

# Scientific Program Overview

## Sunday, March 11

7:00 AM to 7:45 AM

### CONTINUING EDUCATION SUNRISE MINI-COURSES

- SR01 CRISPR-Cas9 for Toxicologists (p77)
- SR02 The What, When, and How of Using Data from Alternative Testing Methods in Chemical Safety Assessments (p77)

8:15 AM to 12:00 Noon

### CONTINUING EDUCATION MORNING COURSES

- AM03 An Introduction to the Basics of Immunotoxicity Testing (p78)
- AM04 Assessment of Peri- and Prepubertal Developmental and Reproductive Toxicity (p78)
- AM05 Biotherapeutic Development: What's behind the Curtain? (p79)
- AM06 *In Vitro* Testing: Tales from the Real World (p79)
- AM07 Physiologically-Based Pharmacokinetic Modeling to Support Modernized Chemical Safety Assessment (p80)
- AM08 Developmental Neurotoxicity Testing: Current Practices and Latest Advancements (p80)

1:15 PM to 5:00 PM

### CONTINUING EDUCATION AFTERNOON COURSES

- PM09 Consumer Products Safety Assessment: Progress in the Use of Alternatives to Animal Models (p81)
- PM10 Evaluation of Leachable Substances from Materials with Applications in Foods and Pharmaceuticals: Science- and Risk-Based Approaches (p81)
- PM11 Lead Optimization of Therapeutic Small Molecules: From Drug Target to Clinical Candidate Selection—Strategies and Decision Making (p81)
- PM12 NGS-Based Technologies Enable Biomarker Development and Discovery in Toxicology (p82)
- PM13 Uncertainty Characterization in 21st-Century Toxicology: Current Practice and Practical Methods Supporting Regulatory Risk Assessment (p82)
- PM14 Xenobiotic Pharmacokinetics during Pregnancy and Lactation (p83)

## Monday, March 12

8:00 AM to 9:00 AM

### PLENARY SESSION

Developing Genome-Edited Stem Cells for Therapy of Patients: Assessing Efficacy and Toxicology



Lecturer: Matthew H. Porteus, Stanford University (p85)

9:15 AM to 12:00 Noon

### SYMPOSIUM SESSIONS

- Advanced Imaging and Microscopy for Retinal Disease and Toxicity **IAT** (p86)
- Cancer Risk Assessment of PAH Mixtures: Current and Future Directions (p87)
- Novel Insights on Chemical-Induced Immunotoxicity: Microvesicles and microRNA Dysregulation (p87)
- Toxicological Implication of Copper in Neurodegenerative Diseases (p88)
- Understanding the Molecular Mechanisms of Zika Virus Reproductive and Developmental Toxicity (p88)

### WORKSHOP SESSIONS

- Assessing the Dose of Particles in Toxicological Studies: Advances in Dosimetry Models for *In Vitro* and *In Vivo* Applications in Light of Risk Assessment (p89)
- Predicting Drug-Induced Cholestatic Injury in Humans (p90)
- Toxicology's Next Grand Challenge: Embracing Exposure Science for Effective Public Health Protection (p90)

### PLATFORM SESSION

- Investigating Mode-of-Action in Chemical Carcinogenesis (p91)

9:15 AM to 4:30 PM

### POSTER SESSIONS

- Air Pollution (p99)
- Air Pollution: Ozone (p100)
- Biomarkers (p101)
- Biomarkers: RNA (p103)
- Biotransformation and Metabolism (p103)
- Cardiovascular Toxicology: Hemodynamics (p97)
- Cardiovascular Toxicology: *In Vitro* Systems (p94)
- Cardiovascular Toxicology: *In Vivo* Systems (p96)
- Food Safety and Nutrition (p122)
- Genetic Toxicity (p116)
- Immunotoxicity (p91)
- Inflammation (p94)
- Mechanistic Insights in Liver Damage (p105)
- Metals Neurotoxicology: Lead, Cadmium, and Others (p113)
- Metals Neurotoxicology: Methylmercury and Mercury (p114)
- Neurodevelopmental Toxicity I (p110)
- Neurodevelopmental Toxicity II: Autism, ASD, and Childhood Mental Disorders (p112)
- Neurotoxicology: Neurodegenerative Disease I: Alzheimers, ALS, Excitotoxicity, and Others (p112)
- New Models and Biomarkers for Liver Damage (p107)
- Ocular Toxicology (p115)
- Regulatory Policy and Policy Evaluation (p124)
- Respiratory Toxicology: *In Vitro* Studies (p98)
- Respiratory Toxicology: *In Vivo* Studies (p97)
- Safety Assessment: Drug Development (p120)
- Safety Assessment: Drug Discovery (p118)
- Understanding Kidney Damage (p109)

9:30 AM to 3:00 PM

### RESEARCH FUNDING INSIGHTS

Network with Grant Program Officers (p125)

#### This Schedule and More Available in the SOT Mobile Event App

Continually updated with the latest information and details, the SOT Mobile Event App contains all of the information from this Program and more! Download it today from your favorite app store. See the ad on page 3 for more details.



12:10 PM to 1:30 PM

### INFORMATIONAL SESSIONS

- Changes to the Common Rule Regulations and Implications for Human Research (p127)
- Management of Toxic Wastes in Africa: Challenges and Opportunities (p127)
- Moving Beyond Theory to the Use of Systematic Review to Support Regulatory Decision Making for Evidence-Based Risk Assessment (p128)

12:30 PM to 1:30 PM

### DISTINGUISHED TOXICOLOGY SCHOLAR AWARD LECTURE

Sixty Years of Contributions to Understanding Radionuclide Toxicity



Lecturer: Roger O. McClellan, Toxicology & Human Health Risk Analysis (p129)

1:45 PM to 4:30 PM

### SYMPOSIUM SESSIONS

- Adipocyte Toxicology and Obesogens (p129)
- Alternative Testing Strategies for Nanomaterials and Ultrafine Particles (p130)
- Chemical Grouping for 21st-Century Toxicology, Risk Assessment, and Decision Making (p131)
- Decoding Oxidative Stress from Inflammation: Implications for Exposure, Toxicity, and Disease (p131)
- Estrogen Receptor Signaling as a Mechanism of Developmental Toxicity (p132)
- High-Throughput Transcript Profiling and Functional Assessment: From Screening to Systems Biology Strategies for Personal Chemical Safety Predictions (p133)
- Revising Biology: Using Genomic and Epigenomic Editing to Gain Novel Insight into the Molecular Mechanisms of Toxic Exposure Effects and Susceptibility (p133)

### REGIONAL INTEREST SESSION

- Marijuana Safety: Issues Facing the Regulatory, Medical, and Academic Environments (p134)

### PLATFORM SESSION

- Mechanistic and Translational Toxicology: SPC Highlights Emerging Scientists (p134)

3:00 PM to 4:30 PM

### RESEARCH FUNDING INSIGHTS SESSION

Research Funding 101: Multiple Perspectives on the NIH Grant Process (p135)

4:45 PM to 6:00 PM

### SOT/EUROTOX DEBATE

Adverse Outcome Pathways Are the Future for Regulatory Toxicology

Debaters: Daniel Villeneuve, US EPA; and Brigitte Landesmann, European Commission Joint Research Centre, Directorate F-Health, Consumers, and Reference Materials (p136)



Tuesday, March 13

8:00 AM to 10:45 AM

### SYMPOSIUM SESSIONS

- Clinical and Translational Toxicology: From Theory to Therapy (p139)
  - Mitochondria Biogenesis and Dysfunction in Cellular Senescence in Cardiopulmonary System (p139)
- ### WORKSHOP SESSIONS
- Advancing the Adverse Outcome Pathway Framework: An International Horizon-Scanning Approach (p140)
  - Computational Predictions for Dermal Penetration of Chemicals: Should More Complexity Be Considered in Addition to Simple Passive Diffusion? (p140)
  - Defining Domains of Applicability for Zebrafish within Toxicology: A Retrospective and Prospective Workshop (p141)
  - Get the Lead Out: The Persistent Problem of Lead Exposure from Soil, Dust, and Water (p141)
  - Nanotoxicology, State of the Science, and the Path Forward (p142)

### PLATFORM SESSIONS

- Chemical and Biological Weapons (p142)
- Immunotoxicity (p143)

9:15 AM to 4:30 PM

### POSTER SESSIONS

- AH Receptor (p174)
- Air Pollution: Biomass (p155)
- Air Pollution: Particulate Matter (p155)
- Alternatives to Mammalian Models I (p176)
- Apoptosis and Cell Death (p152)
- Autoimmunity/Hypersensitivity (p162)
- Bioinformatics and *In Silico* Modeling (p162)
- Carcinogenesis I (p158)
- Carcinogenesis II (p159)
- Chemical and Biological Weapons (p172)
- Computational Approaches in Safety Assessment (p184)
- Computational Tools for Safety Assessment (p186)

- Developmental Basis of Adult Disease (p148)
- Ecotoxicology (p156)
- Emerging Technologies (p164)
- Endocrine Toxicology (p146)
- Epidemiology and Human Population Evaluation (p149)
- Epigenetics (p150)
- Exposure Assessment: Applications (p179)
- Exposure Assessment: Tools and Methods Development (p180)
- Gene Regulation and Signal Transduction (p183)
- Medical Devices (p165)
- Metals Neurotoxicology: Manganese (p168)
- Metals: Arsenic, Lead, and Manganese (p166)
- Mixtures (p161)
- Neurotoxicology: Neurodegenerative Disease II: Parkinson's Disease and Dopaminergic Toxicity (p169)
- Oxidative Injury and Redox Biology (p182)
- Persistent Organic Pollutants (p178)
- Pesticide Neurotoxicology (p170)
- Pesticides (p171)
- Receptors (p175)
- Reproductive Toxicology I (p144)
- Reproductive Toxicology II (p145)
- Stem Cell Biology and Toxicology (p175)
- Systems Biology (p153)
- Translational Toxicology (p178)

9:30 AM to 4:30 PM

### RESEARCH FUNDING INSIGHTS

Network with Grant Program Officers (p188)

TOX EXPO™

Visit ToxExpo

Monday–Wednesday  
9:15 AM–4:30 PM

The 330+ exhibiting companies can provide you with professional connections and can help fulfill toxicology-related needs.

ToxExpo section of the Program starts on page 27.

11:00 AM to 12:00 Noon

MEET THE DIRECTORS

A Conversation with Linda S. Birnbaum, Mark S. Johnson, and Edward J. Perkins

Panelists: Linda S. Birnbaum, NIEHS; Mark S. Johnson, US Army Public Health Center; and Edward J. Perkins, US Army Engineer Research and Development Center (p189)



TRANSLATIONAL IMPACT AWARD LECTURE

Modulation of Toxic Effects and Human Disease Risks: From Synthetic Drugs to Natural Products



Lecturer: Jia-Sheng Wang, University of Georgia (p189)

11:00 AM to 12:20 PM

TOXICOLOGICAL SCIENCES FEATURED SESSION

20 Years of ToxSci: Reflecting on the Past and Envisioning the Future, Including a Tribute to Dr. John Doull

Panelists: Gary W. Miller, Emory University; Curtis D. Klaassen, University of Washington; Lois D. Lehman-McKeeman, Bristol-Myers Squibb; David L. Eaton, University of Washington; and Dana C. Dolinoy, University of Michigan School of Public Health (p189)



ROUNDTABLE SESSION

- Alternative Toxicology Approaches to Evaluate Next-Generation Nicotine Products (p190)

HISTORICAL HIGHLIGHTS SESSION

- Arsenic, a Gift and Malice: From Discovery to Detrimental Effects, a Historical Perspective (p190)

EDUCATION-CAREER DEVELOPMENT SESSION

- In It to Win It: How to Negotiate during the Interview Process (p190)

12:00 Noon to 1:30 PM

HOT TOPIC SESSION

- Exposure and Toxicological Concerns Surrounding Perfluorinated Alkyl Substances (PFAS) (Full details available in the Mobile Event App)

1:30 PM to 4:15 PM

SYMPOSIUM SESSIONS

- Application of Data from New Approaches in Regulatory and Product Safety Decisions (p192)
- Effectively Leveraging Cellular Functional Genomics Strategies for Elucidating Chemical Mechanisms of Action (p193)
- Stressors from Within: Neuroendocrine Regulation of Air Pollution-Induced Pulmonary and Systemic Health Effects ITS (p193)

WORKSHOP SESSIONS

- Big Data in Toxicology: How to Achieve Transparency and Reproducibility (p194)
- Mitochondria: Critical Targets in Pharmaceutical and Environmental Toxicity (p195)
- Safety Evaluation of Plant-Based Color Additives Used in Foods (p195)

REGIONAL INTEREST SESSION

- Communicating Science: Unconventional Oil and Gas Operations as a Case Study (p196)

HISTORICAL HIGHLIGHTS SESSION

- Radiation Toxicity: Historical Perspective on Epidemiological and Experimental Evidence Informing Standards (p196)

PLATFORM SESSION

- Persistent Organic Pollutants (p197)

4:30 PM to 5:50 PM

EDUCATION-CAREER DEVELOPMENT SESSION

- Perfecting Your "Elevator Speech" (p198)

4:45 PM to 6:15 PM

SOT ANNUAL BUSINESS MEETING

SOT Members are encouraged to attend. (p199)

Wednesday, March 14

8:00 AM to 10:45 AM

SOCIETY OF TOXICOLOGY AND JAPANESE SOCIETY OF TOXICOLOGY SYMPOSIUM

Environmental Neurodevelopmental Risk

Lecturers: Yoichiro Kuroda, Environmental Neuroscience Information Center; Susan L. Schantz, University of Illinois at Urbana-Champaign; Satoshi Kitajima, National Institute of Health Sciences; and Deborah A. Cory-Slechta, University of Rochester Medical Center (p201)



WORKSHOP SESSIONS

- Cardiovascular Adverse Effects Are Still Causing Late Attrition of Novel Therapeutics: Developing Solutions to Detect and Avoid Cardiovascular Toxicity in the Clinic (p202)
- Environmental Chemical-Microbiome Interactions in Disease Susceptibility (p202)
- Matching Analytical Methods to Markets: Balancing Regulatory Expectations and Technical Challenges IAT (p203)
- Mechanisms of Ocular Sulfur Mustard Toxicity and Potential Therapies IAT (p204)
- Reaching Hazard Conclusions for Endocrine-Disrupting Chemicals: Adapting Systematic Review Methods (p204)
- Reducing the Uncertainty of Read-Across Predictions by New Approach Methodologies: Application in Regulatory Human Risk Assessments (p205)

PLATFORM SESSIONS

- Animal Models (p205)
- Autoimmunity/Hypersensitivity/Inflammation (p206)
- Zika Pathophysiology and Potential Intervention (p206)

Plan Your Meeting

You can build a customized schedule with the events and sessions you want to attend using the SOT Mobile Event App and Online Planner.

See the ad on page 3 for details on downloading the app.



9:15 AM to 4:30 PM

**POSTER SESSIONS**

- Air Pollution: Volatile Organic Compounds (p214)
- Alternatives to Mammalian Models II (p233)
- Alternatives to Mammalian Models III: Liver, Ocular, and Skin Alternatives (p235)
- Animal Models (p231)
- Developmental and Juvenile Toxicity (p213)
- Education, Outreach, Ethical, and Social Issues (p224)
- Metals and Metal Mixtures (p226)
- Metals: Mercury and Cadmium (p225)
- Modeling of Pharmacokinetics and Biological Effects (p236)
- Nanoparticles: Exposure Methods and Safety Regulation (p212)
- Nanoparticles: Mechanisms of Toxicity (p209)
- Nanoparticles: Protein Biocorona (p213)
- Nanotoxicity: Immunology (p211)
- Nanotoxicity: *In Vitro* (p207)
- Nanotoxicity: *In Vivo* (p208)
- Nanotoxicity: Inhalation (p211)
- Natural Products (p223)
- Neurotoxicology: General (p228)
- Non-Pharmaceutical Safety Assessment (p221)
- Pharmacokinetics and Disposition (p238)
- Respiratory Toxicology: Tobacco Products (p215)
- Risk Assessment Applications I (p217)
- Risk Assessment Applications II (p218)
- Risk Assessment Methods and Policies (p219)
- Skin (p230)

9:30 AM to 4:30 PM

**RESEARCH FUNDING INSIGHTS**

Network with Grant Program Officers (p239)

11:00 AM to 12:00 Noon

**EUROTOX BO HOLMSTEDT MEMORIAL AWARD LECTURE**

Human Skin Stem Cell-Derived Hepatic Cells and Their Potential Applications in Toxicology



Lecturer: Vera Rogiers, Vrije Universiteit Brussel (p240)

11:00 AM to 12:20 PM

**ROUNDTABLE SESSIONS**

- Is a Common Mechanism of Action Essential to Conduct a Cumulative Risk Assessment or Just Nice to Have? (p241)
- Unlocking the 'Omics Archive: Enabling Toxicogenomic/Proteomic Investigation from Archival Samples (p241)

**INFORMATIONAL SESSION**

- Good Cell and *In Vitro* Method Practices against the "Reproducibility Crisis" (p242)

**EDUCATION-CAREER DEVELOPMENT SESSION**

- Career Opportunities in Regulatory Toxicology (p242)

12:30 PM to 1:30 PM

**PLENARY KEYNOTE MEDICAL RESEARCH COUNCIL (MRC) LECTURE**

Circadian Clocks: Setting the Tempo of Our Life



Lecturer: Michael H. Hastings, MRC Laboratory of Molecular Biology (p243)

1:30 PM to 4:15 PM

**SYMPOSIUM SESSIONS**

- Atherosclerosis as a Model to Understand the Combined Effects of Environmental Chemical and Non-Chemical Stressors (p244)
- Mechanisms of Autophagic Function and Dysfunction in Neurotoxicity and Neurodegeneration (p244)
- The Role of the Epigenome in the Etiology of Metal-Induced Disease (p245)

**WORKSHOP SESSION**

- Microbiota as a Target or Mediator of Adverse Effects: Implications for Toxicology (p245)

**REGIONAL INTEREST SESSION**

- Toxicology and Public Health Solutions for Environmental Emergency-Related Contamination Events (p246)

**PLATFORM SESSIONS**

- Alternative Models for Assessing Developmental Toxicity (p246)
- Ecotoxicology (p247)
- Male Reproductive Toxicity: Evaluating Key Events and Adverse Outcomes (p247)
- Pharmacokinetic Modeling: Development and Applications (p248)

4:30 PM to 5:50 PM

**ROUNDTABLE SESSION**

- The Kinetically-Derived Maximum Dose (KMD), a New Dimension to the Maximum Tolerated Dose (MTD) (p249)

**INFORMATIONAL SESSION**

- The US Tox21 Collaboration: A Decade of Experience and a New Vision for the Future (p250)

**EDUCATION-CAREER DEVELOPMENT SESSION**

- Research-Based Approaches to Improve Teaching Effectiveness in Toxicology Classrooms (p250)

Thursday, March 15

8:30 AM to 11:15 AM

**SYMPOSIUM SESSION**

- *In Vitro* Test Methods to Model Local Respiratory Effects after Exposure to Pulmonary Toxicants: Not Just Smoke and Mirrors (p253)

**WORKSHOP SESSIONS**

- A Search for Biomarkers of Neurotoxicity: A Practical Approach (p254)
- Deliberations in Regulatory and Safety Assessment of Food Substances in Early Life (p253)
- Nonclinical to Clinical Translation of Antibody-Drug Conjugates (p254)

**INFORMATIONAL SESSION**

- The NIEHS Nanotechnology Health Implications Research (NHIR) Consortium (p255)

8:30 AM to 11:30 AM

**LATE-BREAKING POSTER SESSIONS**

Late-Breaking Poster Sessions—Session topics available via Mobile Event App or Online Planner.