

**International Blood Group
Reference Laboratory**500 North Bristol Park
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Antigen	Glycophorin A (extracellular domain) / CD235a
Clone	BRIC 256
Product Code	9415
Immunoglobulin Class	Mouse IgG1, kappa light chain

**Protein Development
and Production Unit**

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Glycophorin A (GPA) (Mr 43kDa as a monomer and 86kDa as a dimer) is the major sialoglycoprotein of human erythrocytes and is the most abundant, together with band 3 (anion transporter protein), with which it appears to be associated. The complete amino acid sequence and sites of glycosylation are known. GPA consists of 131 amino acids, which constitute three domains: (i) a heavily glycosylated N-terminal extracellular domain of 72 amino acids, (ii) a hydrophobic intramembranous domain of 23 amino acids, and (iii) a C-terminal cytoplasmic domain of 36 amino acids^{1,2}. GPA is generally present in the membrane in dimeric form, with the polypeptides associated at the hydrophobic intramembranous domain. It probably complexes with other membrane glycoproteins. GPA is a marker for erythroid cells. There are about 3-12 x 10⁵ GPA molecules per erythrocyte. Rare individuals lacking GPA are known¹.

Clone

BRIC 256 was made in response to intact erythrocytes. The antibody identifies GPA in erythrocytes by immunoblotting under reducing and non-reducing conditions. BRIC 256 has a specificity similar to antibody LICR/LON R18, which recognises an extracellular trypsin-resistant epitope on GPA located around amino acids 49-52². BRIC 256 has also been used as a positive erythrocyte control in conjunction with FITC conjugated BRAD-3 for determination of feto-maternal bleeds³. BRIC 256 was submitted to the 3rd international workshop and symposium on monoclonal antibodies against human red cells and related antigens, Nantes 1996⁴. BRIC 256 has been used to elucidate protein distribution during human erythroblast enucleation⁵. BRIC 256 has been used to investigate the key membrane protein changes during *in vitro* erythropoiesis of Protein 4.2 cells⁶.

References

1. Anstee DJ (1990) *Vox Sang.* **58**, 1-20 (Review).
2. Gardner B *et al.* (1989) *Immunology*, **68**: 283-289.
3. Lloyd-Evans *et al* (1999) *Transfusion Medicine* **9** 155-160.
4. Rouger P Muller JY (eds) (1997) Proceedings of the third International workshop and symposium on monoclonal antibodies against human red cells and related antigens, Nantes 1996 **4** No. 1.
5. Bell AJ, *et al* (2013). Protein Distribution during Human Erythroblast Enucleation *In Vitro*. *PLoS ONE* Volume **8** (Issue 4) e60300.
6. Van den Akker E *et al* (2010). Investigating the key membrane protein changes during *in vitro* erythropoiesis of protein 4.2 (-) cells (mutations Chartres 1 and 2). *Haematologica* Aug; **95** (8):1278-86.