

Histocompatibility testing for cardiothoracic transplant patients

What is histocompatibility testing?

We carry out histocompatibility testing (also called tissue typing) to help find the best possible organ for your transplant. We will give your blood samples to the histocompatibility and immunogenetics (H&I) laboratory to carry out 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. HLA antigens are found on the surface of most cells in the body. There are many different tissue types and so most people are different from each other. If your HLA type is different to the donor's, your body's immune system may recognise the difference and attack the organ and damage it. We do not normally use HLA matching when we choose donors for cardiothoracic transplants but knowing you and your donor's HLA type does allow us to monitor how your immune system responds to the transplanted organ, if your body rejects it. If you have HLA-specific antibodies (see below) which can cause your body to reject the organ, we can use your HLA type to choose a suitable donor.

How is the test carried out?

We carry out HLA typing 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 as part of the information they need to help find a suitable donor for you. We may send copies to other health-care staff who are treating you, 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 transplanted organ if they recognise the differences in the HLAs. Your immune system may make HLA antibodies if you have had blood transfusions or if you have been pregnant. These antibodies can appear, disappear and reappear over time, and we may ask you to give a small blood sample which we can test at a later date. We will send your blood to the H&I laboratory so that they can carry out the tests at the relevant times.

How does the presence of an HLA antibody affect my chances of receiving a transplant?

A positive antibody result means that we must consider the donor's HLA type when we choose someone to donate their organ to you. This is to make sure that the organ we choose does not have a HLA type that your antibodies will react with. We will find a match by comparing your HLA type with that of a possible donor and, if necessary, by carrying out a crossmatch (as described below).

The laboratory will store all these samples for carrying out crossmatch tests in the future.

What is an HLA antibody crossmatch?

The crossmatch is a direct test between antibodies in your blood and white blood cells from a possible donor. This is the ultimate test of whether you have any antibodies that could cause a transplant to fail. In some cases, the transplant will not go ahead until we carry out this test and reported to the Transplant Team. In other cases, we will not carry out a crossmatch until after a transplant has taken place, as a guide to any treatment you may need in the future. This crossmatch test will use some of your stored blood samples, but the Transplant Team may also call you in to provide a fresh sample.

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. We may ask you to provide more samples for antibody testing after the transplant, which we will use to monitor how your immune system has responded to the new organ.

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What happens to my samples?

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.

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

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