iTRANSPLANTFACTSHEET

I NEED TO KNOW ABOUT TISSUE TYPING

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BEN SAXON

In one sentence, what is HLA?

HLA – Human Leucocyte Antigen – are proteins on the surface of our cells which communicate with the immune system and are very important in recognising self.

What is tissue typing?

Tissue typing is the process to determine the HLA type of the patient. There are lots of different HLA types and several ways of testing for them. Tissue typing also determines which other "antigens" such as Human Platelet Antigen (HPA) are on our cells.

Why are there so many HLA types?

There is so much diversity in order to more easily identify self. Chromosomes carry our genetic code in sections called genes. The HLA genes are the most variable genes out of our entire genetic code.

Does everyone have a different HLA or are some the same?

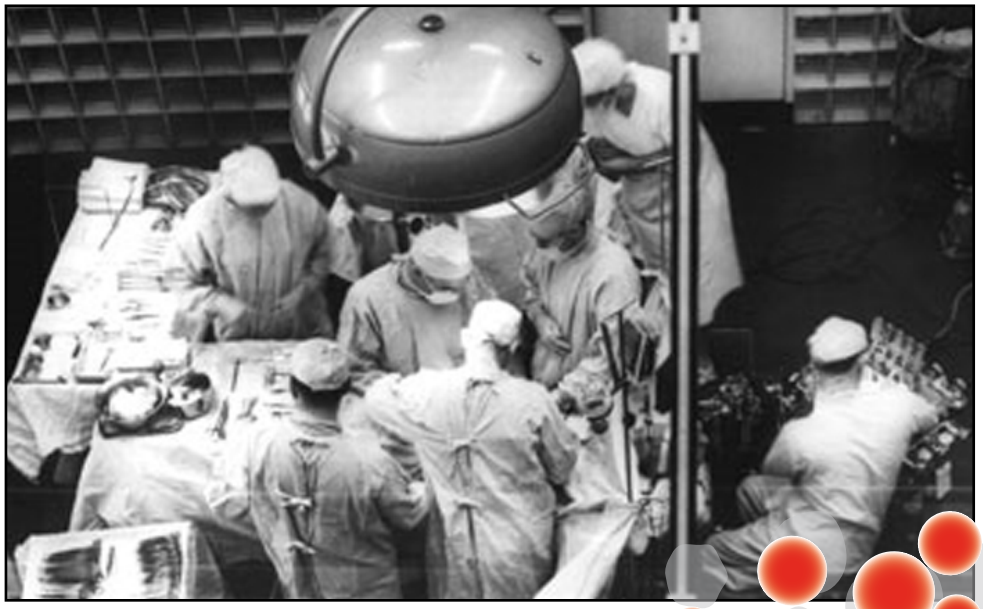
Fortunately some are the same. We inherit HLA types from our parents, so other family members may have the same types. There will be other people around the world, probably from a similar ethnic group to you, with the same or similar HLA types.

Who needs tissue typing performed?

The most common reason for testing is for any patient who needs, or donors who give, bone marrow or organs for transplantation.

Why perform tissue typing for bone marrow transplantation?

HLA is very important for the body to recognise itself. If a patient needs a bone marrow transplant, the person can only get donated bone marrow which is HLA-compatible. If this is not compatible, the new bone marrow will start making a new immune system which will attack the patient's normal cells. This is called graft (the new bone marrow) versus host (the patient) disease.



Above: The first kidney transplant, Boston, 1954. Source: National Archives of Plastic Surgery in the Francis A Countway Library of Medicine.

Why perform tissue typing for organ transplantation?

An incompatible organ (eg kidney or heart) will be rejected by the patient's immune system and will stop working.

Are there other reasons to perform tissue typing?

Yes, some patients with a low platelet count do not respond to platelet transfusions very well. This may be due to problems with HLA and providing HLA-matched platelets may be needed. Tissue typing may also be useful in identification of individuals with certain HLA types which increase their risk of developing some autoimmune disorders. Tissue typing can also be used to resolve paternity questions (these tests are not performed by the Blood Service).

CELLTALK

HLA matters: rejection can lead to a broken heart.

Where is tissue typing performed?

Specialised laboratories perform tissue typing tests. The Blood Service Medical Transplantation and Quality Services Division has tissue typing laboratories in Sydney, Melbourne and Adelaide.