

Evaluation of the Protocol for the IRIS Toxicological Review of Inorganic Arsenic

Committee

Aaron Barchowsky

Chair

Aaron Barchowsky (Chair) is a professor in the Department of Environmental and Occupational Health at the University of Pittsburgh. His research interests are in investigating the cellular and molecular mechanisms underlying cardiovascular and lung diseases caused by environmental exposures to metals and chronic changes in redox status. In vivo and cell-cultured-based studies focus on the molecular pathology and etiology of vascular and metabolic diseases caused by chronic exposure to low concentrations of arsenic in drinking water. The cell-signaling pathways that mediate arsenic-stimulated pathogenic changes in vascular and perivascular progenitor cells are being investigated. Dr. Barchowsky is active in the Society of Toxicology, and has held positions as a councilor, president of the Metals Specialty Section, and chair of the Education Committee. He also served a term as a member and subsequently as chair of the National Academies Committee on Inorganic Arsenic. He received his PhD in pharmacology from Duke University.

Hugh A. Barton

Member

Hugh A. Barton recently retired from a position as associate research fellow with Pfizer, Inc. He now does consulting work in the use of physiologically based pharmacokinetic and mechanistic pharmacodynamic modeling to address low-dose, interspecies, and inter-route extrapolations in estimating risks. Dr. Barton is a past president of the Biological Modeling Specialty Section and the Risk Assessment Specialty Section of the Society of Toxicology. He was a member of the National Academies Committee on Inorganic Arsenic, and currently serves on EPA's Chemical Assessment Advisory Committee. Dr. Barton received his PhD in toxicology from the Massachusetts Institute of Technology.

Jay I. Goodman

Member

Jay I. Goodman is professor in the Department of Pharmacology and Toxicology at Michigan State University. His current research interests are in discerning epigenetic mechanisms underlying carcinogenesis and other chemical-induced toxicities. He is a past president of the Society of Toxicology, and was the recipient of the society's 2014 Merit Award. He also was awarded the 2014 International Achievement Award from the International Society of Regulatory Toxicology and Pharmacology. Dr. Goodman was a member of the National Academies Committee on Inorganic Arsenic. He received his PhD in pharmacology from the University of Michigan, was a postdoctoral fellow at the University of Wisconsin McArdle Laboratory for Cancer Research, and is a diplomate of the American Board of Toxicology and a fellow of the Academy of Toxicological Sciences.

Margaret R. Karagas

Member

Margaret R. Karagas is the James W. Squires Professor and founding chair of the Department of Epidemiology at the Geisel School of Medicine at Dartmouth College. She also holds appointments as professor and vice chair of the Department of Community and Family Medicine, and is director of the Children's Environmental Health and Disease Prevention Research Center at Dartmouth and Center for Molecular Epidemiology. Her research encompasses interdisciplinary studies to illuminate the etiology of human cancers, along with adverse pregnancy and children's health outcomes. Her work seeks to identify emerging environmental exposures, host factors and mechanisms that affect health from infancy to adult life, and to apply novel methods and technologies to understand disease pathogenesis. Among her current investigations are population-based studies of the temporal increases in the incidence rates keratinocyte cancers in the United States, bladder cancer etiology in northern New England, and pregnant women and their offspring in New Hampshire to assess the sources and potential health impacts of arsenic and other contaminants. These studies entail multiple collaborative studies of exposure biomarkers, individual susceptibility, and biological response to environmental agents including the developing microbiome and immune response. Dr. Karagas was a member of the National Academies Committee on Inorganic Arsenic and the Organizing Committee on Informing Health Decisions through Data Integration. She received her MS in health sciences, biostatistics, and epidemiology from California State University and her PhD in epidemiology from the University of Washington.

Ana Navas-Acien

Member

Ana Navas-Acien is a professor in the Department of Environmental Health Sciences at Columbia University. She is a physician-epidemiologist with a specialty in preventive medicine and public health and director of the Columbia University Superfund Research Program on the Health Effects and Geochemistry of Arsenic. Her research interests are in the chronic health effects related to exposure to arsenic and other metals in drinking water and food. She is involved in prospective cohort studies of arsenic exposure and metabolism in American Indian communities and in multi-ethnic urban communities in the United States. Other research interests include air pollution, secondhand tobacco smoke, and the characterization of health risks of emerging tobacco products, such as e-cigarettes and waterpipes. Her work for the National Academies includes past service on the Committee on Inorganic Arsenic and Committee on the Review of Health Effects of Electronic Nicotine Delivery Systems. Dr. Navas-Acien received her MD from the University of Granada School of Medicine in Spain, her MPH from the National School of Health in Madrid, and her PhD in epidemiology from the Johns Hopkins University Bloomberg School of Public Health.

Michael L. Pennell

Member

Michael L. Pennell is associate professor in the Division of Biostatistics in the College of Public Health at The Ohio State University. His research interests are in nonparametric Bayes, first hitting time models for survival analysis, design and analysis of Group Randomized Trials, joint modeling outcomes of different scales, statistical methods in toxicological risk assessment, and statistical applications in biomedical research, including cancer control, pathology, and veterinary medicine. Dr. Pennell has served as an ad hoc member of EPA's Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) Scientific Advisory Panel, the agency's Science Advisory Board on trichloroethylene and Libby Amphibole Asbestos, and the Chemical Safety Advisory Subcommittee for 1-bromopropane. He received his MS and PhD in biostatistics from the University of North Carolina at Chapel Hill.

Karen A. Robinson

Member

Karen A. Robinson is a professor at the Johns Hopkins University School of Medicine. She is also director of the Johns Hopkins University Evidence-based Practice Center and is a member of the core faculty in the Center for Clinical Trials and Evidence Synthesis at the university's Bloomberg School of Public Health. Dr. Robinson's research focuses on evidence-based health care and evidence-based research. She conducts systematic reviews that are used to develop clinical practice guidelines and to inform other health decisions. She served on the National Academies Committee on Endocrine-Related Low-Dose Toxicity, the Committee to Review Advances Made to the IRIS Process, and the Committee on Gulf War and Health: Treatment of Chronic Multisymptom Illness. Dr. Robinson received an MSc in health sciences from the University of Waterloo, Ontario, and a PhD in epidemiology from the Johns Hopkins Bloomberg School of Public Health.

J. Christopher States

Member

J. Christopher States is professor and vice chair for research in the Department of Pharmacology and Toxicology at the University of Louisville. His research interests are in arsenic carcinogenesis, arsenic-induced cardiovascular disease, disruption of mitosis and chemotherapy, and molecular biology and genetics of human DNA repair. Dr. States is an active member of the Society of Toxicology; he has served as president of the Metals Specialty Section and was the recipient of the section's Career Achievement Award in 2017. He received his PhD in molecular biology and pathology from Albany Medical College, Union University.

Daniele Wikoff

Member

Daniele Wikoff is the Health Sciences Practice Director at ToxStrategies, Inc. She specializes in evaluating human health hazards and risks associated with exposures to a wide variety of consumer products, food ingredients and additives, pharmaceuticals, and industrial chemicals. Her current focus is on systematic reviews in support of risk assessment applications, including development of health-based toxicity values. Dr. Wikoff has led the firm's initiatives to integrate evidence-based methods, and has been responsible for designing and implementing projects involving systematic review and systematic maps using a variety of frameworks, including those of the Institute of Medicine and the NTP's Office of Health Assessment and Translation. Most recently, she has been involved in exploring the utility of quantitative integration techniques (e.g., meta-analysis, Bayesian modeling) and tools to characterize confidence and/or uncertainty in hazard analyses, points of departure, estimate of relative potency, and dose-response relationships. Dr. Wikoff is vice chair of the Science Advisory Council for the Evidence-Based Toxicology Collaboration (EBTC), serves as EBTC's Education Workgroup co-chair, and is on the editorial boards of Toxicological Sciences and Toxicology Reports. She received her PhD in toxicology from the University of North Carolina at Chapel Hill.

Carol S. Wood

Member

Carol S. Wood is a distinguished staff scientist in the Environmental Science Division of Oak Ridge National Laboratory. She has over 20 years of experience as a toxicologist, with extensive work performing risk assessments of inhalation/pulmonary and oral toxicity from exposure to a variety of chemicals. Her past work has included developing acute exposure guideline levels and provisional advisory levels, in which health-based exposure levels are developed for priority toxic chemicals. These projects often used toxicokinetic data and physiologically based pharmacokinetic models for extrapolating animal toxicology data to humans. Dr. Wood is a past-president of the American Board of Toxicology. She is certified in general toxicology by the American Board of Toxicology. She served on the National Academies Committee on the Review of Clinical Guidance for the Care of Health Conditions Identified by the Camp Lejeune Legislation, the Committee on Spacecraft Exposure Guidelines, and on the Committee on Gulf War and Health, Volume 11 (Generational Health Effects of Serving in the Gulf War); she currently serves on the Committee on Toxicology. Dr. Wood received her MS in toxicology from Mississippi State University and her PhD in toxicology from Oregon State University.

Robert O. Wright

Member

Robert O. Wright is a pediatrician, medical toxicologist, and environmental epidemiologist at the Icahn School of Medicine at Mount Sinai. He is the Ethel H. Wise Chair of the Department of Environmental Medicine and Public Health and director of the Institute for Exposomic Research. His research interests are in studies of chemical mixtures, social stressors as a modifier of chemical toxicity, and the role of genetics/epigenetics in modifying or mediating chemical toxicity. Dr. Wright was recently appointed to the National Advisory Environmental Health Science Council, a Congressionally mandated body that advises the secretary of Health and Human Services, the director of the National Institutes of Health, and the director of the National Institute of Environmental Health Sciences (NIEHS) on matters relating to the direction of research, research support, training, and career development supported by NIEHS. He was a member of the National Academies Committee on Inorganic Arsenic, and currently serves on the Committee on Gulf War and Health (Volume 11): Generational Health Effects of Serving in the Gulf War. He received his MD from the University of Michigan and his MPH from the Harvard School of Public Health.