

**International Blood Group
Reference Laboratory**

 500 North Bristol Park
 Northway
 Filton
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Antigen	Human Blood Group B
Clone	BGRL 1
Product Code	9431
Immunoglobulin Class	Mouse IgG1, kappa light chain

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and Production Unit**
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Antigen Description and Distribution

The histo-blood group B antigen is defined by the carbohydrate structure at the non-reducing termini of oligosaccharide chains of glycoproteins and glycolipids. Carbohydrate chains are synthesized by the action of α -D-galactosyltransferase, which catalyzes the transfer of D-galactose monosaccharide to an acceptor substrate called the H antigen.

The structure of the B antigen is $\text{Gal}(\alpha 1-3)\text{Gal}(\beta 1-3)\text{GlcNAc-R}$
 $\quad \quad \quad | \text{Fuc}(\alpha 1-2)$

ABO, of which the B antigen is part of, is the most important blood group system from the clinical blood transfusion perspective. Approximate frequencies of ABO phenotypes in southern England are as follows: O 43%, A 45%, B 8% and AB 4%; but frequencies vary throughout the world. The B antigen is widely distributed on erythrocytes, cells and tissues, and is present, in soluble form, in body fluids of B positive individuals. About 20% of group B people secrete no B substance because their secretions contain no H antigen although they are still blood group B because the H antigen is still present on their erythrocytes. In a rare phenotype, the Bombay phenotype, no H is present in secretions or on the erythrocytes and consequently no A or B are present.

Clone

BGRL 1 was made in response to immunization with blood group B erythrocytes. BGRL 1 directly agglutinates blood group B erythrocytes. BGRL 1 was submitted to the Second international workshop and Symposium on Monoclonal Antibodies against Human Red Blood Cells and Related antigens, Lund 1990⁶. BGRL 1 has been used to measure the expression of blood group A antigens on platelets⁷.

Further Reading

1. Anstee DJ, Cartron J-P. (1997) Towards an understanding of the red cell surface. In: Garratty G, ed. Applications of molecular biology to transfusion medicine: 17-49. American Association of Blood Banks, Bethesda, MD.
2. Daniels G. (2013) Human blood groups (third Ed.). Blackwell Publishing Ltd.
3. Issitt PD, Anstee DJ (1998) Applied blood group serology. 4th edn. Montgomery Scientific Publications, Durham, NC.
4. Mollison PL, Engelfriet CP, Contreras M. (1997) Blood Transfusion in clinical medicine. 10th edn. Blackwell Science, Oxford.
5. Reid ME, Lomas-Francis C. and Olsson M. (2012) The blood group antigen facts book. Academic Press, London, Third Ed.
6. Chester MA *et al* (ed) (1990) Proceedings of the second international workshop and symposium on monoclonal antibodies against human red blood cells and related antigens, Lund 1990.
7. Curtis B.R *et al*. (2000) Blood group A and B antigens are strongly expressed on platelets of some individuals. Blood 96: 1574-1581.