

Hong Kong Laboratory Animal Sciences Society's Third Annual Symposium
Co-organised by LASEC, The Chinese University of Hong Kong

Global Perspectives on Laboratory Animal Science: Welfare, Management, Diversity and the AI-Driven Innovations

28 May, 2026

09:00am – 17:30pm

Registration: 08:15 am - 08:55 am

Complimentary for Hong Kong Members, Non Hong Kong Attendees: HKD400 per person

 Henry Cheng International Conference Centre,
Cheng Yu Tung Building,
The Chinese University of Hong Kong

Scan for Member's
Registration
(Hong Kong residents only)



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Symposium
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香港中文大學
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Morning Session

Afternoon Session

Vendor Talk

HKLASS Annual General Meeting (AGM)

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05

06

07

08

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Schedule

Welcome and Opening

Morning Session

Afternoon Session

Vendor Talk

HKLASS Annual General Meeting (AGM)

| 01 Sponsors | 02 Registration | 03 Schedule | Time | Event / Presentation | Speaker | 04 Welcome and Opening | 05 Morning Session | 06 Afternoon Session | 07 Vendor Talk | 08 HKLASS Annual General Meeting (AGM) | | | |
|----------------|--------------------|----------------|------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|---------------------------|-----------------------|-------------------------|-------------------|-------------------------------------------|--------------------------------|--|--|
| | | | 08:00 | Registration | | | | | | | | | |
| | | | 09:00 | Welcome and Opening Dr. Connie Leung President, HKLASS Assistant Technical Director, Centre of Comparative Medicine (CCMR), University of Hong Kong (HKU) Professor Mai Har SHAM Pro-Vice-Chancellor / Vice-President (Research) Choh-Ming Li Professor of Biomedical Sciences The Chinese University of Hong Kong MC: Dr. Chloe Choi Treasurer, HKLASS | | | | | | | | | |
| | | | Session Chair: Dr. Connie Leung President, HKLASS | | | | | | | | | | |
| | | | 09:15 | Strategies for Optimizing Animal Welfare while Supporting Biomedical Research Goals | | | | | | | Professor Patrick Sharp | | |
| | | | 09:45 | Optimizing Rodent Anesthesia and Analgesia: Best Practices | | | | | | | Professor Cholawat Pacharinsak | | |
| | | | 10:15 | Tea Break | | | | | | | | | |
| | | | Session Chair: Dr. Gabriel Lee Secretary, HKLASS | | | | | | | | | | |
| | | | 10:40 | Xenopus and Zebrafish Research Models | | | | | | | Professor Zhao Hui | | |
| | | | 11:10 | Establishing a New Cephalopod Facility: The HKU CCMR Experience | | | | | | | Dr. Jennifer Go | | |
| | | | 11:30 | How Animal Models Are Shaping Our Understanding of Lifelong Health? | | | | | | | Professor Hein Min Tun | | |
| | | | 12:00 | Lunch | | | | | | | | | |

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|----|--------------|-------------------------------------------------------------------------------------|----|-----------------------------------------|--|
| 01 | Sponsors | | 04 | Welcome and Opening | |
| 02 | Registration | | 05 | Morning Session | |
| 03 | Schedule | | 06 | Afternoon Session | |
| | Time | Event / Presentation | 07 | Vendor Talk | |
| | | Session Chair: Dr. Siva Tsang Scientific Member, HKLASS | 08 | HKLASS Annual General Meeting (AGM) | |
| | 13:10 | Engineering Design Considerations for a State-of-the-Art Laboratory Animal Vivarium | | Dr. Jihong Liu | |
| | 13:40 | Mitigating Noise and Vibration During Construction Project | | Dr. Nimal Fernando and Dr. Winnie Liang | |
| | 14:10 | Transforming Data into Decisions - DVC as the Vivarium's Digital Backbone | | Giorgio Rosati | |
| | 14:40 | Tea Break | | | |
| | | Session Chair: Dr. Karen Chan Veterinary Member, HKLASS | | | |
| | 15:10 | Monitoring Anesthetic Complications | | Professor Cholawat Pacharinsak | |
| | 15:50 | The Discoveries - Allentown AI cages | | Dr. Joseph Delli | |
| | 16:20 | Post Symposium Break | | | |
| | 16:30 | HKLASS Annual General Meeting (AGM) | | | |
| | 17:30 | Closing | | | |

2026 HKLASS Symposium on “Global Perspectives on Lab Animal Sciences: Welfare, Management, Diversity and the AI- Driven Innovations”



Strategies for Optimizing Animal Welfare while Supporting Biomedical Research Goals

Dr. Sharp is the Assistant Vice President for Animal Resources at Purdue University. He received his Bachelors of Science (BS) and Doctor of Veterinary Medicine (DVM) degree from Purdue University. He completed his postdoctoral fellowship at the Washington University School of Medicine in St. Louis and is a Diplomate of the American College of Laboratory Animal Medicine (ACLAM) and member of the Royal College of Veterinary Surgeons. He is member of the Australia and New Zealand College of Veterinary Scientists in the Medicine and Management of Laboratory Animals Chapter. Dr. Sharp was the 2024 recipient of the AALAS, Joseph J. Garvey Management Award.

He serves as a private consultant for various organizations providing various services including facility planning/design and AAALAC accreditation preparation. Dr. Sharp has worked in the US and overseas in government, industry, and academic appointments including positions at the Animal Resources Authority (Perth, Australia), David Geffen School of Medicine at UCLA (Los Angeles, California, USA), University of Florida (Gainesville, Florida, USA), the National University of Singapore(Singapore), and the Fundação Champalimaud's Centre for the Unknown (Lisboa, Portugal). Dr. Sharp served as an AAALAC ad hoc consultant specialist.

He has supported Comparative Medicine training, including both ACLAM-approved training programs and international training opportunities for laboratory animal graduate veterinarians and veterinary students. He has strived to increase the quality of animal care through personnel education at all animal care levels and through the design and construction of better vivaria and research support facilities.

Biomedical research has led to many life-saving discoveries, but it often involves the use of animals. The central challenge is balancing scientific progress with ethical responsibility toward animal welfare. This presentation will explore strategies that allow researchers to achieve reliable scientific outcomes while ensuring the highest standards of animal care.



Professor Patrick Sharp
Attending Veterinarian,
Clinical Professor,
Comparative Pathobiology
Purdue University College
of Veterinary Medicine

Optimizing Rodent Anesthesia and Analgesia: Best Practices, Monitoring, and Complications

Dr. Pacharinsak, a Professor and Director of Veterinary Anesthesia, Analgesia, and Surgery at Stanford University's Department of Comparative Medicine, is a Diplomate of the American College of Veterinary Anesthesia and Analgesia (DACVAA). He holds a Doctor of Veterinary Medicine (DVM) from Chulalongkorn University in Thailand and completed a residency program in Anesthesiology and Pain Management while concurrently pursuing his Master's degree at Washington State University. He earned his Ph.D. in Pain Neuroscience (Comparative Molecular Biosciences) from the University of Minnesota. Prior to joining Stanford University, Dr. Pacharinsak served as a faculty member in Anesthesiology and Pain Management at Michigan State University and Purdue University. He received the 2020 Excellence in Teaching award. Dr. Pacharinsak has been invited to national and international meetings and has authored numerous research publications in anesthesia and analgesia, book chapters, and book editions. His research focuses on understanding acute postoperative pain models and developing methods to enhance clinical pain management, such as sustained release analgesics, which support research refinements. Additionally, his research encompasses anesthesia techniques.

Rodent Analgesia

Over the years, rodent analgesia has evolved towards a preemptive, multimodal approach. The prevailing concept now emphasizes the synergistic use of nonsteroidal anti-inflammatory drugs (NSAIDs), opioids, and local anesthetics to block nociception at various levels of the nervous system. This strategy effectively reduces the required doses of individual agents and mitigates their associated side effects. Currently, best practices prioritize multimodal analgesia, and the utilization of sustained-release formulations (e.g., buprenorphine SR) when available. This review will concentrate on multimodal techniques based on the availability of the drugs in Hong Kong.

Anesthesia and Analgesia in Research - Best Practices

Modern laboratory animal anesthesia and analgesia have evolved from simple injectable and gas anesthesia to a sophisticated balanced anesthesia. This approach will necessitate lower doses of each drug, thereby reducing the "minimum alveolar concentration" (MAC) and individual drug side effects. Best practices emphasize pre-emptive analgesia as a component of anesthesia. Several factors influence the selection of anesthesia. This seminar will focus on anesthetic examples of various procedures.

Monitoring and Anesthetic complications

General anesthesia in rodents induces a range of physiological alterations. Consequently, to ensure the safety of anesthesia, anesthetists and researchers must monitor rodents throughout the entire process, from induction to recovery. A significant advantage of anesthetic monitoring is its ability to alert researchers to potential complications, enabling anesthetists to take appropriate actions to mitigate these issues before they become irreversible. This seminar will explore various techniques and provide an overview of the current literature on rodent anesthesia monitoring and troubleshooting.



Professor Cholawat Pacharinsak

Associate Professor, Comparative Medicine, Stanford University

Xenopus and Zebrafish Research Models

Professor Zhao Hui (趙暉) is a faculty member at the School of Biomedical Sciences, The Chinese University of Hong Kong. He received his Bachelor's Degree and Master's Degree from Shandong University. He then went to Germany and got his Ph.D. from the University of Essen, Germany. He subsequently undertook postdoctoral training at the National Institute of Child Health and Human Development, National Institutes of Health, USA, before joining The Chinese University of Hong Kong in 2008.

Professor Zhao's research focuses on developmental biology and tissue regeneration. His laboratory investigates the molecular and cellular mechanisms underlying neural crest differentiation, germ layer formation, and cell migration, and how these coordinated processes contribute to embryonic patterning. In recent years, his research has also expanded to heart regeneration through cross-species analysis. His group has employed genome-editing technologies, including TALEN and CRISPR/Cas9 nucleases, to achieve gene targeting in *Xenopus*, zebrafish, and stem cells.

Professor Zhao has published over 140 research articles in high-impact journals, including *Science Advances*, *Proceedings of the National Academy of Sciences (PNAS)*, *Development*, *The EMBO Journal*, and *Nucleic Acids Research*. He serves as a reviewer for numerous international journals, including *PNAS*, *Development*, *PLOS Biology*, *et al*. His research is supported by funding from the Ministry of Science and Technology, the National Natural Science Foundation of China, the Hong Kong Research Grants Council, and the Innovation and Technology Fund (ITF).



Professor Hui Zhao
Associate Director
(External Links)
School of Biomedical
Sciences, CUHK

Xenopus and Zebrafish Research Models

Animal models are essential tools for elucidating fundamental biological principles and for translating discoveries into biomedical applications. Among vertebrate systems, *Xenopus laevis*, *Xenopus tropicalis* (frog), and zebrafish (*Danio rerio*) are powerful and complementary models for studying development, genetics, and disease. This talk will highlight the unique advantages of *Xenopus* and zebrafish, emphasizing how the animal models were applied for developmental biology, and regenerative biology

Xenopus has a long-standing history in embryology and cell biology. The large, externally developing embryos of *Xenopus laevis* and *Xenopus tropicalis* enable precise micromanipulation, live imaging, and biochemical analyses that are difficult to achieve in other vertebrates. These features make *Xenopus* particularly well-suited for studying early developmental processes, tissue patterning, cell cycle regulation, and gene function. In our research, we identified Zinc Finger SWIM-Type Containing 4 (*zswim4*) from *Xenopus* embryos, and elucidated its functions in mediating the BMP signaling pathway.

Zebrafish complement *Xenopus* with their optical transparency and amenability to genetic analysis. These properties facilitate real-time visualization of organogenesis, cell migration, and physiological processes in vivo. Advances in transgenesis, genome editing, and high-throughput chemical screening have positioned zebrafish as a premier model for functional genomics and disease modeling. Utilizing the zebrafish model, we studied heart regeneration and elucidated the role of *thyroid hormone receptor alpha a (thraa)* during this process.

Taken together, by integrating insights from *Xenopus* and zebrafish research, we can leverage the strengths of each system to address conserved biological mechanisms across vertebrates. This talk will underscore the continued relevance of these models in bridging basic biology and translational research.

Acknowledgments: Supported by the Research Grants Council of Hong Kong (14119120 and N_CUHK439/24) to HZ. Additional support was provided by the Co-funding Mechanism on Joint Laboratories with the CAS (JLFS/M-403/24).



Professor Hui Zhao
Associate Director
(External Links)
School of Biomedical
Sciences, CUHK

Establishing a New Cephalopod Facility: The HKU CCMR Experience

Dr. Jennifer is an Assistant Technical Director and Veterinary Surgeon at the Centre for Comparative Medicine Research (CCMR), The University of Hong Kong. She obtained her veterinary degree from the University of Sydney and gained seven years of clinical experience as a general practitioner, working in a private practice in Sydney and a 24-hour veterinary hospital in Hong Kong, before joining the CCMR. Dr. Jennifer is a certified aquatic veterinarian through the World Aquatic Veterinary Medical Association and serves as an appointed member of the Veterinary Surgeons Board of Hong Kong.

The Centre for Comparative Medicine Research (CCMR) at the University of Hong Kong (HKU) is an AAALAC International-accredited service centre within the Faculty of Medicine. In 2024, CCMR collaborated with a group of researchers from the faculty to develop a cephalopod vivarium tailored to support cephalopod studies in HKU. Prior to this development, the aquatic animal facilities on the HKU medical campus were primarily dedicated to zebrafish, a freshwater species, and there was no saltwater facility on the medical campus. The cephalopod facility was designed through consultations with the researchers, HKU Estates Office, a company that specialises in building aquatic research systems, and international cephalopod experts. The facility became operational in late 2025 and currently includes an aquaria rack system, standalone aquariums, a saltwater mixing tank, and a saltwater storage tank. The CCMR team of technical staff and veterinarians work closely with the researchers to ensure optimal animal care and smooth operation of the aquatic life support system. This presentation shares HKU's experience in establishing the cephalopod facility, with a focus on husbandry and veterinary care of octopuses.



Dr. Jennifer Go
Assistant Technical Director,
Centre for Comparative Medicine
Research, HKU

How Animal Models Are Shaping Our Understanding of Lifelong Health?

Prof. Tun is a trained public health veterinarian, currently an Associate Director (Global Engagement) and Associate Professor at the JC School of Public Health and Primary Care (JCSPHPC), Faculty of Medicine, the Chinese University of Hong Kong (CUHK); the Associate Director of Microbiota I-Center (MagIC); and the PI of the System Microbiology and Antimicrobial Resistance (SMART) lab at the Li Ka Shing Institute of Health Science, CUHK. In parallel, he is also an Adjunct Professor at the Nanjing Medical University, an Honorary Associate Professor at the University of Hong Kong, and a Visiting Associate Professor at National University of Singapore. He is also a domain lead of “One, Planetary and Eco Health Nexus (OPEN)” at JCSPHPC, CUHK. His research interests range from studies on the role of microbiome in health and diseases to One Health surveillance of antimicrobial resistance and use (AMR/AMU). He published more than 150 original peer-reviewed articles in high impact journals such as Gut, Gastroenterology, Cell, Lancet Microbe, Cell Host & Microbe, Nature Communication, Microbiome, JAMA Pediatrics, Gut Microbes, etc. He is continuously recognized as a world’s top 2% scientist in 2024 and 2025. He serves the editorial boards of Gut, Cellular and Molecular Life Sciences, Frontiers in Microbiology and Sustainable Horizons and Global Health Journal. Moreover, he received several international research awards and fellowships including Gold award at 3rd Asia Exhibition of Innovations and Inventions Hong Kong, Gold Medal at the International Exhibition of Inventions Geneva, Health and Medical Research Fund Fellowship, Canadian Institute of Health Research Fellowship and Dik Zwart Award.

The Developmental Origins of Health and Disease (DOHaD) hypothesis posits that adverse environmental exposures during critical periods of early development, particularly in utero and early postnatal life, can permanently program an individual’s susceptibility to chronic diseases in adulthood. This concept has profound implications for understanding the rising global burden of non-communicable diseases such as obesity, type 2 diabetes, cardiovascular disease, and neurodevelopmental disorders. Animal models have been instrumental in establishing causal relationships and elucidating the underlying biological mechanisms of DOHaD. This presentation will review key animal models employed in DOHaD research, highlighting their strengths, limitations, and contributions to identifying molecular mechanisms.



Professor Hein Min Tun
Associate Director (Global Engagement) / Associate Professor, JC School of Public Health and Primary Care, CUHK;
Associate Director, Microbiota I-Center (MagIC)

Engineering Design Considerations for a State-of-the-Art Laboratory Animal Vivarium

Dr. Jihong(Kobe) Liu, DVM, Senior Engineer, currently serves as Deputy General Manager of Shanghai Kaichun Group. He is also Vice Chairman of the Shanghai Laboratory Animal Science Association, Global Veterinary Advisor for Animal Welfare at Roche R&D, and a Council Member of AAALAC.

Dr. Liu previously worked at the Laboratory Animal Center of Shanghai Jiao Tong University School of Medicine and at the R&D Center of GlaxoSmithKline (GSK). He brings over 20 years of professional experience in laboratory animal science and management. He served as a principal translator of the Chinese edition of the Guide for the Care and Use of Laboratory Animals (8th Edition), as well as multiple Chinese national and local standards related to laboratory animals.

He has authored more than 20 peer-reviewed publications in laboratory animal science and facility design and construction, holds over 10 patents, and has led the design, construction, and management of numerous large-scale laboratory animal facility projects across Asia-pacific. Dr. Liu possesses extensive expertise in the planning, construction, and operation of laboratory animal facilities, veterinary care programs, and the implementation of internationally recognized standards for laboratory animal management.

This presentation outlines key engineering design considerations for a state-of-the-art laboratory animal vivarium, focusing on animal welfare, research reliability, and regulatory compliance. It introduces the concept of Full-Time Assurance, emphasizing continuous 24/7 operation, stable environmental control, and rapid response to system deviations. The role of integrated HVAC and control systems in maintaining temperature, relative humidity, and ventilation is highlighted, along with species-specific and barrier facility requirements. Key strategies include modular air handling, terminal-level control, and system redundancy. Overall, the presentation provides a framework for designing reliable, efficient, and compliant vivarium facilities that support high-quality research outcomes.



Dr. Jihong Liu
Deputy General Manager & Senior
Engineer Shanghai Kaichun Group
AAALAC Council Member

Mitigating Noise and Vibration During Construction Project



Dr. Nimal Fernando
Director and Attending Vet
Laboratory Animal Services Centre
(LASEC)
Chinese University of Hong Kong
(CUHK)



Dr. LIANG Yingmin Winnie
Scientific Officer, Laboratory
Animal Services Centre (LASEC),
The Chinese University of Hong
Kong (CUHK)

Dr. Nimal Fernando BSc., BVSc., MANZCVS (Avian Health & Diagnostic Imaging) is the Director of the Laboratory Animal Services Centre (LASEC) and Attending Veterinarian at the Chinese University of Hong Kong (CUHK). He has worked as a clinician / manager for over 25 years in a variety of fields from animal shelters (RSPCA , Australia) , wildlife rehabilitation (Kadoorie Farm and Botanic Garden, Hong Kong) and zoo and aquarium (Ocean Park Corporation, Kong Kong and Bali Safari and Marine Park, Indonesia), the latter two giving valuable experience in disaster management and response , such as lion escape and volcano eruptions. At CUHK he oversees the animal care and use programme and veterinary care programme and serves on the AEEC. He dedicated to animal welfare and led the safari park in Indonesia to achieve South East Asian Zoo Association accreditation in Animal Welfare. He is the past chair of the Veterinary Subcommittee of the Asian Marine Mammal Stranding Network and currently serves on the veterinary subcommittee for the Hong Kong Veterinary Surgeons Board.

Dr. Liang Yingmin Winnie is a Scientific Officer at the Laboratory Animal Services Centre (LASEC) of The Chinese University of Hong Kong (CUHK), where she manages facility operations, manages building projects, and oversees compliance and quality assurance programs.

She holds a Bachelor of Science in Pharmacy and a Master of Science in Chinese Medicine from Guangzhou University of Chinese Medicine, followed by a Ph.D. in Medicine from the University of Hong Kong (HKU). She has been actively engaged in animal research since 2009. She subsequently completed a postdoctoral fellowship at HKU's Department of Medicine. Dr. Liang has published over 30 peer-reviewed papers in journals such as Virology Journal, ACS Applied Materials & Interfaces, Environmental Pollution, Biomedicine & Pharmacotherapy, Phytomedicine, and Frontiers in Pharmacology. Her research focuses on respiratory and cardiovascular diseases, environmental toxicology, mitochondrial dysfunction, and the therapeutic potential of natural products and stem cells. She also served as an Honorary Assistant Researcher at HKU-Shenzhen Hospital. Her unique background bridges pharmaceutical sciences, Chinese medicine, translational biomedical research, and laboratory animal science.

| | |
|----|---------------------|
| 01 | Sponsors |
| 02 | Registration |
| 03 | Schedule |
| 04 | Welcome and Opening |
| 05 | Morning Session |
| 06 | Afternoon Session |

Mitigating Noise and Vibration During Construction Project

Renovation work in animal facilities is relatively common and may involve major equipment upgrades and facility enhancements or refits. The challenges are mainly two-fold: first, to protect animal welfare from elevated noise and vibration; and second, to maintain ongoing operations.

To address these challenges, a mitigation strategy was developed and implemented in LASEC, CUHK. The approach combined communication and engagement with all stakeholders, proactive planning, real-time environmental monitoring, physical safeguards, and welfare-focused husbandry adjustments. This presentation will share real strategies, experiences and lessons learnt from an extended construction project occurring adjacent to LASEC Main Animal Facility.

| | |
|----|-------------------------------------|
| 07 | Vendor Talk |
| 08 | HKLASS Annual General Meeting (AGM) |

Transforming Data into Decisions - DVC as the Vivarium's Digital Backbone

Giorgio Rosati is Senior Product Manager at Tecniplast, where he leads the development of the Digital Ventilated Cage (DVC®) system and its ecosystem. With a background in Electronic Engineering and a specialization in Bioengineering, Giorgio focuses on bridging technology and animal welfare through scalable, data-driven solutions for preclinical research.

Over the years, he has been involved in the design and validation of advanced monitoring tools that support both operational excellence and scientific discovery. He is currently spearheading initiatives to expand the DVC platform with complementary sensors and analytics, enabling large-scale digitalization of animal facilities.

Giorgio is particularly passionate about sustainability, automation, and empowering researchers and animal technicians with tools that are intuitive, robust, and scientifically relevant. His work reflects a strong commitment to innovation that is practical, impactful, and deeply connected to the real needs of vivarium environments.

A Digital Backbone for the Vivarium: Connecting Operations, Welfare, and Science with DVC® Abstract:

Preclinical facilities are facing increasing pressure to enhance operational efficiency, reinforce animal welfare oversight, and enable more reproducible science. In this setting, DVC® (Digital Ventilated Cage) supports a transition from periodic manual observation to continuous, scalable monitoring directly within the home cage. By integrating high-frequency activity data with environmental and equipment-related information, DVC enables a more connected, data-driven approach to vivarium management.

This presentation illustrates how DVC can deliver value across three key areas: operational efficiency, through data-informed bedding-change management; animal welfare, through continuous surveillance and early identification of atypical patterns; and scientific support, through large-scale detection of deviations from baseline activity. Overall, DVC is presented as a modular digital backbone for the vivarium, linking facility operations, welfare oversight, and scientific insight within a single scalable platform.



Giorgio Rosati
Senior Product Manager
Tecniplast

Seeing the Unseen: AI-Powered Home Cage Monitoring for Next-Generation Mouse Studies

Dr Joe Delli spent about 10 years selling and supporting high content screening for drug discovery and research with experience for AI and ML for data analytics, 3 years in high plex multiomics in tissues for the emerging spatial biology field, and experience in screening at a startup biotech of CAR T/NK cell therapeutics.

Beyond Variability: Rethinking Observability and Interpretation in Preclinical Neuroscience

Improving the reproducibility and translational relevance of preclinical neuroscience remains a major challenge. Irreproducibility is often attributed to biological variability; however, an underrecognized factor may be the limited observability of behavior and physiology in experimental systems. Behavioral phenotyping has traditionally relied on episodic assays and endpoint measures that capture brief snapshots of biological processes unfolding across time. When key dynamics occur between observation windows, important biological signals may remain undetected or difficult to interpret.

This presentation examines how continuous, non-invasive behavioral monitoring can improve sensitivity and interpretation in preclinical studies. Advances in computer vision now enable continuous observation of behavior and physiology in undisturbed animals, allowing analysis of behavioral trajectories rather than isolated timepoints. Data presented include studies generated using the JAX Envision platform, which applies AI-driven computer vision to measure behavior continuously in the home cage environment.

Examples from neurodevelopmental disease models illustrate these advantages. In Rett syndrome, caused by mutations in MECP2, female mouse models better reflect the human condition but often exhibit subtle phenotypes. Traditional episodic scoring methods, such as Bird scoring, can struggle to detect gradual disease progression or modest treatment effects. Continuous behavioral measures demonstrate greater temporal resolution and sensitivity, revealing disease trajectories and treatment responses more clearly.

Additional studies demonstrate sensitive detection of behavioral effects of neuroactive compounds across time, highlighting how improved observability can strengthen experimental interpretation and translational relevance.

- ❖ Learn how continuous, AI-driven home cage monitoring can uncover behavioral and physiological signals missed by traditional endpoint and episodic assessments
- ❖ Discover practical applications to improve study design, reduce variability and animal use, strengthen welfare oversight, and generate higher-confidence research outcomes

Your mice are active 24/7—your data isn't



Dr. Joseph Delli
 Preclinical Sales Specialist
 Jackson Laboratory

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01

Registration

02

Schedule

03

Welcome and Opening

04

Morning Session

05

Afternoon Session

06

Vendor Talk

07

HKLASS Annual General Meeting (AGM)

08

AGM Agenda

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**Thank you
and see you
next year!**