



**Workshop on
Use of In Utero and Post-Natal Indicators to Predict Health Outcomes Later in Life**

SPEAKER BIOS

Bruce Blumberg is a professor of developmental and cell biology, pharmaceutical sciences, and biomedical engineering at the University of California, Irvine, and he directs the Program in the Developmental Biology of Cancer in the Chao Family Comprehensive Cancer Center. Prior to this, he was appointed as a staff scientist at the Salk Institute for Biological Studies, where he focused on the molecular endocrinology of orphan nuclear receptors and their role in embryonic development and adult physiology. His current research focuses on the role of nuclear hormone receptors in development, physiology, and disease. Particular interests include patterning of the vertebrate nervous system, the differential effects of xenobiotic exposure on laboratory model organisms compared with humans, interactions between xenobiotic metabolism, inflammation, and cancer, and the role of environmental chemicals on the development of obesity and diabetes. Dr. Blumberg was previously a planning committee member of the Institute of Medicine (IOM) Planning Committee for a Workshop on the Value of Genetic and Genomic Technologies and is currently a member of the IOM Roundtable on Translating Genomic-Based Research for Health. Dr. Blumberg earned his Ph.D. from the University of California, Los Angeles.

Kim Boekelheide is professor of medical sciences in the Department of Pathology and Laboratory Medicine at Brown University. His research examines fundamental molecular mechanisms by which environmental and occupational toxicants induce testicular injury. Current projects include the study of co-exposure synergy using model testicular toxicants and the effects of in utero endocrine disruptor exposure on steroidogenesis and a predisposition to cancer. He is director of the Brown University Superfund Basic Research Program. Dr. Boekelheide has served on various National Research Council committees, including the Committee on Toxicity Testing and Assessment of Environmental Agents (which produced *Toxicity Testing in the 21st Century*), the Subcommittee on Fluoride in Drinking Water, and the Committee on Gender Differences in Susceptibility to Environmental Factors: A Priority Assessment. He is a Councilor of the Society of Toxicology, a past member of the Board of Scientific Counselors of the National Toxicology Program, and has been a member of various expert panels (bisphenol A, phthalates, bromopropanes) of the National Toxicology Program Center for the Evaluation of Risks to Human Reproduction. Dr. Boekelheide received his M.D. and Ph.D. in pathology from Duke University.

Steven Bradbury is the Director of the Office of Pesticide Programs (OPP) at the U.S. Environmental Protection Agency (EPA). He is responsible for the overall leadership and management of the pesticide programs under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA); the Federal Food, Drug, and Cosmetic Act (FFDCA); the Food Quality Protection Act (FQPA) of 1996; and the Pesticide Registration Improvement Act. Dr. Bradbury previously served as OPP's Deputy Director for Programs. From 2007 to 2008, he was director of OPP's Special Review and Re-registration Division, and from 2003 to 2007, he served as director of OPP's Environmental Fate and Effects Division. As director of these two divisions,

he led risk managers who developed regulatory decisions in support of pesticide re-evaluation programs that met statutory requirements of FFDCA/FQPA and FIFRA, and scientists who prepared pesticide drinking water exposure characterizations and ecological risk assessments. From 1999 to 2002, he was the director of the Mid-Continent Ecology Division in EPA's Office of Research and Development. Dr. Bradbury earned his M.S. and Ph.D. in toxicology and entomology from Iowa State University.

Robert Chapin is a senior research fellow for drug safety research and development for Pfizer. His research interests include male and female reproductive toxicology and embryofetal developmental toxicity, and he is currently working on projects related to in vitro methods for testis damage assessment and Leydig cell responses to Prolactin. Until 2000, Dr. Chapin worked at the National Institute of Environmental Health Sciences in male and female reproductive toxicology. He is the author of several dozen books and chapters and more than 120 papers. Dr. Chapin is a member of the Andrology Society, the Society of Toxicology, and the American Solar Energy Society. Dr. Chapin earned his Ph.D. in pharmacology from the University of North Carolina, Chapel Hill.

Ila Cote is the senior science advisor for the U.S. Environmental Protection Agency's (EPA) National Center for Environmental Assessment (NCEA). NCEA develops assessments that support decision-making for the Agency's air, water and Superfund programs. She also leads the "Advancing the Next Generation of Risk Assessment" Program. This program is a multi-agency effort to incorporate recent advances in molecular biology into risk assessment. Dr. Cote's expertise is in environmental risk assessment, and the interface of science and public policy. She is a board certified toxicologist. Her former positions include director of NCEA's Research Triangle Park Division; associate professor at the University of Colorado's Department of Public Policy, associate director of EPA's National Center for Health and Environmental Effects Research; risk assessor in several regulatory offices; and assistant professor at New York University Medical Center's Department of Environmental Medicine. She has also been an advisor to the Environmental Ministries of several foreign governments to develop their environmental policies and programs.

Joseph H. Graziano is a professor of environmental health sciences and pharmacology at Columbia University's Mailman School of Public Health and director of the Columbia University Superfund Basic Research Program. He has been a faculty member at the College of Physicians and Surgeons at Columbia University since 1979, and was chairman of the Department of Environmental Health Sciences at the Mailman School of Public Health from 1991-2002, when he became Associate Dean for Research. Prior to that, he served on the faculties of The Rockefeller University and Cornell University Medical College. He also served as the founding director of Columbia University's National Institute of Environmental Health Sciences (NIEHS) Center for Environmental Health in Northern Manhattan, and from 1983-1998, he was the principal investigator of a 15-year NIEHS-funded prospective study of childhood lead poisoning carried out in the mining town of Kosovska Mitrovica. Dr. Graziano is widely known as an expert on childhood lead poisoning, and his laboratory developed the drug (Succimer) that is now widely used to treat this condition. Dr. Graziano's most recent research has discovered that both arsenic and manganese exposures are associated with cognitive deficits in children. As director of the Trace Metals Laboratory, he has contributed to the recent findings from Bangladesh that folic acid facilitates arsenic methylation and elimination, leading to a decline in blood arsenic concentration. Dr. Graziano is currently a member of the NIEHS Council and a member of the National Institutes of Health Council of Councils. He was previously a member of the National Research Council's Committee on the Superfund Site Assessment and Remediation in the Coeur d'Alene River Basin. Dr. Graziano earned his Ph.D. in physiology from Rutgers University.

Robert Lane holds the August L. (Larry) Jung Presidential Professorship of Pediatrics in the Department of Pediatrics at the University of Utah. He is also the associate chair of research and the chief of the Division of Neonatology within the Department of Pediatrics. His research program focuses on the molecular mechanisms that causally link early life events such as intrauterine growth retardation to adult diseases. His expertise is in the impact of early life stressors upon the epigenetic characteristics of genes such as IGF-1. Dr. Lane has been funded through the National Institutes of Health (NIH) since 1997, and has collaborated with research teams at several universities, including the University of Florida, the University of Iowa, the University of California at Davis, and the University of Washington. Dr. Lane has been a member of the Pregnancy / Neonatology study section at the NIH, as well as numerous ad hoc study sections. He has also focused a great deal of time on the mentoring and training young physician-scientists to perform relevant, integrative research. Dr. Lane earned his M.D. from Northwestern Medical School and is currently pursuing an M.S. in healthcare management from the University of Texas at Dallas / University of Texas Southwestern.

Karen A. Lillycrop is a senior lecturer and programme manager of the Biomedical Sciences Degree in the School of Biological Sciences at the University of Southampton, United Kingdom. Her current research is focused on how early life environment influences the epigenetic regulation of genes and the development of human disease and she was the first to demonstrate that maternal diet can alter the epigenetic regulation of key transcription factors within the fetus. Dr. Lillycrop collaborates extensively with research groups within Southampton University, as well as with groups in the Netherlands, Singapore, and New Zealand. Her group is funded by project grants from the Biotechnology and Biological Sciences Research Council and the European Union, and is part of the Epigen Research Consortium. Dr. Lillycrop has been given several research awards, including the Nick Hales Award for her outstanding contribution to the developmental origins of health and disease. Dr. Lillycrop obtained her Ph.D. in biochemistry at the University of Leicester.

Leslie Myatt is professor of obstetrics and gynecology and co-director of the Center for Pregnancy and Newborn Research at the University of Texas Health Science Center San Antonio. Prior to this, he was a faculty member at the University of Cincinnati for 22 years and director of the National Institutes of Health (NIH)-funded Physician Scientist Training Program (MD/PhD) and the Women's Reproductive Health Research Scholars Program. His research interests are control of fetal placental vascular reactivity, the role of oxidative and nitrate stress in placental function, and fetal programming and the regulation of prostaglandin synthesis and action in intrauterine tissues at parturition. He has published over 200 papers and 300 abstracts and has served on many review panels and study sections for NIH, the Canadian Institutes of Health Research, and other international grant-giving bodies. Dr. Myatt served as North American editor of *Placenta* (1997 to 2004), president of the Perinatal Research Society (1997), president of the International Federation of Placenta Associations (2002 to 2004), and president of the Society for Gynecologic Investigation (2009 to 2010). Dr. Myatt earned his Ph.D. in biochemistry from the Charing Cross Hospital Medical School, University of London.

John Rogers is acting director of the Toxicity Assessment Division National Health and Environmental Effects Research Laboratory at the U.S. Environmental Protection Agency (EPA). While at EPA, he has also served as chief of the Developmental Biology Branch and chief of the Experimental Teratology Section of the Perinatal Toxicology Branch. Dr. Rogers is president of the Teratology Society and a member of the Society of Toxicology and the Developmental Origins of Health and Disease Society. He is on the editorial board for *Birth Defects Research Part B* and the *Journal of the Developmental Origins of Health and Disease*, and has served as guest editor of *Birth Defects Research, Part C*. He has earned several EPA scientific and technical achievement awards, the Lucille S. Hurley Award from the University of California,

Davis, and the Robert L. Brent Award from the Teratology Society. Dr. Rogers earned a PhD in biology from the University of Miami.

J. Christopher States is professor, distinguished university scholar, and director of graduate admissions and recruitment for the Department of Pharmacology and Toxicology at the University of Louisville School of Medicine. He also serves as deputy director of the National Institute of Environmental Health Sciences Center for Environmental Genomics and Integrative Biology and of the Center for Genetics and Molecular Medicine at the University of Louisville. Dr. States' research interests encompass molecular mechanisms of arsenic toxicity and molecular biology and molecular genetics of DNA damage and repair in humans. Current research projects include modulation of DNA damage response by xenobiotics, molecular mechanism of arsenic-induced mitotic disruption, and priming of liver disease by in utero arsenic exposure in relation to atherogenesis. For the latter project, his laboratory developed models for arsenic exposure induced acceleration and exacerbation of atherosclerosis in the Apolipoprotein E-knockout mouse. Present work integrating gene expression and epigenetic changes caused by in utero arsenic exposure is revealing alterations in early life developmental program that contribute to chronic adult disease. Dr. States has published over 80 peer-reviewed research articles, book chapters, and reviews, and has served on review panels for the National Institutes of Health, the Department of Defense, the U.S. Environmental Protection Agency, and the National Science Foundation. He was founder of the Midwest DNA Repair Symposium, and he is currently the vice president of the Society of Toxicology Metals Specialty. Dr. States received his Ph.D. in pathology and molecular biology from Albany Medical College, Union University

Michael P. Waalkes is a research toxicologist with the National Toxicology Program (NTP) and an adjunct professor of molecular toxicology at Duke University. Dr. Waalkes' current research involves defining the fetal basis of adulthood cancer primarily using the carcinogenic inorganics, including arsenic, lead and cadmium, as model compounds. He is the author or co-author of over 340 publications. Prior to his position at NTP, Dr. Waalkes joined the National Cancer Institute of the National Institutes of Health in 1983, where he became chief of the Inorganic Carcinogenesis Section. From 1983 to 1996, he was located at the Frederic Cancer Research Center in Frederick, MD. In 1996, he and his section were detailed to Research Triangle Park to become part of the National Institute of Environmental Health Sciences. Dr. Waalkes is an active member of the Society of Toxicology (SOT). He is now councilor and he has served on the SOT Program Committee, the Board of Publications, the Committee on Public Communications, the Education Committee, and as Metals Specialty Section president and president of the North Carolina Regional Chapter. Dr. Waalkes has served as editor of *Toxicology and Applied Pharmacology*, and he is currently on the editorial boards of *Toxicology*, *Journal of Toxicology and Environmental Health*, and *Toxicology Mechanisms and Methods*. He has served on various review committees, including those involving the International Agency for Research on Cancer, the National Science Foundation, and the Report on Carcinogens. Dr. Waalkes earned his Ph.D. in pharmacology and toxicology from West Virginia University.

Christopher (Chris) Weiss serves as a toxicologist and senior advisor to the director of the National Institute of Environmental Health Sciences (NIEHS) in Bethesda, Maryland. Stationed on the main campus of the National Institutes of Health in Bethesda, he conducts outreach and coordination with relevant Federal research and regulatory programs and a wide variety of constituency and advocacy groups, both nationally and internationally. Dr. Weiss was formerly the senior toxicologist with the U.S. Environmental Protection Agency's National Enforcement Investigations Center in Denver, Colorado. He was also a faculty member in the Department of Pharmaceutical Sciences at the University of Colorado Health Sciences Center where his research focused upon the use of genetic screening approaches for species identification and source attribution. Dr. Weiss has specialized in environmental sampling, exposure assessment, and

emergency risk evaluation for 22 years and has provided scientific support on more than 80 Superfund and emergency response sites. He has worked extensively in the area of metals absorption and has served as science coordinator for many response actions, including the design and implementation on-scene exposure assessments in Libby, Montana, the Capitol Hill Anthrax incident, and several catastrophic environmental accidents under the National Response Framework. Dr. Weis earned a Ph.D. in toxicology and medical physiology from Michigan State University.

PANELIST BIOS

Stan Barone is a senior scientist and Assistant Center Director for Human Health Risk Assessment at U.S. Environmental Protection Agency's (EPA) National Center for Environmental Assessment. Prior to this, Dr. Barone served as a developmental neurotoxicologist at EPA's neurotoxicology division, which later became the National Health and Environmental Effects Research Lab. In 2006, Dr. Barone led an effort to develop and implement a framework for Assessing Health Risks of Environmental Exposures to Children. Currently, he is working on cross-cutting human health risk assessment issues, including ongoing Integrated Risk Information System assessments of tetrachloroethylene, trichloroethylene, methanol, formaldehyde, and ethylene dichloride. He currently serves on the EPA Human Health Oversight Committee of the Risk Assessment Forum and is the EPA Project Officer on the World Health Organization cooperative agreements dealing with the International Programme on Chemical Safety and Protection of Human Health. He has published more than 60 peer-reviewed papers and six book chapters. Dr. Barone has served on peer-review panels for numerous government and nongovernmental funding organizations (for example, the Veterans Administration, National Institutes of Health, U.S. Food and Drug Administration, Department of Defense, and Texas A&M University pilot grants program, Cure Autism Now Investigator-Initiated Research proposals for Jeffress Research Grant Memorial Trust). He has also served on numerous government advisory panels (e.g., National Toxicology Program's Center for the Evaluation of Risks to Human Reproduction and Member of Interagency Workgroup on Development and Behavior to National Children's Study). Dr. Barone earned a Ph.D. in anatomy and cell biology from East Carolina University.

Robert (Bob) Benson has worked as a toxicologist in the Drinking Water Program, U.S. Environmental Protection Agency (EPA), Region 8, since 1988. His current duties include providing expert technical assistance and interpretations of data on the health effects of drinking water contaminants. Dr. Benson was a member of EPA's Reference Dose/Reference Concentration Workgroup from 1989 -1995 and continues to prepare risk assessment documents for EPA's IRIS database. Dr. Benson serves as a peer reviewer for the World Health Organization and as a Temporary Advisor for the preparation and review of Environmental Health Criteria Documents and Concise International Chemical Assessment Documents. He is a member of EPA's National Advisory Committee to Develop Acute Exposure Guideline Levels for Hazardous Substances. Dr. Benson also serves as the Superfund representative to the Agency for Toxic Substances and Disease Registry's Minimal Risk Level Work Group. Dr. Benson earned a Ph.D. in biochemistry from the University of California, Los Angeles.

William Farlandis currently the Senior Vice President for Research at Colorado State University (CSU) in Fort Collins. He is also a professor in the Department of Environmental and Radiological Health Sciences, School of Veterinary Medicine and Biomedical Sciences, at that institution. He serves as the chief institutional advocate and facilitator for faculty research activities and is responsible for programmatic excellence in research. Specific responsibilities of the position include oversight and promotion of external research funding and associated

regulations, needs, and capabilities; serving as liaison with federal research officials and agencies; identification of research opportunities; and development and oversight of interdisciplinary programs and research centers, including CSU's Superclusters. Dr. Farland completed 27 years of Federal service in research and development with the U.S. Environmental Protection Agency. He had served on a number of executive-level committees and advisory boards within the Federal government and in the private-sector. He is currently a member of the executive board of the Colorado Renewable Energy Collaboratory and a member the board of directors of the Alliance for Sustainable Energy, LLC. In addition, Dr. Farland serves on the boards of CO-Labs and the Colorado Cleantech Industry Association. Dr. Farland recently served as chair of an external advisory group for the National Institute of Environmental Health Sciences (NIEHS) on the future of the Superfund Basic Research Program. He currently serves as chair of the National Research Council (NRC) Standing Committee on Emerging Science for Environmental Health Decisions and as a member of the NRC Committee to Develop a Research Strategy for Environmental, Health, and Safety Aspects of Engineered Nanomaterials. In 2002, Dr. Farland was recognized by the Society for Risk Analysis with the "Outstanding Risk Practitioner Award," and in 2005 was appointed as a Fellow of the society. In 2006, he received a Presidential Rank Award for his service as a federal senior executive. In 2007, he was elected as a Fellow of the Academy of Toxicological Sciences. He continues to teach and publish and has been a member of the editorial board for Risk Analysis, Environmental Health Perspectives, and Chemosphere. Dr. Farland holds a Ph.D. in cell biology and biochemistry from the University of California, Los Angeles.

Jerold (Jerry) Heindel is a scientific program administrator in the Division of Extramural Research and Training at the National Institutes of Health's National Institute of Environmental Health Sciences (NIEHS). In this position, he is responsible for developing a portfolio of grants in the area of endocrine disruptors, including bisphenol A, and the developmental basis of disease with a focus on obesity and metabolic syndrome. Dr. Heindel has been at NIEHS for 20 years. Prior to that, he was a faculty member at the University of Texas Medical School at Houston and the University of Mississippi. Dr. Heindel earned a Ph.D. in biochemistry from the University of Michigan.

Deborah Hansen has worked as a research biologist in the Division of Personalized Nutrition and Medicine at the U.S. Food and Drug Administration's National Center for Toxicological Research since 1985. She also holds a position as adjunct associate professor in the Department of Pharmacology and Interdisciplinary Toxicology at the University of Arkansas for Medical Sciences. Her research focus is in mechanisms of abnormal development, especially those which may include a nutritional component. She has investigated effects of folate deficiency on various aspects of pre- and post-natal rodent development; she has examined prenatal effects of biotin deficiency, and she has studied compounds which may produce developmental defects acting through a nutritional mechanism, such as effects of valproic acid or phenytoin on embryonic folate levels. She is a member of the Society of Toxicology and the Teratology Society. Dr. Hansen earned a Ph.D. in medical genetics from Indiana University.

Sarah Janssen is a senior scientist in the Health and Environment Program of the Natural Resources Defense Council (NRDC). In her capacity as a scientist with NRDC, Dr. Janssen provides scientific expertise for policy and regulatory decisions on a number of toxic chemicals, including hormone-disrupting substances which interfere with fertility and reproduction. She is the author of numerous peer-reviewed publications and book chapters, and her work has included research on flame retardants, cosmetics, plastics and plasticizers, breast cancer, and threats to adult reproductive health and child development. She is board-certified in preventive medicine with a subspecialty in occupational and environmental medicine. Dr. Janssen is also an assistant clinical professor at the University of California, San Francisco in the Division of Occupational

and Environmental Medicine and works part time at Kaiser Permanente of Northern California. She is also a member of the executive committee of the San Francisco Bay Area chapter of Physicians for Social Responsibility. Dr. Janssen completed her MD and PhD in molecular and integrative physiology at the University of Illinois, Urbana-Champaign.

Reza Rasoulpour is the technical lead for the Developmental and Reproductive Toxicology (DART) discipline at The Dow Chemical Company. He is the lead scientist on DART regulatory testing, where his research focuses on mode-of-action and epigenetics, and he serves as a technical expert consultant. Dr. Rasoulpour is leading the epigenetics research program, which is designed to evaluate potential transgenerational epigenetic phenomena and to determine the adequacy of the current regulatory toxicity testing program to detect such effects. Dr. Rasoulpour organized a symposium at the 2009 Society of Toxicology (SOT) annual meeting, participated in an expert panel deliberation and publication organized by International Life Sciences Institute (ILSI)- Health and Environmental Sciences Institute (HESI), published a comprehensive review article on the role of epigenetics in chemical safety assessment, is an invited speaker at the 2010 Michigan Regional Chapter of SOT (MISOT) meeting on epigenetics in product safety assessment, and is chairing and presenting at a continuing education course at the upcoming SOT meeting in 2011. To date, he has authored/coauthored 10 peer-reviewed publications to the scientific literature, as well as a book chapter in the area of reproductive biology. He also serves as representative on the ILSI-HESI DART Technical Committee Panel. Dr. Rasoulpour earned a Ph.D. in pathobiology from Brown University.

Theodore (Ted) Slotkin is a professor in the Department of Pharmacology and Cancer Biology, the Department of Psychiatry and Behavioral Sciences, and the Department of Neurobiology at Duke University Medical Center. He has done extensive research in the areas of developmental pharmacology and toxicology, neuropharmacology and neurochemistry, and cell differentiation and growth regulation. His research is aimed toward understanding the interaction of drugs, hormones and environmental factors with the developing organism, with particular emphasis on the fetal and neonatal nervous system. Dr. Slotkin's most notable achievements center around the effects of fetal exposure to drugs of abuse, especially tobacco and nicotine, drugs used in preterm labor, and neuroactive pesticides. He has received numerous honors and awards for his research work, notably the Alton Ochsner Award Relating Smoking and Health, the John J. Abel Award in Pharmacology and the Otto Kraye Award in Pharmacology, and has published over 500 peer-reviewed articles. He has served on National Institutes of Health Consensus Panels on Pharmacotherapies for Smoking Cessation During Pregnancy, and on The Use of Antenatal Steroids, has chaired review boards for the California Tobacco-Related Diseases Research Program, and he serves on the editorial boards of four scholarly journals. Dr. Slotkin received the Ph.D. in pharmacology and toxicology from the University of Rochester.

Kristina Thayer is director of the National Toxicology Program (NTP) Center for the Evaluation of Risks to Human Reproduction (CERHR). Her research interests include developmental origins of adult health and disease and use of high throughput screening and other "21st century" tools to help prioritize chemicals for toxicity testing and refine endpoint selection. She is currently organizing a workshop on the "Role of Environmental Chemicals in the Development of Diabetes and Obesity" for January 11-13, 2011 (<http://cerhr.niehs.nih.gov/evals/diabetesobesity/index.html>) Prior to joining the NTP in 2003, Dr. Thayer worked in the non-profit public health community in Washington DC on issues related to environmental contaminants. Dr. Thayer earned her Ph.D. from the University of Missouri-Columbia.