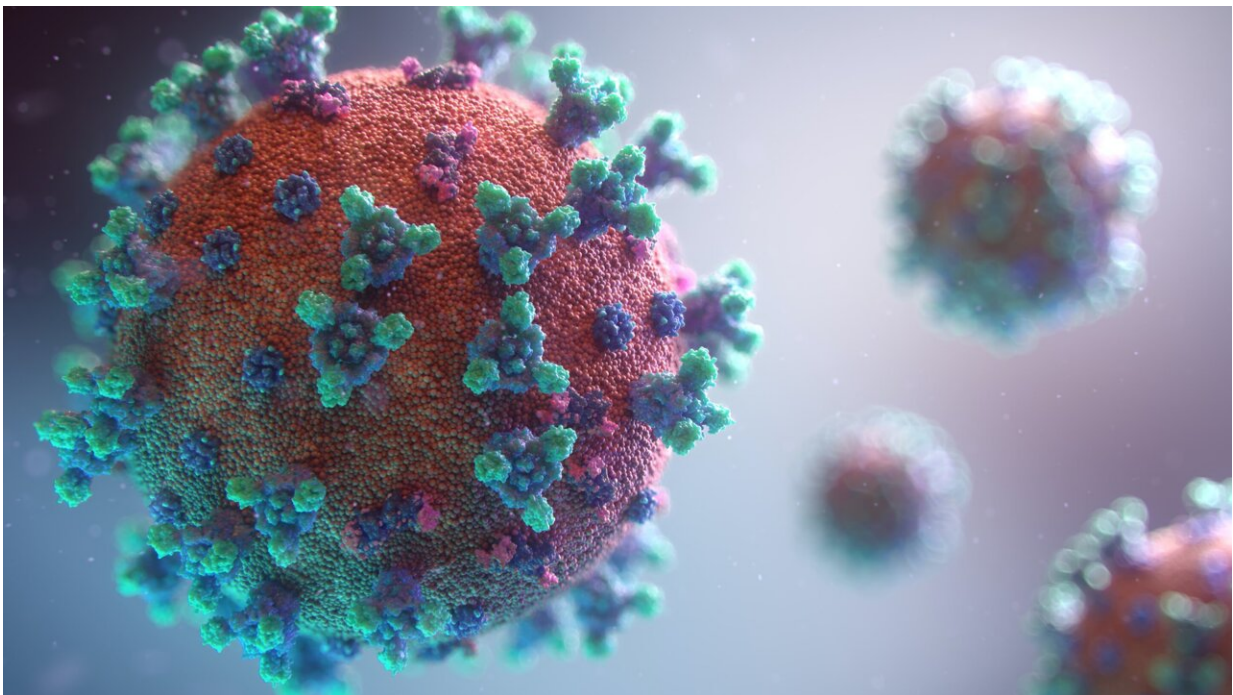


Delta breakthrough infection generates broad neutralizing antibody response in double vaccinated individuals

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Credit: Unsplash/CC0 Public Domain

A delta breakthrough infection generates a potent and broad neutralizing antibody response in double vaccinated individuals, according to new research. The findings were published this week in *mBio*, an open-access journal of the American Society for Microbiology.

In the new study, researchers collected sera from individuals attending St. Thomas' Hospital in London who tested positive for COVID-19 and had received 2 doses of either the Pfizer or AstraZeneca vaccines. They measured how much antibody the person produced and whether the antibodies were able to prevent infection of cells by different SARS-CoV-2 variants of concern.

The researchers found that in vaccinated individuals, there was a rapid and robust IgG recall response following breakthrough infection. This antibody response had broad neutralizing activity against current variants of concern, including omicron. The neutralization potency was 4.5-fold reduced against omicron compared to delta, whereas it was 28.9-fold reduced for people who were unvaccinated.

"Overall, a breakthrough infection effectively boosts the vaccine response, which could provide broad protection against current variants of concern," said co-author Katie Doores, Ph.D., Reader in the Department of Infectious Diseases, King's College London, in the United Kingdom. "Recent studies show a third vaccine dose dramatically increases the neutralizing antibody response, particularly against omicron. Our data suggests a delta [breakthrough infection](#) can also act as an effective booster. This study provides insights into population immunity in double COVID-19 vaccinated individuals where SARS-CoV-2 transmission levels remain high."

Dr. Doores said they are now studying the [immune response](#) in more detail by isolating [monoclonal antibodies](#) from individuals experiencing breakthrough infections.

More information: Thomas Lechmere et al, Broad Neutralization of SARS-CoV-2 Variants, Including Omicron, following Breakthrough Infection with Delta in COVID-19-Vaccinated Individuals, *mBio* (2022). [DOI: 10.1128/mbio.03798-21](https://doi.org/10.1128/mbio.03798-21)

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