**MEDIA RELEASE**

**GLOBAL ISSUES ADDRESSED IN RESEARCH & INNOVATION CATEGORY AT 2022 AUSTRALIAN MUSEUM EUREKA PRIZES**

**From research into sustainable farming, 3D bio printing for ear reconstruction to modelling the spread of disease, innovative scientists tackle the big issues in the AM Eureka Prizes Research and Innovation category.**

**Sydney, 27 July 2022**: The **Australian Museum** (AM) today announced the 18 finalists selected in the **Research & Innovation** category at Australia’s leading science awards, the **2022 Australian Museum Eureka Prizes**.

With six AM Eureka Prizes in Research and Innovation, this category highlights the pioneering developments in Australian science. Prominent themes in the category this year include innovations in how we manage our changing environment and using advancements in technology to solve big issues.

Finalists in the Research & Innovation category include:

* **Sustainable Farms,** which uses large-scale studies toidentify how biodiversity responds to management changes on farms, and to share these insights with farmers.
* **NEW EARS**, a technique that combines innovative materials and prosthetics with new 3D bioprinting technology, creating the potential for low-cost reconstructive treatment globally.
* **Associate Professor James Trauer**, who leads a team that developed a novel software platform to enable advanced computer modelling of the spread of infectious diseases, including COVID-19 and tuberculosis.
* **Associate Professor Chris Greening**, who developed a comprehensive map of microorganisms responsible for methane cycling in environments and is translating these discoveries to reduce methane production in livestock, promote methane consumption in natural environments, and create carbon-negative pet food from waste gases.
* **Associate Professor Eric Chow, Professor Christopher Fairley, Professor Catriona Bradshaw, Professor Jane Hocking, Professor Deborah Williamson and Professor Marcus Chen,** whose researchestablished the role of saliva in transmission of STIs and pioneered resistance guided therapy – tailoring antibiotics to individuals to improve cure rates.
* **Dr Tess Reynolds,** who developed technology to better guide robotic imaging during surgery, improving the view for surgeons as well as outcomes for patients.

The AM Eureka Prizes are the nation’s most comprehensive science awards, offering $140,000 in prize money across a broad spectrum of research, from environmental to innovative technologies, citizen science, leadership and mentoring.

The winners of the 2022 AM Eureka Prizes will be announced on **Wednesday 31 August**at an awards ceremony held at the Australian Museum. An online livestream of the awards will also be open to all audiences to view on the night. Register for the livestream at [australian.museum/eurekaprizes](https://australian.museum/get-involved/eureka-prizes/).

For more information and a full list of 2022 Australian Museum Eureka Prizes finalists: australian.museum/eurekaprizes

**THE 2022 AUSTRALIAN MUSEUM EUREKA PRIZE FINALISTS IN RESEARCH & INNOVATION ARE:**

**NSW Environment and Heritage Eureka Prize for Applied Environmental Research**

**INFFEWS, Griffith University and University of Western Australia**

Integrating nature-based water management systems into urban design has many social and environmental benefits for the community. Such benefits are often overlooked when projects are evaluated for funding because financial impact is prioritised. INFFEWS changes this by providing comprehensive social, environmental and financial evaluation for balanced decisions.

**Sheriden Morris, Dr David Westcott, Dr Cameron Fletcher, Dr Mary Bonin and Dr Suzanne Long, Reef and Rainforest Research Centre**

Australia’s Great Barrier Reef faces many threats, including outbreaks of the coral-eating Crown of Thorns Starfish. In a world first, this team brought together by the National Environmental Science Program successfully applied principles of land-based Integrated Pest Management to effectively control this marine pest. On-water implementation of their research is already successfully defending live coral on the Reef.

**Sustainable Farms, Australian National University**

Large-scale studies conducted over two decades have enabled Sustainable Farms to identify how biodiversity responds to management changes on farms, and to share these insights with farmers. This research has also informed BirdCast, a digital tool that enables land managers to access the science and predict which birds may live in woodlands under different scenarios.

**Eureka Prize for Excellence in Interdisciplinary Scientific Research**

**The Extreme Heat and Health Adaptation Team, University of Adelaide**

Heatwaves are becoming more frequent and intense, posing significant health risks for Australians, particularly the elderly and chronically ill. Researchers collaborated with government agencies and migrant communities to develop and implement an innovative heat health warning system. Communicating warning messages can reduce the likelihood of heat-related illnesses and injury and improve workplace safety during heatwaves.

**Professor Manfred Lenzen, Professor David Raubenheimer, Dr Arunima Malik, Dr Mengyu Li and Navoda Liyana Pathirana, University of Sydney**

What we eat affects both individual and environmental health. Researchers from fields spanning economics, engineering and nutrition have developed advanced data modelling techniques to trace billions of supply chains, linking food producers and consumers. Their work highlights the drivers of dietary choice and is informing policy for the United Nations and other international bodies.

**NEW EARS, RPA Institute of Academic Surgery; University of Wollongong; and Chris O'Brien Lifehouse**

Ear reconstruction can involve several complex procedures, especially for children with congenital conditions. The NEW EARS team of scientists, clinicians and biomedical engineers has developed a single-step solution. Their technique combines innovative materials and prosthetics with new 3D bioprinting technology, creating the potential for low-cost reconstructive treatment globally.

**Australian Infectious Diseases Research Centre Eureka Prize for Infectious Diseases Research**

**Associate Professor Eric Chow, Professor Christopher Fairley, Professor Catriona Bradshaw, Professor Jane Hocking, Professor Deborah Williamson and Professor Marcus Chen, Monash University and University of Melbourne**

Rapid rises in sexually transmitted infections (STIs) are a growing concern internationally. Discoveries made by this team have informed new treatment guidelines and prevention strategies. Their research also established the role of saliva in transmission of STIs and pioneered resistance guided therapy – tailoring antibiotics to individuals to improve cure rates.

**Community for Open Antimicrobial Drug Discovery, University of Queensland**

The Community for Open Antimicrobial Drug Discovery (CO-ADD) is reinvigorating antibiotic research and drug discovery to help combat the growing problem of microbial resistance. A global, open-access initiative, CO-ADD helps researchers identify and advance new antibiotics, offering free testing of novel compounds and a comprehensive searchable database to avoid duplication of research.

**Associate Professor James Trauer, Monash University**

Associate Professor James Trauer leads a team that developed a novel software platform to enable advanced computer modelling of the spread of infectious diseases, including COVID-19 and tuberculosis. This new view of disease dynamics helped drive pandemic responses in the Asia-Pacific region and public health policy in nations where these infections are endemic.

**ANSTO Eureka Prize for Innovative Use of Technology**

**Professor Julie Cairney, University of Sydney**

Hydrogen atoms are light and mobile, making them difficult to image using current microscopy methods. Materials engineer and scientist Professor Julie Cairney solved this challenge by building a new microscopy workflow to map the 3D position of hydrogen at atomic scale. This discovery has applications in the energy, petrochemical and transport industries.

**Professor Saeid Nahavandi, Deakin University**

Professor Saeid Nahavandi pioneered the design, development and implementation of the innovative Autonomy Pack system. Combining sensing technology, advanced robotics and AI, the Autonomy Pack can be retroactively fitted onto a range of heavy vehicles. It offers a cost-effective, safe and robust solution for vehicle automation across the mining, transport and defence industries.

**NanoMslide, La Trobe University; University of Melbourne; Garvan Institute of Medical Research; and Peter MacCallum Cancer Centre**

By applying a patented coating created with cutting-edge nanofabrication technology, the collaborators behind NanoMslide are turning the humble glass microscope slide into a diagnostic lab. Cancer cells interact with the coating and produce an instant colour variation, enabling fast, accurate, cost-effective diagnoses without the need for specialised equipment.

**Macquarie University Eureka Prize for Outstanding Early Career Researcher**

**Associate Professor Chris Brennan-Jones, Telethon Kids Institute and Curtin University**

Many Australian children suffer middle ear infections. Treatment delays and barriers to accessing care, which are particularly common for Indigenous families, can lead to long-term hearing loss that impedes a child’s development. Associate Professor Chris Brennan-Jones developed Ear Portal, which combines training and telehealth video capability to enable remote diagnosis, cutting waiting times for specialist care from two years to two weeks.

**Associate Professor Chris Greening, Monash University**

Associate Professor Chris Greening developed a comprehensive map of microorganisms responsible for methane cycling in environments spanning the Antarctic continent to cows’ stomachs. He is translating these discoveries to reduce methane production in livestock, promote methane consumption in natural environments, and create carbon-negative pet food from waste gases.

**Dr Tess Reynolds, University of Sydney**

By developing technology to better guide robotic imaging during surgery, Dr Tess Reynolds is improving the view for surgeons as well as outcomes for patients. Partnering with the world’s largest medical device company, her pioneering techniques offer clearer, more complete images for complex cardiac and spinal surgery.

**UNSW Eureka Prize for Scientific Research**

**KAT6 Inhibitors, WEHI and Monash Institute of Pharmaceutical Sciences**

Persevering over decades, this interdisciplinary team identified and investigated a complex family of enzymes that contributed to cancer growth but were resistant to previous drug development efforts. A recent breakthrough from the research is an entirely new class of drugs that has proven effective at putting cancer cells to sleep without harmful side-effects.

**Associate Professor Kate Quinlan and Professor Merlin Crossley, UNSW**

Associate Professor Kate Quinlan and Professor Merlin Crossley have shown how a mutation that causes foetal haemoglobin production beyond gestation might benefit patients with blood disorders. The researchers used CRISPR gene-editing technology to demonstrate that a beneficial mutation could be introduced to patients with sickle cell disease, a debilitating condition affecting millions globally.

**Professor Justin Yerbury AM, University of Wollongong**

Professor Justin Yerbury leads a research program that has challenged prevailing thought about the pathology of Motor Neuron Disease (MND), a degenerative disease with no known cure. His discoveries about its underlying molecular principles, made since he was diagnosed with MND in 2016, are driving new research into the causes of cell dysfunction.

**EVENT DETAILS**

**What:** Australian Museum Eureka Prizes Award Ceremony

**Where:** Hintze Hall, Australian Museum, corner of College and William Streets, Sydney

Theatre style award ceremony attended by 400 guests and live broadcast online

**When:** Wednesday 31 August 2022

Live broadcast from 7:30pm AEST via [australian.museum/eurekaprizes](https://australian.museum/get-involved/eureka-prizes/)

**Interviews available with finalists**

**Media pack, including releases, finalist info, images and video** [**HERE**](https://drive.google.com/drive/folders/1xxrqRxVsA8C3A9R0YnheHV3vUF2KJbn2?usp=sharing)

#EurekaPrizes

**Twitter:** @eurekaprizes **Facebook:** @eurekaprizes

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### About the Australian Museum

The Australian Museum (AM) was founded in 1827 and is the nation’s first museum. It is internationally recognised as a natural science and culture institution focused on Australia and the Pacific. The AM’s mission is to ignite wonder, inspire debate and drive change. The AM’s vision is to be a leading voice for the richness of life, the Earth and culture in Australia and the Pacific. The AM commits to transforming the conversation around climate change, the environment and wildlife conservation; to being a strong advocate for First Nations cultures; and to continuing to develop world leading science, collections, exhibitions and education programs. With more than 21.9 million objects and specimens and the Australian Museum Research Institute (AMRI), the AM is not only a dynamic source of reliable scientific

information on some of the most pressing environmental and social challenges facing our region, but also an important site of cultural exchange and learning.