SOT FDA Colloquia on Emerging Toxicological Science
Artificial Intelligence Applications in Food and Cosmetic Safety

Speaker Biographies

James Riviere, DVM, PhD; Chair

Jim Riviere, DVM, PhD is a Distinguished Professor Emeritus from both North Carolina State University (NCSU) and Kansas State University (KSU). He is an elected member of the National Academy of Medicine and an active Fellow of the Academy of Toxicological Sciences. At KSU, he held the McDonald Chair of Veterinary Medicine, was a University Distinguished Professor, a Kansas Bioscience Authority Eminent Scholar and Director of the Institute of Computational Comparative Medicine, a Certara Center of Excellence in Pharmacometrics where he co-founded the 1DATA consortium. Prior to joining the KSU faculty, Riviere was a faculty member at NCSU for 31 years retiring both as an Alumni and Burroughs Wellcome Fund Distinguished Professor. At NCSU, he was the founding director of the Center for Chemical Toxicology Research and Pharmacokinetics and a past Director of NCSU's Graduate Program in Biomathematics. His research focusses on developing computational models for predicting biological interactions of nanomaterials, the risk assessment of complex chemical mixtures, absorption of drugs and chemicals across skin, and the food safety and pharmacokinetics of tissue residues in food producing animals. The common theme is to define quantitative approaches including artificial intelligence (AI) and machine learning approaches to link model systems of different scales; that is from *in silico* to *in vitro* to *in vivo* to *population* endpoints in one species, and then to extrapolate across species. He was the co-founder of the Food Animal Residue Avoidance and Depletion (FARAD) program supported by USDA from 1981 to the present. Riviere holds six patents, has authored/edited 22 books and over 600 scholarly publications in pharmacokinetics, toxicology and food safety; and received over $21 million as principal investigator on extramural research grants. Among his honors are the 1991 *Ebert Prize* from the American Pharmaceutical Association, the *Harvey W. Wiley Medal* and FDA *Commissioner's Special Citation*, the University of North Carolina system's *O Max Gardner Award*, *John Doull Award*, *Lloyd E. Davis Award*, *Lifetime Achievement Awards* from both the American and European Associations of Veterinary Pharmacology, as well as being selected as the first *honorary fellow* in the American College of Veterinary Clinical Pharmacology.

Riviere earned his bachelor's degree in biology *summa cum laude* and a master's degree in endocrinology *with distinction* from Boston College. He earned a DVM and a PhD in pharmacology from Purdue University and was awarded an honorary DSc from Purdue in 2007. Currently Dr. Riviere lives in Raleigh with his wife and fellow toxicologist Dr. Nancy Ann Monteiro-Riviere. He serves as Science Advisor to FARAD and the 1DATA programs, is an active consultant with the FDA and continues collaborations with colleagues in pharmacokinetic and AI research topics.

Ernest Kwegyir-Afful, PhD, RAC; Co-chair

Speakers

Tim Allen, PhD

Tim Allen is a Research Associate at the MRC Toxicology Unit, University of Cambridge. He completed his PhD in 2016 on Molecular Initiating Events (MIEs) and how computational methods can be used to predict them in the group of Professor Jonathan Goodman at the Department of Chemistry in Cambridge. Since then he has undertaken postdoctoral work in the Department of Chemistry in Cambridge and at the US EPA in North Carolina. This has included work using quantum chemistry density functional theory calculations to predict the mutagenicity of alpha-beta unsaturated carbonyls and understand their reactions with DNA, using 3D Quantitative Structure Activity Relationships to quantitatively predict MIEs and explore the chemical-biological interactions in several cases, and developing in-house computational tools for use by his industrial partners at Unilever's Safety and Environmental Assurance Centre for use in safety decision making. Dr. Allen has also served as a member of ILSI Europe's expert group on the application of Adverse Outcome Pathways (AOPs) in food ingredient risk assessment and has presented his research at over 20 national and international conferences. In 2019 Dr. Allen moved to the MRC Toxicology Unit to continue his work in predictive toxicology, including new investigations into how we can use and understand state-of-the-art machine learning approaches such as deep learning neural networks.

Steve Bennett, PhD

Nicholas Watson, MEng, PhD

Chaoyang (Joe) Zhang, PhD