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	CD233 / Band 3 (N-terminal cytoplasmic domain)
Clone	BRIC 170
Product Code	9450
Immunoglobulin Class	Mouse IgG1, kappa light chain

Antigen Description and Distribution

CD233 (also known as erythrocyte band 3, EPB3, anion exchange protein 1, AE1, solute carrier family 4, SLC4A1) is an integral membrane protein in human erythrocytes, present at approximately 10^6 copies per human erythrocyte. It comprises two domains that are structurally and functionally distinct. The cytoplasmic N-terminal 40kDa domain has binding sites for erythrocyte cytoskeletal proteins, namely ankyrin and protein 4.2, which help to maintain the mechanical properties and integrity of the erythrocyte. This domain also binds a number of other erythrocyte peripheral proteins. The 55kDa glycosylated C-terminal membrane-associated domain contains 12-14 membrane spanning segments which function as a chloride/bicarbonate anion exchanger involved in carbon dioxide transport. The cytoplasmic tail at the extreme C-terminus of the membrane domain binds carbonic anhydrase II. CD233 associates with the erythrocyte membrane protein glycophorin A (GPA) which promotes the correct folding and translocation during biosynthesis of CD233. Many CD233 mutations are known in man and these mutations can lead to two types of disease; destabilization of the erythrocyte membrane leading to hereditary spherocytosis, and defective kidney acid secretion leading to distal renal tubular acidosis. Other CD233 mutations that do not give rise to disease result in novel blood group antigens, which form the Diego blood group system. The CD233 gene is located on chromosome 17q21-q22[1].

Clone

BRIC 170 was made in response to endo F-treated 55 kD tryptic bound domain of band 3. BRIC 170 binds within the amino acids 368-382 located near the N-terminal cytoplasmic tail of CD233 and does not agglutinate normal erythrocytes[2,3]. BRIC 170 has been used to study the coexpression of band 3 mutants and Rh polypeptides[4]. BRIC 170 has also been used to study the band 3 macrocomplex in the erythrocyte membrane[5]. BRIC 170 has been used to elucidate protein distribution during human erythroblast enucleation[6]. BRIC 170 has been used to investigate the key membrane protein changes during *in vitro* erythropoesis of Protein 4.2 cells[7].

References and further reading

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