

I NEED TO KNOW ABOUT ABO

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What are ABO blood groups?

Our red blood cells, like all cells, are covered in protein and sugar (carbohydrate) antigens. A and B are different sugars on the surface of the red cells. O cells don't have either sugar.

If A and B antigens are sugars, can I change blood type with my diet?

No. The type of sugar on your red cells is genetically determined and you cannot change it.

Can I be more than one type?

If you have the A sugar, you have 'Group A' red cells. It is possible to have both A and B sugars – then your group is AB.

Why does this matter?

Everyone has antibodies against any missing antigen. If you have B antigens, you will have antibodies which will attack and destroy A red cells. If you give a bag of A blood to a B patient, the patient's anti-A antibodies will attack these cells and the patient could have a severe, or even fatal, reaction. Getting the blood type correct is really important!

What are antigens?

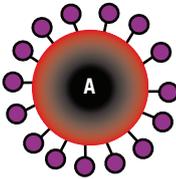
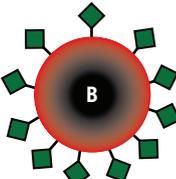
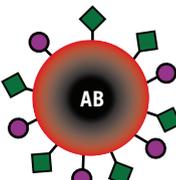
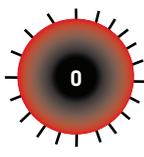
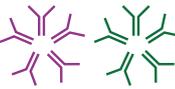
They are proteins or carbohydrates which our immune system can recognise. Any antigen that is 'foreign' to our immune system is destroyed by an antibody.

What are antibodies?

These are attack molecules our system makes to protect ourselves against foreign things such as bacteria and viruses.

How can an O negative donor be a 'universal donor'?

Good pick up. People who are group O have antibodies to A and B called Anti-A and Anti-B. These antibodies are in the plasma, the water and protein part of our blood. We can give O negative Red Cells to anyone, but we cannot give O negative plasma to everyone (due to the antibodies). When we refer to 'universal donor' we really mean 'universal red cell donor' – the red cells are safe to give to everyone. The plasma from group O donors has both anti-A and anti-B and should only be given to group O patients.

| | Red blood cell type | Antibodies present in plasma | Antigens present on red cells |
|----------|--|--|---|
| Group A |  |  Anti-B |  A antigen |
| Group B |  |  Anti-A |  B antigen |
| Group AB |  | None |  A and B antigens |
| Group O |  |  Anti-A and Anti-B | No antigens |

BLOOD FACT

The anti-A and B antibodies are said to be 'naturally occurring'. They actually form after birth in response to bacteria in the gut.