AALAS 2018

IDEXX BioAnalytics & partners invite you to these informative sessions:

Session 1 **A Technical Trade Presentation: How to Incorporate Environmental Diagnostics—EDx, into Animal Health Monitoring Programs**
Date/time: Sunday, October 28 3:00 PM – 3:20 PM
Location: Room 341

Session 2 **Pathology Quiz Bowl**
Date/time: Monday, October 29 12:30 PM – 2:00 PM
Location: Room 341

Session 3 **Comparative Approaches to Monitoring Rodent Colonies for Infectious Agents**
Date/time: Tuesday, October 30 8:00 AM –10:15 AM
Location: Ballroom I

Session 4 **Is Biological Materials Testing Included in Your Biosecurity Program?**
Date/time: Tuesday, October 30 12:30 PM – 2:00 PM
Location: Room 339

Session 5 **Microbiota in Rodent Models: Reproducibility, Translation, and Discovery**
Date/time: Tuesday, October 30 2:45 PM – 5:00 PM
Location: Ballroom II

Poster **Rat Polyomavirus 2 Infection in Immune Competent Rats**

Continue on next page for session details

AALAS 2018

Session 1: A Technical Trade Presentation: How to Incorporate Environmental Diagnostics, EDx, into Animal Health Monitoring Programs

Date/time: **Sunday, October 28 3:00 PM – 3:20 PM**
Location: **Room 341**

Speaker: Cindy L Besch-Williford
Category: Facility Design, Management and Operation
Sponsored by: IDEXX BioAnalytics

Session Description:
Use of environmental diagnostics, EDx, complements the breadth of testing approaches used to screen for infectious diseases in research rodent colonies. Environmental monitoring involves sampling at the cage, rack and occasionally room level, and provides information complementary to that collected by other monitoring practices used in quarantine and colony animal surveillance programs. In this presentation, we'll discuss the various types of EDx sample types and application of EDx monitoring with comparisons to other animal-based sampling approaches. Additionally, examples of how to interpret and confirm results will be provided to facilitate adaptation of these methods to institutional health monitoring programs. Target audience includes veterinarians, facility managers, and technical personnel who manage health monitoring programs.

IDEXX

AALAS 2018

Session 2: Pathology Quiz Bowl

Date/time: **Monday, October 29 12:30 PM – 2:00 PM**
Location: **Room 341**

Leader(s): Cindy L Besch-Williford
Moderator: Craig L Franklin
Panelists: Cindy L Besch-Williford, Angela K Brice, Craig L. Franklin

Category: Biomedical Research, Medicine and Methodology
Sponsored by: CLATR and IDEXX BioAnalytics

Session Description:
This panel discussion will consist of an informal review of the pathology of laboratory animals in the form of an image-based quiz. Topics will include lesions of well-described infectious and non-infectious diseases, pathological manifestations of emerging diseases, and selected phenotypic characteristics of important genetically-engineered animal models. The images will be educational and challenging to laboratory animal specialists at all levels of pathology expertise. Targeted audience is comparative medicine trainees, laboratory animal veterinarians, pathologists, and scientists. Participants from comparative medicine training programs have the opportunity to receive a fabulous cash prize for the highest score. A participation cash prize is also provided. The comparative medicine trainee with the highest score will be recognized at the CLATR (Committee for Laboratory Animal Training and Research) luncheon on Tuesday. Participants will learn gross and histologic pathology of laboratory animals. Pathology Quiz Bowl is co-sponsored by CLATR and IDEXX BioAnalytics.

continued on next page

AALAS 2018

Session 3: Comparative Approaches to Monitoring Rodent Colonies for Infectious Agents

Date/time: **Tuesday, October 30 8:00 AM –10:15 AM**
Location: **Ballroom I**

Leader(s): Robert S Livingston
Moderator: Matthew Myles
Facilitator: Sharon Byras
Panelists: Cynthia L Besch-Williford, Aurore Dodelet-Devillers, Patricia L Foley, Robert S Livingston

Category: Facility Design, Management and Operation

Session Description:
Monitoring rodent colonies for infectious agents is continuing to evolve along with the increased use of individually ventilated caging (IVC) systems, the availability of highly sensitive PCR testing methods and the desire to reduce the use of sentinels exposed to soiled bedding. In this seminar, participants will be shown data from recent real-life and experimental studies comparing the diagnostic sensitivity of detecting viral, bacterial and parasitic infections of mouse or rat colonies by testing IVC plenum debris, filters exposed to composite soiled bedding, and soiled bedding sentinels. Pros and cons of these different approaches will be discussed, and how to incorporate some novel monitoring methods into your own health surveillance programs. This seminar will be of interest to individuals managing or participating in monitoring the health of mouse and rat colonies.

Speakers:

Patricia Foley: PCR Testing of Filter Paper from IVC Cage Lids for Microbial Monitoring of Mouse Colonies

Cynthia Besch-Williford: Detection of Mouse Pathogens in Exhaust Debris Samples from Individually Ventilated Caging Systems

Aurore Dodelet-Devillers: External Validation of Exhaust Air Dust Testing by Comparison with Traditional Soiled Bedding Sentinels

Robert Livingston: Novel Approaches to Cage Level Monitoring

continued on next page

AALAS 2018

Session 4: Is Biological Materials Testing Included in Your Animal Resources Biosecurity Program?

Date/time: **Tuesday, October 30 12:30 PM – 2:00 PM**
Location: **Room 339**

Leader(s): Cynthia L Besch-Williford
Moderator: Cynthia L Besch-Williford
Facilitator: Sharon Byras
Panelists: Beth A Bauer, Cindy L Besch-Williford, Melinda Hollingshead, Lois A Zitzow

Category: Biomedical Research, Medicine and Methodology

Session Description:
Immunocompromised rodent models engrafted with transplantable cells and tissues are valuable preclinical models to study human cancer, degenerative and infectious diseases. Model development involves use of various biological materials derived from man or animals, such as patient-derived xenografts, human blood cells, and cell lines for tumor formation. These important research reagents can complicate and nullify in vivo studies if contaminated with infectious agents or with cells from another species or cell line. The possible negative outcomes of using contaminated biological materials include infectious disease outbreaks if the biological material contains rodent pathogens, risk of exposure of laboratory and vivarium personnel to human infectious agents if the biological material is of human origin, and the loss of animals and resources if the biological material was misidentified or contaminated with other cells. This panel discussion will overview the contribution of contaminated biological materials to the reproducibility crisis in preclinical research and provide real-life examples of biological material contamination and the screening methods that can be instituted as part of a comprehensive biosecurity program. The targeted audience will be laboratory animal veterinarians, facility managers and animal welfare policy and compliance personnel.

continued on next page

AALAS 2018

Session 5: Microbiota in Rodent Models: Reproducibility, Translation, and Discovery

Date/time: **Tuesday, October 30 2:45 PM – 5:00 PM**
Location: **Ballroom II**

Leader(s): Jacob E Moskowitz
Moderator: Cynthia L Besch-Williford
Facilitator: Nick Harrison
Speakers: Aaron C Ericsson, Craig L Franklin, Marcia L Hart, Jacob E Moskowitz, Julita Ramirez-Komo
Category: Biomedical Research, Medicine and Methodology

Session Description:
The gut microbiota (GM) is the complex community of commensal, symbiotic microorganisms that occupy the intestinal tracts of animal species. The GM has emerged as a critical homeostatic regulator of host physiology with implications in a surprisingly diverse range of physiological processes. We'll review how our growing understanding of the GM can address key issues in laboratory animal research including reproducibility, translatability, and discovery. Of importance to the biomedical research community is the growing wealth of data showing that differences in complex GM are associated with model phenotype variability, which may significantly impact model reproducibility and translation to human disease. We will discuss how to enhance reproducibility and translatability, and demonstrate the integration of GM data to further facilitate discovery in animal research, covering specific examples of both intestinal and neurodevelopmental diseases. This seminar is ideally suited for a broad range of audiences including veterinarians and animal care staff aiming to facilitate reproducible and translatable animal research through increased understanding of the microbiota, and research scientists with interests in a broad range of pathological processes.

Speakers:

Jacob Moskowitz: Integrating the Gut Microbiota: A System's Approach to Colorectal Cancer
Craig Franklin: An Introduction to Microbiota: Considerations in Contemporary Rodent Research Colonies
Julita Ramirez-Komo: The Laboratory Mouse Microbiome— a Commercial Vendor's Perspective
Aaron Ericsson: Lost in Translation: Modeling Human Disease via the Gut Microbiota
Marcia Hart: Assessing the Influence of Gut Microbiota on Rodent Model Phenotype

continued on next page

AALAS 2018

Poster: Rat Polyomavirus 2 Infection in Immune Competent Rats

Authors: Besch-Williford, Cynthia L.[1]; Bauer, Beth[2]; Myles, Matthew H.[3]; Livingston, Robert S.[1]

Institutions (ALL):
1. IDEXX BioAnalytics, Columbia, MO, United States
2. University of Maryland, College Park, MD, United States
3. Southern Illinois University, Springfield, IL, United States

Abstract:

Rat Polyomavirus 2 (RatPyV2) was first identified in rats with severe combined immunodeficiency. Screening of immunocompetent rat samples with RatPyV2-specific tests revealed a 32% seroprevalence and a 0.7% prevalence by fecal PCR which suggested transient viral shedding. To assess disease in immunocompetent rats, SD rats were administered an intranasal dose of 10E5 copies of RatPyV2 purified from feces from infected nude rats. At 12 wks post-inoculation, 11 of 12 rats seroconverted and no virus was detected by PCR in feces or multiple target tissues. These findings confirmed subclinical disease with seroconversion and limited fecal shedding in immunocompetent rats. Transfer of virus by soiled bedding was verified using SD rats exposed weekly to soiled bedding from cages housing RatPyV2-infected nude rats. After 12 weeks of exposure, all SD rats (n=4) were seropositive. Since polyomaviruses can persist in tissues of seropositive hosts, persistence of RatPyV2 was evaluated by evoking viral replication via immunosuppression of seropositive rats. SD and nude heterozygous rats, 7-12 wks of age, from infected breeding colonies were bled at time 0. Rats were assigned to seronegative or seropositive groups, and within each group, to a sham (PBS) or immunosuppression (methylprednisolone acetate) treatment protocol. Doses were administered subcutaneously at weekly intervals for 8 weeks. At study end, target tissues were tested by PCR. No RatPyV2 was detected in any sample from seronegative rats from either treatment group or from seropositive rats in the sham group. RatPyV2 was detected in 25% of tracheal and 6% of nasopharyngeal samples in the seropositive group receiving immunosuppressive treatment. In summary, RatPyV2 infection in immunocompetent rats is subclinical with seroconversion and transient virus shedding. Virus can be transmitted to naïve rats through contact with soiled bedding. There is preliminary evidence of viral persistence and the potential for reactivation in seropositive rats receiving prolonged immunosuppressive therapy.