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Covid mRNA vaccines top at blocking symptomatic infection against variants

Its success likely due to high levels of antibody and T-cell response they induce in body, says expert

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Covid-19 vaccines that use mRNA technology have been found to be the best at preventing symptomatic infection against variant strains, a comparison of the efficacy levels of different vaccines against the variants has shown.

mRNA vaccines, notably the ones developed by Pfizer-BioNTech and Moderna, involve injecting snippets of the virus' genetic material – and not the whole virus – into the body to stimulate an immune response.

mRNA vaccines were found to induce high levels of neutralising antibodies against the original strain, as well as against Britain's B117 strain and the Brazilian P1 variant.

However, these levels of neutralising antibodies decline when used against South Africa's B1351 variant.

Neutralising antibodies bind to specific, important sites of the virus, preventing it from starting its invasion.

The success of mRNA vaccines is likely due to the high levels of antibody and T-cell response they induce in the body, according to Associate Professor David Allen from the National University of Singapore's Yong Loo Lin School of Medicine.

"Antibodies have the capacity to block infection entirely... and when it comes to limiting spread and severity of infection in an individual that has already been infected, both T cells and antibodies play a role," Prof Allen said.

The more traditional, inactivated vaccines make use of killed virus particles. These may elicit lower responses or none at all.

People with low levels of neutralising antibodies may still be protected from Covid-19 if they have robust T-cell immunity. The immune system depends on the T cells, a type of white blood cells, working together with antibodies to eradicate the virus.

mRNA vaccines were found to induce high levels of neutralising antibodies. PHOTO: **REUTERS**

These findings were shared in a monthly webinar, titled "Season Two Of Covid-19: Updates From Singapore" on Thursday. The webinar brought together local and international experts to discuss the latest medical and scientific findings around the coronavirus.

The show was hosted by Prof Allen; Professor Dale Fisher, group director of Medicine at the National University Health System and chair of the World Health Organisation's Global Outbreak Alert and Response Network; and Dr Louisa Sun, an associate consultant with the infectious disease team at the National University Hospital and Alexandra Hospital.

Work on variant-specific vaccines has already started globally, said Dr Richard Hatchett, a special guest on the show. Dr Hatchett is chief executive of the Coalition for Epidemic Preparedness Innovations, an international coalition set up to prepare for future infectious disease threats.

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