

News Update

Winter 2021



Dr Abdullah Al Emran has discovered a new approach to fight melanoma.

Dual drug approach to treat deadly melanoma

Research from the Centenary Institute has found that a new dual drug approach could offer up a highly effective treatment strategy for melanoma, the most serious form of skin cancer responsible for more than 1,700 deaths each year in Australia.

In the study, led by Centenary's Dr Abdullah Al Emran, the research team found that the combined use of inhibitor drugs targeting two specific proteins markedly reduced the growth of melanoma, both in cellular experiments as well in models with

mice. The proteins targeted were the bromodomain and extraterminal domain (BET) family of proteins and cyclin-dependent kinase 9.

"We've now seen that drugs working in combination are able to produce a synergistic effect when it comes to killing melanoma cells. This strategy could lead to higher survival rates for patients and as a result we will be further exploring this exciting avenue of research," said Dr Jessamy Tiffen, Head of the Centenary Institute's Melanoma Epigenetics Laboratory.

Grant to help fast-track Australian COVID-19 vaccine candidate

A project involving the Centenary Institute, the University of Sydney and collaborators has received funding from the Medical Research Future Fund (MRFF) to continue work on the development of a unique, single-shot vaccine against COVID-19 variants of concern.

The MRFF grant, worth \$1.6 million, will allow the research team to undertake late-stage pre-clinical assessment of their protein based vaccine candidate. The aim is to be able to fast-track the candidate for testing in human trials.

"We've developed a unique, single-shot vaccine that in pre-clinical testing elicits potent SARS-CoV-2 specific immunity," said lead investigator on the project Professor Jamie Triccas from the Faculty of Medicine and Health and the Charles Perkins Centre at the University of Sydney, and also Centenary Institute affiliate.

"The vaccine is new and built on safe and well-characterised vaccine components that are cost effective to manufacture and don't require ultra-cold chain storage."

Dr Claudio Counoupas, research scientist at the Centenary Institute and Chief Investigator on the project said that they had rapidly updated their vaccine candidate to incorporate the spike antigen from the B.1.351 (South African) variant of COVID-19.

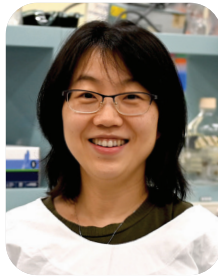
"We're hopeful that our vaccine may offer broader protection than first generation vaccines against emerging, highly transmissible SARS-CoV-2 variants. This is key as we're already aware that the B.1.351 variant of COVID-19 is able to avoid both natural and vaccine-induced immunity," said Dr Counoupas.

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Tackling liver cancer

In a comprehensive analysis of human gene activation data, researchers from the Centenary Institute have discovered that the dipeptidyl peptidase-4 (DPP4) gene family is strongly implicated in the development of human hepatocellular carcinoma (HCC), the most common type of primary liver cancer.



"Our analysis indicates that high levels of all enzymes of the DPP4 family occur in liver cancers, which encourages us to target these enzymes as a possible new therapeutic approach to tackling the disease," said Dr Hui Emma Zhang from the Centenary's Liver Enzymes in Metabolism and Inflammation Program.

"With liver cancer incidence and mortality rates in Australia rapidly increasing new treatment options are urgently required both to improve and to save people's lives."

Tuberculosis symposium hosted at Centenary

The Centenary Institute hosted the TB-CRE 2021 Symposium, May 27-28, which showcased the latest tuberculosis research from international members and collaborators, and provided a platform for TB discussion and planning.

The Centre of Research Excellence in Tuberculosis Control on Both Sides of our Border (TB-CRE) aims to improve TB control in Australia and the Indo-Pacific region through world-class research.



"The symposium was a wonderful opportunity for our researchers from around Australia and overseas to come together to share research findings, to discuss activity in light of the pandemic and to discuss planning processes for the future," said Professor Warwick Britton.

Worldwide, TB is one of the top 10 causes of death, responsible for approximately 1.4 million deaths annually.

Professor Warwick Britton, Head of the Tuberculosis Research Program at the Centenary Institute and Chief Investigator of the TB-CRE.

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PROFILE

Associate Professor Mathias Francois

Mat has always led an active and sporty life—surfing, sailing and skiing have all been passionate interests.

"It's the fun sports with a dash of adrenaline, together with a high social element, that have always appealed to me," he says.

With such a focus on outdoor activities, it comes as no surprise to learn that Mat grew up in the French Territory of Tahiti.

"My parents were teachers and we relocated to Tahiti when I was eight. Living on an island meant that the beach and sea were always easily accessible and just a part of the natural order of things."

Back in 2019, Mat established the Centenary's 'David Richmond Laboratory for Cardiovascular Development: Gene Regulation and Editing'.

His goal is to understand how abnormalities in the growth and development of the body's vascular system (arteries, veins, capillaries and lymphatic vessels) can lead to disease and disorders, including cardiovascular illness, cancer metastasis and inflammatory diseases.

He does this by exploring how blood and lymphatic vessels assemble themselves during early development, looking for genetic clues to help develop future treatments and cures for patients.

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