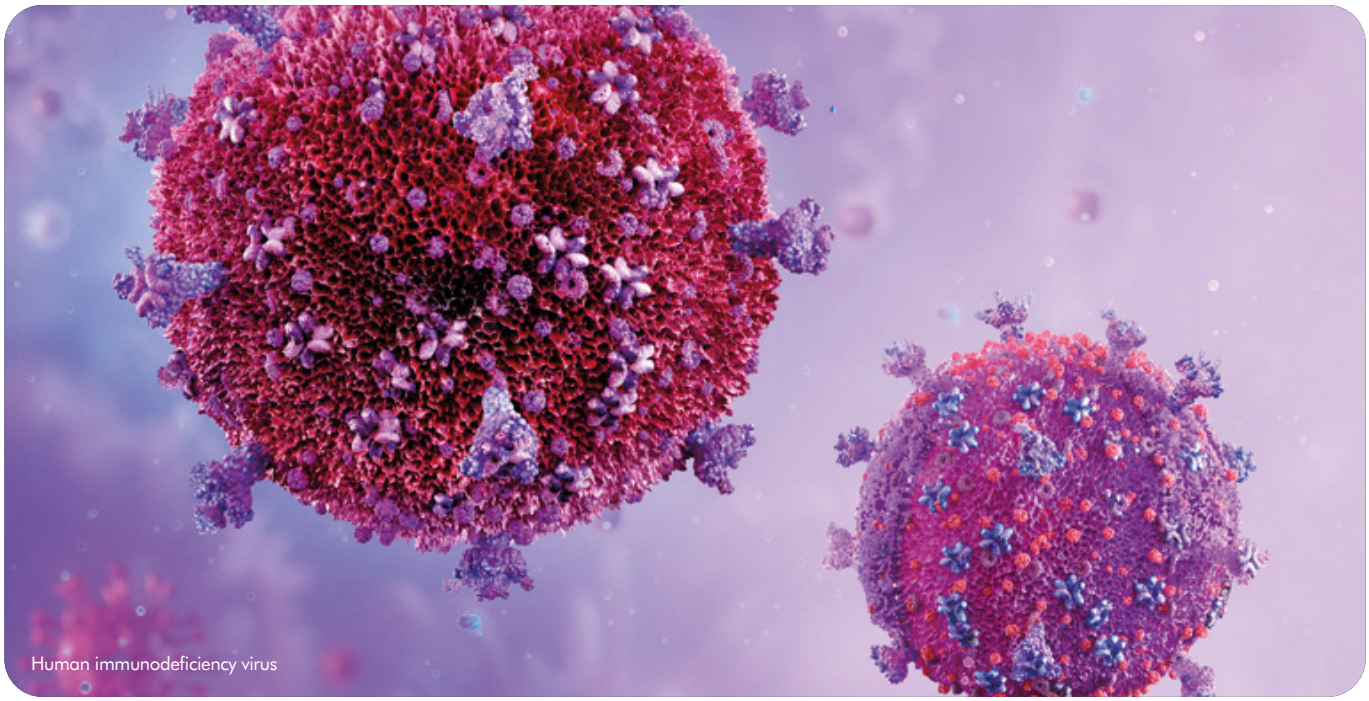
PATHOLOGY TESTS EXPLAINED

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
GENOTYPE TESTING FOR HIV DRUG RESISTANCE

Genotypic drug resistance testing can help make sure your HIV treatment is working effectively. If drug resistance is found, a new treatment can be used instead.

The human immunodeficiency virus (HIV) is the virus that causes HIV infection. The treatment for HIV is antiretroviral therapy (ART). ART medications stop the virus from multiplying. They cannot cure HIV but they can keep the virus under control.



Human immunodeficiency virus

How does the virus become drug resistant?

Once you are infected by HIV, the virus begins to multiply. It does this by copying itself and as it does, mistakes or mutations can be made in the RNA. Some of these mutations can lead to drug resistance.

If your treatment isn't working and a known mutation is detected, your medication will need to be changed. By continuing with the same medication, the mutated virus will be able to keep multiplying because the medication cannot stop it. After a while, the mutated virus will become the most common form of the virus in your body as all the other forms of the virus are being destroyed by the medication.

How is genotypic resistance testing used?

Genotypic resistance testing looks for genetic mutations in the virus that are known to cause resistance to specific antiretroviral medications. By doing this, these drugs can be avoided and others used instead.

Drug resistant HIV can be transmitted from person to person so it's possible that you can have a drug resistant type of virus before you start taking medication. The genotypic test is also used at the start of therapy to help your doctor choose the most appropriate and effective combination of antiretroviral medications.

First, testing your viral load

Your doctor will first order a blood test to assess the viral load. This is a measure of how many HIV genetic particles are in your body. If you have a high viral load this indicates the virus is growing and your treatment is not working well.

So, next your doctor will order genotypic resistance testing. This works best on blood samples with a viral load of at least 1,000 copies per millilitre of blood. If your viral load is very low, the test probably won't work as there is not sufficient genetic material for reliable testing.

How genotypic resistance testing works

In genotypic resistance testing the genetic material of the virus is isolated from your blood sample and the RNA sequenced – a form of decoding. This results in a long string of letters signifying the genetic code of particular parts of the virus.

The sequence from your virus is compared to a computer database to see if any genetic mutations that are known to cause drug resistance are present. For certain drugs, it takes only single mutations to increase resistance to high levels. For other drugs, a combination of mutations is needed for resistance to form.

The test is not good at detecting less-common mutations, which affect less than 20 per cent of viruses. Also, unknown resistance mutations may be present in rare strains of HIV.

Having a medical test

The choice of tests your doctor makes will be based on your medical history and symptoms. Make sure you tell them everything you think might help.

You play a central role in making sure your test results are accurate. Do everything you can to make sure the information you provide is correct and follow instructions closely.

Talk to your doctor about any medication you are taking. Find out if you need to fast or stop any particular foods or supplements. These may affect your results.

Getting your results

The test result identifies the viral mutations. These are described by a combination of letters and numbers, for example K103N.

Based on the test result, your doctor will identify whether a given mutation is one known to cause drug resistance. Not all mutations cause drug resistance. Your doctor can adjust your antiviral medications to find the most effective combination.

Questions to ask your doctor

Why does this test need to be done?

Do I need to prepare (such as fast or avoid medications) for the sample collection?

Will an abnormal result mean I need further tests?

How could it change the course of my care?

What will happen next, after the test?

For more detailed information on these and many other tests go to **pathologytestsexplained.org.au**

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www.pathologytestsexplained.org.au

Please use this QR code to access more information

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My Health Record

You'll find a direct link to the Pathology Tests Explained website embedded in the pathology results pages of your My Health Record.

Click on the link to find information about what your tests are investigating or measuring and what your results can tell your doctor.