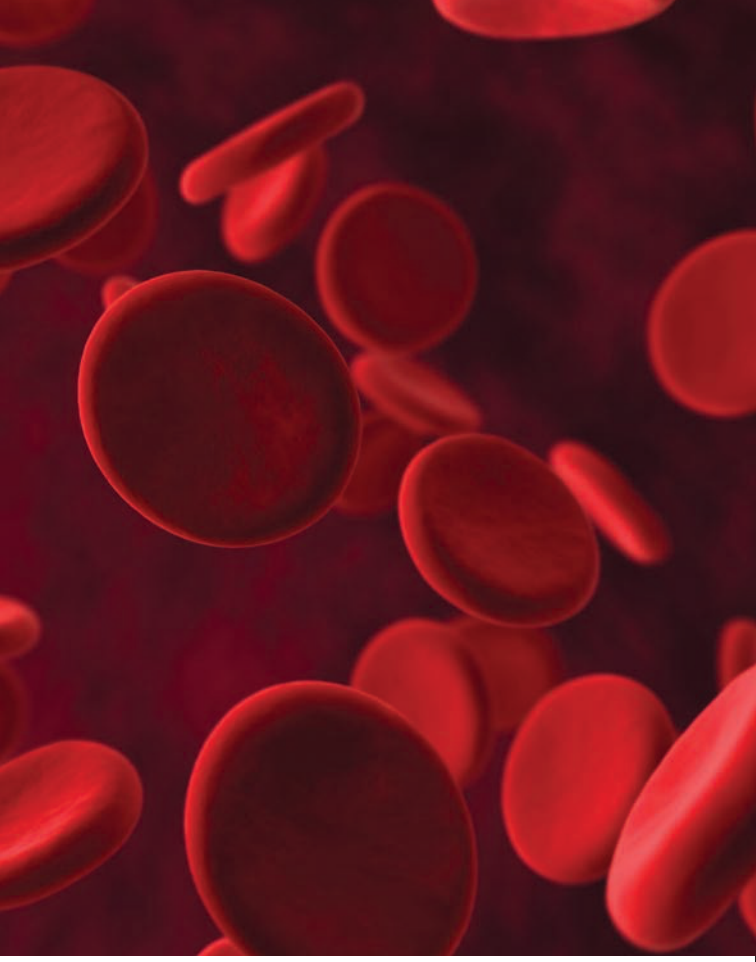

BLOOD GROUPING

The Complete Range Of Sicherclone Blood Typing Antibodies

SICURO

Science for Better Health

SICHERCLONE ABO

THE BLOOD GROUPING SYSTEM

In 1900, Landsteiner showed that people could be divided into three groups (now called A, B, and 0) on the basis of whether their red cells clumped when mixed with separated sera from people. A fourth group (AB) was soon found. This is the origin of the term "blood group". The most frequently occuring antigens on the red cell surface are the antigens of the ABO system. These antigens are synthesized during foetal development by the sequential addition of sugar residues to a common precursor substance.

Galactose and ABO Antigen Precursor Substance Specific sugars, attached to the red cell membrane in unvarying linkage conformations, determine ABO antigenic activity. Galactose resides at the end of this specific sugar chain. This configuration constitutes the ABO antigen precursor substance. Another sugar, fucose, must be attached to the galactose in a specific configuration for further antigen development to take place. This "galactose-plus-fucose" configuration has antigenic activity called "H".

"A" Antigenic Activity

Without H substance, there is no way for additional sugar attachment to take place. Additional sugar attachment is necessary for the development of and A and B antigenic activity. Therefore, without H substance there can be no A and B antigens developed. Once H substance is developed, the addition of the sugar N-acetylgalatosamine to the terminal position of the chain gives the molecule "A" antigenic activity.

"B" Antigenic Activity

The addition of galactose in the

SICHERCLONE ABO

THE BLOOD GROUPING SYSTEM

terminal position of the "galactose-plus-fucose" configuration give the molecule "B" antigenic activity.

"AB" Antigenic Activity

The red blood cells have both the "A antigens" and the "B antigens" in their membranes. Cells displaying A and B antigens make up the blood group AB.

Neither A nor B

The red blood cells have no antigenic determinants in their membranes. The absence of both A and B antigens make up the blood group 0.

Rh System

It was Landsteiner and Wiener in 1940 who originally described the Rh system. They injected the red cells of the Rhesus monkey into rabbits (and later guinea pigs) and produced an antibody which not only agglutinated Rhesus monkey red cells but also the red cells of approximately 85% of New York white people. The people who reacted apparently possessed an antigen similar to the Rhesus monkey and were called Rhesus positive. The remainder whose cells did not react were called Rhesus negative. The antigen was called D and the antibody anti-D. The blood group system described by the human derived antibodies is now termed Rh, whereas the system originally described by Landsteiner and Wiener is now termed LW.

SICHERCLONE ABO

MIXED BLEND (IgM + IgG) Anti-D

SICHERCLONE Anti-D uses a blend of monoclonal IgM and IgG anti-D which has many distinct advantages. It possesses the ability to detect in one test the weakest of D types. The combination of IgM and IgG antibodies has a double and supportive effect in determining D type. The essential difference between IgG anti-D and IgM anti-D is size. IgM anti-D is five times larger than IgG anti-D. IgM antibodies have ten antigen binding sites whereas IgG antibodies only have two. It is the size of the IgM anti-D antibody, which allows it to span the distance between different red cells and react with their D antigen sites and then agglutinate these red cells. IgM anti-D appears to bind to individual red cells by only one site, probably because the distance between two D antigens is too great to be bridged by the combining sites on a single antibody molecule. (Holburn3 et al, 1971). Holburn further estimated that only 120 molecules of IgM anti-D per red cell are required for agglutination to take place in saline. IgG anti-D is not large enough to do this and therefore will only react with the D antigen sites on each red cell and sensitize that cell with globulin.

SICHERCLONE Reagents Characteristics:

	Anti – A / Anti – B	Anti – D
Application	Suitable for both slide and tube methods	
Class of antibody	IgM murine (monoclonal)	IgM + IgG (monoclonal blend)
Source	Murine hybridoma	Human B cell line, EBV transformed

SICHERCLONE ABO

THE BLOOD GROUPING SYSTEM

Murine monoclonal antibodies specific for various human antigen components have proved to be very satisfactory for grouping purposes. The SICHERCLONE range of ABO antisera manufactured from murine monoclonal antibodies are suitable for use by slide and tube methods.

Monoclonal antibodies have many advantages over polyclonal antibodies, including

Ultimate Avidity: Clear, distinct visible agglutination.

High titre: Maximum sensitivity, detecting even weak groups easily.

Maximum Specifcity: No contaminating antibodies enhancing 100% specificity.

Reproducibility: Excellent batch to batch reproducibility.

Flexibility: Suitable for slide, tube, microtitration plate and automated methods.

SICHERCLONE ABO

SICHERCLONE PRODUCTS

CODE NUMBER	ITEM	VIAL SIZE	PACKAGE SIZE
SIC-ANT-ABD-20801	ANTISERA A, B, D	10ml	3x10ml
SIC-ANT-A-20101	ANTISERA A	10ml	10x10ml
SIC-ANT-B-20201	ANTISERA B	10ml	10x10ml
SIC-ANT-AB-20301	ANTISERA AB	10ml	10x10ml
SIC-ANT-D-20401	ANTISERA D	10ml	10x10ml
SIC-ALB-BV-20501	BOVINE ALBUMIN	10ml	10x10ml
SIC-AHG-CT-20601	COOMB'S REAGENT	10ml	10x10ml

The potency of the reagents has been tested against the following minimum potency reference standards obtained from National Institute of Biological Standards and Controls (NIBSC):

Anti-A reference standard 88/722 **And / Or**
Anti-B reference standard 88/724
Anti-D reference standard 99/724

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