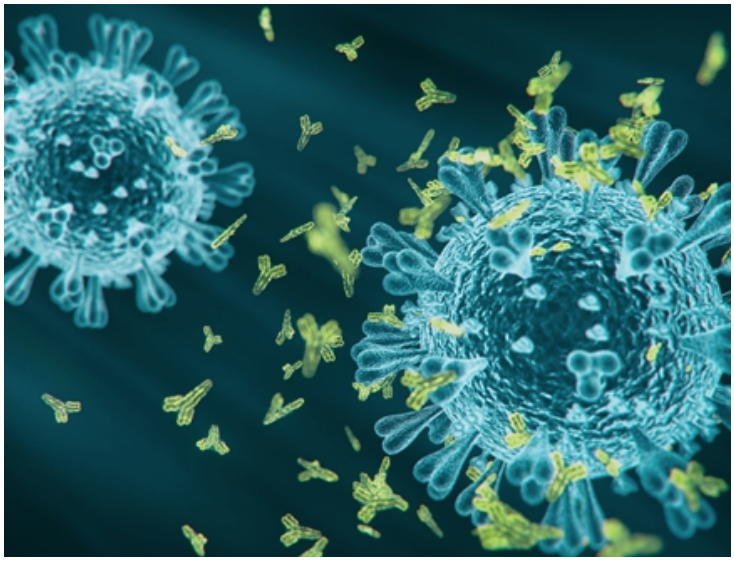
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ASIA EDITION

Singapore develops antibodies to potentially prevent future coronavirus outbreaks

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Scientists have isolated potent neutralising antibodies from a COVID-19 vaccinated SARS survivor that exhibited remarkable breadth against known sarbecoviruses



Exceptionally potent antibodies that can neutralise virtually all known variants of the COVID-19 virus—including Omicron, as well as other dangerous animal coronaviruses that could potentially cause future outbreaks—have been discovered in a new study.

The international team led by Duke-NUS Medical School, with scientists from the National University of Singapore, the University of Melbourne in Australia and the Fred Hutchinson Cancer Research Center in the United States, isolated antibodies from the blood of a recovered SARS patient who was thereafter vaccinated against COVID-19.

This unique combination of prior coronavirus infection and vaccination generated an extremely broad and powerful antibody response capable of stopping nearly all related coronaviruses tested.

The newly-published study describes how six antibodies were obtained that could neutralise multiple coronaviruses, including SARS-CoV-2, its variants Alpha, Beta, Gamma, Delta and Omicron, the original SARS virus, and multiple other animal coronaviruses transmitted from bats and pangolins.

The most powerful antibody, named E7, neutralised both SARS-CoV and SARS-CoV-2 sarbecoviruses, animal sarbecoviruses and newly emerged SARS-CoV-2 variants, such as Omicron XBB.1.16. It was shown to neutralise via a unique mechanism of binding that bridges two parts of the coronavirus' spike protein that it uses to invade cells. This appears to lock the spike in an inactive conformation and block the shape-shifting process the virus requires to infect cells and cause illness.

With its high potential to neutralise sarbecoviruses that emerge in the future, the E7 antibody may become a strong asset in helping to prevent the next pandemic caused by sarbecoviruses. The researchers plan to further assess the antibody's potential as a prophylactic and therapeutic agent against existing and future coronaviruses.