JUNE 2024

ABNA EXCHANGE

OFFICIAL NEWSLETTER OF THE AUSTRALASIAN BIOSPECIMEN NETWORK ASSOCIATION

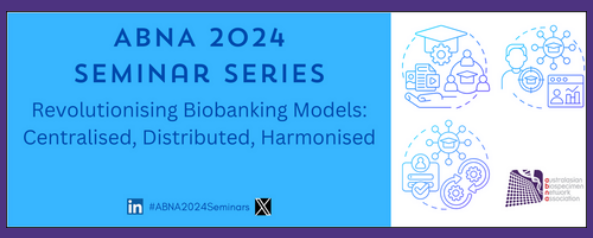
ABNA seminar series

"Revolutionising Biobanking Models: Centralised, Distributed, Harmonised," ABNA seminar series is in full swing!

Seminar 2 focused on distributed models of biobanking "Thinking Outside the Box - Breaking Away from Centralised Models"

We were treated to enlightening presentations from Kim Labuschagne, the Biobank Curator at the South African National Biodiversity Institute (SANBI) Wildlife Biobank; Caspar Barnes, the founder of the New York based decentralised biobanking startup AminoChain and Claire Davies, the Project Manager of the Translational ANZGOG ('TR-ANZOG') research initiative.

Stay tuned for Seminar 3, "Harmonised Biobanking: Ensuring Consistency across Biospecimen Research" scheduled for August 13th. This event will feature another incredible line-up of biobanking experts. Keep an eye out for more details!



Happy Winter Solstice!

Welcome to the June edition of ABNA Exchange. We are thrilled to celebrate the winter solstice, not only because the days will start getting longer but also because it brings us closer to ABNA 2024, scheduled for **October 16-18** in Adelaide! Registrations are now open, so be sure to sign up before **31 July** to take advantage of early-bird rates. Don't forget to check out the preliminary program and the list of confirmed speakers on the conference website.

In this edition, our "5 Minutes with a Biobanker" segment features Marta Castelhano, Director, Cornell Veterinary Biobank, who recently received the ISBER 2024 Outstanding Achievement in Biobanking Award. Also keeping on theme, enjoy a compelling article on the significance of veterinary biobanking by Cassandra, complete with an adorable image of her very own fur baby.

As always, we bring you a roundup of the latest biobanking news. This edition includes a key achievement from the Estonian Biobank, the opening of the Australian Human Microbiome Biobank and NASA's Astronaut Health Biobank.

Happy reading!

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A Paw And A Purpose

By Cassandra Griffin

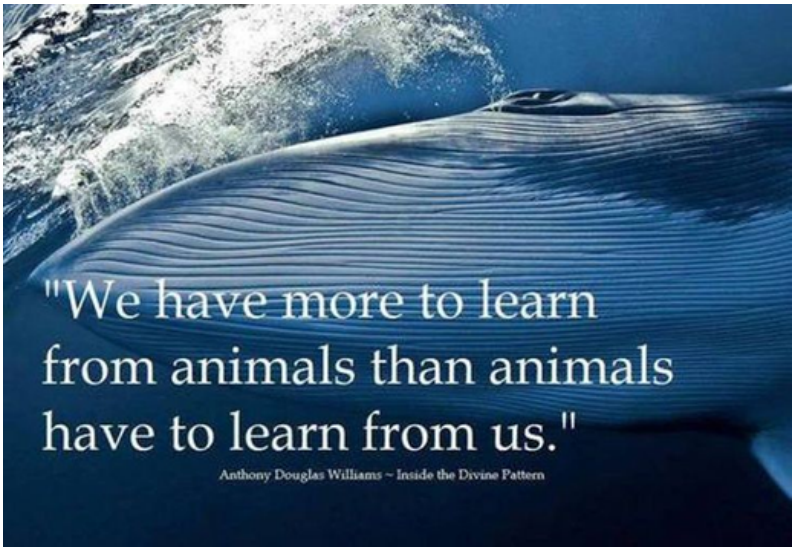


Image credit: One Green Planet: https://www.onegreenplanet.org/

Fur, feathers or flippers the symbiotic relationship between animal health and human health is well characterised. Veterinary biobanks take all forms, ranging from reference laboratories investigating the role of animal reservoirs of zoonotic disease, to historical and evolutionary animal repositories to vast ollections of bio specimens from wild animals and domestic pets. These banks are crucial in monitoring infectious diseases, providing pre-clinical models for translational research, environmental surveillance, the protection of bio-diversity and, in the future - possibly even de-extinction!

Spotlight on Stakeholders: How do Pet Owners feel about Veterinary Biobanking?

I'm a fur mum, photo below (you're welcome!). Like a human parent, pet owners are required to provide consent for collections from domestic animals. But how do domestic pet owners feel about biobanking?

McEnhill, Borghese and Moore in their Feb 2024 work explored this question using a survey based study. Their study found that 89% were willing to allow their healthy pet to contribute samples and 95% were willing to consent to collection from a sick pet. Financial incentives were not a significant factor in decision making. Much like with human biobanks, common concerns included questions over security/confidentiality of data, concerns that data or incidental findings may not be shared with them or that samples would be used for purposes other than those discussed.

Respondents agreed that their pets participation would increase the chance of a cure for future animals (91%); they hoped that their contribution would help another family and their pet with a similar condition (91%); that they were helping veterinarians with their efforts (89%). Most also strongly agreed that contributing would increase the chance of a cure for future humans with the same condition (73%)

Read more on their work HERE

A Cornell Translational Biobank - Igniting a Health Revolution

Nestled amidst the scenic beauty of upstate New York, a biobank at Cornell University is establishing itself as a revolutionary force in health research. The Cornell Veterinary Biobank (CVB) curates a vast collection of biological samples, spanning from majestic mammals to nature's tiniest beings, housing over 50,000 samples from 26 different species.

Notably, the CVB has achieved a significant milestone by becoming the first biobank to ever reach an ISO 20387 accreditation. This accreditation underscores the CVB's commitment to adhering to the highest international standards for quality and competence in biobanking practices, ensuring that its efforts lead to impactful discoveries across diverse species and disciplines.

Susan Garrison, BT LVT, Assistant Director, Biobank Clinical Services. Image provided by Cornell University, College of Veterinary Medicine

The CVB is bridging the gap between laboratory innovations and real-world clinical impact, benefiting both human health through translational research and the well-being of various animal species. Over 100 research projects are currently utilising the biobank's resources, positioning the CVB at the forefront of advancing scientific knowledge in areas like cancer, aging, and Alzheimer's Disease.

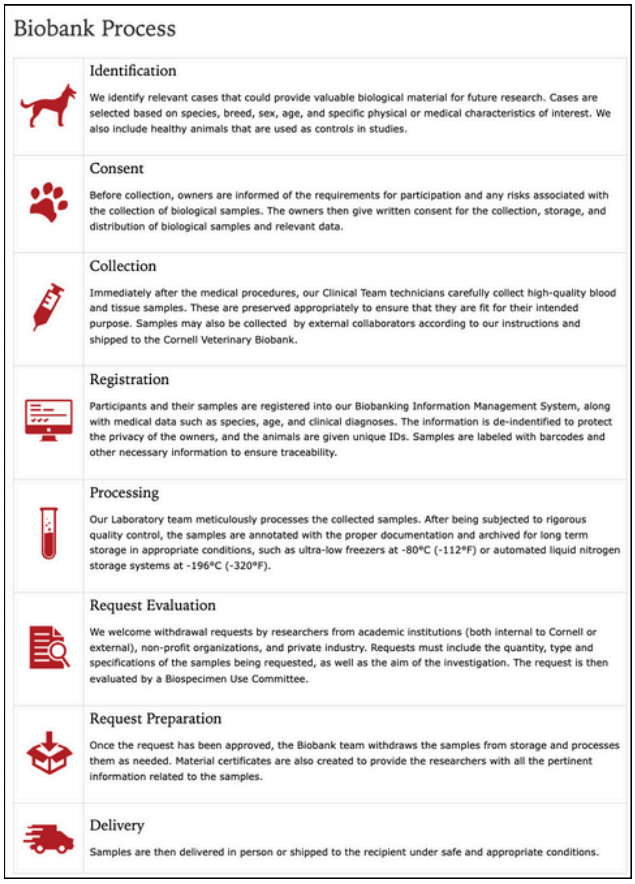


Image provided by Cornell University, College of Veterinary Medicine

Beyond its immediate impact, the CVB also plays a vital role in safeguarding genetic diversity within its unique samples.

Growth and Impact Highlights:

- Collection Size: As of March 2024, the biobank has grown to include samples from 31,433 unique animal donors.
- Sample Utilisation: The utilisation rate of core samples from January to December 2023 reached an impressive 91.9%, showcasing the biobank's effectiveness in supporting vital research.
- Research Support: In 2023, the CVB actively supported 23 research projects and facilitated 10 grant applications, fostering collaboration and driving scientific progress.
- Client Breakdown: The majority of clients (80%) are internal to Cornell, with the remaining representing external academic and private sector partners, creating a diverse and collaborative research environment.

The CVB continues to be a driving force in the field of biobanking, paving the way for breakthroughs in disease diagnosis and treatment for animals and humans.

Instituto Zooprofilattico Sperimentale delle Venezie (IZSVe)

75% of diseases in humans discovered in the last decade were caused by zoonotic diseases. Due to the vast movement of both animals and humans, pathogens are spread faster than ever before, highlighting the importance of reference laboratories storing biospecimens for cross-species surveillance. The IZSVe Biobank, located in the Padua province of Italy, 44km west of central Venice, stores samples from national and international reference laboratories such as the World Organisation for Animal Health, WOAH. The IZSVe Biobank is a partner of VetBioNet, an infrastructure project funded by the European Union to ensure access to BSL3 facilities and catalogued biospecimen collections supporting vital research into epizootic and zoonotic diseases, carried out in a best practice environment.

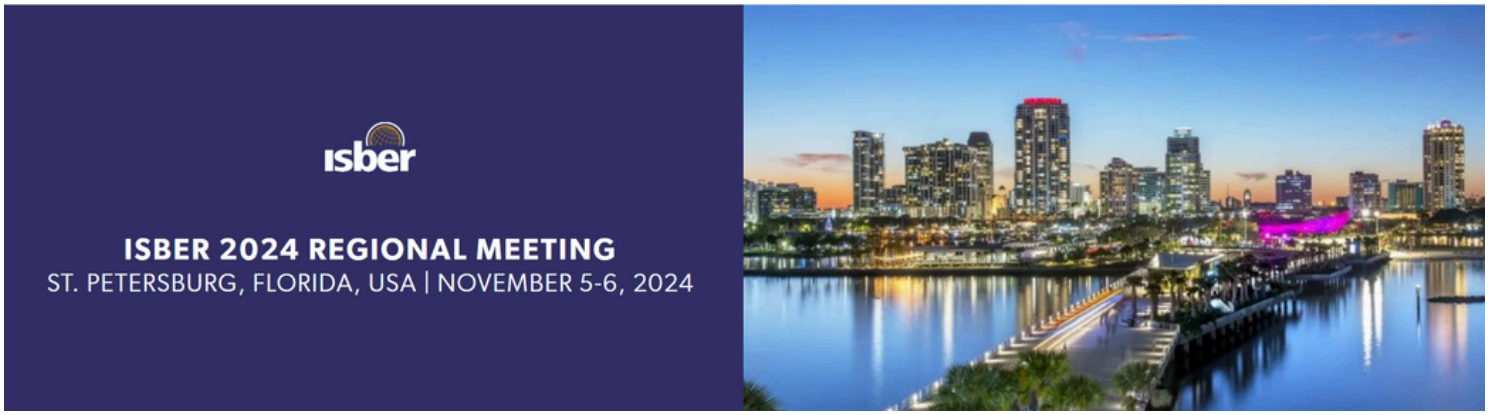
Protecting Biodiveristy - frozen arcs and pathways to de-extinction

Photo Credit: The University of Melbourne - find an expert

For anyone who attended the recent ISBER meeting in Melbourne or via the online platform, you'd certainly be familiar with Professor Andrew Pask and his efforts to utilise biobanked samples to enable the return of the Thylacine to Tasmanian shores.

If you missed out, fear not - ABNA's Vice President Louise Ludlow prepared a brilliant write on Prof Pask's work in our November issue for 2023!

Australia is home to some of the most remarkable species on earth, many of which don't exist anywhere else. In addition to the Thylacine, Prof Pask and his team at the Australian Frozen Zoo are combining the power of museum collections, newly catalogued collections and advances in molecular genetics, with the aim of ensuring that Australian species are never truly lost, and that diversity within species can be preserved despite the threats from introduced species, habitat loss or climate change. The Frozen Zoo is a living biobank which cryogenically stores tissues and cell lines and is funded by an ARC Linkage grant. The Frozen Zoo mimics similar collections internationally, however Australian species are under represented or absent in these collections. By developing methods and pipelines for routine collection and cryopreservation of animal cells, the project hopes to shift the focus of museums from simply documenting ongoing losses of biodiversity, toward prevention.



5 Minutes with a Biobanker

We approach a different professional in the biobanking arena with the same five questions each month.

This month Marta Castelhano, Director, Cornell Veterinary Biobank answers our questions.

In 2019 Marta and her team were the first biobank to achieved international accreditation under the ISO20387 global standard. Earlier this year Marta was awarded the ISBER 2024 Outstanding Achievement in Biobanking.

THE QUICK QUESTIONS

Chilli on food?

None for me thanks

What is better the book or the movie?

Book - The written word is a beautiful form of art. I am fascinated by perspective and the richness that lives within others. I also like the concept of a Human library, as many people with great wisdom and beautiful stories maintain and preserve their history through oral tradition.

Is it football or soccer?

Football IS soccer!!

Are you usually 5min early or 5min late?

5 minutes early - Being early is what I claim for myself. I believe people's time is their most precious gift. I like to honour it by being early and fully present in my connection with others.

1. **How long have you been working in biobanking?**
   18 years and 5 months
2. **What has shaped your views on biobanking?**
   My time serving my mentor and dear friend Dr. Kristy Richards in her "Women Warrior" group, as she navigated her last few months fighting an aggressive cancer. Her resilience and optimism (she refused to let cancer take away her positive outlook on life) was a powerful life lesson. I now believe there is beauty and power in grief, as it comes from great love. I try to serve our donors with the same spirit, knowing their legacy lives on within our freezers.
3. **What is the craziest thing you have done to save a sample/s?**
   I may or may not have created a whole new workflow to get some pleural effusion samples from a cancer patient (Human) to the hands of a researcher they wanted to contribute to. I serve animal donors in my day job, but I also enjoy being of service to their humans.
4. **What has been your favourite moment (so far) in your biobanking career?**
   My most unforgettable moment in biobanking, so far, was the day we were audited for accreditation, just four days after losing my mentor and friend, Kristy. Tears welled up during the opening session, and Lin Lin, a cherished colleague and laboratory specialist, held my hand, and stopped the meeting so I could be present to my grief. There was nothing more important to do at that moment. I felt Kristy's presence in Lin's hands. And the rest is (Biobank) history!
5. **What was the last conference you attended and where was it?**
   ISBER annual conference in beautiful Melbourne, Australia where I was honored with the ISBER 2024 Outstanding Achievement in Biobanking Award!

Biobanking in the news

Australian Human Microbiome Biobank

Opened on June 19th at Brisbane's Translational Research Institute, QUT's The Australian Human Microbiome Biobank (AHMB) is funded by a $3 million Medical Research Future Fund National Critical Research Infrastructure grant.

Lead by internationally recognised microbiologist, AHMB director QUT Professor Gene Tyson's team includes some of Australia's leading scientists who are building this valuable resource to help researchers around the world study the way the human microbiome influences a wide range of disorders. "The overarching goal of the biobank is to expedite the discovery and development of new microbiome-based treatments for diseases, and to improve wellbeing for everyone," Professor Tyson said. AHMB is based within the Centre for Microbiome Research which develops novel culture-independent molecular approaches and bioinformatics tools to answer important questions about the role of microbial communities in human and environmental health. AHMB is seeking donations of gut, oral, skin and vaginal microbial samples to culture and study.

Estonian Biobank Participant Portal

Earlier this month the Estonian Biobank at the University of Tartu launched their portal, which gives biobank participants personalised information on their genetic predisposition to diseases, compatibility of medicines and ancestry information.

As a part of the portal, questionnaires are used to collect data for research on how participants perceive the results, and how genetic data can influence people's future behaviour. Almost a fifth of Estonian adults, more than 210,000 people, have joined the Estonian Biobank. One of the goals of the biobank participant portal is to influence people's health behaviour in a way that helps them reduce their risk of diseases. The risk assessment models used in the portal have been adapted for the Estonian population.

NASA Astronaut Health Biobank

Recognising the value of spaceflight and space-relevant data, NASA established the Open Science Data Repository (OSDR) as a centralized hub for hosting diverse space biology datasets—including 'omics and non-omics data—facilitating public accessibility for analysis.

Now with increased spaceflight travel from the commercial spaceflight sector, more biological samples can be taken to improve our understanding of how the space environment affects human health. The 2021 SpaceX I4 mission marked a significant milestone as the first privately chartered spaceflight crewed entirely by civilian astronauts. During this mission, a wealth of 'omics and phenotypic biological measurements were collected from the four astronauts, yielding a comprehensive Space Omics and Medical Atlas (SOMA). The SOMA initiative presents an in-depth map elucidating the physiological ramifications of spaceflight on the human body. This collaborative endeavour resulted in the synchronised release of 44 publications in Nature Press documenting the molecular, cellular, physiological, and phenotypic changes observed during spaceflight.
Check out the wealth of astronaut studies and space biology knowledge in this latest SOMA package published in Nature Press