



EMERGING SCIENCE FOR ENVIRONMENTAL HEALTH DECISIONS

AGENDA

Mixtures and Cumulative Risk Assessment: New Approaches Using the Latest Science and Thinking about Pathways

JULY 27–28, 2011 ■ WEDNESDAY, 8:30–5:30, THURSDAY, 8:30–NOON*
20 F STREET CONFERENCE CENTER, NW, WASHINGTON, DC

The Standing Committee on the Use of Emerging Science for Environmental Health Decisions at the National Academies will be holding a workshop on mixtures and cumulative risk assessment approaches on July 27–28, 2011. The focus will be on how new tools from biotechnology, computation and exposure science can greatly accelerate the pace with which we can

conclude whether environmental agents are likely to interact in some way, such as sharing a common mechanistic pathway, and are present together in the environment, such that they should be evaluated together in risk assessment. The workshop will include discussions on research needs and suggest approaches to incorporating novel data streams in risk assessment.

WEDNESDAY JULY 27, 2011 (8:30AM–5:30PM)

- 8:30 Opening Remarks—Linda Birnbaum, *Director, National Institute of Environmental Health Sciences (NIEHS)*
- 8:35 Introduction to the Standing Committee—William Farland[†], *Chair, Colorado State University*

SESSION 1 CURRENT RANGE OF APPROACHES TO MIXTURES/CUMULATIVE/CO-EXPOSURES RISK ASSESSMENT

- 8:50 Broad Overview of the Challenges of Mixtures in Risk Assessment—George Daston[†], *Procter and Gamble*
- 9:10 Key Concepts, Theory, and Approaches to Chemical Mixture and Cumulative Risk Assessments—Linda K. Teuschler, *U.S. Environmental Protection Agency, National Center for Environmental Assessment*
- 9:40 Break

SESSION 2 NEW THINKING ON PATHWAY-BASED APPROACHES

- 10:00 Identifying Environmental Factors Associated with Disease States—Atul Butte, *Stanford University School of Medicine*
- 10:25 Using Toxicogenomic Data to Support Risk Assessment—Susan Euling, *U.S. Environmental Protection Agency, National Center for Environmental Assessment*
- 10:50 Modeling Cumulative Mixtures Grouped by Common Adverse Outcome—Chris Gennings, *Virginia Commonwealth University*
- 11:15 Genomics and Pathways: Prediction and Dose-Response—Christopher J. Portier, *National Center for Environmental Health and Agency for Toxic Substances and Disease Registry, Centers for Disease Control and Prevention*
- 11:40 Adverse Outcome Pathway Approach to Ecotoxicology and Its Possible Applicability to Human Health Toxicology—Ed Perkins, *U.S. Army Corps of Engineers*

* On Thursday, July 28, the committee and liaisons will meet following the workshop.

[†] indicates a member of the Standing Committee on Use of Emerging Science for Environmental Health Decisions.

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SESSION 2 NEW THINKING ON PATHWAY-BASED APPROACHES (CONTINUED)

12:05 Systems Modeling: A Perspective from ToxCast HTS Data—Thomas Knudsen, *U.S. Environmental Protection Agency, National Center for Computational Toxicology*

12:35 Lunch

1:30 Discussion of New Thinking

SESSION 3 EXPOSURE-BASED APPROACHES

2:00 Application of Biomonitoring Data for Chemical Mixtures Assessment: Opportunities and Challenges, Lesa Aylward or Sean Hays, *Summit Toxicology*

3:00 Break

SESSION 4 CASE STUDIES

3:15 Additive Effects of Compounds with Different Modes of Action—L. Earl Gray, *U.S. Environmental Protection Agency, National Health and Environmental Effects Research Laboratory*

4:15 Potential of Genomic Data on PAHs to Inform Cumulative Assessment—Lyle Burgoon, *U.S. Environmental Protection Agency, National Center for Environmental Assessment*

5:00 Discussion

5:30 Adjourn

THURSDAY JULY 28, 2011 (8:30AM–NOON)

SESSION 5 RESEARCH NEEDS *(see questions provided)*

8:30 Moderator—Ivan Rusyn[†], *University of North Carolina, Chapel Hill*

Panelists—David Balshaw, *Division of Extramural Research and Training, National Institute of Environmental Health Sciences*; Michael DeVito, *National Toxicology Program*; Jeffrey Fisher, *U.S. Food and Drug Administration, National Center for Toxicological Research*; Jane Ellen Simmons, *U.S. Environmental Protection Agency, National Health and Environmental Effects Research Laboratory*; Aylward or Hays, Daston, Gray, Gennings, Knudsen.

SESSION 6 REGULATORY IMPLICATIONS *(see questions provided)*

10:00 Moderator—William Farland

Panelists—Ila Cote, *U.S. Environmental Protection Agency, NexGen Program*; Beth Doyle, *U.S. Environmental Protection Agency, Human Health Risk Assessment Branch, U.S. Environmental Protection Agency*; Moiz Mumtaz, *Agency for Toxic Substances and Disease Registry, Centers for Disease Control and Prevention*; Resha Putzrath, *Navy and Marine Corps Public Health Center*; Betsy Southerland, *U.S. Environmental Protection Agency, Superfund Program*; Jose Zaldivar, *European Commission Joint Research Centre*; Lauren Zeise[†], *California Office of Environmental Health Hazard Assessment*

Noon Workshop ends. Liaison and Committee meeting to follow.

For more information and to subscribe for updates, please visit
<http://nas.edu/envirohealth>

Emerging Science workshops are free and open to the public.

SAVE THESE DATES IN 2011—

- Sept. 20–21 *Applying 21st Century Toxicology to Green Chemical Design*
- Dec. 8–9 *Emerging Technologies for Measuring Individual Exposomes*

About the Committee

At the request of the National Institute of Environmental Health Sciences (NIEHS), the National Research Council formed the Standing Committee on Use of Emerging Science for Environmental Health Decisions to facilitate communication among government, industry, environmental groups, and the academic community about scientific advances that may be used in the identification, quantification, and control of environmental impacts on human health.

