

AAVLD Plenary Session

Precision Diagnostic Medicine: Game Changing Technology...Is Your Lab Ready?

Saturday, October 15th

7:45-11:30am

7:45 AM: Welcome and Introduction of the session (P. Halbur, AAVLD President-Elect)

7:50-8:30 AM: The National Microbiome Initiative: Opportunities for Diagnostic Medicine and Beyond (Jo Handelsman, White House Office of Science Policy)



Dr. Jo Handelsman is the Associate Director for Science at the White House Office of Science and Technology Policy, appointed by President Obama and confirmed by the Senate in June of 2014. Dr. Handelsman helps to advise President Obama on the implications of science for the Nation, ways in which science can inform U.S. policy, and on Federal efforts in support of scientific research. Prior to joining OSTP, Dr. Handelsman was the Howard Hughes Medical Institute Professor and Frederick Phineas Rose Professor in the Department of Molecular, Cellular and Developmental Biology at Yale University. She previously served on the University of Wisconsin-Madison faculty as a Professor in Plant Pathology from 1985 to 2009 and as Professor and Chair of the Department of Bacteriology from 2007 to 2009. In 2013, she served as President of the American Society for Microbiology. Dr. Handelsman is an expert in communication among bacteria that associate with soil, plants, and insects and helped pioneer the field of metagenomics, bridging agricultural and medical sciences. Dr. Handelsman received a B.S. from Cornell University and a Ph.D. in Molecular Biology from the University of Wisconsin-Madison.

8:30-9:00 AM: Progress on the food animal microbiome and relevance to veterinary diagnostic medicine...using next generation sequencing to unravel complex infectious diseases (Paul Plummer, ISU)



Paul J. Plummer, DVM PhD, Diplomate ACVIM (Large Animal Internal Medicine), Diplomate European College of Small Ruminant Health Management (ECSRHM)

Dr. Plummer is an associate professor at the Iowa State University College of Veterinary Medicine. He attended veterinary school at the University of Tennessee. After graduation he did a large animal medicine and surgery internship at Texas A&M followed by a residency in large animal internal medicine at the University of Tennessee. He was boarded as a diplomate of the American College of Veterinary Internal Medicine (Large Animal Medicine) in 2004. At that time, he moved to the College of Veterinary Medicine at Iowa State University where he completed a PhD in Veterinary Microbiology and currently serves on faculty. Dr. Plummer's laboratory researches a variety of infectious and zoonotic diseases of importance to livestock and human health. He is also very interested in the human-wildlife-livestock interface and the mechanisms of environmental maintenance and transmission of zoonotic disease at this interface. Current projects in his laboratory focus on polybacterial infection dynamics, *Campylobacter jejuni* and *Coxiella burnetii*. In addition, he has international research projects in Ethiopia and South Africa that focus on disease transmission between livestock and humans.

9:00-9:30 AM: Progress on the companion animal microbiome and relevance to veterinary diagnostic medicine (Jan Suchodolski Texas A&M)



Jan S. Suchodolski graduated with a veterinary degree from the University of Veterinary Medicine in Vienna, Austria in 1997. After working for several years in a small animal specialty clinic he returned to academia and received his Dr. med. vet. degree from the University of Vienna, Austria. In 2005 Dr. Suchodolski received his PhD in Veterinary Microbiology from Texas A&M University for his work on molecular markers for the assessment of the intestinal microbiota. He is board certified in immunology by the American College of Veterinary Microbiologists (ACVM). He currently serves as Associate Professor and Associate Director of the GI Lab. His research is focused on gastrointestinal function testing, gastrointestinal pathogens, and intestinal microbial ecology with an emphasis on probiotics and prebiotics and how intestinal pathogens lead to disturbances in the intestinal microbiome and metabolome of companion animals.

9:30-10:00 AM Break

10:00-10:30 AM: Precision medicine: an opportunity for a paradigm shift in veterinary diagnostic medicine (K.C. Kent Lloyd, U.C. Davis)



Dr. Kent Lloyd is a Professor in the Department of Surgery in the School of Medicine at the University of California-Davis. Dr. Lloyd earned his DVM from UC Davis and a PhD in Physiology from the University of California Los Angeles. His primary research focuses on development of mouse models of human disease, genome editing, and preservation and resuscitation of genetically altered mice. Dr. Lloyd serves as the Director of the UC Davis Mouse Biology Program where he is engaged in technology development to enhance the resources, services, products, and procedures available through the Mouse Biology Program and the associated NIH-funded projects, including the Mutant Mouse Resource and Research Center (MMRRC), the Knockout Mouse Production and Phenotyping (KOMP2) projects, and the Mouse Metabolic Phenotyping Center.

10:30-11:00 AM: Advances in the use of molecular techniques to detect and monitor antimicrobial resistance. (Nicole Ricker, NADC)



Nicole Ricker received her Ph.D. in environmental science from the University of Toronto, Canada, with a specialization in bacterial genetics. Nicole is now a post-doctoral research microbiologist with Dr. Heather Allen at the USDA's National Animal Disease Center in Ames, Iowa, and a collaborating assistant professor at Iowa State University. She is an expert in mobile genetic elements that are associated with resistance genes and disseminate among different bacterial strains. Her current research is on developing methods for monitoring antibiotic resistance genes in animal and environmental samples.

11:00-11:30 AM: Use of metabolomics in veterinary diagnostic medicine (Elizabeth Ryan, CSU)



Dr. Elizabeth Ryan is an Associate Professor in the Toxicology section of Environmental and Radiological Health Sciences, College of Veterinary Medicine and Biomedical Sciences at Colorado State University. She earned MS and PhD degrees in Molecular Toxicology and Environmental Medicine from the University of Rochester School of Medicine and Dentistry. Her research explores the complex interactions of food components with gut microbiota and the immune system. Her interests span both enteric disease and cancer control and prevention, with collaborators and translational application to the broader fields of microbiology, immunology, oncology, pediatrics, and nutrition. Dr. Ryan's global health research program also includes developing innovative solutions to food systems that will enhance food security. The multi-platform research strategy incorporates metabolomic assessments of dietary interventions assessing outcomes in laboratory animal models, companion animals, and from human trials. She also holds joint appointments with the Colorado School of Public Health and the University of Colorado Cancer Center.