

COVID-19 antibodies remain in the body 10 months after infection

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A study published in *Nature Microbiology* looked at the antibodies of 38 patients and healthcare workers in St Thomas' Hospital who were infected within the first wave of COVID-19, before they were

vaccinated.

Despite an initial decline in antibody levels just after infection, results showed that most people (18/19 patients) maintained detectable antibody levels 10 months after they were infected.

Antibodies help to fight COVID-19 by binding to the SARS-CoV-2 virus, preventing the virus from infecting cells. These results show how long antibodies remain in the body to fight future infections.

The researchers, led by Dr Katie Doores from the School of Immunology & Microbial Sciences, also tested how antibodies that were created to fight against a specific SARS-CoV-2 variant would respond to other variants. They looked at the original SARS-CoV-2 variant, as well as the alpha, beta, and delta variants.

While antibodies from a specific SARS-CoV-2 variant were able to generate a strong response to an infection from their own variant, results showed that antibodies were less effective when fighting against different variants.

Antibodies bind to the spike protein on the SARS-CoV-2 virus, and vaccines mimic this protein to create the immune response against SARS-CoV-2.

Mutations in the new SARS-CoV-2 variants (alpha, beta, delta) have created concerns about whether the vaccines that were developed to target the original SARS-CoV-2 variant would be effective against the new variants, and whether new vaccines should be designed against these variants.

Dr Liane Dupont said that "this study provides unique insight into the cross-neutralizing antibody responses induced by different SARS-CoV-2

variants."

However, these results suggest that there were differences in the spike protein of alpha, beta, and delta variants. This means that vaccines designed around one of these new variants may be less effective against other variants.

These results also show that our current vaccines designed around the original SARS-CoV-2 variant provides the best protection against all variants and should be used for vaccination programs.

This research follows on from a previous study, also led by Dr Katie Doores, that looked at COVID-19 antibody responses within three months.

Dr Katie Doores added that "this research was possible due to the close collaboration with clinical colleagues at St Thomas' Hospital who were able to sequence the viruses infecting hospitalized patients.

More information: Dupont, L. et al. Neutralizing antibody activity in convalescent sera from infection in humans with SARS-CoV-2 and variants of concern. *Nature Microbiol* (2021).

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