

COVID-19 Immunity: Study Shows That Protective Immunity To Current Seasonal Coronaviruses Are Short-Lasting, SARS-CoV-2 Could Be The Same

COVID-19 Immunity: A new European study by researchers from University of Amsterdam-Netherlands, INGENASA Institute-Spain and University of Antwerp-Belgium have found that immunity to four existing seasonal coronaviruses are short-lasting and that the duration of protective immunity against SARS-CoV-2 may be also short-lived.



The study findings are from a case study of ten healthy subjects monitored over 35 years.

The study findings showed that reinfection with the same seasonal coronavirus occurred frequently around one year after the initial infection, which suggests that caution may be needed when relying on policies that require long-term immunity, such as vaccination or natural infection to reach herd immunity.

The research findings are published in the journal: Nature Medicine <https://www.nature.com/articles/s41591-020-1083-1>

Even though there is limited evidence of reinfection and data after exposure to SARS-CoV-2, it is generally assumed that reinfection by coronaviruses does occur. To prepare for future waves of SARS-CoV-2 infection, it is essential to understand the length of immunity to reinfection.

To date however there has been more documented cases of reinfections occurring in previous SARS-CoV-2 patients in a short span of only two to three months which is also raising concerns.

Dr Lia van der Hoek from the Department of Medical Microbiology and Infection Prevention, Amsterdam Infection & Immunity Institute-University of Amsterdam along with other examined four strains of human seasonal coronavirus: HCoV-NL63, HCoV-229E, HCoV-OC43 and HCoV-HKU1 that cause respiratory tract infections but are otherwise genetically and biologically dissimilar

These four coronaviruses belong to two distinct taxonomic genera and use different receptor molecules with varying host cell tropism. However given this large variation, the team hypothesize that characteristics shared by these four seasonal coronaviruses, such as the duration of protective immunity, are representative of all human coronaviruses, including SARS-CoV-2.

In order to find out how often seasonal coronavirus infections occur, the researchers examined a total of 513 serum samples collected at regular intervals since the 1980s from ten healthy adult males in Amsterdam. The authors measured increases in antibodies to the nucleocapsid protein ie an abundant coronavirus protein for each seasonal coronavirus.

Any increase in antibodies was considered a new infection. The study team observed three to 17 coronavirus infections per patient, with reinfection times between six and 105 months. Reinfections were frequently observed at 12 months after the initial infection.

The study team also found that blood samples collected in the Netherlands during June, July, August and September had the lowest rate of infections for all four seasonal coronaviruses, which indicates a higher frequency of infections in winter in temperate countries.

Hence the researchers suggest that SARS-CoV-2 may share the same pattern after the pandemic.

Even though further detailed research w

ith larger cohorts is needed, the study team concludes that reinfections occur frequently for all four seasonal coronaviruses, which suggests that it may be a common feature for all human coronaviruses, including SARS-CoV-2.