

# Blood Types Encyclopedia Article

## Blood Types

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# Blood Types

Until 1900, no one understood why blood could not be transfused from one person to another without occasional difficulties. Viennese pathologist Karl Landsteiner was the first to discover that not everyone's blood is exactly alike, and actually can be divided into four primary groups or types: A, B, AB, and O.

The various blood types are identified according to the various proteins, or antigens, on the surface of blood cells, and the antibodies to other antigens. Antibodies react to antigens as part of the body's defense mechanism to protect the blood supply, by combining with them chemically. One person with a blood antigen type A, for example, will have antibodies to blood type B, and vice versa. Some people have both A and B antigens (thus the AB blood type) and do not have antibodies for either group, or the O group. Those with this type of blood are called the "universal recipient," because they can receive blood from A, B or O donors. Approximately half of the world's population has antibodies to both A and B antigens, and make up the O group. They are called the "universal donors" because they can provide blood to people with all other blood types.

Since blood with one blood type's antigen does not carry antibodies to that particular antigen, blood of the same type can be easily transferred and mixed. Transfusing blood from one person to another is a common transplant today, but it is essential that the correct blood type be given to the recipient. If he or she has antibodies to the transfused blood type or antigens, an immune reaction occurs and the red cells in the blood clump together.