ESLAV-ECLAM 2023 ANNUAL MEETING
June 26-27, 2023
ESLAV-ECLAM 2023 SUMMER SCHOOL
June 28-30, 2023

Programme and abstract book

Contents

WELCOME TO ESLAV-ECLAM 2023!

On behalf of the Organizing Committee, it is with great pleasure and honor that we extend our warmest welcome to all participants of the ESLAV-ECLAM 2023 Annual Meeting and the accompanying Summer School in the beautiful city of Tallinn.

We are delighted to have such a diverse and esteemed gathering of veterinarians and professionals in the field of laboratory animal science and medicine. Your presence and active involvement truly make this event a success.

This annual meeting serves as an invaluable platform for the exchange of knowledge, ideas, and experiences. Through insightful discussions, engaging presentations, and collaborative networking, we have the unique opportunity to broaden our knowledge and understanding on different key areas of our work.

We extend our heartfelt gratitude to each and every one of you for your enthusiasm and dedication to the advancement of laboratory animal science and medicine. Your contributions, whether through research, education, or clinical practice, are instrumental in improving animal welfare and enhancing good scientific practice.

As we gather here in Tallinn, we encourage you to make the most of this opportunity to foster meaningful connections, forge new collaborations, and engage in thought-provoking conversations. Let us seize the chance to learn from one another, to challenge conventional wisdom, and to collectively strive for excellence.

We are confident that this meeting will inspire and empower you, leaving you with a renewed passion for your work and a wealth of new insights to carry forward. Together, we can continue to shape the future of laboratory animal science and medicine, making a lasting impact on the welfare of research animals and the quality of scientific research.

Once again, we express our deepest gratitude for your participation and contribution to this event. We eagerly look forward to meeting each and every one of you, and we wish you a productive, enlightening, and memorable experience at the ESLAV-ECLAM 2023 Annual Meeting and Summer School.

Welcome to Tallinn!

Rafael Frias and Stephan Zeiter
Presidents, ESLAV-ECLAM 2023 Annual Meeting

Presidents of the ESLAV-ECLAM2023 annual meeting

Rafael Frias, Karolinska Institutet, Sweden

Stephan Zeiter, AO Research Institute Davos (ARI), Switzerland

Organising comittee

Kai Õkva, University of Eastern Finland, Finland

Ruth Williams, Landesamt für Natur, Umwelt und Verbraucherschutz, NRW, Germany

Petra Seebeck, University of Zurich, Switzerland

Ngaire Dennison, University of Dundee, United Kingdom

ESLAV-ECLAM Annual Meeting and Summer School organisers

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Who are we?

Welcoming veterinarians or any nationality, the European Society of Laboratory Animal Veterinarians (ESLAV) gives veterinarians a forum to discuss issues which concern them, in the field of laboratory animal science, in general and in Europe specifically

Our objectives:

- To promote and disseminate expert veterinary knowledge within the field of laboratory animal science

Our Vision:

- To provide support to the role of veterinarian and to assist with advancing careers
- To promote high standards through the development of knowledge and skills
- To bring together veterinarians, represent and act on their behalf
- To liaise with other societies and monitor and share developments
- To provide CPD
- To facilitate communication and network to the members and the wider community
- To foster collaborations and work strategically with other groups.

Our partnerships:

- We are proud to have long-standing partnerships with AAALAC, AALAS, ECLAM, ETPLAS, EVERI, FELASA, LAVA and VetCEE. We have also recently started a partnership with EARA

Our Activities:

- We are collaborating with FELASA and ECLAM in a working group on the Roll of the Designated Veterinarian which aims to write detailed recommendations for the harmonization of the Designated Veterinarian role
- We are involved in the development of the ETPLAS e-module for DV's
- We continue to provide CPD via online webinars in association with the Karolinska Institute
- **Winter School March 2024** (date to be confirmed)

This 3 day event will take place in Cambridge, UK

Theme: Comparative medicine and translational science: improving the robustness of in vivo models

Topics covered will include*:

      Species differences – do they matter?
      Relevance and selection of animal models in modern drug discovery.
      Complementarity of in vivo models and New Approach Methodologies (NAMs)
      Call for registration expected Q4 23

- **Summer School and AGM 2024**

  Date and venue to be announced in Tallinn!!

![eclam - European College of Laboratory Animal Medicine]

ECLAM – what do we do

- Organise training opportunities and scientific meetings
- Certify experts in laboratory animal science and medicine in Europe
- Dipl. ECLAM is the highest qualification for laboratory animal veterinarians in Europe
- Certified by the European Board of Veterinary Specialisation (EBVS)
- EBVS awards the title of European Specialist in Laboratory Animal Medicine

ECLAM – why should you join

- Drives your personal development
- You actively help to develop laboratory animal science & medicine
- Networking opportunities with other European experts
- Benefit for the research community

  for animal welfare

- Join a group of highly motivated laboratory animal veterinarians and scientists

www.eclam.eu

eclam — European College of Laboratory Animal Medicine

ECLAM – expected knowledge and competence

- Make informed judgements based on non-routine and complex issues
- Define and refine problems by using a full range of investigative procedures and techniques
- Approach problems in an analytical & scientific way
- Find information quickly, organise work efficiently and act professionally

ECLAM – how to join

- Complete a one-year internship following your veterinary degree at a European university
- Get involved in scientific research and publish 2 original articles (of which one must be as primary author)
- Complete a 3-year residency and work in the field of laboratory animal medicine min. 60% full time equivalent
- Or apply as an international expert
- Sit and pass the written and oral exam

Are you interested? Come and visit us at our stand to find out more about ECLAM!

ACKNOWLEDGEMENTS

The organisers of ESLAV-ECLAM Annual Meeting 2023 wish to wholeheartedly thank all our generous sponsors for participating in the event!

The sponsors of ESLAV-ECLAM Summer School 2023

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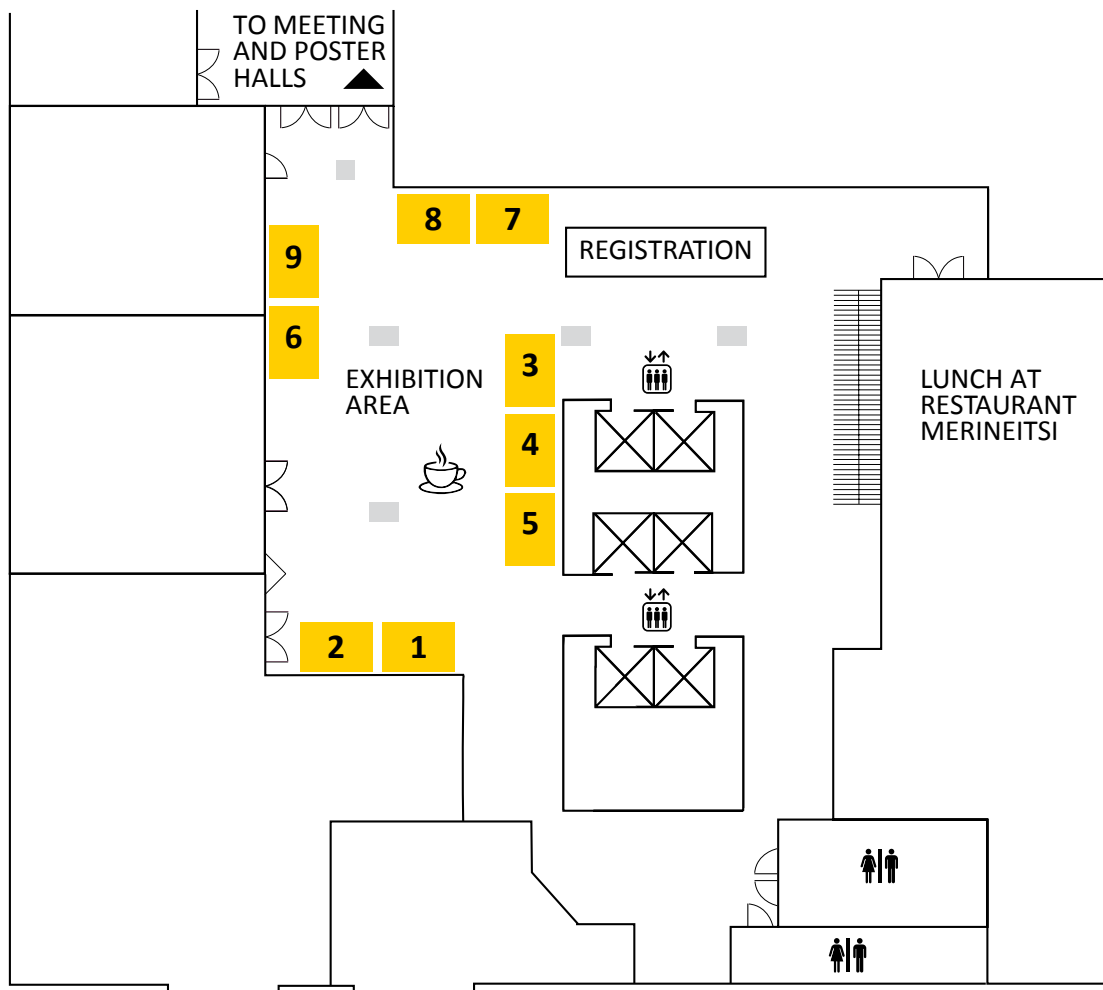
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Transport in Tallinn

Public transportation is free of charge for participants of the meetings. Please find a QR code on your name badge and in the information letter that was sent to your e-mail. You can save it on your smart device or use your badge – you need to validate the QR code EVERY TIME you enter a bus/tram/trolley bus at the orange validator at the first door.

Information about public transport in Tallinn:

https://www.visittallinn.ee/eng/visitor/plan/transport/public-transport

A guide from Tallinn airport to the Viru Sokos Conference Centre

The bus stop is situated in front of the airport. Take a short walk from the airport exit to the bus stop (Lennujaam) and take bus number 2.

Exit at the KAUBAMAJA stop and take short 400 meter walk to the Viru Conference Centre.

OVERVIEW

Cureline Baltic is a Contract Research Organization (CRO) providing preclinical and translational research services for drug discovery in oncology, immuno-oncology, metabolic and autoimmune disease therapeutic areas.

OUR MISSION

To support drug discovery pipeline with advanced scientific knowledge, access to innovation and collaborations with leading biopharmaceutical companies and universities.

OUR SERVICES

- High-quality biological services using extensive preclinical in vitro, ex vivo and in vivo models with an emphasis on small animal studies, analytical services and human sample validation studies.
- We offer syngeneic, CDX and PDX animal models.
- Our molecular and histology services include a wide range of assays such as biochemical analysis, ELISA, IHC, FACS, PCR and NGS-based genomics, bioinformatics and data analysis

OUR UNIQUENESS

- The only preclinical CRO employing single cell barcoding and metastasis tracking in oncology research.
- Human biospecimen services focus on biobanking project design, global regulatory affairs, procurement, international logistics and specimen analyses.

ANNUAL MEETING PROGRAMME 26 JUNE, MORNING SESSION

26 JUNE

SESSION 1 - DISEASES AND DIAGNOSTICS
Chairs: Rafael Frias and Stephan Zeiter

09.00 - 09.15 OPENING

09.15 - 10.00 KEYNOTE

Are we ready for free-range rodents?

Cory Brayton, Johns Hopkins University School of Medicine, USA

10.00 - 10.20 The Mouse Code – a new app to facilitate the recognition of common diseases in mice

Marina Greweling-Pils, Helmholtz-Centre for Infection Research

10.20 - 10.40 New housing system to study direct-contact transmitted pathogens through controlled contact

Irene S. Méndez, Animal Health Department and VISAVET, Veterinary Faculty, Complutense University of Madrid

10.40 - 11.10 C O F F E E   B R E A K

11.10 - 11.30 Thinking inside the box: an evolving approach to rodent pathogen detection methods

Cécile Fant, Charles River

11.30 - 11.50 Biosecurity and health monitoring in a zebrafinch facility

Anja Petrie, University of Aberdeen

11.50 - 12.10 A presentation on zebrafish health monitoring

David Mayo, IDEXX BioAnalytics

12.10 - 12.30 Bringing telepathology to the animal facility: the case for neonatal necropsies

Sara Capas Peneda, i3S - Instituto de Investigação e Inovação em Saúde, Universidade do Porto , ICBAS School of Medicine and Biomedical Sciences, Universidade do Porto

12.30 - 13.35 L U N C H

ANNUAL MEETING PROGRAMME 26 JUNE, AFTERNOON SESSION

26 JUNE

SESSION 2 - REFINEMENTS IN TECHNIQUES/SAMPLE COLLECTION
Chairs: Kai Õkva and Janet Rodgers

13.35 - 14.20   KEYNOTE

Optimizing sample volumes to enhance animal welfare

Elizabeth Nunamaker, Charles River Laboratories, USA

14.20 - 14.40   Rabbit human habituation program during breeding reduced significantly stress related signs during acclimatization period

Kévin P. Dhondt, Charles River Laboratories - Research models and services - France

14.40 - 15.00   Refining blood sampling in rodents - reflections from the FELASA working group

Dolores Bonaparte, Fundação Champalimaud, SPCAL

15.00 - 15.30   C O F F E E   B R E A K

15.30 - 15.50   RELSA – How to Represent and Objectively Compare the Multidimensional Severity of Laboratory Animals in Experimental Procedures

André Bleich, Institute for Laboratory Animal Science and Central Animal Facility, Hannover Medical School, Hanover, Germany

15.50 - 16.10   Bread Feeding Is a Robust and More Physiological Enteropathogen Administration Method Compared to Oral Gavage

Myriam Mattei, Institut Pasteur

16.10 - 16.30   Using conventional 3D printing to refine lab animal procedures and surgical training in an academic laboratory animal program

Diego Celdran Bonafonte, The University of Arizona; University Animal Care Department

16.30 - 16.50   Refining and standardizing the methodology of an in vivo intestinal permeability test in laboratory mice

Victoria Ortin-Piqueras, Agenda Life Sciences, United Kingdom; Doctoral school in health sciences, University of Helsinki, Finland

16.50 - 17.00   S T R E T C H   B R E A K

17.00 - 18.30   ESLAV AGM & Annual General Meeting

19.00 - 21.00   WELCOME RECEPTION

Pre-registered participants only.

Canapes and beverages are served.
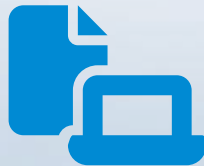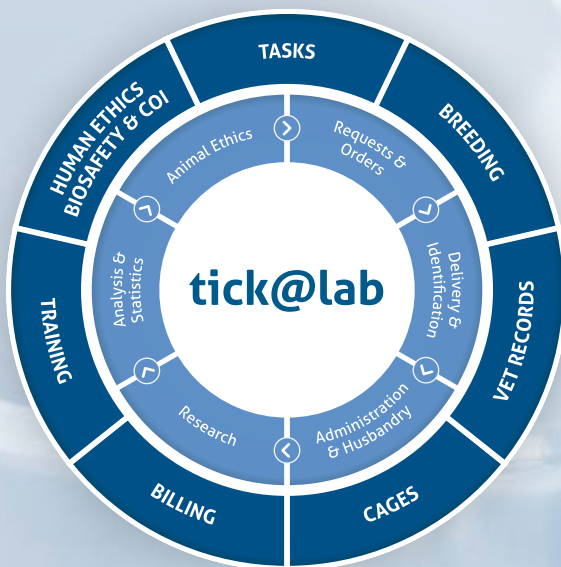
ANNUAL MEETING PROGRAMME 27 JUNE, MORNING SESSION

27 JUNE

SESSION 3 - ONE HEALTH FROM LABORATORY ANIMAL SCIENCE & MEDICINE PERSPECTIVE

Chairs: Aurelie Thomas and Patricia Hedenqvist

09.05 - 09.50 KEYNOTE

Advantages and disadvantages of using large animals in experimentation

Joaquim Segales, Universitat Autònoma de Barcelona, Spain

09.50 - 10.10 It`s not about blue: Investigating the safety of light emitting diodes (LEDs) in rodent husbandry

Nora Denk, Hoffmann - La Roche

10.10 - 10.30 Pain and analgesia in neonatal rodents - are we doing enough?

Daria Thompson, Agenda Veterinary Services, UK

10.30 - 10.50 Exhibitors' 90secs elevator pitch (2.5 minutes per exhibitor roughly)

David Mayo, Member of SECAL (Spanish Society for Lab Animal Science)

10.50 - 11.10 C O F F E E   B R E A K

11.10 - 11.30 From a mouse model of diabetes to a mouse model of neuropathy: a case report

Stephanie De Vleeschauwer, KU Leuven

11.30 - 12.00 Panel session (discussion): Aurélie Thomas (chair), Joaquim Segales, Cory Brayton

12.00 - 13.05 L U N C H

ANNUAL MEETING PROGRAMME 27 JUNE, AFTERNOON SESSION

27 JUNE

SESSION 4 - THE ROLE OF LABORATORY ANIMAL VETERINARIANS
Chairs: Ngaire Dennison and Petra Seebeck

13.05 - 13.50 KEYNOTE

The call of the wild is lost in translation: Animals, models, science, and what we don't know

Kathleen Pritchett-Corning, Harvard University Faculty of Arts and Sciences, USA

13.50 - 14.10 Role of the designated veterinarian - FELASA-ECLAM-ESLAV WG

Ngaire Dennison, University of Dundee

14.10 - 14.30 The role of ECLAM diplomates in laboratory animal medicine

Janet Rodgers, ECLAM

14.30 - 14.50 AAALAC international expectations on veterinary care and the research animal veterinarian

Javier Guillén, AAALAC International

14.50 - 15.10 The laboratory animal veterinarian - friend or foe?

Anja Petrie, University of Aberdeen

15.10 - 15.40 C O F F E E   B R E A K

15.40 - 16.00 The role of the laboratory veterinarian in the development of novel surgical models – Surgical Technique

Kate Read, Labcorp

16.00 - 16.20 The role of the laboratory veterinarian in the development of novel surgical models – Peri-Operative Care

Alice McNamara, Labcorp

16.20 - 16.50 Panel session (discussion): Ngaire Denison (*chair*), Javier Guillen, Janet Rodgers

16.50 - 17.00 C L O S I N G

ESLAV-ECLAM 2023 SUMMER SCHOOL PROGRAMME

	WEDNESDAY JUNE 28	THURSDAY JUNE 29	FRIDAY JUNE 30
08.30 - 10.00	**Swine** Joaquim Segalés (ES)	**Rabbits** Kathleen Pritchett-Corning (US)	**Dogs & cats** Liz Nunamaker (US)
10.00 - 10.30	Break		
10.30 - 12.00	**Non-humane primates** Liz Nunamaker (US)	**Rats** Cory Brayton (US)	**Zebrafish** Nuno Pereira (PT)
12.00 - 13.00	Lunch		
13.00 - 14.30	**Wildlife (wild rodents)** Gidona Goodman (UK)	**Ferrets** Kathleen Pritchett-Corning (US)	**Mice** Cory Brayton (US)
14.30 - 15.00	Break		
15.00 - 16.15	**Avian** Gidona Goodman (UK)	**Ruminants** Valentina Busin (UK)	
16.15 - 16.45	Break		
16.45 - 18.00	**Other rodents** Kathleen Pritchett-Corning (US)	**Amphibians** Nuno Pereira (PT)	
18.00 - 19.00	Free time		
19.00 - 21.00	Dinner at Kaerajaan restaurant	Dinner at Nomad restaurant	
21.00 - ...	Free time/social event		

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Keynote speakers of the Annual Meeting and speakers of the Summer School

Cory Brayton

Johns Hopkins University School of Medicine

Dr Brayton is a veterinary pathologist and scientist, a diplomate of the American College of Laboratory Animal Medicine (ACLAM) and of the American College of Veterinary Pathologists (ACVP). She served as the 2014 ACVP president and served on ACLAM's examination committee. She is an associate professor and phenotyping core director at Johns Hopkins University School of Medicine in Baltimore, MD. She has been involved in research and teaching as a scientist, collaborator, pathologist, clinical veterinarian, attending veterinarian, IACUC member, and laboratory director in medical schools and academic institutions for more than 30 years, and has long-standing interests in genetic, infectious and other influences on animals and research.

"Are we ready for free-range rodents?"

The microbial spectrum of mice and humans is vast and intriguing, as is the spectrum of immune responses or 'modulation' by microbial and other factors, and the spectrum of immune relevant genotypes and gene interactions.

How to apply what we know about mice (or other models) to best design, conduct and report preclinical research?

How are we doing with the reductionist approach? In which we should simplify the system, eliminate variables, use reasonable controls, ask a reasonable question, and report the animals, conditions, outcomes accurately and reproducibly?

'Naturalizing' or 'wilding' mice and/or their conditions has yielded promising results in terms of predicting or representing human clinical conditions and immune responses.

What is meant by:

- SPF? Dirty?
- Rewilding?
- Wilding?
- Wildling?
- Wildr?
- Naturalizing the environment?

Are we ready to define, design, manage and report these studies to achieve valid and reproducible outcomes?

Elizabeth Nunamaker , PhD, DVM, DACLAM, DACAW

Dr. Elizabeth Nunamaker received the PhD degree in Biomedical Engineering in 2006 from University of Michigan, and the DVM degree from Purdue University in 2010. She is also double boarded by the American College of Laboratory Animal Medicine (ACLAM) and the American College of Animal Welfare (ACAW). In addition to training residents for both colleges, her career has focused on the welfare of laboratory animal species. She has numerous publications on topics ranging from analgesia and anesthesia to refined handling practices and cumulative endpoints. Dr. Nunamaker is a member of the Global Animal Welfare and Training team at Charles River Laboratories, serving as the Director of Animal Welfare. In this role, she works closely with Charles River sites across the globe to identify risk and implement methods that improve animal welfare practices. She is also currently the President of the 3Rs Collaborative where she is focused on spreading refined mouse handling practices and developing a 3Rs certification program for those working in animal research. Her current research interests include implementation of practical 3Rs approaches and improving study design to minimize sex bias and improve animal welfare.

"Optimizing sample volumes to enhance animal welfare"
Biologic sample collection is a key component to most biomedical research studies. These samples are used for either genotyping, health monitoring, or identifying drug and metabolite concentrations. As an industry, we've grown accustomed to using potentially painful and invasive sampling methods to collect tissues and relatively large volumes of biological fluids for these applications. The sampling methods and volumes can be both a significant study limitation and welfare infringement in all species, but especially in rodents. Over the past 10 years, there have been significant advancements made to sample collection, sample preparation and analytical methods. These advancements are making it possible to reliable genotype animals without tissue collection and has driven the necessary sample volumes down to, as small as, 10 uL. These new techniques allow for relatively pain-free and low-stress microsampling from our veterinary patients, representing both a refinement and a reduction. This talk will focus on a few of these advancements, including oral swabs for genotyping, vascular access buttons (VABs), dried blood spot (DBS), and volumetric absorptive microsampling (VAMS). We'll cover the advantages of these techniques, as well as the barriers to their widespread implementation.

Joaquim Segales

Universitat Autònoma de Barcelona

Joaquim Segalés is a full professor at the Universitat Autònoma de Barcelona (UAB, Spain) and a researcher at the IRTA-CReSA, a BSL3 research institute located at the campus of UAB. He is also diagnostician at the Veterinary Pathology Diagnostic Service at the UAB since 1996. He became a diplomate for the European College of Veterinary Pathologists in 2000 and for the European College of Porcine Health Management in 2004. He has been working on infectious diseases and animal models since 1993, especially regarding diseases of swine; from 2014 onwards, he has been also involved in zoonotic coronavirus (MERS-CoV and SARS-CoV-2) research. Dr Segalés is a co-author of more than 400 international peer-reviewed publications.

"Advantages and disadvantages of using large animals in experimentation"
Animal health is considered one of the cornerstones of the "One Health" concept, which includes the interaction and fight against human, animal, and wildlife pathogens able to cause disease. Moreover, reduction of antibiotic use is nowadays a compulsory future direction both in animals and humans. In these scenarios, the control of diseases through vaccination is considered of paramount importance. In consequence, the existence of proper animal models to test vaccine prototypes is a constant need since, to date, no alternative models are available to assess the complex immune response upon vaccination or infection. Although correlates of protection do (partially) exist for several diseases, the final proof of safety and efficacy of a given product have to be tested in animal models. It must be emphasized that sometimes there is a lack of a fully predictive animal model, as well as well-defined markers of immune protection for human diseases. This scenario was summarized with the famous statement "mice lie and monkeys exaggerate" (attributed to Dr David B. Weiner, University of Pennsylvania, USA), which reflected the difficulties of finding a sound animal model for human immunodeficiency virus infection, although it can potentially be applied to multiple diseases. Interestingly, certain animal disease models for humans fit with an apparently unexpected animal species. This is the case with human influenza viruses, for which the ferret model is considered the most suitable to reproduce clinical disease and pathology. As another example, gnotobiotic pigs constitute the best animal model susceptible to human rotavirus infection, which displays diarrhea, anorexia, dehydration, viremia and intestinal lesions mimicking those in young children. Many other models can be found in the literature. Therefore, large animals often represent superior models when it comes to relevance for humans. Among these, and besides non-human primates, the use of livestock species such as pig, sheep and cattle in animal models has been an increasing practice during the last 25 years. Those species generally offer, depending on the disease of interest, several characteristics as good animals modelling vaccine research: 1) resemblance to the human disease, 2) access to various immune compartments, 3) similar response to the vaccine as humans, and 4) availability of multiple readouts for product efficacy and safety. The generation of broader knowledge regarding the behavior of infectious agents in animals may be useful for developing control strategies for human diseases. But this also works the other way around, so the medical and veter-

inary scientific communities should exploit the existing synergies in the field of pharmaceutical developments, especially in the field of zoonotic pathogens. The concept of "One Health vaccinology" fits into this context. Considering these ideas, this presentation aims to discuss the advantages and disadvantages of using large animal infection models to develop pharmaceutical products able to reduce the impact not only of human diseases and zoonotic pathogens transmitted by animals, but also diseases causing significant economic problems in livestock.

Kathleen Pritchett-Corning, DVM, DACLAM

Dr Pritchett-Corning is an Attending Veterinarian and Director of the Office of Animal Resources at the Harvard University Faculty of Arts and Sciences and an Affiliate Assistant Professor in the Department of Comparative Medicine at the University of Washington. She has more than 30 years of experience in laboratory animal science and medicine, with a focus on animal-based husbandry research. Dr Pritchett-Corning received her BS and her DVM from Washington State University and completed her post-doctoral training in laboratory animal medicine at the University of Washington. She has authored more than 80 peer-reviewed publications and book chapters, including chapters in the 3rd edition of Laboratory Animal Medicine, and 5 volumes of the Charles River Handbook series. Dr Pritchett-Corning received the AALAS Pravin Bhatt Scientific Excellence Award in 2015. She is the Chair of the Laboratory Animal Working Group of the AVMA Panel on Euthanasia and a member of the AVMA Panel on Depopulation, as well as a member of the FELASA Working Group on Health Monitoring, and the joint AALAS/FELASA Working Group on Health Monitoring of Rodents for Animal Transfer. Dr Pritchett-Corning has held positions at the University of Washington, the Jackson Laboratory, and Charles River.

"The call of the wild is lost in translation: Animals, models, science, and what we don't know"
For the first time, the seriousness of the reproducibility and translatability crisis is widely understood beyond the small cadre of researchers who have been studying it and the pharmaceutical and biotech companies who have been living it. An emerging literature has begun to solidify around a set of recurring themes, which represents a paradigm shift in science. When examined closely, this paradigm shift is a move from asking "What have we controlled for in this model?" to asking, "What have we chosen to ignore in this model, and at what cost?" Drawing back to view the concept more broadly, it is a shift from viewing animals solely as tools or reagents (the furry test tube), to instead attempting to position them as patients in an equivalent human medical study. My colleagues and I termed this new discipline therioepistemology, or the study of how knowledge is gained from animal research. In this talk, I will outline six questions that serve as a heuristic for critically evaluating animal-based biomedical research from a therioepistemological perspective and outline how laboratory animal veterinarians are crucial to this process.

Speakers of the Summer School

Gidona Goodman, DVM MSc (wild animal health) MRCVS
University of Edinburgh

Gidona Goodman is a named veterinary surgeon and a lecturer in wildlife health and conservation medicine at the University of Edinburgh. She has been at the University in a variety of roles for over 20 years. These included teaching under graduate and post graduate courses, clinical duties at the hospital for small animals exotic animal and wildlife unit, clinical duties at Edinburgh Zoo and veterinary support for a number of conservation projects. As a named veterinary surgeon she focusses on aquatic, avian and unconventional rodents species used for research in a laboratory setting and in the wild.

Nuno Pereira

Nuno M. Pereira graduated in Veterinary Medicine in 1987 and started working in a small animal clinic and with wild animals, namely Iberian Wolves. Twenty-five years ago, started focusing on aquatic animal medicine holding the position of designated veterinary at the public aquarium, Oceanário de Lisboa. Besides ornamental fish medicine, since 2006, also started working in aquatic animal research facilities as the designated veterinary, currently, assisting 3 aquatic fish facilities situated in Lisbon (Instituto Gulbenkian de Ciências – IGC, Instituto Universitário de Ciências Psicológicas, Sociais e da Vida – ISPA and IMM – Molecular Medicine Institute). There, his main focus is in supporting design and execution of the health control program. These facilities work not only with zebrafish and mozambique-tilapia but also with several other fish species and amphibians. He published several articles and chapters in scientific journals and books, including the FELASA-AALAS' research fish health monitoring guidelines. Since 2005 he is an invited Lecturer at the Veterinary Faculty/Universidade Lusófona in Lisbon, teaching fish medicine and conservation medicine.

Valentina Busin

Valentina graduated in veterinary medicine from the University of Turin, Italy, in 2007 and worked in mixed and farm animal practices for 3 years, before undertaking a farm animal residency and obtaining the Diploma for the European College of Small Ruminant Health Management in 2014. She subsequently completed a mechanical engineering PhD program jointly between Moredun and Heriot-Watt University on point-of-care diagnostics. She is a European-recognised specialist in small ruminant medicine and the current president of the European College of Small-Ruminant Health Management (ECSRHM). She has worked as a senior clinician in disease investigation and surveillance at the University of Glasgow. She is now a veterinary consultant and has joined the European Commission for the Control of Foot-and-Mouth Disease (EuFMD) as a capacity development and learning specialist for the control of transboundary diseases. Her interests focus on small ruminants, food security, livestock medicine and production, animal disease diagnostics and surveillance.

ORAL PRESENTATIONS

THE MOUSE CODE – A NEW APP TO FACILITATE RECOGNITION OF COMMON DISEASES IN MICE

Marina Greweling-Pils[1], Sean Manning[2], Karen Caspersen[3]

[1] *Helmholtz-Centre for Infection Research*
[2] *SQ-AUR – Corporate Animal Affairs, MilliporeSigma, A business of Merck KGaA, Darmstadt, Germany*
[3] *SQ-AUR – Corporate Animal Affairs, EMD Serono, A business of Merck KGaA, Darmstadt, Germany*

We created an app about the most common spontaneous diseases in mice. The aim is to facilitate the recognition of common disease for animal care takers and researchers.

Mice are the most commonly used species in animal experiments. However, background diseases are often visible only at a very late stage. Especially researchers often have little experience recognizing background diseases in mice. The early recognition of these diseases reduces suffering of the animals and increases reproducibility of research, as background diseases can have an impact on experimental data and thus confound research results.

The app should help researches and animal caretakers to find information on common background disease of mice easily. The disease can be recognized by symptoms described with pictures and videos in the app. The app also highlights early signs of common diseases and gives advice on humane endpoints or possible treatments.

NEW HOUSING SYSTEM TO STUDY DIRECT-CONTACT TRANSMITTED PATHOGENS THROUGH CONTROLLED CONTACT

Irene S. Méndez, Cristina Calvo Fernández, Natalia Montero Serra, Gabriel Moyano Ortega, Bruno González-Zorn

Animal Health Department and VISAVET, Veterinary Faculty, Complutense University of Madrid

The development of animal models of pathogen transmission is very advanced in airborne transmitted pathogens but direct-contact transmitted pathogens have been only studied by co-housing animals, an insufficient model to understand different variables implicated in the dynamics. In this work, we propose and develop a new housing system that allows for limited direct nose-to-nose contact between animals, which has been proven effective to model the transmission of a Klebsiella pneumoniae strain.

The housing system was designed as presented in the protected invention ES2883337. The system is comprised of a central donor cage, and five peripherical receptor cages. The receptors can contact the donor through a hole into which they introduce the nose.

The mice were 42-49 days old C57Bl6/J strain. Males were used as donors and females as receptors. The pathogen used was a nosocomial strain of K. pneumoniae inoculated by pipette feeding with 0.2% sucrose. The transmission of the strain was tested under different conditions. During the transmission period (48h), the behavior of the animals was recorded and then analyzed with Ethovision XT v.15 to obtain the number of contacts between the animals. The total feces of the animal were plated to test if the transmission was successful or not.

The housing system was successful in allowing the transmission of the pathogen. Furthermore, we could assess the individual effect of different variables in the transmission, generating a regression model in which the effect of the contacts and the colonization on the transmission can be predicted. The model allowed the study of the bacteria's transmission within a natural and controlled system. We propose this novel housing system as a tool for the study of direct-contact transmitted pathogens.

THINKING INSIDE THE BOX: AN EVOLVING APPROACH TO RODENT PATHOGEN DETECTION METHODS

Cécile Fant[1], Aleksandar Popovic[2]

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Accurate knowledge of the health status of experimental animals is vital in contemporary rodent facilities to high scientific and ethical standards. Historically, health monitoring of rodent was based on the use of soiled-bedding sentinels (SBS). However, this strategy has been built on reliable transmission of infectious agents from soiled-bedding of experimental animals to sentinel mice with housing systems as open-top cages. The transition of most vivaria to the use of individually ventilated cage (IVC) systems, which provide biocontainment, challenged reliable health monitoring as some infectious agents do no transfer or transfer poorly via soiled-bedding to sentinel rodents, therefore remaining undetected. In the last decades, emerging health monitoring to improve the detection of infectious agents in microisolator caging systems such as exhaust air dust (EAD®) PCR testing has provided evidence that Polymerase Chain Reaction (PCR) analysis of exhaust air particles is superior to soiled bedding sentinels for different agents while eliminating or reducing the use of sentinels rodents in a 3Rs perspective. However, racks with cage-level filtration limits dust from entering the plenums and limited information is available regarding efficacy for disposable individually ventilated caging system. More recent alternatives pioneered and investigated in our laboratory have evolved on the collection of dust on media placed in a mouse-free soiled bedding cage (Pathogen Binder ®).

While further work is needed to refine use of filter media in soiled bedding for detection of lower prevalence opportunists, early data from external and internal collaborative studies supporting the use of a soiled-bedding contact media combined with manual agitation provided evidence that a rodent-free method of reliably detecting murine agents in a disposable individually ventilated cage system with cage-level filtration outperforms direct sampling of soiled bedding sentinel mice.

BIOSECURITY AND HEALTH MONITORING IN A ZEBRAFINCH FACILITY

Anja Petrie

University of Aberdeen

Under the Animals (Scientific Procedures) Act, birds are not listed under Schedule 2. Consequently, there is no legal requirement to buy birds from legally recognized breeding establishments which will provide animals with a known health status.

Birds will therefore be bought from private breeders or academic institutions, many of which will be of unknown health status. Any background information on the health of the animals may also be very limited.

I explored options for establishing a screening programme to improve the health of a zebrafinch colony. This was challenging due to lack of information and literature resources on pathogen testing in an experimental setting. Hence, I collated information from private test laboratories who mainly provide a service for birds as companion animals. All tests offered require sampling from live birds rather than having to sacrifice animals for the purpose of testing, with most being done by faecal collection.

Initially, I established a monitoring system to gather information about the inhouse colony. This was then extended to incoming birds who were kept in quarantine during the time of testing.

A form was created which was sent to the private breeders or establishments providing the birds requesting information on their biosecurity and husbandry practices, disease incidence, etc.

This presentation will provide an overview of main clinical issues encountered and how a very basic veterinary health plan helped to safeguard animal welfare and improved communication between researchers and animal care staff.

A PRESENTATION ON ZEBRAFISH HEALTH MONITORING

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This presentation is about providing insights into developing a health monitoring program for zebrafish. The program must aim to detect both infectious and non-infectious diseases, including pathogenic and non-pathogenic conditions and quarantine procedures to prevent the spread of disease within the colony and to new colonies. We will examine how different sample types are impacting diagnosis and how the prevalence and institutional prevalence are important in determining sample size. The goal of this presentation is to contribute to the development of effective measures for the prevention and control of diseases in zebrafish.

BRINGING TELEPATHOLOGY TO THE ANIMAL FACILITY: THE CASE FOR NEONATAL NECROPSIES

Sara Capas Peneda[1], Flora Sands[2], Jan-Bas Prins[2], Hannah Wardle-Jones[3], Colin Gilbert[3], Anna Olsson[4]

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Telemedicine is the use of electronic communication and information technologies to provide clinical healthcare remotely. Telemedicine strategies can be extremely useful for laboratory animal medicine, where the movement of veterinarians is often limited for biosecurity reasons.

The size of laboratory animal populations frequently makes it unfeasible for the veterinarian to perform all the post-mortem examinations, and it is common practice for these procedures to be performed by technicians. Nevertheless, due to their diagnostic nature, consultations with veterinarians are often needed.

We propose a telepathology method to be used for neonatal mouse necropsies.

We have previously developed a necropsy protocol for newborn C57BL/6J mice [1, 2] to be applied by animal technicians which aims to identify viability indicators and congenital abnormalities. Nevertheless, its implementation poses several challenges and limited training hours are usually not sufficient to become competent in this procedure. To overcome this, we propose to develop a telepathology program. A pilot program for neonatal necropsies will be initiated in March 2023 in collaboration with the Babraham Institute. It will include the initial training of a selected group of animal technicians and the development of a database for post-mortem findings of mouse neonates, including photographic records and written descriptions of the findings. The latter will then be used to establish a communication link with an expert for daily feedback.

This strategy can pose several advantages by making this expertise available to a wider community and ultimately increasing the knowledge of post-mortem findings of newborn mice which is currently limited.

1. Capas-Peneda, S., et al., Necropsy protocol for newborn mice. Lab Anim, 2021. 55(4): p. 358-362.
2. Capas-Peneda, S., et al., Causes of death in newborn C57BL/6J mice. bioRxiv, 2020.

RABBIT HUMAN HABITUATION PROGRAM DURING BREEDING REDUCED SIGNIFICANTLY STRESS RELATED SIGNS DURING ACCLIMATIZATION PERIOD

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Rabbits are a species naturally very sensitive to stress. This stress is a source of complications for the work with these animals in laboratory settings (especially during dosing and sampling) and affects both their relations with humans and the quality of the scientific results of the research. To reduce this stress and increase animal welfare, we designed a rabbit human habituation program during breeding period, from birth to transport into experimental facility.

The program consists in a holistic approach for positive human-rabbit bonding. It starts from birth with an imprinting program of human contact in the nestboxes 4 times/week for 4 weeks. From weaning, the proper habituation program begins with weekly positive interaction of individual petting for 2 weeks. Most of the rabbits are sold from this age. If not sold, any manipulation will be followed by a petting session. Females that are kept longer entered back into the regular habituation program from week 12 until sold with weekly positive interaction.

The effect of this program was monitored with several clinical stress indicators observed during acclimatization period. The study was designed as a double-blinded randomized study. The rabbits evaluated came for 4 different breeding areas with the habituation program implemented only in one area. Evaluators were blind on which area the program was applied. After 16 months and more than 2400 rabbits evaluated, results showed a significant decrease in stress scores of rabbits sourced from the habituation area with total disappearance of aggressive behaviors such as biting while initial scores were maintained from other areas.

REFINING BLOOD SAMPLING IN RODENTS - REFLECTIONS FROM THE FELASA WORKING GROUP

Dolores Bonaparte[1], Henrik Rasmussen[2], Juan Rodriguez[3], Maike Heimann[4], Oleg Demidov[5], Rene Remie[6], Sarah Kimmina[7]

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Blood sampling is one of the most frequent procedures in studies with rodents. In the last decades, the techniques for blood sampling have gained some technical improvement and even sophistication. In addition, the publication of the Directive 2010/63/EU gave a legal support to the 3Rs concept and researchers are progressively aware of the need to refine the experimental techniques. Nevertheless, there is still room for many improvements. In recent years, some novel techniques have been proposed which may not be thoroughly disseminated. Moreover, although the diversity of available techniques is a positive thing, it can also make it more difficult to select the most appropriate one. On the other hand, puncture site and technique are not the only aspects to consider for correct and effective blood sampling: many other things must be taken into account, such as sample volume, frequency of extraction, sample quality, and impact of techniques on blood parameters, among others.

This FELASA Working Group is working to make the refinement of blood sampling from rats and mice accessible and easy by reviewing existing techniques in the light of the 3Rs, by providing tools to select the most appropriate technique considering the goals, and by offering tricks and tips that will result in better welfare and better science when blood sampling is involved.

RELSA – HOW TO REPRESENT AND OBJECTIVELY COMPARE THE MULTIDIMENSIONAL SEVERITY OF LABORATORY ANIMALS IN EXPERIMENTAL PROCEDURES

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Monitoring the well-being of laboratory animals is not only mandatory by law in many countries but also an ethical obligation. Traditionally, researchers address the topic of severity assessment by manual scoring of the animals. However, scoring procedures may be prone to subjective biases and highly depend on training, motivation and external circumstances. Therefore, more objective and quantitative approaches taking into account measured information from multiple sources over time are needed to yield a more holistic representation of animal welfare.

As a consequence, we developed the RELative Severity Assessment (RELSA) score that addresses the issue of merging multiple sources of quantitative information (e.g., outcome measures such as body weight, burrowing behavior, heart rate, heart rate variability, temperature, and activity) into a single value that represents animal well-being on a relative scale. Transmitter-implanted mice (a surgery model) were used as a reference for further animal-model severity comparisons. Thus, the RELSA procedure provided the framework to establish quantitative severity gradings at the following thresholds L1<0.27, L2<0.59, L3<0.79, and L4<3.45. Using this approach, we could quantitatively grade and validate the severity of different animal models in the following order: sepsis > surgery > restraint stress > colitis. We could also show that RELSA estimates are conditionally invariant against missing information and remain precise in ranking the quantitative severity information to the moderate context of the transmitter-implantation model.

Finally, we propose RELSA as a validated tool for a more objective quantitative severity assessment that can also classify animals into relative severity grades. The computational approach of the RELSA procedure will fundamentally improve animal welfare, data quality and reproducibility. These attributes can easily be translated towards translational risk assessment in biomedical research in general.

BREAD FEEDING IS A ROBUST AND MORE PHYSIOLOGICAL ENTEROPATHOGEN ADMINISTRATION METHOD COMPARED TO ORAL GAVAGE

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Oral administration is a preferred model for studying infection by bacterial enteropathogens such as Yersinia spp. In the mouse model, the most frequent method for oral infection consists of oral gavage with a feeding needle directly introduced in the animal stomach via the esophagus. In this study, we compared needle gavage to bread feeding as an alternative mode of bacterial administration. Using bioluminescence-expressing strains of Yersinia pseudotuberculosis and Yersinia enterocolitica, we detected very early upon needle gavage a bioluminescent signal in

the neck area together with a signal in the abdominal region, highlighting the presence of two independent sites of bacterial colonization and multiplication. Bacteria were often detected in the esophagus and trachea, as well as in the lymph nodes draining the salivary glands, suggesting that lesions made during needle introduction into the animal oral cavity lead to rapid bacterial draining to proximal lymph nodes. We then tested an alternative mode of bacterial administration using pieces of bread containing bacteria. Upon bread feeding infection, mice exhibited a stronger bioluminescent signal in the abdominal region than with needle gavage, and no signal was detected in the neck area. Moreover, Y. pseudotuberculosis incorporated in the bread is less susceptible to the acidic environment of the stomach and is therefore more efficient in causing intestinal infections. Based on our observations, bread feeding constitutes a natural and more efficient administration method which does

not require specialized skills, is less traumatic for the animal, and results in diseases that more closely mimic foodborne intestinal infection.

USING CONVENTIONAL 3D PRINTING TO REFINE LAB ANIMAL PROCEDURES AND SURGICAL TRAINING IN AN ACADEMIC LABORATORY ANIMAL PROGRAM

Diego Celdran Bonafonte

The University of Arizona; University Animal Care Department

Over the last decade, 3D printing has revolutionized biomedical research. While bio-printing is playing a leading role in shaping a future that enables a major replacement of research animals, the impact that the use of basic 3D printing platforms can have in the reduction and refinement of lab animal procedures is being widely overlooked by the lab animal community worldwide.

Although basic 3D printing has become a commonly available resource in many academic and research institutions, a misunderstanding about the complexity of the design and the cost of the printing equipment and processes, together with a failure to recognize the vast applications and positive impact on the 3Rs seems to be holding back its implementation across lab animal programs. Availability and cost have been traditionally the highest barriers to the wide adoption of lab animal-specific tools and platforms to refine procedures. Commercial lab animal-specific tools and platforms are often extraordinarily expensive and commonly show a "one size fits all" design that brings production costs down but hinders its use across the board. Almost every research line and lab animal procedure have nuances that commonly require specifically designed tools. Current 3D printing technology offers a quick and inexpensive alternative, utterly customizable, to support the development and implementation of lab animal tools to refine lab animal procedures. This communication will present and detail how an academic laboratory animal care program has successfully implemented program-wide tailored designed 3D printed solutions to refine and optimize a variety of lab animal procedures and training tools.

REFINING AND STANDARDIZING THE METHODOLOGY OF AN IN VIVO INTESTINAL PERMEABILITY TEST IN LABORATORY MICE

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This study aimed to improve and standardize the methodology of an intestinal permeability (IP) test in mouse models of intestinal disease. Iohexol, a commonly used contrast agent in medical imaging, was found to be a suitable probe for IP testing. Male and female Rag1-/- mice were administered a single oral dose of iohexol before the animals were randomly placed in individual metabolic cages (MCs). Urine output was collected at regular intervals over a 24-hour period. Iohexol concentration was measured using ELISA. The results showed that the majority of the recovery of iohexol in urine occurred within the first 12 hours and that mice with intestinal disorders had increased IP to iohexol compared to control mice. The study also revealed that urine output varied with the light/dark cycle of the 24-hour urine-based IP test. These findings suggest that the 24-hour assessment period commonly spent by mice in MCs may be reduced by at least half, refining the performance of the IP test from an animal welfare perspective. Additionally, our study highlights the importance of considering the circadian rhythm variations in urine output when conducting experiments with mouse models.

IT`S NOT ABOUT BLUE: INVESTIGATING THE SAFETY OF LIGHT EMITTING DIODES (LEDS) IN RODENT HUSBANDRY

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Light is the visible part of the electromagnetic spectrum, ranging from 380 to 780 nm. This definition however focusses solely on human beings, and ignores the fact that different species possess different sets of photoreceptors and thus different visible spectra. Counterintuitively, while being essential to sense light, the eye is concurrently susceptible to being damaged by light.

Since 2016, LEDs have increasingly replaced incandescent light sources in Europe - also in rodent husbandry rooms. Therefore, this study aims to investigate the consequences for laboratory rodents and their retinal health.

36 pigmented and 36 female albino rats of the Brown Norway (BN) and Wistar (WiHan) strains, respectively, were included. The animals were exposed to different light settings, including types of light source, light intensities and wavelengths. Retinal status was assessed longitudinally both morphologically using optical coherence tomography and functionally using electroretinography.

Results illustrate that the potential for light induced retinal toxicity in rodent husbandry is not as easy as claimed in current housing guidelines. Neither can a specific lux value be considered as "safe" or "unsafe", nor is blue light more dangerous per se. In addition, use of the unit lux is problematic when defining light settings for non-human species. The potential for light induced retinal damage however is species and strain specific and does depend on wavelength and light intensity.

Results of our study should be taken into account for future recommendations and guidelines for lighting settings in rodent husbandry.

PAIN AND ANALGESIA IN NEONATAL RODENTS - ARE WE DOING ENOUGH?

Daria Thompson, Henri G M J Bertrand

Agenda Veterinary Services, UK

Pain is the most recognisable adverse effect regarding the harms affecting animals undergoing scientific procedures. The legislations, codes of practice and 3Rs initiatives put a massive emphasis on alleviating pain in laboratory animals. However, most of the current practices focus exclusively on pain assessments and analgesia methods in adult animals, especially when it comes to rodents. Neonatal rodents are extensively used in biomedical research. Despite this, there is very scarce information on the best analgesia practices for those animals. This review looks at the current state of knowledge regarding the physiological ability of neonatal animals to perceive pain and its profound effect on neonatal rodents' development as a source of harm and scientific variability. Pain detection in neonatal animals remains challenging, and summarising scientific publications that have attempted to examine analgesia drug effects in neonatal rodents demonstrates the significant variability of approaches. It also clearly shows the differences in analgesia regimens between adult and neonatal rodents within the same study. Because of the misconception about neonatal pain and the lack of standards about this matter, there is an apparent risk of not treating or mistreating pain with negative consequences for animal welfare and scientific reproducibility and translatability.

EXHIBITORS' 90SECS ELEVATOR PITCH

David Mayo

Member of SECAL (Spanish Society for Lab Animal Science)

Back in 2018 I chaired a small session following the scientific lectures at SECAL (Spanish Soc. For Lab Animal Science) in which exhibitors were given the chance to present their companies in front of the audience for 90 seconds sharp: They were timed, and no presenter was allowed beyond that time. This gave sufficient time to those who volunteered to talk about new products/developments to the audience, or simply introduce themselves and the companies they work for. It was a very successful mini-session that took place after a larger lecture-session, and just before the lunch/coffee break. Overall, it took no more than 15 minutes. I would like to suggest to the organizers the possibility of doing this again, and if allowed, I am happy to assist with the organization of this marketing session.

FROM A MOUSE MODEL OF DIABETES TO A MOUSE MODEL OF NEUROPATHY: A CASE REPORT

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In July 2022, researchers reported health issues in female non-obese-diabetic mice, aged ≥ 6 months, involved in diabetes-prevention studies. Animals were unexpectedly losing weight and some showed motor problems. This occurred in treated, control and untreated animals. None of the animals were diabetic. At that timepoint several animals were already killed as they reached the humane endpoint of 10% weight loss. All animals were housed in isolator cabinets in a SPF facility with health monitoring according to FELASA guidelines.

I performed a clinical examination of one of the affected animals. It was hunched, trembling and paresis of the hind legs was present. Clear limb clasping was present when lifted by the tail. This animal was humanely killed and sent for pathology. Lymphocytic neuritis and ganglionitis were present in the thoracic and lumbar spine. The peripheral nerves showed lymphocytic infiltration and the muscles were diffusely atrophic. Over the next weeks, several animals exhibited similar symptoms which were characterized by sudden weight loss and limb clasping when lifted, the latter often present before weight loss. A second animal was sent for pathology and the same lesions were present.

Breeding history revealed that all animals originate from one breeding pair which was kept during the reduction of the breeding colony, a measure taken by the university during the first corona lockdown (2020).

In conclusion we can say that by significantly reducing the breeding colony, accidently a mutation causing neuropathy was introduced in this strain creating a new mouse model of neuropathy.

ROLE OF THE DESIGNATED VETERINARIAN - FELASA-ECLAM-ESLAV WG

Ngaire Dennison[1], Heinz Brandstetter[2], Delphine Denais-Lalieve[3], Ruediger Hack[4], Miriam van der Meulen[5], Rubén A. Mota-Blanco[6], Ghislaine Poirier[7]

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Article 25 of Directive 2010/63/EU requires Member States to "ensure that each breeder, supplier and user has a designated veterinarian (DV) with expertise in laboratory animal medicine, charged with advisory duties in relation to the well-being and treatment of the animals". Whilst European professional guidance on the role and responsibilities of the DV has been published there remains a lack of harmonisation on the implementation of Article 25. The role and extent of the DV's authority currently depends on national and local initiatives, potentially leading to significant variability between establishments.

In 2021, FELASA, ECLAM and ESLAV set up a joint working group (WG) to consider how the role and responsibilities of the DV are currently met across Europe and to develop recommendations for the DV role.

As part of its information gathering, the WG conducted a survey in April 2022. Initial survey results were presented at FELASA 2022 and included a range of data on aspects of employment, most worked with species and additional relevant qualifications held by respondents. Results showed that daily tasks undertaken are very wide ranging and include the responsibilities outlined in Article 25 but also many other roles, including management of facilities, training and research.

The survey asked for feedback on positive and negative developments from implementation of the Directive. Positives cited included animal welfare gains, increased empowerment and recognition of the DV and improved professional development. The most prominent negatives were higher administrative burden, high workloads, and, in apparent contradiction to the second positive cited above, the undermining of the DV role. The key causes for this were lack of authority and responsibility, lack of appreciation and respect, and qualifications/competency requirements.

This talk will present more detailed information on the survey results and preliminary recommendations arising from these.

THE ROLE OF ECLAM DIPLOMATES IN LABORATORY ANIMAL MEDICINE

Janet Rodgers[1], Argyro Zacharioudaki[2], Patricia Hedenqvist[3]

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The European College of Laboratory Animal Veterinarians (ECLAM), under the auspices of the European Board of Veterinary Specialisation (EBVS), certifies laboratory animal veterinarians as European specialists. Specialisation requires at least 3 years of post-graduate education. Diplomates must be re-certified every 5 years by demonstrating significant contributions to the speciality in research, teaching and service.

ECLAM Diplomates benefit the public, their employers, and laboratory animals by maintaining the highest qualification throughout their careers. The accomplishment and lifelong commitment to the speciality of laboratory animal medicine are well worth the work and determination required.

This presentation summarises the role of ECLAM Diplomates, notably the significant research contributions to animal health and welfare which serve the public interest. We also highlight other roles such as public service in the interest of laboratory animals, service to the profession in particular, and education of veterinarians and researchers.

AAALAC INTERNATIONAL EXPECTATIONS ON VETERINARY CARE AND THE RESEARCH ANIMAL VETERINARIAN

Javier Guillén

AAALAC International

Whereas the European legal framework is weak concerning the responsibilities and authority given to the designated veterinarian, AAALAC International considers the veterinary care program and the role of the veterinarian(s) paramount for the quality of an animal care and use program. According to AAALAC expectations, the designated veterinarian is responsible for the well-being and clinical care of animals used, and this responsibility extends to monitoring and promoting animal well-being at all times during animal use, and during all phases of the animal's life. It is expected that the program of veterinary care will uphold the highest standards of care and ethics. Moreover, the designated veterinarian must have sufficient authority, as provided by the institution, to treat an animal and institute appropriate measures to relieve severe pain or distress, including euthanasia. A veterinary care program addresses all activities performed with the animals from their acquisition to the euthanasia or rehoming. To make this possible, efficient communication between the designated veterinarian and management, animal care personnel, researchers, and the Oversight Body (e.g., Animal Welfare Body, Ethics Committee) is needed.

During this presentation, several of the most significant AAALAC expectations on the veterinary care program and the role, authority, qualifications, training and responsibilities of the veterinarian(s) will be discussed, along with some typical findings observed during site visits and corrective measures implemented by institutions.

THE LABORATORY ANIMAL VETERINARIAN - FRIEND OR FOE?

Anja Petrie

University of Aberdeen

The role of the Named Veterinary Surgeon (NVS) in the UK is well defined under the Animal Scientific Procedures Act from 1983. Depending on the institution the role of the NVS also embraces additional responsibilities like provision of training in regulated procedures, teaching of students and staff and assisting in ensuring compliance. It is not uncommon that the NVS also holds additional positions (wearing "different hats").

Without good communication and a clear understanding by all of the additional NVS duties there is a real risk of confusion about the role and in the event of wearing "different hats" leading to conflict of interests. This might result in strained working relationships with academic staff and/or animal care staff.

The most important function of a Laboratory Animal Veterinarian is the provision of independent veterinary advice to safeguard welfare. Consequently other responsibilities and job positions need to be carefully balanced to protect this independence. Appropriate support and line management structures are of utmost importance to achieve this.

The NVS also plays a vital role in the development and implementation of the 3Rs. Naturally, the main focus is on the application of refinements but all 3Rs should be embraced, as the best outcome from a laboratory animal's perspective is not to be used in research.

The presentation discusses the concerns above in detail, providing examples from 20 years of experience working as a NVS, past LAVA president and a current trustee of FRAME.

THE ROLE OF THE LABORATORY VETERINARIAN IN THE DEVELOPMENT OF NOVEL SURGICAL MODELS – SURGICAL TECHNIQUE

Kate Read, Alice McNamara

Labcorp

The development of novel surgical models using? laboratory animals contributes to fundamental research, as well as assessment of the efficacy and safety of pharmaceuticals, chemicals and medical devices. A novel surgical model may be required for an unusual dose route, a novel medical device, or to produce a disease state. The laboratory animal veterinarian plays a key role in surgical model development; providing training, assessment, guidance and advice, and in some cases performing surgical procedures or anaesthesia as an expert in the field.

The detailed process of development and validation of a successful surgical model will vary, dependent upon the complexity of the procedure but is likely to involve multiple phases. This might include literature review and consultation with specialists, cadaveric investigations, one or more live pilot studies and eventual implementation as an established model. Ongoing assessment of surgical success and application of continual refinements to the model allow for optimal animal welfare, in addition to achieving quality scientific results.

In the first of two presentations, we will discuss the input and impact of the laboratory animal veterinarian throughout the surgical technique development process, and will draw upon examples of both rodent and non-rodent surgical procedures. Important considerations at each stage of development will be discussed, based on experience of the development of multiple, varied surgical models across many of the commonly used laboratory animal species at a busy Contract Research Organisation.

THE ROLE OF THE LABORATORY VETERINARIAN IN THE DEVELOPMENT OF NOVEL SURGICAL MODELS – PERI-OPERATIVE CARE

Alice McNamar, Kate Read

Labcorp

In this, the second of two presentations, we will discuss the value the laboratory animal veterinarian can add throughout the whole peri-operative period. While the surgical technique employed is essential to the success of any surgical model, the peri-operative care is equally critical. This may include pre-operative considerations such as animal habituation, pre-operative assessments and additional staff training. During surgery, anaesthesia and analgesia must be tailored to the surgical model. Considerations include species, invasiveness of procedure and length of procedure but some models may have addition requirements beyond this. Finally, a bespoke post-operative care plan ensures but the welfare of animals and the success of the surgical model. This may include an analgesia regime and nursing plan, but also physical adaptations to the environment.

This talk will follow the surgical examples given in the first presentation in the series and discuss how these considerations were applied to specific models, and how these principles can be adapted to any veterinary or laboratory setting.

POSTER PRESENTATIONS

INFECTIOUS DISEASES/DIAGNOSTICS

DETECTION OF STAPHYLOCOCCUS AUREUS IN RODENT HEALTH MONITORING BASED ON ENVIRONMENTAL SAMPLES – VALIDATION OF A NEW QPCR METHOD

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A thorough health monitoring (HM) program is essential in order to keep animals in biomedical research healthy and obtain reliable data. In recent years, there has been a tremendous development of strategies towards the analysis of environmental samples by molecular methods, e.g.,quantitative real-time polymerase chain reaction (qPCR) assays. This helps increase sensitivity of screening methods and reduce the number of animals used in line with the 3Rs.

Staphylococcus aureus is an opportunistic bacterial pathogen, causing clinical and subclinical infections in a wide range of hosts. As subclinical infection can alter the animals' response to experimental stimuli, it's crucial to monitor its existence in experimental colonies. However, until today, validated protocols for the detection in exhaust air dust material and other environmental samples have not been published. Therefore, we aimed at the development of a highly sensitive qPCR assay.

A novel primer probe set, based on detection of the virulence factor Nuclease, was confirmed by testing the assay on Staphylococcus aureus type species, other Staphylococci and unrelated commensals. It was validated within different barrier units using various sample types and results were compared to cultural analysis of sentinel animals.

The assay was suitable to detect Staphylococcus aureus without cross-reactivity to other bacteria, proving to be highly species specific, while also showing high diagnostic sensitivity. The qPCR assay allowed for faster and more accurate results compared to cultural diagnostic of sentinel animals.

This assay demonstrated to be beneficial during routine HM of laboratory rodents, especially for the use of environmental sampling strategies.

COMPARING TRADITIONAL METHODS AND qPCR FOR THE DETECTION OF ENTERIC PARASITES AND PASTEURELLA PNEUMOTROPICA IN LABORATORY RODENTS

Floriana Centritto, Laura Facchinetti, Elena Bianchi, Carmen Calabresi, Ani Obaya, Emanuele Cesana

ENVIGO RMS srl an Inotiv company

BACKGROUND- Traditional animal health monitoring methods require euthanasia of animals for samples collection. An alternative approach is by qPCR investigation by samples collected directly from live animals, avoiding euthanasia of the animals .

AIM- Demonstrate the reliability of qPCR-based methods to detect enteric parasites and Pasteurella pneumotropica compared to traditional methods.

METHODS - The health status of all animals was tested both by traditional methods and qPCR. Enteric parasites were tested by traditional methods, microscopic examination of intestinal content, and qPCR of fecal samples, collected from their transport boxes. Pasteurella pneumotropica was tested by traditional methods, nasopharyngeal swabs, from animals and analyzed by culture, and qPCR of oral swabs and fecal samples collected from their transport boxes.

RESULTS- Parasites identified were Tritrichomonas muris (191 positive by qPCR and 123 by microscopy), Spironucleus muris, (23 positive by qPCR and 2 by microscopy), Chilomastix spp (20 positive by qPCR and 1 by microscopy) and Entamoeba muris (4 positive by qPCR and 2 by microscopy). Pasteurella pneumotropica was identified in 11 culture plates from nasopharyngeal swab and in 13 orals swabs and fecal samples tested by qPCR.

CONCLUSIONS- qPCR was an excellent and reliable tool for the detection of enteric parasites and Pasteurella pneumotropica, showing higher sensitivity than traditional methods. The rapid identification of pathogenic organisms is essential, and qPCR allows for rapid and reliable detection of agents, while animals stay alive for sample preparation. This helps facility managers in optimizing their health monitoring program.

UNEXPECTED PATHOLOGIC FINDINGS IN EXPERIMENTAL NEW ZEALAND WHITE RABBITS (ORYCTOLAGUS CUNICULUS): A SERENDIPITY MATTER

Carlotta Detotto[1], Simone de Brot[2], Sara Fuochi[1], Christine Göpfert[2], Sara Soto[2], Kévin Dominic Weber-Wilk[1], Alessandra Bergadano[1]

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New Zealand White (NZW) rabbits are commonly used in our institution for different translational neurosurgical and cardiovascular models which require a tight clinical follow-up

We report 3 unexpected pathological findings found at necropsy while we were looking for the possible cause of severe clinical signs in the post-operative phase.

Case 1: one week after surgery (cerebral aneurism model) the animal was found dead in the cage. The necropsy revealed a gastric trichobezoar which could have caused an antemortem gastric rupture and the sudden death.

Case 2: the rabbit, two days after surgery (cerebral aneurism model), was apathetic, non-responsive to external stimuli and unable to stand on its own. The rabbit was sacrificed for welfare reasons and necropsy revealed a gastric pyloric hypertrophy. This syndrome is known to occur in NZW rabbits; however, it remains uncertain to what extent this lesion caused the reported clinical signs.

Case 3: after recovery from surgery (calvarial defect), developed partial seizures, unresponsive to pharmacological treatment, and was therefore sacrificed for welfare reasons. The main pathologic findings were unilateral hydrocephalus - possibly pre-existing - and acute cerebral infarction. The association of both lesions in the brain could lead to the described seizures, however before the surgery the rabbit was asymptomatic.

In all these cases, the main pathologic findings were a matter of serendipity, while we were looking for complications correlated specifically to the experimental animal model. This should be considered in the differential diagnosis process.

MOVING AWAY FROM SOILED BEDDING SENTINELS? THE (R) EVOLUTION IN RODENT HEALTH SCREENING

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The use of laboratory rodents in biomedical research continues to be essential; ensuring the health status of these animals has become a key priority for facilities across the globe. Rodent health screening makes a fundamental contribution to research by monitoring the presence of infectious agents that can compromise the animal's health and become a confounding factor. The history of rodent pathogen control goes hand in hand with the advancements in rodent husbandry, laboratory animal science and the overall development of new diagnostic methods. Traditional monitoring systems consisted of the use of Soiled Bedding Sentinels -SBSs- (i.e., animals exposed to dirty bedding from colony animals) tested using conventional diagnostic methods which required the euthanasia of SBSs. For many years, it was believed that SBSs were accurate representatives of the health status of colony animals. However, recent studies have demonstrated that a reasonable number of pathogens such as Mouse Adenovirus, Sendai Virus, Rodendibacter spp., Mycoplasma pulmonis and parasites are not well transmitted to SBSs, especially when rodents are housed in Individually Ventilated Cages (IVC). In the last decade, researchers have proposed alternative methods to monitor the health status of rodent colonies which include the collection of samples from colony animals, environment, Exhaust Air Dust (EAD) and, more recently, soiled bedding via contact media (e.g., PathogenBinder™). In addition, the development of molecular diagnostic assays such as Polymerase Chain Reaction (PCR) provide extremely sensitive and specific methods to evaluate the current infection status of animals. The combination of sentinel-free methods with molecular diagnostic tools can be a suitable solution for the Replacement and Refinement of rodent health screening, an option worth exploring for many facilities worldwide.

COLLECTION STRATEGY FOR SYPHACIA OBVELATA (SOBV) DETECTION IN FECES BY qPCR

Laura Facchinetti, Elena Bianchi, Floriana Centritto, Carmen Calabresi, Ani Obaya, Emanuele Cesana

Envigo RMS srl an Inotiv company

BACKGROUND-Feces are the most widely used sample type to detect the main FELASA agents by qPCR. Though, SOBV detection could be influenced by different factors, i.e. location of the worms in the intestine and egg spreading in the perianal region. AIM-Investigating the egg spreading by worms to better identify when collect feces to avoid false negatives in laboratory tests. METHODS-We used forty-eight athymic nude, C57BL/6JRcc(C57) and ICR-Hsd:CD1(CD1) mice, both sexes, housed in disposable IVC cages. Mice were exposed to SOBV dirty bedding for 2 weeks; SOBV detection in feces, collected twice a day, was carried out by qPCR testing from day 25 to day 35 after infection. At the end of the study, cage filters were tested for SOBV. Finally, to test the sensitivity of the qPCR assay, we moved a positive CD1 in a clean cage for 15 hours, we collected all the fecal pellets (n=25) from the cage and put each pellet into a tube with 15 fecal pellets certainly negative for SOBV. RESULTS-At day 24 after infection, tape test results confirmed the positivity for SOBV in all mice. The mean SOBV positivity by qPCR was 88.7%±13.4, 84%±20.8 and 31.9%±12.7 for athymic nude, CD1 and C57, respectively. No significant differences were observed between morning and afternoon samples. Nine out of fourteen cage filters tested positive for SOBV. CONCLUSIONS-Based on these results we can conclude that SOBV positivity could be detected by qPCR in almost 100% of nude and CD1 mice. Moreover, data show that, pooling one SOBV positive pellet with 15 SOBV negative pellets, our test is sensitive enough to detect the positivity. Considering all these findings we recommend to collect pooled fecal samples at least one day after housing animals in the cages.

A SURVEY OUTCOMES FOR DEVELOPMENT OF STANDARD EDUCATIONAL CONTENTS FOR ANIMAL FACILITY USER

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The purpose of this study is to investigate current status and collect the desirable educational contents for animal user education & training programs. The outcomes of the survey will provide basic data for developing standard animal user education & training programs, which will focus on strengthening ethic competency in animal experimentation.

The survey has been sent to both animal users and training coordinators. Most of the animal users (98.1 %) have taken institutional initial/induction training program, and among them, 87 % replied that it was helpful. Only 54.4 % of animal users have finished institutional advanced training program, and 90.4 % of them replied that it was helpful. The reasons for not being helpful were that some contents are theoretical rather than practical, and the lack of diversity in educational delivery methods and in educational contents. Most of the training coordinators (95.4 %) replied that their institutions were providing institutional initial/induction training program, of which only 48.4 % said they were satisfied. 47.7 % of coordinators have replied that their institutions were providing institutional advanced training program, and only 54.8 % of them replied that they were satisfied. The reasons for low satisfaction were the lack of manpower to operate educational programs and the lack of diversity in educational contents.

In conclusion, for the development of standard education & training programs for animal user, the contents, which is 1) practically applicable 2) with diverse educational contents, and 3) and adjustable to the level of trainees should be considered.

ECTOPIC PREGNANCY IN COMMON MARMOSET (CALLITHRIX JACCHUS)

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Ectopic pregnancy (EP) is a potentially life-threatening pregnancy due to implantation of fertilized ovum somewhere other than the main cavity of the uterus. Depending on the location of implantation for the fertilized ovum, EP is classified into two types – 1) tubal pregnancy (in the oviduct), 2. abdominal pregnancy (in the peritoneal cavity). A female common marmoset (3-years-old, 491g, two parturition experiences) (Callithrix jacchus) which was pregnant with one fetus exhibited a small amount of uterine hemorrhage at about 4 months after conception (estimated based on biparietal diameter in fetal sonography). However, gross examinations and fetal sonography showed no abnormality. After two weeks, the mummification of fetus was confirmed by sonography, and then a caesarean surgery was carried out. A gestational sac (diameter 5 cm) was found in the middle abdominal cavity other than the uterus. The gestational sac connected to the maternal omentum by serosa-like duct, and contained a 30-gram fetus inside. The fetus showed no morphological or developmental differences compared to normal delivered fetuses. This means that the fetus has grown by receiving sufficient nutrition from the mother. Considering the gestational sac connected to the omentum and the absence of uterine injury, this case was diagnosed as an abdominal pregnancy. We considered the primary abdominal pregnancy. It is known that, unlike rodents, common marmosets are similar to humans in terms of structure and physiology of the placenta-"the interhaemal barrier". Occurrence of EP have been generally known as 2% of all spontaneous conceptions in human, and has been reported rarely in non-human primates. This report may be the first EP case in a common marmoset, and could be used as basic data in pregnancy researches using common marmoset.

REFINEMENT OF ADMINISTRATION AND SAMPLING

COMPARING NON-SACRIFICIAL PANEL (NSP) AND TRADITIONAL ANIMAL HEALTH MONITORING

Elena Bianchi, Laura Facchinetti, Carmen Calabresi, Ani Obaya, Emanuele Cesana

ENVIGO RMS S.r.l. an Inotiv Company

BACKGROUND- NSP (Non-Sacrificial Panel) methods offer an alternative approach to screen the health status of animal colonies: samples are collected directly from the animals (without euthanasia) and/or their environments. This avoids the need to sacrifice the animals AIM- Comparing the health status of laboratory animals by a traditional screening method and by NSP methods on different samples. METHODS- A cohort of live animals, positive for different agents by traditional screening, were housed in IVCs cages. Pooled fecal samples from those IVCs cages have been collected and tested by qPCR for the following agents: Helicobacter spp, Entamoeba muris, Mouse norovirus, Tritrichomonas muris, Helicobacter rodentium, Helicobacter hepaticus, Pasteurella pneumotropica. In addition, qPCR testing was performed on Interceptor filters system which collects exhaust air debris moving from cages to the exhaust filtration area of the air handler unit. Different time of exposures (1 to 4 weeks) were evaluated on the filters. RESULTS- The data obtained from the pooled fecal samples successfully matched the earlier Health Monitoring Report referred to live animals traditionally tested. Moreover, qPCR of nucleic acids extracted from Interceptor filters successfully detected the same pathogens after at least 4 weeks of exposure. CONCLUSION- NSP testing provides facility managers with another option when it comes to optimizing their health monitoring program and improves the 3Rs principle. Both pooled fecal samples and Interceptor filters can accurately show the health status of an animal colony consistent with the known health status and avoiding the need to sacrifice live animals.

PAIN AND WELFARE ASSESSMENT IN LABORATORY SHEEP AFTER SURGERY

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In orthopedic translational research, large animals, such as sheep, are frequently used. Here a good pain management is mandatory for good animal welfare and methods for adequate pain and welfare assessment are rare. Therefore, in the present study, methods for better pain and welfare assessment were evaluated after surgical interventions in sheep.

Telemetric devices were implanted subcutaneously in German blackheaded mutton ewes (4-5 years, 77-115 kg). After four weeks of recovery, the sheep underwent tendon ablation of the left M. infraspinatus at the greater tuberosity of the proximal humerus. After both surgeries, sheep were clinically scored and heart rate, temperature and activity were assessed by telemetry. For the analysis of the Sheep Grimace Scale (SGS) video recordings were performed and footage was retrospectively assessed by 3 blinded observer. In addition, saliva samples were collected and cortisol levels were determined using an enzyme-linked immunosorbent assay.

After both surgeries, clinical score and telemetrically assessed heart rates were slightly increased, whereas activity was decreased in individual sheep, especially within the first day post-surgery. Body temperatures and cortisol levels were not altered. Analysis of the video footage revealed significantly elevated SGS after tendon ablation within the first two days post-surgery and only tended to increase directly after transmitter implantation.

In this study, SGS and telemetry-derived heart rate and activity were good indicator for the detection of post-operative pain. Therefore, these methods, especially the non-invasive SGS, have the potential to improve pain recognition and postoperative management in sheep, consequently contributing to refinement.

WELFARE ASSESSMENT IN RATS: ADDITIONAL ENVIROMENTAL ENRICHEMENT CAN INFLUNCE HAIR STEROID LEVELS

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The quantification of hair steroids in laboratory rodents has been proposed as a tool to assess welfare [1-2]. Steroids are involved in physiological processes aimed at maintaining homeostasis and modulate the adaptive stress response to environmental stressors. Therefore, housing conditions and breeding can influence the hormonal profile. Blood and saliva steroids are indicative of a short timespan and are strongly influenced by circadian rhythm, while hair steroids can provide medium/long-term retrospective information. In rats, corticosterone, rather than cortisol as in most mammals, is the main stress hormone. Dehydroepiandrosterone (DHEA) is instead acknowledged as neuroprotective, inducing anti-glucorticoids effects and reducing aggressive behavior. The aim of this preliminary study was to quantify hair steroids in rats housed with different environmental enrichment set up.

Ten Wistar rats (sex ratio 1:1) were provided with a traditional plastic tunnel placed on the bedding, ten (sex ratio 1:1) received an extra tunnel suspended to the cage's grid. Hair was shaved from the back region two days before weaning (T0) and after three months (T1). Steroids (corticosterone, cortisol and DHEA) were quantified by either ELISA or Radioimmunoassay. Results showed that males with the single tunnel placed on the bedding had lower corticosterone levels; this was not observed in females. Such discrepancy between sexes was relevant considering both corticosterone and dehydroepiandrosterone. Cortisol was not quantifiable. Despite the relatively low sample size, the data obtained seem to support further research for the evaluation of hair corticosterone as a non-invasive environmental welfare biomarker.

1. Elmi, A. et al. Quantification of Hair Corticosterone, DHEA and Testosterone as a Potential Tool for Welfare Assessment in Male Laboratory Mice. Animals 10, 2408 (2020).

2. Scorrano, F. et al. Validation of the long-term assessment of hypothalamic-pituitary-adrenal activity in rats using hair corticosterone as a biomarker. The FASEB Journal 29, 859–867 (2015).

SUPPORTING THE 3Rs BY INCREASING CATHETER PATENCY DURATION

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Instech Laboratories, Inc

Access to the vascular system is a critical aspect of many research studies. Whether for the infusion of compounds or blood withdrawal, an ample period of catheter patency is necessary for medium to long-term studies. Multiple factors affect catheter patency, the most important being catheter tip placement. The catheter tip must be positioned in the ideal location for optimal patency. The second factor is the use of a closed system. Studies have demonstrated that a closed system using the Vascular Access Button™ (VAB™) has a major impact in extending the patency duration. Catheter material and tip profile also affect patency. Polyurethane (PU) is the material of choice and a round catheter tip minimizes damage to the lining of blood vessels. Sterility of components is another factor. Non-sterile components such as catheters and solutions may lead to the formation of biofilms at the catheter tip. The last factor is the positive pressure technique when locking the catheter. Utilizing positive pressure reduces the probability of clot formation within the catheter. Increasing the duration of catheter patency supports the 3Rs by Reduction of the number of animals enrolled in medium- to long-term studies. The VAB™ also endorses the 3Rs by Refinement as it improves animal welfare. With the addition of the magnetic metal cap on its port, group housing is possible allowing animals to engage in social behavior. Furthermore, the VAB™ reduces animal handling and associated stress resulting in better research results.

HUMANELY ENDING LIFE OF LABORATORY RATS WITH CO2

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Millions of rodents are euthanized each year with carbon dioxide (CO_2). Rodents react aversive to CO_2 and it is assumed that they feel stress and discomfort when exposed to it. However, a recent systematic review showed that based on the available literature the impact of CO_2 on rodent welfare is highly variable and currently cannot be assessed accurately.

This study aims to compare the physiological impact of two different CO_2 concentrations in rats. Rats were placed in plethysmography chambers gradually filled with either 30% or 70% CO_2 and EEG, ECG, blood pressure, respiratory data and behavior were recorded. Rats exposed to 70% CO_2 lost motion before rats exposed to 30% CO_2 (57 vs 91 seconds). Only 8% of the animals euthanized with 70% CO_2 lost motion before gasping but 45% of the 30% CO_2 group. The cessation of neocortical activity occurred faster with 70% than 30% CO_2 (73 vs 160 seconds). The mean blood pressure increased in both groups after CO_2 exposure but decreased faster in the 70% CO_2 group. The heart rate decreased rapidly after CO_2 influx in both groups, but the decrease was significantly faster in the 70% CO_2 group. Respiratory rate and tidal volume significantly increased after CO_2 influx in both groups with the increase of respiratory rate being significantly higher for the 30% CO_2 group.

Our results suggest that 70% CO_2 euthanasia is faster than 30% CO_2 but animals might encounter more discomfort when gasping before the loss of motion.

NEUROPROTECTIVE EFFECT OF SODIUM GLUCOSE COTRANSPORTER 2 INHIBITORS FOR DEMENTIA DUE TO ALZHEIMER'S DISEASE

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The incidence of neurodegenerative diseases, such as Alzheimer's disease (AD) is continuously growing worldwide, which leads to a heavy economic and societal burden. The lack of safe and effective causal therapy in cognitive decline is aggravating and require the investigation of repurposing commonly used drugs. Sodium glucose co-transporter 2 inhibitors (SGLT2i) are a new and efficient class of hypoglycaemic drugs, and due to their pleiotropic effects have indications that go beyond diabetes. There is emerging data from several murine studies that SGLT2i can cross the blood-brain barrier and may have neuroprotective effects including the reduction of amyloid burden and inhibition of acetylcholinesterase (AChE).

The current study investigates the effect of an SGLT2 inhibitor and donepezil, under separate or combined 21 days treatment on AD-relevant behaviours and brain pathology in mice. The SGLT2 inhibitor was found to significantly improve the recognition index and memory retention in the novel object recognition and elevated plus maze tests, respectively. In addition, it increased the nuclear erythroid 2-related factor expression and decreased the AChE activities, the acetylcholine M1 receptor, the mammalian target of rapamycin and the glial fibrillary acidic protein expression. In the hippocampus, the SGLT2 inhibitor reduced the microgliosis and astrogliosis in males, but not in female mice.

The current study's results point to a neuroprotective effect under SGLT2i therapy in a mice model of AD, supporting future investigations for the use of repurposed SGLT2i drugs in neurodegenerative diseases.

ONE HEALTH/COMPARATIVE MEDICINE

MANAGEMENT OF A FEMORAL FRACTURE IN A CYNOMOLGUS MACAQUE (MACACA FASCICULARIS): SURGERY, PERIOPERATIVE CARE, WELFARE AND ETHICS

Gianfranco Di Caro[1], Gianfranco Di Caro[1], Elisa Maria Zeni1, Anna Slaviero[1], Alessandro Calore[1], Laura Piccoli[1], Marika Olivetti[1], Giulia De Benedictis[2], Maurizio Isola[2], Memarian Parastoo[2], Alessia Ferrara[1]

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Orthopedic lesion repair in non-human primates represents a field of knowledge not extensively addressed. Reports of bone fracture in these animals are scarce and provide only limited information about the therapeutic approaches adopted to ensure bone healing and functional recovery. Animal welfare and ethical aspects concerning the surgical care and postoperative management of orthopedic procedures have been historically argued against these procedures in research primates, but considering the current veterinary knowledge in this specialty this paradigm may be reconsidered. In the present report, we describe a case of a male cynomolgus macaque presenting a non-weight-bearing lameness of the left hindlimb, advocated to an accidental fall. Physical and radiographic examinations revealed a closed, displaced, short oblique, diaphyseal femoral fracture. Upon consultation with orthopedic specialists surgical repair was decided. Under general anesthesia and proper analgesia, the femur was approached laterally to expose the fracture site. After anatomical reduction and alignment, the fracture was stabilized using a locking plate. During the postoperative period, the animal was housed in a modular cage with a highly compatible cage mate to prevent complications. Adequate analgesia was provided and monitored by the use of clinical and behavioral score sheets assessing both the animal's well-being and functional recovery. Postoperative radiographs showed overall satisfactory bone alignment and apposition. A steady improvement of the limb function and a complete resolution of the lameness were recorded over the 8 weeks post-surgery. Once fully healed, after careful consideration of the welfare implications, it was decided to retire and rehome the animal.

TREATMENT OF SELF-INJURIOUS BEHAVIOR IN A RHESUS MACAQUE (MACACA MULATTA) WITH ORAL NALTREXONE AND ALPRAZOLAM IN COMBINATION WITH ENVIRONMENTAL ENRICHMENT MODIFICATIONS

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The spontaneous occurrence of self-injurious behavior (SIB) can pose a substantial animal welfare concern in captive non-human primate (NHP) colonies. SIB can have detrimental effects on the individual animal's well-being and health and may interfere with ongoing research studies. This case report describes a novel treatment protocol for SIB consisting of oral naltrexone and alprazolam combined with environmental enrichment modifications.

A 10-year-old, intact-male, single-housed, rhesus macaque (Macaca mulatta) presented with an acute onset of SIB. 4 episodes of self-inflicted wounding, which required veterinary intervention and major wound care, occurred over a period of 10 days. Pharmacological treatment was initiated after the fourth incident of SIB with naltrexone (4.5 mg/kg PO BID). The initial dosing of naltrexone was reduced to 2 mg/kg PO SID after 2 days due to an onset of upper respiratory symptoms (i.e. intermittent cough). After the initial treatment course with naltrexone for 4 weeks, the NHP showed intermittently self-inflicted behavior without tissue damage. Alprazolam at 0.25 mg PO BID was added to the treatment strategy in place of increasing the dose of naltrexone due to previously noted systemic side effects. Environmental enrichment modifications were started in conjunction with drug treatment and consisted initially of removing the animal from the colony and relocating it within the facility. Furthermore, the animal received daily puzzle feeders, forage boards, and ice treats.

Naltrexone was discontinued after 16 months and the NHP is currently receiving alprazolam only, which will be discontinued once the animal returns fully to the research study. The NHP did not suffer a relapse of SIB for more than 18 months since the implementation of this treatment approach. This case study demonstrates the successful therapeutic management for SIB in a rhesus macaque and adds a novel therapeutic approach for this disorder to our arsenal of treatments.

ROUTES FOR VETERINARY SPECIALISATION IN LABORATORY ANIMAL MEDICINE ACROSS THE WORLD

Patricia Hedenqvist[1], Jennie Lofgren[2], Vera Baumans[3], Arvind Ingle[4], Shakthi Devan[4], Kazuo Yano5, Koji Hanai[5], Byeong-Cheol Kang[6], Melissa Marie Rondina[7], Michele Bailey[2], Gary Borkowski[2]

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[4] ICLAM
[5] JCLAM
[6] KCLAM
[7] PCLAM

Starting in the USA over 60 years ago, veterinarians can undergo training to become specialists (Diplomates) in laboratory animal medicine (LAM). Globally, six colleges of LAM (ACLAM, ECLAM, ICLAM, JCLAM, KCLAM, PCLAM) are joined in the International Association of Colleges of LAM (IACLAM), with the mission to promote the role of laboratory animal medicine veterinary specialists worldwide. LAM Diplomates contribute to scientific rigour, animal care and use programs, and improved animal welfare. One of IACLAM's goal is to harmonize standards for training in LAM and for this purpose information on different routes to certification was compiled.

Three colleges offer structured training programs with a duration of 2-5 years, under supervision of a Diplomate during at least part of the program. All colleges allow for an alternative route to standard training, or on-the-job- training, in 5/6 colleges with a longer duration. A role delineation/modular training document describes the skills and knowledge expected of the LAM specialist and serves as a guide for training. Participation in courses, workshops and didactic training is entailed. Previous research training counts for part of the training. Requirements on species experience differs between colleges, but primary research species are the same in all countries or regions. Irrespective of training route, publication of at least one scientific article in a peer-reviewed journal is required, as is passing an examination. Two colleges conduct exams for practice in preparation for exam candidates.

An analysis of the structure of training in the colleges will serve as basis for recommendations for upstarting LAM colleges and global harmonization.

CANINE B-CELL LYMPHOMA XENOGRAFTS AS A PROMISING MODEL TO EVALUATE THE DEVELOPMENT OF NEW TREATMENT STRATEGIES FOR NON-HODGKIN LYMPHOMA

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One of the most common neoplasias in dogs is canine diffuse large B-cell lymphoma (DLBCL), which shares great similarities with its human counterpart, making it an excellent model for research of novel therapeutic agents. However, partially due to the lack of suitable xenograft mouse models, the application of canine lymphoma in comparative studies has been limited. To overcome these limitations, we established and characterized a localized subcutaneous canine DLBCL xenograft mouse model, with and without bioluminescence, for monitoring tumor progressing and treatment response in preclinical studies.

The cell line used was the established CLBL-1 which has been proven to faithfully represent canine DLBCL. For tumor inoculation, the strains of immunodeficient mice employed for the optimization were the SOPF/SHO SCID and the NOD SCID. With a high engraftment efficiency, the resultant tumors in both strains were localized at the site of inoculation and their histological and immunophenotypic features were confirmed to be consistent with canine DLBCL. In addition, bioluminescent tumors were successfully detected and quantified on a cryogenically cooled IVIS system. Finally, to validate the proof-of-concept of the established CLBL-1 xenograft models, we successfully evaluated the therapeutic response of multiple compounds, such as small molecules (eg. panobinostat), antibody–drug conjugates, and nanoparticles (liposomes).

In summary, this study provides a promising xenograft canine DLBCL model that offers high engraftment efficiency, preservation of tumor features, and monitoring of tumor progression, thus validating the model as a promising preclinical tool for both veterinary and human medicine.

ASSESSMENT AND REFINEMENT OF THE WELLBEING OF MICE DURING METABOLIC CAGE SAMPLING PROCEDURE

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Metabolic cages are frequently used to collect feces/urine samples for biological analysis. Since, single housing, the absence of bedding and nesting material and grid floors are known to stress laboratory rodents. The few studies investigating stress levels of laboratory mice in metabolic cages showed an increase in blood pressure, heart rate and corticosterone levels. Furthermore, it can be assumed that mice kept in metabolic cages are exposed to a cold stress. We hypothesize that the current conditions of metabolic cage housing have a negative impact on the homeostasis of the physiological metabolism of mice. Our project aims to compare the stress levels of mice during standard metabolic cage housing with the following conditions: a) hourly adaptation, b) thermoneutral temperature c) providing a shelter/nest. To assess stress levels, male and female C57BL/6J mice were implanted with HD-X11 transmitters, and heart and respiratory rates, blood pressure and body core temperature measured. In all conditions mice lost ~5% of their body weight and never recovered. Nevertheless, mice maintained their day-night cycle, in terms of food/water intake and feces/urine excretion – which were comparable in all the conditions. Heart rate, respiratory rate and systolic blood pressure were reduced in the thermoneutral group. Whereby the body core temperature was reduced down to 33°C in the control and adaption groups. Further analysis will involve activity/behavioural analysis, additional housing conditions and quantification of stress parameters. All in all, our study confirms that simple changes might help to improve the wellbeing of mice during metabolic cage experiments.

CHEMICAL INDUCED INJURY TO CREATE TENDON ADHESIONS IN RATS. A NEW EXPERIMENTAL MODEL USING TETRACYCLINE HYDROCHLORIDE AND CITRIC ACID

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Aim: The study of anti-adhesive agents for the prevention of tendon adhesions in hand surgery, appears with increasing frequency in the international literature. Despite the improvement of surgical tendon suturing techniques, the problem of adhesion remains.

Material- Methods: The purpose of the experiment is to create tendon adhesions of the digits of the hind limbs in adult male Sprague Dawley rats by injecting a solution of citric acid hydrate and tetracycline hydrochloride (1:1) into the tendon sheath, between the A1 and A3 ligaments. The experiment is original, and for this reason the determination of Ph and the amount of irritant were studied in a pilot experiment.

Animals underwent frequent weekly tests: treadmill and grid walking, balance, electronic algometer and dynamometer test. The existence of adhesions was histologically confirmed after the euthanasia of the animals at the completion of the 4th week. The limbs of the animals were also imaged with micro-CT.

Results: Injection of a solution of citric acid hydrate and tetracycline hydrochloride into the flexor tendon sheath of rats results in the formation of tendon adhesions. The lowest pH and maximum amount of irritant with the least trauma complications is pH 1,6 and 60 μL.

Conclusion- Discussion: Previous studies have used a mechanical injury method to create tendon adhesion in toes of rabbits and chicken, while rats are rarely used for this purpose. In the present study, a new simple and easy-to-use rat injury model is developed in order to study new anti-adhesive agents.

METTL14 MUTATION ATTENUATES HEPATOCYTE PROLIFERATION BY MODULATING THE EXPRESSION OF HGF AND TNF-A DERIVED FROM NON-PARENCHYMAL LIVER CELLS IN MICE

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The N6-methyladenosine (m6A) modification pathway has been associated with liver regeneration and hepatocellular carcinoma. m6A methyltransferases, such as methyltransferase 3 (METTL3) and methyltransferase 14 (METTL14), are involved in the hepatocyte-specific-regenerative pathway. To elucidate the role of METTL14, secreted from non-parenchymal liver cells, in the initiation phase of liver regeneration, I performed 70% partial hepatectomy (PH) in Mettl14 heterozygous (HET) and wild-type (WT) mice. Next, I analyzed the ratio of liver weight to body weight and the expression of mitogenic stimulators derived from non-parenchymal liver cells. Furthermore, I evaluated the expression of cell cycle-related genes and the hepatocyte proliferation rate by MKI67-immunostaining. During regeneration after PH, the weight ratio was lower in Mettl14 HET mice compared to WT mice. The expression of hepatocyte growth factor (HGF) and tumor necrosis factor (TNF)-α, mitogens derived from non-parenchymal liver cells that stimulate the cell cycle, as well as the expression of cyclin B1 and D1, which regulate the cell cycle, and the number of MKI67-positive cells, which indicate proliferative hepatocyte in the late G1-M phase, were significantly reduced in Mettl14 HET mice 72h after PH. Our findings demonstrate that global Mettl14 mutation may interrupt the homeostasis of liver regeneration after an acute injury like PH by restraining certain mitogens, such as HGF and TNF-α, derived from sinusoidal endothelial cells, stellate cells, and Kupffer cells. These results suggest that Mettl14 influences postoperative live regeneration and provide into potential treatment strategies for liver disease.

ROLE OF THE VET

EMERGENCY PLANNING WHEN WORKING IN-VIVO: DISASTER PLAN VS BUSINESS CONTINUITY MANAGEMENT PLAN

Eva Maria Amen

F. Hoffmann-La Roche Ltd

Animal facilities may be subject to unplanned events that could place the health and wellbeing of the facility's staff and animals at risk, disrupt operations, and threaten the organisation's financial standing or public image. Therefore it is a must for AAALACi-accredited facilities to have a disaster plan in place.

A state-of-the-art Disaster Plan ensures the protection of critical components, e.g. Safety, Health and Environmental Protection, Animal Welfare, and Business Continuity.

A Disaster plan typically addresses distinct hazards, and gives details for mitigation, preparedness, response, and recovery after any of these. The plan defines who is in charge, when the plan will be activated, and what actions will be taken in which way.

Apart from preparedness for disasters, a plan for Business Continuity Management (BCM) is recommended, which ensures the capability of the organisation to continue the delivery of key products and services at a minimum, acceptable level following a disruptive incident.

Key aspects include a thorough risk assessment and review of business critical activities against defined losses, where serious risks could impact the delivery of key products and services.

Dedicated tables detail timelines for Incident Management and for BCM strategies describing short and long term solutions used in recovering critical activities.

Both in exercises and in real life events Disaster plan and BCM plan go hand in hand, and preparedness, communication, and teamwork will help in mastering any crisis.

Taken together, good preparation and practice help in mastering even unpredicted events.

THE ROLE(S) OF LABORATORY ANIMAL VETERINARIANS (LAVs) AT THE EXPERIMENTAL ANIMAL CENTER – UNIVERSITY OF BERN: THE OCTOPUS CONCEPT

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A career in laboratory animal medicine entails veterinary graduates to extend their clinical knowledge to different classes of species, usually poorly investigated amid veterinary school lectures. Laboratory animal veterinarians (LAVs) diligently care for living models of human and animal disease, not only because it is legally and ethically required, but also because the integrity of the science produced by these animals depends on their health and wellbeing [1-2]. In order to provide a significant impact on animal welfare, LAVs must have adequate resources to work harmoniously with animal care personnel and scientists [3-4].

The Experimental Animal Center (EAC) is an interfaculty unit responsible for the in vivo research of the University of Bern. The EAC veterinary team gather individuals, with different expertise, who inspired by the octopuses, with their remarkable eight arms and three hearts, spread their efforts to suitably fulfil multiple tasks. EAC LAVs cover Facility and GMO management, clinical care and daily animal husbandry, training programmes, regulatory compliance, GLP, colony management software and centralized pharmacy administration, animal import/exports, anesthesia/analgesia, post-op care, weekend on-call as well as initiatives to nurture Culture of Care and Team-Building activities.

In conclusion, Lab animal medicine is a multi-faced widespread specialty in which veterinarians can have the most impact on the welfare of animals and quality of science. This profession is embedded of responsibilities and requires multiple skills overarching managerial, communication, financial, clinical, scientific and ethical qualities. The nervous system of an octopus is a nice-to-have asset.

NEW CANDIDATE GENES Bcl2l15, Slc30a7 AND Pde5a WITHIN A MOUSE MODEL OF INFLAMMATORY BOWEL DISEASE

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The interleukin-10-deficient mouse (Il10-/-) is well suited to model inflammatory bowel disease. Apart from microflora and environmental factors, the genetic has an influence to severity and onset of colitis. Cdcs1, a region on the murine chromosome 3 (MMU3), is the major modifier for colitis susceptibility. B6.129P2/J-Il10tm1Cgn/Ztm (B6-Il10-/-) are partially resistant, whereas mice carrying the Cdcs1 derived from susceptible C3H/HeJBir-Il10tm1Cgn (C3Bir-Il10-/-) mice like B6.Cg-Il10tm1C-gnMMU3(D3Mit49-D3Mit348)/JZtm (BC R2-Il10-/-) develop severe disease. Previous studies suggested Bcl2l15, Slc30a7 and Pde5a as potential candidate genes within Cdcs1.

The aim of this study was to investigate the impact of each candidate gene on colitis susceptibility in the Il10-/- mouse model.

New subcongenic strains with a reduced length of the C3Bir fragment were established from BC-R2-Il10-/- mice using microsatellites and the KASPTM genotyping array. Genetic authenticity was confirmed by the GigaMUGA. Colon histology from B6-Il10-/-, BC-R2-Il10-/- and the subcongenic BC-R2-Il10-/- mice was semi quantitatively scored. The adaptive immune response was characterized by analysis of cytokine expression within colon tissue. By comparing the different genotypes with the phenotypes, the impact of all three candidate genes was assessed.

Animals carrying the C3Bir derived Cdcs1 fragment with the candidate genes Slc30a7 and Pde5a showed an increased colitis susceptibility characterized by high expression of proinflammatory cytokines of a Th1 response in combination with a Th17 component. Animals carrying the C3Bir derived Cdcs1 element containing Bcl2l15 had a similar colitis as compared with B6-Il10-/- mice.

The results demonstrated an impact of the candidate genes Slc30a7 and Pde5a on the onset of colitis. Therefore, a further investigation as candidate genes for colitis is planned. In contrast, Bcl2l15 had no influence on the colitis susceptibility.

LABORATORY ANIMAL VETERINARIANS: THE KEY PLAYERS FOR IMPROVING CULTURE OF CARE THROUGH THE ONE WELFARE CONCEPT

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Laboratory animal veterinarians a key component of the Culture of Care of an organization. In our organization, they play a strategic role through the Animal Welfare Body. Indeed, despite the regulatory framework that gives it legitimacy, it can be challenging to identify a mode of operation that allows this structure to play an active and effective role in the transformation of the institution.

We propose here an efficient and agile organizational model that elicits a real collaborative shift to action in favor of both animal and technician welfare.

Our AWB is organized in 3 layers that sustains its continuity, its reactivity and its renewal. The first layer consists of the regular Animal Welfare team composed of 5 people including 3 LAS veterinarians. It is the foundation of the structure which promotes its continuity and leadership and sets the working groups' goals and strategy.

The second layer consists of the leaders of the working groups. They are selected from regular AWB members, based on a motivation interview. Together with the core team, they form a select committee capable of meeting in less than 48 hours to make quick decisions.

The third layer is composed of staff members representing each department in the company. They are selected on the proposal of their managers for a maximum period of 3 years, and the option for a second term. They commit to participating in at least one working group, completing two animal welfare audits per year, and attending quarterly meetings.

Overall, this organization, has been demonstrated to improve "One Welfare" for both animals and technicians and set an easy-to-use operational model.

THE FIRST CASE REPORT ABOUT THE REHOMING OF LABORATORY DOGS IN KOREA

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For researchers conducting animal testing, euthanasia has considered the last stage of inevitable research, but in Europe and North America, rehoming has activated as a substitute, giving experimental animals a new life. In these countries, legal support for the adoption of laboratory animals and appropriate administrative procedures are well established, and NGO organizations that implement the process work actively.

However, it seems difficult to find a report of procedures or examples for the rehoming in Asia, including Korea. So we would like to introduce the rehoming process of laboratory dog in the Laboratory Animal Research Center, Institute of Biomedical Industry, The Catholic University of Korea.

Four healthy beagle dogs were adopted after experiment (two in 2017, one in 2019, and one in 2020). The Animal Protection Act amended in 2018 including of transfer or donate the laboratory animal in Korea. Therefore, in 2017, the institution made its own process and proceeded with adoption without a legal system with the help of animal protection organizations. In the case of 2019, adoption procedures were carried out in accordance with the amended law and government guideline, and also through the NGO. The animals adopted in 2020 were directly rehomed to ordinary family, and education was also conducted for the owners. All adopted animals must monitor for one year and been receiving their news until now.

We would like to share the practical procedures for the rehoming of laboratory dogs, and hope that the adoption of experimental animals will activate in Asia, including Korea.

LABORATORY ANIMAL VETERINARIAN INFOGRAPHICS

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Laboratory animal veterinarians play a role in helping researchers conduct research ethically while managing the health and welfare of laboratory animals used in animal research in the field of biomedical science. In Korea, the Animal Protection Act which was revised in April 2022 required attending veterinarians to be hired for animal testing facilities above a certain level. This also means that the importance of laboratory animal veterinarians is becoming important in Korean society.

In line with this, the Korean College of Laboratory Animal Medicine (KCLAM) considered ways to publicize laboratory animal veterinarians, and decided to create the laboratory animal veterinarian infographics. Infographics is a combination of information and graphics, and is a graphical visual representation of information, data, and knowledge to express information easily and intuitively. Lab-

oratory animal veterinarians worked with Infographics specialist (Infographics Lab 203) to create an outline of laboratory animal veterinarian, conducting research & check, classification and refinement (Mind map), analysis and structuring (Graphic & Design).

The results of the Korean version are shown in Figure 1 attached, and the English version is also in progress. This is distributed to animal research facilities in Korea to publicize laboratory animal veterinarians and to promote the professional consciousness of laboratory animal veterinarians.

NEW ERA OF MARMOSET RESEARCH IN KOREA: SEOUL NATIONAL UNIVERSITY HOSPITAL MARMOSET MODEL NETWORK CENTER (SNUH MMNC)

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The demand for non-human primate in biomedical research have been increased for several decades. Although macaque monkeys such as Cynomolgus and Rhesus have been widely used in NHP research, they have disadvantages such as securing husbandry space, low reproductive efficiency, difficulties in handling and risk of zoonotic infections. Recently, the common marmoset (Callithrix jacchus), has emerged as an attractive NHP to overcome the limits of macaque monkeys. Marmoset have several advantages of simple breeding, easy handling, fewer diseases and small body size. For this reason, US, China, Japan, and Europe countries regard marmoset as a crucial strategic bio-resource and are striving to secure marmoset and establish infrastructure. However, in Korea, domestic colony and breeding system for marmoset, and related infrastructure are not well established. In 2021, National Bio-Resource Project was launched and SNUH MMNC project was selected to strategize the marmoset as a national bio-resource. First of all, SNUH MMNC project is carried out for three years, and the ultimate goals of the project are: 1. Securing marmoset resources, 2. Standardizing marmoset breeding and quality management systems. 3. Development of marmoset disease model. For these goals, SNUH MMNC team is composed of laboratory animal medicine, microbiology, clinical disease, obstetric and genetically engineering experts. Each expert communicates regularly and hold SNUH MMNC symposium twice a year. Also SNUH MMNC organized a public relations team to promote the role of MMNC to the veterinary and biology major students, and researchers through on-offline. The marmoset resource bank will be operated to encourage researchers utilize the marmoset for research. We expect that these efforts will develop the quality of biomedical science and contribute the improvement of public health of Korea.

WHAT ELSE SHOULD KCLAM BE: PAST, PRESENT, AND FUTURE PERSPECTIVES OF KCLAM

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Korean College of Laboratory Animal Medicine (KCLAM) was established in 2006 to provide training programs to foster and strengthen professional veterinarian resources, and this year marks the seventeenth year since the establishment of KCLAM.

Laboratory animal veterinarians (LAVs) are currently facing momentous changes because of the increasing need for ethical animal research and the gravity of animal testing in the COVID-19 era, particularly considering the urgent need to secure qualified veterinarians in laboratory animal science. In addition, as Korean Animal protection act (APA) was revised at the end of 2022, the head of a laboratory animal facility shall have a dedicated veterinarian to improve the health and welfare of laboratory animals.

This poster summarizes the current and future roles of KCLAM at a turning point in relation to the establishment and its training and certification processes and provides an introduction to the residency and new training programs that KCLAM is preparing in line with international standards and domestic regulations. To compensate for inadequacies and facilitate the mandatory employment of LAVs under the recently revised APA, KCLAM has prepared to operate on-the-job training session for LAVs with less than 5 years' experience apart from regular training programs, and to provide online-accessible training resources such as learning libraries and FAQ/Q&A websites.

DEVEOPMENT, IMPLEMENTATION, AND EVALUATION OF ON-THE-JOB TRAINING CURRICULUM FOR KOREAN LABORATORY ANIMAL VETERINARIANS AT THE BEGINNER LEVEL

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The Korean College of Laboratory Animal Medicine (KCLAM) developed an on-the-job training curriculum for laboratory animal veterinarians with little experience to become familiar with the actual work. The objectives of this training are to provide didactic information and case-based learning to laboratory animal veterinarians.

A multidisciplinary team of 6 professors and 9 veterinarians with more than 10 years of experience in animal research facilities developed, implemented, and evaluated a preliminary 12-week training period. The team held online or offline meetings about twice a month for 10 months for brainstorming, content development, and review of training curriculum materials. The contents were prepared by adding field experience based on Guide for the Care and Use of Laboratory Animals (8th edition, 2011). Training was conducted over a total of 7 sessions at 2-week intervals for a total of 106 veterinarians. Session 1 and 7 were carried out face-to-face and session 2 ~ 6 carried out over zoom meetings.

Trainees expressed overall satisfaction with the training and instructors. In the survey to see if it was helpful for the laboratory animal veterinarian work, they showed a satisfaction level of 4.5 or higher out of 5 points. These programs serve as a critical link between academics and actual work, and allow trainees to become familiar with the care and use of laboratory animals.

The training described here is first programs created by the Korean Laboratory Animal Veterinary Society for laboratory animal veterinarians at the beginner level. This is the content for the first semester of a total of 4 semesters. We are preparing for the second semester education on topics that were not covered in the first semester. The 3rd and 4th semesters are intended to consist of practical case-oriented education. Efforts are being made to make this education a compulsory education in the attending veterinarian system recently legislated in Korea.