MAY | 2022

BIO-BABBLE

Newsletter of the Australasian Biospecimen Network Association

ABNA ANNUAL CONFERENCE UPDATE

As the weather starts to cool the conference committee are firing up to bring you a stellar 2022 conference! Speaker recruitment is well underway and we are delighted to have such strong interest from biobankers, industry and allied researchers. In a concerted effort to continue our commitment to diversity, the program will include speakers from biomedical, environmental, agricultural and veterinary disciplines, supported by workshops exploring data management strategies, social sustainability and the final of of our ABNA accreditation seminars.

Registrations are now open with abstract submissions to follow shortly. Details of submission requirements are available on our **website** and we encourage anyone considering submitting to please do so.

The categories for Abstract submission in 2022 are;

- Aquatic Biobanking
- Donors and Beneficiaries
- Challenging Ideas
- Precious Resources in Biobanking
- Agricultural Biobanking and Biodiversity
- Zoological Biobanking
- Biobanking and Innovation
- Biobanking Research (Network presenters and others)
- Other

For all other details on accomodation, conference dinner and updates to the program please visit our **website**

5 MIN WITH DR RONNY BARBER

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

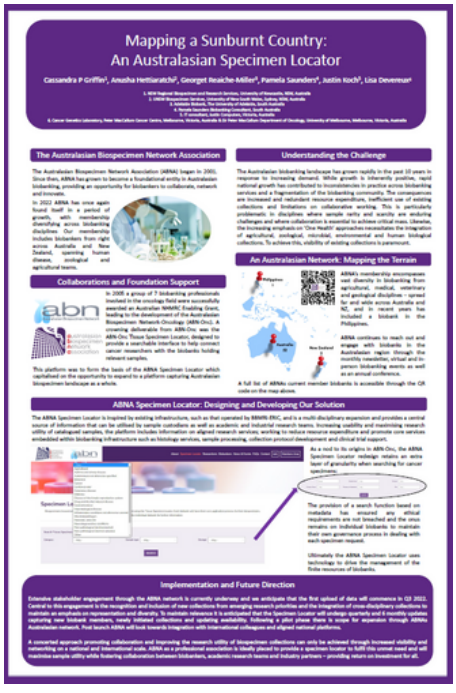
Dr Ronny Baber is the Head of the Leipzig Medical Biobank. He's a dog person, who will say yes to coriander on his meal and is a Star Wars fan. Dr Barber is one of the invited speakers who will be presenting in-person at ABNA's Annual Conference in Perth. If you catch him between sessions you'll notice he drinks either tea or coffee. Read more about Dr Barbers biobank **HERE**.

1. **How long have you been working in biobanking?**
   12 years
2. **What has been the biggest biobanking challenge you have faced in your career so far?**
   Setting up a state-of-the-art biobank infrastructure and filling it with ideas and samples is a big issue. But keeping it alive and sustainable is, in my opinion, one of the significant challenges for most biobanks. We always try to be open to different ideas and keep our eyes open to funding opportunities.
3. **What are you excited about that is happening in your biobank/what is your biobank doing that is new and innovative?**
   I think the combination of population-based and healthcare integrated biobanking in the Leipzig Medical Biobank is fascinating. Also, the option of recontacting study participants and patients for further exciting research questions is a big advantage.
4. **What is your one wish as a biobanker?**
   Biobanks are critical infrastructures but they don't have the reputation they need. My wish is that researchers and decision-makers see us as we understand ourselves.
5. **Three words that best describe your biobanking career:**
   Just two - straight forward ;)

SPECIMEN LOCATOR UPDATE

The publications sub-committee were proud to showcase the latest developments for the ABNA Specimen Locator during this years ISBER meeting. With the pilot phase of implementation currently underway, we will soon be inviting our members to submit their own data for inclusion into the ABNA national Specimen Locator.

To ensure consistency of data during input and upload, ABNA members will be provided with a standardised template developed to reflect a minimum essential dataset. Banks will also have the opportunity to include biobanking services or other offerings along with contact details for users to seek additional information. The intention is to facilitate 3-6 monthly updates to ensure data relevance but as always the committee welcomes feedback and input from our membership to ensure the greatest possible outcomes for our users and community.



ISBER 2022 ANNUAL MEETING

By Duncan Villanueva

In my role as Data Systems Manager for the Victorian Cancer Biobank (VCB) I manage the data systems, IT infrastructure and perform data analysis of our collected data. I have a strong interest in the implementation of biobanking data processes and standards, while ensuring the collection of high-quality data. Prior to joining VCB I have been part of multiple projects where I led the design, development, and implementation of clinical data management systems to support biobanking, investigator-driven clinical trials and translational research.

My journey to Atlanta was a long one, totaling nearly 24 hours in transit after departing from Melbourne. It was good to see airports returning to normal capacities, however, this meant longer waiting times during my connecting flights. While I have previously visited the US multiple times, this is my first time in Atlanta and this is my very first in-person overseas conference since the beginning of my career!

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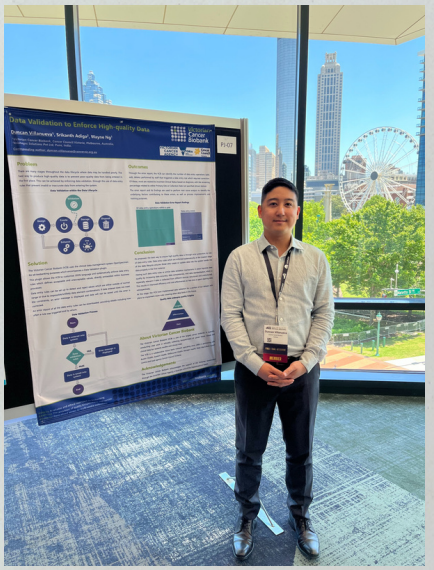
Day 1 of the conference and I was most fascinated by Professor Suzannah Williams' presentation on The Rhino Fertility Project and Beyond where she spoke on her efforts to save the northern white rhino. Due to issues with poaching, there are only two northern white rhinos on the planet, and neither is capable of carrying their own offspring due to health concerns and reproductive dysfunctions.

Prof Williams simplified the technical processes to culture ovarian primordial follicles using rhino ovarian tissue with the aim to generate eggs in vitro.

Conference set up on Day 1

Prof Williams detailed the numerous challenges along the way and how she has overcome them, including the difficulty to obtain rhino ovaries and the lack of publications regarding rhino ovaries. Fortuitously, this contributed to the creation of an animal biobank **Nature SAFE** which will enable future regeneration through animal cell and tissue preservation.



With my poster on Day 2

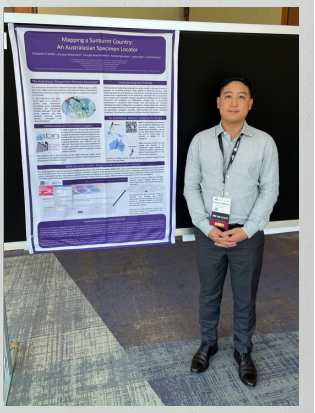
18 MAY

Day 2 and while all workshops during the concurrent session were quite interesting, I was most intrigued in learning about new cooling technology that will help preserve sample integrity and increase yield.

I ended up staying at the same workshop for the entire duration and didn't need to dash between sessions.

My abstract, titled *Data Validation to Enforce High-quality Data* was accepted for a poster presentation so I had the pleasure of meeting a variety of people who came to view my poster, and discuss my interests in data management.

I'm also pictured next to ABNAs poster: *Mapping a Sunburnt Country: An Australasian Specimen Locator.*



Standing with the ABNA poster

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Day 3 I attended the symposium on Differing International Biobanking Practices and Impact for Partnerships which aims to demonstrate the geo-diversity of biobanking in particular countries. Through the multiple guest speakers, I was able to learn about varying biobanking practices in Central Europe, India, Qatar, and the United States. My colleague Dr Wayne Ng, VCB General Manager presented on biobanking in Australia.

There was also a speed networking event and the ISBER AGM on today which I was not able to attend.

Dr Wayne Ng presenting

20 MAY

On Day 4 as a Data Systems Manager, I was very much looking forward to the symposium on Real World Data for Global Research Collaboration which aims to drive the discussion forward toward the future of biobanking and big data as well as expand data collaborations between researchers across high income and low and middle-income countries.

Prof Jennifer Byrne presenting

Dr Nikhil Sharma's presentation discussed the use of real-world data collected from around the globe to better understand the impact the microbiome has on drug response. Alice Matimba's presentation discussed the need for development of resources and training for genomics and data practices, and the successful global training program established at Wellcome Connecting Science. Dr Nicolas Wentzensen's presentation discussed the applications of artificial intelligence and risk prediction on cervical cancer.

Prof Jennifer Byrne, Director of Biobanking, NSW Health Pathology's presentation *The Impact of the Modified CTRNet Certification Program in Australia* was during the symposium titled *Quality in Context: A tool chest to shape the biobanking journey.*

As a first-time attendee, I really enjoyed my time at ISBER's 2022 Annual Meeting and would recommend others to attend if they have the opportunity. It was great to see many biobankers were able to attend in person, providing the chance to catch up with some familiar faces and make new connections with other biobankers. In the span of 4 days, there were many opportunities to have conversations with biobankers across the globe. I interacted with biobankers from several different countries representing institutions from the United States, Canada, India, Japan, Qatar, Singapore, South Africa, and the United Kingdom.

I learned a lot from the many fascinating talks, educational workshops, thought-provoking round table and panel discussions which covered a wide range of topics. I also had a lot of fun meeting with exhibitors and discussing how their innovative technologies may apply to the VCB.

Overall, this was a great experience which has really helped shape a global perspective around biobanking and the international challenges and considerations for biobanks back in Australia.

REGISTRATIONS FOR ISBER'S VIRTUAL MEETING (JUNE 14-15) WHICH WILL FEATURE SESSION RECORDINGS FROM ATLANTA ARE STILL OPEN. TO REGISTER, VISIT THE ISBER WEBSITE.

BIOSPECIMEN COLLECTIONS SHEDDING LIGHT ON ANCIENT LIFE

by Cassandra Griffin

Troy, Ephesus, Angkor, Delphi, Atlantis – all ancient city empires now in ruins that continue to captivate our interest. Often the base for works of fiction, these very real empires (well maybe not Atlantis) provide a plethora of archaebiological evidence that may hold the key to understanding our past. With continuing archaeological exploration around the world yielding novel discoveries at established and newly discovered sites, the opportunity to isolate biospecimens for botanical, zoological, entomological and biological research is limitless. While identification of samples leads to an abundance of source biospecimens, persistent challenges remain with respect to optimal methods for analysis. As such many biospecimens collected during archaeological investigations are banked in specialised facilities until such time that analytical techniques are optimised.

Unfortunately, as is the case in many sub-disciplines of biobanking, obstacles such as the need for centrally funded infrastructure, collaborative working networks and models of best practice persist. In Archaeological biobanking this means undermining our chances of unlocking the ancient rituals undertaken at Angkor, understanding the daily rations of a Trojan soldier under prolonged siege or mapping the biological line of the Delphic oracle. Once such program with an infrastructure network designed to overcome these challenges and pave the way for greater understanding of our Ancient predecessors is the Austrian Archaeological Institute (German: Österreichisches Archäologisches Institut (ÖAI)). Conducting research into some of the worlds most loved ancient communities, the Department of Bioarchaeology provides a model of cooperative, collaborative, centrally supported biospecimen analysis.

Reference biobank and Biospecimen Facilities at OAI

The anthropological laboratory was established in 2015 at the OAI in Vienna and provides a well-equipped space for researchers to carry out their macroscopic and microscopic analyses. An extensive reference library and comparative material for bone and tooth identification provides an essential resource for analysis and interpretation of results. Such reference collections are indispensable for archaeozoological identification of animal remains and can also be used for the education and training of students. The bone collection at the OAI also contains various marine and freshwater fish species which are used for the identification of archaeological fish remains. In addition to reference materials, internal collections include a large collection of human skeletal material, veterinary materials and botanical samples.

With an emphasis on core facilities, the laboratory has facilities for cleaning and processing human skeletal material for analysis, aided by the close proximity of the conservation and restoration department. Supporting a multi-disciplinary approach, the application of more complex analytical methods such as biomolecular investigations (stable isotopes, aDNA) or visualisations (SEM, X-ray, CT) is made possible through institutionally driven co-operations with external institutions across Europe and internationally.

The botanical reference collection is a collaborative collection with contributions and exchange agreements held between the University of Innsbruck, University of Vienna, University of Applied Arts , BOKU Vienna, Natural History Museum Vienna, the University of Hohenheim, and the KU Leuven. The collection comprises approximately 3,400 specimens of seeds and fruits mainly representative of central European and Mediterranean plants. These are complemented by special collections of woods and mosses.

Custody and Consent of Ancient Biospecimens

Navigating agreements regarding the custody of archaeological biospecimens is somewhat unique to this field, with conflicting views pertaining to 'ownership' and the input of discovery driven archeologists vs countries of origin. Indeed, in the past, failure to fully recognise the cultural significance and potential for cultural injury resulting from the removal of biospecimens from their country of origin has led to immeasurable harm. Consequently, transparent negotiations with the relevant authorities governing antiquities and museums in the respective countries of origin is essential to ensure that concerns over long-term custodianship of biospecimens does not impair scientific utility. Specifically for human remains, best practice emphasises the need for inclusion of all stakeholders including first nations or other relevant cultural groups.

Archaeobotanical and biological materials from archaeological excavations in central Europe and the Mediterranean are stored at the OAI depending on the agreements with the respective excavating institutions.

SNAPSHOT OF BIOSPECIMEN RESEARCH PROJECTS AT OAI

An Army Runs on its Stomach

Archaeological samples of prepared food contain information about both their ingredients and the techniques used to prepare them. These samples play a key role in the study of nutrition. The work of OAI scientists aims to develop a new understanding of the decision-making processes behind the selection of ingredients and processing techniques used to create these foods.

Flatbread © ÖAW-ÖAI/J. Kreuzer

OAI is dedicated to diachronically grain-based foods in all their breadth – from bread to beer. Using concrete objects from a wide variety of eras, standardized methodical bases for the analysis and interpretation of charred archaeological grain products are developed. Many earlier provisional findings have since been confirmed or expanded to include new findings from OAI's research, and some finds have also been completely revised. Numerous new identifications have been published, from flatbreads to dough rings to brewing residues.

Extensive stable isotope analyzes are being carried out in Ephesus, both in the context of necropolis research (we'll come back to that!) and archaeozoology. In order to be able to reconstruct the dietary habits of the Ephesian population, extracted proteins are assessed in order to subsequently determine the proportions of the stable carbon, nitrogen and sulfur isotopes. Based on the resulting isotope patterns, individual components of the diet – such as plant-based versus animal foods or land animals versus sea creatures – are identified. These can then be assessed further to gain an understanding of the food supply of the Ephesian population.

Learning from the Dead

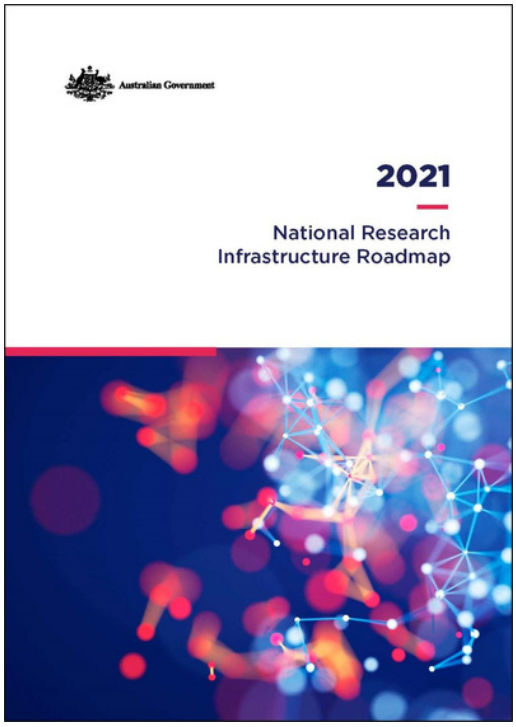
The discovery of a mass grave thought to be the resting place of Ephesian gladiators has led to a number of crucial bioarcheological investigations. Stable isotope and trace element studies lead researchers to reconstruct the diet, social stratification and migration of the inhabitants of Ephesus. Interestingly, double the normal strontium content was found in gladiator bones when compared to reference samples corresponding to the average population of that time. These findings are consistent with ancient reports of gladiator nutrition; a diet made up of barley and beans as well as a drink made with plant and bone ash, intended to serve as a dietary supplement for active gladiators. An increased ratio of acute dental caries was also noted, as well as reduced saliva levels which was believed to be associated with frequent physical stress.

Further studies focusing on osteological and forensic pathological examination provided insight into causes of death, injury, available gladiator weaponry, modes of combat, protective wear and what life may have looked like for surviving gladiators who succeeded in multiple rounds of combat and were granted freedom.

Skeletal remains from a gladiator 'Palumbos' from the necropolis in Ephesus.

The Library of Celsus, Ephesus.

NATIONAL RESEARCH INFRASTRUCTURE ROADMAP



National research infrastructure (NRI) refers to the:

- Facilities, equipment and resources that are needed to perform research
- Experts needed to run the infrastructure

NRI is a critical platform for the research sector including biobanking/biobanks.

Australian Government investments in NRI, guided by Roadmaps, funded by Research Infrastructure Investment Plans and enacted through the National Collaborative Research Infrastructure Strategy (NCRIS) program, have resulted in a mature and networked suite of projects supporting Australian research.

The 2021 National Research Infrastructure Roadmap was developed by an Expert Working Group led by Dr Ziggy Switkowski, AO. The Roadmap outlines national research infrastructure required over the coming decade to:

- maintain research excellence
- increase innovation and translation research outcomes
- address emerging research challenges.

Eight recommendations were made by the Expert Working Group and supported by public consultation:

- Adopt new NRI principles and specific investment principles to emphasise the importance of co-investment and planning and respect for Indigenous cultures and knowledges in research
- Provide continuity and long-term funding to the current network of NRI
- Adopt a challenge framework to support future NRI planning and investment
- Establish an Expert NRI Advisory Group to:
    - provide ongoing advice to government on planning and co-investment
    - develop a workforce strategy
    - review current facilities for greater integration and alignment
- Drive a more integrated NRI ecosystem
- Improve industry engagement with NRI
- Develop a National Digital Research Infrastructure Strategy
- Prepare Australia to tackle future challenges by undertaking a scoping study on a national approach to collections and considering action in four key areas:
    - National digital research infrastructure
    - Synthetic biology research infrastructure
    - Research translation infrastructure
    - Environmental and climate research infrastructure

The 2021 Roadmap will inform the 2022 Research Infrastructure Investment Plan.

Of particular interest to biobankers, within Chapter 4: Opportunities for system-wide enhancements in NRI, Section 4.3: Physical Collections and Biobanking, states that "Roadmap consultations highlighted the need for a skilled workforce and expertise to support physical collections and biobanking". While Chapter 6: Potential for Step-Change, Section 6.5 A national approach to collections - includes a scoping study to understand potential opportunities, including networking and leveraging existing investments.

ABNA ACCREDITATION SEMINAR 2

22 June, 12pm

Don't miss your chance to register for the two remaining Accreditation Seminar Series events. Session 2 will focus on local experiences of accreditation while Session 3 will take a critical look at both accreditation and certification.

Seminar 2 will have three presentations from the Biobanking Victoria team. Biobanking Victoria were the first biobank in Australia to achieve NATA accreditation to ISO 20387.

Seminar attendees will hear about the accreditation process from Prof Melissa Southey, Vivien Vasik and Helen Tsimiklis, the Director, Quality Manager and Biorepository Manager of Biobanking Victoria, respectively. Session 2 will be chaired by ABNA Management Committee member Samantha Higgins from Victoria Cancer Bank.

Registrations close 21 June, to register please visit our seminar website.

If you have any suggestions for a short article for Bio-Babble, please contact: abna.biobabble@gmail.com
Content deadline for June edition: 24.06.22

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