



Panel Discussions

- U Pathology Quiz Bowl: Marcia L Hart.
- U Burning Questions in Laboratory Animal Anesthesia and Analgesia: Rebecca A Johnson.
- U Diversity and Inclusion within AALAS: The Next Steps: Janet Lynn Steele.
- U Principles of Animal Research Ethics in Oncology Studies: Margaret S Landi.
- U Saving the Planet, One Vivarium at a Time: Sharron M Kirchain.
- U AALAS and FELASA: Global Nature of Research: Scott Mischler.
- U Emotional Labor: An Interactive Discussion: Annabella J Williams.
- U How to Avoid Treading Water - Recruitment and Development of Aquatics Technicians: Joshua Barber.
- U Study Design Concerns and Needs for NHP Space Determinations: John J Hasenau.
- U Operational Excellence begins with Respect for People and Humanity: Mary C Tetreault.
- U Our Common Vision: What Can Research and Animal Activist Communities Accomplish if They Work Together?: Cindy Buckmaster.
- U Refined Mouse Handling: Practical Applications: Megan R LaFollette.
- U The CUSP Sharing Site...Coming Soon to an Institution Near You!: Aubrey Schoenleben.

Seminars

- U Flowing into Aquatics: Marcus J Crim.
- U The Critical Role of Social Media in Forming Animal Research Opinions and Evolving Our Own Strategies to Improve Effectiveness: Paula A Clifford.
- U Celebrate Animal Research & Education (CARE): Ann T Turner.
- U Current Trends in Gnotobiotics: Alton G Swennes.
- U Oncology Modeling in a Downsized Sinclair Miniature Swine: Michael Swindle.
- U Bats: Animal Models for Emerging Diseases: Lon V Kendall.
- U Mitigating the Risks of Microbial and Genetic Contamination of Biological Materials in Oncology Research: Robert S Livingston.
- U Presentation-Ready Slide Decks and Guidance to Support Research Advocates in Community Outreach: Paula A Clifford.

- U Making the Switch to Environmental Health Monitoring: Evidence, Data, and Practicalities: Megan R LaFollette.
- U Rodent Oncology Studies: How Automated Rodent Housing Systems Could Improve Outcomes: John J Hasenau.
- U Rollback, Repurpose, Rethink, and Realign: Four Rs of Increased Efficiency: Judy Hickman-Davis.
- U An Insight into the Fun and Challenges Working with Unusual Critters: Sylvia Gografe.
- U Caring for Our People, Caring for Our Animals, NA3RS's Compassion Fatigue Resiliency Initiative: Megan R LaFollette.
- U 3Rs Improvements in Strategic Rodent Colony Management and Reproductive Techniques: Bernard J Doerning.
- U ASAP: Assessment and Surveillance of Adverse Phenotypes in Genetically Engineered Models: Philip Dube.
- U *Corynebacterium bovis*: New Insights, Extraordinary Challenges: Neil S Lipman.

Special Topic Lectures

- U Charles C Hunter Lecture: Tissue Vaccines for Cancer: Leslie S Bird. Ballroom A. 11 AM-12 PM (STL)
- U Two Adult Education Tools for Managing Complex Problems in Laboratory Animal Science: Lisa Michelle Kelly. Ballroom D. 11 AM-12 PM (STL)
- U Understanding the Animal Rights Movement: Yesterday, Today, and Tomorrow: Eva C Maciejewski. Ballroom E. 11 AM-12 PM (STL)
- U The Importance of Being Engaged with Your State Lawmakers: Richard J VanDomelen. Ballroom A. 11 AM-12 PM (STL)
- U Wallace P Rowe Lecture: Investigating Fibrocyte Transfer as Immunotherapy for Sepsis: Jean Nemzek. Ballroom E. 11 AM-12 PM (STL)
- U Nathan E Brewer Lecture: A Journey In Director Land: What I Learned After I Knew It All. Michael Huerkamp. Ballroom A. 11 AM-12 PM (STL)
- U Synthetic Lethality: The Future of Cancer Treatment: Temeri D Wilder-Kofie. Ballroom E. 11 AM-12 PM (STL)
- U An Overview of the AVMA Working Group on the Psychological Impacts of Humane Endings and Related Guidance Documents: Nathaniel Socrates Kollias. Ballroom D. 11 AM-12 PM (STL)

- U Evaluation of Pharmacokinetic Profiles and Safety of Immediate- and Extended-Release Buprenorphine: Steven L Leary. Ballroom E. 11 AM-12 PM (STL)

Technical Trade Presentations

- U Are You Gelling? Get the Most Out of Your Colony with Nutritional Gel Supplementation: Jay Palmer.
- U Optimizing the Use of Catheter Access Buttons and Ports: Understand the Basics for Better Studies and Improved Animal Welfare: Steve Denault.
- U Understanding Differences between Inhalant Anesthesia Systems for Small Animals: David Poldiak.
- U The Use of Alfaxalone in Biomedical Research Models: Karen Kerr.
- U Best Data and Conduct Practices for Improving Animal Study Reproducibility: Marina Yarbrough.
- U How Digital Transformations Are Improving In Vivo Workflows: Lyndsey McDonald.
- U Scientific Virtual Assistants for Animal Science and Operations: Ian Kerman.
- U Achieving Greater Welfare Compliance in the Measurement and Analysis of Subcutaneous Tumors by Using a 3D and Thermal Imaging Platform: Karl Turley.
- U Software Alone Won't Fix Vivarium Management Process Challenges: A Case Study on Optimizing Oncology Research Projects: Mathew D Sanderson.
- U Listening to Washroom Planning Stakeholders: How Understanding Inputs Can Transform Standard Equipment into Innovative Solutions: Andrew Arvanites.
- U Alternate Lighting Conundrums: Addressing an Institution's Needs: E Douglas Allen.
- U Peroxigard Disinfectants: Your First Line of Defense against *Corynebacterium bovis*: Matthew Buccioni.
- U Applications for Incorporating Ultraviolet Light Disinfection into a Vivarium: Emily Lorcheim.
- U It's Foggy Business: Understanding Proper Implementation of Gaseous Biodecontamination in Your Unique Facility: Frances M Grinstead.
- U Understand All Options for Upgrading Your Autoclaves: David Larson.



U The Possible Effects of Bedding Enrichment on Research Reproducibility: Joel Shepherd.

U The Change Station as a Hub of Communication in the Animal Room: Stephan E Hammelbacher.

U Humanized Immune System Mice: How to Maximize Experimental Success: Emily Shako.

U Introduction to Microsurgical Instruments: Alloys and Unique Tools for Research: Edward Dy.

Platform Sessions

PS1 Venezuelan Equine Encephalitis Virus DNA Vaccine Delivered by Needle-free Jet Injection Shows Immunogenicity and Protection in Macaques Against Viral Infection

PS2 Standardization of a Sentinel-free Environmental PCR Sampling Method for Detection of Rodent Infectious Agents in Pooled Soiled Bedding

PS3 Comparison of Analgesic Efficacy in Attenuating Spontaneous Pain Behaviors in Rats (*Rattus norvegicus*)

PS4 Assessing the Potential Costs of Delaying Maternal Separation in Purpose-bred, Group-housed Rhesus Macaques (*Macaca mulatta*)

PS5 The Relationship Between Functional and Structural Abnormality of the Retina in Wistar Han Rats

PS6 Use of Carbon Monoxide for the Euthanasia of Neonatal Rats and Mice

PS7 Inducing Pseudopregnancy in Female Mice Without the Need for Vasectomized Males Prior to Artificial Insemination

PS8 Frequency, Breeding Effects, and Heritability of Vaginal Septa in C57BL/6J & BALB/cj Laboratory Mice

PS9 Mouse Coronavirus MHV-1 Causes Significant Respiratory Disease in NZO and NOD Mice

PS10 Weight Loss and Acute Hindlimb Paralysis in a Rhesus Macaque (*Macaca mulatta*)

PS11 Facial Swelling in a Laboratory Rat

PS12 CRISPR Hamster Colony with Case-wide Diarrhea

PS13 Acute Respiratory Episode and Hoarse Bark in a Laboratory Hound

PS14 Prolonged Menstruation in a Geriatric Rhesus Macaque (*Macaca mulatta*)

PS15 Unidentified Finch Object (UFO): An Exercise in Laboratory Animal Forensics

PS16 The Curious Case of the Mouse Colony with Broken Legs

PS17 Hindlimb Lameness in a *Cynomolgus* Macaque (*Macaca fasciculata*)

PS18 Pouch Swelling in a Fat-Tailed Dunnart (*Sminthopsis crassicaudata*)

PS19 Inappetence and Diarrhea in Porcine Models of Hypertension

PS20 Pharmacokinetics of High-dose Meloxicam and Toxicity in Pilot Efficacy Studies in Female CD1 Mice

PS21 Effects of Midazolam/Dexmedetomidine/Buprenorphine and Midazolam/Dexmedetomidine/Sustained-release Buprenorphine Anesthesia in C57BL/6J Mice

PS22 Comparison of Alfaxalone-Midazolam, Tiletamine-Zolazepam, and Ketamine-Acepromazine Anesthesia during Plethysmography in *Cynomolgus* Macaques (*Macaca fascicularis*) and Rhesus Macaques (*Macaca mulatta*)

PS23 Correlation of Noninvasive Diffuse Optical Neuromonitoring and Systemic Predictors of Return of Spontaneous Circulation During Cardiopulmonary Resuscitation

PS24 Morphological and Molecular Characterization of a Novel Mouse Fur Mite

PS25 Whole Genome Sequencing of Skin Microbiota in *Corynebacterium bovis* Clinical and Nonclinical Infection

PS26 From Guts to Gills: Diving into the Microbial Populations of Zebrafish through Microbiome and Targeted Infectious Agent Analysis

PS27 Comparing Detection of Rodent Pathogens with Exhaust Air Dust and Sentinel Surveillance Testing in Facilities with Varying Census Sizes

PS28 Tracking Transmission of Murine Chapparravirus to Immunocompetent Mice via Exposure to Soiled Bedding

PS29 Husbandry Guidelines for a Novel Immunodeficient Rat Strain, the SRG rat, and its Use for Cancer Xenograft Studies

PS30 Exposure to Dim Light at Night (dLAN) Disrupts Nocturnal Melatonin in Nude Rats Bearing Human Castration-Sensitive VCaP Prostate Cancer: Impact on Tumor Circadian Dynamics, Metabolism, and Proliferation

PS31 Role of Oncostatin-M in Exercise-induced Breast Cancer Prevention

PS32 Transcription Factor SOX2 as an Indicator of Progression in Early-stage Bladder Cancer

PS34 Implementation of Minimally Invasive Brain Tumor Resection in Rodents for High Viability Tissue Collection

PS35 X-Ray-assisted, Ultrasound-guided Injections (USGI) to Initiate and Treat Focal Lung Tumors in Mice

PS36 Comparing User Measurement Variability of Subcutaneous Tumors with 3D Thermal Imaging and Calipers

PS37 Development of an Outcome-based Acclimation Program for Nonhuman Primates

PS38 Use of a Primate Welfare Assessment Tool to Encourage Continuous Institutional Improvement

PS39 Developing Engaging Annual Animal Welfare Reinforcement Training

PS40 Efficacy of a Novel Battery-operated Tumbler Device Compared to Live Animal Sentinels for Mouse Pathogen Detection

PS41 Impact of Automated Genotyping and Increased Breeding Oversight on Efficiency of Overall Mouse Breeding Colony Management

PS42 The Effect of Noise, Vibration, and Light Disturbances from Daily Health Checks on Breeding Performance and Nest Building in Mice

PS43 Emergency Respiratory Device for Use in Rodents

PS45 Jacketed Telemetry in Rats: Noninvasive Method for Refinement of Cardiorespiratory Monitoring During Exercise

PS46 Survival Cerebrospinal Fluid (CSF) Collection: A Novel Method for Serial Collection of Cerebrospinal Fluid from Rats

PS47 Prevalence and Global Distribution of the Murine Bacterial Pathogen *Chlamydia muridarum*

PS48 Pneumonia Associated with *Chlamydia muridarum* Infection in NSG Mice

PS49 Effectiveness of Various Antibiotics for Treating *Chlamydia muridarum*-infected Mice

PS50 Mouse Papillomavirus 1 Outbreak in a Rodent Facility: What We Know, What We Are Learning, and Questions Left Unanswered

PS51 Investigation of a Diarrhea Outbreak in Nsg and Related Immunodeficient Strains

PS52 Generalized Septicemia Caused by *Elizabethkingia miricola* in a Laboratory Colony of African Dwarf Frogs (*Hymenochirus boettgeri*)

PS54 Vasculitis Presentation for a Porcine Reproductive and Respiratory Syndrome Virus (PRRSV) Infection

PS55 Porcine Circovirus 2 Infection with Secondary Hypersensitivity and Suspected Bacterial Septicemia in a Laboratory Swine

PS57 Metabolic Cage Analysis of Surgically Catheterized C57Bl/6J Mice (*Mus musculus*) Treated with Carprofen and Sustained-release Buprenorphine

SESSION RECORDINGS



PS58 Opioid-induced Hyperactivity in Surgically Catheterized C57Bl/6j Mice

PS60 Comparison of Thermal and Mechanical Nociceptive Testing in Naïve Sprague-Dawley and Fischer 344 Rats

PS61 Physiologic and Behavioral Effects in Laboratory Mice Anesthetized with Isoflurane Using a Red-tinted Chamber Compared to a Traditional Translucent Chamber

PS62 Acute Effects of Anesthesia on Ultrasonic Vocalizations and Neuroendocrine Responses in Neonatal Rats

PS63 Behavioral evaluation of Laboratory-housed Ferrets (*Mustela putorius furo*) in Different Cage Sizes

PS64 A Novel Scoring System for Humane Endpoints in Mouse Cecal Ligation and Puncture Sepsis

PS65 Efficacy of Mechanical Cage Washing to Remove Viral, Bacterial, and Protozoal Murine Pathogens

PS66 Drivers and Benefits of European-style Pen Enclosures

PS69 Automated Cognitive Testing Systems Facilitate Data Collection while Enhancing Behavioral Management

PS70 Social Housing Male Macaques (*Macaca mulatta* and *Macaca fascicularis*) with Females Following Castration or Vasectomy

PS75 Biobehavior Management

PS76 Feasibility of a Gel-based Diet in Dosing Oral Albendazole and Fumagillin to Treat *Pseudoloma neurophila* in Adult Zebrafish (*Danio rerio*)

PS77 Short-term Administration of a Diet Containing Rapamycin, Acarbose, and Phenylbutyrate Induces Resilience to Osteoarthritic Changes in Aged Mice

PS78 Impact of Supplier-derived Gut Microbiomes on Feed Intake and Fecal Energy Loss

PS79 Modulating Maternal Microbiota to Generate a Novel Mouse Model for Fragile X Syndrome

PS80 Facilitating Mouse Studies of Post-acute Sequelae of COVID-19 (PASC)

PS81 Rhesus Macaques Demonstrate a Differential Early Immune Response in the Respiratory Tract after Inoculation with Wild-type Compared with Live-attenuated Measles Virus

PS82 Effect of Altered Postnatal Joint Loading on the Developing Mouse Meniscus

PS83 Gastric Coinfection with Thiopeptide-positive *Cutibacterium acnes* Alters *Helicobacter pylori*-induced Pathogenesis in Murine Model of Gastric Cancer

PS84 Shedding of Wild-type Adeno-associated Virus in Naïve *Cynomolgus* Macaques (*Macaca fascicularis*)

PS85 Severe Acute Myocardial and Hepatic Disease in 2 Göttingen Minipigs

PS86 Abdominal Mass in a Rhesus Macaque (*Macaca mulatta*)

PS87 Skin Lesions in an Athymic Nude Rat

PS88 Wasting in Cane Toads (*Bufo marinus*)

PS89 Chronic Intermittent Inappetence and Recurrent Emesis in a Duchenne Muscular Dystrophy Laboratory Dog

PS90 The Illusive Intermittently Inappetent New Zealand White Rabbit

PS91 Sudden Death in PLP-Cre Female Breeder Mice

PS95 Understanding the Impact of Culture on Job Performance

PS96 Results from the 2020 ACLAM-ASLAP Workforce Demographics and Salary Survey of Laboratory Animal Veterinarians

PS99 How to Establish an in Vivo Research Services Core in Academic Institutions

PS101 Implementing Change, Experience from the Vivarium: Improving in Vivo Study Management by Adopting A Cloud-based Software Platform

PS102 Evaluation of a Strategy to Increase Census Capacity by the Introduction of Higher Density Caging in the Same Footprint

PS104 Aging Under Pressure: Conditions that Affect Water Valve Failure

PS105 Polycystic Kidney Disease in an Adult Common Marmoset (*Callithrix jacchus*)

PS106 Lysosomal Storage Disease in a Sentinel Mouse

PS107 Chronic Elevation of Circulating Gamma-glutamyl Transferase in a Rhesus Macaque (*Macaca mulatta*)

PS108 Pyometra Secondary to Medroxy-progesterone-Acetate Treatment in an Adult *Cynomolgus* Macaque (*Macaca fascicularis*)

PS109 Efficacy of a Commercial Primate Diet Containing Fenbendazole in Treating Gastrointestinal Parasites in a Captive Baboon Colony (*Papio* sp.)

PS110 Parasitic Enteritis (*Aggregata* spp.) in a Wild-caught California Two-spot Octopus (*Octopus bimaculoides*)

PS111 Silly Rabbits, Autoimmune Disorders Are for Immunocompetent Animals: A Case Report of a SCID-associated Autoimmune Disorder in Nude Rabbits