

# Quantifying Antibodies Directed against the SARS-CoV-2 Spike Protein S1 Subunit

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## Video Byte

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# Abstract

With the COVID-19 pandemic causing a global health crisis, accurate diagnosis is critical. Diagnosing acute disease relies on RT-PCR tests measuring the presence of SARS-CoV-2 in the sampled material but in patients with suspected COVID-19 with a negative RT-PCR result, measuring anti-viral antibodies can help clinicians identify infected individuals. Antibody testing can also determine if someone was previously infected and help to measure the prevalence of the virus in a community. A new study characterizes an assay measuring total antibodies – combined IgA, IgM, and IgG isotypes – against SARS-CoV-2. The assay, ECLIA, specifically measures antibodies against the S1 subunit of the viral spike, which carries the virus's receptor binding domain. Researchers in Liechtenstein evaluated ECLIA in a population with 125 cases of confirmed SARS-CoV-2 infection and 1159 individuals without evidence of COVID-19. The results showed a test sensitivity of 97.6%, while the specificity was 99.8%. Antibody levels were highest in hospitalized patients and lower in symptomatic patients outside the hospital and those with asymptomatic infection. Following COVID-19, smokers developed lower antibody titers than non-smokers, whereas patients without fever had lower antibody titers than patients with fever. Following COVID-19, smokers developed lower antibody titers than non-smokers, whereas patients without fever had lower antibody titers than patients with fever suggesting that the assay may be able to test the association between clinical characteristics and antibody levels and help identify individuals with potential cross-reactivity to SARS-CoV-2.