MAY 2024

ABNA EXCHANGE

OFFICIAL NEWSLETTER OF THE AUSTRALASIAN BIOSPECIMEN NETWORK ASSOCIATION

2024 Keynote Speakers

In a first for ABNA, this years conference will feature not one but two keynote presentations.

We are excited to announce Dr Jillian Garvey and Associate Professor Steven Salisbury as our keynote speakers. Jillian and Steven will combine their expertise and research fields of native Australia animals in Indigenous archaeology and the evolution of Gondwanan continental vertebrates, respectively for their keynote presentations.

Jillian is a Senior Research Fellow in the Department of Archaeology and History at La Trobe University. Her research focus is combining Indigenous knowledge and western archaeology.

Associate Professor Steven Salisbury is from the School of Biological Sciences at The University of Queensland, where he is head of the UQ Dinosaur Lab and Chair of First Nations Engagement.

Click **HERE** for more details on Jillian and Steven and to see our confirmed invited speakers so far.

Just like that, May is here!

Welcome to the thrilling May edition of ABNA Exchange! With the ISBER virtual conference and Europe Biobank Week now behind us, it's time to turn our attention to another highlight of this year's calendar, ABNA 2024, taking place from October 16-18 in Adelaide! We are excited to announce our keynote speakers, Dr Jillian Garvey and Associate Professor Steven Salisbury, who will take us on an enthralling prehistoric adventure, linking native specimen collection with respectful Indigenous practices. Their insights promise to be both educational and inspiring, offering a unique perspective on our field. Mark your calendars — registration opens today, May 30th!

In this edition, our "5 Minutes with a Biobanker" segment features Amanda Moors from the National Institute of Standards and Technology Biorepository in the US. Plus, we shine the spotlight on three speakers presenting at Seminar 2 of the ABNA 2024 Seminar Series: "Thinking Outside the Box - Breaking Away from Centralised Models." There's still time to register!

As always, we bring you the latest news and fun facts about biobanking. Enjoy our fascinating piece on The Microbiota Vault, which will blow your mind! Additionally, catch up on the latest updates from the Karolinska Institute report and the Abu Dhabi Cord Blood Bank launch.

Stay tuned for more updates as we gear up for an exciting year ahead!

Georget

ABNA 2024 Seminar Series

Seminar 2: Thinking Outside the Box - Breaking Away from Centralised Models

25 June 3:30pm (AEDT)

Meet the Seminar 2 speakers. Register for the seminar series HERE.

KIM LABUSCHAGNE

Kim is currently the Biobank Curator at the South African National Biodiversity Institute (SANBI) Wildlife Biobank. She has worked in the biodiversity biobanking industry for close to 20 years - first as a student, and now managing this national collection. Kim is responsible for the long-term curation of the collection, ensuring national and international compliance relating to all biomaterials are in place, implementing best practices, and allowing access to the greater research and scientific conservation communities.

CASPAR BARNES

Caspar is the founder of the New York based decentralised biobanking startup AminoChain (a16z CSX 24). Caspar previously worked in B-Cell Lymphoma research at the Columbia Irving Medical Institute, where his main research interests were in HLA genomics and immuno-oncology. Caspar has a BA and a BSc in Economics & Neuroscience from University College London (UCL), a Masters in Management from London Business School (LBS), and a Masters in Biotechnology from Columbia University.

CLAIRE DAVIES

Claire is the Project Manager of the Translational Australia New Zealand Gynaecological Oncology Group (ANZGOG) research initiative. ANZGOG is the peak national gynaecological cancer research organisation in Australia and New Zealand. Claire has over 20 years' combined experience as a histology scientist and gynaecological oncology research coordinator/project manager, having worked in leading institutes in Australia and internationally, in both diagnostic and research settings, and author on multiple publications.

5 Minutes with a Biobanker

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

This month Amanda J. Moors, Research Biologist from the National Institute of Standards and Technology Biorepository USA answers our questions.

ABNA members who attended ISBER in Melbourne last month will recognise Amanda as one of the co-chairs of the 2024 Annual Meeting.

THE QUICK QUESTIONS

Chilli on food?

Yes

What is better the book or the movie?

Book - always the book

Is it football or soccer?

Football - We take our college football very seriously in the Southeastern United States! I am a Fightin' Texas Aggie through and through!

Are you usually 5min early or 5min late?

5 minutes late (but not my fault) - I hate being late

1. **How long have you been working in biobanking?**
   I have been a biobanker for a little over 18 years!
2. **What has shaped your views on biobanking?**
   My biobanking career has been shaped by two things; the people I have the opportunity to work with and the current events happening around the world. I have had the opportunity to work and collaborate with many different people and different organizations in my career, and each has shaped my career either as a mentor, collaborator, or friend through their research and mine.
3. **What is the craziest thing you have done to save a sample/s?**
   Does holding beluga whale flukes in the air to collect a fecal swab sample count? Or getting stuck in the mud to collect samples?
4. **What has been your favourite moment (so far) in your biobanking career?**
   For several years, I had the opportunity to travel to Alaska and collaborate with a multi-disciplinary research team to collect samples from beluga whales! We partnered with the native people of the Alaska region to locate the whales, collect samples, then release the whales back into the wild! It was an experience I will never forget.
5. **What was the last conference you attended and where was it?**
   International Society for Biological and Environmental Repositories (ISBER) in Melbourne, Australia!

Tales from the Vault ... the Microbiota Vault

by Dr Anusha Hettiaratchi

Taking inspiration from the Svalbard Global Seed Vault that safeguards the global diversity of food crop seeds, the Microbiota Vault is a global non-profit initiative that brings together a team of experts from 15 countries across 4 continents to do the same for microbial diversity.

The rationale for the Microbiota Vault initiative, published in Science in 2018, rests on the premises that
a) microbial diversity is of great importance for human well-being and health, and
b) microbial diversity is globally threatened by westernisation, urbanisation, and environmental change proceeding at an unprecedented pace, resulting in risks and lost opportunities.
The initiative strives to support the collection of this diversity while still possible, and to establish a safe repository for long-term preservation. With this focus on long-term preservation and international collaboration, the initiative differs from other microbiota collection efforts which are oriented only towards research and characterisation.

One Health, the integrated, unifying approach that aims to sustainably balance and optimise the health of people, animals and ecosystems recognises that the health of humans, domestic and wild animals, plants, and the wider environment (including ecosystems) are closely linked and interdependent. The Microbiota Vault is a global ecosystem supporting One Health; this holistic monitoring system will allow detailed insight into microbial biodiversity and genetic novelty on a global scale.

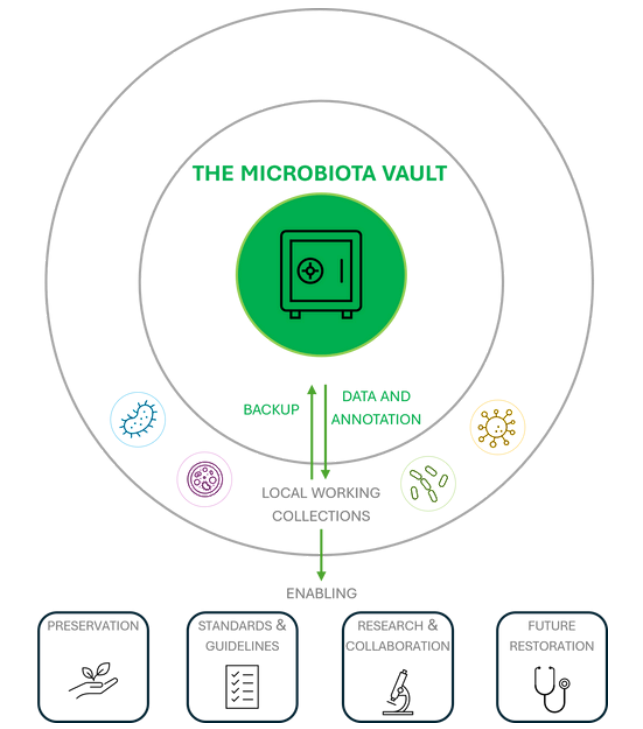
Global monitoring in the Microbiota Vault occurs via partnerships with local experts, whereby samples will be collected across a range of systems (human, agricultural, environmental) to preserve the microbiome from natural systems where the microbiome is still fully intact.

THE FRAMEWORK OF THE MICROBIOTA VAULT INITIATIVE

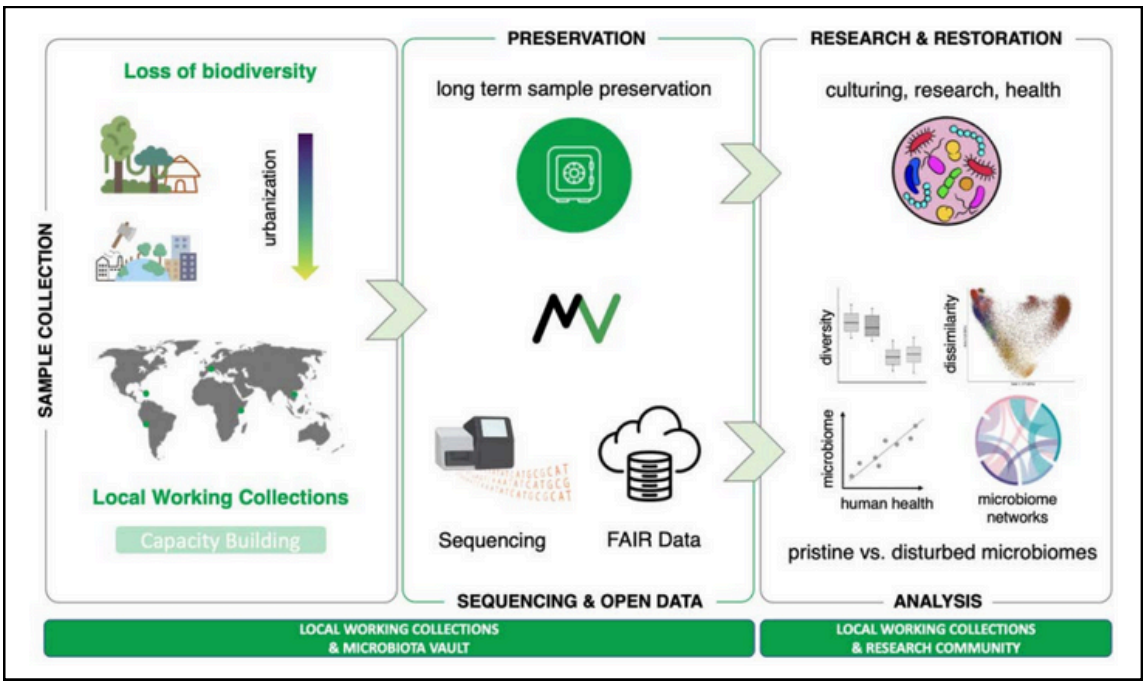
COLLECT: The Microbiota Vault closely interacts with local collections and research efforts all over the world.

PRESERVE: The Microbiota Vault acts on behalf of the local working collections, providing safe backup storage and a framework for data services and collaboration.

ENABLE: The Microbiota Vault empowers the research of the local working collections, helps set protocols and standards, preserves the biodiversity of microbiota, and allows future restoration of health.



Multiple DNA sequencing and metabolomics technologies are used to catalogue the genetic and biosynthetic diversity of samples stored in the Microbiota Vault, which will be released publicly as a reference dataset with extremely high potential for open research re-use. Similar to the Human Genome Project or Human Cell Atlas, the Microbiota Vault database aims to comprise a blueprint of the microbiota of humans, plants, animals, soils, and natural environments on a truly global scale, catalysing future research, innovation, conservation, and restoration.



The Microbiota Vault research ecosystem

Image source: https://www.microbiotavault.org/wp-content/uploads/2023/08/Microbiota_Vault_Twopager.pdf

A multistep process was set in place to realise the goals of the Microbiota Vault:

- A Feasibility study was carried out
- A Planning Phase preparing the launch
- The Launch Phase establishing a biobanking vault in Switzerland
- Scaling and expanding international connections

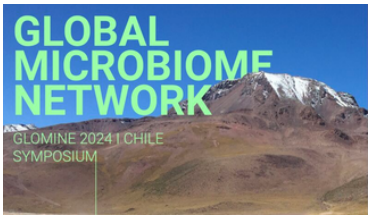
LAUNCH PHASE

The launch phase of the Microbiota Vault initiative commenced in Switzerland in 2022 as a collaboration with teams from the University Hospital Basel, the University of Basel, University of Lausanne, ETH Zurich, and Rutgers University. This phase established interaction between biobanking in Switzerland and Local Working Collections, including shipping of samples to the biobanking infrastructure, collecting metadata associated with these samples in an interoperable fashion as well as developing databases and platforms for the metadata. Development and validation of SOPs, including local capacity building - enabling Local Working Collections to collect and store valuable microbial diversity in a standardised manner. The establishment of annotation and a metagenomics framework was planned so as to lay the foundations for scaling the initiative.

In 2023 the collection was expanded to include fermented food microbiomes, supported by The Rockefeller Foundation and in collaboration with the Periodic Table of Food Initiative. The first samples arrived in the Microbiota Vault in Q2 2023. Collections established in the Launch Phase, comprising of approximately 2,000 samples included deposits initiated for 5 human gut microbiome collections (from Brazil, Ethiopia, Laos, Ghana, Switzerland) and for 4 collections of fermented food microbiomes (from Benin, Ghana, Laos, Thailand).

GROWTH PHASE I

The Microbiota Vault has now entered the next phase of development which will involve assisting the Local Working Collection efforts as well as widening the scope to environmental samples including their storage protocols. From 2024 - 2029 the samples in the Microbiota Vault are expected to expand to over 20 novel collections and greater than 10,000 samples. As part of Growth Phase 1 the vault operations will establish management capabilities to build the organisation and international network, to develop the required legal frameworks, and to drive the development at the political level.



Click on the image above to access talks from the 2024 virtual event

The Global Microbiome Network online symposium is one of the initiatives under the mission of the Microbiota Vault. The fourth annual symposium was held in January 2024 hosted by the Pontificia Universidad Católica de Chile featuring talks from the fields of microbiology, molecular biology, ecology, bioinformatics, anthropology, conservation, preservation, ethics, and public health. The symposium discussed and promoted the value of microbial biodiversity and the importance of conservation efforts; presentations can be accessed here. Previous symposiums focused on Asia (2023), Africa (2022) and Latin America (2021).

ETHICAL AND CULTURAL CONSIDERATIONS

While responsibility for samples remains with the depositors, it is the Microbiota Vault that defines criteria, standards, and a common ethical framework for this collaboration. This is particularly important regarding standards for informed consent and, in the context of metagenomic characterisation of samples, regarding standards for the protection of personal data.

As part of its activities with Local Working Collections in the developing world, the Microbiota Vault fosters a culture of participatory inclusion, respecting the interests of donor individuals and indigenous cultures. Collections always involve participation of local teams, which hold the permits, deposit in the local collection, and obtain the needed permits to deposit a backup in the Microbiota Vault.

To ensure that persons, institutions, and countries that contribute, for example by means of samples, receive equitable benefits for their contributions, the Feasibility Study states that the Microbiota Vault should protect the deposited samples, honour the right that the depositor holds on the samples, maintain public databases of samples and metadata (associated characterisation), and foster a culture of open access to this information whenever possible.

Built as 'a vault for humanity' we hope to bring you more tales from the Microbiota Vault as the initiative progresses.

Accreditation Matters 2024 NATA's event conference on accreditation and conformity testing is on June 25 - 26 in Sydney.

Of interest to biobankers: New Standards for Biobanks: Biospecimens as the New Currency of Research - discover the world of biobanks, what are they, why do they matter, how they are evolving to be the currency of the future and the value and benefits of accreditation in this important emerging area. This session will feature representatives from Australia's first NATA accredited (ISO: 20387) facility Monash University and Daniel Catchpoole from NSW Health.

Biobanking in the news

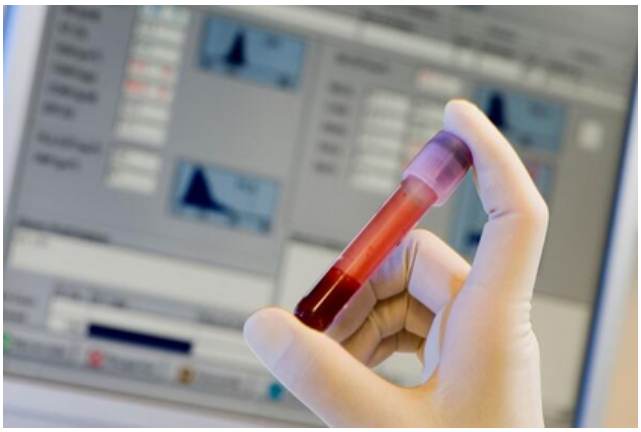
Karolinska Institute Report

On 12 April, the internal investigation into the freezer failure at the Karolinska Insitute was released by University Management. The incident where the supply of liquid nitrogen to 16 cryogenic freezers was interrupted on 22 December 2023 was the result of a bulk tank valve that was shut off when an oxygen-level alarm was triggered during a standard service operation and was not re-activated.

The investigation has shown that while this did not occur due to any single event or source of error, instead it was the result of multiple issues, such as organisational flaws including a lack of clarity in terms of job description, authorisation, communication and information sharing. The report also found shortcomings in assuring the necessary knowledge and skills for guaranteeing the function of critical systems.

Divided into three main parts: a technical investigation, an organisational investigation and recommended measures, the investigation identifies areas of improvement and proposes measures that should be investigated further in order to minimise the risk of anything similar happening again. The investigation recommends that the improvement work commences without delay and with clearly defined tasks and authorisations within the KI organisation.

You can read the detailed report HERE.



Abu Dhabi cord blood bank launch

The Abu Dhabi Biobank has been launched with its first offering being the regions largest hybrid cord blood bank. Located in M42's Omics Centre of Excellence, Masdar City, the biobank has state-of-the-art automated technology and best-of-its-kind large-capacity biobanking infrastructure.

The facility can safely preserve as many as 100,000 cord blood samples and five million pan-human samples, making it viable for research and therapeutic use for 30 years. It is hoped that the biobank will create a diverse dataset to provide ready and better-matched hemopoietic stem cells globally.

Announced during the Abu Dhabi Global Healthcare Week, the initiative aims to shorten waiting times for treatment, improve survival rates, and create a diverse, foundational bio-asset that supports treatments of rare diseases, early detection and disease prevention, life science research for medical innovation, and novel drug discovery targets.

The cord blood bank locally collects and preserves umbilical cord cells, offering donors the choice of preserving a newborn's stem cells at birth, for potentially lifesaving treatments, at no risk to them or their baby. It will strive to deliver the highest personalised, precise, high-quality, and preventative healthcare for all.