

COVID-19 immune response may remain stable for two months after diagnosis

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Credit: St. George's University of London

Initial results from an antibody testing study have revealed that COVID-19 antibodies remain stable in the blood of the majority of infected individuals almost two months after diagnosis and possibly

longer. However, antibodies were not detectable in everyone exposed to the virus, opening discussions on how best to interpret antibody and viral tests.

The findings give answers to questions around how long people may remain immune after exposure to COVID-19 and provide insight into how different age and ethnic groups respond to infection.

The study, led by researchers and clinicians at St George's, University of London and St George's University Hospitals NHS Foundation Trust in collaboration with colleagues at the Liverpool School of Tropical Medicine, Mologic Ltd. and Institut Pasteur de Dakar, Sénégal, is an analysis of antibody [test](#) results from 177 individuals diagnosed with COVID-19 infection from a viral test. The work is funded by a DFID/Wellcome Trust Epidemic Preparedness coronavirus grant.

Published on the pre-print server medRxiv, the study measured the levels of COVID-19 antibodies in patients exposed to the virus. The results demonstrate that in those patients with an antibody response, the levels remained stable for the duration of the study (almost two months). The study also shows that those patients with the most severe infections having the largest inflammatory response were more likely to develop antibodies.

The researchers suggest that this may be due to [antibody responses](#) working in parallel with an [inflammatory response](#) to severe disease, or that a higher viral load could lead to greater stimulation of the inflammatory and antibody development pathways. Further mechanistic work is required to understand if and why this may be the case.

Between 2 and 8.5% of patients did not develop COVID-19 [antibodies](#) at all. The researchers indicate this may be because the [immune response](#) in these patients could be through other immune response mechanisms,

such as different antigens or T-cells. Another option could be that relatively mild infections may be restricted to particular locations in the body, such as within mucosal cells of the respiratory tract, where antibody responses are instead dominated by a secretory immune system.

The study also explored associations between different characteristics and antibody responses. Being of non-white ethnicity was associated with a higher antibody response, tying into the knowledge that patients from BAME backgrounds are more likely to develop severe disease. Older patients and those with other conditions, such as with hypertension and being overweight were also more likely to have an antibody response.

Professor Sanjeev Krishna, corresponding author on the paper from St George's, University of London, said: "Our results provide an improved understanding of how best to use viral and antibody tests for [coronavirus](#), especially when not every person exposed to the virus will have a positive response. We need to understand how best to interpret the results from these tests to control the spread of the virus, as well as identifying those who may be immune to the disease.

"With the number of infections in the UK going down, we now have the very welcome challenge of attempting to carry out more tests to understand whether other factors are associated with an immune [response](#), such as viral load and genetic factors. We hope that by sharing our data at an early stage, this will accelerate progress towards effective use of test results around the world."

More information: Henry M Staines et al. Dynamics of IgG seroconversion and pathophysiology of COVID-19 infections, (2020). [DOI: 10.1101/2020.06.07.20124636](https://doi.org/10.1101/2020.06.07.20124636)

Provided by St. George's University of London

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