Laboratories GmbH, Planegg, Germany; [3]Quincy Bioscience, Madison, WI.

#2347 **Poster Board Number 574**
Toxicological Evaluation of a High-Purity Transresveratrol from an Alternative Synthetic Route. J. A. Edwards, M. Beck, and P. Beilstein. Product Safety, DSM Nutritional Products, Kaiseraugst, Switzerland. Sponsor: *A. Davidovich*.

#2348 **Poster Board Number 575**
A 28-Day Gavage Study of 2-Methylfuran in Male Fischer 344 Rats. S. S. Gill[1], M. Kavanagh[1], W. Cherry[1], M. Barker[1], M. Weld[2], and G. M. Cooke[1]. [1]TRD, Health Canada, Ottawa, ON, Canada; [2]Chemical Health Hazard Assessment Division, Health Canada, Ottawa, ON, Canada. Sponsor: *R. Mehta*.

#2349 **Poster Board Number 576**
Characterization of Bacterial Mutagenicity QSAR Predictions of Food Additives to Support Safety Assessments in a Regulatory Setting. K. P. Cross[1], G. J. Myatt[1], K. Arvidson[2], and *K. Muldoon-Jacobs*[2]. [1]Leadscope, Inc., Columbus, OH; [2]Center for Food Safety and Applied Nutrition, US FDA, College Park, MD.

Program Description (Continued)

Abstract #

Wednesday Afternoon, March 13
1:00 PM to 4:30 PM
Exhibit Hall C–D

PS

Poster Session: Inflammation: Methods and Mechanisms

Chairperson(s): *Felix E. Rivera-Mariani, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *2:45 PM–4:30 PM*

#2350 **Poster Board Number 578**
The Role of Palmitoylation in Chemical and Microbial Toxicity: Signal Pathways, Protein Binding and Trafficking. I. A. Ross, and C. S. Kim. Toxicology, US FDA, Laurel, MD. Sponsor: *T. Flynn*.

#2351 **Poster Board Number 579**
Compartment-Regulated Expression of Macrophage-Inhibitory Cytokine 1 under Mucosal ER Stress. S. Park, H. Choi, K. Do, J. Kim, and *Y. Moon*. Lab. of Mucosal Exposome and Biomodulation, Department Microbiology and Immunology, Pusan National University School of Medicine and Medical Research Institute, Yangsan, Republic of Korea.

#2352 **Poster Board Number 580**
Azathioprine-Induced Hepatotoxicity in an *In Vitro* Inflammation-Immune Model. *A. Maruf*[1], and P. J. O'Brein[1,2]. [1]Pharmacology & Toxicology, University of Toronto, Toronto, ON, Canada; [2]Faculty of Pharmacy, University of Toronto, Toronto, ON, Canada.

#2353 **Poster Board Number 581**
Indole-3-Carbinol and 3,3'-Diindolylmethane Decrease Histone Deacetylase 3 Which Plays an Important Role in the Promotion of Stapylococcal Entertoxin B-Induced Immune Cell Activation. P. B. Busbee, *M. Nagarkatti*, and *P. Nagarkatti*. University of South Carolina School of Medicine, Columbia, SC.

#2354 **Poster Board Number 582**
Quantification of Cytokines: Enzyme-Linked Immunosorbent Assay versus Cytometric Bead Array. M. van Tuyl, M. Stitzinger, M. Vloet, Y. Klijn-Pijnenborg, and *H. Emmen*. Toxicology, WIL Research Europe B.V., 's-Hertogenbosch, Netherlands.

#2355 **Poster Board Number 583**
Aryl Hydrocarbon Receptor-Dependent Retention of Nuclear HuR Suppresses Cyclooxygenase-2 Expression Independent of DNA-Binding. M. Zago[1], J. Sheridan[1], P. Nair[2], A. Rico de Souza[1], I. E. Gallouzi[1], S. Rousseau[1], S. Di Marco[1], Q. Hamid[1], D. H. Eidelman[1], and *C. J. Baglole*[1]. [1]McGill University, Montréal, QC, Canada; [2]McMaster University, Hamilton, ON, Canada.

#2356 **Poster Board Number 584**
Ultraviolet Radiation (UVB)-Induced Migration of Skin Dendritic Cell Subsets Is Mediated through Transforming Growth Factor Beta Signaling. *A. Ravindran*[1], J. Mohammed[1], A. J. Gunderson[1], M. C. Udey[2], and A. B. Glick[1]. [1]Center for Molecular Toxicology and Carcinogenesis, The Pennsylvania State University, State College, PA; [2]Dermatology Branch, National Cancer Institute, NIH, Bethesda, MD.

Abstract #

#2357 **Poster Board Number 585**
Alterations in the Hepatic Transcriptome during Live *Citrobacter Rodentium* Infection. *M. D. Merrell*, and E. T. Morgan. Pharmacology, Emory University, Atlanta, GA.

#2358 **Poster Board Number 586**
Silencing of Keap1 in Macrophages Boosts Lipopolysaccharide-Induced Transcription of Interleukin 6 via IKKβ Activation. P. Lu, *P. Xue*, J. Dong, *C. G. Woods*, *Q. Zhang*, *M. E. Andersen*, and *J. Pi*. The Institute for Chemical Safety Sciences, The Hamner Institutes for Health Sciences, Research Triangle Park, NC.

#2359 **Poster Board Number 587**
Potent Protection against PM2.5 Diesel Exhaust Particle-Caused ROS Generation and Vasculature Permeable through Regulation of Nrf2-Induced Pathways by Triterpenoids. C. Tseng[1,2], C. Lin[1], *M. K. Gordon*[3], and *M. Chao*[1]. [1]Bioscience Technology, Chung Yuan Christian University, Chung-Li, Taiwan; [2]Biomedical Engineering, Chung Yuan Christian University, Chung-Li, Taiwan; [3]Joint Program of Toxicology, Rutgers University, Piscataway, NJ.

#2360 **Poster Board Number 588**
Differential Responses upon Inhalation Exposure to Biodiesel versus Diesel Exhaust on Oxidative Stress, Inflammatory, and Immune Outcomes. *A. A. Shvedova*[1,2], N. V. Yanamala[1], A. V. Tkach[1], E. R. Kisin[1], A. R. Murray[1], T. Khaliullin[1], M. Hatfield[1], S. H. Gavett[3], and I. M. Gilmour[3]. [1]PPRB, HELD, NIOSH, Morgantown, WV; [2]Department of Physiology and Pharmacology, School of Medicine, West Virginia University, Morgantown, WV; [3]Cardiopulmonary and Immunotoxicology Branch, US EPA, Research Triangle Park, NC.

#2361 **Poster Board Number 589**
THP-1 and HMC-1 Cell Interaction with Epithelial Cells in a 3D Tetraculture System of the Alveolar Barrier Modulates the Response to Oxidative Stress. S. G. Klein[1,2], S. Tommaso[1], L. Hoffmann[1], *B. Blömeke*[2], and A. Gutleb[1]. [1]EVA, CRP - Gabriel Lippmann, Belvaux, Luxembourg; [2]Department of Environmental Toxicology, University of Trier, Trier, Germany.

Wednesday Afternoon, March 13
1:00 PM to 4:30 PM
Exhibit Hall C–D

PS

Poster Session: Nanotoxicology—*In Vivo*

Chairperson(s): *Alison Elder, University of Rochester Medical Center, Rochester, NY.*

Displayed: *1:00 PM–4:30 PM*

Author Attended: *1:00 PM–2:45 PM*

#2362 **Poster Board Number 601**
ADME Studies on Nanoparticles Are So Far of Limited Use for PBPK Modeling. U. Carlander, and *G. Johanson*. Institute of Environmental Medicine, Work Environment Toxicology, Karolinska Institutet, Solna, Sweden.

Program Description (Continued)

Abstract #

#2363 **Poster Board Number 602**
Copper Oxide Nanoparticle-Induced Acute Pulmonary Inflammation: Role of Dose Rate and Dissolution Rate. *B. L. Baisch*, N. Corson, R. Gelein, P. Wade-Mercer, A. Walker, *G. Oberdörster*, and *A. Elder*. Environmental Medicine, University of Rochester Medical Center, Rochester, NY.

#2364 **Poster Board Number 603**
Association between Neutrophilia and Inflammatory Responses for Ensuring Safety of Nanomaterials. K. Higashisaka[1], *Y. Yoshioka*[1], T. Nagano[1], A. Kunieda[1], Y. Iwahara[1], K. Tanaka[1], K. Hata[1], S. Tsunoda[2,3], H. Nabeshi[4], *T. Yoshikawa*[1], and *Y. Tsutsumi*[1,2,3]. [1]Laboratory of Toxicology and Safety Science, Graduate School of Pharmaceutical Sciences, Osaka University, Osaka, Japan; [2]Laboratory of Biopharmaceutical Research, National Institute of Biomedical Innovation, Osaka, Japan; [3]MEI Center, Osaka University, Osaka, Japan; [4]National Institute of Health Science, Tokyo, Japan.

#2365 **Poster Board Number 604**
Differential Response of Brain and Liver Free Fatty Acids following Administration of Iron Nanoparticles in Rats. Z. K. Binienda[1], I. A. Ross[2], B. Gough[1], *S. F. Ali*[1], S. Z. Imam[1], and C. S. Kim[2]. [1]Neurotoxicology, NCTR/US FDA, Jefferson, AR; [2]Toxicology, CFSAN/US FDA, Laurel, MD.

#2366 **Poster Board Number 605**
Effects of Cerium Oxide Nanoparticles on Fibroblast Function in Relation to Lung Fibrosis. J. Y. Ma, B. Hines, M. Barger, R. R. Mercer, and *V. Castranova*. PPRB/HELD, NIOSH, Morgantown, WV.

#2367 **Poster Board Number 606**
Toxicity of Nanoparticles Embedded in Paints Compared to Pristine Nanoparticles. S. Smulders, K. Luyts, J. Vanoirbeek, and *P. Hoet*. Experimental Unit for Toxicology, KU Leuven, Leuven, Belgium.

#2368 **Poster Board Number 607**
A 15-Day Oral Exposure to Dispersed TiO2 P25 Particles Induces Epithelial Barrier Dysfunction and Bacterial Translocation in the Rat Intestine. E. Houdeau[1], E. Gaultier[1], M. Nabila[1], N. Naud[1], A. Ait-Belgnaoui[1], N. Thieriet[2], M. Carrière[3], J. Cravedi[1], V. Theodorou[1], and F. Pierre[1]. [1]INRA Toxalim, Toulouse, France; [2]ANSES, Maisons-Alfort, France; [3]CEA-LAN, Grenoble, France. Sponsor: *D. Zalko*.

#2369 **Poster Board Number 608**
The Effect of Nanoparticles from Secondhand Cigarette Smoke on the Mouse Lung. Z. Wu[1], M. McCawley[2], E. Kimani[2], and R. D. Dey[1]. [1]Neurobiology and Anatomy, West Virginia University, Morgantown, WV; [2]Community Medicine, West Virginia University, Morgantown, WV. Sponsor: *T. Nurkiewicz*.

#2370 **Poster Board Number 609**
The Comparative Immunotoxicity of Mesoporous Silica Nanoparticles and Colloidal Silica Nanoparticles in Mice. *S. Lee*[1], H. Yun[2], and *S. Kim*[1]. [1]Pharmacology, School of Medicine, Kyungpook National University, Daegu, Republic of Korea; [2]Engineering Ceramics, Powder & Ceramics Division, Korea Institute of Materials Science, Changwon, Republic of Korea.

Abstract #

#2371 **Poster Board Number 610**
Evaluation of Intestinal Absorption of Amorphous Silica Nanoparticles. K. Misato[1], *Y. Yoshioka*[1], M. Uji[1], A. Udaka[1], T. Mori[1], M. Yamaguchi[1], T. Hirai[1], T. Yoshida[1], H. Nabeshi[2], *T. Yoshikawa*[1], S. Tsunoda[3,4], K. Higashisaka[1], and *Y. Tsutsumi*[1,3,4]. [1]Laboratory of Toxicology and Safety Science, Graduate School of Pharmaceutical Sciences, Osaka University, Osaka, Suita, Japan; [2]National Institute of Health Science, Tokyo, Setagaya, Japan; [3]Laboratory of Biopharmaceutical Research, National Institute of Biomedical Innovation, Osaka, Ibaraki, Japan; [4]MEI Center, Osaka University, Osaka, Suita, Japan.

#2372 **Poster Board Number 611**
Indomethacin/Indomethacin Ester-Loaded Nanocapsules Reduce Brain Tumor in C57bL/6 Mice with No Observable Local Toxic Effect. S. F. Rodrigues[1], L. Fiel[2], N. Pereira[1], I. Machado[1], K. Elache[1], S. S. Guterres[2], A. R. Pohlmann[2], and S. H. Farsky[1]. [1]Clinical and Toxicological Analysis, University of São Paulo, São Paulo, Brazil; [2]Organic Chemistry, UFRGS, Porto Alegre, Brazil. Sponsor: *S. Barros*.

#2373 **Poster Board Number 612**
Isoprostanes As a Biomarker of Nanoparticle-Induced Toxicity *In Vivo*. *L. Manzo*[1,2], T. Coccini[1,2], E. Roda[1], and C. Signorini[3]. [1]University of Pavia, Pavia, Italy; [2]Maugeri Foundation IRCCS, Pavia, Italy; [3]University of Siena, Siena, Italy.

#2374 **Poster Board Number 613**
Biokinetics of Nanoscaled Europium Oxide Particles following an Acute Inhalation in Rats. O. H. Creutzenberg, H. Kock, and D. Schaudien. Inhalation Toxicology, Fraunhofer Institute of Toxicology and Experimental Medicine, Hannover, Germany. Sponsor: *C. Dasenbrock*.

#2375 **Poster Board Number 614**
NanoMiner—Resource for Human Transcriptomics Data in Nanoparticle Research. *B. Fadeel*[1], L. Kong[2,3], S. Tuomela[3], L. Hahne[2,3], H. Ahlfors[3], O. Yli-Harja[2], R. Lahesmaa[3], and R. Autio[2,3]. [1]Institute of Environmental Medicine, Karolinska Institutet, Stockholm, Sweden; [2]Department of Signal Processing, Tampere University of Technology, Tampere, Finland; [3]Turku Centre for Biotechnology, University of Turku and Åbo Akademi University, Turku, Finland.

#2376 **Poster Board Number 615**
Nano-Silica Aspiration Exposure Induces Endothelial Dysfunction in Diabetic Mice. S. A. Brenner[3], M. Frame[1], A. M. Dewar[1], and J. E. Vigilance[2]. [1]Biomedical Engineering, Stony Brook University, Stony Brook, NY; [2]Faculty of Medical Sciences, The University of The West Indies, Cave Hill, Barbados; [3]Nanobioscience, University of Albany College of Nanoscale Science and Engineering, Albany, NY. Sponsor: *T. Nurkiewicz*.

#2377 **Poster Board Number 616**
Copper Nanoparticles or Ionic Copper (II) Causes Neurotoxicity and Cardiotoxicity in Zebrafish Embryos. W. Trickler[1,2], *S. F. Ali*[1], *M. G. Paule*[1], and J. Kanungo[1]. [1]Division of Neurotoxicology, National Center for Toxicological Research, US FDA, Jefferson, AR; [2]Toxicologic Pathology Associates Inc., Jefferson, AR.

Program Description (Continued)

Abstract #

#2378 **Poster Board Number 617**
Nickel Oxide Nanoparticles Provoke Intrinsic Apoptotic Pathway in HepG2 Cells, Male Wistar Rats and Tomato Seedling Roots. Q. Saquib[1], J. Musarrat[1], A. A. Al-Khedhairy[1], M. A. Siddiqui[1], S. M. Attia[3], M. Faisal[2], J. A. Siddiqui[1], S. Dwivedi[1], and S. T. Khan[1]. [1]Department of Zoology, King Saud University, Riyadh, Saudi Arabia; [2]Department of Botany, King Saud University, Riyadh, Saudi Arabia; [3]Department of Pharmacology, King Saud University, Riyadh, Saudi Arabia. Sponsor: *M. Verma*.

#2379 **Poster Board Number 618**
Quantifying Quantum Dots in Frozen Tissue Sections Using Autometallography. *C. White*[1], C. Schaupp[1], J. Herron[1], D. Scoville[1], *L. McConnachie*[1], *D. Botta*[1], J. Yu[1], X. Yu[1], X. Hu[2], X. Gao[2], J. Wilkerson[1], and *T. Kavanagh*[1]. [1]Environmental & Occupational Health Sciences, University of Washington, Seattle, WA; [2]Bioengineering, University of Washington, Seattle, WA.

#2380 **Poster Board Number 619**
Influence of Primary Particle Size and Agglomeration State of Inhaled Nano-TiO2 on Rat's Pulmonary Response. *A. Noel*[1], *M. Charbonneau*[2], Y. Cloutier[3], *R. Tardif*[1], and G. Truchon[3]. [1]Environmental and Occupational Health, University of Montréal, Montréal, QC, Canada; [2]INRS-Institut Armand-Frappier, Université du Québec, Laval, QC, Canada; [3]Institut de Recherche Robert-Sauvé en Santé et en Sécurité du Travail, Montréal, QC, Canada.

#2381 **Poster Board Number 620**
Silica Nanoparticles Induce Acute Pulmonary Toxicity in Mice. *T. Lu*[1], *D. Hung*[2], C. Su[3], T. Tseng[4], K. Chen[5], *C. Huang*[6], S. Liu[7], and *Y. Chen*[1]. [1]Department of Physiology and Graduate Institute of Basic Medical Science, China Medical University, Taichung, Taiwan; [2]Division of Toxicology, Trauma & Emergency Center, China Medical University Hospital, Taichung, Taiwan; [3]Department of Otorhinolaryngology, Head and Neck Surgery, Changhua Christian Hospital, Changhua, Taiwan; [4]Department of Anatomy, China Medical University, Taichung, Taiwan; [5]Department of Urology, China Medical University Hospital and China Medical University, Taichung, Taiwan; [6]School of Chinese Medicine, China Medical University, Taichung, Taiwan; [7]Institute of Toxicology, National Taiwan University, Taipei, Taiwan.

#2382 **Poster Board Number 621**
Biodistribution and Toxicity Profiling of Nanosilica in Rats after Subchronic Oral Exposure. M. van der Zande[1], R. J. Vandebriel[2], M. Groot[1], E. Kramer[1], K. Rasmussen[3], P. J. Hendriksen[1], and H. Bouwmeester[1]. [1]RIKILT - Wageningen University & Research Centre, Wageningen, Netherlands; [2]The National Institute for Public Health and the Environment, Bilthoven, Netherlands; [3]Joint Research Centre, Ispra, Italy. Sponsor: *S. Rangarajan*.

#2383 **Poster Board Number 622**
Oral Prenatal Developmental Toxicity Study with Synthetic Amorphous Silica NM-200 in Wistar Rats. S. Schneider[1], W. Wohlleben[2,1], *R. Landsiedel*[1], A. Wolterbeek[3], I. Waalkens-Berendsen[3], and H. van de Sandt[4]. [1]Experimental Toxicology and Ecology, BASF SE, Ludwigshafen am Rhein, Germany; [2]Polymer Physics, BASF SE, Ludwigshafen am Rhein, Germany; [3]Triskelion, Zeist, Netherlands; [4]Quality of Life, TNO, Zeist, Netherlands.

Abstract #

#2384 **Poster Board Number 623**
The T-Box Transcription Factor TBX21 (T-BET) Inhibits Airway Goblet Cell Hyperplasia Induced by Nickel Nanoparticles in Mice. *E. E. Glista-Baker*, *B. C. Sayers*, A. J. Taylor, *E. A. Thompson*, and *J. C. Bonner*. Environmental and Molecular Toxicology, North Carolina State University, Raleigh, NC.

#2385 **Poster Board Number 624**
Acute Toxicity Study of Nanoparticles of Bismuth Trioxide by Inhalation Exposure in Male Rats. O. C. Barbier[1], *B. Quintanilla-Vega*[1], *L. Del Razo*[1], M. Cortés-Torres[1], R. Angulo-Olais[1], M. Uribe-Ramírez[1], M. J. Solís-Heredia[1], G. Martínez-Aguilar[1], A. Barrera-Hernández[1], L. C. Sánchez-Peña[1], E. Berea[2], and *A. De Vizcaya-Ruiz*[1]. [1]Toxicology Department, CINVESTAV-IPN, Mexico City, Mexico; [2]Farmaquimia, Mexico City, Mexico.

#2386 **Poster Board Number 625**
Pharmacokinetics and Biodistribution of Iron Oxide Nanoparticles Using Accelerator Mass Spectrometry. H. Enright[1,3], P. Nallathamby[2,3], V. Mikheev[3], B. Forsythe[3], W. Wang[2,3], E. Kuhn[1,3], S. Retterer[2,3], *K. Turteltaub*[1,3], and *M. Malfatti*[1,3]. [1]Lawrence Livermore National Laboratory, Livermore, CA; [2]Oak Ridge National Laboratory, Oak Ridge, TN; [3]Battelle Center for Fundamental and Applied Systems Toxicology (B-FAST), Battelle Memorial Institute, Columbus, OH.

#2387 **Poster Board Number 626**
Zebrafish Xenograft Model of Glioblastoma to Identify Metal Oxide Nanoparticles with Anticancer Properties. *L. Wehmas*[1,2], *L. Truong*[1,2], J. A. Greenwood[3], A. Punnoose[4], and *R. L. Tanguay*[1,2]. [1]Environmental and Molecular Toxicology, Sinnhuber Aquatic Research Laboratory and Environmental Health Sciences Center, Oregon State University, Corvallis, OR; [2]Safer Nanomaterials and Nanomanufacturing Initiative and Oregon Nanoscience and Microtechnologies Institute, Corvallis, OR; [3]Biochemistry and Biophysics, Oregon State University, Corvallis, OR; [4]Physics, Boise State University, Boise, ID.

#2388 **Poster Board Number 627**
Toxicity of Zinc Oxide Nanoparticles: Role of Particle Dissolution and Photocatalytic ROS Production. *H. Ma*, L. Wallis, S. Li, and *S. Diamond*. Mid-Continent Ecology Division, US EPA, Duluth, MN.

#2389 **Poster Board Number 628**
Luminescent Lanthanide-Doped Metal Oxide Nanoparticles for Study of Deposition and Clearance in the Respiratory Tract. G. K. Das, D. S. Anderson, C. D. Wallis, A. D. Abid, *L. S. Van Winkle*, and I. M. Kennedy. University of California Davis, Davis, CA.

#2390 **Poster Board Number 629**
Angiogenesis Alterations Caused by TiO2 Nanoparticles. V. Freyre-Fonseca[1,2], A. Déciga-Alcaraz[1], E. M. Flores-Jiménez[1], N. L. Delgado-Buenrostro[1], G. F. Gutiérrez-López[2], and *Y. I. Chirino*[1]. [1]Facultad de Estudios Superiores Iztacala, Universidad Nacional Autonoma de Mexico, Mexico City, Mexico; [2]Departamento de Graduados e Investigación en Alimentos, Escuela Nacional de Ciencias Biológicas, Instituto Politécnico Nacional., Mexico City, Mexico.

Program Description (Continued)

Abstract #

#2391 **Poster Board Number 630**
Radiolabeled, Superparamagnetic, Nanoparticles for Bio-Distribution Studies in Life Sciences. P. D. Nallathamby[1,2], H. A. Enright[1,3], *M. A. Malfatti*[3], S. T. Retterer[2], and W. Wang[2]. [1]Health & Life Sciences, B-FAST, Battelle Memorial Institute, Columbus, OH; [2]BESD, Oak Ridge National Lab, Oak Ridge, TN; [3]Biosciences and Biotechnology Division, Lawrence Livermore National Lab, Livermore, CA.

#2392 **Poster Board Number 631**
Susceptibility to Quantum Dot-Induced Lung Inflammation Is Mouse Strain Dependent. *D. K. Scoville*[1], *C. C. White*[1], *D. Botta*[1], *L. A. McConnachie*[1], M. E. Zadworny[1], X. Hu[2], X. Gao[2], J. Yu[1], R. Dills[1], *R. C. Zanger*[3], *J. G. Pounds*[3], and *T. J. Kavanagh*[1]. [1]Environmental and Occupational Health Sciences, University of Washington, Seattle, WA; [2]Bioengineering, University of Washington, Seattle, WA; [3]Systems Toxicology Group - Division of Biological Sciences, Pacific Northwest National Laboratory, Richland, WA.

#2393 **Poster Board Number 632**
Nrf2 Is a Positive Regulator of Cytokine Expression in Lung of Titanium Dioxide Nanoparticles Exposed Mice. N. L. Delgado Buenrostro[1], E. I. Medina-Reyes[1], A. Cuadrado Pastor[2], I. Lastres[2], J. Pedraza[3], R. Hernández[4], and *Y. I. Chirino*[1]. [1]Investigación y Posgrado UBIMED, Fes-Iztacala, UNAM, Mexico City, Mexico; [2]Investigación y Posgrado, Instituto Alberto Sols, Madrid, Spain; [3]Posgrado, Facultad de Ciencias UNAM, Mexico City, Mexico; [4]Investigación, Instituto de Nutrición, Mexico City, Mexico.

#2394 **Poster Board Number 633**
Distinct Expression Profiles of Stress Defense and DNA Repair Genes in *Daphnia pulex* Exposed to Cadmium, Zinc and Quantum Dots. *S. Tang*[1], Y. Wu[2], C. N. Ryan[1], S. Yu[1], D. Edwards[1], and *G. D. Mayer*[1]. [1]Environmental Toxicology, Texas Tech University, Lubbock, TX; [2]Biological Sciences, Texas Tech University, Lubbock, TX.

#2395 **Poster Board Number 634**
A Delphi Pilot Study in Brazilian Stakeholders About Nanotechnology, Nanomaterial, and Their Toxicological and Regulatory Implications. *W. Waissmann*[1], R. S. Barros[1], M. Moura[1], E. Wilson[2], A. S. Arcuri[3], V. S. Pinto[3], A. B. Veggi[4], T. P. Silva[4], and L. Brickus[1]. [1]School of Public Health, Oswaldo Cruz Foundation, Rio de Janeiro, Brazil; [2]Law, Unisinos, Sao Leopoldo, Brazil; [3]Centro Nacional, Fundacao Jorge Duprat de Figueiredo, São Paulo, Brazil; [4]Nutricao, Universidade Gama Filho, Rio de Janeiro, Brazil.

#2396 **Poster Board Number 635**
***In Vitro/In Vivo* Assessment of Engineered Nanomaterials Using a High-Content Analysis Platform.** S. Anguissola[1], L. Cooke[1], D. Garry[1], M. Esquivel Gaon[2], *A. De Vizcaya Ruiz*[2], M. Monopoli[1], and K. A. Dawson[1]. [1]Centre for Bionano Interactions, School of Chemistry and Chemical Biology, University College Dublin, Dublin, Ireland; [2]Department of Toxicolgy, Cinvestav, Mexico City, Mexico.

Wednesday Afternoon, March 13
1:00 PM to 2:00 PM
Room 007 C

E

Exhibitor/Sponsor-Hosted Session: Analysis of Time- and Dose-Dependent Genomic Changes to Elucidate Toxic Modes of Action

Presented by:
Thomson Reuters

Guest Speaker, Dr. Harvey J. Clewell III of the Hamner Institutes, will describe the use of pathway enrichment analysis and benchmark dose modeling of genomic data to characterize the dose- and time-dependent response of cells to chemical toxicity, characterizing toxic mode of action and identifying points of departure for risk assessment.

Wednesday Afternoon, March 13
1:00 PM to 2:00 PM
Room 007 B

E

Exhibitor/Sponsor-Hosted Session: Application of Human iPSC-Derived Hepatocytes Models for Toxicity Assessment

Presented by:
Cellular Dynamics International

This session will include an overview of human induced pluripotent stem cell (iPSC) derived hepatocytes. Focus will be on their characterization and functional utility via a data driven presentation of results from leading labs within the field of hepatocytes biology and toxicology.

Wednesday Afternoon, March 13
1:00 PM to 2:00 PM
Room 007 A

E

Exhibitor/Sponsor-Hosted Session: Best Practices for Authors: Maximizing the Success of Your Submitted Paper

Presented by:
Oxford University Press

The purpose of this informational session is to communicate to prospective authors how to choose an appropriate journal for their article, the elements of a high-quality journal submission, the essentials of the review and revision process, and best practices for interacting with journal editorial offices.

Program Description (Continued)

Abstract #

Wednesday Afternoon, March 13
1:30 PM to 4:15 PM
Grand Ballroom C3

S

Symposium Session: Biomarkers of Disease and Toxicity: Exploiting the Interconnections

Biomarkers for Exposure Assessment, Safety Evaluation, and Translational Medicine

Chairperson(s): *Donna L. Mendrick, US FDA, Division of Systems Biology, Jefferson, AR, and William B. Mattes, PharmPoint Consulting, Poolesville, MD.*

Sponsor:
Scientific Liaison Coalition

Endorsed by:
Biotechnology Specialty Section
Clinical and Translational Toxicology Specialty Section
Disease Prevention Task Force
Drug Discovery Specialty Section

With the recent focus on (a) cellular pathways involved in toxicity sequelae and (b) translational biomarkers that may link animal and *in vitro* model observations with clinical reality, there is a need to broaden the understanding of how experimental models may replicate human toxicity and disease processes. Multicellular organisms may have large numbers of genes and proteins, but a relatively limited repertoire in terms of pathophysiology in response to disease or toxicant exposure. This fact allows research to improve and protect human health to be founded on the use of model systems that allow for tractable experimentation. Animal models and, more recently, *in vitro* systems have served as a means of both exploring mechanisms and identifying hazards in terms of disease and adverse events. However, the interconnections between disease and toxicity are rarely explored leaving the information in silos. This symposium will examine organ-based toxicity and disease processes, and compare lessons learned in biomarker identification and use across toxicity, disease, and species.

#2397	1:30	**Biomarkers of Disease and Toxicity: Exploiting the Interconnections.** *D. L. Mendrick*[1], and *W. B. Mattes*[2]. [1]Division of Systems Biology, NCTR, US FDA, Jefferson, AR; [2]Toxicology, PharmPoint Consulting, Poolesville, MD.
#2398	1:30	**Introduction.** *D. Mendrick*. US FDA, Jefferson, AR.
#2399	1:35	**Use of Biomarkers in Hepatology, Liver Disease, and Liver Toxicity.** A. Regev. Global Patient Safety, Eli Lilly & Company, Indianapolis, IN. Sponsor: *D. Mendrick*.
#2400	2:11	**Fibrinogen: A New Kid on the Block of Translational Biomarkers for Kidney Damage.** *V. S. Vaidya*. Harvard Medical School, Boston, MA.
#2401	2:47	**Cardiac Disease, Cardiotoxicity, and Translational Biomarkers.** *J. R. Turk*. CBSS, Amgen Inc, Thousand Oaks, CA.
#2402	3:23	**Links between Neurological Disease and Toxicity.** C. P. Austin. Division of Preclinical Innovation, National Center for Advancing Translational Sciences, NIH, Rockville, MD. Sponsor: *D. Mendrick*.
	3:59	**Panel Discussion/Q&A.**

Abstract #

Wednesday Afternoon, March 13
1:30 PM to 4:15 PM
Room 214 C&D

S

Symposium Session: Mechanistic Role(s) of Cytochrome(s) P450 in Oxidative Stress and Inflammation: New Opportunities for Drug Discovery

Chairperson(s): *Bhagavatula Moorthy, Baylor College of Medicine, Houston, TX, and Jose Manautou, University of Connecticut, Storrs, CT.*

Sponsor:
Mechanisms Specialty Section

Endorsed by:
Inhalation and Respiratory Specialty Section
Neurotoxicology Specialty Section

The major goal of this symposium is to discuss the molecular and cellular mechanisms by which cytochromes P450 (CYP) contribute to oxidative stress, which could in turn lead to inflammatory processes, ultimately leading to many human diseases including cancer, neurodegenerative diseases, bronchopulmonary dysplasia (BPD), acute respiratory distress syndrome (ARDS), and drug-induced hepatotoxicity. Although much is known about the functional role of CYPs in drug metabolism, their role in endobiotic metabolism, in relation to oxidative stress and inflammation, is understudied. The recent findings of the novel role of CYPs in oxidative stress and inflammation in the manifestation of multiple human diseases warrant the need for a symposium to discuss the latest mechanistic research in this area and its impact on human health. Specifically, the symposium will discuss: i) the role of CYP4f in neuroinflammation, which in turn contributes to neurodegenerative diseases such as Parkinson's and Alzheimer's diseases; ii) the role of the Ah receptor, oxidative stress, and inflammation in 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCCD)-induced hepatotoxicity; iii) the functions of CYP1A1, 1A2, and 1B1 in the metabolism of eicosanoids, which in turn play mechanistic roles in TCDD toxicity; iv) the contribution of CYP4As in eicasanoid metabolism and the mechanism of down-regulation of CYPs during infection; and v) the novel protective role of CYP1A1 and 1A2, and the pro-oxidant role of CYP1B1 in hyperoxic lung injury, in relation to BPD and ARDS. The symposium will also discuss new opportunities for drug discovery and their potential translatability in clinical settings.

#2403	1:30	**Mechanistic Role(s) of Cytochrome(s) P450 in Oxidative Stress and Inflammation: New Opportunities for Drug Discovery.** *J. Manautou*[2], and *B. Moorthy*[1]. [1]Pediatrics, Baylor College of Medicine, Houston, TX; [2]Pharmaceutical Sciences, University of Connecticut, Storrs, CT.
	1:30	**Introduction.** Jose Manautou
#2404	1:35	**Cytochromes P4504f, a Potential Therapeutic Target for Neuroinflammation.** V. Ravindranath. Center for Neuroscience, Indian Institute of Science, Bangaloore, India. Sponsor: *B. Moorthy*.
#2405	2:05	**Metabolomics Identifies an Oxidative Stress-Mediated Signal Transduction Cascade Involved in Dioxin-Induced Hepatotoxicity.** *F. J. Gonzalez*, T. Matsubara, N. Tanaka, K. W. Krausz, A. D. Patterson, and Y. M. Shah. Laboratory of Metabolism, National Cancer Institute, Bethesda, MD.
#2406	2:35	**Lipidomic Analysis Demonstrates That 2,3,7,8-Tetrachlorodibenzo-*p*-dioxin Increases the Levels of Multiple Pro- and Anti-Inflammatory Cytochrome P450 Metabolites of Polyunsaturated Fatty Acids in Several Organs of the Mouse.** *O. Hankinson*[1,2]. [1]Pathology, University of California Los Angeles, Los Angeles, CA; [2]Molecular Toxicology Program, University of California Los Angeles, Los Angeles, CA.

Program Description (Continued)

Abstract #

#2407 3:05 **Regulation and Functions of Cytochromes P450 during Infection.** E. T. Morgan, and B. A. Nyagode. Pharmacology, Emory University, Atlanta, GA. Sponsor: *B. Moorthy*.

#2408 3:35 **Mechanistic Role(s) of Cytochrome P4501A and 1B1 Enzymes in Hyperoxic Lung Injury: Implications for Bronchopulmonary Dysplasia (BPD) in Premature Infants and ARDS in Adults.** *B. Moorthy*. Pediatrics, Baylor College of Medicine, Houston, TX.

4:05 **Panel Discussion/Q&A.**

Wednesday Afternoon, March 13
1:30 PM to 4:15 PM
Grand Ballroom C1

S

Symposium Session: Molecular Basis of Age-Related Susceptibility to Chemicals and Environmental Hazards: From Model Systems to Humans

Molecular Basis of Genetic Variability and Susceptibility to Toxicants

Chairperson(s): *Janice S. Lee, US EPA, Durham, NC, and James C. Fuscoe, US FDA, Jefferson, AZ.*

Sponsor:
Occupational and Public Health Specialty Section

Endorsed by:
Hispanic Organization of Toxicologists Special Interest Group

The susceptibility of individuals to chemicals and environmental hazards at the extremes of the population age-distribution (the very young and the very old) is often not adequately assessed. By understanding genes expressed at the various life stages, the assessment of health risk versus benefit can be more rationally determined. Children are more susceptible to exposures to environmental toxicants compared to adults because intakes are increased, biologically-effective doses may differ, and early lifestage exposure may lead to adverse health effects that are chronic in nature. Older adults are more susceptible to environmental toxicants because of pharmacokinetic and pharmacodynamic changes associated with aging. Altered absorption, distribution, metabolism, and excretion (ADME), along with decreased blood flow to the liver, decreased liver mass, and decreased content of specific cytochrome P450s (CYPs) could result in decreased clearance of chemicals in older adults. In addition to these factors, genetic and epigenetic changes that occur with age and chemical exposure may also increase susceptibility to environmental hazards. Our panel will examine genomic and epigenomic changes that occur with age using animal and human data. Rat liver and kidney data will be used to discuss age-related target organ vulnerabilities. Human relevance will be addressed using a longitudinal birth cohort study in Mexican-American children, two mother-child cohort studies in Mexico and the United States, and a cohort study of older men from the Normative Aging Study. Ultimately, understanding the implications of genetic and epigenetic changes related to age on the effects of chemical exposure will help to protect the health of children and older adults. Disclaimer: The views expressed are those of the authors and do not necessarily represent the views or policies of the US EPA or US FDA.

#2409 1:30 **Molecular Basis of Age-Related Susceptibility to Chemicals and Environmental Hazards: From Model Systems to Humans.** *J. S. Lee*[1], and *J. C. Fuscoe*[2]. [1]US EPA, Durham, NC; [2]US FDA, Jefferson, AR.

1:30 **Introduction.** Janice Lee

#2410 1:35 **Functional Genomic and Epigenomic Changes in the Liver and Kidney during the Rat Life Cycle.** *J. C. Fuscoe*, T. Han, *V. Vijay*, *V. G. Desai*, and J. C. Kwekel. Division of Systems Biology, NCTR, US FDA, Jefferson, AR.

Abstract #

#2411 2:05 **A Case-by-Case Approach to Pediatric Drug Safety Involving Multiage Juvenile Rat Models That Target Developmental Issues and Address Regulatory Concerns.** P. Espandiari, W. Rodriguez, and *J. Hanig*. CDER, US FDA, Silver Spring, MD.

#2412 2:35 **Genetic and Epigenetic Mechanisms of Susceptibility to Environmental Exposures in Children.** N. Holland, P. Yousefi, K. Huen, K. Harley, V. Volberg, L. Barcellos, H. Quach, A. Bradman, and B. Eskenazi. SPH, CERCH, University of California Berkeley, Berkeley, CA. Sponsor: *J. Lee*.

#2413 3:05 **Prenatal Metal Exposure and Health Effects.** *R. C. Fry*. Environmental Sciences and Engineering, University of North Carolina at Chapel Hill, Chapel Hill, NC.

#2414 3:35 **Particulate Pollution, Susceptibility, and Epigenetic Pathways in an Elderly Cohort.** J. Madrigano[1,2], A. Baccarelli[2], M. A. Mittleman[2,3], R. O. Wright[2], D. Sparrow[4], P. S. Vokonas[4], L. Tarantini[5], and J. Schwartz[2]. [1]Mailman School of Public Health, Columbia University, New York, NY; [2]Harvard School of Public Health, Boston, MA; [3]Beth Israel Deaconess Medical Center, Boston, MA; [4]Veterans Administration Boston Healthcare System and Department of Medicine, Boston University, Boston, MA; [5]Environmental and Occupational Health, University of Milan, Milan, Italy. Sponsor: *J. Lee*.

4:05 **Panel Discussion/Q&A.**

Wednesday Afternoon, March 13
1:30 PM to 4:15 PM
Room 217 A&B

W

Workshop Session: Challenging the Limits of Nonclinical Safety Assessment of Pediatric Medicines

Regulatory Science: Advancing New Approaches for Hazard Identification and Risk Assessment

Chairperson(s): *Jeffrey S. Moffit, Boehringer Ingelheim Pharmaceuticals, Inc., Ridgefield, CT, and Merle Paule, US FDA, Jefferson, AR.*

Sponsor:
Reproductive and Developmental Toxicology Specialty Section

Endorsed by:
Inhalation and Respiratory Specialty Section
Neurotoxicology Specialty Section
Regulatory and Safety Evaluation Specialty Section

Pediatric safety assessments are a fundamental and integral part of drug development programs. Introduction of regulatory guidance in the last decade has formalized the inclusion of safety evaluations in juvenile animals, leading to a better understanding of potential drug effects on developmental processes and risks specific to pediatric age groups. Toxicology studies in juvenile animals have evolved to address inherent differences in susceptibility between mature and immature systems. Pediatric safety assessments are challenged by practical and interpretive complexities of conducting toxicity studies in immature animals against a background of increasingly diverse disease indications. This symposium will review a number of innovative approaches that challenge the current limits of the nonclinical safety assessment of new pharmaceuticals. Our panel of experts will discuss unique approaches and case studies dealing with the challenges of supporting pediatric formulations, nontraditional routes of administration, and the complexities of developmental neurotoxicity assessments. Furthermore, our experts will discuss how information from various sources such as *in vitro* experiments using neonatal tissue, pharmacokinetics, and clinical pharmacology work may be brought together to build a risk assessment specific for a young infant and pediatric dosing. These innovative approaches from industry and government challenge the limits of nonclinical safety assessment and provide reassurances of safety for pediatric medicines.

Program Description (Continued)

Abstract #

#2415 1:30 **Challenging the Limits of Nonclinical Safety Assessment of Pediatric Medicines.** *J. S. Moffit*[1], T. Ernest[2], *A. Mauz*[3], *M. G. Paule*[4], J. Stewart[5], and P. Ji[6]. [1]Nonclinical Drug Safety US, Boehringer Ingelheim Pharmaceuticals Inc, Ridgefield, CT; [2]Product Development, GlaxoSmithKline, Harlow, United Kingdom; [3]Nonclinical Drug Safety GER, Boehringer Ingelheim Pharma GmbH & Co. KG, Biberach an der Riβ, Germany; [4]Division of Neurotoxicology, US FDA, National Center for Toxicological Research, Little Rock, AR; [5]Reproductive Toxicology Safety Assessment, AstraZeneca, Macclesfield, United Kingdom; [6]Division of Clinical Pharmacology II, US FDA, Office of Clinical Pharmacology, Silver Spring, MD.

1:30 **Introduction.** Jeffrey Moffit

#2416 1:35 **Safe and Effective Use of Established and Novel Excipients in the Development of Children's Medicines.** S. R. Maguire. Product Development, GlaxoSmithKline R&D, Harlow, United Kingdom. Sponsor: *J. Moffit*.

#2417 2:07 **Technical Challenges and Data Interpretation Evaluating an Inhaled Long Acting β2-Agonist in Juvenile Dogs.** *A. Mauz*. Nonclinical Drug Safety Germany, Boehringer Ingelheim Pharma GmbH & Co. KG, Biberach an der Riβ, Germany.

#2418 2:39 **Modeling Pediatric Exposures to Neuroactive Agents: Developmental Neurotoxicology.** *M. G. Paule*. Division of Neurotoxicology, National Center for Toxicological Research, US FDA, Jefferson, AR.

#2419 3:11 **Technical and Scientific Challenges in Risk Assessments for Neonates and Infants.** J. Stewart. Reproductive Toxicology, AstraZeneca, Macclesfield, United Kingdom. Sponsor: *J. Moffit*.

#2420 3:43 **Pediatric Dosing Regimen Determination during Drug Development.** P. Ji. Division of Clinical Pharmacology II, US FDA, Office of Clinical Pharmacology, Silver Spring, MD. Sponsor: *J. Moffit*.

Wednesday Afternoon, March 13
1:30 PM to 4:15 PM
Room 214 A&B

W

Workshop Session: Nanotoxicology: Computational Strategies, Advances, and Challenges

Effects of Nanomaterials on Biological Systems

Chairperson(s): *Saber M. Hussain, US Air Force Research Laboratory, Wright-Patterson AFB, Dayton, OH, and John J. Schlager, US Air Force Research Laboratory, Wright-Patterson AFB, Dayton, OH.*

Sponsor:
Nanotoxicology Specialty Section

Engineered Nanomaterials (ENM), in the range of 1–100 nm, have been found to exhibit fascinating physicochemical properties making them suitable for numerous applications, extending into numerous military, industrial, medical, and scientific specialties. However, massive quantities of ENM would need to be produced for these applications to be realized, thereby increasing the potential risk of human exposure and raising additional concern about their short and long-term toxicological effects. Nanotoxicology has recently emerged as a new branch of toxicology which deals with toxicological ramifications of these ENMs based on their physicochemical properties, such as size, shape, surface coating, and charge. Conducting toxicological studies considering massive quantities of ENM already in the market would be time consuming and resource intensive. Therefore, there is a great need to develop computational models to predict toxicity and human health effects of ENMs. A recent report (Nature Nanotechnology Vol 6, 2011 P138) has demonstrated a computational model to predict the cytotoxicity of various metal-based nanoparticles. The main objective of this workshop is to discuss modeling techniques based on the electronic and structural complexity of ENMs to predict their biological effects.

Abstract #

#2421 1:30 **Nanotoxicology: Computational Strategies, Advances, and Challenges.** *S. M. Hussain*, and *J. J. Schlager*. Air Force Research Laboratory, US Air Force, Wright-Patterson AFB, OH.

1:30 **Introduction.** Saber Hussain

#2422 1:45 **Quantitative Nanostructure-Activity Relationships Modeling.** A. Tropsha. Eshelman School of Pharmacy, University of North Carolina at Chapel Hill, Chapel Hill, NC. Sponsor: *S. Hussain*.

#2423 2:15 **Toxicity of Nanomaterials—Major Challenges for Theoretical Predictions.** J. Leszczynski. Department of Chemistry, Jackson State University, Jackson, MS. Sponsor: *S. Hussain*.

#2424 2:45 **Biological Surface Adsorption Index (BSAI): A Molecular Signature for Nanomaterial Interactions.** *J. E. Riviere*. Institute of Computational and Comparative Medicine, Kansas State University, Manhattan, KS.

#2425 3:15 **Predictive Modeling on Nanoparticle-Biomolecular Interactions.** R. Pandey. Department of Physics, Michigan Technological University, Houghton, MI. Sponsor: *S. Hussain*.

3:45 **Panel Discussion/Q&A.**

Wednesday Afternoon, March 13
1:30 PM to 4:15 PM
Room 217 C&D

W

Workshop Session: Toxicogenomics in Risk and Safety Assessment: Recent Advances and Continuing Challenges

Application of Systems Biology to Toxicology

Chairperson(s): *Chad Thompson, ToxStrategies, Inc., Katy, TX, and Michael D. Waters, Integrated Laboratory Systems, Inc., Research Triangle Park, NC.*

Sponsor:
Risk Assessment Specialty Section

Toxicogenomic studies can provide a vast amount of data with regard to the changes a chemical can have on a cell, tissue, or organism, and technological achievements continue to make it easier and cheaper to generate such data. However, the application of toxicogenomic data to environmental risk assessments and pharmaceutical safety assessments has progressed more slowly and, despite recent advances, challenges remain as to how best to harness and interpret these large and complex datasets to facilitate their practical application. This session will describe recent applications of toxicogenomics in environmental risk assessment with focus on assessing and predicting genotoxic modes of action and utilizing transcriptome changes from multi-dose and multi-endpoint animal bioassays in quantitative risk assessment. In addition, recent advances in the usage of toxicogenomics in preclinical pharmaceutical safety, clinical trial placement, and individualized medicine will be described.

#2426 1:30 **Toxicogenomics in Risk and Safety Assessment: Recent Advances and Continuing Challenges.** *C. Thompson*[1], and *M. D. Waters*[2]. [1]ToxStrategies, Inc., Katy, TX; [2]Integrated Laboratory Systems, Inc., Research Triangle Park, NC.

1:30 **Introduction.** Chad Thompson

Program Description (Continued)

Abstract #

#2427 1:35 **Characterizing and Predicting Modes of Action of Carcinogenicity Based on Conventional and Toxicogenomics Methods.** *M. D. Waters*. Integrated Laboratory Systems, Inc., Research Triangle Park, NC.

#2428 2:07 **Case Studies of Dose-Response Genotoxicity and Toxicogenomic Studies Designed to Replace Default Assumptions Used in Carcinogenic Risk Assessments.** *L. Recio*. Integrated Laboratory Systems, Inc., Research Triangle Park, NC.

#2429 2:39 **Application of Transcriptomic Data for Quantitative Chemical Risk Assessment.** *R. S. Thomas*. The Hamner Institutes for Health Sciences, Research Triangle Park, NC.

#2430 3:11 **Challenges and Opportunities of Toxicogenomics Analyses in Safety Assessment during Preclinical Safety Studies.** *C. Karbowski*. Discovery Toxicology, Amgen, Thousand Oaks, CA.

#2431 3:43 **Role of Causal Reasoning in Patient Stratification from Efficacy and Safety Perspectives.** *A. Enayetallah*. Drug Safety Research & Development, Pfizer, Inc., Groton, CT.

Wednesday Afternoon, March 13
1:30 PM to 4:15 PM
Grand Ballroom C2

RI

Regional Interest Session: Assessment of Environmental, Dietary, and Biological Risk Factors Impacting Liver Cancer Incidence in Texas

Chairperson(s): *Erica D. Bruce, Baylor University, Waco, TX, and Amelia Romoser, Texas A&M University, College Station, TX.*

Sponsor:
Lone Star Regional Chapter

Endorsed by:
Food Safety Specialty Section
Hispanic Organization of Toxicologists Special Interest Group
Mixtures Specialty Section
Risk Assessment Specialty Section

The increasing incidence of primary liver cancer in Texas is a result of multiple risk factors, including environmental and dietary exposures to carcinogens, as well as biological factors, such as hepatitis C infection. Texas has the highest liver cancer mortality rate in the United States, affecting the Hispanic portion of the population most acutely. It is speculated that the increased incidence of primary liver cancer observed in these Hispanic communities is due to occupational exposures to pesticides, polycyclic aromatic hydrocarbons (PAHs), and dietary risk factors from contaminated maize. Current research and risk assessment in this field is focused on cancer epidemiology within these populations to determine those risk factors that are most hazardous to the community health of south Texas. Many pesticides used in farming and households are labeled as probable carcinogens and can cause many other negative health effects in people chronically exposed. Research and educational programs in Texas are striving to increase awareness of health effects from exposure and pesticide safety. PAHs are also known hepatic carcinogens, forming DNA adducts within the liver. Health effects observed in Texas from chronic PAH exposure through foods and poor air quality are being assessed. Additionally, mycotoxin occurrence is heightened in the southern portion of the state where drought conditions and excessive heat contribute to fungal growth on staple crops (i.e., maize). Specifically, aflatoxin and fumonisin exposures have been observed in various communities in San Antonio and along the Texas-Mexico border. These mycotoxins are known to both initiate and promote hepatocellular carcinoma.

Abstract #

Understanding the risk factors for primary liver cancer in Texas is essential to developing future remediation, prevention, and treatment strategies, as well as identifying and establishing necessary changes in state regulations.

#2432 1:30 **Assessment of Environmental, Dietary, and Biological Risk Factors Impacting Liver Cancer Incidence in Texas.** *E. Bruce*[1,2], and *A. Romoser*[3]. [1]Institute of Biomedical Sciences, Baylor University, Waco, TX; [2]Institute of Ecological, Earth, and Environmental Science, Baylor University, Waco, TX; [3]Toxicology, Texas A&M University, College Station, TX.

1:30 **Introduction.** Erica Bruce

#2433 1:35 **Liver Cancer Incidence Trends in Texas 1995–2009.** J. F. Villanacci, C. Bowcock, and A. Hackenwerth. Texas Department of State Health Services, Austin, TX. Sponsor: *E. Bruce*.

#2434 2:02 **A Lay Health Worker-Based Intervention for Reducing Families' Environmental Exposures.** L. Cizmas[1], J. Ross[1], R. Rincon[2], H. Tamez[2], A. Ginez[2], R. Perales[2], C. Miller[2], and *T. McDonald*[1]. [1]Texas A&M Health Science Center School of Rural Public Health, Texas A&M University, College Station, TX; [2]South Texas Environmental Education and Research Program, University of Texas Health Science Center, San Antonio, San Antonio, TX.

#2435 2:29 **Early Obesity and Risk of Hepatocellular Carcinoma in USA.** M. Hassan[1], D. Li[1], A. Kaseb[1], J. L. Abbruzzese[1], H. M. Hassabo[1], M. Khalil[1], I. Sahin[1], J. Morris[1], E. Hawk[1], and M. R. Spitz[2]. [1]The University of Texas MD Anderson Cancer Center, Houston, TX; [2]Baylor College of Medicine, Houston, TX. Sponsor: *E. Bruce*.

#2436 2:56 **Biomarkers of Hepatocellular Cancer Risk and Diagnosis.** *R. M. Santella*. NIEHS Center for Environmental Health, Columbia University Mailman School of Public Health, New York, NY.

#2437 3:23 **Mitigation of Aflatoxin Exposures Using a Clay-Based Enterosorbent.** *T. D. Phillips*. Veterinary Integrative Biosciences, Texas A&M University, College Station, TX.

#2438 3:49 **Risk Factors Influencing the Incidence of Liver Cancer in San Antonio.** F. A. Guerra. Department of Pediatrics, University of Texas Health Science Center San Antonio, San Antonio, TX. Sponsor: *E. Bruce*.

Wednesday Afternoon, March 13
1:30 PM to 4:15 PM
Room 207

PL

Platform Session: New and Integrated Approaches for Genetic Toxicity Evaluation

Chairperson(s): *Mugimane Manjanatha, US FDA, Jefferson, AR, and Darrell Boverhof, The Dow Chemical Company, Midland, MI.*

#2439 1:30 **A Novel Single Cell-Based High-Throughput Toxicity Study of Drugs.** L. Ma, Y. Qiao, and M. Su. NanoScience Technology Center, University of Central Florida, Orlando, FL. Sponsor: *T. Lam*.

#2440 1:50 **New High-Throughput Version of the DEL Assay Detects Nonmutagenic Carcinogens.** *R. H. Schiestl*, L. Parfenova, Y. Rivina, V. Kutepova, and D. Nguaen. Pathology; Environmental Health Sciences, Radiation Oncology, University of California Los Angeles, Los Angeles, CA.

Program Description (Continued)

Abstract #

#2441 2:10 ***In Vitro* Genotoxicity Assays (Comet and Micronucleus) Using Engineered Skin.** G. Ouédraogo[1], F. Nesslany[2], S. Simar[2], S. Talahari[2], D. Lagache[2], E. Vercauteren[2], L. Nakab[2], A. Mayoux[2], N. Flamand[1], G. Massin[2], and J. Cotovio[1]. [1]Predictive Model and Method Development, L'Oréal R&I, Aulnay sous bois, France; [2]Laboratoire de Toxicologie, Institut Pasteur de Lille, Lille, France. Sponsor: *E. Dufour*.

#2442 2:30 **Development and Validation of a Toxicogenomics Signature to Differentiate Genotoxins vs Nongenotoxins.** *S. Beedanagari*, S. Nicotra, and L. Custer. Bristol-Myer's Squibb, East Brunswick, NJ.

#2443 2:50 **Characterization of Threshold Dose Response of Genotoxicity from Chemicals with Diverse Mechanisms of Damage.** *B. Sun*[1], S. M. Ross[1], *A. Scott*[2], *Y. Adeleye*[2], *M. E. Andersen*[1], and *R. A. Clewell*[1]. [1]The Hamner Institutes for Health Sciences, Durham, NC; [2]SEAC, Unilever PLC, Bedfordshire, United Kingdom.

#2444 3:10 **Concurrent Evaluation of General, Immune, and Genetic Toxicity Endpoints As Part of an Integrated Testing Strategy Approach.** L. Sosinski, *L. Murphy*, M. R. Schisler, N. Visconti, R. Sura, *M. J. LeBaron*, and *D. R. Boverhof*. The Dow Chemical Company, Midland, MI.

#2445 3:30 **Evaluation of Repeated Dose Liver Micronucleus Assay in Rats: Summary of Collaborative Study by CSGMT/JEMS-MMS.** R. Takashima[1], S. Hamada[1], K. Shimada[2], K. Matsumoto[3], S. Kawakami[4], J. Tanaka[5], H. Matsumoto[6], T. Nakai[7], T. Imamura[8], S. Matsumura[9], H. Sanada[10], Y. Terashima[11], K. Inoue[12], S. Mutou[13], S. Hagio[14], A. Hayashi[15], T. Takayanagi[16], Y. Ogiwara[17], A. Maeda[18], K. Narumi[19], Y. Wako[1], T. Morita[20], *H. Kojima*[20], M. Hayashi[20], and M. Honma[20]. [1]Mitsubishi Chemical Medience, Ibaraki, Japan; [2]Astellas Pharma, Osaka, Japan; [3]Astellas Research Technologies, Osaka, Japan; [4]Asahi Kasei Pharma, Shizuoka, Japan; [5]Biosafety Research Center, Shizuoka, Japan; [6]Food and Drug Safety Center, Kanagawa, Japan; [7]Hokko Chemical Industry, Kanagawa, Japan; [8]Ina Research, Nagano, Japan; [9]Kao Corporation, Tochigi, Japan; [10]Kaken Pharmaceutical, Shizuoka, Japan; [11]Kissei Pharmaceutical, Nagano, Japan; [12]Maruho, Kyoto, Japan; [13]Mitsubishi Tanabe Pharma, Chiba, Japan; [14]Nissan Chemical Industries, Saitama, Japan; [15]Shin Nippon Biomedical Laboratories, Kagoshima, Japan; [16]Suntory Business Expert, Kyoto, Japan; [17]Taisho Pharmaceutical, Saitama, Japan; [18]Toray Industries, Kanagawa, Japan; [19]Yakult Honsha, Tokyo, Japan; [20]National Institute of Health Sciences, Tokyo, Japan.

#2446 3:50 **Acquisition of *In Vivo* Mutation and Cytogenetic Damage Information to Support Cancer Risk Assessment.** *S. Dertinger*[1], S. Phonethepswath[1], J. Mereness[1], S. Avlasevich[1], *D. Torous*[1], *J. Bemis*[1], and *J. T. MacGregor*[2]. [1]Litron Laboratories, Rochester, NY; [2]Toxicology Consulting Services, Arnold, MD.

Abstract #

Wednesday Afternoon, March 13
1:30 PM to 4:15 PM
Room 205

PL

Platform Session: New Insights into Organophosphate-Induced Neurotoxicity: Pathology, Mode of Action, Modulation, and Protection

Chairperson(s): *Janice Chambers, Mississippi State University, Mississippi State, MS, and John L. O'Donoghue, University of Rochester Medical Center, Rochester, NY.*

#2447 1:30 **Axonal Degeneration of Chronic Organophosphate Ester-Induced Delayed Neurotoxicity (OPIDN) Has Different Features in Central and Peripheral Levels of the Nervous System.** *B. S. Jortner*. Laboratory for Neurotoxicity Studies, Virginia Polytechnic Institute and State University, Blacksburg, VA.

#2448 1:53 **Maternal Paraoxonase (PON1) Status Modulates Fetal Effects Associated with Gestational Exposure of Mice to Chlorpyrifos Oxon.** *T. B. Cole*[1], W. Li[1], A. Co[1], *J. Marsillach*[1], A. Hay[1], R. Richter[1], M. J. MacCoss[1], *L. G. Costa*[1,2], and *C. E. Furlong*[1]. [1]Departments of Medicine, Environmental and Occupational Health Sciences, Genome Sciences, and Center on Human Development and Disability, University of Washington, Seattle, WA; [2]Department of Neuroscience, University of Parma, Parma, Italy.

#2449 2:16 **Comparative Effects of Parathion and Chlorpyrifos on Extracellular Endocannabinoids: Influence on Cholinergic Toxicity.** *C. Pope*[1], L. Parsons[2], and *J. Liu*[1]. [1]Physiological Sciences, Oklahoma State University, Stillwater, OK; [2]Committee on the Neurobiology of Addictive Disorders, Scripps Research Institute, La Jolla, CA.

#2450 2:39 **Developmental Exposure to Chlorpyrifos Increases Accumulation of the Endocannabinoid Anandamide in the Brain in the Absence of Cholinesterase Inhibition.** *R. L. Carr*, C. A. Nail, L. C. Mangum, and *M. K. Ross*. Center for Environmental Health Sciences, Mississippi State University, Mississippi State, MS.

#2451 3:02 **Prenatal Dexamethasone Augments Neurobehavioral Teratology of Chlorpyrifos.** *E. D. Levin*, M. Cauley, J. E. Johnson, H. Sexton, K. Gordon, *F. J. Seidler*, and *T. A. Slotkin*. Psychiatry, Duke University Medical Center, Durham, NC.

#2452 3:25 **Oxidative Stress: A Mechanism-Based Biomarker of Organophosphorus Pesticide (OP)-Induced Neurotoxicity?** S. N. Levoe[1], *D. A. Bruun*[1], S. Y. Gyu[1], E. Napoli[1], *D. Milatovic*[2], C. Giulivi[1], *M. Aschner*[2], K. M. Lattal[3], and *P. J. Lein*[1]. [1]Molecular Biosciences, University of California Davis, Davis, CA; [2]Pediatric Toxicology, Vanderbilt University, Nashville, TN; [3]Behavioral Neuroscience, Oregon Health & Science University, Portland, OR.

#2453 3:48 **Interactions between Paraoxon and Polyhydroxyfullerenes Chemically Defined.** G. Magnin-Bissel[1], Z. Zhou[2], and *M. Ehrich*[1]. [1]Virginia Tech, Blacksburg, VA; [2]Luna NanoWorks, Danville, VA.

Program Description (Continued)

Abstract #

Wednesday Afternoon, March 13
1:30 PM to 4:15 PM
Room 206

PL

Platform Session: Risk Analysis: Refining Predictions and Systematic Approaches

Chairperson(s): *Barbara Wetmore, The Hamner Institutes for Health Sciences, Research Triangle Park, NC, and Richard Canady, ILSI Research Foundation, Washington, DC.*

#2454 1:30 **Conditional Toxicity Value (CTV) Predictor for Generating Toxicity Values for Data Sparse Chemicals.** *J. Wignall*[1], E. Muratov[1], D. Fourches[1], A. Tropsha[1], *T. Woodruff*[2], *L. Zeise*[3], *N. Wang*[4], *D. Reif*[5], V. Cogliano[4], W. A. Chiu[4], *K. Z. Guyton*[4], and *I. Rusyn*[1]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]University of California San Francisco, San Francisco, CA; [3]California EPA, Oakland, CA; [4]National Center for Environmental Assessment, US EPA, Washington DC; [5]National Center for Computational Toxicology, US EPA, Durham, NC.

#2455 1:50 **Application of the Threshold of Toxicological Concern (TTC) Decision Support Approach to Antimicrobial Pesticides.** *R. Canady*[2], *T. McMahon*[1], M. Cheeseman[7], *C. Yang*[5], *S. Felter*[6], A. Boobis[4], *M. Martin*[3], *V. Dellarco*[1], *P. Price*[8], M. Laufersweiler[6], and *K. Jacobs*[9]. [1]US EPA, Washington DC; [2]ILSI RF, Washington DC; [3]US EPA, Research Triangle Park, NC; [4]Imperial College London, London, United Kingdom; [5]Altamira llc, Columbus, OH; [6] Procter & Gamble Company, Cincinnati, OH; [7]Steptoe and Johnson, Washington DC; [8]Dow Chemical Company, Midland, MI; [9]CFSAN, US FDA, College Park, MD.

#2456 2:10 **The Navigation Guide As an Evidence-Based Medicine Methodology to Evaluate Human Health Effects of Environmental Chemicals: Perfluorooctanoic Acid (PFOA) and Fetal Growth.** E. Koustas[1], J. Lam[1], P. Sutton[2], P. Johnson[2], D. Atchley[2], S. Sen[3], K. Robinson[4], D. Axelrad[1], and *T. Woodruff*[2]. [1]Office of Policy, US EPA, Washington DC; [2]Program on Reproductive Health and the Environment, University of California San Francisco, Oakland, CA; [3]Epidemiology and Biostatistics, University of California San Francisco, San Francisco, CA; [4]Medicine, Epidemiology, and Health Policy & Management, Johns Hopkins University, Baltimore, MD.

#2457 2:30 **Incorporating Population Variability and Susceptible Subpopulations into Dosimetry for High-Throughput Toxicity Testing.** *B. A. Wetmore*[1], *J. F. Wambaugh*[2], *H. J. Clewell*[1], and *R. S. Thomas*[1]. [1]The Hamner Institutes for Health Sciences, Research Triangle Park, NC; [2]National Center for Computational Toxicology, US EPA, Research Triangle Park, NC.

#2458 2:50 **Extrapolating *In Vitro* Embryotoxicity Data Toward *In Vivo* Exposure Levels Using a Combined *In Vitro*-Physiologically-Based Kinetic Modeling Approach.** M. Strikwold[1,2], R. Woutersen[1,3], B. Spenkelink[1], *I. Rietjens*[1], and A. Punt[1]. [1]Division of Toxicology, Wageningen University, Wageningen, Netherlands; [2]Van Hall Larenstein, University of Applied Sciences, Leeuwarden, Netherlands; [3]TNO Innovation for Life, Zeist, Netherlands.

Abstract #

#2459 3:10 **A Genomics-Based Determination of Relative Potencies of Dioxin-Like Compounds in Primary Human Hepatocytes.** *J. Rowlands*[1], *R. Budinsky*[1], M. B. Black[2], R. D. Wolfinger[3], D. Cukovic[4], S. Salagrama[4], A. Dombkowski[4], and *R. S. Thomas*[2]. [1]The Dow Chemical Company, Midland, MI; [2]The Hamner Institutes for Health Sciences, Research Triangle Park, NC; [3]SAS Institute Inc., Cary, NC; [4]Institute of Environmental Health Sciences, Wayne State University, Detroit, MI.

#2460 3:30 **Aryl Hydrocarbon Receptor Mode-of-Action and Human Relevance Framework for XDE-729 Methyl-Induced Rodent Liver Effects.** *D. L. Eisenbrandt*[2], *L. A. Murphy*[1], *N. J. Stagg*[2], *M. J. LeBaron*[1], V. A. Marshall[1], A. T. McCoy[1], L. Kan[1], *D. R. Boverhof*[1], *M. Bartels*[1], *R. Billington*[2], and *R. J. Rasoulpour*[1]. [1]The Dow Chemical Company, Midland, MI; [2]Dow AgroSciences LLC, Indianapolis, IN.

#2461 3:50 **Estimation of Cumulative Risk from Exposure to Phthalates Using NHANES Exposure Data and an *In Vitro* Potency Assay.** *P. Balbuena*, *J. L. Campbell*, *H. J. Clewell*, and *R. A. Clewell*. The Hamner Institutes for Health Sciences, Research Triangle Park, NC.

Wednesday Afternoon, March 13
2:15 PM to 3:15 PM
Room 007 C

E

Exhibitor/Sponsor-Hosted Session: Advanced 3D-Cell Culture Models for Drug Safety Assessment

Presented by:
InSphero AG

3D-cell models such as scaffold-free 3D-microhearts and 3D-microlivers offer significant advantages for drug safety testing, including greater functionality and extended functional life times. InSphero will illustrate, using examples from recent collaborations, various approaches for exploiting 3D-models in safety testing using laboratory automation and reliable, proven off-the-shelf biochemical assays.

Wednesday Afternoon, March 13
2:15 PM to 3:15 PM
Room 007 A

E

Exhibitor/Sponsor-Hosted Session: Application of QWBA and Short-Lived Isotopes in the Drug Development Paradigm

Presented by:
MPI Research

Quantitative Whole-Body Autoradiography (QWBA) is a high-resolution tissue distribution assessment commonly used in preclinical drug development. QWBA is typically performed with long-lived isotopes. However, short-lived isotopes provide a solution to contemporize QWBA combining it with multiple imaging platforms, such as PET and SPECT, within a single study design.

Wednesday Afternoon, March 13
2:15 PM to 3:15 PM
Room 007 B

E

Exhibitor/Sponsor-Hosted Session: Next Generation Animal Models in Toxicology

Presented by:
Integrated Laboratory Systems, Inc.

This session will introduce Next Generation mouse models currently being used to address population diversity in toxic and carcinogenic responses to both environmental chemicals and pharmaceutical agents. The speakers will summarize a study they have conducted using these mouse models to show how they can be used to predict human susceptibility.

Program Description (Continued)

Abstract #

Wednesday Afternoon, March 13
4:00 PM to 5:00 PM
Room 215

Undergraduate Student Meeting

Chairperson(s): *Sue M. Ford, St. John's University, Jamaica, NY.*

Sponsors:
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 13
4:30 PM to 5:50 PM
Room 207

R

Roundtable Session: Nonhuman Primate Sexual Maturity: What Is the Capacity to Endure Uncertainty?

Chairperson(s): *Diann Blanset, Boehringer Ingelheim Pharmaceuticals, Inc., Ridgefield, CT, and Jeffrey S. Moffit, Boehringer Ingelheim Pharmaceuticals, Inc., Ridgefield, CT.*

Sponsor:
Reproductive and Developmental Toxicology Specialty Section

Endorsed by:
Association of Scientists of Indian Origin Special Interest Group
Biotechnology Specialty Section
Toxicologic and Exploratory Pathology Specialty Section

Evaluation of reproductive toxicity in regulatory studies relies on the use of sexually mature animals. This often involves the use of nonhuman primates (NHP) when lower order species are pharmacologically irrelevant. However, the decision on whether to utilize mature NHP and the criteria used to establish sexual maturity is anything but standardized. Several factors contribute to these differing opinions. Sexual maturity can occur over a wide range of ages and body weights and historical methods of predicting sexual maturity have not always correlated with the histopathological appearance of the gonads at necropsy. Evaluation of toxicity in the reproductive organs of pre/peripubertal animals is often difficult, given that the histology of the maturing reproductive organs may resemble the degenerative changes induced by reproductive toxicants in the sexually mature adult. Finally, there is a lack of consensus on the toxicological relevance and interpretation of the various possible reproductive endpoints. All of these factors result in a complicated balancing act: Ethically weighing the limited availability, high costs, and relevance of incorporating sexually mature NHP in toxicology studies against effective and meaningful evaluation of reproductive risks. This roundtable will discuss the challenges of assessing toxicity in immature vs. peripubertal vs. mature NHP, screening methods for identifying sexually mature NHP, factors that influence sexual maturity, and case studies where sexual maturity impacted the study interpretation. Overall, this session seeks to provide an opportunity for stakeholders to review the current state of the art and exchange views on appropriate paths forward to encourage ethical use of animals, while preserving appropriate risk assessments.

#2462 4:30 **Nonhuman Primate Sexual Maturity: What Is the Capacity to Endure Uncertainty?** *D. L. Blanset*[1], *D. M. Creasy*[2], *G. F. Weinbauer*[3], *J. L. Bussiere*[4], *K. P. Hatfield*[5], and *J. S. Moffit*[1]. [1]Nonclinical Drug Safety US, Boehringer Ingelheim Pharmaceuticals Inc, Ridgefield, CT; [2]Huntingdon Life Sciences, East Millstone, NJ; [3]Covance Inc, Muenster, Germany; [4]Amgen Inc, Thousand Oaks, CA; [5]US FDA, CDER, Silver Spring, MD.

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4:30 **Introduction.** Jeffrey S. Moffit

4:35 **Immaturity, Subordination, or Reproductive Toxicity? Challenges Facing the Pathologist Evaluating the Primate Reproductive Tract.** Dianne M. Creasy

4:47 **In-Life Assessment of Primate Sexual Maturity — Myths and Facts.** Gerhard F. Weinbauer

4:59 **Issues and Challenges with Assessing Menstrual Cycles in Chronic Toxicology Studies.** Jeanine L. Bussiere

5:11 **The Cost of Uncertainty—When Maturity Influences Safety.** Kimberly P. Hatfield

5:23 **Q&A.** Panel Discussion

Wednesday Afternoon, March 13
4:30 PM to 5:50 PM
Room 214 A&B

IS

Informational Session: Exposure Science in the 21st Century: Perspectives from the NAS and What It Means for Toxicology

Chairperson(s): *Linda S. Birnbaum, NIEHS, Research Triangle Park, NC, and Jennifer Orme-Zavaleta, US EPA, Research Triangle Park, NC.*

Sponsor:
Scientific Program Committee

In 2010, US EPA with additional support from NIEHS, requested the National Academy of Sciences (NAS) to develop a long-range vision for exposure science in the 21st century and a strategy for implementing this vision over the next twenty years. Exposure science is the bridge between the sources of chemical, physical and biological agents and ecological and human health. Exposure science is critical for predicting, preventing, and reducing human health and ecosystem risks. The report, *Exposure Science in the 21st Century: A Vision and a Strategy*, was released September 7 by the NAS National Research Council. This report along with three other NAS reports, *Toxicity Testing in the 21st Century*, *Science and Decisions: Advancing Risk Assessment* and *Sustainability and the US EPA*, chart the future directions for using innovative technology and scientific advances to better understand environmental impacts on human and ecological health. The report outlines a framework for advancing exposure science to study how humans and ecosystems interact with chemical, biological, and physical agents in their environments. Key visions in the report in are to develop a universal exposure-tracking framework with a focus on preventing and mitigating adverse exposures. This will include the application of systems science to understand and characterize exposures across time, space, and biological scale.

#2463 4:30 **Exposure Science in the 21st Century: Perspectives from the NAS and What It Means for Toxicology.** *L. S. Birnbaum*[1], and *J. Orme-Zavaleta*[2]. [1]NIEHS, Research Triangle Park, NC; [2]US EPA, Research Triangle Park, NC.

4:30 **Introduction.** Linda S. Birnbaum

4:35 **Overview of the NAS Report *Exposure Science in the 21st Century: A Vision and a Strategy*.** Jennifer Orme-Zavaleta

5:00 **Moving Exposure Science Forward—The Game-Changers.** Justin Teeguarden

5:25 **Exposure Science As an Integrator for Human Health and Ecological Sciences.** Richard T. Di Giulio

Program Description (Continued)

Abstract #

Wednesday Afternoon, March 13
4:30 PM to 5:50 PM
Room 217 A&B

IS

Informational Session: Regulatory-Based Nanotoxicology: Evolving National Strategies and Research to Address Engineered Nanomaterial Health Risk Assessments

Effects of Nanomaterials on Biological Systems

Chairperson(s): *William K. Boyes, US EPA, Research Triangle Park, NC, and Srikanth Nadadur, NIEHS, Research Triangle Park, NC.*

Sponsor:
Nanotoxicology Specialty Section

Endorsed by:
Risk Assessment Specialty Section

Engineered nanomaterials are increasingly being developed and incorporated into a variety of products and applications. However, the full development of nanotechnology is hampered by an uncertainty regarding their environmental, health and safety implications, and how these issues will be addressed by responsible regulatory agencies at the federal and state levels. Novel nanoscale materials present a number of scientific and technical challenges for assessing their potential health implications including: exposure and material characterization; adequacy of conventional toxicity testing methods/guidelines; dose metric(s) across the exposure-dose-effects paradigm; and the role of alternative testing approaches to assess their toxicity. This session will bring together scientists from scientific advisory bodies, regulatory agencies and the private sector to present/discuss research needs, strategies, approaches and findings regarding the health effects testing of engineered nanomaterials and nano-enabled products as it relates to regulatory mission(s). Key topics include: assessing nanomaterial toxicity for regulatory and risk assessment applications; the status or role of alternative test methods to screen or prioritize nanomaterials for *in vivo* toxicity testing, and the extent to which harmonized testing can be achieved for these novel materials. Each speaker will have 10–12 minutes to highlight agency/institutional approaches and regulatory actions regarding the potential for health effects from engineered nanomaterials. The session will conclude with a 15 minute general discussion period. The overall goal is to provide participants with a view of the status of the development of nanomaterial toxicological assessments that would be sufficient to evaluate health and safety for regulatory agencies.

#2464 4:30 **Regulatory-Based Nanotoxicology: Evolving National Strategies, and Research to Address Engineered Nanomaterial Health Risk Assessments.** *W. K. Boyes*[1], *S. Nadadur*[2], *P. Sayre*[3], *V. Castranova*[4], *K. Dreher*[1], *P. Howard*[5], and *D. Warheit*[6]. [1]ORD, US EPA, Research Triangle Park, NC; [2]NIEHS, NIH, Research Triangle Park, NC; [3]ORD, US EPA, Washington DC; [4]NIOSH, CDC, Morgantown, WV; [5]NCTR, US FDA, Jefferson, AR; [6]Haskell Global Centers, DuPont, Wilmington, DE.

4:30 **Introduction: Regulatory Nanotoxicology—Where Are We?** Philip G. Sayre

4:35 **The Nanotechnology Research Program in NIOSH: Strategic Plan, Approaches, and Accomplishments.** Vincent Castranova

4:50 **An Integrated Transdisciplinary Systems Approach to Assess and Ultimately Predict the Health Risks of Engineered Nanomaterials and Their Applications.** Kevin L. Dreher

5:05 **The US Food and Drug Administration Regulatory Science Program in Nanotechnology.** Paul C. Howard

5:20 **Development of *In Vivo* and *In Vitro* Pulmonary Bioassays to Assess the Toxicity of Inhaled Nanomaterials.** David B. Warheit

Abstract #

5:35 **Q&A.** Panel Discussion

Wednesday Afternoon, March 13
4:30 PM to 5:50 PM
Room 214 C&D

EC

Education-Career Development Session: Toxicological Writing for Industrial and Regulatory Audiences

Chairperson(s): *Chidozie Amuzie, MPI Research, Mattawan, MI, and Michele La Merrill, University of California Davis, Davis, CA.*

Sponsor:
Career Resource and Development Committee

Endorsed by:
Biotechnology Specialty Section
Education Committee
Graduate Student Leadership Committee
Postdoctoral Assembly
Risk Assessment Specialty Section

Excellence in scientific and technical writing leading to high-quality publications, a skill set developed and refined from graduate training through early career in toxicology, is one key trait that can lead to a successful career as a toxicologist. Some academic institutions have programs that support scientific and technical writing for their staff. However, the majority of toxicologists (80%) are employed outside academia, predominately within biopharmaceutical and chemical industries, government, and contract research organizations. Graduates from academic programs that train in writing might acquire skills related to preparation of dissertations, grant proposals, and manuscripts for scientific peer-reviewed journals. The skills acquired from this training, when existent, does not necessitate a smooth transition to a successful career outside academia. Thus early-career toxicologists are sometimes unaware of, or otherwise unprepared for, technical writing assignments that occur in industrial and regulatory toxicology. In addition, different writing skills are required for clear and concise communication of toxicological results to nontoxicologist stakeholders. Therefore, an interactive workshop that evaluates the challenges presented by, and the skills required for, toxicological writing outside academia will be of great use to the majority of graduate students, postdoctoral trainees, and early-career toxicologists. Four speakers from the pharmaceutical industry, the chemical industry, a government regulatory agency, and a contract research organization will review the type(s) of technical writing required within their setting. Notably, they will extensively highlight common mistakes and discuss valuable strategies and tools to avoid these mistakes through interactive exercises using provided writing examples.

#2465 4:30 **Toxicological Writing for Industrial and Regulatory Audiences.** *C. J. Amuzie*[1,2], and *M. La Merrill*[3]. [1]Department of Pathology, MPI Research, Mattawan, MI; [2]Department of Pathobiology and Diagnostic Investigations, Michigan State University, East Lansing, MI; [3]Department of Preventive Medicine, Mount Sinai School of Medicine, New York, NY.

4:30 **Introduction.** Michele La Merrill

4:34 **Fundamentals of Technical Writing within the Pharmaceutical Industry.** Lorrene A. Buckley

4:52 **What Do Successful Reports Have in Common: An US FDA Perspective.** Hanan N. Ghantous

5:10 **Technical Writing in the Chemical Industry.** Richard (Dick) W. Lewis

5:28 **Writing a Toxicology Study Report: A Contract Research Organization Perspective.** Dennis J. Meyer

5:46 **Q&A.** Panel Discussion

Program Description (Continued)

Wednesday Afternoon, March 13
3:30 PM to 4:30 PM
Room 007 A

E

Exhibitor/Sponsor-Hosted Session: The European Nanomaterials Definition: Characterization Challenges of a Global Issue

Presented by:
NanoSight

Addressing issues in nanoparticle toxicology 2011 the European Union published their long-awaited definition of Nanomaterials, and then its take-up by legislators began swiftly. This session will succinctly describe the definition then focus on the characterization challenges it poses. The core characterization technologies under EU scientific scrutiny are compared and contrasted.

Wednesday Afternoon, March 13
3:30 PM to 4:30 PM
Room 007 B

E

Exhibitor/Sponsor-Hosted Session: Why You Should Consider China for Your IND-Enabling Program—An Update from the Leader in GLP Toxicology in China

Presented by:
Pharmaron, Inc.

Pharmaron has been conducting toxicology studies since 2007 and boasts the most extensive GLP track record in China including chronic and transgenic carcinogenicity experience. Over 23 IND packages have been filed by clients and accepted by regulatory agencies. Join us to understand the advantages of working in China and participate in an extensive Q&A session to answer all your questions about placing IND-enabling studies in China.

WEDNESDAY EVENING

Wednesday Afternoon, March 13
5:00 PM to 6:00 PM
Grand Hyatt Texas Ballroom C

Nanotoxicology Specialty Section Officers Meeting

Wednesday Evening, March 13
6:00 PM to 7:30 PM
Grand Hyatt
See room listing below.

Specialty Section Meeting/Receptions: Carcinogenesis (Texas Ballroom A), Food Safety (Seguin), Metals (Texas Ballroom B), Molecular Biology (Texas Ballroom F), Nanotoxicology (Texas Ballroom C), Ocular Toxicology (Republic B)

Extended Abstract Submission Phase Complete

In December, we invited our colleagues to submit an abstract during the late-breaking abstract submission phase. We are pleased with the number of abstracts received for consideration and that an overwhelming number were accepted for the Annual Meeting. These abstracts will be presented on Thursday, March 14, along with several dynamic symposia and workshop sessions already scheduled. You can find the poster sessions in Exhibit Hall A on the Street Level of the convention center. A printed supplement of these additional accepted abstracts can be picked up at Registration, and will be available in front of Exhibit Hall A. The abstracts are not available in the final *Program* but are fully searchable through the SOT mobile event app and online event website.

View the Late-Breaking Abstracts using the Mobile Event App or download a PDF of all the accepted Late-Breaking Abstracts being presented on Thursday March 14.

Scan Me!

Program Description (Continued)

Abstract #

THURSDAY MORNING

Thursday Morning, March 14
9:00 AM to 11:45 AM
Grand Ballroom C2

S

Symposium Session: From Immunotoxicity to Nanotherapy: The Effects of Nanomaterials on the Immune System

Effects of Nanomaterials on Biological Systems

Chairperson(s): *Matthew J. Smith, ImmunoTox, Inc., Richmond, VA, and Nigel J. Walker, NIEHS, Research Triangle Park, NC.*

Sponsor:
Immunotoxicology Specialty Section

The potential for human exposure to the diverse and ever-changing world of nanomaterials has raised concerns about the ability of these materials to influence health and disease. The small size of nanomaterials makes them a prime target for interaction with the cells of the immune system. Exposure to nanomaterials (inhalation, dermal, oral, parenteral) can affect multiple components of the immune system. For example, a single respiratory exposure to titanium dioxide nanoparticles can significantly increase the antibody-forming cell response to sheep erythrocytes, suggesting the possibility of nanomaterial interactions with lymphocytes and/or antigen-presenting cells. Furthermore, the cells of the innate immune system, including mast cells and the cells of the mononuclear phagocytic system, are also potential targets following nanomaterial exposure. A varied spectrum of effects, including inflammation, hypersensitivity, and immunomodulation, may then occur, via mechanisms which have yet to be elucidated. While incidental exposure may be undesirable, nanomaterials and nanomedicines engineered for various clinical applications provide opportunities to develop therapies that may or may not intentionally target the immune system. The interplay between nanomaterials and the immune system and the pharmacokinetic and phenotypic responses that result from these interactions are therefore critical factors that dictate the balance between toxicity and clinical efficacy of nanomedicines.

#2466 9:00 **From Immunotoxicity to Nanotherapy: The Effects of Nanomaterials on the Immune System.** *M. J. Smith*[1,2], *D. R. Germolec*[3], and *N. J. Walker*[3]. [1]Pharmacology and Toxicology, Virginia Commonwealth University, Richmond, VA; [2]ImmunoTox, Inc, Richmond, VA; [3]National Toxicology Program, NIEHS, Research Triangle Park, NC.

9:00 **Introduction.** Matthew Smith

#2467 9:05 **Overview of Concepts and Strategies Needed for Assessing the Safety of Nanoscale Materials.** *N. J. Walker*. National Toxicology Program, NIEHS, NIH, Research Triangle Park, NC.

#2468 9:25 **Molecular Dynamics Simulations with Advanced Sampling Techniques to Study Nanoparticle-Membrane Interactions.** *M. Philbert*[2], P. Elvati[1], K. Russ[2], and A. Violi[1]. [1]Mechanical Engineering, University of Michigan, Ann Arbor, MI; [2]Toxicology Program, University of Michigan, Ann Arbor, MI.

#2469 10:00 **Evaluating the Local and Systemic Immunomodulatory Effects of Nanomaterials.** *M. J. Smith*[1,2], *D. R. Germolec*[3], *C. E. McLoughlin*[1,4], *W. Auttachoat*[1], and *K. L. White*[1,2]. [1]Pharmacology and Toxicology, Virginia Commonwealth University, Richmond, VA; [2]ImmunoTox, Inc, Richmond, VA; [3]National Toxicology Program, NIEHS, Research Triangle Park, NC; [4]Biomedical Engineering, Virginia Commonwealth University, Richmond, VA.

Abstract #

#2470 10:35 **Mast Cell Directed Nanomaterial Toxicity.** *J. M. Brown*[1], *X. Wang*[1], R. Urankar[2], *C. J. Wingard*[2], and *P. Katwa*[1]. [1]Pharmacology & Toxicology, East Carolina University, Greenville, NC; [2]Physiology, East Carolina University, Greenville, NC.

#2471 11:10 **Phenotypically Profiling the Factors Affecting the Pharmacokinetics and Pharmacodynamics of Nanoparticle Agents in Preclinical Models and in Patients.** W. Zamboni, W. Caron, G. Song, P. Kumar, J. Lay, and P. Gehrig. Eshelman School of Pharmacy, University of North Carolina at Chapel Hill, Chapel Hill, NC. Sponsor: *M. Smith*.

Thursday Morning, March 14
9:00 AM to 11:45 AM
Room 217 C&D

S

Innovations in Applied Toxicology (IAT) Session

Symposium Session: Modeling Human Genetic Variability and Susceptibility in the Laboratory

Molecular Basis of Genetic Variability and Susceptibility to Toxicants

Chairperson(s): *Richard P. Woychik, NIEHS, Research Triangle Park, NC, and David Threadgill, North Carolina State University, Raleigh, NC.*

Sponsor:
Risk Assessment Specialty Section

Endorsed by:
Biological Modeling Specialty Section
***In Vitro* and Alternative Methods Specialty Section**
Mechanisms Specialty Section
Regulatory and Safety Evaluation Specialty Section

Within a population of genetically heterogeneous individuals, a range of responses is observed for environmental exposures. The observed variability in response is attributable to extrinsic and intrinsic factors, including individual differences in exposure to environmental stressors and genetic/epigenetic heterogeneity, respectively. Current risk assessment practice is to account for interindividual variability with default uncertainty factors (e.g., a ten-fold decrease in allowable exposure to protect the most sensitive subpopulations), even though these defaults are seldom supported by scientific evidence. Advances in exposure science and molecular genetics are greatly increasing our ability to characterize intrinsic differences among individuals in their exposure and response to toxicants. This symposium highlights several novel and exciting approaches in safety evaluation that utilize recent advances in genetics. First, recent collaborative efforts in the complex traits community have led to the development of several new, powerful mouse resources that greatly facilitate the identification of allelic variants of genes associated with differential response to toxic exposure through genotype-phenotype associations. Second, several laboratories, including the National Toxicology Program, have begun applying these new mouse models of human population diversity to studies on the molecular mechanisms of interindividual variability in chemical metabolism and toxicity. Third, the ability to generate induced pluripotent stem (iPS) cells from population-derived human cell resources, as well as the availability of embryonic stem (ES) and iPS cells from mouse strains, makes it possible to conduct *in vitro* studies to investigate interindividual differences in resistance and susceptibility to xenobiotic exposures. Ultimately, these new approaches should greatly enhance our ability to characterize variability in response to toxicants and to identify those genes and pathways that contribute significantly to the observed differential responses to environmental exposures in humans.

#2472 9:00 **Modeling Human Genetic Variability and Susceptibility in the Laboratory.** *R. Woychik*[1], and *D. Threadgill*[2]. [1]NIEHS, Research Triangle Park, NC; [2]North Carolina State University, Raleigh, NC.

9:00 **Introduction.** Richard Woychik

Program Description (Continued)

Abstract #

#2473 9:15 **Modeling Genetic Heterogeneity to Understand Susceptibility to Chemical Combinations: A Mouse Population-Based Study Using Trichloroethylene (TCE) and Inorganic Arsenic (iAS).** *D. Threadgill*. North Carolina State University, Raleigh, NC.

#2474 9:40 **The Use of Population-Based Inbred Panels and Diversity Outbred Mouse Models to Explore Individual Variability and Toxicity to Benzene.** *J. E. French*. Division of the National Toxicology Program, NIEHS, Research Triangle Park, NC.

#2475 10:05 **Modeling Genetic Variability in Response to Environmental Toxicants Using Mouse ES Cells *In Vitro*.** *T. Choi*. Predictive Biology, Inc., Carlsbad, CA.

#2476 10:30 **The 1,000 Genomes *In Vitro* Toxicology Project: Quantitative High-Throughput Screening for Chemical Toxicity in a Population-Based *In Vitro* Model.** *I. Rusyn*. University of North Carolina at Chapel Hill, Chapel Hill, NC.

#2477 10:55 **Opportunities and Challenges to Incorporating Genetic Variability Data in Risk Assessment.** W. A. Chiu. US EPA, Washington DC. Sponsor: *R. Tice*.

11:20 **Panel Discussion/Q&A.**

Thursday Morning, March 14
9:00 AM to 11:45 AM
Room 214 C&D

S

Symposium Session: Role of Air Pollution As a Risk Factor for Central Nervous System Diseases and Disorders

Molecular Basis of Genetic Variability and Susceptibility to Toxicants

Chairperson(s): *Deborah Cory-Slechta, University of Rochester School of Medicine, Rochester, NY, and Michelle L. Block, Virginia Commonwealth University, Richmond, VA.*

Sponsor:
Neurotoxicology Specialty Section

Endorsed by:
Inhalation and Respiratory Specialty Section
Mixtures Specialty Section

Increasing evidence suggests that many of the adverse consequences of air pollutants extend beyond the lungs and indeed can target the brain where they produce many of the same types of inflammatory and other adverse consequences as documented in the lungs. Such findings have been variously described in experimental models for exposures such as the metal constituents of the ultrafine particulate matter of air pollution, for diesel exhaust and for ozone. Both direct effects via constituents of air contaminants translocated to the CNS and indirect effects via induction of systemic acute phase responses have to be considered. In addition, epidemiological studies have now begun to report associations of traffic- and combustion-related air pollutants with cognitive deficits in children. While our understanding of the extent of such impacts is still quite limited, these highly provocative findings could suggest that air pollution has been a greatly underappreciated risk factor for neurodevelopmental or neurodegenerative diseases. This symposium will present findings from experimental models describing the CNS toxicity of concentrated ultrafine particles in adults and in post-natally-exposed rodent models in relation to neurodevelopmental and neurodegenerative consequences, and of ozone in the context of Parkinson's disease. In addition, recent epidemiological findings linking residential proximity to freeway with autism will be presented. The intent of the symposium is to stimulate discussion especially in the context of future research needs in this rapidly emerging area of neurotoxicology which requires a multi-

Abstract #

disciplinary approach involving expertise in the toxicology of the CNS, air pollution, mixtures, and nanoparticles in order to conduct appropriate risk assessment.

#2478 9:00 **Role of Air Pollution As a Risk Factor for Central Nervous System Diseases and Disorders.** *D. A. Cory-Slechta*. Environmental Medicine, University of Rochester Medical School, Rochester, NY.

9:00 **Introduction.** Deborah Cory-Slechta

#2479 9:05 **CNS Consequences of Postnatal Exposure to UFP.** *D. A. Cory-Slechta*, and *J. L. Allen*. Environmental Medicine, University of Rochester Medical School, Rochester, NY.

#2480 9:35 **Microglia and the Peripheral Immune Response in Diesel Exhaust-Induced Neuropathology.** *M. L. Block*. Anatomy & Neurobiology, Virginia Commonwealth University, Richmond, VA.

#2481 10:05 **Particle Translocation As an Explanation for the Adverse Effects of Inhaled Particulates in the CNS.** *A. Elder*. Environmental Medicine, University of Rochester, Rochester, NY.

#2482 10:35 **Does Air Pollution Exposure Increase Risk for Autism?** I. Hertz-Picciotto[1], H. E. Volk[2], and R. S. McConnell[2]. [1]MIND Institute & Center for Children's Environmental Health, University of California Davis, Davis, CA; [2]Center for Children's Environmental Health, University of Southern California, Los Angeles, CA. Sponsor: *D. Cory-Slechta*.

#2483 11:05 **Ozone Pollution, Oxidative Stress, and Dysregulation of Inflammatory Responses in Rat Hippocampus.** S. Rivas-Arancibia. Fisiología, Facultad de Medicina, Universidad Nacional Autónoma de México, México City, Mexico. Sponsor: *D. Cory-Slechta*.

11:35 **Panel Discussion/Q&A.**

Thursday Morning, March 14
9:00 AM to 11:45 AM
Room 205

S

Symposium Session: Translational Methods to Assess the Safety of Natural Health Products, Including Traditional Medicines and Dietary Supplements

Chairperson(s): *James C. Griffiths, US Pharmacopeia, Rockville, MD, and Scott A. Jordan, Health Canada, Marketed Health Products Directorate, Ottawa, ON, Canada.*

Sponsor:
Food Safety Specialty Section

Endorsed by:
American Association of Chinese in Toxicology Special Interest Group
Clinical and Translational Toxicology Specialty Section
Mixtures Specialty Section
Regulatory and Safety Evaluation Specialty Section

Globally, ~80% of the world's population relies upon traditional medicines as part of standard healthcare; ~100 million Americans spend ~$28 billion annually to consume herbals, vitamins, minerals, amino acids, and other naturally occurring products in the form of dietary supplements, botanical drugs, and natural health products. The complexity of mixtures with variance in composition and quality presents a challenge for risk practitioners. To address these issues, new methodologies and predictive technologies are being developed, tested and validated to mitigate risk of human toxicity

Program Description (Continued)

Abstract #

and effectively increase the quality of information useful for application in safety assessments. Many of these methods are already reflected in multiagency government initiatives. Such methods are referred to as "translational" for making use of and extrapolating data from scientifically defensible approaches towards establishing human safety and use of viable products. In this symposium, various *in vitro*, *in vivo*, state-of-the-art *in silico* (computational), and 'omic methodologies will be presented. Discussion will cover case studies and regulatory science activities at US FDA/CDER and NCTR including conventional toxicological and computational assessments of individual chemical constituents and mixtures. Computational tools to deconvolute complexities and predict molecular targets for constituent phytochemicals will also be highlighted. Speakers will also address how the United States Pharmacopeia (USP) conducts evidence-based reviews on the safety of dietary supplements and how to couple data from *in silico* structure-based methods to compliment and strengthen evidence and support committee-based human expert decision making regarding the suitability of dietary supplements for monograph development on product quality. Collectively, these presentations will provide a global picture of the state and utility of modern methods for assessing toxicity and safety of these products.

#2484	9:00	**Translational Methods to Assess the Safety of Natural Health Products, Including Traditional Medicines and Dietary Supplements.** *J. C. Griffiths*[1], and *S. A. Jordan*[2]. [1]Doc Standards, US Pharmacopeia, Rockville, MD; [2]Marketed Health Products, Health Canada, Ottawa, ON, Canada.
	9:00	**Introduction.** James Griffiths
#2485	9:05	**Session Overview: The Promise of Translational and Integrative Safety Assessments of Dietary Supplements, Traditional Medicines, and Herbal Drugs.** *S. A. Jordan*. Marketed Health Products, Health Canada, Ottawa, ON, Canada.
#2486	9:15	***In Silico* Methods As Translational Tools for Supporting the Safety Assessment of Natural Health Products.** L. G. Valerio. CDER/Office of Pharmaceutical Science, US FDA, White Oak, MD. Sponsor: *J. Griffiths*.
#2487	9:42	***In Vitro* and *In Vivo* Approaches for Assessing the Safety of Natural Health Products.** *W. F. Salminen*. Center for Hepatotoxicology, NCTR, US FDA, Benton, AR.
#2488	10:09	**Computational Methods Linking Traditional Chinese Medicine (TCM) and Western Therapeutics.** *D. E. Johnson*. Molecular Toxicology, University of California Berkeley, Berkeley, CA.
#2489	10:36	**Herbogenomics As a Translational Method for the Safety Assessment of the Complex Mixtures in Traditional Chinese Medicines.** *Y. Kang*. Department of Pharmacology and Toxicology, University of Louisville School of Medicine, Louisville, KY.
#2490	11:03	**Evidence-Based Reviews As a Method for Assessing the Safety of Dietary Supplements.** M. L. Hardy. Center for Integrative Medicine, University of California Los Angeles, Los Angeles, CA. Sponsor: *J. Griffiths*.
	11:30	**Panel Discussion/Q&A.**

Abstract #

Thursday Morning, March 14
9:00 AM to 11:45 AM
Room 206

W

Workshop Session: Are We Like Rodents, Rabbits, or Something Else? Mechanisms of Developmental and Reproductive Toxicity across Species

Regulatory Science: Advancing New Approaches for Hazard Identification and Risk Assessment

Chairperson(s): *Reza J. Rasoulpour, The Dow Chemical Company, Midland, MI, and Kamin Johnson, Alfred I duPont Hospital for Children, Wilmington, DE.*

Sponsor:
Reproductive and Developmental Toxicology Specialty Section

Endorsed by:
Biological Modeling Specialty Section
Comparative and Veterinary Specialty Section
Mechanisms Specialty Section
Neurotoxicology Specialty Section
Regulatory and Safety Evaluation Specialty Section

Given the inherent complexity of embryo/fetal development and reproductive biology, developmental and reproductive toxicity (DART) hazard identification and research still heavily relies on animal models. Typically, this type of research is conducted in rodents (e.g., mouse and rat) as well as nonrodent species (e.g., rabbit and nonhuman primate), which, in the face of toxicity findings, raises the question of relevance to humans. Are we more like mice, rats, or other model organisms? Not surprisingly, answering this question is a challenge, and the scientific approach may be quite different depending upon the biological system and the level of mechanistic information available. However, within this challenge is an opportunity to understand the toxicokinetic and toxicodynamic differences between the species and provide the appropriate context for developmental and reproductive findings. Providing this context can directly impact the risk assessment and regulatory decision-making process. This workshop will highlight several different approaches to relate animal reproductive and developmental toxicity findings to human health. Speakers in fields of basic research, product safety testing, epidemiology, and physiologically-based pharmacokinetic modeling will address the central theme of the workshop, which is applying different experimental strategies to analyze cross-species toxicity. Within each presentation, potential regulatory implications and feedback from agencies, when available, will be addressed. The expected outcomes of the workshop are an increased understanding of the different approaches to dissect complex toxicity mechanisms and to take the next step towards cross-species comparisons that impact human relevance and regulatory decisions.

#2491	9:00	**Are We Like Rodents, Rabbits, or Something Else? Mechanisms of Developmental and Reproductive Toxicity across Species.** *R. J. Rasoulpour*[1], *K. Johnson*[3], *S. Campion*[2], *C. Timchalk*[4], and *J. E. Goodman*[5]. [1]The Dow Chemical Company, Midland, MI; [2]Pfizer Global, Groton, CT; [3]Alfred I duPont Hospital for Children, Wilmington, DE; [4]Pacific Northwest National Laboratory, Richland, WA; [5]Gradient, Cambridge, MA.
	9:00	**Introduction.** Reza Rasoulpour
#2492	9:05	**Challenges in Elucidating Developmental Toxicity Mechanisms in the Context of Guideline Safety Assessment Studies.** *R. J. Rasoulpour*. Developmental and Reproductive Toxicology, The Dow Chemical Company, Midland, MI.
#2493	9:37	**Endocrine Disruption Mediated Developmental Toxicity in Mice versus Rats: Implications for Humans.** *K. Johnson*. Alfred I duPont Hospital for Children, Wilmington, DE.

Program Description (Continued)

Abstract #

#2494 10:09 **Case Studies on Testis Toxicity in Rodent Models and Risk Management Strategies.** *S. Campion.* Pfizer Global, Groton, CT.

#2495 10:41 **Physiologically-Based Pharmacokinetic/ Pharmacodynamic Modeling of Developmental Toxicity.** *C. Timchalk.* Pacific Northwest National Laboratory, Richland, WA.

#2496 11:13 **Using Epidemiology to Analyze Neurodevelopmental Toxicity across Species.** *J. E. Goodman.* Gradient, Cambridge, MA.

Thursday Morning, March 14
9:00 AM to 11:45 AM
Room 217 A&B

W

Workshop Session: Cumulative Risk: Toxicity and Interactions of Physical and Chemical Stressors

Regulatory Science: Advancing New Approaches for Hazard Identification and Risk Assessment

Chairperson(s): *Jane Ellen Simmons, US EPA, Research Triangle Park, NC, and Cynthia Rider, NIEHS, Research Triangle Park, NC.*

Sponsor:
Mixtures Specialty Section

Endorsed by:
Occupational and Public Health Specialty Section
Regulatory and Safety Evaluation Specialty Section
Risk Assessment Specialty Section

Recent efforts to update cumulative risk assessment procedures and develop community-based risk assessment methods reflect increased interest in incorporating the totality of variables affecting human health into the risk assessment process. One key roadblock in advancement is uncertainty as to how nonchemical stressors behave in relationship to chemical stressors. An assumption that simplifies incorporation of nonchemical stressors into current risk assessment paradigms is that nonchemical stressors act in the same manner as chemicals. However, evidence is required to support this assumption. The term nonchemical stressors encompasses a diverse set of variables including physical stressors, such as noise, temperature, disease, and radiation, as well as psychosocial stressors, which involve perception of circumstances. Physical stressors offer a reasonable starting place for measuring the effects of nonchemical stressors and their modulation of chemical effects (and vice versa), as they clearly differ from chemical stressors, present many diverse and highly-relevant stressors, and "doses" of many physical stressors are easily quantifiable. There is a commonly held belief that virtually nothing is known about the impact of nonchemical stressors on chemical-mediated toxicity or the joint impact of co-exposure to chemical and nonchemical stressors. While generally true, there are several instances where a substantial body of evidence exists. The objective is to provide expert overviews, for those chemical and physical stressors that have been sufficiently studied to gain at least a limited understanding of their joint impact. In addition to providing the current state of knowledge, data gaps will be identified that should be addressed to facilitate inclusion of nonchemical stressors in risk assessment. (This abstract does not reflect US EPA or NIEHS policy.)

#2497 9:00 **Cumulative Risk: Toxicity and Interactions of Physical and Chemical Stressors.** *J. Simmons*[1], and *C. Rider*[2]. [1]NHEERL, US EPA, Research Triangle Park, NC; [2]NTP, NIEHS, Research Triangle Park, NC.

9:00 **Introduction.** Jane Ellen Simmons

#2498 9:08 **Cumulative Risk: Chemicals and Infectious Disease.** *M. Selgrade.* ICF International, Durham, NC.

Abstract #

#2499 9:35 **Enhancement of Noise-Induced Hearing Loss by Chemicals.** T. C. Morata. Division of Applied Research & Technology, NIOSH, Cincinnati, OH. Sponsor: *J. Simmons.*

#2500 10:02 **Exacerbation of Toxicity of Air Pollutants and Pesticides by Thermal Stress.** *C. J. Gordon*, C. Aydin, and A. F. Johnstone. Toxicity Assessment Division, US EPA, Research Triangle Park, NC.

#2501 10:29 **Modulation of X-Ray Mediated Testicular Toxicity by Chemical Exposure.** *K. Boekelheide.* Brown University, Providence, RI.

#2502 10:56 **Sunlight Enhancement of the Toxicity of Air Pollutant Mixtures.** *K. G. Sexton*[1], J. Zavala[1], B. O'Brien[1], W. Vizuete[1], *R. Fry*[1], *I. Jaspers*[1,2], and *I. Rusyn*[1]. [1]Environmental Sciences & Engineering, University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]Center for Environmental Medicine and Lung Biology, University of North Carolina at Chapel Hill, Chapel Hill, NC.

11:23 **Panel Discussion/Q&A.** Cynthia Rider

Thursday Morning, March 14
9:00 AM to 11:45 AM
Room 214 A&B

W

Workshop Session: Mechanistic, Occupational, and Clinical Aspects of Lead Exposure

Biomarkers for Exposure Assessment, Safety Evaluation, and Translational Medicine

Chairperson(s): *Allister Vale, University of Birmingham, Birmingham, United Kingdom, and John Benitez, Vanderbilt University, Nashville, TN.*

Sponsor:
Clinical and Translational Toxicology Specialty Section

Endorsed by:
Disease Prevention Task Force
Metal Specialty Section
Occupational and Public Health Specialty Section

The mechanisms of lead toxicity are increasingly being explained by the ubiquitous reactivity of the bivalent lead cation and its ability to substitute for essential cations, notably calcium and zinc. By these means, lead complexes with important functional groups including thiol and carboxyl groups, and damages many fundamental cell processes and structures including enzyme pathways, phospholipid integrity, ion channel specificity and control, and intrinsic protective systems including free radical scavengers and cellular repair mechanisms. Owing to the large sample sizes involved and its nationally-representative nature, NHANES has been the subject of a number of epidemiological analyses relating blood lead concentrations to a range of adverse outcomes such as blood pressure, renal function, auditory thresholds, and a host of other cardiovascular, neurobehavioral, and other developmental or adult outcomes. Some practitioners are now proposing that, as the NHANES data suggest that lead concentrations even less than 5 μg/dL (0.24 μmol/L) can have some health consequences, chelation should be performed at even very low lead concentrations. Is this an appropriate interpretation of these data? There is concern that the occupational intervention concentrations worldwide are not only unsupported scientifically and clinically but also have been set at concentrations that permit unsafe practices to continue. A group of experts has proposed that workers should be removed from occupational exposure if a single blood lead concentration exceeds 30 μg/dL (1.45 μmol/L), or if two successive blood lead concentrations measured over a four-week interval equal or exceed 20 μg/dL (0.97 μmol/L). Will these recommendations prevent clinically significant occupational lead exposure? Due to the paucity of clinical data, there is controversy about the lead concentration at which chelation therapy should be instituted in adults when exposure prevention has failed, the antidote to be used, and the most effective regimen to be employed.

Program Description (Continued)

Abstract #		
#2503	9:00	**Mechanistic, Occupational, and Clinical Aspects of Lead Exposure.** *A. Vale*. School of Biosciences, University of Birmingham, Birmingham, United Kingdom.
	9:00	**Introduction.** Allister Vale
#2504	9:05	**Novel Mechanisms of Toxicity.** *R. Lantz*. Cellular and Molecular Medicine, University of Arizona, Tuscon, AZ.
#2505	9:41	**Threshold Toxic Dose: What Can We Learn from the NHANES Studies?** *H. Hu*. Dalla Lana School of Public Health, University of Toronto, Toronto, ON, Canada.
#2506	10:17	**Occupational Exposure Limits: Do They Protect Workers?** *M. Kosnett*. Division of Clinical Pharmacology and Toxicology, University of Colorado Denver, Denver, CO.
#2507	10:53	**Chelation Therapy for Lead Poisoning: Unanswered Questions and Controversies.** *S. M. Bradberry*. West Midlands Poisons Unit, City Hospital, Birmingham, United Kingdom.
	11:29	**Panel Discussion/Q&A.**

Thursday Morning, March 14
9:00 AM to 11:45 AM
Room 207

W

Workshop Session: Ocular Medical Devices and Ocular Drug Delivery Systems: Challenges and Opportunities

Chairperson(s): *James A. Render, NAMSA, Northwood, OH, and Anne Wiese, Allergan, Irvine, CA.*

Sponsor:
Medical Device Specialty Section
Ocular Toxicology Specialty Section

Endorsed by:
Biotechnology Specialty Section
Regulatory and Safety Evaluation Specialty Section
Toxicologic and Exploratory Pathology Specialty Section

The eye is a unique organ composed of many different structures working together to facilitate vision. The maintenance of clear vision during aging is threatened by various physiological changes (e.g., presbyopia) or diseases (e.g., age-related macular degeneration). The need for treatments is of increasing importance as the size of the aging population grows. The National Eye Institute predicts that by 2020, more than 50 million Americans will be impacted by age-related eye disease. Some of these conditions have been overcome through the use of medical devices. Ocular medical devices consist of instruments, apparatuses, appliances, and materials. Some devices are purely structural; whereas, other medical devices are a part of a delivery system that releases a drug. The five presentations in this program are designed to educate the audience on the therapeutic, safety, and regulatory challenges of developing ocular medical devices and drug delivery systems. The first presentation will cover the special requirements for developing contact lenses and contact lens solutions. The second presentation will describe the challenges associated with accommodative intraocular lenses (IOLs). The third presentation will discuss the ocular barriers (e.g., blood-eye-barrier) and how ocular medical devices and sustained release drug formulations have been designed to address these barriers with respect to developing protein therapeutics. Development of and regulatory challenges associated with a unique biodegradable small molecule ocular drug/injection applicator delivery system will be discussed in the fourth presentation. The symposium will conclude with a presentation that discusses the safety and regulatory requirements and complexities pertaining to ocular medical devices and ocular drug delivery systems.

Abstract #		
#2508	9:00	**Ocular Medical Devices and Ocular Drug Delivery Systems: Challenges and Opportunities.** *J. A. Render*. Toxicology, NAMSA, Northwood, OH.
	9:00	**Introduction.** James Render
#2509	9:05	**Assessment of the Ocular Safety of Contact Lenses and Lens Solutions.** *M. E. Richardson*. Nonclinical Safety, Bausch & Lomb, Rochester, NY.
#2510	9:34	**Accommodative Intraocular Lenses: A New Class of IOLs with a New Class of Challenges.** A. Glasser. College of Optometry, University of Houston, Houston, TX. Sponsor: *J. Render*.
#2511	10:03	**Safety Assessment Strategies and Challenges for Developing Intravitreally Administered Biologics.** *E. A. Thackaberry*. Safety Assessment, Genentech, Inc, San Francisco, CA.
#2512	10:32	**Development and Regulatory Considerations for an Ocular Drug Release System for Ocular Disease.** *A. Wiese*. Nonclinical Safety, Allergan, Irvine, CA.
#2513	11:01	**Regulatory Considerations in Ocular Medical Device and Drug Delivery Systems Development.** *C. Ghosh*. Center for Drug Evaluation Research, US FDA, Silver Springs, MD.
	11:30	**Panel Discussion/Q&A.**

Notes

THANK YOU

ATTENDEES

On behalf of the 2012–2013 SOT Council, thank you for attending the 2013 SOT Annual Meeting and ToxExpo in San Antonio, Texas. 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.

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Rafael A. Ponce Jr., Member (2012–2015)
Dana L. Shuey, Member (2011–2014)
Leshuai Wu Zhang, Member (2012–2015)
Emily G. Notch, Postdoctoral Representative (2012–2013)
Jose A. Torres, Graduate Student Representative (2012–2013)
Dori R. Germolec*
Betty Eidemiller**

Education Committee: K–12 Subcommittee
Maureen R. Gwinn, Chair (2012–2013), Member (2009–2013)
Angela Slitt, Co-Chair (2012–2013), Member (2011–2014)
Joanna M. Matheson, Vice Chair (2012–2013), Member (2009–2013)
Daniel E. Arrieta, Member (2011–2014)
Therese K. Fick, Member (2011–2014)
Toufan Parman, Member (2011–2013)
Rafael A. Ponce Jr., Member (2011–2013)
Dana L. Shuey, Education Liaison (2012–2014)
Dori R. Germolec*
Betty Eidemiller**

Elected and Appointed Committees (Continued)

Education Subcommittee: ToxLearn Work Group
Phil Wexler, Chair (2004–2013), Member (2004–2013)
John H. Duffus, Member (2004–2013)
Tammy R. Dugas, Member (2006–2013)
Sue M. Ford, Member (2006–2013)
Pertti J. Hakkinen, Member (2012–2013)
Dona Jane Huggins, Member (2006–2013)
Michael A. Kamrin, Member (2004–2013)
Sidhartha D. Ray, Member (2011–2013)
Paul Wright, Member (2004–2013)
Jose A. Torres, *ad hoc* Member (2012–2013)
Thomas A. Lewandowski, Education Committee Liaison (2012–2013)
Dori R. Germolec*
Betty Eidemiller**

Education Subcommittee: Undergraduate Education
Sue M. Ford, Chair (2011–2013), Member (2009–2013)
Mindy F. Reynolds, Co-Chair (2012–2013), Member (2009–2015)
Teresa G. Dodd-Butera, Member (2009–2013)
Joshua P. Gray, Member (2012–2015)
Wesley G. N. Gray, Member (2009–2013)
Sara Heggland, Member (2009-2013)
Jean C. Pfau, Education Committee Liaison (2010–2013)
Dori R. Germolec*
Betty Eidemiller**

Endowment Fund Board
Jeff Handler, Chair (2012–2013), Member (2011–2014)
Norman J. Barlow, Member (2012–2015)
Lawrence R. Curtis, Member (2010–2014)
Michael P. Holsapple, Member (2011–2013)
Charlene A. McQueen, Member (2011–2013)
John B. Morris, Member (2012–2016)
I. Glenn Sipes, Member (2012–2015)
Robert G. Tardiff, Member (2009–2013)
Kendall B. Wallace, Member (2011–2014)
Denise Robinson Gravatt, *Ex-Officio* Member (2012–2014)
William Slikker Jr., *Ex-Officio* Member (2012–2013)
Shawn D. Lamb, *Ex-Officio* Member (2006–2013)
Jon C. Cook*, Member (2012–2014)
Clarissa Russell Wilson**

Finance Committee
John B. Morris*, Chair (2011–2013), Member (2010–2013)
Lois D. Lehman-McKeeman, Member (2012–2013)
Craig Marcus, Member (2010–2013)
Anthony M. Ndifor, Member (2012–2015)
Denise Robinson Gravatt, Member (2012–2013)
William Slikker Jr., Member (2011–2013)
Karen L. Steinmetz, Member (2011–2014)
Shawn Douglas Lamb**
Clarissa Russell Wilson**

Government Liaison Groups

ATSDR/NCEH/CDC
John C. Lipscomb, Chair (2012–2013), Member (2011–2013)
Peter L. Goering, Member (2010–2013)
Norbert E. Kaminski, Member (2012–2013)
Judith T. Zelikoff, Member (2011–2013)
Moiz Mumtaz, Agency Contact (2011–2013)
John S. Wheeler, Agency Contact (2011–2013)
Martha Lindauer**

Department of Defense/Society of Toxicology Government Liaison Group
Donald A. Fox, Chair (2012–2013), Member (2012–2013)
Gail Darlene Chapman, Member (2012–2013)
Janis E. Hulla, Member (2012–2013)
Saber M. Hussain, Member (2012–2013)
John C. Lipscomb, Member (2012–2013)
Harry Salem, Department Contact (2012–2013)
Martha Lindauer**

EPA
John B. Morris, Chair (2011–2013), Member (2012–2013)
Dori R. Germolec, Member (2012–2013)
Lois D. Lehman-McKeeman, Member (2011–2013)
Michael P. Waalkes, Member (2012–2013)
Vicki Dellarco, Agency Contact (2012–2013)
Harold Zenick, Agency Contact (2010–2013)
Martha Lindauer**

FDA/NCTR
Jon C. Cook, Chair (2011–2013), Member (2010–2013)
Dori R. Germolec, Member (2011–2013)
Michael P. Holsapple, Member (2010–2013)
Denise Robinson Gravatt, Member (2012–2013)
Ivan Rusyn, Member (2012–2013)
Suzanne Compton Fitzpatrick, Agency Contact (2011–2013)
Margaret Ann Miller, Agency Contact (2010–2013)
Martha Lindauer**

NICHD
Judith T. Zelikoff, Chair (2011–2013)
Lorrene A. Buckley, Member (2012–2013)
Donald A. Fox, Member (2012–2013)
Lisa Kaeser, Agency Contact (2010–2013)
Martha Lindauer**

NIEHS
Donald A. Fox, Chair (2011–2013), Member (2010–2013)
Jon C. Cook, Member (2010–2013)
Lois D. Lehman-McKeeman, Member (2011–2013)
John B. Morris, Member (2012–2013)
Ivan Rusyn, Member (2012–2013)
John M. Balbus, Agency Contact (2010–2013)
Christopher P. Weis, Agency Contact (2011–2013)
Martha Lindauer**

NIOSH
Denise Robinson Gravatt, Chair (2012–2013), Member (2012–2013)
Peter L. Goering, Member (2010–2013)
Norbert E. Kaminski, Member (2012–2013)
Judith T. Zelikoff, Member (2011–2013)
Vincent Castranova, Agency Contact (2012–2013)
Martha Lindauer**

Graduate Student Leadership Committee (GSLC) Executive Board
Tammy Lynn Palenski, Chair (2012–2013), Member (2012–2013)
Christin M. Grabinski, Communications Subcommittee Chair (2012–2013)
Kimberly N. Herman, Professional Development Subcommittee Chair (2012–2013)
Sarah Elizabeth Lacher, Programming Subcommittee Chair (2012–2013)
Jeremy Kevin Larson, Secretary (2012–2013)
Donald A. Fox*
Ivan Rusyn*
David Rossé**

* Council Contact
** Staff Liaison
TBD=To be determined

LEADERSHIP

Elected and Appointed Committees (Continued)

Graduate Student Leadership Committee (GSLC)

Alison J. Abritis, Southeastern (2012–2013)
Joshua L. Allen, Neurotoxicology (2012–2013)
Brittany Lynn Baisch, Women in Toxicology (2012–2013)
Kristina L. Blanke, Midwest (2012–2013)
Jessica Bradley, Cardiovascular Toxicology (2012–2013)
Miyuki Breen, Biological Modeling (2012–2013)
Traci Brown, Occupational and Public Health (2012–2013)
Mark Canet, Mountain West (2012–2013)
Michelle A. Carroll-Turpin, South Central (2012–2013)
Natasha Rene Catlin, Northeast (2012–2013)
Weimin Chen, American Association of Chinese in Toxicology (2012–2013)
Shirisha Chittiboyina, Association of Scientists of Indian Origin (2012–2013)
Justin A. Colacino, Stem Cells (2012–2013)
Brenna Montague Flannery, Food Safety (2012–2013)
Sanket Gadhia, *In Vitro* and Alternative Methods (2012–2013)
Eugene A. Gibbs-Flournoy, Toxicologists of African Origin (2012–2013)
Christin M. Grabinski, Comm. Subcommittee Chair (2012-2013)
Nanotoxicology (2012–2013)
Kimberly N. Herman, North Carolina and Professional Development Subcommittee Chair (2012–2013)
Holly Marie Hewitt, Northland (2012–2013)
Forrest C. Jessop, Medical Device (2012–2013)
Smitha Krishnan Infante, Ethical, Legal, and Social Issues (2012–2013)
Swetha Inturi, Dermal Toxicology (2012–2013)
Jong Sung Kim, Korean Toxicologists Association in America (2012–2013)
Greg Landry, Clinical and Translational Toxicology (2012–2013)
Jeremy Kevin Larson, Biotechnology (2012–2013)
Jingtao Lu, Comparative and Veterinary (2012–2013)
Ciara Martin, Southern California (2012–2013)
Mitchell Ryan McGill, Central States (2012–2013)
Marcy L. McNamara, Regulatory and Safety Evaluation (2012–2013)
Nicole Mitchell, Lone Star (2012–2013)
Sara M. Nowinski, Carcinogenesis (2012–2013)
Jackson Nteeba, Reproductive and Developmental Toxicology (2012–2013)
Abhishruti Saitu Parihar, National Capital Area (2012–2013)
Hannah Christine Pope-Varsalona, Allegheny-Erie (2012–2013)
Kyle Lauren Poulsen, Mechanisms (2012–2013)
Julia E. Rager, Mixtures (2012–2013)
Vincent Ramirez, Drug Discovery Toxicology (2012–2013)
Jessica Krystle Roberts, Molecular Biology (2012–2013)
Karilyn E. Sant, Michigan (2012–2013)
Laura C. Savery, Metals (2012–2013)
Kinta M. Serve, Immunotoxicology (2012–2013)
Ravikumar Atulkumar Sitapara, Mid-Atlantic (2012–2013)
Samantha J. Snow, Inhalation and Respiratory (2012–2013)
Marianna Stamou, Northern California (2012–2013)
Jose A. Torres, Risk Assessment (2012–2013)
Lisa Truong, Pacific Northwest (2012–2013)
Alessandro Venosa, Toxicologic and Exploratory Pathology (2012–2013)
René Viñas, Hispanic Organization of Toxicologists (2012–2013)
Gregory John Weber, Ohio Valley (2012–2013)
Donald A. Fox*
Ivan Rusyn*
David Rossé**

Graduate Student Leadership Committee (GSLC) Communications Subcommittee

Christin M. Grabinski, Chair (2012–2013)
Donald A. Fox*
David Rossé**

Graduate Student Leadership Committee (GSLC) Professional Development Subcommittee

Kimberly N. Herman, Chair (2012–2013)
Donald A. Fox*
David Rossé**

Graduate Student Leadership Committee (GSLC) Programming Subcommittee

Sarah Elizabeth Lacher, Chair (2012–2013)
Kristina L. Blanke, Secretary
Donald A. Fox*
David Rossé**

Historian

Hanspeter R. Witschi, Member (2010–2013)
Judith T. Zelikoff*
Clarissa Russell Wilson**

Nominating Group for Honorary Members

Jon C. Cook*, Chair (2012–2013), Member (2012–2014)
Michael P. Holsapple, Member (2011–2013)
Lois D. Lehman-McKeeman, Member (2012–2013)
Matthew J. Price**

Postdoctoral Assembly (PDA) Executive Board

Enrique Fuentes-Mattei, Chair (2012–2013), Member (2011–2013)
David Taylor Szabo, Vice Chair (2012–2013), Member (2012–2013)
Kelly J. Chandler, Treasurer (2012–2013)
Ebany J. Martinez-Finley, Secretary (2011–2013)
Bethany R. Hannas, Councilor (2012–2013)
Jorge Muñiz Ortiz, *ad hoc* Member (2012–2013)
Michael P. Waalkes*
Lorrene A. Buckley*
Susan D. Simmons**

Postdoctoral Assembly (PDA) Representatives

Regional Chapters

Allegheny-Erie: Phoebe Stapleton (2012–2013)
Central States: Julia Yue Cui (2012–2013)
Lake Ontario: TBD
Lone Star: Amelia Romoser (2012–2013)
Michigan: Schuyler T. Pike (2012–2013)
Mid-Atlantic: Jason L. Blum (2012–2013)
Midwest: Mary Jo Laws (2012–2013)
Mountain West: TBD
National Capital: Linnzi Katerina Marie Wright (2012–2013)
North Carolina: Jonathan Henry Shannahan (2012–2013)
Northeast: Emily G. Notch (2012–2013)
Northern California: Kathryn E. Page (2012–2013)
Northland: Kellie Ann Fay (2012–2013)
Ohio Valley: Yi Tan (2012–2013)
Pacific Northwest: Sean Michael Bugel (2012–2013)
South Central: Mark Jeremy Wilson (2012–2013)
Southeastern: Matthew D. Merrell (2012–2013)
Southern California: David J. Castro (2012–2013)

Special Interest Groups

American Association of Chinese in Toxicology: Xi Yang (2012–2013)
Association of Scientists of Indian Origin: Sheetal Thakur (2012–2013)
Hispanic Organization of Toxicologists: Azita K. Cuevas (2012–2013)
Korean Toxicologists Association in America: TBD
Toxicologists of African Origin: Clarisse S. Muenyi (2012–2013)
Women in Toxicology: Kristy Robin Kutanzi (2012–2013)

Elected and Appointed Committees (Continued)

Specialty Sections
Biological Modeling: Annie Lumen (2012–2013)
Biotechnology: Fanny L. Casado-Pena (2012–2013)
Carcinogenesis: Gayathri Chadalapaka (2012–2013)
Cardiovascular Toxicology: Alex P. Carll (2012–2013)
Clinical and Translational Toxicology: TBD
Comparative and Veterinary: Sachin Bhusari
Dermal Toxicology: E. Chepchumba ("Chep") Yego
Drug Discovery Toxicology: Li Zhan (2012–2013)
Ethical, Legal, and Social Issues: TBD
Food Safety: Natalie M. Johnson (2012–2013)
Immunotoxicology: Teri Alyn Girtsman (2012–2013)
In Vitro and Alternatives: Katie Beth Paul (2012–2013)
Inhalation and Respiratory: Jaime M. Cyphert (2012–2013)
Mechanisms: John Clarke (2012–2013)
Medical Device: TBD
Metals: Rachel J. Person (2012–2013)
Mixtures: Xianglu Han (2012–2013)
Molecular Biology: Igor Koturbash (2012–2013)
Nanotoxicology: Tina Marie Sager (2012–2013)
Neurotoxicology: Paul A. Eubig (2012–2013)
Occupational and Public Health: TBD
Ocular Toxicology: TBD
Regulatory and Safety Evaluation: Michael Christopher Boyle (2012–2013)
Reproductive and Developmental Toxicology: Wei Wang (2012–2013)
Risk Assessment: Roxanna Weil (2012–2013)
Stem Cells: Amy Skinner (2012–2013)
Toxicologic and Exploratory Pathology: Christopher Gibson (2012–2013)

Research Funding Committee
David C. Dorman, Chair (2012–2013), Member (2011–2014)
Michael Aschner, Member (2010–2013)
Jamie C. Dewitt, Member (2012–2015)
Richard K. Miller Sr., Member (2012–2015)
Robert A. Roth, Member (2011–2014)
Hollie I. Swanson, Member (2010–2013)
Donald A. Fox*
Martha Lindauer**

Scientific Program Committee
Lois D. Lehman-McKeeman*, Chair (2012–2013), Member (2011–2013)
Norbert E. Kaminski, Co-Chair (2012–2013)
Leigh Ann Burns Naas, Member (2009–2013)
Michael J. Carvan III, Member (2011–2015)
Paul M. D. Foster, Member (2009–2013)
Mary Beth Genter, Member (2012–2016)
B. Bhaskar Gollapudi, Member (2011–2015)
Paul C. Howard, Member (2012–2016)
Annie M. Jarabek, Member (2009–2013)
Abby A. Li, Member (2010–2014)
Donald R. Mattison, Member (2012–2016)
David Ross, Member (2011–2015)
James L. Stevens, Member (2010–2014)
Peter K. Working, Member (2010–2014)
April Brewer**

ToXchange Task Force
Robert S. DeWoskin, Chair (2011–2013)
Ofek Bar-Ilan, Member (2012–2013)
Sarah Campion, Member (2011–2013)
Betina J. Lew, Member (2011–2013)
Anne Elizabeth Loccisano, Member (2011–2013)
Jessica R. Placido, Member (2011–2013)
Dori R. Germolec*
Matthew J. Price**

ToxExpo Liaison Working Group
Lyric Boyle, Member (2011–2014)
Deborah Curry, Member (2011–2013)
Jay Gizzi, Member (2012–2013)
Brent Kovach, Member (2011–2014)
John B. Morris*
Denise Robinson Gravatt*
Tina Giovanini**

ToxSci Publishing Contract Negotiation Team
John B. Morris*, Chair (2012–2013)
Norbert E. Kaminski, Member (2012–2013)
Serrine S. Lau, Member (2012–2013)
Lois D. Lehman-McKeeman, Member (2012–2013)
Denise Robinson Gravatt, Member (2012–2013)
Shawn Douglas Lamb**

SOT Liaison Representatives
Michael P. Holsapple*
Shawn Douglas Lamb**

American Association for the Advancement of Science (AAAS) Representative
Yvonne P. Dragan, Member (2011–2014)

Association for Assessment and Accreditation of Laboratory Animal Care (AAALAC) Board of Trustees Representative
Loren D. Koller, Member (2009–2014)

International Union of Toxicology (IUTOX) Councilors
Jon C. Cook*, Member (2010–2013)
Jay I. Goodman, Member (2010–2013)
Michael P. Holsapple, Member (2010–2013)
William Slikker Jr., Member (2010–2013)
Cheryl Lyn Walker, Member (2010–2013)
Shawn Douglas Lamb**

Scientific Liaison Coalition
Thomas B. Knudsen, Chair (2012–2013)
Lois D. Lehman-McKeeman*
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
John Miller
Trevor M. Penning

American College of Medical Toxicology (ACMT)
John G. Benitez

American Society for Pharmacology and Experimental Therapeutics (ASPET)
Mary Vore

The Endocrine Society (ENDO)
Loretta L. Doan
Andrea C. Gore

Environmental Mutagen Society (EMS)
Rosalie K. Elespuru
Ofelia A. Olivero
Jeffrey Schwartz

International Society for the Study of Xenobiotics (ISSX)
Bill J. Smith

Elected and Appointed Committees (Continued)

Safety Pharmacology Society (SPS)
Mary Jeanne 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)
Sally Perreault Darney

Society of Toxicologic Pathology (STP)
Kevin S. McDorman
Thomas M. Monticello

Society of Toxicology (SOT)
David G. Kaufman
Kenneth L. Hastings
Paul B. Watkins

Teratology Society (TS)
John M. DeSesso
Lynnda Reid

Regional Chapter Officers

Allegheny-Erie (62*)
Timothy Nurkiewicz, President
Aaron Erdely, President-Elect
Aaron Barchowsky, Vice President
Robin E. Gandley, Secretary
William James Mackay, Treasurer
Kelly A. Brant, Past President/Councilor
James P. Fabisiak, Councilor
Jim Scabilloni, Councilor
Mark Weisberg, Councilor
Phoebe Stapleton, Postdoctoral Representative
Hannah Christine Pope-Varsalona, Student Representative

Central States (59*)
Thu Annelise Nguyen, President
Aileen F. Keating, Vice President/President-Elect
Hans-Joachin Lehmler, Secretary/Treasurer
Lora L. Arnold, Past President
Izabela Korwel, Councilor
Alan R. Parrish, Councilor
Apte M. Udayan, Councilor
Yue Cui, Postdoctoral Student Representative
Mitchell Ryan McGill, Student Representative

Lake Ontario (17*)
Mark Korchinski, President
Warren Foster, Vice President
James Gomes, Secretary/Treasurer

Lone Star (formerly Gulf Coast—86*)
Erica D. Bruce, President
Casey Wright, Vice President/Treasurer
Weimin Gao, Vice President-Elect
Moorthy Bhagavatula, Past President
Maureen McConnell, Councilor
Laura M. Plunkett, Councilor
Amelia Romoser, Postdoctoral Representative
Nicole Mitchell, Senior Student Representative

Michigan (140*)
Jeanne Y. Domoradzki, President
Paul C. Wilga, President-Elect
Bjorn A. Thorsrud, Past President
Shawn Seidel, Secretary/Treasurer
Robert G. Ellis-Hutchings, Councilor
Rita Loch-Caruso, Councilor
Brad L. Upham, Councilor
Schuyler T. Pike, Postdoctoral Representative
Karilyn E. Sant, Student Representative

Mid-Atlantic (399*)
Janet C. Gould, President
Ric Stanulis, Vice President
Conney Will Berger Jr., Vice President-Elect
Gloria B. Post, Secretary
Anne H. Chappelle, Treasurer
Raymond G. York, Past President
Diane Hardej, Councilor
Jedd Michael Hillegass, Councilor
Lin Mantell, Councilor
Jason L. Blum, Postdoctoral Representative
Ravikumar Atulkumar Sitapara, Senior Student Representative
Azita K. Cuevas, Junior Student Representative

Midwest (182*)
Susan M. Henwood, President
Gregory L. Erexson, President-Elect
Jennifer Olsen, Secretary
Lise I. Loberg, Treasurer
Christina R. Wilson, Past President
Joshua R. Edwards, Councilor
Laura Kreckler, Councilor
Yi Yang, Councilor
Ronnie L. Yeager, Councilor
Mary Jo Laws, Postdoctoral Representative
Kristina Lynn Blanke, Student Representative

Mountain West (103*)
Cynthia Ju, President
John Gregory Lamb, Vice President
Kevin Welch, Secretary/Treasurer
Donna D. Zhang, Past President
Mingyi W. Trimble, Councilor
Gensheng Wang, Councilor
Samantha Whitman, Postdoctoral Representative
Mark J. Canet, Student Representative

National Capital Area (216*)
Caroline Baier-Anderson, President
Bruce A. Fowler, Vice President
Erik R. Janus, Secretary
Christopher M. Sheth, Treasurer
Laurie E. Roszell, Past President
Melanie B. Biggs, Councilor
Syril D. Pettit, Councilor
Rosemary A. Schuh, Councilor
Linnzi Katerina Marie Wright, Postdoctoral Representative
Abhishruti Saitu Parihar, Student Representative

North Carolina (392*)
Michael F. Hughes, President
Jamie C. Dewitt, Vice President
Christie M. Sayes, Vice President-Elect
Brenda Faiola, Secretary/Treasurer
Darol E. Dodd, Past President
Danielle J. Carlin, Councilor
Erik J. Tokar, Councilor
Jonathan Henry Shannahan, Postdoctoral Representative
Kimberly Herman, Student Representative

Northeast (266*)
Sarah Campion, President
Nicole W. Hurst, Vice President
Ebru Caba, Secretary/Treasurer
Paul Nugent, Past President
Rosonald R. Bell, Councilor
Alexandros Papanikolaou, Councilor
Emily G. Notch, Postdoctoral Representative
Vincent Ramirez, Junior Student Representative
Natasha Rene Catlin, Student Representative

* Membership totals as printed in the most recent *Membership Directory*

Regional Chapter Officers (Continued)

Northern California (420*)
Jeffrey S. Tepper, President
Sushmita M. Chanda, Vice President
Donna M. Dambach, Vice President-Elect
Amy L. Lambert, Secretary
Amy H. Kim, Treasurer
Karen L. Steinmetz, Past President
Lisa D. Beilke, Councilor
Luoping Zhang, Councilor
Kathryn E. Page, Postdoctoral Representative
Madisa Macon, Student Representative

Northland (76*)
Steven C. Gordon, President
Kelly P. Coleman, President-Elect
Ann M. Johnson, Secretary/Treasurer
Nathan R. Pechacek, Past President
Brent R. Kobielush, Councilor
Peter F. Vitiello, Councilor
Lisa J. Yost, Councilor
Kellie Ann Fay, Postdoctoral Representative
Holly Marie Hewitt, Student Representative

Ohio Valley (160*)
Lynette K. Rogers, President
J. Christopher States, President-Elect
Jeffrey D. Moehlenkamp, Vice President
Christina J. Inhof, Secretary
Daniel David Petersen, Treasurer
Courtney E. W. Sulentic, Past President
David A. Aremu, Councilor
Jennifer L. Freeman, Councilor
Bernard K. Gadagbui, Councilor
Yi Tan, Postdoctoral Representative
Gregory John Weber, Student Representative

Pacific Northwest (144*)
David L. Stone, President
Peter J. Korytko, Vice President
Katie Sprugel, Vice President-Elect
Linda L. Carlock, Secretary/Treasurer
Stacey Lynn Harper, Past President
Haley Neff-LaFord, Councilor
Susan C. Tilton, Councilor
Sean Michael Bugel, Postdoctoral Representative
Lisa Truong, Student Representative
Leah Wehmas, Student Vice-Representative

South Central (82*)
Barbara L. Parsons, President
Wesley G. N. Gray, Vice President
Yunfeng Zhao, Vice President-Elect
Lei Guo, Secretary
Nan Mei, Treasurer
Tucker A. Patterson, Past President
Kelly E. Mercer, Councilor
Meagan B. Myers, Councilor
Mark Jeremy Wilson, Postdoctoral Representative
Michelle A. Carroll-Turpin, Student Representative

Southeastern (80*)
Michael H. Lumpkin, President
Nikolay (Nick) M. Filipov, Vice President
Marie Meagher Bourgeois, Secretary/Treasurer
Rick G. Schnellmann, Past President
Charles Barton, Councilor
Matthew D. Merrell, Postdoctoral Representative
Alison J. Abritis, Student Representative

Southern California (419*)
Andrew M. Seacat, President
Vince R. Torti, Vice President
A. Jacob Jabbour, Vice President-Elect
Thomas A. Zanardi, Secretary
Tina Leakakos, Treasurer
Anthony M. Ndifor, Past President
Cynthia J. Davenport, Councilor
Niel C. Hoglen, Councilor
Aida I. Sacaan, Councilor
David J. Castro, Postdoctoral Representative
Ciara Martin, Student Representative

Regional Chapter Collaboration and Communication Committee
Rafael A. Ponce Jr., Chair
Sachin Devi, Member
Michael Hughes, Member
Bhagavatula Moorthy, Member
Courtney E. W. Sulentic, Member
Christina Wilson, Member
John Lipscomb*
Raul A. Suarez**

LEADERSHIP

* Membership totals as printed in the most recent *Membership Directory*

Special Interest Group Officers

American Association of Chinese in Toxicology (205*)
Diana J. Auyeung-Kim, President
Edward Chow, President-Elect
Tim Tak Lam, Secretary
Lu Cai, Treasurer
Jia Sheng Wang, Past President
Weimin Gao, Councilor
Ching-Hung Hsu, Councilor
Xi Yang, Postdoctoral Representative
Weimin Chen, Student Representative

Association of Scientists of Indian Origin (200*)
Saryu Goel, President
S. Satheesh Anand, Vice President
Sachin S. Devi, Vice President-Elect
Jatinder Singh, Secretary/Treasurer
Vinayak Srinivasan, Past President, Councilor
Sudheer Reddy Beedanagari, Councilor
Mamta V. Behl, Councilor
Sheetal Ashok Thakur, Postdoctoral Representative
Shirisha Chittiboyina, Student Representative

Hispanic Organization of Toxicologists (115*)
Leslie Recio, President
Betina J. Lew, Vice President
Linval R. DePass, Vice President-Elect
Elena Estela Hernandez Ramon, Secretary
Ranulfo Lemus Olalde, Treasurer
Ofelia A. Olivero, Past President
Arturo Anadon, Councilor
Maureen McConnell, Councilor
Minerva Mercado Feliciano, Councilor
Jorge Gerardo Muñiz Ortiz, Councilor
Azita K. Cuevas, Postdoctoral Representative
René Viñas, Student Representative

Korean Toxicologists Association in America (53*)
Sang-Tae Kim, President
James H. Kim, Vice President
Christopher J. Choi, Secretary/Treasurer
Woon-Gye Chung, Past President, Councilor
Jin Ho Chung, Councilor
Jong Sung Kim, Student Representative

Toxicologists of African Origin (89*)
Sakina E. Eltom, President
Ali Said Faqi, Vice President
Christopher W. Stewart, Secretary/Treasurer
Irene M. Abraham, Past President
Rosonald R. Bell, Councilor
Anthony M. Ndifor, Councilor
Clarisse S. Muenyi, Postdoctoral Representative
Eugene A. Gibbs-Flournoy, Student Representative

Women in Toxicology (568*)
Kristina D. Chadwick, President
Prathibha S. Rao, President-Elect
Brenda Faiola, Vice President
Deborah E. Keil, Secretary/Treasurer
Brinda Mahadevan, Past President, Councilor
Heather V. Dowty, Councilor
Sharmilee P. Sawant, Councilor
Kristy Robin Kutanzi, Postdoctoral Representative
Brittany Lynn Baisch, Student Representative

Special Interest Group Collaboration Group
Diana J. Auyeung-Kim, Co-Chair
Irene M. Abraham, Member
Kristina D. Chadwick, Member
Christopher J. Choi, Member
Ali Said Faqi, Member
Weimin Gao, Member
Saryu Goel, Member
James H. Kim, Member
Betina J. Lew, Member
Ofelia A. Olivero, Member
Prathibha S. Rao, Member
Vinayak Srinivasan, Member
John Lipscomb*
Raul A. Suarez**

* Membership totals as printed in the most recent *Membership Directory*

Specialty Section Officers

Biological Modeling (149*)
Hisham A. El-Masri, President
Cecilia Tan, Vice President
Harvey J. Clewell, Vice President-Elect
Eva D. McLanahan, Secretary/Treasurer
James V. Bruckner, Past President, Councilor
Clay B. Frederick, Councilor
Brad Reisfeld, Councilor
Annie Lumen, Postdoctoral Representative
Miyuki Breen, Student Representative

Biotechnology (195*)
Hanan N. Ghantous, President
Laura Andrews, Vice President
Robert V. House, Vice President-Elect
Marina T. Seme Nelson, Secretary/Treasurer
Janet B. Clarke, Past President, Councilor
William J. Brock, Councilor
Joy A. Cavagnaro, Councilor
Thomas R. Gelzleichter, Councilor
Fanny L. Casado-Pena, Postdoctoral Representative
Jeremy Kevin Larson, Student Representative

Carcinogenesis (268*)
Helmut Zarbl, President
Miriam C. Poirier, Vice President
Elaine M. Faustman, Vice President-Elect
John P. Wise, Secretary/Treasurer
David E. Williams, Past President, Councilor
Yvonne P. Dragan, Councilor
Stephen H. Safe, Councilor
Gayathri Chadalapaka, Postdoctoral Representative
Sara M. Nowinski, Student Representative

Cardiovascular Toxicology (134*)
Kevin L. Dreher, President
Daniel J. Conklin, Vice President
Aimen K. Farraj, Vice President-Elect
Tammy R. Dugas, Secretary
Mary K. Walker, Treasurer
Matthew J. Campen, Past President, Councilor
Matthew A. Boegehold, Councilor
Srikanth S. Nadadur, Councilor
Alex P. Carll, Postdoctoral Representative
Jessica Bradley, Student Representative

Clinical and Translational Toxicology (New—67*)
Allister Vale, Interim President
Kenneth E. McMartin, Interim Vice President
John G. Benitez, Interim Secretary/Treasurer
Raymond M. Singer, Interim Councilor
Richard Y. Wang, Interim Councilor
Greg Landry, Interim Student Representative

Comparative and Veterinary (102*)
Louise C. Abbott, President
Tim J. Evans, Vice President
Uford A. Madden, Vice President-Elect
Ramesh Chandra Gupta, Secretary/Treasurer
Ann F. Hubbs, Past President, Councilor
Wilson Kiiza Rumbeiha, Councilor
Clynn Wilker, Councilor
Sachin Bhusari, Postdoctoral Representative
Jingtao Lu, Student Representative

Dermal Toxicology (173*)
Carol L. Sabourin, President
John S. Graham, Vice President
Jens Thing Mortensen, Vice President-Elect
Jill A. Harvilchuck, Secretary/Treasurer
Jeffrey J. Yourick, Past President, Councilor
John W. Harbell, Senior Councilor
Michael C. Babin, Junior Councilor
E. Chepchumba ("Chep") Yego, Postdoctoral Representative
Swetha Inturi, Student Representative
Anand Ravindran, Vice Student Representative

Drug Discovery Toxicology (363*)
John A. Wisler, President
Yvonne Will, Vice President
Andrew J. Olaharski, Vice President-Elect
Donna L. Mendrick, Secretary/Treasurer
Craig E. Thomas, Past President, Councilor
Eric B. Harstad, Councilor
Stefan U. Ruepp, Councilor
Vincent Ramirez, Student Representative
Anand Ravindran, Student Representative

Ethical, Legal, and Social Issues (76*)
Sol M. Bobst, President
Gary E. Marchant, Vice President
Paul H. Zigas, Vice President-Elect
Cindy M. Hoorn, Secretary/Treasurer
John Norman, Past President, Councilor
Lynne T. Haber, Councilor
Raymond M. Singer, Councilor
Smitha Krishnan Infante, Student Representative

Food Safety (172*)
James C. Griffiths, President
Daniel M. Wilson, Vice President
Nicola Jane Stagg, Vice President-Elect
Edwin C. Bisinger, Secretary/Treasurer
Kenneth A. Voss, Past President, Councilor
Laurie Carpenter Dolan, Councilor
Suzanne Hendrich, Councilor
Brent R. Kobielush, Councilor
William Waissmann, Councilor
Natalie M. Johnson, Postdoctoral Representative
Brenna Montague Flannery, Student Representative

Immunotoxicology (374*)
Gregory S. Ladics, President
Gary R. Burleson, Vice President
Danuta J. Herzyk, Vice President-Elect
Susan C. McKarns, Secretary/Treasurer
Rodney R. Dietert, Past President
Jean C. Pfau, Senior Councilor
Peyton Myers, Junior Councilor
Teri Alyn Girtsman, Postdoctoral Representative
Kinta M. Serve, Student Representative

* Membership totals as printed in the most recent *Membership Directory*

Specialty Section Officers (Continued)

In Vitro and Alternative Methods (331*)
Sharon A. Meyer, President
Suzanne Compton Fitzpatrick, Vice President
Hans Antony Raabe, Vice President-Elect
Diane Hardej, Secretary/Treasurer
Vincent A. Murphy, Past President, Councilor
Teresa A. Liberati, Councilor
Jessica P. Ryman-Rasmussen, Councilor
Katie Beth Paul, Postdoctoral Representative
Lisa Hoffman, Student Representative
Sanket Gadhia, Vice Student Representative

Inhalation and Respiratory (297*)
Michael T. Kleinman, President
M. Ian Gilmour, Vice President
Urmila P. Kodavanti, Vice President-Elect
Amie K. Lund, Secretary/Treasurer
James G. Wagner, Past President, Councilor
Mitchell D. Cohen, Councilor
Aimen K. Farraj, Councilor
Stephen H. Gavett, Councilor
Willie J. McKinney, Councilor
Jaime M. Cyphert, Postdoctoral Representative
Samantha J. Snow, Student Representative

Mechanisms (380*)
Michael D. Aleo, President
Terrance J. Kavanagh, Vice President
Vasilis Vasiliou, Vice President-Elect
Nathan J. Cherrington, Secretary/Treasurer
Joan B. Tarloff, Past President, Councilor
Brian S. Cummings, Councilor
Angela Slitt, Councilor
John Clarke, Postdoctoral Representative
Kyle Lauren Poulsen, Student Representative

Medical Device (111*)
Ron Brown, President
Jon N. Cammack, Vice President
Gregory L. Erexson, Vice President-Elect
Taylor L. Builee, Secretary/Treasurer
Richard W. Hutchinson, Past President, Councilor
Kelly P. Coleman, Councilor
Chandramallika (Molly) Ghosh, Councilor
Forrest C. Jessop, Student Representative

Metals (194*)
Michael F. Hughes, President
David J. Thomas, Vice President
John P. Wise, Vice President-Elect
Jonathan H. Freedman, Secretary/Treasurer
J. Christopher States, Past President, Councilor
Walter T. Klimecki, Councilor
Erik J. Tokar, Councilor
Rachel J. Person, Postdoctoral Representative
Laura C. Savery, Student Representative

Mixtures (111*)
Kendall B. Wallace, President
David R. Mattie, Vice President
Bruce A. Fowler, Vice President-Elect
Cynthia V. Rider, Secretary/Treasurer
Michael L. Dourson, Past President, Councilor
Kembra L. Howdeshell, Councilor
Kenneth G. Sexton, Councilor
Xianglu Han, Postdoctoral Representative
Julia E. Rager, Student Representative

Molecular Biology (194*)
Chris Corton, President
Nancy D. Denslow, Vice President
J. Craig Rowlands, Vice President-Elect
Aaron M. Rowland, Secretary/Treasurer
Russell S. Thomas, Past President, Councilor
Kristine L. Willett, Senior Councilor
Scott Sean Auerbach, Junior Councilor
Igor Koturbash, Postdoctoral Representative
Britton C. Goodale, Student Representative
Jessica Krystle Roberts, Junior Student Representative

Nanotoxicology (308*)
Joyce S. Tsuji, President
Alison C. P. Elder, Vice President
Saber M. Hussain, Vice President-Elect
Mara Seeley, Secretary/Treasurer
Justin G. Teeguarden, Past President, Councilor
Diane E. Heck, Councilor
David W. Hobson, Councilor
Tina Marie Sager, Postdoctoral Representative
Christin M. Grabinski, Student Representative

Neurotoxicology (344*)
Pamela J. Lein, President
Anumantha G. Kanthasamy, Vice President
Aaron B. Bowman, Vice President-Elect
Jason R. Richardson, Secretary/Treasurer
Gary W. Miller, Past President, Councilor
Christine A. Curran, Councilor
Christopher Dennis Toscano, Councilor
Paul A. Eubig, Postdoctoral Representative
Joshua L. Allen, Student Representative

Occupational and Public Health (233*)
Michael E. Ottlinger, President
Andrew Maier, Vice President
Jenny R. Roberts, Vice President-Elect
Irene M. Abraham, Secretary/Treasurer
Michael Christopher Madden, Past President, Councilor
Katherine L. Kraft, Councilor
Amanda S. Persad, Councilor
Traci Brown, Student Representative

Ocular Toxicology (86*)
Brian J. Christian, President
James Arthur Render, President-Elect
Edward Chow, Vice President
Chris J. Somps, Communications Officer
Marina T. Seme Nelson, Treasurer
JoAnn C. L. Schuh, Past President, Councilor
Mark E. Blazka, Councilor
Linval R. DePass, Councilor

* Membership totals as printed in the most recent *Membership Directory*

Specialty Section Officers (Continued)

Regulatory and Safety Evaluation (809*)
Paul Brown, President
Daland R. Juberg, Vice President
Kenneth L. Hastings, Vice President-Elect
Lorrene A. Buckley, Secretary/Treasurer
Timothy P. Pastoor, Past President
David C. Ackley, Councilor
Lorenz R. Rhomberg, Councilor
Michael Christopher Boyle, Postdoctoral Representative
Marcy L. McNamara, Student Representative

Reproductive and Developmental Toxicology (384*)
Barry S. McIntyre, President
Jodi A. Flaws, Vice President
Raymond G. York, Vice President-Elect
Kary E. Thompson, Secretary/Treasurer
Edward W. Carney, Past President, Councilor
Jeffrey S. Moffit, Senior Councilor
Linda G. Roberts, Junior Councilor
Sarah Campion, New Career Councilor
Wei Wang, Postdoctoral Representative
Jackson Nteeba, Student Representative

Risk Assessment (707*)
John C. Lipscomb, President
Laurie C. Haws, Vice President
John M. DeSesso, Vice President-Elect
Elaina M. Kenyon, Secretary/Treasurer
Robinan Gentry, Past President, Councilor
Nancy B. Beck, Councilor
Robert Andrew Budinsky, Councilor
David Taylor Szabo, Postdoctoral Representative
Jose A. Torres, Student Representative

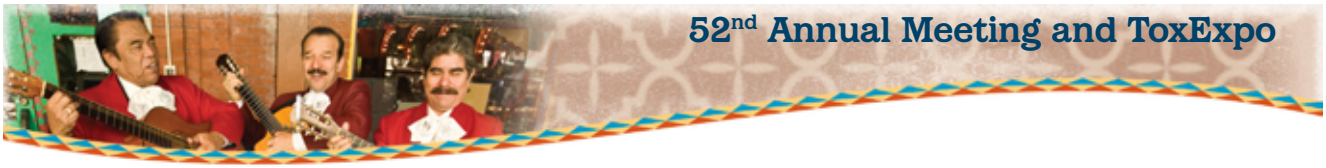
Stem Cells (82*)
Michael P. Waalkes, President
Kyle L. Kolaja, Vice President
Jingbo Pi, Vice President-Elect
Erik J. Tokar, Secretary/Treasurer
Aaron B. Bowman, Senior Councilor
Lamia Benbrahim-Tallaa, Junior Councilor
Amy M. Skinner, Postdoctoral Representative
Justin A. Colacino, Student Representative

Toxicologic and Exploratory Pathology (169*)
Norman J. Barlow, President
Dennis J. Meyer, Vice President
David L. Hutto, Vice President-Elect
Tomas F. Magee, Secretary/Treasurer
Douglas C. Wolf, Past President, Councilor
Lynda L. Lanning, Councilor
Sarah Hall Tannehill-Gregg, Councilor
Christopher Gibson, Postdoctoral Representative
Alessandro Venosa, Student Representative

Specialty Section Collaboration and Communication Group
John C. Lipscomb, Co-Chair
Douglas C. Wolf, Co-Chair
Louise C. Abbott, Member
Paul Brown, Member
Janet B. Clarke, Member
Chris Corton, Member
Michael L. Dourson, Member
Sharon A. Meyer, Member
Justin G. Teeguarden, Member
Michael P. Waalkes, Member
Judith T. Zelikoff*
Kimberly von Brook**

LEADERSHIP

* Membership totals as printed in the most recent *Membership Directory*



Society of Toxicology Awards and Honors

SOT Honor Descriptions

Honorary Membership

The Society of Toxicology recognizes nonmembers who embody outstanding and sustained achievements in the field of toxicology with Honorary Membership. Candidates are nominated by two Full or Associate members of the Society. Seconding letters and information regarding career achievements in toxicology should accompany the nomination. A two-thirds vote of Council determines recipients, with not more than two Honorary Members elected during any one term of Council. Nominations should be sent to SOT Headquarters by October 9.

Inductees

1962 Eugene M. K. Geiling*
1962 W. F. Von Oettingen*
1962 Torald H. Sollman*
1963 Ethel Browning*
1966 R. Tecwyn Williams*
1976 Norton Nelson*
1982 George H. Hitchings*
1986 Bernard B. Brodie*
1986 Herbert Remmer*
1991 Hyman J. Zimmerman*
1994 Ronald W. Estabrook
1994 Wendell W. Weber
1995 Gertrude B. Elion*
1995 Charles S. Lieber*
1996 Sten G. Orrenius
1996 Dennis Parke*
1997 John E. Casida
1997 Roger W. Russell*
1998 Jud Coon
1998 Michel Mercier
1999 William O. Robertson
1999 Takashi Sugimura
2000 Findlay Russell*
2001 Herbert L. Needleman
2007 Mario Molina
2008 Lee Hartwell
2008 H. Robert Horvitz
2009 Gilbert S. Omenn
2009 Sir John E. Walker
2010 Sir Philip Cohen
2010 Ferid Murad
2011 William C. Hays
2011 Frances Oldham Kelsey
2012 Frank J. Gonzalez
2012 Leroy Hood
2013 Bruce A. Beutler
2013 Jeremy K. Nicholson

Indicates SOT Awards

**Deceased*

Awards Descriptions

Achievement Award

The Achievement Award is presented to a member of the Society of Toxicology who has less than 15 years, experience since obtaining his/her highest earned degree (in the year of the SOT Annual Meeting) and has made significant contributions to toxicology. This award consists of a plaque and a cash stipend.

Award Recipients

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*
1982 Frederick P. Guengerich
1984 Melvin E. Andersen
1985 Alan R. Buckpitt
1986 Sam Kacew
1987 James S. Bus
1988 Jeanne M. Manson
1989 James P. Kehrer
1990 Michael P. Waalkes
1991 Debra Lynn Laskin
1992 Michael P. Holsapple
1993 David L. Eaton
1994 James L. Stevens
1995 Lucio G. Costa
1996 Kenneth S. Ramos
1997 Kevin E. Driscoll
1998 Rick G. Schnellmann
1999 Michel Charbonneau
2000 Christopher Bradfield
2001 Martin A. Philbert
2002 Ruth A. Roberts
2003 Lois D. Lehman-McKeeman
2004 David C. Dorman
2006 José E. Manautou
2007 Jeffrey M. Peters
2008 Ivan Rusyn
2009 Russell S. Thomas
2010 Gary W. Miller
2011 Nathan Cherrington
2012 Donna D. Zhang
2013 Wei Xu

Arnold J. Lehman Award

The Arnold J. Lehman Award is presented to recognize an individual who has made a major contribution to risk assessment and/or the regulation of chemical agents, including pharmaceuticals. The contribution may have resulted from the application of sound scientific principles to regulation and/or from research activities that have significantly influenced the regulatory process. The nominee may be employed in academia, government, or industry and must be an SOT member. This award consists of a plaque and a cash stipend.

Award Recipients

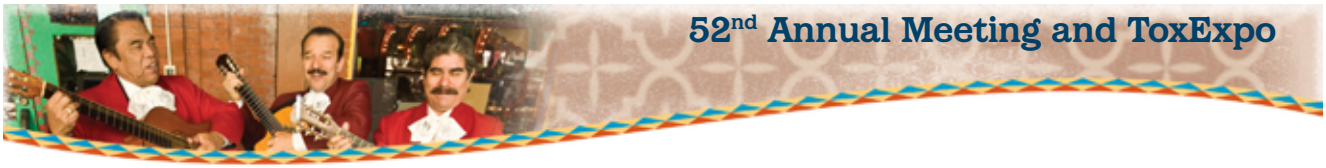
1980 Allan H. Conney
1981 Gabriel L. Plaa*
1982 Gary M. Williams
1983 David P. Rall*
1984 Tibor Balasz
1985 Frederick Coulston*
1986 Gerrit Johannes Van Esch
1987 John P. Frawley*
1988 Kundan S. Khera*
1989 Richard H. Adamson
1990 Harold C. Grice
1991 Bernard A. Schwetz
1992 Roger O. McClellan
1993 Thomas W. Clarkson
1994 Bruce N. Ames
1995 Emil A. Pfitzer*
1996 John F. Rosen
1998 Helmut Alfred Greim
2000 Carole A. Kimmel, Janardan K. Reddy
2001 Samuel M. Cohen
2002 Dennis Paustenbach
2003 Michael L. Dourson
2004 Melvin E. Andersen
2005 Rory B. Conolly
2006 Kathryn R. Mahaffey*
2007 Harvey J. Clewell
2008 Vicki Dellarco
2009 Michael Bolger
2010 Edward V. Ohanian
2011 Bette Meek
2012 Joe L. Mauderly
2013 Moiz Mumtaz

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, 2011, and September 30, 2012. Review articles will not be accepted unless they contain meta-analyses, and/or decision analyses. Co-first authored papers will be accepted, with clear delineation of applicant's effort. The review process follows NIH conflict of interest, confidentiality, and nondisclosure rules.

Award Recipients

2007 Nadine Dragin, Kristen Mitchell, Drobna Zuzana
2008 Joshua P. Gray, Christie M. Sayes, Khristy J. Thompson
2009 Jeffrey W. Card, Kembra Howdeshell, Lewis Zhichang Shi
2010 Bret F. Bessac, Manabu Nukaya, Nicholas Radio
2011 Dieldrich S. Bermudez , Joshua A. Harrill, Jordan Ned Smith
2012 Maryse Lemaire, Xuefeng Ren, Nisha S. Sipes
2013 Petra Haberzettl, Anne Loccisano, Yuanyuan Xu



Society of Toxicology Awards and Honors (Continued)

Board of Publications for the Best Paper in *Toxicological Sciences* Award

The Board of Publications Award for the Best Paper in *Toxicological Sciences* is presented to the author(s) of the best paper published in this official SOT publication during a 12-month period, terminating with the June issue of the calendar year preceding the Annual Meeting at which the award is presented. The author(s) need not be a member of the Society of Toxicology. Submissions should include a one-page summary of the paper's contribution to the science of toxicology and a copy of the article for which the nomination is being made. Any member of the Society may submit one title for consideration. In addition, the titles of no more than six papers to be considered are submitted by the editor of *Toxicological Sciences*. All papers submitted will be evaluated by the Board of Publications. This award consists of a plaque and a cash stipend. (This award was formerly known as the Frank R. Blood Award from 1974–1994.)

Best Paper in *Toxicological Sciences*
(formerly published as Fundamental and Applied Toxicology)

Award Recipients

1995 J. L. Larson, D. C. Wolf, B. E. Butterworth
1995 M. I. Luster, C. Portier, D. G. Pait, G. J. Rosenthal, D. R. Germolec, E. Corsini, B. L. Blaylock, P. Pollock, Y. Kouchi, W. Craig, K. L. White, A. E. Munson, C. E. Comment
1996 B. C. Allen, R. J. Kavlock, C. A. Kimmel, E. M. Faustman
1997 F. L. Fort, H. Ando, T. Suzuki, M. Yamamoto, T. Hamashima, S. Sato, T. Kitazaki, M. C. Matony, G. D. Hodgen
1998 D. D. Parrish, M. J. Schlosser, J. C. Kapeghian, V. M. Traina
1999 C. A. Franklin, M. J. Inskip, C. L. Baccanale, C. M. Edwards, W. I. Manton, E. Edwards, E. J. O'Flaherty
2000 H. A. Boulares, C. Giardina, C. L. Navarro, E. A. Khairallah*, S. D. Cohen
2001 J. Chen, Y. Li, J. A. Lavigne, M. A. Trush, J. D. Yager
2002 M. J. Bajt, J. A. Lawson, S. L. Vonderfecht, J. S. Gujral, H. Jaeschke
2003 S. Haddad, M. Beliveau, R. Tardif, K. Krishnan
2004 A. Nyska, C. Moyer, A. Ledbetter, D. Christiani, M. Schlasweiler, D. Costa, R. Hauser, U. Kodavanti
2005 N. V. Soucy, M. A. Ihnat, L. Hess, C. D. Kamat, A. Barchowsky, M. J. Post, L. R. Klei, C. Clark
2006 H. Sawada, K. Takami, S. Ashai
2007 T. Green, R. Lee, S. Lloyd, J. Noakes, T. Pastoor, R. Peffer, M. Robinson, P. Rose, A. Toghill, F. Waechter, E. Weber
2008 S. Snykers, T. Vanhaecke, P. Papelue, A. Luttun, Y. Jiang, Y. V. Heyden, C. Verfaillie, V. Rogiers
2009 Q. Yang, T. Nagano, Y. Shah, C. Cheung, S. Ito, F. J. Gonzalez
2010 R. L. M. Dobson, S. Motlagh, M. Quijano, R. T. Cambron, T. R. Baker, A. M. Pullen, B.T. Regg, A. S. Bigalow-Kern, T. Vennard, A. Fix, R. Reimschuessel, G. Overmann, Y. Shan, G. P. Daston
2011 K. Lu, L. B. Collins, H. Ru, E. Bermudez, J. A. Swenberg
2012 J. G. DeKeyser, E. M. Laurenzana, E. C. Peterson, T. Chen, C. J. Omiecinski
2013 R. Sellamuthu, C. Umbright, J.R. Roberts, R. Chapman, S-H Young, D. Richardson, H. Leonard, W. McKinney, B. Chen, D. Frazer, S. Li, M. Kashon, P. Joseph

Frank R. Blood Award

Award Recipients

1974 Y. Alarie
1975 D. J. Ecobichon, G. J. Johnstone, O. Hutzinger
1976 R. D. Brown
1977 J. Dedinas, G. D. DiVincenzo, C. J. Kaplan
1978 P. J. Gehring*, E. O. Madrid, G. R. McGowan, P. G. Watanabe*
1979 R. Fradkin, E. J. Ritter, W. J. Scott, J. G. Wilson
1980 J. A. Last, P. F. Moore, O. G. Raabe, B. K. Tarkington
1981 Y. Alarie, M. Brady, C. Dixon, M. Karol
1982 M. E. Andersen, M. L. Gargas, L. J. Jenkins Jr., R. A. Jones
1983 H. D. Heck
1984 E. Dybing, S. Nelson, E. Soderlund, C. von Bahr
1985 N. Imura, M. Inokawa, K. Miura
1986 C. C. Wilhite, M. I. Dawson, K. J. Williams
1987 J. Kao, F. K. Patterson, J. Hall
1988 D. L. Laskin, S. Ji, A. M. Pilaro
1989 R. G. Cuddihy, W. C. Griffith, R. F. Henderson, J. L. Mauderly, R. O. McClellan, M. D. Snipes, R. K. Wolff
1990 W. P. Beierschmitt, J. T. Brady, J. B. Bartolone, D. S. Wyand, E. A. Khairallah*, S. D. Cohen
1991 J. B. Silkworth, D. Cutler, L. Antrim, D. Houston, C. Tumasonis, L. S. Kaminsky
1992 D. A. Fox, S. D. Rubinstein, P. Hsu
1993 T. Mably, R. W. Moore, R. W. Goy, R. E. Peterson
1994 S. J. Borghoff, W. H. Lagarde

Congressional Science Leadership Award

The Congressional Science Leadership Award provides recognition of a congressional leader who demonstrates reliance upon sound scientific principles in either (1) public policy or decision-making relating to health and safety or (2) dedicated advancement of legislation for the protection of human, animal, and environmental health. This award consists of a plaque.

Award Recipients

2009 Congressman David Wu (D-OR)
2010 Senator Johnny Isakson (R-GA)
Congressman David Price (D-NC)
2011 Congresswoman Judy Biggert (R-IL)
Senator Amy Klobuchar (D-MN)
2012 Congressman Rush Holt (D-NJ)

Contributions to Public Awareness of the Importance of Animals in Toxicology Research Award

The Contributions to Public Awareness of the Importance of Animals in Toxicology Research Award is presented annually to an individual (or organization) in recognition of contributions made to the public understanding of the role and importance of experimental animals in toxicological science. This award may be for either a single seminal piece of work or a longer-term contribution to public understanding of the necessity of the use of animals in toxicological research to both ensure and enhance the quality of human and animal health and the environment. This award consists of a plaque and a cash stipend.

Award Recipients

2000 Allegheny-Erie Regional Chapter
2001 Massachusetts Society for Medical Research
2002 George Nethercutt
2003 Michael Derelanko
2004 North Carolina Association for Biomedical Research (NCABR), Americans for Medical Progress (AMP)
2005 Orrin G. Hatch, Foundation for Biomedical Research (FBR)
2006 Jayne Mackta

Distinguished Toxicology Scholar Award

The Distinguished Toxicology Scholar Award is presented to a member of SOT who has made substantial and seminal scientific contributions to our understanding of the science of toxicology. Nominees should be active scientists involved in toxicological research. The prime consideration for this award is scientific accomplishments. This award consists of a plaque and a cash stipend. The recipient delivers the Distinguished Toxicology Scholar Award Lecture at the SOT Annual Meeting. (This award was presented in 2001 as the Scientific Achievement Award.)

Award Recipients

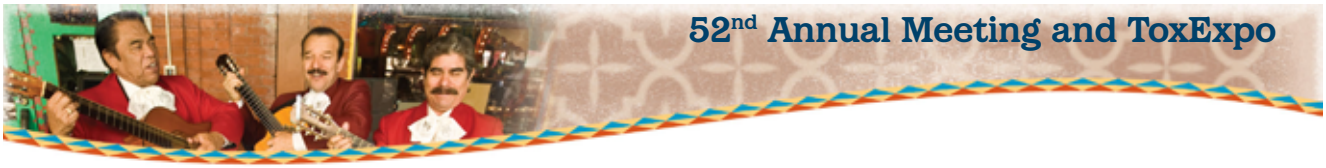
2001 James E. Troska
2003 Henry C. Pitot
2004 Gerald N. Wogan
2005 Daniel Nebert
2006 Sten G. Orrenius
2007 Stephen H. Safe
2008 Toshio Narahashi
2009 Lance R. Pohl
2010 Harihara M. Mehendale
2011 Oliver Hankinson
2012 Ernest Hodgson
2013 John J. Lemasters

Education Award

The Education Award is presented to an individual who is distinguished by the teaching and training of toxicologists and who has made significant contributions to education in the broad field of toxicology. This award consists of a plaque and a cash stipend.

Award Recipients

1975 Harold C. Hodge*
1976 Ted A. Loomis
1977 Robert B. Forney*
1979 Sheldon D. Murphy*
1980 Herbert H. Cornish*
1981 Frederick Sperling*
1982 Lloyd W. Hazleton*
1983 Julius M. Coon*
1984 Frank Guthrie, Ernest Hodgson
1985 William B. Buck
1986 Robert I. Krieger
1987 Gabriel L. Plaa*
1988 John Autian



Society of Toxicology Awards and Honors (Continued)

1989 Tom S. Miya
1990 Charles H. Hine
1991 Hanspeter R. Witschi
1992 Dean E. Carter*
1993 Curtis D. Klaassen
1994 Robert A. Neal*
1995 William Carlton
1996 Robert Snyder
1997 Albert E. Munson
1998 David J. Holbrook
1999 Jules Brodeur
2000 Gary Carlson
2001 Harihara Mehendale
2002 Joseph Borzelleca
2003 Frederick W. Oehme
2004 A. Jay Gandolfi
2005 Nobuyuki Ito
2006 Robert A. Schatz
2007 Torbjörn Malmfors
2008 Steven Cohen
2009 Janice E. Chambers, Serrine S. Lau
2010 Tetsuo Satoh
2011 Michael Gallo
2012 John H. Duffus
2013 Rick G. Schnellmann

Enhancement of Animal Welfare Award

The Enhancement of Animal Welfare Award is presented annually to a member of the Society in recognition of a contribution made to the advancement of toxicological science through the development and application of methods that replace, refine, or reduce the need for experimental animals. The achievement recognized may be either a seminal piece of work or a long-term contribution to toxicological science and animal welfare. This award consists of a plaque and a cash stipend.

Award Recipients

2000 Yves Alarie
2001 Alan Goldberg
2002 Gary Williams
2003 G. Frank Gerberick, Ian Kimber
2005 Daniel Acosta
2006 William S. Stokes
2007 Thomas Hartung
2009 Sally Robinson
2010 Leonard M. Schechtman
2013 Martin L. Stephens

Founders Award

The SOT Founders Award is presented to a Full, Emeritus Full, or Retired Full member of the Society of Toxicology who has demonstrated outstanding leadership in fostering the role of toxicological sciences in safety decision-making through the development and/or application of state-of-the-art approaches that elucidate, with a high degree of confidence, the distinctions for humans between safe and unsafe levels of exposures to chemical and physical agents. This award consists of a plaque and a cash stipend.

Award Recipients

2008 John Doull
2009 Roger O. McClellan
2010 James S. Bus
2011 Joseph F. Borzelleca
2012 John A. Moore
2013 William Alfred Suk

Global Senior Scholar Exchange Program

The Society of Toxicology Global Senior Scholar Exchange Program (GSSEP) aims to increase the global impact of toxicology on human health and safety by working to strengthen toxicology programs and capacity in universities in developing countries. Through this novel program, SOT will sponsor specific collaborations between universities in the United States and in developing countries. The program enables an exchange visit of senior scientists between the partnered universities to address identified gaps in the developing country university's core toxicology curriculum; supports courses or symposia on toxicology topics of high priority in the developing country; and funds the senior scholars' attendance at the SOT Annual Meeting as an opportunity to present research and establish networking opportunities.

Award Recipients

2012 Jesus Olivero-Verbel (Colombia), Orish Ebere Orisakwe (Nigeria)
2013 Sri Noegrohati (Indonesia), Mohamed Mosaad Salama (Egypt)

Graduate Student Travel Support

Graduate Student Travel Support defrays expenses for doctoral students presenting platform talks or posters at the SOT Annual Meeting. To be eligible, the student must be an SOT member (or have submitted a membership application) who has not previously received SOT Graduate Student Travel Support. Funding priority is based on seniority in graduate school.

Leading Edge in Basic Science Award

The Leading Edge in Basic Science Award is presented to a scientist who, based on his/her research, has made a recent (within the past five years), seminal basic scientific contribution to understanding fundamental mechanisms of toxicity. The recipient may be a respected basic scientist, member or nonmember, including toxicologists as well as other scientists who may not identify themselves with the discipline of toxicology but whose research findings are likely to have a pervasive impact on the field of toxicology. The recipient delivers the Leading Edge in Basic Science Award Lecture at the SOT Annual Meeting. This award consists of a plaque and a cash stipend.

Award Recipients

2009 John Katzenellenbogen
2010 Richard S. Paules
2011 Masayuki Yamamoto
2012 Myung-Haing Cho
2013 Donald E. Ingber

Merit Award

The Merit Award is presented to a member of the Society of Toxicology in recognition of distinguished contributions to toxicology throughout an entire career in areas such as research, teaching, regulatory activities, consulting, and service to the Society. This award consists of a plaque and a cash stipend. The recipient delivers the Merit Awardee Lecture at the SOT Annual Meeting.

Award Recipients

1966 Henry F. Smyth Jr.*
1967 Arnold J. Lehman*
1968 R. T. Williams*
1969 Harold C. Hodge*
1970 Don D. Irish
1971 Kenneth P. DuBois*
1972 O. Garth Fitzhugh*
1973 Herbert E. Stokinger*
1974 William B. Deichmann*
1975 Frederick Coulston*
1976 Verald K. Rowe*
1977 Harry W. Hays*
1978 Julius M. Coon*
1979 David W. Fassett*
1980 Bernard L. Oser*
1981 John H. Weisburger
1982 Harold M. Peck*
1983 Perry J. Gehring*
1984 Tom S. Miya
1985 Carrol S. Weil*
1986 Ted A. Loomis
1987 Bo Holmstedt
1988 Seymour L. Friess*
1989 Wayland J. Hayes Jr.*
1990 Sheldon D. Murphy*
1991 Toshio Narahashi
1992 W. Norman Aldridge
1993 John Doull
1994 Ernest Hodgson
1995 Robert A. Scala
1996 Gabriel L. Plaa*
1997 Mary O. Amdur*
1998 John A. Thomas
1999 Thomas Clarkson
2000 Philippe Shubik*

Society of Toxicology Awards and Honors (Continued)

2001 Donald Reed
2002 Bernard Schwetz
2003 M. W. Anders
2004 Robert Goyer
2005 Roger O. McClellan
2006 A. Wallace Hayes
2007 James A. Swenberg
2008 Hanspeter Witschi
2009 Gary M. Williams
2010 Marion F. Ehrich
2011 Michael Aschner
2012 Curtis D. Klaassen
2013 Frederick Peter Guengerich

Minority Undergraduate Student and Advisor Awards

The Minority Undergraduate Student and Advisor Awards provide support for awardees to participate in the Undergraduate Education Program at the SOT Annual Meeting. This program is an introduction to the discipline of toxicology for undergraduate science majors and includes an orientation, a special poster session with scientists, and activities with an SOT mentor. The travel awards are for those from groups underrepresented in the sciences (African American, Native American, Latino or Hispanic Americans, and Pacific Islanders) and for their advisors. The advisors are eligible regardless of racial or ethnic background. Meeting registration and support for travel, lodging, and meals are provided for students and advisors who are not local to the meeting site. Students and advisors from local institutions receive meeting and program registration and meals. In the past, the program has been supported in part by NIH-MARC, Pfizer, Johnson & Johnson, Covance, and other supporters. The recipient list is available on the website.

Outstanding Graduate Student Leadership Awards

The Outstanding Graduate Student Leadership Award is presented by the SOT Graduate Student Leadership Committee in recognition of graduate student representatives who have contributed to the Society in a significant manner beyond the routine duties of a representative of a Regional Chapter, Specialty Section, or Special Interest Group.

Award Recipients

2009 Enrique Fuentes-Mattei, Sheppard A. Martin
2010 Haitian Lu, Erica N. Rogers, Prasad Krishnan
2011 Heather Bolstad, Michael Borland
2012 Chad Brocker, Azita Cuevas

Perry J. Gehring Diversity Student Travel Award

The Perry J. Gehring Diversity Student Travel Award recognizes a student who was selected to participate in a previous SOT Undergraduate Program, is from an ethnic group underrepresented in toxicology (African American, Hispanic, Native American, or Pacific Islander), and is presenting a paper at the upcoming SOT meeting. The award recipient is selected by the Committee on Diversity Initiatives.

The Gehring Student Travel Award is provided through the Society of Toxicology Endowment Fund. This award recognizes Dr. Perry J. Gehring, who served as SOT President in 1980–1981 and made important scientific contributions, especially in biological modeling and evidence-based assessment. Dr. Gehring had a strong interest in encouraging individuals from ethnic groups underrepresented in the sciences to enter biomedical sciences and toxicology.

Award Recipients

2009 Vanessa De La Rosa
2010 Nygerma L. Dangleben
2011 Eva A. Amouzougan
2012 Alba K. Gonzalez Rivera
2013 Alexandra Colón-Rodríguez

Public Communications Award

The Public Communications Award is presented by the Society of Toxicology to an individual who has made a major contribution to broadening the awareness of the general public on toxicological issues through any aspect of public communications. The award should reflect accomplishments made over a significant period of time. Examples of qualifying media in which the nominated communication may appear are as follows: books, brochures, continuing education courses, databases, extension bulletins, magazines, newspapers (local or national), outreach, public presentations, public forums, radio and television scripts, and workshops. This award consists of a plaque and a cash stipend.

Award Recipients

1994 Michael A. Kamrin
1995 Philip Abelson*
1996 Bruce N. Ames
1997 Audrey Gotsch
1999 Ann de Peyster
2001 Anna Shvedova
2002 Sam Kacew
2003 Charlene A. McQueen
2004 Kenneth Olden
2005 Robert Kreiger
2007 Linda S. Birnbaum
2010 Philip Wexler
2012 Martin A. Philbert
2013 Marti Lindsey

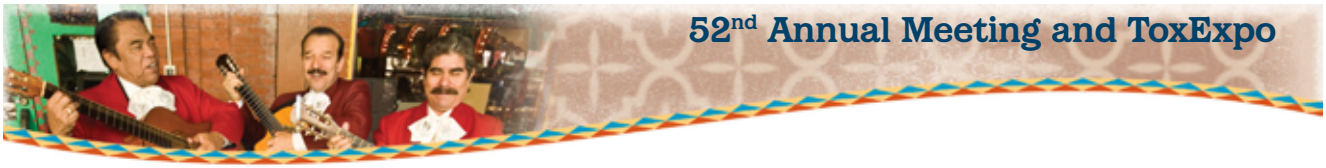
SOT/AstraZeneca/ SOT Endowment Fund/IUTOX Travel Fellowships

(formerly known as SOT/AstraZeneca/IUTOX Travel Fellowships)

The Society of Toxicology sponsors travel fellowships administered by IUTOX and sponsored by AstraZeneca, the Society of Toxicology and the SOT Endowment Fund. Awards are available to senior scientists from a country where toxicology is underrepresented to assist with travel to attend the Society of Toxicology Annual Meeting.

Award Recipients

2002 Christophor Dishovsky (Bulgaria), Zoltan Gregus (Hungary), Maritza Rojas Martini (Venezuela), Choon-Nam Ong (Singapore), W. Wasowicz (Poland), Ping-kun Zhou (China)
2003 Jian-Hui Liang (China), Marjan G. Vracko (Slovenia), Eman A. Seif (Egypt)
2004 Cristina Bolaton (Philippines), P.K. Gupta (India), Salmaan Inayat-Hussain (Malaysia), Xianping Ying (China)
2005 Diana B. Apostolova (Bulgaria), Marite Arija Bake (Latvia), Teresa I. Fortuoul (Mexico), Mary Gulumian (South Africa), He Jiliang (China), Khalidya Khamidulina (Russia), L. Orish Orisakwe (Nigeria), Songsak Srianujata (Thailand), Sinan Suzen (Turkey)
2006 Olanike Adeyemo (Nigeria), Deepak Argwal (India), Carlos Colangelo (Argentina), Sandra Demichelis (Argentina), Mumtaz Iscan (Turkey), Karolina Lyubomirova (Bulgaria), Osman Aly Osman (Egypt), Shuang-Qing Peng (China), Julia Radenkova-Saeva (Bulgaria)
2007 Hatem Ahmed (Egypt), Jiri Bajgar (Czech Republic), Ismet Çok (Turkey), Carlos Garcia (Peru), Wenceslao Kiat (Philippines), Calivarathan Latchoumycandane (Singapore), Fateheya Metwally (Egypt), Hilmi Orhan (Turkey), Nwoha Umunna (Nigeria)
2008 Jin-Ho Chung (Korea), Lyndy McGaw (South Africa), Kemal Buyukguzel (Turkey), Hande Gurer-Orhan (Turkey), Phillip Burcham (Australia), Sayed Bakry (Egypt), Zdravko Paskalev (Bulgaria), Gafer Rageh Ahmed (Egypt)
2009 Sema Burgaz (Turkey), Estefania G. Moreira (Brazil), Kolawole V. Olorunshola (Nigeria), Kelly P.K. Olympio (Brazil), Betzabet Quintanilla-Vega (Mexico), Jalila Ben Salah (Tunisia), Suleeporn Sangrajang (Thailand)
2010 Asongalem Emmanuel Acha (Cameroon), Ayse Basak Engin (Turkey), Ronnie A. D. Frazer-Williams (Sierra Leone), Yan Li (China), Jesus T. Olivero-Verbel (Colombia), Suresh V. S. Rana (India), Ganna Shayakhmetova (Ukraine), Vanessa Steenkamp (South Africa), Marcelo J. Wolansky (Argentina), Motao Zhu (China)
2011 Sonali Das (India), Rawiwan Maniratanachote (Thailand), Anoka A. Njan (Nigeria), Daam Settachan (Thailand), Osman S. Shaik (India), Songsak Srianujata (Thailand), Omoniyi Kayode Yemitan (Nigeria), Qinli Zhang (China), Bin Zhao (China)



Society of Toxicology Awards and Honors (Continued)

2012 Oladipo Ademuyiwa (Nigeria),
Murali Badanthadka (India),
Sunisa Chaiklieng (Thailand),
Xianju Huang (China),
Zhenlie Huang (China),
Guojun Li (China),
Jianlin Lou (China),
Maria Samayoa (Guatemala),
Haixue Wang (China),
Jingshu Zhang (China),
Xiaofeng Zhang (China),
Li Zhou (China)

2013 John I. Anetor (Nigeria),
Kailen Boodhia (South Africa),
Karina R. Caballero-Gallardo (Colombia),
Osama S. El-Tawil (Egypt),
Miriam Carolina Guzmán Quilo (Guatemala),
Wafa Hassen (Tunisia),
Saleem Khan (India),
Wenceslao A. Kiat Jr. (Philippines),
Ravinesh Mishra (India),
Olubanke O. Ogunlana (Nigeria)

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

Translational/Bridging Travel Award

Two awards will be given annually to assist with travel to the SOT Annual Meeting. The SOT Awards Committee will confer two awards annually to either a mid- or senior-level scientist or clinician with at least ten years of postdoctoral research or clinical practice experience and who has an active research program, or currently is active in the practice of clinical toxicology, medical toxicology, disease prevention, or in the application of transitional toxicology. This award consists of a cash stipend and a complimentary registration for the SOT Annual Meeting.

Award Recipient

2012 Xuemei Huang
2013 M. Shane Hutson

Undergraduate Educator Award

The Undergraduate Educator Award, sponsored by the Endowment Fund, is presented to an SOT member who is distinguished by outstanding contributions to the teaching of undergraduate students in toxicology and toxicology-related areas, and whose efforts support SOT's strategic efforts to "Build for the Future of Toxicology." Members of the Society of Toxicology who have made significant contributions to undergraduate education in toxicology may be nominated and should have a faculty appointment with primary responsibilities in the teaching of undergraduates and demonstrate a distinguished undergraduate teaching record. This award consists of a plaque and a cash stipend.

Award Recipients

2011 Joan B. Tarloff
2012 Sue M. Ford
2013 Sidhartha Ray

Undergraduate Toxicology Education Awards

The Undergraduate Toxicology Education Awards provide support for awardees to participate in the Undergraduate Education Program at the SOT Annual Meeting. This program is an introduction to the discipline of toxicology for undergraduate science majors and includes an orientation, a special poster session with scientists, and activities with an SOT mentor. The travel awards are for those from institutions that receive a limited amount of federal funding in science and technology (list of institutions is available on the website). Preference in selection will be students who are first-generation college attendees (that is, neither parent graduated from a four-year academic institution).

Meeting registration and support for travel, lodging, and meals are provided for students who are not local to the meeting site. Students from local institutions receive registration, meeting materials, and an expense stipend. The recipient list is available on the website.

Sponsored Award Descriptions

AstraZeneca Traveling Lectureship Awards

The AstraZeneca Traveling Lectureship Award is presented through the Society of Toxicology to recognize excellence in research and service in toxicology and to promote greater collaboration between European and North American toxicologists and to enable North American toxicologists. The award is intended to familiarize recipients with research and regulatory issues in Europe and to bring a North American perspective to these issues. Candidates for the award should be established, mid-career North American scientists who are members of the Society and who demonstrate the ability to develop collaborative relationships with European colleagues.

Award Recipients

1990 Robert I. Krieger, Joseph R. Landolph
1991 Sam Kacew
1992 Charles V. Smith, Jerold A. Last
1993 Terrence James Monks, Harihara H. Mehendale
1995 David L. Eaton, Hanspeter R. Witschi
1996 Rick G. Schnellmann, James P. Kehrer
1997 Lucio G. Costa, Durisala Desaiah
1998 Syed F. Ali, Curtis J. Omiecinski
1999 Alvaro Puga
2000 Kenneth Ramos, Garold Yost
2001 Ronald Hines, Richard Seegal
2003 William D. Atchison
2004 Charlene A. McQueen
2005 Kevin M. Crofton
2006 Robert A. Roth
2007 Michael S. Denison
2008 José E. Manautou
2009 Kim Boekelheide
2010 J. Chris Corton
2011 Saber Hussain
2012 Bhagavatula Moorthy

Colgate-Palmolive Awards for Student Research Training in Alternative Methods

The purpose of the Colgate-Palmolive Awards for Student Research Training in Alternative Methods is to enhance student research training using *in vitro* methods or alternative techniques to reduce, replace, or refine use of animals in toxicological research. The Awards Committee will present the awards to graduate students. Two or more awards, up to $3,750 each, are available annually. Awards will defray travel, per diem, and training expenses.

The award is for expenses for training consistent with the goal of this award program. The training may include, but is not limited to, use of *in vitro* and *ex vivo* procedures, use of nonmammalian animal models, computer modeling, and structure-activity relationships. Graduate students may propose to develop expertise in relevant methodologies at (1) a laboratory away from their home institution; (2) a laboratory at their home institution that would not be available to them otherwise; or (3) approved workshops, symposia, or continuing education programs where hands-on training will be received. The training should help toxicology graduate students enhance their thesis or dissertation research.

Award Recipients

2000 Jason Gross
2001 Jason Biggs, Victoria Richards
2002 Kartik Shankar, Chad M. Vezina, Ryan L. Williams
2003 Sachin Devi, Midhun Korrapati, Pallavi Limaye
2004 Jaya Chilakapati, Marc A. Nascarella
2005 Vishaka Bhave, Ankur Dnyanmote, Jonathan Maher
2006 Mary Hassani, Prajakta Palkar
2007 Renee Gardner, Prajakta Palkar, Rohit Singhal, René Viñas
2008 Kimberly A. Hays, Haitian Lu
2009 Jennifer Cole, Katie Beth Paul, Samuel Peterson
2010 Maxwell C. K. Leung, David T. Szabo, Natalia M. VanDuyn
2011 Vijay More
2012 Agnes Forgacs, René Viñas
2013 Aaron Lulla, Jamie Moscovitz, Alexandra Munoz

Colgate-Palmolive Grants for Alternative Research

The Colgate-Palmolive Grants for Alternative Research will identify and support efforts that promote, develop, refine, or validate scientifically acceptable animal alternative methods to facilitate the safety assessment of new chemicals and formulations. Scientists at any stage of career progression may submit a proposal. High priority will be given to projects that use *in vitro* or nonanimal models, reproductive and developmental toxicology, neurotoxicology, systemic toxicology, sensitization, and acute toxicity. The maximum award is $40,000, made as a single lump payment. Awardees can re-apply for funding in subsequent years.

Award Recipients

2006 Rola Barhoumi, Abby Benninghoff, Jodie Flaws, Courtney Sulentic, Xiaouzhong Yu
2007 Rita L. Caruso, Daniel R. Cerven, Anne R. Greenlee, Glenn M. Walker
2008 Daniel R. Ceven, Duncan C. Ferguson, Shashi K. Ramiah
2009 Qin M. Chen, Timothy J. Shafer, Mehmet Uzumcu
2010 Patrick Allard, Duncan C. Ferguson, Mehmet Uzumcu
2011 Patrick Allard, Hao Zhu
2012 Mingzhu Fang, Jennifer Freeman
2013 Lei Li Kerr, Hao Zhu

Colgate-Palmolive Postdoctoral Fellowship Award in *In Vitro* Toxicology

The Colgate-Palmolive Company sponsors the Colgate-Palmolive Postdoctoral Fellowship Award in *In Vitro* Toxicology through the Society of Toxicology to advance the development of alternatives to animal testing in toxicological research. The award is given annually and includes stipend and research-related costs up to $44,000 for one year (including funding to attend the SOT Annual Meeting to present this research). The award is available to postdoctoral trainees employed by academic institutions, federal/national laboratories, or research institutes worldwide. Preference will be given to applicants in their first year of postdoctoral study.

Award Recipients

1988 Ernest Bloom
1989 Gin Hsieh
1990 Dennis E. Chapman
1991 Anne Walsh
1992 Qin Chen
1993 Erika Cretton
1994 William Chan
1995 Bob Van de Water
1997 Alan Parrish
1999 Russell Thomas
2001 Kevin Kerzee, Christopher Reilly
2002 Kevin Kerzee
2003 Kimberly Miller
2004 Kimberly Miller
2005 Francis Tukov
2007 Aaron Rowland
2008 Aaron Rowland
2009 Ankur Dnyanmote
2010 Ankur Dnyanmote
2011 Cassandra Deering-Rice

Sponsored Award Descriptions (Continued)

2012 Melanie Adler
2013 Melanie Adler

Colgate-Palmolive Traveling Lectureship in Alternative Methods in Toxicology Award

Offered 1996–2008

Award Recipients

1996 University of Mississippi Medical Center
Visiting Professor: Tetsuo Satoh
1996 University of Illinois at Urbana
Visiting Professor: Julio Davila
1996 Mississippi State University
Visiting Professor: Michael Holsapple
1996 Washington State University
Visiting Professor: Daniel Acosta
1997 Indiana University School of Medicine
Visiting Professor: A. Jay Gandolfi
1997 University of Arizona Health Science Center
Visiting Professor: Kevin E. Driscoll
1997 University of New Mexico
Health Sciences Center
Visiting Professor: Sam Kacew
1997 University of Illinois
Visiting Professor: Michael Denison
1998 University of Washington
Visiting Professor: Bruce Fowler
1998 San Diego State University
Visiting Professor: Leigh Ann Burns-Naas
1999 San Diego State University
Visiting Professor: Robert Chapin
2000 Yale University, School of Medicine
Visiting Professor: Narendre Singh
2001 Medical College of Wisconsin
Visiting Professor: Garold Yost
2003 Washington State University
Visiting Professor: Marc W. Fariss
2004 University of Louisiana at Monroe
Visiting Professor: Snorri S. Thorgeirsson
2008 University of Louisiana at Monroe
Visiting Professor: George Michalopoulos

Novartis Graduate Student Fellowship Award

The Novartis Graduate Student Fellowship Award is available for student members of the SOT engaged in full-time graduate study toward a PhD in toxicology. The major professor must be an SOT member. The evaluation is based primarily on originality of the dissertation research, research productivity, relevance to toxicology, scholastic achievement, and letters of recommendation. Finalists are interviewed at the Annual Meeting and receive travel support.

Award Recipients

1989 Timothy Zacharewski
1990 Mary Suzanne Stefaniak
1991 Donald Bjerke
1992 Lhanoo Gunawardhana
1993 Christopher Martenson
1994 Nyla Harper
1995 Heather E. Kleiner
1996 Russell Thomas
1997 Melva Rios-Blancos
1998 Kent Carlson
1999 Mark Hickman
2000 Jeffrey Moran
2001 Vishal Vaidya
2002 Kartik Shankar
2003 Sachin Devi
2004 James Luyendyk
2005 Andrea W. Wong
2006 Sheung P. Ng
2007 Atrayee Banerjee
2008 Helen J. Badham
2009 Yue Cui
2010 Eric N. Liberda
2011 Alexandria Lau
2012 Julia E. Rager

Pfizer Undergraduate Student Travel Awards

Pfizer Undergraduate Student Travel Awards are presented through the Society of Toxicology to foster an interest in graduate studies in the field of toxicology by bringing promising undergraduate students to the SOT Annual Meetings. Pfizer, Inc., will provide up to five awards per year to undergraduate students presenting research at the Annual Meeting. Awardees will be selected by the Education Committee based on the quality of the submitted abstract and the advisor's supporting recommendation. Those selected will receive travel assistance for the meeting, a plaque presented at the annual Awards Ceremony, and recognition at a special Pfizer function. Awardees will be matched with a graduate student and a Pfizer scientist to mentor them during the Annual Meeting, and will have the opportunity to attend the Society of Toxicology Undergraduate Education Program on the Sunday of the Annual Meeting.

Award Recipients

2006 Shawntay Chaney, Theresa M. Eagle, Natalie Malek, Adeliada Segarra, Ryan Vaughan
2007 Kay Gonsalves, Lisa Koselke, Basharat Sanni, Sonia Talathi, Anna Zimmerman
2008 Amy DeMicco, Tharu Fernando, Yamel Perdomo, Amy Yi Hsan Saik, Kelly Sullivan
2009 Sherine Crawford, Trish T. Hoang, Kelly Krcmarik, Cory M. Mathias, P. Sean McGrath
2010 Annie L. Carlton, Alisha Chitrakar, Megan E. Culbreth, Chang Woo Lee, Sharon Ochs
2011 Brandon Haghverdian, Jessica H. Hartman, Camila Odio, Viviana Vidal Anaya, Phillip Alan Wages
2012 Ashley Press, Darien Shapiro, Qi Wang, Brittany Winner, Frances A. Xin
2013 Amy Ashworth, Naing Bajaj, Adrienne R. Klinger, Anna Lang, Douglas J. Saforo

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

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 July 2011 to December 2012.

2011–2012 Honor Roll of Contributors

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Endowment Fund Honor Roll of Contributors (Continued)

2011–2012 Honor Roll of Contributors

Institutional Contributors

No Diamond Contributors ($10,000 or more) and Platinum Contributors ($5,000–$9,999) were received July 2011 to December 2012.

—GOLD CONTRIBUTORS—

$2,500–$4,999

- Gradient
- KR Global Partners, Inc.

—SILVER CONTRIBUTORS—

$1,000–$2,499

- Johnson & Johnson
- Oklahoma State University
- University of Southern California
- Veritox Inc

—EMPLOYER'S MATCHING CONTRIBUTIONS—

- Amgen Foundation on behalf of Linda L. Carlock
- Amgen Foundation on behalf of Katherine H. Sprugel
- Bristol-Myers Squibb Foundation on behalf of Michael J. Graziano
- Pfizer Foundation on behalf of Michael Aleo
- Pfizer Foundation on behalf of Joseph Brady
- Pfizer Foundation on behalf of Dennis J. and Leigh Ann Burns Naas
- Pfizer Foundation on behalf of Robert Chapin
- Pfizer Foundation on behalf of Gregory L. Finch
- Pfizer Foundation on behalf of Denise Robinson-Gravatt

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Details about SOT 2012 Endowment Fund Recipients can be found on *pages 83–86*.
For more information about the Award Recipients and the Endowment Fund, please visit ***www.toxicology.org/ai/csot/contribute.asp***.

Endowment Fund Donor Contribution Form

SOT Endowment Family of Funds

The individual Funds that make up the SOT Endowment Fund are briefly described below. All are, or intend to become, Permanently Restricted Net Asset Funds, with their assets invested so their Funds will be continued in perpetuity with proceeds used for the purpose(s) identified by their original donor or those who provided leadership for creating each specific Fund.

Society Funds

- **Education**—Proceeds from this Fund support a margin of excellence in SOT Educational Activities.
- **Global Activities**—Proceeds from this Fund will be used to promote the involvement of the SOT in international activities such as those of the International Union of Toxicology.
- **SOT Strategic Priorities**—Proceeds from this Fund support the highest priority needs of the Society as determined by the SOT Council.

Your contributions can have twice the IMPACT—Matches will be made to the Education, Global Activities, and SOT Strategic Priorities Society Funds and to specified Named Funds *(listed below with the asterisk)* that support the Society Funds.

Named Funds

These Funds match the interests of the donors with the future financial needs of SOT, its Specialty Sections (SS), Special Interest Groups (SIG), and Regional Chapters (RC).

- **Daniel and Patricia Acosta Diversity Student Fund***—SOT Education Fund
- **Mary Amdur Student Award**—Inhalation and Respiratory SS
- **Young Soo Choi Student Scholarship Award**—Korean Toxicologists Association in America SIG
- **Laxman S. Desai ASIO Student Award**—Association of Scientists of Indian Origin SIG
- **Diversity Initiatives**—Committee on Diversity Initiatives
- **John Doull Student Award**—Risk Assessment SS
- **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 Biology Student Award**—Molecular Biology SS
- **Sheldon D. Murphy Memorial Fund***—SOT Education and/or Student Travel
- **Toshio Narahashi Neurotoxicology Fellowship Award**—Neurotoxicology SS
- **Pacific Northwest Toxicology Development**—Pacific Northwest RC
- **Emil A. Pfitzer Drug Discovery Student Award**—Drug Discovery Toxicology SS
- **Gabriel L. Plaa Education Award**—Mechanisms SS
- **Regulatory and Safety Evaluation Student Award**—Regulatory and Safety Evaluation SS
- **Renal Toxicology Fellowship Award**—Mechanisms SS
- **Robert J. Rubin Student Travel Award**—Mechanisms SS and Risk Assessment SS
- **Dharm V. Singh ASIO Student Award**—Association of Scientists of Indian Origin SIG
- **Dharm V. Singh Carcinogenesis Award**—Carcinogenesis SS
- **Carl C. Smith Student Mechanisms Award**—Mechanisms SS
- **Ronald G. Thurman Student Travel Award**—Mechanisms SS
- **Toxicologists of African Origin Endowment**—Toxicologists of African Origin SIG

Recognition Levels

Individual Recognition
(Cumulative Contributions)

- **Benefactor**—Cumulative contributions of $10,000 or more.
- ***Paracelsus* Circle Lifetime Member**—Cumulative contribution of $5,000 or more. Alternatively, a contribution of $500 and statement of intent to contribute $5,000 within 10 years.

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

Corporate/Institutional Recognition
(Based on July–June Fiscal Year Giving)

- **Diamond**—Over $10,000
- **Platinum**—$5,000–$9,999
- **Gold**—$2,500–$4,999
- **Silver**—$1,000–$2,499

Donors who give $40 or more will be identified by name on the SOT Endowment Fund website and other Fund literature unless they wish to remain anonymous. In the case of couples who are both members of the SOT, the Recognition Level is based on the contribution of each individual. Thus, a $500 joint contribution from a couple who are both members of the SOT is recognized at the Gold Level and a $1,000 joint contribution is recognized at the *Paracelsus* Circle Level.

501(c)3 Charitable Organization

The SOT Endowment Fund is part of the Society of Toxicology, a charitable, nonprofit, 501(c)3 organization under the Internal Revenue Code. The SOT Tax Identification Number is 52-605-7050. Contributions to the SOT Endowment Fund typically will be considered tax-deductible contributions. The Society of Toxicology will provide written acknowledgment of all contributions made to the SOT Endowment Fund.

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ENDOWMENT
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Donor Contribution Form

The SOT Endowment Fund is a family of Funds created to match the interests of Donors with the future financial needs of the SOT, its Specialty Sections, Special Interest Groups, and Regional Chapters. The individual Funds and Recognition Levels are briefly described on the following page.

Contribution Information

☐ I wish to be identified by name as an Endowment Fund Donor by Recognition Level, as shown on the following page, in the SOT Endowment Fund Annual Report. Name for acknowledgment:

_____

☐ I do not want to be publicly identified as a Donor; I wish to remain anonymous.

☐ I intend to contribute $5,000 or more within ten years in order to be recognized as a ***Paracelsus* Circle Lifetime Member**.
(For budget purpose only—not legally enforceable.)

☐ My employer will match my contribution.
(Please enclose your employer's Matching Gift Form)

Employer _____

Please contact me concerning the following:

☐ To assist in arranging a Corporate Gift/Stock or other assets.

☐ Naming the SOT Endowment Fund in my Will or Trust.

☐ Purchasing a Charitable Gift Annuity.

☐ Establishing a new Fund.

☐ Contributing securities, property, etc.

☐ Other _____

☐ I am giving my gift ($500 minimum):

In memory of _____

In honor of _____

Donor Information

Name			
Affiliation			
Address			
City		State/Region	
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General Purpose Funds

Education	$
Global Activities	$
SOT Strategic Priorities	$

Named Funds

(Listed on the following page)

	$
	$
	$
	$
	$
	$
TOTAL	$

Payment

☐ Enclosed is a check for $ _____		Check # _____	
☐ AMEX ☐ Discover ☐ Diners ☐ MasterCard ☐ Visa			
Credit Card #		Exp Date	
Name on Card			
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Date			

Individuals who are interested in making a donation to create a specific purpose Fund or individuals from a Specialty Section or other formal/informal group who are interested in providing leadership for creating a specific purpose Fund are encouraged to contact Clarissa Wilson at SOT Headquarters by telephone: 703.438.3115 or email: clarissa@toxicology.org.

Mail or Fax to:

Society of Toxicology Endowment Fund
1821 Michael Faraday Drive, Suite 300
Reston, VA 20191

Fax: 703.438.3113

SOT Affiliates

The Society of Toxicology has established a special category for private, public, and not-for-profit organizations that wish to contribute to the success of SOT toward "creating a safer and healthier world by advancing the science of toxicology."

AbbVie
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Washington, DC

American Petroleum Institute
Washington, DC

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Bayer HealthCare Pharmaceuticals
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Boehringer Ingelheim Pharmaceuticals, Inc.
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Bristol-Myers Squibb Company
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CANTOX
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The Dial Corporation, A Henkel Company
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Dow Corning Corporation
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Research Triangle Park, North Carolina

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Janssen Pharmaceutical Companies of Johnson & Johnson
Raritan, New Jersey

Metabolon, Inc.
Durham, North Carolina

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Groton, Connecticut

Procter & Gamble Company
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Bridgewater, New Jersey

Sequani Limited
Ledbury, Herefordshire, United Kingdom

Syngenta Crop Protection, Inc.
Greensboro, North Carolina

Toxicology Excellence for Risk Assessment (TERA)
Cincinnati, Ohio

WIL Research
Ashland, Ohio

If your organization is interested in participating in the SOT Affiliate program, please contact marcia@toxicology.org

Notes

Headquarters Staff

Society of Toxicology Headquarters

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Tel: 703.438.3115 • Fax: 703.438.3113 • Email: sothq@toxicology.org • Website: **www.toxicology.org**

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Sponsorship Gives You:

- Recognition in all Annual Meeting publications and promotional materials, *ToxExpo Directory*, the SOT website, postmeeting newsletters, and colorful signage and banners at the meeting
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- Invitations to the President's Reception
- And much more!

The Diamond Level Sponsors ($10,000 or more) can be found on the back cover.

For more information contact SOT Headquarters and ask for Tina Giovanini at 703.438.3115 or email tina@toxicology.org.

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(as of January 10, 2013)

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(as of January 10, 2013)

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