

## Tissue Matching

### *For a kidney/pancreas transplant*

*You will have 4 tests that will show how compatible you are with a potential donor. This chapter describes those tests and explains how the results are used.*

### **What is tissue matching?**

*Tissue matching* is a way of finding out if 2 people are *compatible*, or alike. The results of tissue matching help us know if it is safe for us to place a donor's organ into your body.

### **What is donor compatibility?**

*Donor compatibility* is when your tissues and the donor's tissues are enough alike that your body is more likely to accept the transplanted organ.

### **Why is donor compatibility important?**

Your body has a built-in *immune system* that recognizes substances that could harm it. This system protects your body against anything that is different from your body. Its main job is to react to bacteria and viruses that could cause infections or disease.

Since a transplanted organ comes from another person's body, your immune system naturally sees it as a threat and tries to reject it. If you and a potential donor are compatible, there is a lower chance that your body will reject an organ from that donor.

### **How is tissue matching done?**

As part of your evaluation, blood tests will tell us about your immune system. The results of these tests will show:



*You will have blood tests during your evaluation that tell us about your immune system.*

- Your blood type (O, A, B, or AB)
- Antibodies in your blood that may react against the donor organ
- Your tissue type (*human leukocyte antigens* or *HLA analysis*)

We will use the results of these tests to find out if a certain donor is compatible with you.

To improve the chances that your body will accept a compatible organ, you will also receive *immunosuppressant* drugs after transplant. These drugs suppress your immune system to keep it from rejecting your new organ.

## Compatibility Tests

You will have 4 tests that will show if you are compatible with your potential donor. They are:

### Blood Type (ABO) Compatibility

There are 4 main blood types O, A, B, and AB. We will test blood samples from both you and the potential donor to see if your blood types are compatible.

This chart shows which blood types are usually compatible:

Blood Type	Can Receive from	Can Donate to
O	O, A2	O, A, B, AB
A	A, O	A, AB
B	B, O, A2	B, AB
AB	O, A, B, AB	AB

- People with blood type O can donate to all other blood types. It is called the “universal donor.”
- People with blood type AB can receive from all other blood types. It is called the “universal recipient.”
- Some people with blood type A have unique proteins on their red blood cells. This “subtype” of type A blood is called A2. This type of blood looks like blood type O to the immune system. People with subtype A2 blood may be able to donate to people with blood types O and B. More tests are needed to see if this is possible for a donor-recipient pair.

### Antibody Testing

Antibodies are proteins in your blood that identify and react against a “foreign object” in your body, such as a virus, bacteria, or a transplanted organ. Your antibodies usually react to proteins called *antigens* that are on the foreign object.

Antibodies that react against a transplanted organ are often reacting to *human leukocyte antigens* (HLAs). Your body usually does not make HLA antibodies unless you have been exposed to them before. Events that can cause your body to produce HLA antibodies include pregnancies, blood transfusions, infections, or a previous organ transplant.

There are 2 types of tests to find out if you make HLA antibodies:

### ***Panel Reactive Antibody Test***

A *panel reactive antibody* (PRA) test compares your blood to the white blood cells of people who have donated blood. This shows how *reactive* (sensitive) your immune system is against their HLAs.

Your PRA is calculated as a percent. For example, if your PRA is calculated as 50%, this means that your immune system will react against organs from 50% of donors. The more HLAs you react against, the higher your PRA percent.

A high PRA means:

- There is a higher risk of rejection when you get a transplant.
- You may need more immunosuppressant medicines.
- It may be harder to match you with a donor. This may make your wait for a transplant longer.

Pregnancy, blood transfusions, and infections can make your immune system create new HLA antibodies, which increases your PRA. If you become pregnant or have a blood transfusion after you have had your PRA test, contact your transplant nurse coordinator. You will need to have another PRA test done.

### ***Cross Matching***

*Cross matching* also checks for HLA antibodies. It compares your blood to a certain donor's blood. This can be a living donor or a deceased donor.

- With a living donor, cross matching is done early in your evaluation to see if that donor is compatible with you.
- With a deceased donor, your blood is tested against the donor's blood when the organ becomes available.

If antibodies in your blood react against the donor's blood, it is called a *positive cross match*. This usually means the antibodies in your blood would cause rejection of the donor organ right away. Most times, you would not be able to receive an organ from that donor.

There is a treatment that removes HLA antibodies and keeps more of them from forming. This treatment is called *desensitization*. This may allow more donors to be a match for you.

We will talk with you about desensitization, if it might work for you. But even with this treatment, the HLA antibodies may return, making the risk of organ rejection higher than if you never had the antibodies at all.

### ***Tissue Typing***

HLAs are *antigens* (proteins) found on human tissue or cells. Your antigens are decided by your genes.

The more closely related you are to someone, the fewer genetic differences you have. This means your antigens are more alike. Your immune system is more likely to accept an organ from a donor who is closely related to you.

People inherit 2 copies of DNA called *haplotypes* from their parents, 1 set from each parent. This means you are a tissue “half match” with each of your parents. These haplotypes define whether or not a donor is a match for you.

Transplant recipients can develop antibodies against the donor HLAs, called *donor-specific antibodies* (DSAs). This can happen both before and after transplant.

We will check your blood for DSAs after your transplant. If you have DSAs, it may be an early sign of rejection. If other tests show that you might be rejecting the transplanted organ, we can start treatment to keep this from happening.

## **Questions?**

Your questions are important. Call your doctor or healthcare provider if you have questions or concerns.

Transplant Services:  
206.598.3882