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Antibodies to SARS-CoV-2 Remain Stable, or Even Increase, Seven Months after Infection

The SEROCOVID study also provides evidence that pre-existing antibodies to common cold coronaviruses may be protective

Barcelona, 6 August 2021- The levels of IgG antibodies against SARS-CoV-2 Spike protein remain stable, or even increase, seven months after infection, according to a follow-up study in a cohort of healthcare workers coordinated by the Barcelona Institute for Global Health (ISGlobal), an institution supported by “la Caixa” Foundation, in collaboration with the Hospital Clinic of Barcelona. The results, published in *Nature Communications*, also support the idea that **pre-existing antibodies against common cold coronaviruses could protect against COVID-19**.

In order to predict the pandemic’s evolution and develop effective strategies, it is critical to better understand the dynamics and duration of immunity to SARS-CoV-2 as well as the possible role of pre-existing antibodies against the coronaviruses that cause common colds. With this goal in mind, the team led by ISGlobal researcher **Carlota Dobaño** followed a cohort of **healthcare workers at the Hospital Clinic (SEROCOVID study)** from the beginning of the pandemic, in order to evaluate the levels of antibodies against different SARS-CoV-2 antigens over time. “This is the **first study that evaluates antibodies to such a large panel of SARS-CoV-2 antibodies over 7 months**,” says Dobaño.

The research team analysed blood samples from **578 participants**, taken at four different timepoints between March and October 2020. They used the **Luminex technology** to measure, in the same sample, the level and type of IgA, IgM or IgG antibodies to 6 different SARS-CoV-2 antigens as well as the presence of antibodies against the four coronaviruses that cause common colds in humans. They also analysed the neutralising activity of antibodies in collaboration with researchers at the **University of Barcelona**. The study had funding from the European innovation network [EIT Health](#).

The results show that the majority of **infections among healthcare workers occurred during the first pandemic wave** (the percentage of participants with SARS-CoV-2 antibodies increased only slightly between March and October – from 13.5% to 16.4%). With the exception of IgM and IgG antibodies against the nucleocapsid (N), the rest of IgG antibodies (including those with neutralising activity) remained stable over time, confirming results from other recent studies.

“Rather surprisingly, we even saw an **increase of IgG anti-Spike antibodies in 75% of the participants from month five onwards**, without any evidence of re-exposure to the virus,” says Gemma Moncunill, senior co-author of the study. No reinfections were observed in the cohort.

Regarding **antibodies against human cold coronaviruses (HCoV)**, the results suggest that **they could confer cross-protection against COVID-19 infection or disease**. People who were infected by SARS-CoV-2 had lower levels of HCoV antibodies. Moreover, asymptomatic individuals had higher levels of anti-HCoV IgG and IgA than those with symptomatic infections. “Although **cross-protection by pre-existing immunity to common cold coronaviruses remains to be confirmed**, this could help explain the big differences in susceptibility to the disease within the population,” says Dobaño.

Reference

Ortega N, Ribes M, Vidal M, et al. *Seven-month kinetics of SARS-CoV-2 antibodies and protective role of pre-existing antibodies to seasonal human coronaviruses on COVID-19*. Nature Communications. DOI: 10.1038/s41467-021-24979-9

About ISGlobal

The Barcelona Institute for Global Health, ISGlobal, is the fruit of an innovative alliance between the “la Caixa” Foundation and academic and government institutions to contribute to the efforts undertaken by the international community to address the challenges in global health. ISGlobal is a consolidated hub of excellence in research that has grown out of work first started in the world of health care by the Hospital Clínic and the Parc de Salut MAR and in the academic sphere by the University of Barcelona and Pompeu Fabra University. Its working model is based on the generation of scientific knowledge through Research Programmes and Groups, and its translation through the areas of Training and Analysis and Global Development. ISGlobal has been named a Severo Ochoa Centre of Excellence and is a member of the CERCA system of the Generalitat de Catalunya.

EIT Health

EIT Health is a network of best-in-class health innovators backed by the EU. We collaborate across borders to deliver new solutions that can enable European citizens to live longer, healthier lives. As Europeans tackle the challenge of increasing chronic diseases and multi-morbidity and seek to realise the opportunities that technology offers to move beyond conventional approaches to treatment, prevention and healthy lifestyles, EIT Health is supported by the EIT, a body of the European Union we need thought leaders, innovators and efficient ways to bring innovative healthcare solutions to market. EIT Health addresses these needs. We connect all relevant healthcare players across European borders – making sure to include all sides of the “knowledge triangle”, so that innovation can happen at the intersection of research, education and business for the benefit of citizens.

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