

March 2, 2017



ACC Science and Research Highlights

ACC Science & Research at the
Society of Toxicology Meeting
March 12-16, 2017



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Society of Toxicology (SOT) Annual Meeting March 12-16

Approximately 7,000 scientists from more than 50 countries will participate in the annual meeting of the Society of Toxicology (SOT) in Baltimore in March. The SOT is the largest professional society of toxicologists in the world. For ACC, the annual SOT meeting, through both scientific sessions and poster presentations, provides a unique opportunity to communicate our latest research results and to interact with others engaged in related areas of research, testing and assessment. The SOT meeting also provides a great opportunity for networking with leaders in the field and for catalyzing collaborations within and across sectors.

ACC's LRI Research: Presentations by ScitoVation Scientists Fifteen presentations by ScitoVation scientists leading LRI research investigations are slated for the SOT meeting (summarized on page 3). LRI research actualizes ACC members' continuing commitment to advance scientific understanding of the potential impacts of chemicals on human health and the environment and is guided by [ACC's LRI 2015-2019 Research Strategy](#). ACC's LRI research projects are oriented toward: 1) Further development and use of predictive exposure models; 2) Refinement of tools and approaches that can extrapolate results from in vitro high throughput assays to real-world human exposures; and 3) Development of fit-for-purpose assays that are envisioned to provide the means to conduct targeted cellular-based safety assessments. The selection of these LRI research projects for presentation at the SOT meeting reflects the importance and credibility of LRI research and the prominence of LRI researchers, and demonstrates LRI's commitment to scientific excellence and public dissemination of research results. [LRI's Principles](#) ensure that LRI funded research meets the highest standards for scientific excellence, transparency, and fair and unbiased conduct.

Manuscript stemming from ACC ARASP Workshop awarded Best Scientific Publication in 2016 by SOT's Regulatory and Safety Evaluation Specialty Section: Developed under the lead authorship of ACC's Nancy Beck, this open access publication "Approaches for Describing and Communicating Overall Uncertainty in Toxicity Characterizations: U.S. Environmental Protection Agency's Integrated Risk Information System (IRIS) as a Case Study" ([Env. Intl. 89-90: 110-128](#)) was co-authored by other ACC and industry scientists, leading academics, former EPA scientific officials and scientific consultants. The paper describes and illustrates five approaches to transparently present toxicity value information. These graphical/tabular approaches, designed to increase transparency and understanding, also improve visualization and characterization of uncertainty and contextualize point estimates of risk. ACC's Center for Advancing Risk Assessment Science and Policy ([ARASP](#)) is a coalition of independent groups and associations that is managed by Neera Erraguntla in ACC's [Chemical Products and Technology Division](#). ARASP focuses on promoting the development and application of up-to-date, scientifically sound methods for conducting chemical risk assessments.

ACC Science and Research Highlights is a publication for ACC members and staff to communicate information on scientific research projects conducted or supported by ACC departments
by Richard A. Becker Ph.D., DABT, ACC's Science and Research Division, Regulatory & Technical Affairs Department

ACC's Regulatory & Technical Affairs Department: SOT Presentations to Focus on Communicating Toxicology, Addressing Bias in Research, and Rigor in Transparency in Research Journal Publications. Improving methods to objectively conduct, evaluate, characterize and communicate chemical safety information and risk assessments are core elements of [ACC's Risk Principles](#). Staff from ACC's Regulatory and Technical Affairs Department will lead/participate in the following sessions:

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| Bias and Conflict of Interest in Conducting Research and Risk Assessments: Perspectives from Academia, Government, Industry, and Others (R. Becker speaker) | Monday March 13: 12:30 PM to 1:50 PM CC Room 314 |
| Informational Session: Communicating Toxicology to the Public (N. Beck speaker) | Wednesday March 15 12:30 PM to 1:50 PM CC Room 316 |
| Addressing Rigor and Transparency in Research and Journal Publications (N. Beck co-chair and speaker) | Wednesday March 15 5:00 PM to 6:20 PM CC Room 314 |

ACC's Science & Research Division: SOT Presentations to Focus on 21st Century Methods. With high-throughput screening data on approximately 9000 chemicals now available from EPA's ToxCast program and the federal government's Tox21 collaboration, interest in using these data for improving computational methods for grouping substances and as mechanistic evidence for hazard characterization has accelerated. ACC staff will participate in:

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| Opportunities for Read-Across Development and Application Using QSAR Approaches (R. Becker Co-Chair) | Tuesday March 14 9:30 AM to 12:15 PM CC Ballroom III |
| Abstract #3351/Poster #P321 How Well Do High Throughput Mechanistic Data Indicative of Characteristics of Carcinogens Predict Carcinogenicity? Authors: (R. Becker poster presenter) | Thurs. March 16 8:30 AM to Noon (Late-Breaking Session 2) |

ACC's Chemical Products & Technology Division (CPTD): SOT Presentations to Focus on Understanding and Incorporating Mechanistic Data into Weight of Evidence Determinations of Chemical Risks.

Research supported by the ACC Hexavalent Chromium Panel:

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| Meta-Analysis of Hexavalent Chromium and Stomach Cancer. Authors: M. Suh, L. Mittal, and D. Proctor (Abstract #1308/#P531) | Monday March 13 9:30 AM to 12:45 PM |
| Risk Assessment of Oral Exposure to Cr (VI): Integration of Mode of Action, Pharmacokinetics, and Dose-Response Modeling. Authors: C. Thompson, C. Kirman, M. Suh, D. Proctor, L. Haws, M. Harris, and S. Hays (Abstract #1839/Poster #P413) | Tuesday March 14 9:30 AM to 12:45 PM |
| Integration of Transcriptomics and High-Throughput Screening Predictions with Robust In Vivo Data to Inform Hexavalent Chromium Mode of Action. Authors: J.E. Rager, C.M. Thompson, C. Ring, R.C. Fry, and M.A. Harris (Abstract #2111/Poster #P329) | Tuesday March 14 1:15 PM to 4:30 PM |
| Using Physiologically-Based Pharmacokinetic Modeling to Address Potentially Sensitive Subpopulations Exposed to Hexavalent Chromium. Authors: C.R. Kirman, D. Proctor, M. Suh, L. Haws, M. Harris, C. Thompson, and S. Hays (Abstract #2492/Poster #P254) | Wednesday March 15 9:30 AM to 12:45 PM |
| Mechanistic Support for Nonlinear Risk Assessment of Rat Oral Cavity Tumors Induced by Exposure to Cr (VI) in Drinking Water. Authors: C. Thompson, J. Rager, M. Suh, D. Proctor, L. Haws, and M. Harris (Abstract #2838/Poster #P240) | Wednesday March 15 1:15 PM to 4:30 PM |
| Meta-Analysis of Hexavalent Chromium and Stomach Cancer. Authors: M. Suh, L. Mittal, and D. Proctor (Abstract #1308/#P531) | |

Research supported by the ACC Formaldehyde Panel:

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| New Science Informs the Weight of Evidence for Formaldehyde and Lymphohematopoietic (LHP) Malignancies: Five Years since the NAS Review of the Draft IRIS Toxicological Review of Formaldehyde. Authors: R. Gentry, L. Dell, C. Van Landingham and, K. Mundt (Abstract #2166/Poster #P431) | Tuesday March 14 th 1:15 PM to 4:30 PM |
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| ACC LRI Research presentations at SOT by ScitoVation researchers | Investigators |
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| Incorporation of Human Relevant Metabolism for the Classification of Xenobiotics as Mutagens (Mon, Mar 13 9:30 - 12:15 CC Room 309) Abstract # 1056 | M. Phillips, K. Dunnick, P. Balbuena, J. Enders, S. Ross, D. Billings, R. Clewell, M. Yoon |
| Xenobiotic Metabolizing Enzyme Expression in Long-Term Three-Dimensional (3D) Culture of Human Hepatocytes in Alginate-Hydrogels (Tues, Mar 14 1:15 - 4:30 CC Exhibit Hall) Abstract #2242/P557 | P. Balbuena, D. Billings, L. Rao, E. Burgunder, J. Enders, M. Phillips, M. Yoon |
| Adverse Outcome Pathway-Driven Development of Human Cell-Based Assays Sufficient for Safety Assessment of Estrogenic Chemicals (Weds, Mar 15 1:15 - 4:30 CC Exhibit Hall) Abstract #2788/P156 | D. Doheny, R. Clewell, M. Miller, M. Andersen |
| Chemical Space Analysis: A Visual Approach for Evaluating the Similarity of Substances (Weds, Mar 15 1:15 - 4:30 CC Exhibit Hall) Abstract #2945/P439 | S. Haider, C. Strobe, P. McMullen, H. Clewell |
| Development of a Human Adipose-Derived Stem Cell Model for the Characterization of Glucocorticoid Receptor-Medicated Modulation of Adipogenesis (Weds, Mar 15 1:15 - 4:30 CC Exhibit Hall) Abstract #2784/P152 | J. Hartman, B. Parks, B. Foley, C. Deisenroth, R. Clewell |
| A Data-Driven Model for Predicting Mode-of-Action from Toxicogenomic Signatures (Weds, Mar 15 1:15 - 4:30 CC Exhibit Hall) Abstract #2944/P438 | P. McMullen, S. Pendse, S. Haider, M. Cambo, M. Black, M. Andersen, R. Clewell |
| Increasing Confidence in Safety Assessment Decisions: The Inclusion of Metabolism in Toxicity Testing Strategies (Weds, Mar 15 2:00-4:45) Prediction of human metabolism using a combination of in vitro & computational modeling approaches to support chemical safety decisions (Weds, Mar 15 2:00-2:33) Abstract #3067 | M. Yoon and S. Ferguson (Session Co-Chairs) M.Yoon |
| Evaluation of Non-Specific Binding to Different Organic Polymeric Components in Flow-Based Advanced Cell Culture Systems for Toxicity Testing (Thurs, Mar 16 8:30 - 11:45 Hall A) Abstract #3201/P160 | J. Enders, P. Balbuena, D. Billings, L. Rao, E. Burgunder, M. Phillips, M. Yoon |
| Real-Time Assessments of Cellular Responses to Interpret Exposure: Bioactivity Profiles of Fruit and Vegetable Juices (Thurs, Mar 16 8:30 - 11:45 Hall A) Abstract #3155/P114 | B. Cholewa, B. Wetmore, B. Parks, M. Black, M. Andersen |
| PLETHEM: An Interactive Open-Source Platform for Bridging the Source-to-Outcome Continuum (Thurs, Mar 16 8:30 - 11:45 Hall A) Abstract #3184/P143 | S. Pendse, A. Efremenko, P. McMullen, M. Yoon, H. Clewell |
| Case Study on the Application of the Reverse Dosimetry Module in PLETHEM to Estimate Exposure of Phthalates (Thurs, Mar 16 8:30 - 11:45 Hall A) Abstract #3178/P137 | M. Moreau, S. Pendse, M. Phillips, M. Yoon, J. Campbell, J. Leonard, S. Smith, C. Tan and H. Clewell |
| Excretion of Di-2-Ethylhexyl Phthalate (DEHP) Metabolites in Urine is Related to Body Mass Index Because of Reverse Causality (Thurs, Mar 16 8:30 - 11:45 Hall A) Abstract #3179/P138 | J. Campbell, M. Yoon, H. Fromme, M. Phillips, W. Anderson, W. Kessler, H. Clewell, M. Longnecker |
| Assessing Molecular Initiating Events (MIEs) and Modes-of Action (MOAs) for Styrene in Mouse Lungs using Whole Genome Gene Expression Profiling Following 1-Day and Multiple Week Exposures (Thurs, Mar 16 8:30 - 11:45 Hall A) Abstract #3352/P322 | M. Andersen G., Cruzan, M.B. Black, S. Pendse, J.S. Bus, S. Sarang and P.D. McMullen |
| Measuring Physicochemical Properties to Inform the Scope of Existing QSAR/QSPR Models (Thurs, Mar 16 8:30 - 11:45 Hall A) Abstract #3398/P369 | C. Nicolas, K. Mansouri, C. M. Grulke, A. M. Richard, A. J. Williams, K. A. |
| Validation of a High Content Imaging Assay for Steatosis in a Micropatterned Human Hepatocyte Coculture Model (Thurs, Mar 16 8:30 - 11:45 Hall A) Abstract #3528/P503 | S. Slattery, C. Deisenroth, O.J Trask, K. Wolf, E. LeCluyse, M.E. Andersen, R.A. Clewell |

<https://lri.americanchemistry.com/>

The graphic features the American Chemistry Council and LRI logos at the top. Below is a title section, followed by four principle sections with decorative arrowheads on the left, and a concluding statement at the bottom.

American Chemistry Council **LRI**

ACC LRI Principles

- Scientific Excellence**
the best research proposals and most-qualified scientists will be selected for funding.
- Transparency**
research will be conducted openly and the results will be publicly available.
- Fair and Unbiased Conduct**
potential conflicts of interest and bias will be rigorously evaluated.
- Relevance to the Chemical Industry**
LRI research will focus on improving methods to address the potential health and environmental impacts of chemicals

*Enhancing product stewardship
and regulatory decision making
through innovative science & research*