



Matching Recipient & Donors

The terms “match”, “matching” or a “perfect match” are often misunderstood or misused when referring to a recipient and donor.

A clearer way of describing the evaluation process between a recipient and donor would be to use the terms, “suitable” and “compatible”. A suitable donor is someone that is healthy enough to donate. A donor is compatible when all the tests are finalized and a suitable donor is able to donate to their intended recipient.

The history of the term “match” comes from the 6 HLA antigens, (Human Leukocyte Antigens.) In the past, the recipients and donors 6 antigens needed to “match” in order for that donor and recipient transplant to be successful. The new anti rejection drugs are so effective, that there isn’t a statistical difference in success rates between a zero “match” and a 5 out of 6 “match.” Therefore, HLA matching typically is not a factor that determines whether someone is compatible. There is however, a benefit to having a “perfect match,” 6 out of 6 antigens. A “perfect match” results in a significantly longer survival of the donated kidney.

Donor/recipient compatibility is dependant on the following:

BLOOD TYPE MATCHING

Scientists have known for many years that blood group matching is important in transfusion and it is equally important in kidney transplantation.

There are four major blood types. These types are simply noted as blood type A, B, AB and O. The positive or negative feature in blood typing is not a factor when determining compatibility between a donor and a recipient.

Blood Type Compatibility Chart

Donor Can Donate to:		Recipient Can Receive From:		
Blood Type	Donate to	Recipient Blood Type	Recipient Blood Type	Can Receive Blood Type
O		A,B, AB, O	O	O (A)*
A		A or AB (O)*	A	A or O
B		B or AB	B	B or O
AB		AB	AB	A or B or AB or O

(Blood Type O is the **Universal Donor**: donors with O blood are compatible with any other blood type)

(Blood Type AB is the **Universal Recipient**: recipients with AB blood are compatible with any other blood type)

* Recently, it has been discovered that some donors with blood type A may donate to a blood type O recipient. Person with blood type A or AB and someone with blood type B may donate to a person with B or AB. A person with blood type AB may only donate to an individual who has that same blood type.

PRA's - Panel Reactive Antibodies

When it comes to pursuing a kidney transplant most people are thinking about finding a compatible donor. They don't realize that there is a test you need to take that will determine how easy or difficult it will be to find that compatible person. The test is called PRA.

PRA's, panel reactive antibodies is a blood test that measures the level of antibodies in the recipients blood. The more antibodies you have, the more difficult it will be to find a compatible donor. A person's PRA can be anywhere from 0% to 99%. Your PRA represents the percent of the U.S. population that the antibodies in your blood would react to and reject the kidney. For example, having a PRA of 25 means that 25% of the population will not be able to donate a kidney to you. The antibodies present in your blood would attack the transplanted kidney and can cause immediate rejection.

About 20% of the people who need a kidney transplant have high PRA's. Simply stated, having a high PRA will significantly limit the number of people that will be able to donate to you.

You can develop high PRA's from a blood transfusion, an earlier transplant or for some women, from being pregnant.

There are ways of lowering PRA's through a procedure called Plasmapheresis a blood-cleansing process that can lower the dangerous antibodies from the blood. Plasmapheresis is usually used when you have an incompatible living donor.

Plasmapheresis can also be used to allow blood-type incompatible donor/recipients to proceed with the transplant. Plasmapheresis can cost tens of thousands of dollars and are complex to administer.

If you've been told by a transplant center that you are too highly sensitized, (another term used to describe high PRA's,) to receive a transplant ask about Plasmapheresis. If they don't offer it there, speak to another transplant center.

CROSS MATCHING

Cross matching is a very sensitive and final test performed on a kidney donor and a particular recipient. Laboratory techniques for cross matching have been refined and now enable scientists and physicians to define how a kidney transplant recipient may respond to particular cells or proteins of the kidney donor. These refinements in testing have led to very accurate tests that were not available even a few short years ago.

The basic cross match test involves a mixing of cells and serum to determine whether or not the recipient of a kidney will respond to the transplanted organ by attempting to reject it. In recent years, scientists have applied more intricate tests and obtained more accurate results of cross matching. It is now possible to better identify a recipient who might reject an organ and thus avoid a transplant that might not succeed. Thus, improved kidney transplant outcomes may ensue because we can better determine and predict how the recipient may respond to the donated organ. Cross match testing, therefore, has evolved and improved long-term results.

Cross match testing, which involves several different phases and, as many as 10 to 15 different tests, comes down to a fairly simple final result. Either the cross match is positive or negative. A positive

cross match means that the recipient has responded to the donor and that the transplant should not be carried out. A negative cross match means that the recipient has not responded to the donor and therefore transplantation should be safe. A positive cross match (not what you want,) essentially says that the recipient will respond to the donor organ by rejecting it and the operation should not be performed. A negative cross match says to the recipient, you are not likely to reject the donor organ and the operation should be performed. If we look at the cross match in this way, the positive and negative results make sense to all concerned.

A well matched kidney is one in which the blood type between the donor and recipient are compatible, the tissue typing well defined and hopefully well matched and all cross match studies are negative. Application of good matching studies in clinical kidney transplantation has allowed for excellent results using living donor and deceased donor organs and has permitted safe kidney transplantation for thousands of patients with end-stage renal failure.