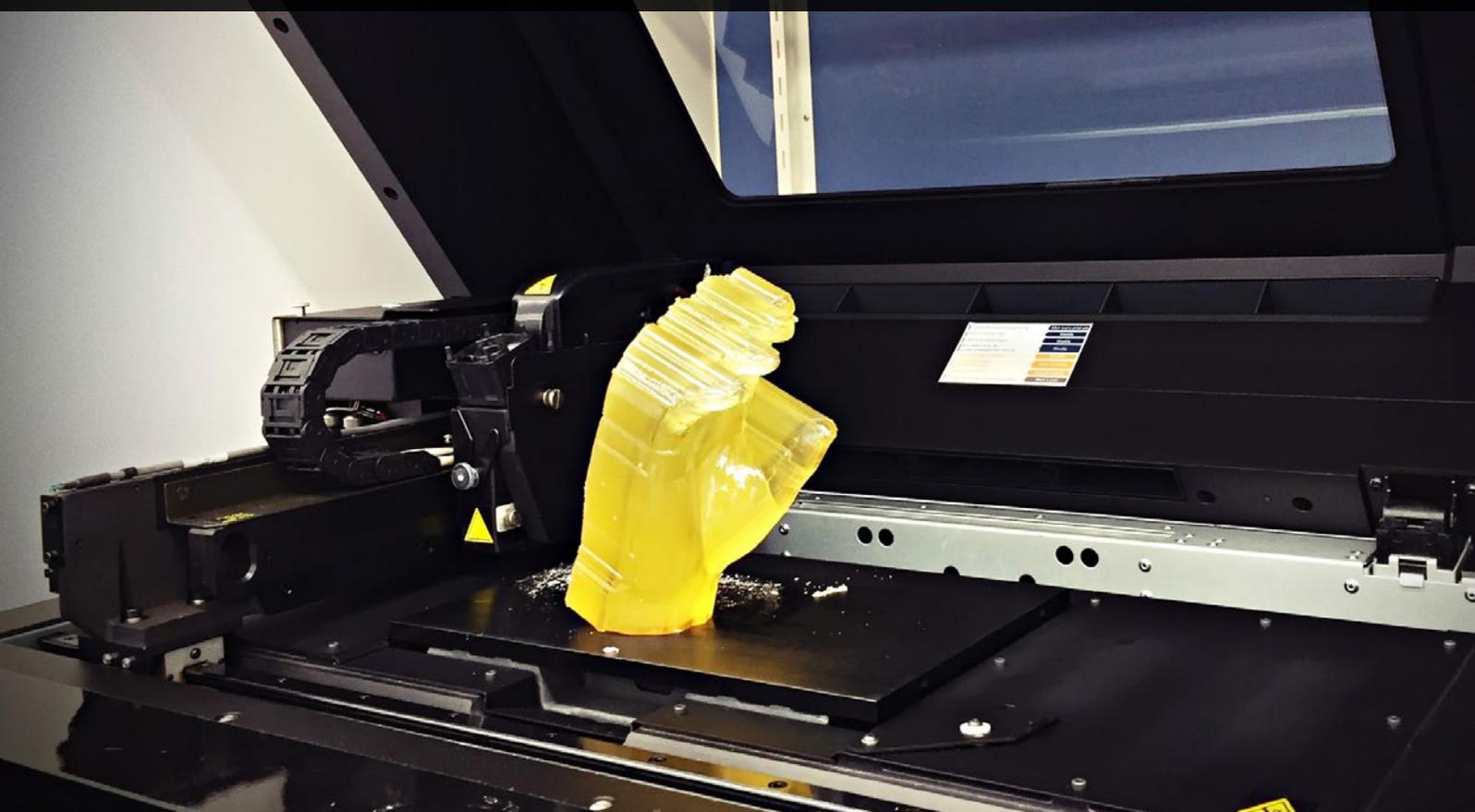




The Graeme Clark Oration
Biomedical Innovation Showcase
Monday 22nd July 2019
Melbourne Convention and Exhibition Centre
Main Foyer 4pm - 6pm



Murdoch Children's Research Institute

Murdoch Children's Research Institute is the largest child health research institute in Australia and one of the top five worldwide. Our team of more than 1900 talented researchers is dedicated to making discoveries to prevent and treat childhood conditions.

Today's children face an increasing burden from complex health and development problems, such as mental illness, obesity, autism, learning difficulties, allergies and more. Our ability to address these challenges is failing to progress at the rate we need. A better way is needed.

GenV is a major research project that will establish the building blocks for new ways of studying and improving child health, development and wellbeing across Victoria.



Ventora Medical

Ventora Medical is an early-stage medical device start-up working in neonatal respiratory care. Ventora's device enables proactive respiratory management for premature infants in the neonatal intensive care unit. Our mission is to help premature babies breathe.

97% of infants admitted to Neonatal Intensive Care Units (NICU) require respiratory support to survive. Due to leaks in the system, clinicians must use trial and error when setting the pressure level of respiratory support, as there is no way of knowing the pressure being delivered to the lungs. An incorrect pressure setting can lead to serious health consequences. Ventora's device enables accurate real-time monitoring of lung pressure without any additional invasiveness, allowing clinicians to provide proactive respiratory management.



The Australian National Fabrication Facility – Victorian Node (ANFF-VIC)

The MCN provides open-access to the micro and nanofabrication capabilities used to create new technologies and devices.

The Centre is the headquarters of the Australian National Fabrication Facility, and a world-class cleanroom that combines cutting-edge fabrication techniques with the knowledge and skills of expert

process engineers.

The MCN booth will feature a variety of samples that demonstrate the micro and nanofabrication techniques that are essential to creating new medical technologies.

The same techniques that are used to create next-generation electrical devices and solar cells are being used to improve the uptake of essential medicines, create affordable gene therapies, and making every day medical devices easier to use and more reliable – all by working on the micro and nanoscale.



ARC Centre of Excellence for Electromaterials Science (ACES)

The ARC Centre of Excellence for Electromaterials Science (ACES) is focused on using fundamental knowledge of cutting-edge materials to create new health and energy solutions that improve people's lives. Since 2005, ACES has been advancing discoveries and technologies in electromaterials science to address modern global problems in human health, energy conversion and storage, and advanced manufacturing.

The exhibition space will feature a display from our TRICEP (Translational Research Initiative for Cellular Engineering and Printing) initiative, established to facilitate translation of ACES fundamental research.

TRICEP works with research institutions and industry to develop innovative technologies using 3D bioprinting.

TRICEP can commercialise opportunities in 3D bioprinting to address significant clinical challenges that require a tailored solution including:

- Printer manufacturing;
- Biomaterials and Bioinks;
- Material-Cellular Combinations;
- Bioelectromaterials (the Sutrode);
- Novel Characterisation Tools (Ultramage).

TRICEP's world-leading research infrastructure can assist companies to accelerate product development and rapidly decrease time to market by:

- Bringing to life novel technology from concept stage through to prototyping;
- Manufacture of hardware;
- Formulation of bioinks..



Australian Regenerative Medicine Institute (ARMI)

The Australian Regenerative Medicine Institute (ARMI) is dedicated to unlocking the regenerative capabilities of the human body. ARMI is a medical research centre based at the Clayton Campus of Monash University. Boasting 19 research groups studying a variety of regenerative approaches, ARMI is one of the largest regenerative medicine and stem cell research hubs in the world.

Visitors to the stall will be able to meet with our researchers to learn more about regenerative medicine through interactive displays.

What is regenerative medicine? It is understanding how the body heals itself. Stem cells play an important role in this research. They are in all of us and play a role in repairing organs and tissue.

ARMI scientists study this exciting field in the hope of unlocking new treatments for a broad range of disease, conditions and illnesses.

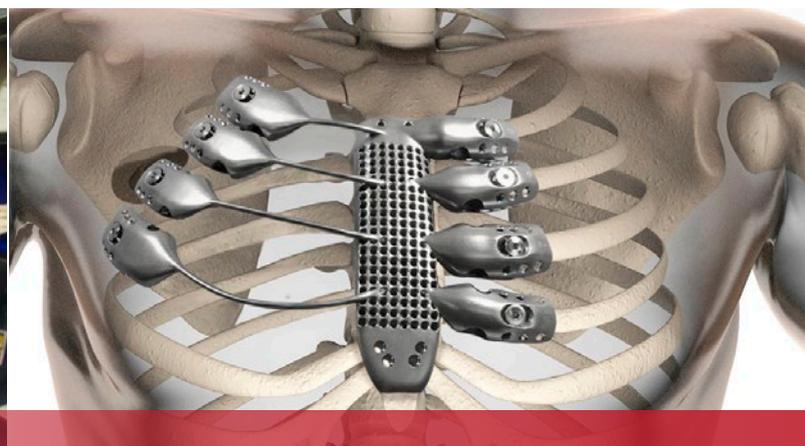


CSIRO Biomedical Manufacturing

CSIRO is Australia's national science agency – a national asset that belongs to everyone. We are one of the world's largest mission-driven multidisciplinary research organisations, and we're here to solve the greatest challenges through innovative science and technology.

Overview of CSIRO's newest Biomedical capabilities, including:

- 3D printed titanium replacement parts for humans
- Videos of some of our innovative research projects
- 3D printed very-soft silicone parts for patient-specific medical devices
- New facilities to conduct pilot-scale production for our clients in:
 - clean-room manufacture of biomedical materials
 - precise chemical or pharmaceutical manufacture using flow processing
 - sterile cGMP production to make regulated vaccines and therapeutic proteins for clinical trials on patients



BioFab3D St Vincent's Hospital Melbourne

BioFab3D is the first hospital-based bioengineering lab in Australia. Using the latest in 3D printing technology, scientists, clinicians, and engineers are working to 'build body parts' from living cells. These include: cartilage, muscle, bone, nerves and, one day perhaps, organs.

We will display 3D printing technology which is designed for printing body parts using cells as a 'living ink.'

In particular, we will showcase the biopen: our handheld 3D printer designed to print stem cells during surgery. This device could help repair damaged knee cartilage, and prevent the onset of osteoarthritis.

We will also have at least one other desktop 3D printer, which will be printing out miniature body parts throughout the showcase.



Curatek

Curatek is a medical device startup focusing on providing objective respiratory data to improve clinical judgement, reducing hospital costs and serious adverse events. Curatek was established in 2018 with a team of commercial manager and biomedical engineers.

We will have marketing materials such as one-page Executive Summary and flyers to be handed out to the audience. We will bring our prototypes to showcase.

Curatek is targeting the healthcare settings where respiratory monitoring is done manually by nurses; these includes surgical ward, general ward, and emergency department. Curatek's system provides objective respiratory data to clinicians to identify and intervene patient deterioration earlier.



Deakin University

Deakin University is a young, contemporary university, which has become known for being innovative, nimble and friendly. We aspire every day to combine outstanding teaching and excellent research with a strong focus on the communities we serve.

IISRI is home to a number of unique technology platforms, including iPupilX, real-time human cognition monitoring and alert system, NeuroSigX, electrophysiological analysis of the brain, haptically-enabled robotics system (HaptiScan) for remote ultrasound procedures, and haptically-enabled robotic surgical system (HEROSURG). IISRI also uses advanced signal processing and deep learning in connection with state-of-the-art wireless motion capture and human biometric measurement systems to analyse human performance.

NeuroSigX is an electrophysiological analysis tool to quantify how networks of neurons in the brain respond to external stimuli. External stimuli include viral infections, pharmaceuticals and general brain disorders such as Alzheimer's, Epilepsy, etc. The technology is focused at understanding the functional fundamentals of the brain. Therefore no clinical trials have been conducted yet.

iPupilX addresses the issue of cognitive neuroscience by quantifying the psychological and physiological behaviour of individuals undergoing physiological monitoring, including eye tracking, EEG, galvanic skin response and

heart rate, etc. iPupilX can assess the cognitive aspects of individuals in real time and generate an alert if some of the cognitive factors critical to the task at hand are compromised.



Bionics Institute

The Bionics Institute's mission is to research, innovate and deliver technologies that improve human health. We have a rich history of excellence in hearing research having been founded by Professor Graeme Clark AC, inventor of the cochlear implant, in 1986.

Today, we continue to pioneer new technologies to address otherwise untreatable, poorly treated or drug-resistant medical conditions. We are unique and world leaders as our research programs rely on a truly multi-disciplinary approach: we bring together scientists from a wide range of disciplines, biomedical, software and electronic engineers, and eminent clinicians from Melbourne's major hospitals to ensure that our work results in tangible and clinically-relevant outcomes.

At our display, Bionics Institute scientists, engineers and students will present their research and developments in the following areas:

- Hearing loss & hearing therapeutics
- Epilepsy
- Parkinson's Disease and deep brain stimulation
- Movement disorders
- Inflammatory bowel disease
- Vision Loss

Presentations will include verbal discussions on developments, visual aids and laptop presentations.

Ultimately our aim is to research, innovate and deliver bionic technologies that improve human health.



Navi Medical Technologies

Navi Medical Technologies is a Melbourne based start-up with a vision to provide brighter, healthier futures for critically ill children through medical innovations. Our first product is the Neonav, a medical device that improves the accuracy of central line procedures.

Central lines (such as UVC and PICC) are frequently placed in the veins of critically unwell children, however the misplacement rate is as high as 50%. The Neonav provides doctors with real-time information on the location of the catheter tip and will enable faster, safer procedures.

Our exhibition will include a summary of our problem, solution and timeline, as well as a summary of research performed at the RWH NICU.



ISN Psychology

ISN Psychology is a young, but thriving institute engaged in the teaching and research of psychology with a focus on social neuroscience.

Offering a combined undergraduate to postgraduate degree pathway to psychology for eligible students, ISN psychology is the right choice for students wanting a career in clinical psychology or research.

Privately funded, ISN Psychology, as part of the Institute for Social Neuroscience (ISN), has two components:

1. ISN Psychology College, the Higher Education Provider, offers undergraduate, bachelor, honours and masters degrees pathways combining clinical experience and research; and
2. ISN Psychology Clinic providing free and low-cost psychological services to the community.



Cochlear

Cochlear is the global leader in implantable hearing solutions. The company has a global workforce of more than 3,500 people and invests more than AUD\$160 million each year in research and development. Products include cochlear implants, bone conduction implants and acoustic implants, which healthcare professionals use to treat a range of moderate to profound types of hearing loss. Since 1981, Cochlear has provided more than 550,000 implantable devices, helping people of all ages, in more than 100 countries, to hear. www.cochlear.com

Cochlear will have its range of latest cochlear implants, bone conduction implants and sound processor technology on display for visitors to learn and experience. Some of the devices on display include:

The Nucleus 7 Sound Processor

The Nucleus 7 Sound Processor was the first Made for iPhone sound processor, allowing direct streaming from Apple devices. The Nucleus 7 Smart app was also the first app available to connect to Apple and Android devices.

The Kanso Sound Processor

The Kanso Sound Processor is the smallest and lightest, off-the-ear sound processor available with two microphones. It has a robust, all-in-one design, with no cables and nothing on the ear to worry about or maintain. All the user has to do is press a single on/off button and let the advanced technology take over.



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Graeme Clark Oration proudly supports OzHarvest



Since inception, in 2014, OzHarvest Melbourne has delivered 8,762,489 nourishing meals to the most vulnerable in our community. This means that 2.9 million kgs of good food was diverted from landfills to the ones who need it most in the past 5 years. OzHarvest Melbourne collects food from 461 donors and delivers to 155 charities.

The Graeme Clark Oration will be asking attendees to make a donation to this important cause.

Visit the OzHarvest display at the Biomedical Innovation Showcase to learn more about their amazing work.



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The Graeme Clark Oration

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