Ad hoc Panel Member Biosketches for the May 19-21, 2015
Meeting of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)
Scientific Advisory Panel (SAP) on Research to
Evaluate the Potential for Juvenile Sensitivity to Pyrethroids
Docket Number: EPA-HQ-OPP-2015-0130

Russell Carr, Ph.D.
Russell Carr is an Associate Professor in the College of Veterinary Medicine at Mississippi State University. He received his B.S. in Biology and Chemistry from Delta State University and his M.S. in Zoology and Ph.D. in Animal Physiology from Mississippi State University. Dr. Carr has served on multiple US EPA Science Advisory Panels and as a reviewer for Developmental Neurotoxicology Methods for the National Toxicology Program. His research interests are in the area of developmental neurotoxicology with emphasis on agricultural pesticides. Using animal models, his current focus is investigating the effects of developmental insecticide exposure on long term effects on behavior and matching those effects with changes in gene expression and neurochemistry.

Veronica Berrocal, Ph.D.
Dr. Berrocal is Assistant Professor of Biostatistics at the University of Michigan. She received her Ph.D. in Statistics at the University of Washington in 2007 and was a postdoctoral associate at the EPA supported by a National Research Council postdoctoral fellowship from September 2007 to August 2008. She subsequently held a postdoctoral position in the Department of Statistical Science at Duke University and at the Statistical and Applied Mathematical Science Institute (SAMSI) during the period September 2008-August 2010, when she joined the University of Michigan. Dr. Berrocal has been serving as Associate Editor of the Journal of Agricultural, Biological and Environmental Statistics since 2011, has held the positions of Program Chair Elect and Program Chair for the Section of “Statistics and the Environment” of the American Statistical Association in 2012 and 2013, and of secretary for the Section on Environmental Sciences for the International Society for Bayesian Analysis. Her research interests are in spatial, spatio-temporal and environmental statistics with a particular focus on statistical modeling of air pollution to obtain an improved characterization of air pollution concentrations over space, and modeling and understanding the effect of ambient exposure to air pollution and extreme heat on health.

Muhammad Hossain, DVM, MS, Ph.D.
Dr. Muhammad Hossain is a neurotoxicologist with advanced training in pharmacology and molecular neuroscience. He is currently an instructor in the Department of Environmental and Occupational Medicine at the Rutgers-Robert Wood Johnson Medical School and a member of the Environmental and Occupational Health Sciences Institute (EOHSI). Dr. Hossain received his doctorate in neurotoxicology and completed two postdoctoral traineeships in molecular neuroscience and neurotoxicology at Mississippi State University and UMDNJ-Robert Wood Johnson Medical School. Dr. Hossain has been working in the field of neurotoxicology for over 11 years and has extensive experience in pyrethroid neurotoxicity. His studies focus on mechanisms of toxicity and relationships of pesticide exposure to neurological disorders and the assessment of therapeutic interventions to prevent neurotoxicity. He received the Japanese Government Scholarship (MONBUSHO) for his doctoral studies in 2000-2005. He won the Faculty Fund Fellowship award from University of Manitoba, Canada in 2006, and a Society of Toxicology (SOT) Mechanisms Specialty Sections Postdoctoral Travel Award in 2012. Dr. Hossain has authored and co-authored 26 publications in the areas of pesticide neurotoxicology, neuroinflammation, and neurodegenerative diseases. He is an active member of SOT, Neurotoxicology Specialty Section, and Mechanisms Specialty Section. Dr. Hossain is also a regular reviewer for several scientific journals including Toxicological Sciences, Pesticide Biochemistry and Physiology, Neurotoxicology and Teratology, Environmental Toxicology, Cell Biology and Toxicology, Drug and Chemical Toxicology, Ecotoxicology and Environmental Safety, and Neurotoxicity Research. His current research focuses on (a) role of ion-channels and neuroinflammation in the pathogenesis of pesticide-induced neurodegeneration (b) role of environmental exposure and genetic factors in the etiology of neurological disorders, (c) pesticide exposure on hippocampal neurogenesis and cognitive disorders, and (d) development of animal and cell-based culture models to study neurological disease and dysfunction caused by environmental exposures and test therapeutic agents in these models.

Allison Jenkins, MPH
Allison Jenkins is a regulatory toxicologist and risk assessor with more than twenty five years of wide-ranging experience in all facets of regulatory toxicology. She is a senior toxicologist in the Toxicology Division of the Texas Commission on Environmental Quality (TCEQ). At TCEQ her major responsibilities are to evaluate air monitoring data, conduct toxicity assessments to develop acute and chronic inhalation toxicity factors, review risk assessments for remediation sites, and address toxicity issues concerning surface water and groundwater. Allison has an MPH in environmental health from the University of Hawaii and a BS in toxicology from the University of Louisiana at Monroe. She first joined the TCEQ in 1993, left the agency in 2004 to work as a toxicologist for an environmental consulting firm, Tetra Tech, and rejoined the agency in 2007. Allison participated with other staff toxicologists in writing *TCEQ Guidelines for Developing Toxicity Factors* (revised RG-422 2012). In the Guidelines, she was responsible for integrating and considering information on child/adult risk differences throughout the development of toxicity factors. She developed chemical-specific Development Support Documents (technical documents that outline the hazard identification and dose-response procedures for development of their toxicity factors) and acute and chronic inhalation toxicity factors for acrolein and ammonia. Before joining the TCEQ, Ms. Jenkins worked for what is now Environ in Louisiana and ICF in Vienna, VA conducting risk assessments for pesticides, solvents, and PCBs and for a US Air Force contractor at Hickam AFB managing the

investigation of Air Force remediation sites throughout the Pacific. Ms. Jenkins is a full member of the Society of Toxicology, recently co-authored a book chapter on Vanillin, and has presented posters at several conferences. She started work on a doctoral degree in public health at the University of Texas School of Public Health in the fall of 2013. Her areas of expertise include human health risk assessment, child/adult risk differences, data analysis, and risk communication.

Teresa Leavens, Ph.D.
The focus of Dr. Leavens' research is the pharmacokinetics of environmental contaminants and drugs with a primary emphasis on physiologically based pharmacokinetic modeling. She received her B.S. in Chemical Engineering from North Carolina State University in 1990 followed by a Ph. D. in Toxicology from the University of North Carolina at Chapel Hill in 1996, where her doctoral dissertation involved physiologically based pharmacokinetic modeling of the metabolic interactions of 1,3-butadiene and styrene and assessment of alterations in genotoxic response of male mice following inhalation exposure to mixtures of both compounds. During her professional career, she has been involved with and published articles on both experimental and computational research in animals and humans for a wide range of compounds, including persistent environmental compounds, water contaminants, air contaminants, metals, nanoparticles, and veterinary drugs used in food-production animals. In addition to instructing courses on pharmacokinetics and modeling, she has provided technical expertise as a reviewer for the ATSDR Toxicological Profile for Styrene, as a member of an ILSI working group on establishing physiological parameters for early life stages, and as an ad hoc member of the U.S. EPA FIFRA Scientific Advisory Panel. Dr. Leavens is active in both the national and local chapters the Society of Toxicology; serving previously as a Councilor in the Risk Assessment Specialty Section and as the chair of the Education Committee for the national chapter and as the newsletter editor for the local chapter.

Igor Linkov, Ph.D.
Dr. Linkov leads the Risk and Decision Science Team and Focus Area at the US Army Engineer Research and Development Center. He also serves as a Visiting Fellow at the University of Pittsburgh Medical Center and Adjunct Professor of Engineering and Public Policy at Carnegie Mellon University. Dr. Linkov has a B.S. and M.Sc. in Physics and Mathematics (Polytechnic Institute) and a Ph.D. in Environmental and Occupational Health (University of Pittsburgh). He completed his postdoctoral training in Toxicology and Biostatistics at Harvard University. Dr. Linkov has managed multiple risk assessments and risk management projects in the areas of risk assessment, biostatistics and toxicology. Many of his projects have included the application of state-of-the-science modeling and decision-analytical tools (e.g., risk-based decision analysis, probabilistic risk assessment, portfolio analysis) to highly complex sites (e.g., Hudson River, Katrina and Sandy restoration) and project needs (e.g., bioinformatics, stakeholder engagement). He currently supports extensive programs designed to assess environmental impact of chemicals and stressors, including toxicity evaluation. He leads several efforts on the use of data and decision fusion, including the use of Weight of Evidence techniques for assessing Adverse Outcome Pathways. He supports development of computational tools for exposure and toxicity assessment for several agencies, including US EPA, FDA and Consumer Product Safety Commission. Dr. Linkov has published widely on environmental policy, modeling, and risk analysis, including fourteen books and over 240 peer-reviewed papers and book chapters. Dr. Linkov has organized more than twenty national and international conferences and continuing education workshops on risk assessment, environmental security, decision analysis, risk communication, nanotechnology, and modeling and has participated in organizing many others. Dr. Linkov has served on many review and advisory panels for EPA, FDA, DOD, DHS, NSF, EU and other US and international agencies. He served as EPA SAB committee member. The Governor of Massachusetts has appointed Dr. Linkov to serve as a Scientific Advisor to the Toxic Use Reduction Institute. Dr. Linkov has received two Army medals for outstanding civilian service. He is the recipient of the 2014 Outstanding Practitioner and 2005 Chauncey Starr Award for exceptional contribution to Risk Analysis from the Society for Risk Analysis (SRA). He is SRA Fellow award and was an elected SRA Councilor (2009-2013). He leads the Program Committee for the 2015 SRA World Congress on Risk.

Thomas Murray, Ph.D.
Dr. Tom Murray is Professor and Chair of the Department of Pharmacology at Creighton University School of Medicine. He received his doctorate from the Department of Pharmacology at the University of Washington School of Medicine in 1979. He was an NIGMS Pharmacology Research Associate under Dr. Ermino Costa at the Laboratory of Preclinical Pharmacology of the National Institute of Mental Health from 1979-1981. He has over 30 years of experience as a principal investigator performing and directing molecular neuropharmacology research. He has served on numerous NIH review panels over the past 25 years and was editor of *Critical Reviews in Neurobiology* from 2002-2007. He has over 175 peer-reviewed publications on research positioned at the interface between neuropharmacology and natural product discovery. In collaboration with natural product chemists he has characterized structurally and mechanistically novel neuroactive natural products. These compounds have in turn been used as molecular probes to further understand excitatory transmission in the brain. To accomplish these goals his laboratory uses integrated medium- and high-throughput screening and molecular pharmacologic methods. Over the past fifteen years of collaboration he has found that many novel marine

natural products target voltage-gated sodium channels. He currently uses diolistic labeling of neurons with confocal imaging to characterize the influence of sodium channel ligands on neurite outgrowth, dendritic spine density and synapse formation. He is also currently using an animal model for focal stroke to determine whether these novel sodium channel ligands promote rewiring and recovery of the cerebral cortex following neural insult. His laboratory also has over 25 years of experience investigating the molecular mechanisms of action of pyrethroid insecticides. In recent years his group has used primary neuronal cultures to show that the pathways for pyrethroid-induced Ca^{2+} influx include N-methyl-D-aspartic acid receptors, L-type Ca^{2+} channels, and the reverse mode of operation of the Na^{+}/Ca^{2+} exchanger.

Isaac N. Pessah, Ph.D.

Isaac Pessah obtained his B.S. in Biological Sciences in 1977 from Cornell University and his Ph.D. in Toxicology from the University of Maryland College Park in 1984. He was a Postdoctoral Fellow at UC Berkeley from 1984 to 1987 during which time he discovered a family of calcium channels termed ryanodine receptors. Since then, his research and academic interests have spanned the broad area of molecular and cellular mechanisms by which Ca^{2+} channels regulate cellular signaling in muscle, neurons, and immune cells. He studies the organization and function of the macromolecular complexes regulating ryanodine-sensitive Ca^{2+} channels and how natural toxin derived from marine sponges and scorpions, as well as anthropogenic chemicals of concern to human environmental health (e.g. insecticides (including pyrethroids), rodenticides, and halogenated POPs) promote developmental neurotoxicity. Members of his laboratory have been studying gene-environment interactions influencing susceptibility that are relevant to autism and related neurodevelopmental disorders using humanized mice possessing mutations known to contribute susceptibility to disease. He received the Pfizer Award for Research Excellence in 1997 and the Neurobehavioral Toxicology Society's Distinguished Lecture Award in 2010. Dr. Pessah is a member of the UC Davis Superfund Research Program, Society of Toxicology and Neurotoxicology Specialty Section, the American Chemical Society and Pesticide Toxicology Specialty Section, the American Society for Pharmacology and Experimental Therapeutics, the Biophysical Society, and International Neurotoxicology Association. He is on the editorial board of several journals. Currently he is Professor of Toxicology and in the Department of Molecular Biosciences, and Associate Dean of Research and Graduate Education at UC Davis School of Veterinary Medicine. He is Deputy Director of the UC Davis Center for Children's Environmental Health and Disease Prevention. The Center, established under his direction in 2000, is an NIEHS/US EPA funded multidisciplinary program aimed at understanding how environmental factors influence developmental neurotoxicity. His research has received continuous funding from NIH since 1988. He has served as major advisor to over 35 PhD students and postdoctoral fellows and serves on the Executive Committee of two NIH predoctoral training programs. Recently he has been appointed by Governor Brown to serve on the California Developmental and Reproductive Toxicant Identification (DART) Committee.

Bingfang Yan, D.V.M., Ph.D.

Dr. Bingfang Yan is a professor and department Chair of Biomedical and Pharmaceutical Sciences and the Director of the Center for Integrated Drug Development at the University of Rhode Island. He has a broad training with a foundation in Veterinary Medicine (D.V.M.) and advancing training in Microbiology and Immunology (M.S.), Pharmacology/Toxicology (Ph.D.) and Tumor Biology (Fellow). For more than two decades, he has conducted toxicological research and trained more than 50 undergraduate students, graduate students or postdoctoral fellows. He frequently serves on scientific review panels such as NIH study sections (National Institutes of Health) and journal editorial boards such as Drug Metabolism and Pharmacokinetics. Dr. Yan has authored or co-authored more than 90 original research papers in the areas of drug metabolism, toxicology and tumor biology. The work from his laboratory has attracted attention from professional and public media outlets such as USA Today, Forbes, Doctors' Guide and Medwire News. Dr. Yan has been invited for book chapters and seminar speakers by professional societies. He was one of the authors of the state-of-the-art, 6-volume Encyclopedia of Drug Metabolism and Interactions. This Encyclopedia represented an international effort and has a total of 120 authorships. He was also an author of recently published Encyclopedia of Toxicology (3rd Edition). For decades, his laboratory has been well supported by NIH, primarily through the R01 mechanism.