

News Update

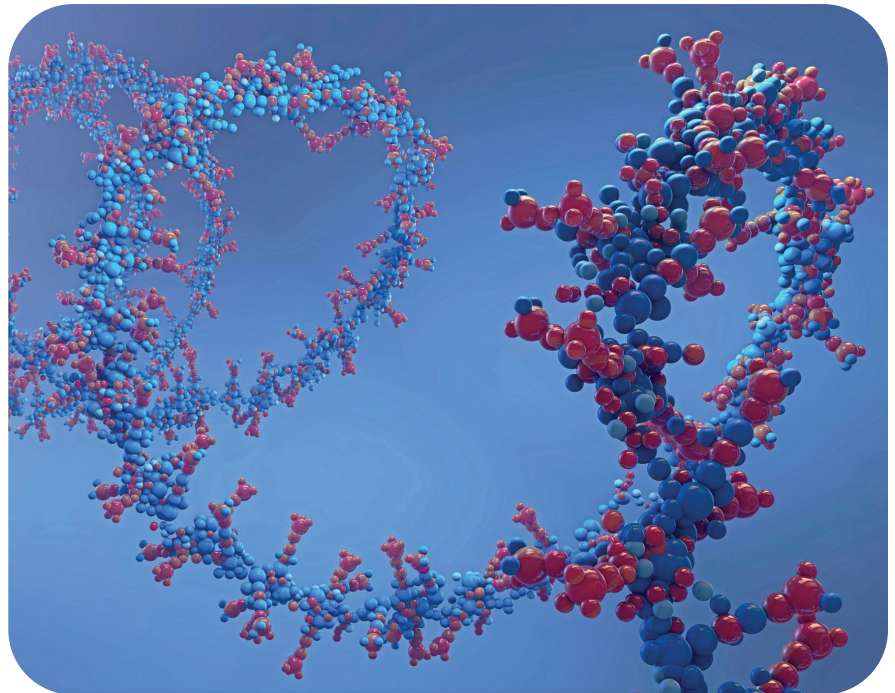
Spring 2021

Centenary Institute supports NSW RNA push

The Centenary Institute is pleased to note its involvement in, and support of, the newly announced NSW RNA Production and Research Network involving the State's leading universities and other prominent health and medical research organisations.

The Network has been established to back the State Government's efforts to make NSW the nation's premier mRNA vaccine manufacturing hub and a global RNA industry leader. Professor Mathew Vadas AO, Executive Director, Centenary Institute is highly supportive of the State Government's efforts to advance RNA technology and expertise in NSW.

"Ribonucleic acid (RNA) based techniques are now being used to fight cancer and other genetic diseases as well as being the key technology used in mRNA vaccines against COVID-19 and potentially other new diseases. The NSW RNA Production and



Research Network has been developed in response to the COVID pandemic but is clearly relevant to any future pandemics in which RNA biology will be important," said Professor Vadas.

Professor Phil Hansbro, Director of the Centenary UTS Centre for Inflammation

and Professor John Rasko AO, Head of the Gene and Stem Cell Therapy Program at the Centenary Institute and Head of Department, Cell and Molecular Therapies, Royal Prince Alfred Hospital are both involved with the newly established Network.

Discovery could lead to new treatment for COPD



Professor Phil Hansbro

Researchers have shown that inhibiting necroptosis, a form of cell death, could be a novel therapeutic approach for treating chronic obstructive pulmonary disease (COPD), an inflammatory lung condition, also known as emphysema, that makes it difficult to breathe.

In the study, researchers found elevated levels of necroptosis in patients with COPD. By inhibiting necroptosis activity, both in the lung tissue of COPD patients as well as in specialised COPD mouse models, the researchers saw a significant reduction

in chronic airway inflammation and damage to the lung.

"Necroptosis, apoptosis and necrosis are all forms of cell death but they operate in distinctly different ways. Significantly, in necroptosis, a cell bursts, dispersing its contents into nearby tissues resulting in an immune and inflammation response," said research team leader Professor Phil Hansbro, Director of the Centenary UTS Centre for Inflammation.

"Our research suggests that inhibiting necroptosis and preventing this inflammation response may be a new therapeutic approach to treating COPD."

The study was led by researchers from the Centenary Institute, University of Technology Sydney, University of Newcastle and Ghent University Hospital, Belgium.

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Improving care for liver cancer patients

Researchers from the Centenary Institute and the Royal Prince Alfred Hospital (RPAH) are co-investigators on three separate liver cancer focused projects that have recently received funding from the Australian Government's Medical Research Future Fund and Cancer Institute NSW, a State Government agency.

All projects aim to improve outcomes for patients with liver cancer, the fastest growing cancer in Australia and the world.



Professor Geoff McCaughan

Professor Geoff McCaughan, Head of the Liver injury and Cancer Program at the Centenary Institute and Director of the AW Morrow Gastroenterology and Liver Centre at RPAH, is affiliated with all three projects.

"It's very encouraging that both Governments have responded so positively to addressing research in liver disease, an area which has been in need of increased funding for many years," said Professor McCaughan.

Early-stage researchers are thinking big

Early career researchers from three of Sydney's leading medical research institutes, the Centenary Institute, the Heart Research Institute and the Woolcock Institute have come together for a collective 'Think Tank' event.

Hosted at the Centenary Institute, the event provided PhD students and early and mid-stage post-doctoral researchers, with the opportunity to present their research to colleagues, to network, to brainstorm new ideas and to explore potential opportunities for future collaborations.

Presentations from researchers were wide ranging, including topics on chronic lung disorders, stroke, sleep apnoea, pancreatic cancer and cardio-metabolic disease.



Dr Jessica Orchard, from the Agnes Ginges Centre for Molecular Cardiology at the ECR Think Tank

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PROFILE

Julie Feng

Focus, accuracy and persistence—these are just some of the many qualities possessed by Julie Feng, a researcher in the Centenary Institute's Gene and Stem Cell Therapy Program and also a world-leading kendo practitioner.

"Kendo is a modern Japanese martial art. You wear protective armour and use bamboo swords to score points against your opponent by hitting certain targets," says Julie.

Julie first became fascinated with kendo as a university student. Years of dedicated training later, she competed in 2018 at the World Kendo Championships in South Korea.

Julie says her kendo training regime is both physically and mentally taxing but that it's benefited her career in medical research.

"I'm able to take the same focus, discipline and patience required to perfect kendo into my laboratory work and scientific experiments," she says.

At Centenary, Julie's main project is the investigation of a protein called CTCF which is important in gene expression. Mutations in the CTCF protein are associated with a broad range of cancers including endometrial and leukemia.

"Once we fully understand the role of this protein and its link with particular cancers, we can then think about specific interventions which is the basis for the development of new medicines," says Julie.

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