International Blood Group Reference Laboratory
500 North Bristol Park
Northway
Filton
Bristol
BS34 7QH

Protein Development and Production Unit
Tel: +44 (0)117 921 7500
Fax: +44 (0)117 912 5796
Website: http://ibgrl.blood.co.uk
Email: enquiries.IBGRL@nhsbt.nhs.uk

Antigen	CD 238 / Kell related
Clone	BRIC 18
Product Code	9440
Immunoglobulin Class	Mouse IgG2a, kappa light chain

Antigen Description and Distribution

The Kp^a, Kp^b, and Kp^c antigens are part of the Kell (CD 238) blood group system[1]. The antigens of the Kell system are carried on an erythrocyte membrane glycoprotein of 93 kDa, which is firmly bound to the cytoskeleton[2]. The Kell antigen was designated CD 238 at the 7th human leucocyte differentiation antigen workshop. There are approximately 8-18 x 10^3 copies of Kell antigen/red cell. The protein has been cloned and a full protein sequence deduced from the nucleotide sequence. The Kell cDNA sequence encodes a protein of 731 amino acids with a single membrane spanning domain of 20 residues and an intracellular N-terminal domain that is thought to comprise 46 residues. The predicted extracellular domain (665 amino acids) has 15 cysteine residues, some of which are likely to form disulphide bonds, and five potential N-glycosylation sites. It has homology with neutral endopeptidases and the CALLA antigen[3]. The antigen is found on human erythrocytes, liver sinusoidal cells[4] and testis with weaker expression in a large number of other tissues such as brain and lymphoid tissues. Immunohistochemistry reveals human Kell protein is localized to the Sertoli cells of the testis and the follicular dendritic cells of the spleen and tonsil. On erythrocytes, Kell is linked by a single disulfide bond to XK. The absence of XK, as occurs in the McLeod phenotype, is associated with a set of clinical symptoms that include nerve and muscle disorders and red cell acanthocytosis. The Molecular Weight of Kell is120 kDa.

Clone

BRIC 18 was made in response to intact human erythrocytes[5]. In indirect haemagglutination tests, BRIC 18 agglutinates normal erythrocytes of the Kell blood group phenotype but fails to agglutinate erythrocytes expressing the K_0 or McLeod phenotype. BRIC 18 fails to agglutinate erythrocytes treated with 6% aminoethylisothiouronium bromide or pronase. BRIC 18 agglutinates erythrocytes treated with either trypsin or chymotrypsin or erythrocytes treated sequentially with trypsin followed by chymotrypsin. BRIC 18 specifically immunoprecipitates a component of 95.6 kDa from Kell positive erythrocytes[6,7]. In quantitative binding studies using IgG it is estimated that there are from 2000 (BRIC 18) to 4000 (BRIC 68) copies of the Kell glycoprotein per erythrocyte. Using Fab fragments the estimates are in the range 4000 (BRIC 18) to 18 000 (BRIC 68) copies. In competitive binding assays the four epitopes defined by the BRIC monoclonal antibodies (BRICs 18, 68, 107 and 203) fall into two non-overlapping groups. The first group comprises BRIC 18, BRIC 68, BRIC 203 and an antibody (6–22) with anti-K14 specificity. The second group contains BRIC 107 and two further anti-k-like monoclonal antibodies (BS45 and OSK5). The results suggest that the polymorphisms encoded at the *K/k* and *Kp^a/Kp^b/Kp^c* loci may be located in two spatially distinct regions of the Kell glycoprotein(s)[7].

References

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