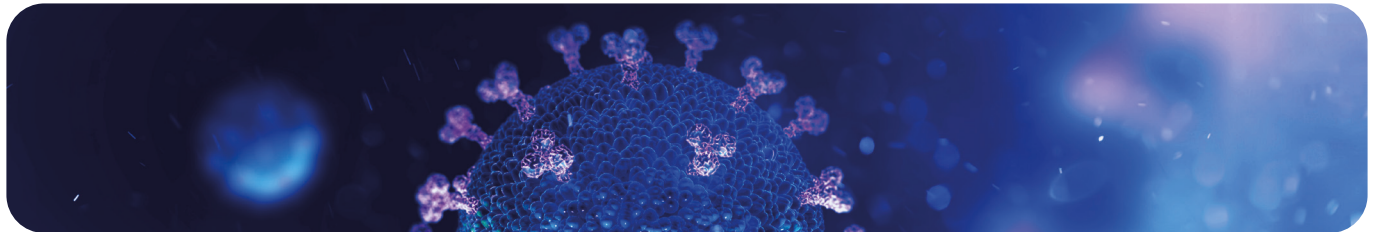




PATHOLOGY TESTS EXPLAINED

Information about pathology tests to help everyone take control of their health and make the right decisions about their care.

WHAT YOU SHOULD KNOW ABOUT YOUR **COVID-19 TESTS**



Rapid Antigen Tests (RATs)

These tests are useful if you need quick results. They can be done at home and will give a result within 15-30 minutes. Depending on the type of test, you will need to swab your nose and throat or the inside of your cheeks and tongue.

How RATs work

Antigens is the name given to molecules on or close to the surface of viruses that are recognised by our body's immune system which then makes antibodies to fight them. These tests work by detecting some of the COVID-19 virus' antigens in the same way as our immune system does. Many of the commercial test kits detect two or more different antigens.

Results

Although convenient, RATs have their limitations. Their accuracy is not as good as the PCR tests performed in the laboratory. They can produce false negative or false positive results.

RATs are generally best used within the first seven days after your symptoms appear. A single negative test result cannot rule out infection. This means if your RAT result is negative you need to take another one 48 hours later. This gives a higher chance of accuracy. You can take a third test if you are still getting a negative result but continue to have symptoms, or you can arrange to have a PCR test.



PCR testing

PCR testing detects the genetic material of the virus, and it is very accurate – more accurate than taking a RAT. To have a PCR test you will need to ask your doctor for a Medicare referral. You can get a PCR test at either a pathology collection site or a GP respiratory clinic.

A swab will be taken from the top of the inside of your nose or the back of your throat. Your sample will be transported to a laboratory for testing.

How PCR testing works

The virus that causes COVID-19 is made up of a genetic material called RNA which is surrounded by proteins and fats. When the virus enters the cells in your body it uses the RNA to copy itself. PCR testing looks for DNA, another form of genetic material. This means the first step in the testing process is to convert the virus' RNA into DNA and then use chemicals to increase the amount so it can be more easily detected by the PCR instrument.

Results

PCR testing can only tell if you have live or very recently dead virus in your body when you give the test sample. After you recover and the virus starts to clear, the PCR test will show negative.

Timing is important. If the sample for a PCR test is taken too soon after you have been exposed to the virus, the viral load may not be high enough to be detected. On the other hand, doing a test when you have recovered will give a negative result.



Antibody testing

Testing for antibodies is another way to check for COVID-19. These are blood tests that measure your body's response to being infected by the virus. When your body is infected, your immune system makes antibodies specifically designed to fight the particular type of virus.

Results

Antibody tests are limited in their use. The body takes time to produce antibodies against the virus which means that these tests are very likely to give a false negative result in the first few days of infection. Antibody tests are not reliable enough to rule out a current infection and are most useful to detect past infection and potential immunity. However, they cannot tell you exactly how long ago you were infected. If you have a negative result it may be because you were infected too long ago for any antibodies to remain.

If your test result shows that you have antibodies you've either had a COVID-19 infection in the past few months or you've had the COVID-19 vaccine. One problem is that we also produce antibodies against other similar coronaviruses such as the common cold and these can be detected by antibody tests and give false positive results.



Is your COVID-19 test accurate?

The accuracy and precision of pathology tests performed in the lab are typically very good. If you do the same test multiple times on the same sample, you will generally get the same answer. However, there is no such thing as a perfect test – one that correctly answers the question being asked 100% of the time. Many factors come into play, and not all of them are obvious.

What matters to test accuracy?

The most important thing in the case of COVID-19 PCR testing is the sample swab. Swabs that do not reach a part of the nose or throat where the virus is present will not come back positive. Repeat testing should always be done on a fresh sample.



Sensitivity and specificity

Tests are usually described in terms of their sensitivity and specificity. Developing laboratory tests is a balancing act. Tests need to be sensitive enough to detect the virus at low levels, but also specific enough not to give a positive result in response to something else such as another virus. A test that is too highly sensitive will pick up people who have the virus but may also give positive results for people who don't have the virus. A test that is too highly specific may miss people who have the virus.



False negatives and false positives

You may come across these terms when COVID-19 testing is being discussed.

- If the test gives a negative result in a person who is actually infected that is called a false negative.
- A person who does not have the infection but whose test gives a positive result is a false positive.

For more detailed information on these and many other tests go to [pathologytestsexplained.org.au](https://www.pathologytestsexplained.org.au)



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