Predictive-Toxicology Approaches for Military Assessments of Acute Exposures

Committee

David C. Dorman

Chair

David C. Dorman (chair) is professor of Toxicology in the Department of Molecular Biosciences at North Carolina State University. The primary objective of his research is to provide a refined understanding of chemically induced neurotoxicity in laboratory animals that will lead to improved assessment of potential neurotoxicity in humans. Dr. Dorman's research interests include neurotoxicology, nasal toxicology, and pharmacokinetics, and canine olfaction and cognition. He has served as a member or chair of numerous National Research Council Committees most recently chairing the Committee for Design and Evaluation of Safer Chemical Substitutions - A Framework to Inform Government and Industry Decisions. He has served as a member of the National Toxicology Program Board of Scientific Counselors and is a member of the Board of Trustees of the Association for Assessment and Accreditation of Laboratory Animal Care International. He received his DVM from Colorado State University. He completed a combined PhD and residency program in toxicology at the University of Illinois at Urbana-Champaign and is a diplomat of the American Board of Veterinary Toxicology and the American Board of Toxicology.

Weihsueh A. Chiu

Member

Weihsueh Chiu is a supervisory physical scientist and branch chief at the US EPA Integrated Risk Information System’s Toxicity Pathways Branch. His research interests include health risk assessment, dose-response assessment, biological and statistical modeling, pharmacokinetics, toxicology and data analysis. Prior to joining EPA, he worked at the US Governmental Accountability Office, where he conducted investigations for Congress on various risk-assessment related topics, including the defense against chemical and biological weapons and the health effects from Vietnam veterans’ exposure to Agent Orange. Dr. Chiu received his PhD in physics from Princeton University.

Haiyan Huang

Member

Haiyan Huang is an associate professor in the Department of Statistics at the University of California, Berkeley. She is interested in the interface between statistics and data-rich scientific disciplines, such as biology. Her research is focused in the areas of applied and theoretical statistics, high dimensional and integrative genomic data analysis, hierarchical multi-label classification, and translational bioinformatics. Dr. Huang earned a PhD in applied mathematics from the University of Southern California.

Andy Nong

Member

Andy Nong is the lead computational toxicologist at Health Canada. His current research focuses on computer models of biological systems that can be applied to understand and predict the fate of a chemical dose in the body and its possible health effects. Dr. Nong also explores different types of computing approaches (pharmacokinetic models, benchmark dosing, chemical structure activity regression, and system biology models) that can help to evaluate chemical safety and eventually support the screening of a larger set of chemicals with similar health outcomes. Before coming to Health Canada, he worked as a research investigator with the Hamner Institutes for Health Sciences. Dr. Nong received his PhD in public health and toxicology from the University of Montreal.

Grace Patlewicz

Member

Grace Patlewicz is employed as a computational toxicologist by DuPont’s Haskell Global Centers for Health and Environmental Sciences. There she acts a focal point and technical lead for all (Q)SAR and read-across queries for product stewardship and regulatory purposes. A chemist and toxicologist by training, she started her career as a safety evaluation scientist at Unilever before focusing her interests in computational toxicology and moving onto a role that involved providing modeling and chemistry expertise for a variety of different projects. While working for the (Q)SAR group at the European Commission’s Joint Research Centre (JRC), she was involved in many activities related to the development of technical guidance for REACH, including investigating the feasibility of using computational approaches in the development of chemical categories, developing and evaluating (Q)SAR models for human health, and coordinating the technical development of software tools, such as Toxtree and Toxmatch. Dr. Patlewicz received her PhD in organic chemistry from the University of Santiago de Compostela in Spain

David M. Reif

Member

David M. Reif is an associate professor of Biological Sciences at North Carolina State University and resident member of the Bioinformatics Research Center. His research focuses on understanding the complex interactions between human health and the environment through the integrated analysis of high-dimensional data from diverse sources, including epidemiological studies of human health, high-throughput screening of environmental chemicals, and model organism data. Dr. Reif’s prior work was as a Principal Investigator with EPA's National Center for Computational Toxicology, where he led several statistical and bioinformatical efforts and collaborated on a variety of projects with federal, academic, and industry partners. Dr. Reif received his PhD in Human Genetics from Vanderbilt University.

John Wade

Member

John Wade is vice president and general manager of the Life Sciences Research Business in the National Security Division of Battelle. In this position he is responsible for all of Battelle’s animal use laboratories and activities, in particular chemical/biological defense RDT&E and general toxicology test and evaluation services for both government and commercial customers. Dr. Wade has been a member-at-large to the NATO Human Factors and Medicine Panel as the U.S. delegation’s chemical and biological defense expert since 2000. Additionally, he serves as the National Defense Industrial Association’s Chairman Emeritus of the Chemical and Biological Defense Division. Dr. Wade received his DVM from Michigan State University and his PhD in toxicology from the University of Kansas School of Medicine and was a Diplomate of the American Board of Toxicology from 1991 to 2006.

Katrina Waters

Member

Katrina Waters is the deputy division director for Biological Sciences at the Pacific Northwest National Laboratory. Her research interests are focused on the reconstruction of cell response networks from integrated gene and protein expression data to enable predictive mechanistic modeling of disease and toxicity pathways. Dr. Waters currently serves on the FDA NCTR Science Advisory Board, EPA’s Scientific Advisory Panel on Methods for Prioritizing Endocrine Disrupting Chemicals, is a member of the Society of Toxicology, and adjunct faculty in the Department of Environmental and Molecular Toxicology at Oregon State University.. Dr. Waters received a PhD in biochemistry from the University of Wisconsin.

Barbara Wetmore

Member

Barbara Wetmore is a senior research investigator at The Hamner Institutes for Health Sciences. Her research interests focus on incorporating novel experimental and modeling tools with high-throughput screening (HTS) initiatives such as Tox21 to address issues of importance in toxicology and risk assessment. One project of note incorporated chemical pharmacokinetics with in vitro assay data, allowing an estimation of external dose required to achieve internal concentrations at which HTS activity is observed. Other projects of note include the assessment of the impact of pharmacokinetic variability among different life stages or ethnic populations following chemical exposure, and assessments of the impact of dosimetry incorporation on the performance of in vitro assays in predicting in vivo effects. She received her B.S. in Biology from the University of Richmond in VA and her Ph.D. in Toxicology from North Carolina State University, where she investigated the mode of action of chloroacetanilide herbicide toxicity and carcinogenicity. She performed her postdoctoral fellowship at the National Center for Toxicogenomics at the National Institutes of Environmental Health Sciences. Additional research interests include the application of genomic and proteomic tools to discover and validate biomarkers of hepatotoxicity and proteomic assessments on the impact of post-translational modifications on p53 activation and function.

Yvonne Will

Member

Yvonne Will is a senior director and the Global Science and Technology lead for Drug Safety at Pfizer. Her research interests include mitochondrial, mechanistic, and cell-based toxicity assessment; drug-induced organ toxicities; and alternative in vitro and in vivo models. Dr. Will is currently the president of the Society of Toxicology’s Drug Discovery Specialty Section and a steering committee member of the Technology Industry Consortium. Additionally, she serves on the editorial board of Current Protocols in Toxicology (John Wiley and Sons) and Applied In Vitro Toxicology (Mary Ann Liebert, Incy). Dr. Will received her PhD in biochemistry and biophysics from Oregon State University.