

Blood Group Incompatible (ABO-i)

Kidney Transplantation

If you have a living donor who is medically suitable to donate a kidney but is a different blood group, it still may be possible for them to give you a kidney. You and your donor will need a blood test, as part of your transplant workup, to determine how high your antibody level is against your donor's blood group. The kidney transplant team at the Princess Alexandra Hospital (PAH) can then talk to you about a treatment plan that is suited to you.

How does this work?

The key to successfully doing a kidney transplant from a donor of a different blood group, is to remove the antibodies that you have against the different blood group. For example, if the donor is blood group A and you are blood group O you will have antibodies in your body that will fight the different blood group and your kidney from this donor will be rejected. We need to almost completely remove these antibodies before the transplant and we need to stop them coming back after the transplant. Luckily, if we can get through the first month after the transplant without problems, your body's immune system will give up fighting against the different blood group.

How are these antibodies removed?

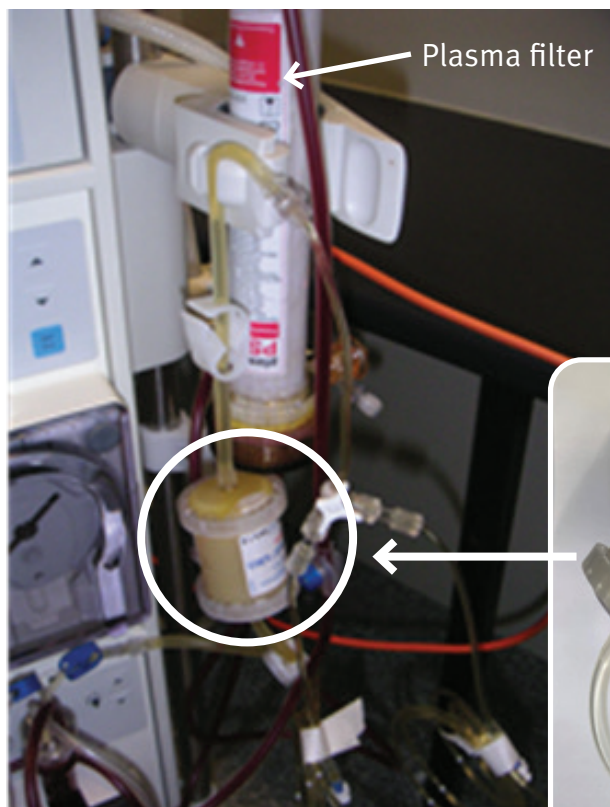


What is your blood group? _____

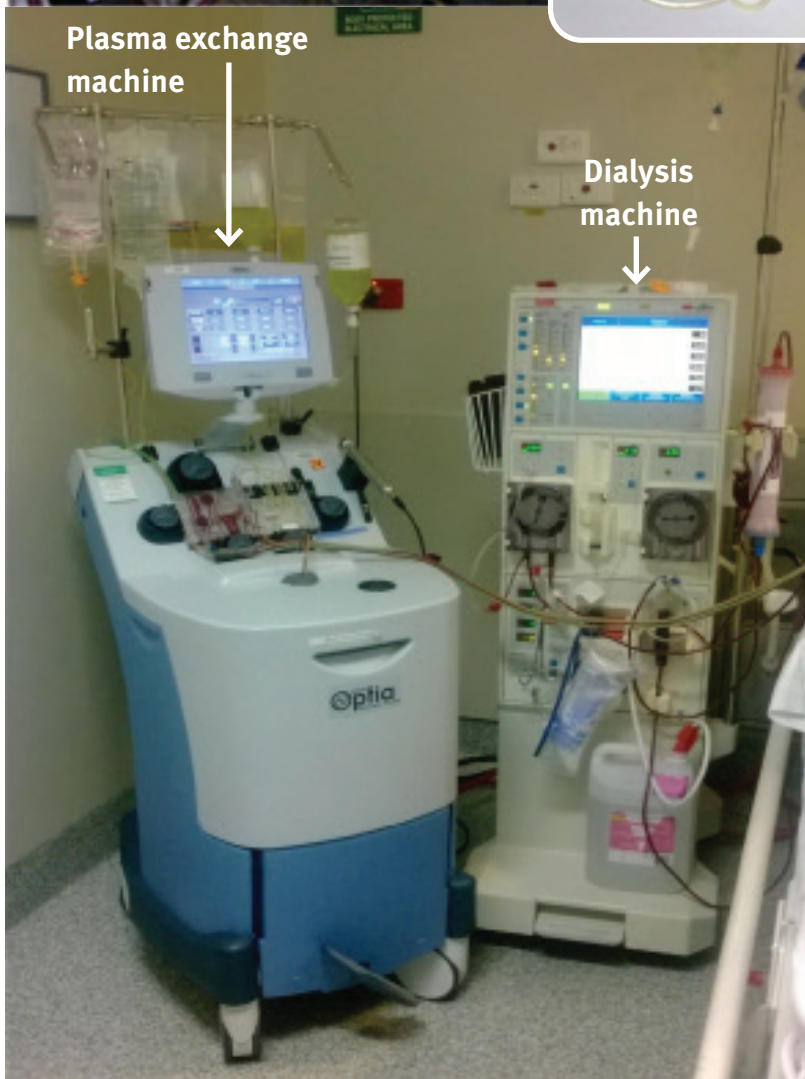
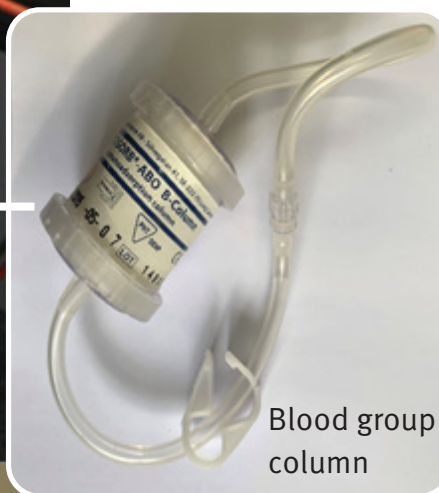
The diagram below explains the different blood groups and the antibodies that are removed from your plasma, using a column or plasma filter.

	Blood Type A	Blood Type B	Blood Type AB	Blood Type O
Antigens present on the Red Blood Cell	<p>Antigen A</p>	<p>Antigen B</p>	<p>Antigen A and B</p>	<p>Neither antigen A nor B</p>
Antibodies present in the Plasma	<p>Contains anti-B antibodies; but no antibodies that would attack its own antigen A</p>	<p>Contains anti-A antibodies; but no antibodies that would attack its own antigen B</p>	<p>Contains neither anti-A nor anti-B antibodies</p>	<p>Contains both anti-A nor anti-B antibodies</p>

There are 2 ways that we remove these antibodies from the blood:



1. The most **common** way is with the use of a small column that looks like a filter. This column is connected to the machine after the plasma filter. The plasma filter separates the plasma from the blood. The column then removes only the blood group antibodies from the plasma. See photo below. This treatment only removes the blood group antibodies from the plasma and not the plasma or liquid part of the blood.



2. **Plasma exchange** can also be used. A special filter called a plasma filter is connected to a machine and as your blood moves through the filter, the liquid part of the blood called plasma is separated and removed. The plasma is the liquid that contains the blood group antibodies. An infusion of fresh plasma or albumin solution is put back into your blood stream to replace the fluid that has been removed.

Both methods need a vascular access to the machine via a fistula or a tube inserted into a large vein in the side of the neck.

The set-up for the machine takes some time, so we ask that you are patient while the nurse sets this up. The treatment usually takes between 4 to 5 hours. We will explain the treatment when you arrive.

During this treatment you will receive a drug called citrate which prevents your blood from clotting. This may cause your blood calcium levels to drop, so we will give you calcium into the lines. Symptoms of a low calcium may include tingling of the lips or generally feeling unsettled. You need to tell us immediately if you experience any symptoms. We will give you a warming blanket to make you more comfortable as the treatment may make you feel cold.

The day before your transplant, you will receive an infusion of immunoglobulin (IVIG) which helps your body to fight infection. There will also be additional medication given into your drip on this day, so be prepared for your treatment to take at least another 2 hours. The higher the level of antibodies in your blood the longer the treatment will be on the day and the more treatments you will need to have both before and after transplant. If you also need dialysis expect to be with us for the whole day up to 8 hours!

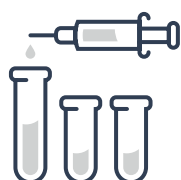
We usually start the routine anti-rejection tablets 2 weeks before the transplant, to make sure that you have good levels of the drug in your blood when we do the transplant. This will be explained by the pharmacist when you come to transplant clinic.



How risky is this transplant?

There is always a risk of rejection with any transplant, especially in the first year. To reduce the added risk of rejection associated with a blood group incompatible transplant, we routinely monitor the blood group antibody levels in your blood for several days before your transplant and then for several weeks after your transplant. If the blood group antibody level is too high that is above 2 on the day before your operation. Your transplant will not happen if the antibody level doesn't reach the desired level after many attempts at treatment.

It is possible for some people to avoid column or plasma exchange treatments and only need early treatment with anti-rejection medicines because their level of blood group antibody in the blood is very low. People with a high blood group antibody level, will be advised to have extra vaccinations to protect them from a severe form of rejection. The risks associated with a blood group incompatible transplant is not the same for everyone. The kidney specialist at the PAH will talk to you about your own risks and treatment options.



For more information about blood group incompatible transplants please contact:

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