

# Identified: Levels of antibody protection required to prevent symptomatic COVID-19

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Researchers from the University of Oxford have today released their findings about the so-called 'correlates of protection' against symptomatic COVID-19; potentially a tool to speed up safe development of new vaccines which may assist regulators in assessing the likely potency of any new COVID-19 vaccine without the need for Phase III efficacy trial data.

Using an analysis based on COVID-19 cases detected in the United Kingdom, and immune system data from the blood samples of volunteers who took part in the UK trials of the Oxford [vaccine](#), the researchers compare [antibody levels](#) in vaccine recipients 28 days after their second dose, and COVID-19 cases that occurred more than 7 days after the blood sample was taken.

Writing on *MedRxiv*, they report that higher levels of anti-spike, anti-RBD IgG, and neutralizing antibody titres were associated with a greater degree of protection against COVID-19—defined as a PCR positive test with at least one symptom present.

These data were then used to build a model to extrapolate the levels of antibody associated with varying degrees of protection, providing estimates for a range of vaccine efficacies from 50% to 90%, using three different assays. Standard values are also provided to bridge between assays from different laboratories.

The study also confirms previous indications that there is no single level on any of the binding or neutralizing antibody assays used, that provides full protection against COVID-19. The results link immune responses to expected population protection after 2 doses, but cannot be used to check protection of an individual who has been vaccinated or protection conferred by a single dose.

Professor Sir Andrew Pollard, Director of the Oxford Vaccine Group, and Chief Investigator on the Oxford Vaccine Trial, said: "There is an urgent need to increase supply of vaccines for the world, but development and approval of new vaccines takes many months. We hope that the use of correlates by developers and regulators could speed up the process."

Dr. Merryn Voysey, Lead Statistician in the Oxford Vaccine Group at

the University of Oxford, said: "These results are important as they allow estimation of vaccine efficacy using blood samples from much smaller clinical trials than have been needed previously."

The findings have also been submitted for peer-review, and the researchers hope to communicate their findings fully in scientific literature in due course.

**More information:** Shuo Feng et al, Correlates of protection against symptomatic and asymptomatic SARS-CoV-2 infection, *medRxiv* (2021). [DOI: 10.1101/2021.06.21.21258528](https://doi.org/10.1101/2021.06.21.21258528)

Provided by University of Oxford

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