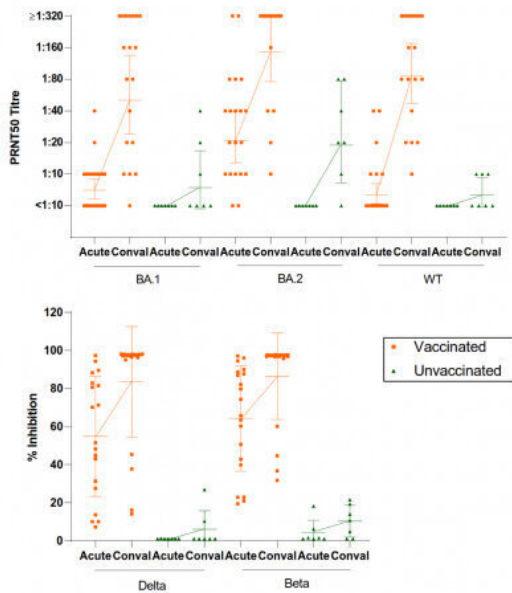


# Vaccinated individuals develop more robust and broadly reactive antibody responses against SARS-CoV-2 variants

25 May 2022



Antibody responses from vaccinated (orange) and unvaccinated (green) individuals after an Omicron BA.2 infection. Acute and convalescent (Conval) serum samples from infected individuals were tested for their neutralising activities against the ancestral SARS-CoV-2 (WT) and its

novel mutations in its spike protein and allowed vaccine breakthrough infection. A research led by Professor Malik Peiris, Tam Wah-Ching Professor in Medical Science and Chair Professor of Virology at the School of Public Health, HKUMed and Professor David Hui Shu-cheong, Stanley Ho Professor of Respiratory Medicine and Chairman of Department of Medicine and Therapeutics, CU Medicine, studied the [virus](#) neutralizing activity in the blood of vaccinated individuals after an omicron, BA.1 or BA.2, infection.

The findings show that an omicron infection in unvaccinated people can only induce very weak antibody responses, which react with omicron only. In contrast, a breakthrough infection caused by omicron in fully vaccinated individuals leads to a more potent antibody response, which is six times higher than those of unvaccinated COVID-19 patients. More importantly, such an antibody response found in vaccinated individuals is broadly reactive and it can react with other VOCs, such as beta and delta.

Credit: The University of Hong Kong

A recent study jointly conducted by the LKS Faculty of Medicine, The University of Hong Kong (HKUMed) and the Faculty of Medicine, The Chinese University of Hong Kong (CU Medicine) shows that vaccinated individuals can develop more robust and broadly reactive antibody responses against SARS-CoV-2 variants than unvaccinated individuals after an omicron infection. This highlights the need for COVID-19 vaccination for unvaccinated people even after an SARS-CoV-2 infection. The findings are now published in *Eurosurveillance*.

Variant of Concern (VOC) [omicron](#) caused the fifth COVID-19 wave in Hong Kong. This virus acquired

"Vaccination can help do more other than preventing severe COVID-19 outcomes. Those who had been fully vaccinated with either BNT162b2 or CoronaVac and then got breakthrough infection have very strong and very broad immunity against many variants including BA.2, BA.1 and others. Thus, for [vaccinated individuals](#), the infection can help to train your body to better prepare for a re-infection caused by another SARS-CoV-2 variants in future," remarked Professor Peiris.

"Do not assume an omicron infection in unvaccinated individuals alone can induce strong immunity to protect yourself against future variants. Antibody response induced by a natural infection with omicron in [unvaccinated people](#) is weak and not broadly reactive to other VOCs. These patients

are highly recommended to get vaccinated after full recovery from infection (at least one month or more after the infection)," said Professor Hui.

**More information:** Samuel MS Cheng et al, SARS-CoV-2 Omicron variant BA.2 neutralisation in sera of people with Comirnaty or CoronaVac vaccination, infection or breakthrough infection, Hong Kong, 2020 to 2022, *Eurosurveillance* (2022).  
[DOI: 10.2807/1560-7917.ES.2022.27.18.2200178](https://doi.org/10.2807/1560-7917.ES.2022.27.18.2200178)

Provided by The University of Hong Kong

APA citation: Vaccinated individuals develop more robust and broadly reactive antibody responses against SARS-CoV-2 variants (2022, May 25) retrieved 2 August 2022 from <https://medicalxpress.com/news/2022-05-vaccinated-individuals-robust-broadly-reactive.html>

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