

# Emory develops diagnostic antibody blood test to determine antibody-responses to COVID-19

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The antibody test is performed as a standard blood test using one vial of blood.

ATLANTA - Emory University has developed a sensitive and specific diagnostic antibody blood test that will help determine antibody responses in people who have been infected by COVID-19.

The antibody tests, also known as serological tests, will provide important medical, scientific and epidemiological information as health care providers and public health experts try to gain knowledge of the COVID-19 impact on individuals and on our communities.

Initially, testing will be available only to Emory Healthcare inpatients, certain groups of outpatients, health care providers and staff members, but will then be expanded significantly. The tests are being carried out by the Clinical Immunology section of Emory Medical Laboratories (EML). Emory will begin testing at a rate of 300 people per day, with plans to scale up over several weeks.

The Marcus Foundation has provided a \$3 million grant to initiate the extensive process to scale up test processing capabilities. "Bernie and Billi Marcus' partnership is vital to this important step forward in America's COVID-19 response," says Jonathan S. Lewin, MD, president and CEO of Emory Healthcare.

Emory hopes to reach a goal of 5,000 tests per day by mid-June. To scale up to that goal, the laboratory is organizing efforts to work with diagnostic equipment manufacturers to incorporate commercially available automation, says John Cardella, vice president of laboratories for Emory Healthcare.

"Emory is pleased to take a test developed by superb scientists in our research laboratories and implement it in our clinical laboratories, so we can offer it to the public," Cardella says.

"This has been a great partnership between the outstanding immunology research at Emory, the Emory Vaccine Center and EML," says Jens Wrammert, PhD, assistant professor of pediatrics and a member of the Emory Vaccine Center.

The test is performed as a standard blood test using one vial of blood.

"The test will indicate whether somebody has developed antibodies to the COVID-19 virus," says John Roback, MD, PhD, executive vice-chair for clinical operations in the Department of Pathology and Laboratory Medicine and medical director of Emory Medical Laboratories.

Roback emphasizes that the presence of antibodies is no guarantee of immunity. Antibodies are small proteins created by the immune system in the process of fighting off a disease. Antibodies develop days after a person has been infected and can potentially help a person build immunity to protect against being re-infected. Emory will be leading cutting edge research into how and when this immunity occurs.

The nasal swab tests that recently became available only tested for the presence of active COVID-19 infection and could not detect potential immunity.

"The results from these antibody tests will have important implications for determining our next steps in responding to this pandemic," Roback says.

People exhibiting mild or moderate symptoms have not been able to be tested previously, leaving them to wonder if they were sickened with COVID-19 and unknowingly spreading the virus. In addition, the test for active COVID-19 can be falsely negative, and some people with COVID-19

can be asymptomatic. The serology test will help fill those significant voids by identifying individuals in all these groups with previous active COVID-19 infection.

“The serology test only indicates that a person has made antibodies against the virus -- and not whether they are protected from reinfection,” Roback says. “In order to get a better handle on whether or not a person is immune to the COVID-19 virus, more specific tests, such as virus neutralization assays, are necessary.”

Roback, Wrammert and several other researchers at Emory are working together on just that – tests that will determine a person’s specific immunity to COVID-19 infections and how long such immunity lasts.

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