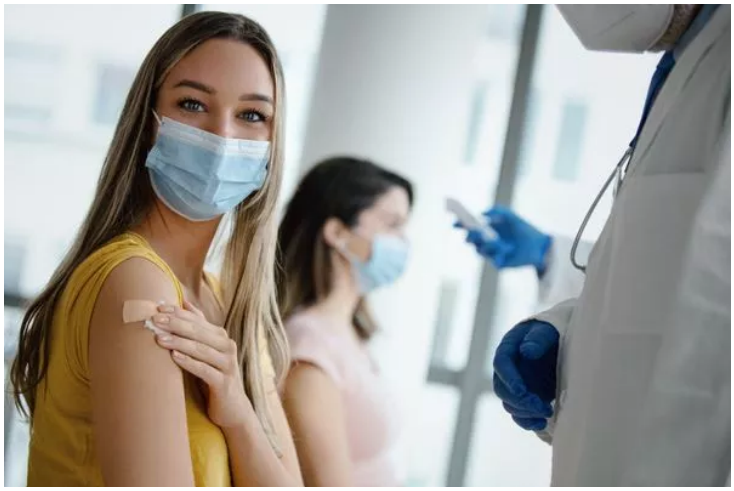
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ASIA EDITION

Singapore develops promising vaccine approach for longer-lasting protective immunity against COVID-19

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Clec9A targeting technology may potentially address the issue of waning COVID-19 vaccine immunity



A scientific team from the Yong Loo Lin School of Medicine at the National University of Singapore (NUS Medicine) and Monash University, Australia, has engineered a COVID-19 vaccine that induced, in pre-clinical models, very long-lasting, protective immunity against SARS-CoV-2 virus with a single-shot immunisation.

In an on-going, four-year collaboration, the team leveraged on a novel vaccine platform to fuse the receptor-binding domain (RBD) from the spike protein of the SARS-CoV-2 virus to the Clec9A antibody. The Clec9A antibody targets a specific subset of dendritic cells, a specialised type of immune cells found in tissues such as the skin, which are responsible for initiating immune responses in our body.

Upon a single shot immunisation of the Clec9A-RBD antibody construct, the team monitored the immune responses in pre-clinical models over 21 months, and found no signs of declined immunity. In contrast, it was observed that the quality of the immune response (the neutralising antibody response, in particular), was associated with increased protection over time.

“The results that we see in this study are very promising, and we are confident that the work performed in pre-clinical models is highly translatable to humans,” said Associate Professor Sylvie Alonso, Principal Investigator of this study. “Indeed, a human equivalent of this immune cell subset exists, and our collaborator, Associate Professor Mireille Lahoud, at Monash University is developing this approach towards future human application", he said.

This new Clec9A targeting technology may potentially address the issue of waning COVID-19 vaccine immunity, and eliminate the need for repeated booster jabs, particularly for people aged 60 and over, medically vulnerable individuals and their caregivers.