

Scientific Program Overview

Sunday, March 12

7:00 AM to 7:45 AM

CONTINUING EDUCATION SUNRISE MINI-COURSE

SR01 Molecular Imaging for Toxicologists (p91)

8:15 AM to 12:00 Noon

CONTINUING EDUCATION MORNING COURSES

- AM02 Adding Up Chemicals: Component-Based Risk Assessment of Chemical Mixtures (p91)
- AM03 Current Principles for Nonclinical Chronic Toxicity/ Carcinogenicity Testing of Environmental Chemicals (p92)
- AM04 Navigating Drug-Induced Vascular Injury in Preclinical and Clinical Development of Novel Therapeutics (p92)
- AM05 New Concepts and Technologies in Metals Toxicology (p93)
- AM06 Reproductive Toxicity: Challenges and Practical Approaches to Determine Risk in Drug Development (p93)
- AM07 Technologies and Applications of Stem Cells for Use in Toxicology (p94)

1:15 PM to 5:00 PM

CONTINUING EDUCATION AFTERNOON COURSES

- PM08 Detecting Cancer Risk in Drugs: Design, Conduct, and Interpretation of Carcinogenicity Studies for Regulatory Approvals (p94)
- PM09 Developmental and Reproductive Toxicology (DART) and Risk Assessment of Environmental Chemicals: Applications, Complexities, and Novel Approaches (p95)
- PM10 Emerging Approaches in Genetic Toxicology for Product Development (p95)
- PM11 Extrapolation in the Airways: Strategies to Incorporate *In Vivo* and *In Vitro* Data to Better Protect Human Health (p96)
- PM12 Health-Based Limits for Toxicological Risk Assessment: Setting Acceptable Daily Exposures for Pharmaceutical and Chemical Safety (p96)
- PM13 Read-Across: Case Studies, New Techniques, and Guidelines for Practical Application (p97)



If found, please return to:

Name: _____

Contact Telephone: _____

Monday, March 13

8:00 AM to 9:20 AM

DAILY PLENARY SESSION

- Data Science



Lecturers: Peter Sorger, Harvard Medical School; and Lara Mangravite, Sage Bionetworks (p101)

9:30 AM to 12:15 PM

SYMPOSIUM SESSIONS

- Early-Life Inorganic Arsenic Exposures and Later-in-Life Effects (p102)
- Organs-on-a-Chip, Tissue Bioprinting, and 3D Cultures: Next Generation Models for Toxicology in the 21st Century (p103)
- Translational Control in Disease Progression and Xenobiotic-Mediated Toxicity (p103)

WORKSHOP SESSIONS

- Cross-Industry and Regulatory Approach for the Identification and/or Qualification of Novel Safety Biomarkers of Drug-Induced Vascular Injury (DIVI) (p104)
- Fit for Purpose: Using Computational Models for Risk (p104)
- Scientific, Regulatory, and Safety Considerations for Probiotics and Microbiome Targeted Therapeutics (p105)

PLATFORM SESSIONS

- Investigating Mode of Action in Chemical Carcinogenesis (p105)
- Ozone and Inflammation (p106)

9:30 AM to 12:45 PM

POSTER SESSIONS

- Carcinogenesis I (p106)
- Carcinogenesis II (p108)
- Developmental and Juvenile Toxicity (p114)
- Epidemiology and Public Health (p118)
- Epigenetics (p121)
- Liver: *In Vitro* and *In Silico* Approaches (p116)
- Mixtures (p109)
- Nanotoxicology: *In Vivo* (p120)
- Neurotoxicology: Metals—Cd, Pb, and Others (p111)
- Neurotoxicology: Metals—Mercury (p110)
- Receptors, Gene Regulation, and Signaling (p111)
- Reproductive Toxicology (p113)

9:30 AM to 3:00 PM

RESEARCH FUNDING INSIGHTS

- Network with Program Officers (p123)

12:30 PM to 1:20 PM

MERIT AWARD LECTURE

- Cell Proliferation and Carcinogenesis: Bad Luck and the Environment



Lecturer: Samuel M. Cohen, University of Nebraska Medical Center (p125)

12:30 PM to 1:50 PM

ROUNDTABLE SESSION

- Bias and Conflict of Interest in Conducting Research and Risk Assessments: Perspectives from Academia, Government, Industry, and Others (p125)

INFORMATIONAL SESSIONS

- Advances in Preclinical Safety Testing: Progress in Implementation of ICH Guidances (p126)
- Supporting Open Data in Toxicology (p126)

1:15 PM to 4:30 PM

POSTER SESSIONS

- Bioinformatics and Tox Databases (p127)
- Cytochrome P450 (p133)
- Endocrine Toxicology (p134)
- Hepatotoxicity (p131)
- Nanotoxicology: *In Vitro* (p135)
- Neurodegenerative Diseases (p130)
- Neurotoxicology: Metals—Manganese (p129)
- Neurotoxicology: Microelectrode Arrays (MEAs) (p129)
- Pharmacogenomics (p134)
- Stem Cell Biology and Toxicology (p131)

1:30 PM to 2:30 PM

MEET THE DIRECTORS

- A Conversation with Linda S. Birnbaum and Robert J. Kavlock

Panelists: Linda S. Birnbaum, NIEHS; and Robert J. Kavlock, US EPA (p137)



2:00 PM to 4:45 PM

SYMPOSIUM SESSIONS

- Cell Health and Mechanistic Assays for the *In Vitro* Prediction of DILI (p138)
- Circadian Rhythms in Air Pollution-Induced Pulmonary and Cardiovascular Disorders: A Race against the Clocks (p138)
- Lifespan Neuroimmunotoxicology: Age-Dependent Neuroimmune Dyshomeostasis Caused by Pollutants, Pathogens, and Psychoactive Substances (p139)

WORKSHOP SESSIONS

- Bispecific Molecules: Nonclinical and Clinical Development Challenges (p139)
- Controversies in Pesticide Toxicology (p140)
- Improving Public Health through Innovations in Exposure Science (p141)
- Modernizing Toxicological Risk Assessment for Compounds Released from Pharmaceutical, Consumer, Medical Device and Combination Products: Alternative Tools and Methods (p141)

PLATFORM SESSIONS

- Multi-Omic Connections in Chemical Toxicity (p142)
- Reproductive Toxicology (p142)

3:00 PM to 4:30 PM

RESEARCH FUNDING INSIGHTS SESSION

- Research Funding 101: Multiple Perspectives on the NIH Grant Process (p143)

4:45 PM to 6:00 PM

SOT/EUROTOX DEBATE

- Toxicology Testing of Drug Combinations Does Not Add Significant Value to Human Risk Evaluation Beyond What Is Known for the Individual Agents

Lecturers: Kenneth L. Hastings, Hastings Toxicology Consulting LLC; and Philip Bentley, Toxicodynamix International LLC (p144)



Tuesday, March 14

8:00 AM to 9:20 AM

DAILY PLENARY SESSION

- Precision Medicine

Lecturers: Jun J. Yang, St. Jude Children's Research Hospital; and Richard Barker, University of Oxford (p147)



9:30 AM to 12:15 PM

SYMPOSIUM SESSIONS

- Cardiopulmonary Consequences of Gestational Toxicant Exposure: Getting to the Heart of the Matter (p148)
- Contribution of Gene Transcription to Spontaneous Mutation and Genotoxic Outcomes **ITS** (p148)

WORKSHOP SESSIONS

- Incorporating *In Vitro* Reproductive and Developmental Assays into Regulatory Risk Assessment (p149)
- Opportunities for Read-Across Development and Application Using QSAR Approaches (p149)

INFORMATIONAL SESSION

- Thresholds of Toxicological Concern: 21st Century Safety Assessment (p150)

PLATFORM SESSIONS

- Chemical and Biological Weapons (p150)
- Endocrine Toxicology (p151)
- Mechanisms of Toxicity: SPC Highlights Emerging Scientists (p151)

9:30 AM to 12:45 PM

POSTER SESSIONS

- Dose-Response Assessment and Toxicity Reference Value Derivation (p162)
- Exposure Assessment and Biomonitoring (p164)
- Immunotoxicology (p169)
- Kidney (p160)
- Metals I: Arsenic and Lead (p159)
- Neurotoxicology: General Neurotoxicity (p156)
- Non-Pharmaceutical Safety Assessment (p163)
- Ocular Toxicology (p158)
- Oxidative Injury and Redox Biology (p168)
- Pharmaceutical Safety: Drug Development (p153)
- Pharmaceutical Safety: Drug Discovery (p152)
- Tobacco Products (p166)

9:30 AM to 4:30 PM

RESEARCH FUNDING INSIGHTS

- Network with Program Officers (p171)

1:15 PM to 4:30 PM

POSTER SESSIONS

- Biomarkers (p173)
- Biotransformation (p186)
- Cell Death Mechanisms (p177)
- Chemical and Biological Weapons (p175)
- Genetic Toxicity (p186)
- Medical Devices (p181)
- Metals II: Cadmium and Mercury (p178)
- Metals III: Various Metals and Mixtures (p179)
- Nanoparticle Exposure, Dosimetry, and *In Silico* Modeling (p188)
- Regulation and Policy (p182)
- Skin (p183)
- The Developmental Basis of Adult Disease (p184)

2:00 PM to 4:45 PM

SYMPOSIUM SESSIONS

- Big Data, Meet Chemical Carcinogenesis! Are There New Solutions for an Old Problem? (p190)
- Chemically-Induced Neuroinflammation and "Sickness Behavior" Disorders (p190)
- Emerging Concepts in Nonclinical Development of Immuno-Oncology Agents: Enabling Translation of Nonclinical Pharmacology and Safety Information to First-in-Human Clinical Trials (p190)
- Lost in Translation: Bringing the Real World to *In Vitro* Data (p191)
- miRNAs As Translational Biomarkers of Kidney Injury (p191)

WORKSHOP SESSIONS

- Low Dose Non-Monotonic Responses (p192)
- Safety or Prediction? What Is the Future of Regulatory Toxicity Testing? (p192)

PLATFORM SESSION

- Particulate Matter and Cardiovascular Impairment (p193)

4:45 PM to 6:15 PM

SOT ANNUAL BUSINESS MEETING

- *SOT Members are encouraged to attend* (p194)

5:00 PM to 6:20 PM

EDUCATION-CAREER DEVELOPMENT SESSION

- Careers for Toxicologists at Primarily Undergraduate Institutions: Everything You Need to Know About the Job, Hiring Process, and Strategies for Success in Teaching and Research (p194)

Wednesday, March 15

8:00 AM to 9:20 AM

DAILY PLENARY SESSION—KEYNOTE MEDICAL RESEARCH COUNCIL (MRC) LECTURE

- The Exposome: Challenges and Opportunities



Lecturer: Paul Elliott, Imperial College (p221)

9:30 AM to 12:15 PM

SYMPOSIUM SESSIONS

- Investigating Metabolic Diseases Using Integrated 'Omics Approaches (p197)
- The Skin As a Metabolic and Immune-Competent Organ: Implications for Pharmaceutical Development and Safety Assessment (p198)

WORKSHOP SESSIONS

- 3D Cell Platforms to Advance Toxicological Sciences (p198)
- Challenges and Novel Approaches Evaluating Developmental and Reproductive Toxicity of Biotherapeutics (p199)
- Circulatory Mechanisms Underlying the Systemic Effects of Inhaled Nanoparticles and Complex Combustion Mixtures: Common Pathways for Diverse Toxicants (p199)
- Increasing the Utility and Acceptance of Chemical Specific Adjustment Factors—International Experience (p200)
- Measurement and Prediction of Chemicals in Consumer Products (p200)

9:30 AM to 12:45 PM

POSTER SESSIONS

- Air Pollution (p203)
- Air Pollution: Particulate Matter (p205)
- Animal Models (p218)
- Clinical and Translational Toxicology (p210)
- Developmental Neurotoxicity (p214)
- Disposition/Pharmacokinetics (p207)
- Food Safety and Nutrition (p211)
- Liver 1: Mechanisms and Translational Biomarkers (p207)
- Liver 2: Mechanisms and Translational Biomarkers (p209)
- Nanotoxicology: Carbon-Based Nanomaterials (p219)
- Natural Products (p213)
- Persistent Organic Pollutants (p206)
- Pesticides (p216)
- Respiratory Toxicology (p201)

9:30 AM to 4:30 PM

RESEARCH FUNDING INSIGHTS

- Network with Program Officers (p221)

12:30 PM to 1:20 PM

DISTINGUISHED TOXICOLOGY SCHOLAR AWARD LECTURE

- Dioxins and the Ah Receptor: Synergy of Discovery



Lecturer: Linda S. Birnbaum, NIEHS (p222)

12:30 PM to 1:50 PM

ROUNDTABLE SESSIONS

- Designing a Carcinogenic Mode-of-Action Research Program Useful for Regulatory Decision Making: Challenges and Lessons Learned (p222)
- Herbo-Metallic Mixtures in Traditional Medicines (p223)

INFORMATIONAL SESSIONS

- Communicating Toxicology to the Public (p223)
- Data Science to Generate Toxicity Signatures (p224)

HISTORICAL HIGHLIGHTS SESSION

- NIEHS Superfund Research Program: A History of Cutting-Edge Science and Innovative Technologies (p224)

1:15 PM to 4:30 PM

POSTER SESSIONS

- Alternatives to Mammalian Models I: Liver, Ocular, and Skin Alternatives (p225)
- Alternatives to Mammalian Models II (p227)
- Autoimmunity/Hypersensitivity (p236)
- Cardiovascular and Hemodynamics Toxicity (p241)
- Ecotoxicology (p231)
- Education, Ethical, Legal, and Social Issues (p240)
- General Toxicology (p239)
- Inflammation in Disease (p238)
- Inflammation: Methods and Mechanisms (p239)
- Nanotoxicology: General (p233)
- Neurotoxicology: Pesticides (p232)
- Quantitative Systems Toxicology (p234)
- Risk Assessment Strategies and Applications (p229)

2:00 PM to 4:45 PM

SYMPOSIUM SESSIONS

- Enhancing the Clinical Benefit of Cancer Drugs: Toxicity As a Therapeutic Target (p243)
- Increasing Confidence in Safety Assessment Decisions: The Inclusion of Metabolism in Toxicity Testing Strategies (p243)
- Novel *In Vitro* and *In Silico* Platforms for Modeling Developmental and Reproductive Toxicity **ITS** (p244)

WORKSHOP SESSIONS

- Anesthetics, Analgesics, and Ionizing Radiation: Balancing Utility and Safety in Pregnant Women, Infants, and Children (p245)
- Data Standardization Across 'Omic Platforms in Regulatory Toxicology (p245)
- Is There a Concern for Neurotoxicity from Replacement Organophosphorus Flame-Retardants?: Insights Using Molecular Approaches, Systems Biology, and Human Exposure (p246)

5:00 PM to 5:50 PM

TRANSLATIONAL IMPACT AWARD LECTURE

- Development of a Clinical Diagnostic Test for Acetaminophen Liver Injury



Lecturer: *Laura P. James, University of Arkansas for Medical Sciences, Arkansas Children's Hospital (p247)*

5:00 PM to 6:20 PM

SOCIETY OF TOXICOLOGY AND JAPANESE SOCIETY OF TOXICOLOGY MINI-SYMPOSIUM

- Immune Factors in Drug-Induced Liver Injury

Lecturers: *Robert A. Roth, Michigan State University; and Tsuyoshi Yokoi, Nagoya University Graduate School of Medicine (p247)*



ROUNDTABLE SESSION

- Implementing Developmental Thyroid Toxicity Guidance into Practice: What's Working, What's Not, and How Can We Do Better? (p248)

INFORMATIONAL SESSIONS

- Addressing Rigor and Transparency in Research and Journal Publications (p248)
- Bioinformatics Tools for Accelerated Hypothesis Generation and Mechanistic Insights (p249)

EDUCATION-CAREER DEVELOPMENT SESSION

- Mastering Soft Skills to Advance Your Scientific Career (p249)

Thursday, March 16

8:30 AM to 11:15 AM

SYMPOSIUM SESSIONS

- Evaluating the Reproductive and Developmental Effects of Botanical Dietary Supplements (p251)
- *In Vitro* and Alternative Methods in Ocular Toxicology: The "Eyes" Have It **ITS** (p252)
- Quantitative Systems Toxicology for Chemical Safety Assessment **ITS** (p252)
- The Next Technology Wave: Biosensors, Extreme Computing, and Organ Chips for Predicting Cardiovascular Toxicity **ITS** (p253)

WORKSHOP SESSIONS

- Biological Advances to Help Navigate the Nonclinical Safety Assessment Strategy in Cancer Immunotherapy: Utility, Limitations, and Future Direction (p253)
- Microparticles and Exosomes in Cardiopulmonary System-Stem Cell and Microenvironment Regulation by Toxicants (p254)
- New Findings on Pyrethroid Developmental Neurotoxicity: An Alternate Approach to Characterizing Age-Related Differences to Hazard Identification (p254)

8:30 AM to 11:45 AM

POSTER SESSIONS

- Alternatives to Mammalian Models III (p255)
- Biological Modeling (p256)
- Emerging Technologies (p259)
- Systems Toxicology (p258)
- *Late-Breaking Poster Sessions*—Session topics available via Mobile Event App or Online Planner.