

Histocompatibility testing for kidney transplant patients

What is histocompatibility testing?

Histocompatibility testing (also called tissue typing) helps find the best possible organ for your transplant. We will give your blood samples to the histocompatibility and immunogenetics (H&I) laboratory to have these tests. There are three main tests – HLA typing, HLA antibody tests and HLA antibody crossmatching.

What is HLA typing?

You inherit your HLA (human leucocyte antigen) type (also called tissue type) from your parents. HLAs are found on the surface of most cells in the body. If your HLA type is different to the donor's, your body's immune system may recognise the difference and attack the kidney and damage it. The better the HLA match between you and the donor, the better the chances of the transplant being successful in the long term. However, while a perfect match is best, it is not always essential, and many transplants work well despite some differences in the HLA types.

There are many different tissue types and so most people are different from each other. The best chances of finding a good match are among your close family members, especially brothers and sisters. However, it is also possible to find a good match with donors who are not related to you. We must find your HLA type to help choose a suitable donor for your transplant. We will do this by testing a sample of your DNA, which we get from your blood cells. The laboratory will store a sample of your DNA in case we need to carry out more tests in the future.

We will give the results of your HLA typing to the transplant team that will perform your transplant. We will also send this information to NHSBT Organ Donation and Transplantation (NHSBT ODT) as part of the information they need to help find a suitable donor for you. We may send copies to the other health-care staff who are treating you (for example, your dialysis unit), so they have your results in their files. We can also send these results to any other hospitals you may transfer to in the future.

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What are HLA antibodies?

HLA antibodies are made by your immune system, and they can cause very serious damage to the kidney if they recognise the differences in the HLAs. You may have HLA antibodies if you have:

- previously had a transplant that failed
- had blood transfusions, or
- been pregnant

HLA antibodies can appear, disappear and reappear over time and so it is important to test for these regularly. If you are waiting for a transplant, you must be tested for HLA antibodies at least once every three months. We will send your blood to the H&I laboratory to carry out crossmatch tests in the future.

HLA antibody testing

The laboratory will use the results to help decide which differences in your and your donor's HLA types can be allowed, and which cannot. The laboratory will then send the results to NHSBT ODT to help make sure you are only offered a kidney from a suitable donor. The laboratory will keep all these samples to carry out crossmatch test in the future.

What is a HLA antibody crossmatch?

The crossmatch test is a direct test between the antibodies in your blood and the white blood cells from a potential donor. This is the ultimate test of whether you have any antibodies that could cause a transplant to fail.

If you have been offered an organ from a deceased donor (a donor who has died), we will carry out this test immediately before the transplant is expected to take place, to decide whether you match the donor. The crossmatch test will use some of your stored blood samples, but the transplant team may also call you in to provide a fresh sample. Usually, a transplant cannot take place unless the result of this test shows there are no antibodies in your blood at the time of the transplant.

If a living donor is being considered, you will probably have more than one crossmatch test to make sure the donor is suitable. These tests will usually take place over a number of months, as it can be a long time between the first test and the transplant. The final crossmatch test will be shortly before the transplant is due to take place. Until the transplant team know the results of the final crossmatch test, they cannot make a decision about whether or not the donor is suitable, and whether the transplant can go ahead.

We will give the crossmatch results to a member of the Transplant Team as soon as we have them.

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Once you have had your transplant, the laboratory will store all your samples, and the donor's samples, in case they need them for tests to help with your treatment in the future. If your transplant has been successful, we will need to take samples regularly to check for specific antibodies. These antibodies can provide early signs of your body rejecting the kidney.

What happens to my sample?

When we no longer need your samples for testing, or we have more samples than we need, the law allows us to use these anonymously for quality control (making sure our tests are working correctly), research (depending on whether this is approved by an ethics committee) or introducing new procedures, or for educating and training doctors, nurses, scientists and other professionals working in healthcare. This helps us maintain accurate testing procedures and improve our knowledge, and so provide the best possible care for all patients.

However, if you do not want us to use your samples for any of the purposes above, you must tell your doctor or the person taking your blood (or both). We will respect your wishes and dispose of any samples we no longer need.

This patient information leaflet does not replace the guidance provided by your treating clinical team. Your treating clinical team should advise you of the options for treatment, advise of any alternative treatment and associated risks. Your treating clinical team should ensure that you are aware of the material risks associated with the treatment advised.

It is the responsibility of the requester submitting your sample, to ensure informed consent has been obtained for all tests, including genetic tests in accordance with current guidance and legislation.

If you are unsure about any aspects of the treatment/care, ask your treating clinical team to explain.

NHS Blood and Transplant

NHS Blood and Transplant (NHSBT) saves and improves lives by providing a safe, reliable and efficient supply of blood and associated services to the NHS in England and North Wales. We are the organ donor organisation for the UK and are responsible for matching and allocating donated organs. We rely on thousands of members of the public who voluntarily donate their blood, organs, tissues and stem cells.

All information provided to NHS Blood and Transplant is used in accordance with the General Data Protection Regulation (GDPR) and all other applicable privacy legislation. For more information on how we look after your personal details or to find out more about your privacy rights visit www.nhsbt.nhs.uk/privacy or call 0300 123 23 23. NHSBT are committed to keeping your data safe and confidential.

For more information

Visit nhsbt.nhs.uk

Email enquiries@nhsbt.nhs.uk

Call **0300 123 23 23**