

# Scientific Program Overview

## THEMATIC APPROACH

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

- ✓ Advancing Clinical and Translational Toxicology
- \* Approaches for Protecting Vulnerable Populations
- Epigenomic Influences in Toxicological Responses
- ✦ Safety Assessment Approaches for Product Development
- Strategies for Exposure and Risk Assessments

A page reference follows the course or session information.

## Sunday, March 23

7:00 AM to 7:45 AM

### SUNRISE CONTINUING EDUCATION COURSE

1. New Horizons in Chemical Carcinogenesis: Advances in Mode of Action and Mechanism of Cancer Pathogenesis (p102)

8:15 AM to 12:00 Noon

### MORNING CONTINUING EDUCATION COURSES

- 2. An Introduction to the Exposome (p102)
- 3. Demystifying Mixtures: From Study Design Selection to Risk Assessment Application (p103)
- ✦ 4. Safety Evaluation of CNS Administered Therapeutics—Study Design, Dose Routes, and Data Interpretation (p103)
- ✦ 5. The Future of Developmental and Reproductive Toxicology—Building a Bridge to the Animal Free Zone (p104)\*
- ✓ 6. The New World of Cancer Immunotherapy: Challenges in Bench to Bedside Translation (p104)\*
- ✦ 7. Toxicology and Regulatory Considerations for Combination Products (p105)

1:15 PM to 5:00 PM

### AFTERNOON CONTINUING EDUCATION COURSES

- ✦ 8. Advances in Safety Assessment of Medical Devices (p105)
- ✦ 9. Interpretation of Cardiovascular Safety Data in Toxicology Studies (p106)\*
- ✦ 10. Is Synthetic Biology the Future of Toxicology? (p106)
- ✦ 11. Skeletal System Endocrinology and Toxicology (p107)
- ✦ 12. Strategies in Investigative Toxicology in a Pharmaceutical Setting (p107)
- 13. Toxicogenomics Meets Regulatory Decision-Making: How to Get Past Heat Maps, Network/Pathway Diagrams, and “Favorite” Genes (p108)\*



**Four CE Courses will be presented as live webcasts—  
Separate registration for webcasts required.**

#### Morning Webcasts:

- AM05—The Future of Developmental and Reproductive Toxicology—Building a Bridge to the Animal Free Zone
- AM06—The New World of Cancer Immunotherapy: Challenges in Bench to Bedside Translation

(Both webcasts begin at 8:15 am US Pacific Time)

[WWW.TOXICOLOGY.ORG/REGISTER](http://WWW.TOXICOLOGY.ORG/REGISTER)

#### Afternoon Webcasts:

- PM09—Interpretation of Cardiovascular Safety Data in Toxicology Studies
- PM13—Toxicogenomics Meets Regulatory Decision-Making: How to Get Past Heat Maps, Network/Pathway Diagrams, and “Favorite” Genes

(Both webcasts begin at 1:15 pm US Pacific Time)

## Monday, March 23

8:00 AM to 9:00 AM

### PLENARY OPENING LECTURE

Life at the Speed of Light



Lecturer: J. Craig Venter,  
J. Craig Venter Institute  
(p134)

9:15 AM to 12:00 Noon

### SYMPOSIUM SESSIONS

- ✓ New and Emerging Tobacco Products—Biomarkers of Exposure and Injury (p135)
- The Role of Connexin-Based Channels in Toxicity (p135)

### WORKSHOP SESSIONS

- ✓ Environmental Exposures and Alzheimer's Disease: Epidemiology, Mechanisms, and Future Strategies (p136)
- ✦ Friend or Foe—Challenges and Perspectives for Nonclinical Development of Antibody-Drug Conjugates (p136)
- \* Linking Early-Life Stages: The First Step toward Lifecourse Risk Assessment (p137)
- The US Tox21 Collaboration: Advances Made and Lessons Learned (p137)
- Toxicological Epigenomics: The Interface between the Environment and Human Health (p138)
- \* Transporters As Gatekeepers for Chemical Exposure in Reproductive Tissues (p138)

### PLATFORM SESSION

- Disposition and Pharmacokinetics (p139)



If found, please return to:

Name: \_\_\_\_\_

Contact Telephone: \_\_\_\_\_

9:30 AM to 12:30 PM

### POSTER SESSIONS

- Alternatives to Mammalian Models I—Cardio, Neuro, Developmental (p152)
- Biotransformation and Cytochrome P450 (p140)
- Developmental Neurotoxicology—*In Vitro* Screening (p154)
- Developmental Neurotoxicology—Nonmammalian Models (p153)
- Ecotoxicology (p160)
- ✓ **Inflammation in Disease** (p145)
- ✓ **Inflammation: Methods and Mechanisms** (p146)
- Liver (p142)
- Metals (p157)
- Nanotoxicology, General, Environmental, Metals (p155)
- Nonpharmaceutical Safety Assessment
- Persistent Organic Pollutants (p162)
- Pharmacogenomics and Genetic Polymorphisms (p142)
- **Risk Assessment I** (p149)
- Stem Cell Biology in Toxicology Research (p163)

12:00 Noon to 1:30 PM

### RESEARCH FUNDING SESSION

Research Funding Luncheon: Multiple Perspectives on the Grant Process (p166)

12:10 PM to 1:30 PM

### ROUNDTABLE SESSIONS

- \* **Addressing Potential Age-Related Sensitivity to Neurotoxicity of Pyrethroids** (p166)
- **Confronting and Overcoming the Barriers to Sharing Toxicological Research Data for Risk Assessment in the 21st Century** (p167)

### INFORMATIONAL SESSION

- Toxicological Application of Studies Funded by California Stem Cell Research and Cures Act (Prop 71) (p167)

### EDUCATION-CAREER DEVELOPMENT SESSION

- Adaptive Leadership: Anticipating, Initiating, and Responding to Change (p168)

12:30 PM to 1:20 PM

### MERIT AWARD LECTURE

Chronicles of Particles: From Micro- to Nano-Particles



Lecturer: Günter Oberdörster, University of Rochester Medical Center (p169)

1:00 PM to 4:30 PM

### POSTER SESSIONS

- Alternatives to Mammalian Models II—Skin, Eye, Liver (p169)
- ✓ **Autoimmunity/Hypersensitivity** (p185)
- Biological Modeling (p190)
- Biomonitoring and Exposure Assessment (p174)
- Cell Death and Apoptosis (p178)
- Developmental Neurotoxicology—Stem Cells (p185)
- Epidemiology (p193)
- Genetic Toxicology I (p176)
- Liver and Models (p188)
- Natural Products (p172)
- ◆ **Ocular Toxicology** (p172)
- Pharmaceutical Safety: Large Molecule Case Studies (p182)
- Pharmaceutical Safety: Small Molecule Case Studies (p183)
- **Risk Assessment II** (p180)

1:30 PM to 2:30 PM

### MEET THE DIRECTORS

A Conversation with Linda Birnbaum and Jim Jones

Lecturers: Linda Birnbaum, NIEHS; and Jim Jones, US EPA (p194)



2:00 PM to 4:45 PM

### SYMPOSIUM SESSIONS

- ✓ **Cardio-Oncology Concerns Encourage Novel Approaches to Pharmaceutical Risk Assessment** (p195)
- ✓ **Immunostimulant Cancer Treatments: Toxicology Programs with an Autoimmune "Twist"** (p196)
- Nrf2 Signaling Pathways in Model Systems: A Master Regulator of Neurotoxicity and a Potential Therapeutic Target (p196)

### WORKSHOP SESSIONS

- \* **Evaluating and Quantifying Stress for Inclusion in Cumulative Risk Assessment** (p197)
- \* **Infant Formula Nutrition: Regulatory and Safety Evaluation of Ingredients** (p197)
- Pulmonary Toxicity of Graphene Nanomaterials: An Emerging Concern in Manufacturing and Applications? (p198)

### EDUCATION-CAREER DEVELOPMENT SESSION

- Challenges in the Life Cycle of a Toxicologist (p198)

### PLATFORM SESSION

- 21st Century DART: Advances, Challenges, and Promises (p199)

4:45 PM to 6:00 PM

### SOT/EUROTOX DEBATE

*In Vitro* Alternatives Are Ready to Be Implemented and Relied Upon for Human Safety Testing (p200)

Tuesday, March 24

8:00 AM to 8:50 AM

### TRANSLATIONAL IMPACT AWARD LECTURE

How to Make a (Translational) Impact  
Lecturer: Jeffrey Burgess, University of Arizona (p203)



9:00 AM to 12:00 Noon

### FRONTIERS FOR TOXICOLOGY SESSION

Bugs to Drugs: The Microbiome in Human Health, Disease, and Therapeutics (p204)



Mark D. Adams, J. Craig Venter Institute



Rob Knight, University of California San Diego



Pieter C. Dorrestein, University of California San Diego



Jeremy K. Nicholson, Imperial College London

9:00 AM to 11:45 AM

### SYMPOSIUM SESSIONS

- ◆ **Alternative Models to Study Classical Toxicants: A Mechanistic View** (p205)
- Immune Responses to Different Classes of Inhaled Particulates: Unique vs. Shared Responses and Mechanisms (p205)
- ✓ **Local and Systemic Toxicity from Cobalt and Chromium-Containing Hip Prostheses** (p206)

### WORKSHOP SESSIONS

- **Considering Pharmacokinetics As the Mechanistic Basis to Link Chemical Exposures to Adverse Outcome Pathways** (p206)
- \* **Regulatory Neurodevelopmental Testing: New Guiding Principles for Harmonization of Data Collection and Analysis** (p207)
- **The EDSP Screening Battery: A Work in Progress for Prioritizing Compounds for Quantitative Risk Assessment** (p208)
- **Understanding and Communicating Uncertainty in Hazard Assessment and Dose Response** (p208)

9:00 AM to 12:30 PM

### POSTER SESSIONS

- Alternatives to Mammalian Models III (p229)
- Biomarkers (p231)
- Carcinogenesis I (p217)
- Educational Activities and Outreach (p225)
- Food Safety, *In Vitro* (p212)
- Gene Regulation and Signal Transduction (p223)
- Genetic Toxicology II (p221)
- ✓ **Immunotoxicity I** (p226)
- *In Vitro* Cardiovascular Safety (p228)
- Juvenile Toxicity (p221)
- Neurotoxicology, Metals—Lead and Others (p216)
- Neurotoxicology, Metals—Manganese (p215)
- Neurotoxicology, Metals—Mercury (p214)
- Oxidative Injury and Redox Biology (p219)
- Pharmaceutical Safety: Models and Methods (p209)
- Systems Biology and Toxicology (p211)

9:30 AM to 4:30 PM

### RESEARCH FUNDING SESSION

Research Funding Information Room (p234)

12:00 Noon to 1:30 PM

### NETWORKING TIME

1:00 PM to 4:30 PM

### POSTER SESSIONS

- Cigarettes, E-Cigarettes, and Hookah (p256)
- Clinical and Translational Toxicology (p239)
- Computational Toxicology and Data Integration I (p241)
- Endocrine Toxicology (p252)
- Food Safety, *In Vivo* (p247)
- ✓ **Immunotoxicity II** (p243)
- ✓ **Inhalants and Cardiopulmonary** (p257)
- Nanotoxicology, Carbon-Based Nanomaterials (p236)
- Neurotoxicology, Neurodegenerative Disease—Alzheimer's Disease and Others (p254)
- Neurotoxicology, Neurodegenerative Disease—Parkinson's Disease (p255)
- Particulate Matter (p260)
- Reproductive Toxicology I (p248)
- Reproductive Toxicology II (p250)
- Skin (p238)
- Toxicity of Chemical Mixtures (p245)

1:30 PM to 4:15 PM

### SYMPOSIUM SESSIONS

- **Incorporating *In Vitro* Pharmacokinetic Data and Tools into Toxicity Testing and Risk Assessments: State of the Science** (p262)
- ✓ **New Developments in the Management of Nerve Agent Poisoning** (p262)
- ✓ **Where the Metal Meets the Bone...** (p263)

### WORKSHOP SESSIONS

- ✦ **An Ounce of Prevention Is Worth a Pound of Cure: How 21st Century Toxicology Can Transform Product Safety Assessments and Design of Lower-Toxicity Products** (p263)
- ✓ **Current Understanding of Immune-Mediated Adverse Drug Reactions** (p264)
- *In Vitro* Microphysiological Systems—Developing Confidence in Predictive Ability (p264)

### PLATFORM SESSIONS

- **Investigating Mode of Action in Chemical Carcinogenesis** (p265)
- Prudent Animal Usage in Pharmaceutical Safety Testing (p266)

4:30 PM to 6:00 PM

### SOT ANNUAL BUSINESS MEETING

## Wednesday, March 25

8:00 AM to 9:00 AM

### KEYNOTE MEDICAL RESEARCH COUNCIL (MRC) LECTURE

Environmental Influences on the Immune System via the Aryl Hydrocarbon Receptor  
*Lecturer: Brigitta Stockinger, MRC National Institute for Medical Research (p269)*



9:00 AM to 11:45 AM

### SYMPOSIUM SESSION

- Role of the Gut Microbiome in the Host Response to Xenobiotics (p269)

### WORKSHOP SESSIONS

- An Experiment in Collective Wisdom Utilizing Real-Time Audience Input: Weight-of-Evidence Assessment for Chemical-Specific Modes of Action Utilizing Two Case Studies (p270)
- ✦ **Application of High-Throughput *In Vitro* Assays in Assessing Small Molecule Safety** (p270)
- ✓ **Deciphering Clinical and Experimental Retinal Toxicology: An Eye on the Present and Future** (p271)
- Evaluating Similarity across Related Complex Mixtures: The Challenge of Herbal Supplements (p271)

REGIONAL INTEREST SESSION

- ✦ **Some Like It Hot: Impacts of Wildfires on Human Health** (p272)

### PLATFORM SESSIONS

- Applications of ToxCast/Tox21 Data: Confidence and Predictivity (p272)
- ✦ **Emerging Concepts in Genotoxicity Assessment** (p273)

9:00 AM to 12:30 PM

### POSTER SESSIONS

- Animal Models of Disease (p282)
- Animal Models: Measurements, Validations, and Historical Data (p283)
- Animal Models: Methods (p284)
- Cardiovascular Toxicity and Hemodynamics (p280)
- Developmental Neurotoxicology (p278)
- Developmental Toxicology I (p274)
- Developmental Toxicology II (p276)
- Fetal Basis of Adult Disease (p273)
- General and Developmental Neurotoxicology of Therapeutic Agents and Drugs of Abuse (p279)
- ✦ **Medical Devices: Risk Assessment and Test Methods** (p294)
- Metals—As, Cd, Hg (p292)
- Nanotoxicology, *In Vitro* (p289)
- **Regulation/Policy** (p287)
- **Risk Assessment III** (p285)

9:30 AM to 4:30 PM

### RESEARCH FUNDING SESSION

Research Funding Information Room (p296)

12:00 Noon to 1:20 PM

### ROUNDTABLE SESSIONS

- Should Respiratory Sensitizers Be Listed As Substances of Very High Concern (SVHC) under REACH? (p297)
- ✦ **Will Generally Recognized As Safe (GRAS) Become an Endangered Species?** (p298)

### INFORMATIONAL SESSION

- Risk Communication and Management in the Era of Social Media and the Internet: Serving Society's Needs with Accurate Information (p298)

### EDUCATION-CAREER DEVELOPMENT SESSION

- What Toxicologist Do You Wanna Be? The Role of Toxicologists across Diverse Organizations (p299)

12:30 PM to 1:20 PM

**DISTINGUISHED TOXICOLOGY  
SCHOLAR AWARD LECTURE**

Allergic Sensitization: Defining Molecular Mechanisms and Characterizing Hazard and Risk



Lecturer: Ian Kimber,  
University of Manchester  
(p296)

1:00 PM to 4:30 PM

**POSTER SESSIONS**

- Bioinformatics (p311)
- Carcinogenesis II (p301)
- Chemical and Biological Weapons (p303)
- Computational Toxicology and Data Integration II (p312)
- Disposition and Pharmacokinetics: Drugs, Chemicals, and Transporters (p305)
- Epigenetics (p314)
- Kidney (p317)
- Nanotoxicology, *In Vivo* (p322)
- Neurotoxicology, General (p306)
- Neurotoxicology, Pesticides (p307)
- Pesticides (p309)
- Receptors (p319)
- **RNA-Based Biomarkers** (p300)

1:30 PM to 4:15 PM

**SYMPOSIUM SESSIONS**

- Adult Neurogenesis in Chemical-Induced Neurotoxicities: A New Frontier in Toxicological Mechanistic Investigations, Biomarker Research, and Therapeutic Targeting (p324)
- **Advanced Approaches for Quantitative Risk Assessment Using Human Data with Applications across Disciplines** (p324)

**WORKSHOP SESSIONS**

- **Genomics of Nonrodent Mammalian Species and Impacts on Nonclinical Safety Evaluation of Pharmaceuticals and Clinical Translation** (p325)
- Increasing Interest and Engagement in Toxicology and STEM Disciplines: The Multiple Modalities and Impact of Research and Internship Opportunities for High School and Undergraduate Students (p325)
- Integrating Gene Expression Profiling into High-Throughput Toxicity Testing (p326)
- ◆ **Strengths and Weaknesses of Mouse Models in Studies of Immunological Effects of Drugs and Chemicals** (p326)
- **The Carcinogenicity of Outdoor Air Pollution: A Review of the IARC Evaluation of Outdoor Air Pollution and Particulate Matter in Polluted Air As Group 1 (Known) Human Lung Carcinogens and Possible Bladder Carcinogens** (p327)
- ◆ **Windfall or Pitfall: Is There a Need for Modification of Developmental and Reproductive Toxicology Studies When Endocrine Disruption Is the Mode of Action?** (p328)

**PLATFORM SESSION**

- \* **Inflammation in Disease Due to Environmental Exposures** (p328)

4:30 PM to 5:50 PM

**ROUNDTABLE SESSIONS**

- **Epigenetics and Chemical Safety Assessment: Are We Ready?** (p329)
- ◆ **The Future of Carcinogenicity Testing** (p330)

**EDUCATION-CAREER  
DEVELOPMENT SESSION**

- Crafting High-Impact Manuscripts: The Process from Hypothesis through Review and Publication (p330)

**Thursday, March 26**

8:30 AM to 12:00 Noon

**POSTER SESSIONS**

- Late-Breaking Poster Session  
*Access via Mobile Event App or Online Planner.*

9:00 AM to 11:45 AM

**SYMPOSIUM SESSIONS**

- **Chromatin Structure, Genomics, and Transcriptional Responses to Environmental Insults** (p332)
- Comprehensive Analysis of Nano Silver Toxicity Profiles: Known, Unknown, and Surprises! (p332)
- **Epigenetics, Developmental Programming, and Immune Function: Where Do We Go from Here?** (p333)
- **Exposure Assessment in the 21st Century: Needs and Challenges Facing High-Throughput Exposure Modeling** (p334)

**WORKSHOP SESSIONS**

- **Microphysiological Models of the Developing Nervous System: Biologically Driven Assembly Inspired by Embryology and Translated to Human Developmental Toxicology** (p334)
- Painting the Future of Repeat-Dose Systemic Toxicity Testing: Progress from the European SEURAT-1 Project (p335)

**PLATFORM SESSION**

- POPs—*In Vitro*, *In Vivo*, and Computational Modeling Studies (p335)

