

Stem Cell Transplant: HLA Typing

Human leukocyte antigen (HLA) typing is a system that finds special markers (antigens) in some white blood cells. These cell markers help the body's immune system tell the difference between itself and non-self. The immune system fights diseases.

When your child needs a stem cell transplant, we look for a match with the A, B, and DR antigens. Everyone has 2 antigens. We get 5 from our mother and 5 from our father, for a total of 10 antigens. Since these antigens are passed down from parents (inherited), it's more likely that a relative, especially a sibling, is a perfect match (10 out of 10). There's a 25% chance of finding a perfect-matched sibling in a family that has children from the same parents.

FATHER		MOTHER	
A3	A1	A22	A25
B6	B43	B34	B41
C15	C1	C10	C2
DR3	DR6	DR5	DR2
DQ2	DQ3	DQ1	DQ4

PATIENT	SIBLING #1	SIBLING #2	SIBLING #3	SIBLING #4
A3	A3	A1	A1	A3
B6	B6	B43	B43	B6
C15	C15	C1	C1	C15
DR3	DR3	DR6	DR6	DR3
DQ2	DQ2	DQ3	DQ3	DQ2
A22	A25	A22	A25	A22
B34	B41	B34	B41	B34
C10	C2	C10	C2	C10
DR5	DR2	DR5	DR2	DR5
DQ1	DQ4	DQ1	DQ4	DQ1

Picture 1 An example of HLA typing. The patient is a perfect 10/10 match with Sibling #4. For siblings #1 and #2, only half of the antigens match perfectly (5/10 match). Sibling #3 does not match at all.

If there's not a perfect match in your family, we search stem cell registries from all over the world. These registries have HLA data on millions of people who have offered to give stem cells to someone who needs a transplant.

If we need to search for a match, your child's health care team will give you more information and answer your questions.

How HLA Typing is Done

HLA typing can also be done 1 of 2 ways: with a swab kit or a blood draw. Both parents, your child who is sick, and your other children will be tested.

- **Swab Kit** – In the kit, there are 4 swabs: 1 for the upper right side of the mouth, 1 for the upper left side of the mouth, 1 for the lower left side of the mouth, and 1 for the lower right side of the mouth.
- **Blood Draw** – About 6 teaspoons of blood are taken from a vein in the arm using a small needle. If your child has a central venous line, blood can be taken from the catheter.

About Blood Draws

- Before getting blood drawn, it's important to eat.
- Drink a lot of fluids on the day of the blood draw.
- Some people feel dizzy or may pass out after their blood is drawn. This is normal.
- There may be a bruise on the skin where the blood was taken.
- Early test results will be back in about 7 to 10 days. Final results will be known in about 2 weeks.

If you have any questions, ask your child's doctor or health care provider.