Montefiore Providers Guide to COVID-19 Test Results

Montefiore is offering SARS-CoV-2 antibody testing to the Montefiore associates and patients. Information below is provided to answer frequently asked questions and assist with interpretation of these test results.

**How is COVID-19 diagnosed?** Coronavirus COVID-19 disease is caused by the SARS-CoV-2 virus. Presence of virus is detected by PCR of a nasopharyngeal swab. Nasopharyngeal swabs results are positive early in the disease. The results can be negative when virus has been cleared, or when the swab was performed at a time of already declining viral load. When the test does not detect virus that is present the result is called a false negative.

**What is antibody testing for SARS-CoV-2 virus?** Antibody testing for COVID-19 is performed on blood specimens (serum). The test used at Montefiore detects the presence of IgG antibody to the SARS-CoV-2 virus. We are using a commercially available Architect test by Abbott. It is a qualitative test that detects the presence or absence of antibodies to SARS-CoV-2.

**Which antibodies are detected by the serologic test?** Only IgG antibodies are detected by our currently available test. We do not test for the presence of IgM, IgA, or IgE.

**When is the best time to get COVID-19 blood test for serology (antibody test)?** In general, IgG peaks at about 20 days post initial infection. Antibodies (IgG) to SARS-CoV-2 can be detected as early as 7 days in some patients, but IgG is most reliably detected at least 14 days from onset of symptoms. Presence of antibodies to SARS-CoV-2 does not distinguish past infection from recent or current infection. Testing should ideally be performed at least 21 days from symptom onset.

**How long will SARS-CoV-2 IgG be detectable in serum?** At this time it is not known how long antibodies to SARS-CoV-2 will last. They may remain for a long time, disappear, or be replaced by different antibodies. This is an area of active research.

**What is the function of SARS-CoV-2 antibodies?** At this time we do not know whether and if so how SARS-CoV-2 antibodies affect virus uptake and replication in a person with COVID-19. It is possible that the antibodies could neutralize the virus, but this is not yet known. Tests of antibody function are not being done at Montefiore.

**How are test results reported?** Results are reported in EPIC as POSITIVE or NEGATIVE. This is a qualitative test; we do not test for titers or antibody levels (amount of antibody present).

**What does it mean if my test result is positive for antibodies to SARS-CoV-2?** Presence of antibodies to SARS-CoV-2 suggests a person was infected with the SARS-CoV-2 virus, although result may be false positive due to cross-reactivity with other coronaviruses. The person may have been symptomatic with COVID-19, or may have been asymptomatic. At this time, we do not know the role of antibodies detected in the serum. Specifically,
- We do not know whether presence of IgG antibodies to SARS-CoV-2 will protect from future infections or provides long term immunity.
- We do not know whether presence of IgG antibodies to SARS-CoV-2 affects the duration of symptoms or recovery.
- We do not know the function of IgG antibodies to SARS-CoV-2

**What does it mean if my test result is negative for antibodies to SARS-CoV-2?** If a person was infected with SARS-CoV-2 virus and has a negative serology test, it is possible testing was done too early to detect the virus. Some people do not develop antibodies to SARS-CoV-2 even after having laboratory confirmed COVID-19 by PCR test. Negative results do not rule out previous or current infection with SARS-CoV-2 virus.

**Can a positive serological antibody test be false positive?** The antibody assay for SARS-CoV-2 can sometimes detect antibodies to other coronaviruses, such as with coronavirus strains HKU1, NL63, OC43, or 229E.
What are the implications of serological testing for SARS-CoV-2 for healthcare workers? Positive or negative results of SARS-CoV-2 serological testing do not correlate with symptoms and should not be used for clinical decision making. Indications to return to work are as per institutional and NYSDOH guidelines. The results of antibody testing should not alter adherence to social distancing and universal masking. These recommendations should be adhered to at all times while symptomatic and as per public and institutional ordinances.

All healthcare working need to continue wearing appropriate personal protective equipment regardless of their own or their patient’s serological test results.

For further questions please contact Infectious Diseases or call COVID-19 Provider hotline at 914-457-4136.

Summary of serology interpretation

<table>
<thead>
<tr>
<th>Serology Result</th>
<th>Context</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative</td>
<td>No prior symptoms, NP(^1) PCR Negative or not performed</td>
<td>Either no prior COVID-19 disease or asymptomatic infection, or serological testing done too early</td>
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<tr>
<td>Negative</td>
<td>Prior symptoms consistent with COVID-19, or previously positive NP PCR test</td>
<td>Serological testing done too early, or did not generate IgG antibodies to SARS-CoV-2</td>
</tr>
<tr>
<td>Positive</td>
<td>Symptoms of COVID-19 No symptoms of COVID-19 Negative NP PCR test Positive NP PCR test</td>
<td>Previous COVID-19 or asymptomatic infection with SARS-CoV-2 virus or possibly, false positive result especially if no prior symptoms of infection</td>
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</tbody>
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\(^1\) Nasopharyngeal