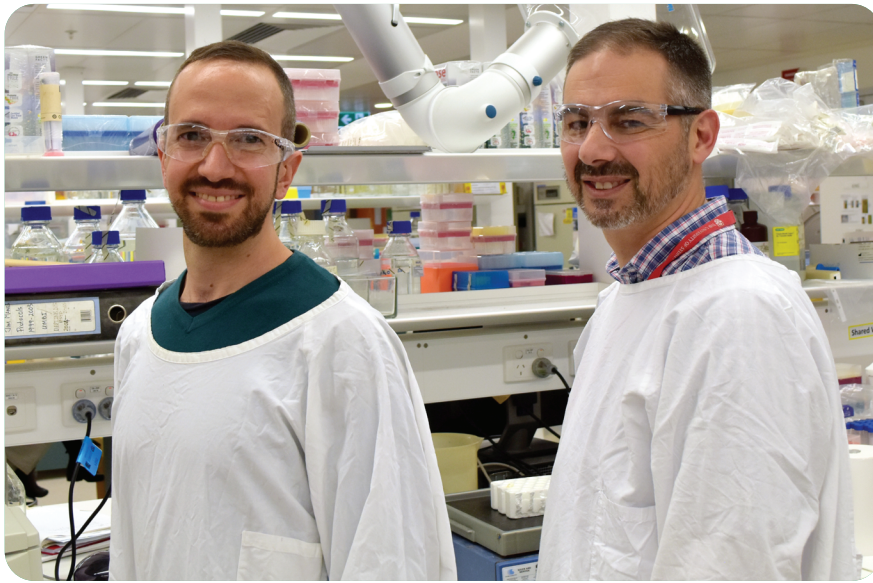


News Update

Spring 2020



Dr Claudio Counoupas from the Centenary Institute's Tuberculosis Research Program (left) and Professor Jamie Triccas, the University of Sydney are adapting an existing tuberculosis vaccine to see if it can tackle COVID-19.

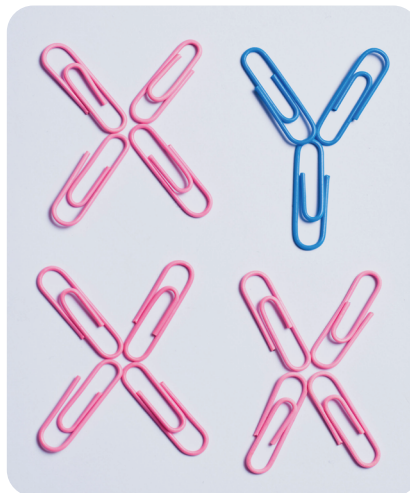
Gene discovery may explain female melanoma survival advantage

Centenary Institute scientists have discovered that genes on the X chromosome may be key to the improved survival rates of females with melanoma—as compared to their male counterparts. The findings could ultimately lead to more effective treatments for what is an aggressive and potentially deadly form of skin cancer.

"We know that survival from melanoma is strongly related to gender with females having a survival rate almost twice that of males," said Dr Abdullah Al Emran, researcher in the Melanoma Oncology and Immunology Program at the Centenary Institute and lead author of the study.

"Our study found that two genes on the X chromosome that manage to escape a process called X-inactivation—the genes KDM6A and ATRX—were both associated with improved survival rates for women with melanoma. We believe that their high expression levels aid the body's immune system in helping to fight cancer," said Dr Emran.

Notably, the researchers were also able to show a clear link of the gene KDM6A to components of the immune



system believed to be important in the killing of melanoma. This was particularly so in the production of interferon gamma, a key protein activated by the immune system to help kill cancer cells.

TB vaccine combination tested for COVID-19 use

Researchers at Centenary Institute and the University of Sydney are repurposing an existing tuberculosis vaccine to see if it can be used in a new way against COVID-19 to develop a novel vaccine.

The vaccine candidate, which Australian researchers have called BCG:CoVac, combines the vaccine for tuberculosis, Bacille Calmette-Guérin (BCG) with major components of the SARS-CoV-2 virus. The SARS-CoV-2 virus is the pathogen that causes the COVID-19 disease.

The study is part of a collaboration between the University of Sydney and the Centenary Institute to examine the immune response created by new vaccine candidates, including BCG:CoVac.

Lead investigator Professor Jamie Triccas, School of Medical Sciences, University of Sydney and Affiliate Faculty, Centenary Institute said the team was applying their vaccine expertise to assess the effectiveness of this new formulation.

"We have over two decades of experience in the development and testing of tuberculosis vaccines, which will be applied for the assessment of BCG:CoVac," said Professor Triccas.

Dr Claudio Counoupas, research scientist at the Centenary Institute and co-lead on the project, said: "Combining a part of the SARS-CoV-2 virus with BCG is key to this new vaccine. This provides a specific 'memory' immune response against the virus that could provide long-term protection against disease."

Consumer Engagement Program

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New treatment hope for asthma and COPD

An international study led by the University of Glasgow, including collaborators from the Centenary Institute, has identified a new class of drugs that could pave the way to a new treatment for asthma and chronic obstructive pulmonary disease (COPD).

The breakthrough findings, published in the journal 'Science Translational Medicine', found that the drugs were able to reverse the symptoms of asthma in animal models.

Researchers also found that the same drugs, when applied to lung samples obtained from human donors, showed effects similar to those seen in the animal models.

Scientists believe that these combined findings offer new hope that these drugs could provide new medicines for human inflammatory lung disease.

Leadership potential recognised

The Future Leader Fellowship at the Centenary Institute has been jointly awarded to two outstanding researchers for 2020—Dr Jessamy Tiffen from the Institute's Melanoma Oncology and Immunology Program and Dr Shweta Tikoo from our Immune Imaging Program.



Designed to assist exceptional mid-career scientists at Centenary with true leadership potential, the Fellowship enables successful recipients to strengthen their research, enhance their competitiveness and to develop into future leaders.

The Fellowship will aid Dr Tiffen's leadership ambitions in the study of epigenetic regulation in cancer; and for Dr Tikoo, her research of specialised immune cells towards the development of novel therapeutic strategies for the treatment of cancer as well as auto-immune disorders.

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PROFILE

Dr Ulf Schmitz

Music has always been a passion for Dr Ulf Schmitz, playing guitar in a number of bands from his teenage years right through to his early thirties.

Over the years, Ulf has played acoustic, lead and bass guitar, playing soft rock and ballads as well as hard rock, punk and metal.

"It was always a thrill to play gigs in front of hundreds of people but my main enjoyment was playing music and hanging out with my friends," says Ulf.

Band life was curtailed for Ulf when he accepted a post-doctoral research position at the Centenary Institute, leaving Germany for the sun and beaches of Sydney. However, music still plays an important role in Ulf's life.

"I now play guitar at home. At least once a week. I like to play songs from artists such as Biffy Clyro, Frank Turner and Pearl Jam," he says.

At Centenary, Ulf heads the Computational BioMedicine Laboratory. He's a computational biologist with training in bioinformatics and systems biology.

"I use bioinformatics algorithms, machine learning, and mathematical modelling to better understand processes that control the activity of genes in our cells. When these processes work incorrectly, cancer and other diseases can be the result."

"Ultimately, it's all about gaining insights that will help improve treatments for patients," he says.

Learn more about our Humans of Medical Research www.centenary.org.au/meet-us.