UNDERSTANDING ANIMAL RESEARCH OCEANIA

THE UNIVERSITY OF SYDNEY

TECNIPLAST

New South Wales AEC Members' Forum

Summary report of the workshop held 18 February 2026

About Understanding Animal Research Oceania

www.uaroceania.org

Understanding Animal Research Oceania (UAR Oceania) is an Australian non-profit organisation that explains why animals are used in medical and scientific research. We support greater understanding of how and why animals are used in medical, veterinary, scientific and environmental research in the Oceania region.

UAR Oceania works to help everyone understand how society benefits from the humane use of animals in research, and works with the scientific sector to ensure that when research uses animals, it meets the high standards of ethical conduct expected by the international research community and the public. We support the life-sciences community across Oceania to be open, courageous and credible in the way it approaches and discusses research, drawing together research organisations, industry associations, professional bodies, charities and others.

For further information or to join UAR Oceania please contact ajlear@uaroceania.org

About the AEC Members' Forum

UAR Oceania, in collaboration with The University of Sydney, has created the AEC Members' Forum which provides a platform for AEC members from across a specified region to meet face to face and discuss key and current issues that they may encounter or need to take decisions on as part of their AEC role.

While all AEC members undergo training for their position, science does not stand still, and neither do the related policy issues. The Forum provides space for AEC members to meet their counterparts from other committees and institutions, deliberate on topics that are emerging, changing or which can be challenging, and to discuss the roles of the AECs. The sessions are participatory and focused on knowledge building and sharing among AEC members.

The aim of the Forum is to strengthen the understanding and networks of AEC members and to support their deliberations on their committees. It does not replace AEC member training required by regulatory authorities, including that provided through ANZCCART's ComPass programme.

If you are interested in holding an AEC Members' Forum in your region, please contact ajlear@uaroceania.org.

Disclaimer

Opinions expressed in this report do not necessarily represent the views of all participants at the event, Understanding Animal Research Oceania, The University of Sydney or any other AEC Members' Forum partner.

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All web references were accessed in February 2026.

Contents

Executive Summary

This report presents the discussions and findings from a forum focusing on various aspects of animal ethics and research methodologies. The discussions topics were: the role of animal ethics committee chairs; invertebrate animal ethics; non-human primates in research; the 3Rs (reduction, replacement and refinement).

Discussion 1, Animal Ethics Committee chair, led by Professor Michael D'Occhio, explored the chair's key responsibilities in guiding discussion, and examined practical challenges, including balancing different viewpoints, supporting Category C and D members, managing hybrid meetings, and communicating difficult decisions. Participants reflected on the value of both internal and independent chairs, and on the importance of clear records, institutional influence, and committee culture.

Discussion 2 examined how sentience in invertebrates might be assessed, and what this means for animal welfare and research oversight. Using an indicator-based approach, Dr Tom White argued that researchers should look not for a single definitive test, but for a weight of evidence drawn from behavioural flexibility, learning, self-protection, trade-offs, play, and relevant physiology. Examples from octopuses, bees, crabs, flies, and crickets were used to show that some invertebrates display behaviours consistent with felt experience and therefore may have welfare interests that deserve ethical consideration.

Discussion 3 was led by Professor Wayne Hawthorn, and examined the ethical and practical realities of using non-human primates in transplantation research, particularly for xenotransplantation. He explained why baboons remain necessary within the current international regulatory framework for xenotransplantation, especially in demonstrating safety before clinical trials. The session also highlighted the very high welfare demands of this work, including long acclimation and training periods, intensive daily care, enrichment, careful medication management, and close attention to stress, recovery, and long-term well-being.

In Discussion 4, three presenters gave talks focused on different aspects of the 3Rs as they appear across institutions and research groups in New South Wales. Dan Allman spoke about studying the 3Rs and refinement protocols in insect models, Mitchell Lockwood spoke about the development of cellular matrices for cancer studies, while Les Gabor from Elanco Animal Health spoke about their successful rehoming programme for companion animals that are retired at the end of their working lives, spent helping the development of new treatments for pets.

Welcome

The meeting was opened by Dr Susan Maastricht, Director of Research Integrity and Ethics Administration at The University of Sydney, and Director at Understanding Animal Research Oceania.

Dr Maastricht welcomed speakers and participants to Eora Country of the Gadigal people, on whose lands the meeting took place, and opened the third AEC Members' Forum. Now in its third year, the Forum is a collaboration between The University of Sydney and UAR Oceania, to provide a place where AEC members can meet, discuss and learn more about their duties in supporting the ethical and correct treatment of animals in scientific research.

The AEC Members' Forum aims to generate discussion and debate around key topics which create sticking points or uncertainty for AEC members, raising awareness of these topics and suggesting new ways to approach them. It allows participants to consider key issues, for which it is rarely possible to allocate time on busy AEC agendas.

The Forum convenors welcome the feedback of participants, as well as suggestions of topics to explore in future AEC Members' Fora.

The overview of the review of The Code from NHMRC was not included in the afternoon discussions due to time constraints. This video is available on demand from: https://www.nhmrc.gov.au/research-policy/ethics/animal-ethics/review-australian-code-care-and-use-animals-scientific-purposes.

Discussion 1

The Animal Ethics Committee Chair

This discussion explored the role of the Animal Ethics Committee (AEC) chair, led by Professor Michael D'Occhio, framing effective chairing as central to the functioning, integrity, and outcomes of AEC processes. Rather than a formal presentation, the session was delivered as an interactive discussion, drawing on participant experience to examine both the responsibilities and challenges of the role.

Professor D'Occhio outlined that the chair has two core responsibilities under the Code: to guide the operation of the AEC and to represent the committee within the institution. In practice, this requires more than procedural oversight. Effective chairs must create an environment that is respectful, inclusive, and conducive to open discussion, while ensuring that meetings remain focused and lead to clear, defensible decisions. Central to this is the ability to build consensus across diverse perspectives, while maintaining the primacy of animal welfare in all deliberations.
A key theme of the session was the importance of interpersonal skill. Professor D'Occhio emphasised that the ability to "read the room" is fundamental, requiring emotional intelligence, active listening, and sensitivity to both spoken and unspoken contributions. This is particularly important in supporting meaningful participation from Category C and D members, who may otherwise feel less confident contributing alongside scientific experts. Chairs must also balance contributions from experienced and new members, ensuring that all voices are heard without being patronising or tokenistic.

The discussion highlighted a number of practical challenges. These included managing strong personalities, particularly senior researchers with institutional influence, navigating disagreement between scientific and welfare perspectives, and handling complex technical discussions that may exclude some members. Hybrid and online meetings were identified as an additional challenge, limiting the chair's ability to assess engagement and group dynamics. Time management, maintaining engagement over long agendas, and communicating difficult or unfavourable decisions to researchers were also recognised as demanding aspects of the role.
Participants reflected on the variability of AEC practice across institutions, noting that there is no single model for effective chairing. The relative benefits of internal versus independent chairs were discussed, alongside the importance of clear minutes, robust documentation, and transparency in decision-making to ensure accountability and defensibility.

The session also considered the chair's role beyond the meeting itself. This includes advocating to institutional leadership for resources, facility improvements, and staffing required to meet ethical and regulatory obligations. Limitations in authority and competing institutional priorities were acknowledged as ongoing challenges.

Throughout the discussion, participants consistently returned to the principle that, while approaches may differ, the chair's role is to uphold a fair and rigorous process that places respect for animals at the centre of all decisions.

Discussion 2

Invertebrate sentience and animal ethics

In this discussion, Dr Tom White explored how sentience in invertebrates might be identified and what this should mean for ethical decision-making in research and other human uses of animals. The speaker outlined an indicator-based approach, arguing that because animals cannot report their experiences directly, researchers must rely on behavioural and physiological signs that are thought to require some form of felt experience. Rather than assuming a simple binary between reflex and feeling, Dr White proposed a spectrum of behavioural flexibility, suggesting that richer, more adaptive responses may indicate an internal capacity for subjective experience.

A number of commonly used indicators were discussed. These included: motivational trade-offs, where an animal weighs a negative experience such as pain against a reward; flexible self-protection, where it attends to and protects an injured body part over time; forms of learning associated with harm avoidance; responsiveness to analgesia or anaesthesia; and evidence of optimism, pessimism, or play. The speaker argued that these kinds of behaviours are particularly informative because they suggest not just automatic reaction, but evaluation, persistence, and context-sensitive decision-making.

Examples were drawn from across a range of invertebrates. Octopuses presented a strong case, exhibiting behaviours such as site-specific grooming, protective responses, learning, and sensitivity to analgesia all of which suggest there should be a high level of concern about their welfare. Bumblebees were discussed in relation to cognitive bias, social transmission of information, trade-offs, and play-like behaviour. Crickets were used to illustrate self-protective grooming directed towards a site of noxious stimulation, while flies were discussed in relation to apparently intrinsically rewarding behaviour. These examples were used to show that some invertebrates display a range of traits consistent with sentience, even if the evidence remains incomplete or contested.

A major theme of the session was uncertainty. Dr White emphasised that there is no single gold-standard test for sentience, and that evidence must be weighed across behaviour, physiology, and theory. Invertebrates also cannot be treated as a single welfare category, given their enormous biological diversity. The absence of evidence for sentience in a particular group cannot therefore be seen as evidence that sentience is not present, and uncertainty is a poor basis for ignoring potential welfare concerns.

Instead, Dr White proposed a proportionate, precautionary approach, whereby ethical safeguards vary according to both the likelihood that an animal is sentient and the scale of the potential harm. Lower-risk situations might require, at minimum, full reporting, humane handling, and appropriate housing, while higher-risk uses would justify more formal safeguards and monitoring. The session concluded that progress in this area will require interdisciplinary work, bringing together animal behaviour, physiology, philosophy, and ethics to develop more defensible and transparent approaches to invertebrate welfare.

Welfare for the 99%

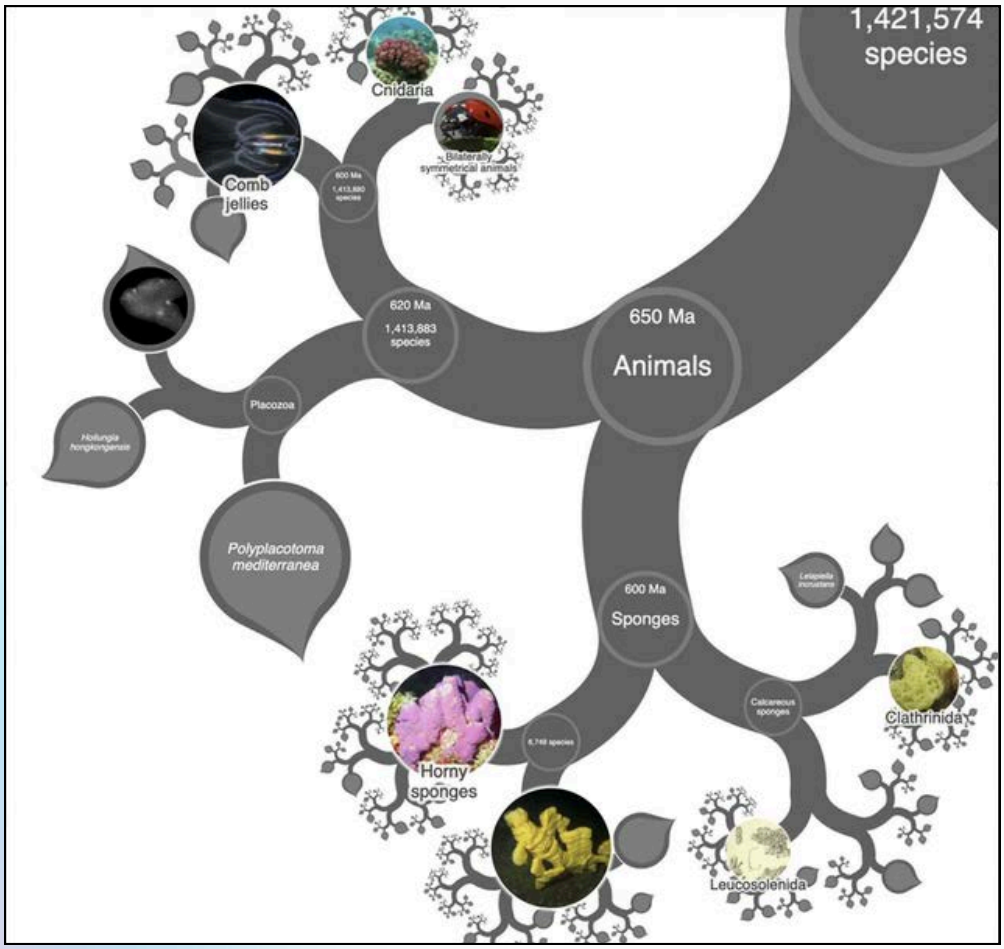

Figure 1. 99% of animals are invertebrates.

Figure 2. What sorts of behaviours can we consider markers of sentience?

Discussion 3

The ethical complexities of xenotransplantation

In this session, Professor Wayne Hawthorne, explored the ethical justification for using large animal models, particularly non-human primates, in transplantation research. Speaking from the perspective of clinical and experimental transplantation, Prof Hawthorne discussed work aimed at improving treatment for the millions of patients worldwide living with with type 1 diabetes through pancreas, kidney, islet cell, and xenotransplantation research. He stressed that although alternatives such as cell culture, organoids, computer modelling, and small animal models are essential and widely used, they cannot replace large animal models in answering certain critical questions about whole-body physiology, immune response, surgical technique, and safety.

Emphasising that animal research should not be framed as an all-or-nothing choice between one model and another, Prof Hawthorne described the approach taken, which begins with *in vitro* systems and small animals, then moving to pigs and, where necessary, to non-human primates. This progression is driven by the need to evaluate complex interactions in living systems and to test therapies under conditions that are as clinically relevant as possible. Because some antibodies and immuno-suppressive approaches do not translate well across species, non-human primates are particularly important in specific areas of transplant research, as they are often the only animals that can be used.

Xenotransplantation, is the transplantation of organs, tissues or cells from one species into another, and this session considered the ethical complexities of making transplantions into humans from other animals. Baboons are often used for this work as the best species that meets scientific considerations, international guidance and regulatory requirements. Concerns about the theoretical risk of xenotransplantation work triggering a new pandemic have led bodies such as the World Health Organization, FDA, TGA and NHMRC to require extensive non-human primate data before clinical trials can proceed, to meet the demands of a necessary but burdensome regulatory framework.

Working with complex animals such as baboons over time requires great care, and Prof Hawthorne described the long acclimation and training period, taking up to a year, that is needed before animals can enter a study. This period is needed for social adjustment, staff–animal relationship building, training for blood glucose monitoring, medication delivery, and tolerance of jackets, tethers, anaesthesia and post-operative procedures. The highly individual nature of each animal means that staff skill and consistency are critical, to minimise stress to the animals, their carers and the researchers. Once acclimatised, the baboons may remain on studies for years, making the team's commitment to excellent medical care, infection management, long-term monitoring and enrichment core to the success of this highly ethically complex scientific programme.

Discussion 4

The 3Rs: Overview and presentations

Professor Rooney opened the session by drawing attention to several developments shaping the current landscape of animal research, including renewed focus on lethality testing, advances in pharmacokinetics and pharmacodynamics, and the broader question of how safety and efficacy testing might evolve in the absence of traditional animal models. Framing this provocatively as “what if there was no canary?”, he invited the audience to consider how established approaches may need to adapt.

He then turned to international developments, highlighting recent announcements from the United States Food and Drug Administration (FDA) aimed at modernising regulatory approaches to animal testing. These changes, alongside policy direction in the United Kingdom and Europe, signal a broader shift towards streamlining safety testing and increasing the use of non-animal methods. Reference was made to key frameworks including the FDA Modernization Act, Article 13 of the European Union, and the European Commission’s 2023 roadmap on animal testing, all of which emphasise the growing role of New Approach Methodologies (NAMs).

Bringing the discussion back to Australia, Professor Rooney considered how these global shifts may influence the application of the 3Rs within the NSW context. He highlighted national initiatives such as CSIRO’s report on non-animal models and the establishment of NAT-NET, which aim to support the development and adoption of alternative approaches.

This framing set the scene for the session, positioning the 3Rs not as static principles, but as a framework that must respond to scientific, regulatory and societal change. Prof Rooney then introduced the subsequent speakers, who explored these themes through practical and research-based perspectives.

Image: Understanding Animal Research

The applicability of the 3Rs in our search for invertebrate sentience

Daniel Allman, The Invert BEACON Lab, The University of Sydney

Daniel Allman presented his research, examining sentience, welfare, and ethics in insects, along with many aspects of invertebrate behaviour. He presented research looking at whether the 3Rs can be meaningfully applied to higher-order invertebrates. His work considers the behavioural responses of ants and whether they can be considered sentient.

In this study, banded sugar ants (*Camponotus consobrinus*) were investigated to discover whether they show flexible and targeted self-protective behaviours in response to a potentially harmful stimulus. This type of behaviour is important because it may indicate that the ants display more than a simple reflex response in response to noxious stimuli, a factor in understanding whether invertebrates can experience pain or pain-like states.

Ants were gently restrained and one of their antennae was subjected to touch by a noxious heated probe, an innocuous unheated probe, or no probe. The ants' behaviour was studied to see whether and how they reacted to the stimulus. The aim was to see whether responses appeared to be directed or maintained, rather than the automatic reaction that might be expected from a reflex.

Previously, very few insect species have been studied for this type of behaviour. A harm–benefit analysis was used to assess the study and to guide decisions about sample size and experimental design, including the use of power analysis to minimise the number of animals used. Ecophysiological investigation was then used to refine the protocol further, ensuring that stimulus intensity was appropriate to elicit measurable responses while reducing unnecessary harm.

These elements were integrated into a precautionary investigation protocol, designed to systematically reduce impact on the animals while still allowing meaningful behavioural observations. The results of the study are currently being prepared for publication, but appear to indicate that the ants respond in a deliberate and directed way when their antennae come into contact with noxious stimuli.

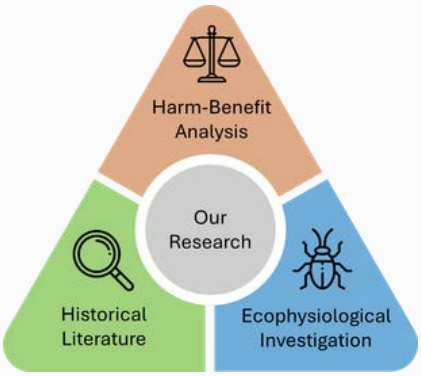

Figure 4. The Precautionary Investigation Protocol in insect research

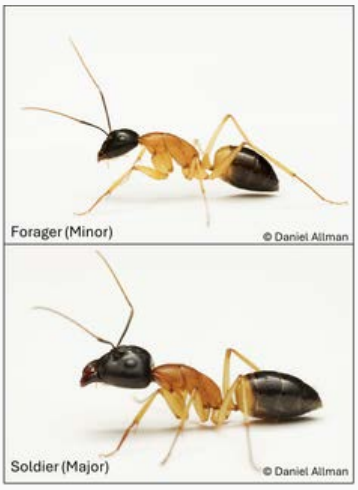

Figure 5. Banded sugar ants (*Camponotus consobrinus*)

Recycled native tissue scaffolds as advanced *in vitro* replacements for mouse models in pre-clinical drug testing

Mitchell Lockwood, Westmead Hospital, The University of Sydney

Mitchell Lockwood presented his work on the use of decellularised extracellular matrix models as a 3Rs-aligned approach to cancer research, with particular relevance to both reduction and replacement. His work develops native tissue scaffolds as an alternative to more conventional *in vitro* and *in vivo* systems, with the aim of improving the accuracy of drug testing while reducing reliance on animals.

Mitchell explained that in normal tissues, cells sit within an extracellular matrix, which is not simply a structural scaffold but also helps direct cell behaviour. Removing the cells from muscle tissue using a detergent-based decellularisation process, leaves a remaining matrix that retains much of the native structure and complexity of the original tissue. He described a proof-of-concept study whereby cancer cells are reintroduced into this scaffold to create a model that resembles the tumour environment more closely than standard 2D cultures or simpler 3D systems such as collagen hydrogels or spheroids.

Mitchell described his work to create a model for rhabdomyosarcoma, using muscle-derived scaffolds and patient-derived xenograft material from the Children's Cancer Institute. Comparing drug responses in native tissue scaffolds, spheroids, and 2D monolayers against existing *in vivo* data, Mitchell presented early findings showing that the muscle tissue had been successfully decellularised, that DNA removal was highly effective, and that rhabdomyosarcoma cells could be reintroduced and remain viable within the scaffold over time.

These early results suggest that native tissue scaffolds could become a valuable intermediate model - more biologically relevant than standard cell culture, less resource-intensive than animal studies, and potentially capable of refining how and when animal models are used.

Native tissue scaffolds have great potential to reduce the number of animals needed for preclinical drug testing, by making better use of tissue that would otherwise be discarded. In this project, the muscle tissue was sourced from mice already used in colony breeding or related research, allowing biological material to be recycled rather than wasted. This approach could extend beyond mice, with tissue potentially sourced from pigs, cows, and other scientific or industrial biowaste streams.

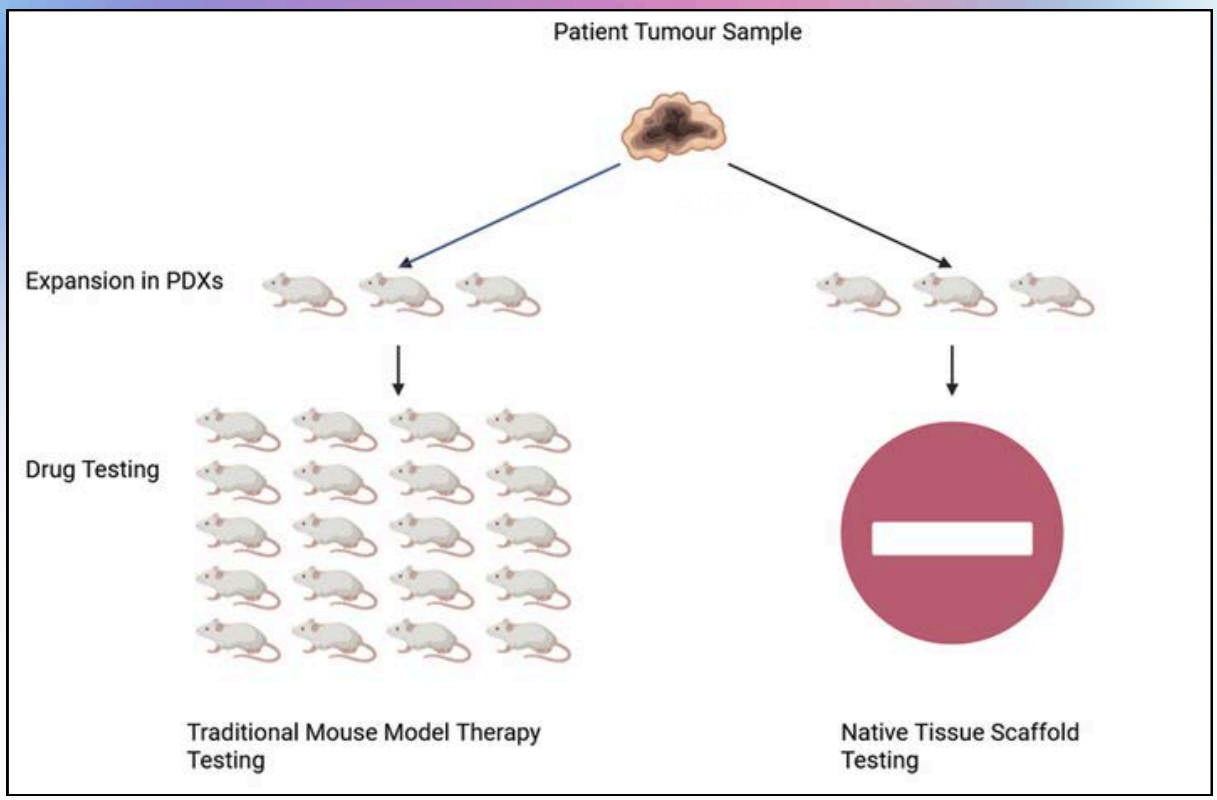

Figure 6. NTS covers both Reduction and Replacement. Animals are still being used, but the tissue is sourced from biowaste.

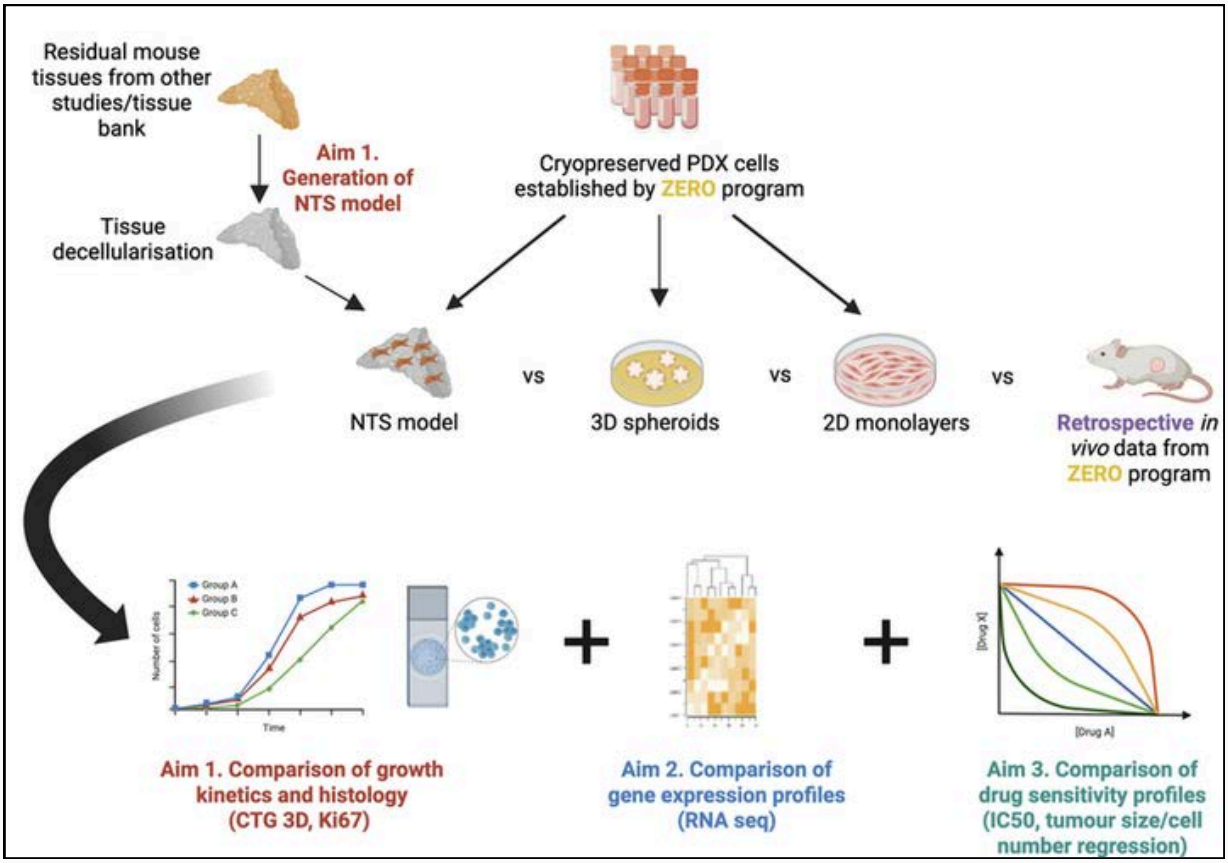

Figure 7. This study compared and molecularly profiled PDX mouse models, NTS, Spheroid, and 2D drug response.

Rehoming companion animals post-study

Dr Les Gabor, Elanco Animal Health

Dr Les Gabor shared the practical, ethical and regulatory complexities of rehoming research animals, particularly dogs used in commercial companion animal health studies.

Elanco's work focuses on animal safety, efficacy, palatability and pharmacokinetic studies, and is highly regulated. At Elanco Animal Health studies are carried out on the target species for a medicine or treatment, which is mandatory for registration of a new treatment. None of the companion animals on site, which are mostly purpose-bred beagles, are used for terminal work, and they are rehomed at the end of their working lives. However, recent legal requirements have significantly increased the scale of rehoming that is required in order to meet legal requirements.

The presentation gave detailed insight into Elanco's rehoming process. Dogs are socialised intensively throughout their lives, with staff spending several hours each day handling, training and preparing them for life beyond the facility. In the months before rehoming, animals are withdrawn from studies and given more focused preparation, including exposure to cars, houses, unfamiliar people and routine domestic experiences. Suitability assessments are carried out, with behavioural trainers and external organisations involved where needed, and post-adoption support is provided after placement. The extensive work in preparing the dogs for rehoming is very successful, but has limits, as not every animal is equally rehomeable, there are only so many suitable homes, and there are a relatively small number of reputable rehoming organisations.

Scientific work is subject to complex incentives, constraints and welfare realities that are not always reflected in policy. Recent regulatory changes around rehoming in New South Wales, despite an existing sophisticated and highly developed system, illustrate the unintended consequences of legislation developed without sufficient consultation or nuance, and applied too broadly across a varied sector.

Under recently introduced legislation, dogs must be rehomed three years after their first entry into a scientific study, which means that if dogs begin studies at nine months old they must be rehomed by the time they are only four years old. This regulation has increased the number of dogs needing rehoming by Elanco each year from around 20 to approximately 50, at an annual cost of about $500,000. It has greatly increased the numbers of animals that must be bred to meet regulatory requirements, and so has ultimately proved problematic for both scientific outcomes and animal welfare.

More broadly, while rehoming research animals should be supported, current rehoming requirements will not be sustainable without further reflection, refinement and more balanced engagement between regulators, industry and the wider research community.

Figure 8. Preparing for rehoming at Elanco

Figure 9. Elanco dogs and cats in their forever-homes

Annex I

Agenda

9:30 - 10:00 *Arrival and refreshments*

10:00 - 10:30 Welcome and introductions

10:30 - 11:30 Discussion 1: The role of the Chair

11:30 - 11:40 Comfort break

11:40 - 12:40 Discussion 2: “Non-sentient” models

12:40 - 12:45 Morning wrap-up

12:45 - 13:45 *Lunch*

13:45 - 14:45 Discussion 3: Ethical complexities

14:45 - 15:00 NHMRC’s review of The Code (pre-recorded)

15:00 - 15:20 *Afternoon break*

15:20 - 16:40 Discussion 4: The 3Rs

16:40 - 16:50 Closing remarks

16:50 - 18:00 *Drinks*

Annex II

Speakers

Dr Susan Maastricht

Director, Research Integrity & Ethics Administration, The University of Sydney
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Susan is a post-graduate qualified veterinarian who has worked in the vocational education, animal shelter, university and research sectors as a senior executive, manager and leader, with responsibility for the operation and management of complex scientific, educational and welfare facilities. She has extensive experience in human and animal ethics and welfare and has served on multiple advisory, ethics and management committees and boards. She is past president of several industry associations. Holding qualifications in business and teaching, Susan has held executive or senior management positions responsible for educational, research and welfare outcomes for the past 10 years. Her work focuses on integrity, and empowering individuals and teams to be accountable in their own domain.

Bella Lear

Chief Executive, Understanding Animal Research Oceania
ajlear@uaroceania.org

Bella is a science communicator, and social researcher who supports positive social change around scientific issues. As Head of Engagement at Understanding Animal Research, Bella created stakeholder and public engagement initiatives to change thinking about animals used in research. She was an instigator of the Concordat on Openness on Animal Research in the UK, which she led for many years, as a way to drive open and constructive communication between the research community, policy makers and the public. Now leading Understanding Animal Research Oceania, Bella provides communications support to build better understanding and representation of animal-based research in Oceania and Asia.

Professor Michael D’Occhio

Hon Prof. School of Life and Environmental Sciences, Faculty of Science, The University of Sydney

michael.docchio@sydney.edu.au

Michael D'Occhio is a reproductive biologist with a particular interest in early embryonic development and non-surgical fertility control. He was associated with the first immunocontraceptive vaccine for livestock, Vaxstrate, and continues to collaborate on the application of gonadotropin releasing hormone (GnRH) vaccines and GnRH agonists for fertility control in livestock and invasive pest species.

Dr Thomas White

Associate Professor, Invertebrate Behaviour, The University of Sydney

thomas.white@sydney.edu.au

Associate Professor Thomas E. White is an ecologist and entomologist at the University of Sydney, where he co-leads the BEACON Lab (Invertebrate Behaviour, Ecology, and Conservation). His research combines field and laboratory experiments, modelling, and meta-analysis to understand invertebrate behaviour and perception. He is deeply drawn to questions of invertebrate sentience, welfare, and ethics. This exciting work sits at the interface of biology, philosophy, and policy, with direct relevance to debates spanning these domains.

Professor Wayne Hawthorne

Prof. Transplantation, Westmead Clinical School, The University of Sydney
Director, National Pancreas and Islet Transplant Laboratories, Westmead Hospital
Director of the Xenotransplantation Research Program at The Westmead Institute

wayne.hawthorne@sydney.edu.au

Dr Hawthorne is the President of the International Xenotransplantation Association and the Australasian College of Biomedical Sciences, he has over 220 peer reviewed publications,12 book chapters and 600 published proceedings. Awards include: 2010 – XENOME Award for Transplantation from the European Union; 2007 – Key Opinion Leader in Transplantation (TTS); and 2003 the inaugural winner of the McKenzie Award for Outstanding Contribution to Transplantation (TSANZ).

Professor Kieron Rooney

Prof. Animal Research Ethics & Metabolic Biochemistry, The University of Sydney
Animal Research Review Panel (ARRP) Chair
kieron.rooney@sydney.edu.au

Since joining the University of Sydney in 2003, Kieron has been responsible for the design and implementation of curriculum in units of study that focus on metabolic biochemistry and exercise physiology. Kieron's research portfolio has included both human and small animal studies investigating the role of diet and physical activity on parameters of fuel storage and utilisation as they pertain to dysregulated metabolic states. More recently, Kieron has developed a research portfolio centred on the lived experience of those that use animals for scientific purposes and the parameters of a culture of care to address the needs of researchers with compassion fatigue. Kieron has served as a Category B member on the University of Sydney Animal Ethics committee (2015 – 2026) and on ARRP since 2019, taking the Chair in 2026.

Dr Les Gabour

Site Head Yarrandoo R&D Centre, Elanco Animal Health
les.gabor@elancoah.com

Les is a veterinarian and pathologist with 25 years' experience and is Site Head at Elanco's Western Sydney R&D centre. He has held roles as a government pathologist in Tasmania, diagnostic pathologist at the Atlantic Veterinary College, and laboratory leader at EMAI NSW. Since joining Elanco in 2010 as Head of Target Animal Safety, he has built extensive expertise in efficacy and safety studies across companion, farm and aquatic species, contributing to over 65 marketed products. Les has led the PCS laboratory at Yarrandoo for 15 years and held senior roles including Director of Study Execution and Laboratories, Animal Welfare Officer, and Site Veterinarian. He also founded Elanco's Medical Writing & Statistics function in Bangalore. He holds degrees from the University of Sydney and is a diplomate of the American College of Veterinary Pathologists.

Daniel Allman

Centre for Invertebrate Behaviour, The University of Sydney

Applicability of the 3Rs in Our Search for Invertebrate Sentience

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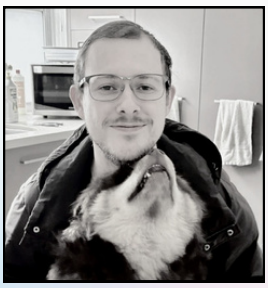

Dan Allman is a cognitive ethologist at the University of Sydney, specialising in invertebrate pain and sentience. Under the supervision of Associate Professor Thomas White, Dan is undertaking a PhD investigating behavioural responses to noxious stimuli in insect model species, and assessing these within emerging sentience frameworks.
While similar work has informed welfare protections for cephalopods and decapod crustaceans in the UK, significant gaps remain in understanding insect sentience. Insects represent over 90% of known animal species and underpin industries worth billions globally. Dan's research explores how evolving evidence may shape animal ethics and influence future human interactions with insects.

Mitchell Lockwood

Westmead Hopsital, The University of Sydney

A New Alternative Methodology for Animal Testing: Native Tissue Scaffolds (NTS)

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Mitchell Lockwood is a PhD student at the University of Sydney, based in the Seyedasli lab, Westmead Hospital. His work focuses on the development of decellularised extracellular matrices (dECM), an exciting alternative model for investigating cancer therapies. The promise of these dECM models lies in their replication of the native cancer environment, potentially offering a more accurate vision of therapy response compared to conventional approaches, and allowing for recycling and reducing the use of animals in studies, a goal which been central to his research for many years. His work represents an ongoing collaboration with the Children's Cancer Institute at UNSW, and its application to the 3Rs research goals.

Image: Understanding Animal Research

Annex III

Participating organisations

The University of Sydney	Understanding Animal Research Oceania
Children's Cancer Institute	NSW Department of Primary Industries and Regional Development
University of Western Sydney	University of New South Wales
University of Technology Sydney	Macquarie University
ANZCCART	The Garvan Institute
Children's Medical Research Institute	ANZLAA
Sydney Local Health District Animal Welfare Committee	

Annex IV

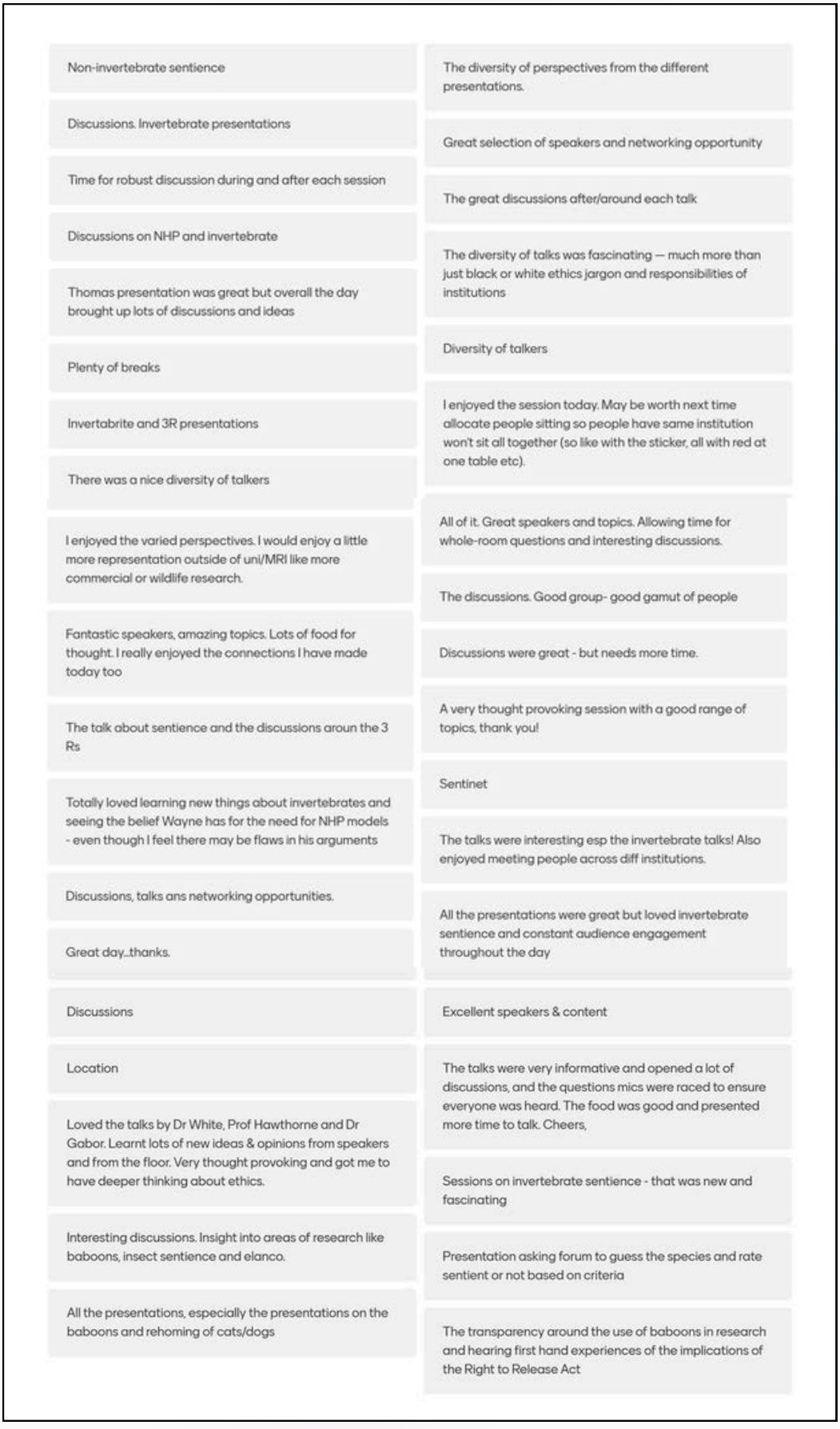
Participant feedback

Overall experience

Overall comments

Thank you to the organisers.	Well done, can't wait to see more
None come to mind	No
Thank you for hosting!	Nothing from me
Valuable forum, will recommend to peers	Kudos to the organisers, great forum
Thank you! 😊	Wonderful day!
Na	Well done Bella. Brilliant program once again
The conference was well organised, great speakers and generated so much discussions! Well done!	

The best bit



Non-invertebrate sentience

Discussions. Invertebrate presentations

Time for robust discussion during and after each session

Discussions on NHP and invertebrate

Thomas presentation was great but overall the day brought up lots of discussions and ideas

Plenty of breaks

Invertabrite and 3R presentations

There was a nice diversity of talkers

I enjoyed the varied perspectives. I would enjoy a little more representation outside of uni/MRI like more commercial or wildlife research.

Fantastic speakers, amazing topics. Lots of food for thought. I really enjoyed the connections I have made today too

The talk about sentience and the discussions aroun the 3 Rs

Totally loved learning new things about invertebrates and seeing the belief Wayne has for the need for NHP models - even though I feel there may be flaws in his arguments

Discussions, talks ans networking opportunities.

Great day..thanks.

Discussions

Location

Loved the talks by Dr White, Prof Hawthorne and Dr Gabor. Learnt lots of new ideas & opinions from speakers and from the floor. Very thought provoking and got me to have deeper thinking about ethics.

Interesting discussions. Insight into areas of research like baboons, insect sentience and elanco.

All the presentations, especially the presentations on the baboons and rehoming of cats/dogs

The diversity of perspectives from the different presentations.

Great selection of speakers and networking opportunity

The great discussions after/around each talk

The diversity of talks was fascinating — much more than just black or white ethics jargon and responsibilities of institutions

Diversity of talkers

I enjoyed the session today. May be worth next time allocate people sitting so people have same institution won't sit all together (so like with the sticker, all with red at one table etc).

All of it. Great speakers and topics. Allowing time for whole-room questions and interesting discussions.

The discussions. Good group- good gamut of people

Discussions were great - but needs more time.

A very thought provoking session with a good range of topics, thank you!

Sentinet

The talks were interesting esp the invertebrate talks! Also enjoyed meeting people across diff institutions.

All the presentations were great but loved invertebrate sentience and constant audience engagement throughout the day

Excellent speakers & content

The talks were very informative and opened a lot of discussions, and the questions mics were raced to ensure everyone was heard. The food was good and presented more time to talk. Cheers,

Sessions on invertebrate sentience - that was new and fascinating

Presentation asking forum to guess the species and rate sentient or not based on criteria

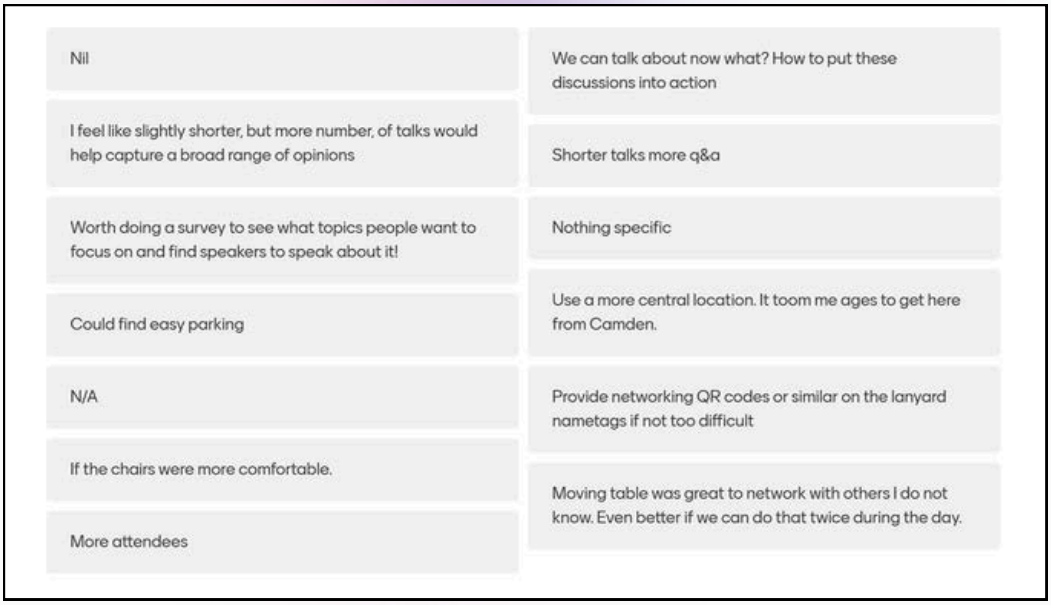
The transparency around the use of baboons in research and hearing first hand experiences of the implications of the Right to Release Act

The worst bit

Participants learned

Bumble bees like to play	The question of sentience
How AEC groups work	Maple syrup contains protein
Need to reflect as so many things learned	Diversity of invertebrate species. Cellular matrix new method, impacts of rehoming changes
Sentient levels of bugs are awesome.	Invertebrates today!
The transplant talk was very good and the possibility of sentience in insects	Many interesting opinions and discussions, good opportunity to connect with others in the industry,
Invertebrate sentience assessment	Invertebrate diversity and emerging challenges in considering these dimensions of welfare.
The reactions to pain by insects, facinating!	
Slime mould behavior	Reasons for why we dont use pound animals. The NTS new alternative method for research. Baboons dont have the same rights as great apes.
The parameters by which sentience is being determined in invertebrate models	Alot about acec and challenges and acec in industry
Sentience in insects.	Invertebrate sentience
Xenotransplant in baboons - all the challenges faced by researchers and carers. Sentience in non-vertebrates - great exercises. Questions raised by Dr Gabor - thought provoking.	Legislative changes weren't consultative
	Invertebrate sentience, challenges of being a chair, challenges of primate work and amazing 3Rs initiatives. Loved Elanco session too
Some insects may be sentient	

Even better if...



Nil	We can talk about now what? How to put these discussions into action
I feel like slightly shorter, but more number, of talks would help capture a broad range of opinions	Shorter talks more q&a
Worth doing a survey to see what topics people want to focus on and find speakers to speak about it!	Nothing specific
Could find easy parking	Use a more central location. It toom me ages to get here from Camden.
N/A	Provide networking QR codes or similar on the lanyard nametags if not too difficult
If the chairs were more comfortable.	Moving table was great to network with others I do not know. Even better if we can do that twice during the day.
More attendees	

Annex V

Selected references & resources

The AEC Chair

NSW Animal Research Act, 1985
https://legislation.nsw.gov.au/view/whole/html/inforce/current/act-1985-123

https://www.nhmrc.gov.au/about-us/publications/australian-code-care-and-use-animals-scientific-purposes

Invertebrate sentience

invertbeacon.com

Robert W. Elwood, Mirjam Appel (2009) Pain experience in hermit crabs? Animal Behaviour, 77, (5), 1243-1246,
DOI: https://doi.org/10.1016/j.anbehav.2009.01.028.

Robyn J. Crook (2021) Behavioral and neurophysiological evidence suggests affective pain experience in octopus, iScience, 24, (3)
DOI: https://doi.org/10.1016/j.isci.2021.102229.

Hiruni Samadi Galpayage Dona, Cwyn Solvi, Amelia Kowalewska, Kaarle Mäkelä, HaDi MaBouDi, Lars Chittka, (2022) Do bumble bees play? Animal Behaviour, 194
DOI: https://doi.org/10.1016/j.anbehav.2022.08.013.

Oscar Manzi, Kate E. Lynch, Daniel M. Allman, Tanya Latty, Thomas E. White (2025), Flexible Self-Protection as Evidence of Pain-Like States in House Crickets. bioRxiv 2025.09.12.675781.
DOI: https://doi.org/10.1101/2025.09.12.675781

Xenotransplantation

Hawthorne WJ, Pierson RN, Buhler L, Cowan PJ, Fishman J, Bottino R, Meier RPH, Brenner P, Wolf E, Cozzi E, Mohiuddin MM (2025), International Xenotransplantation Association (IXA) Position Paper on the History, Current Status, and Regulation of Xenotransplantation. Xenotransplantation 32(2).
https://dx.doi.org/10.1111/xen.70002

3Rs

Russell, W.M.S. and Burch, R.L. (1959) The principles of humane experimental technique, London: Methuen & Co. Limited.

Norcopa website with details of 3Rs centres and events worldwide https://norecopa.no/

NC3Rs is the UK 3Rs centre. There website contains many valuable resources for driving the 3Rs
www.nc3rs.org.uk

3RsC is the 3Rs Collaborative (US-based), with a wide range of free resources. https://www.3rc.org/

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