



Health Canada has authorized two COVID-19 serologic tests that are now being validated by the province:

LIAISON

manufactured by DiaSorin

- **detects IgG antibodies against the SARS-CoV-2 S1/S2 spike proteins.**

98.9% specificity

97.4% sensitivity at >15 days post-symptom onset[1]

SARS-CoV-2 IgG Assay

manufactured by Abbott Laboratories

- **detects IgG antibodies against the nucleocapsid protein.** These surround the RNA genome

99.9% specificity

100% sensitivity at 17 days post-symptom onset[2]



Antibody responses in patients with COVID-19

In general, SARS-CoV-2 IgM seems to seroconvert (become detectable) before IgG

One study reported a median seroconversion time of

- 5 days for IgM (n=41)
- 14 days for IgG (n=208)[3]

Another study reported a median seroconversion time of:

- 12 days for IgM (n=173)
- 14 days for IgG (n=173)[4]

One study reported that 100% of patients with COVID-19 tested positive for SARS-CoV-2 IgG within 19 days post-symptom onset (n=285)[5]

Immune System Basics

IgM antibodies are produced in response to initial exposure. Specific antibody response occurs along with nonspecific immune responses by cells such as neutrophils, macrophages, monocytes, dendritic cells, and the complement system.

IgG antibodies are humoral antibodies which form after some time post-infection, are usually responsible for long-term immunity and are the most abundant

How could a serologic test help?

COVID-19 is diagnosed via reverse transcriptase polymerase chain reaction (RT-PCR), that uses reverse transcription of RNA into complementary DNA and amplifying this DNA to detect if the target SARS-CoV-2 RNA is present.

But:

- If RNA is not adequately collected on the swab, there can be **false negative** results, and
- This viral RNA test is not able to identify individuals who were previously infected but fully recovered

Antibody testing may identify those previously infected with COVID-19 but unaware or never tested

Serological testing could provide data on the proportion of the population that may have been infected. Even though many such studies are not designed to determine immunity, they have shown that people who have recovered from infection have antibodies to the virus, but some have very low levels suggesting that non-specific cellular response may also be critical for recovery

Important questions that remain unanswered in current research

Which antibodies are the best to look for in serologic tests?

How long do antibodies last?

Are antibodies the best measure to reflect immunity, and how high of a level is needed to protect against re-infection?

Are the cross-reactions with other viruses including coronaviruses that cause the common cold, MERS and SARS?



Serological testing is not yet available here – to test physicians, other healthcare workers, or anyone else – but we expect that it will be soon. Stay tuned.



If you have a confidential question about your concerns, your exposures, your health, etc., contact posh.covid@ubc.ca
POSH operates 8 am to 8 pm, Monday to Saturday and we will get back to you as soon as possible.

1. DiaSorin LIAISON SARS-CoV-2 S1/S2 IgG brochure (click here)
2. Bryan A et al. J Clin Microbiol 2020;JCM.00941-20
3. Guo L et al. Clin Infect Dis 2020;ciaa310

4. Zhao J et al. Clin Infect Dis 2020;ciaa344
5. Long QX et al. Nat Med 2020, doi:1038/s41591-020-0897-1