



MONASH
University

MEDIA ALERT

Monday September 21, 2020

Novel Cancer and Flu Vaccine Technology Adapted for COVID-19 Vaccine Candidate for Elderly

Researchers from Monash University and the National University of Singapore have adapted new cancer and pan-influenza vaccine technology to developing a COVID-19 vaccine targeted for the elderly. Their proof of concept studies have triggered long term immunity in animal models. Importantly, once preclinical validation has been completed, this promising vaccine candidate could enter clinical trials rapidly as manufacturing capabilities are readily available in both Singapore and Australia.

Associate Professors [Mireille Lahoud](#) and [Irina Caminschi](#) from the Monash University Biomedicine Discovery Institute (BDI), together with Associate Professor Sylvie Alonso from the Yong Loo Lin School of Medicine, National University of Singapore (NUS), have spent 12 years developing a patented platform technology that triggers immunity against diseases ranging from cancer, influenza and other infectious diseases.

Now, the Monash BDI researchers in collaboration with colleagues at the National University of Singapore, are using the technology to target the spike protein in SARS-CoV-2, which is part of the outer layer of the virus and critical for entry into cells.

According to Associate Professor Lahoud, what is unique about this vaccine platform is that it harnesses a cell within the immune system – called the dendritic cell – which fast tracks the triggering of an immune response in important T and B cells.

Dendritic cells are responsible for monitoring (sampling) dead cells, and for presenting parts of these cells so that other immune cells can recognize the foreign invaders and respond.

Working in animal models, researchers have developed a protein that binds to a receptor on these dendritic cells – called Clec9A – that effectively presents part of the COVID spike protein to T and B cells, triggering an immune response. Importantly they have shown the vaccine stimulates both antibody responses and long-term memory in immune cells, which is the cornerstone of a successful vaccine.

The platform technology has already been shown to work in proof-of-concept experiments in pre-clinical studies targeting both cancer and influenza.



MONASH University



Importantly the study found that this vaccine stimulated a strong immune response against COVID-19 in both young and old mice. “Given the enormous impact that COVID-19 has had on aged care facilities globally, there is an urgent need for a vaccine that can work in older people, who often have weakened immunity and do not respond as effectively to vaccines,” Associate Professor Lahoud said.

The researchers have already developed a lead vaccine against COVID-19 which stimulates the dendritic cell pathway. According to Associate Professor Caminschi, the aim is to conduct further animal studies and then target clinical trials of the vaccine for older patients.

Further preclinical and clinical development will be carried out at Monash University and at the National University of Singapore.

The Monash-Singapore research team is working to raise funds to develop this COVID-19 vaccine platform. “The outcomes of this development would be critical for COVID-19, but would also advance the platform enabling a rapid response to future viral outbreaks and for improved cancer immunotherapy,” Associate Professor Lahoud said.

About the Monash Biomedicine Discovery Institute at Monash University

Committed to making the discoveries that will relieve the future burden of disease, the newly established [Monash Biomedicine Discovery Institute](#) at Monash University brings together more than 120 internationally-renowned research teams. Spanning six discovery programs across Cancer, Cardiovascular Disease, Development and Stem Cells, Infection and Immunity, Metabolic Disease and Obesity, and Neuroscience, Monash BDI is one of the largest biomedical research institutes in Australia. Our researchers are supported by world-class technology and infrastructure, and partner with industry, clinicians and researchers internationally to enhance lives through discovery.

MEDIA ENQUIRIES

Tania Ewing
Media - Monash University
M: [+61 408 378 422](tel:+61408378422)
Email: media@monash.edu

