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Antigen	CD233 / Band 3 (cytoplasmic domain)
Clone	BRIC 155
Product Code	9449
Immunoglobulin Class	Mouse IgG2b, 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 155 was made in response to endo F-treated 55 kD tryptic bound domain of band 3[2]. The sequences reactive with BRIC 155 were degraded by carboxypeptidase Y treatment of intact protein or fragments of protein containing the C-terminus[2]. BRIC 155 binds within the amino acids 895-901 located at the cytoplasmic tail of CD233 and does not agglutinate normal erythrocytes[3,4]. BRIC 155 reacts with a diffuse 55 kDa tryptic fragment of CD233 on immunoblots of trypsin-treated erythrocyte membranes[2]. BRIC 155 has been used to study the coexpression of band 3 mutants and Rh polypeptides[7]. BRIC 155 has also been used to study the band 3 macrocomplex in the erythrocyte membrane[8]. BRIC 155 has been used to investigate the key membrane protein changes during *in vitro* erythropoesis of Protein 4.2 cells[9].

References

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