

Antigen	Lu ^b (ISBT No. 5002) / CD239
Clone	BRIC 108
Product Code	9426
Immunoglobulin Class	Mouse IgG1, kappa light chain

Antigen Description and Distribution

The Lutheran (Lu) blood group is also known as B-cell adhesion molecule (B-CAM), Auberger blood group and CD 239. The antigens of the Lu blood group system are carried on two red cell membrane glycoproteins of Mr 85 and 78 kDa^{1,2,3}. The antigens are destroyed by disulphide bond reduction. They are of low abundance on red cells (1600 - 4000 sites/cell⁴). The predicted mature protein is a type I membrane protein of 597 amino acids with five potential N-glycosylation sites. There are five disulphide bonded, extracellular, immunoglobulin superfamily domains (two variable-region set and three constant-region set), a single hydrophobic, membrane spanning domain, and a cytoplasmic domain of 59 residues. The extracellular domains and the cytoplasmic domain contain consensus motifs for the binding of integrin and Src homology domains, respectively, suggesting possible receptor and signal-transduction function. The Lu blood glycoprotein, another member of the immunoglobulin superfamily (IgSF), is widely expressed in human tissues and is developmentally regulated in human liver⁵. The Lu antigens and BRIC 108 expression appears to be restricted to red cells in peripheral blood, but they or related molecules are widely expressed in human tissues, are present in large amounts in kidney endothelium, and the glycoprotein is developmentally regulated in human liver⁵. Lu is a specific adhesive receptor for the extracellular matrix protein human laminin 10/11⁶.

Clone

BRIC 108 was made in response to immunisation with intact human red cells¹. The antigen is sensitive to trypsin or Pronase treatment, but not neuraminidase treatment. Testing by haemagglutination with Lu(a+b-), Lu(a-b+), Lu(a-b-) (both dominant and recessive types) red cells demonstrates anti-Lu^b specificity. Of the five predicted IgSF domains, BRIC 108 (and BRIC 224) epitope is mapped to the N-terminal domain 1 and BRIC 221 epitope is mapped to domain 4⁷.

References

1. Parsons SF, Mallinson G, Judson PA *et al* (1987) *Transfusion* **27** 61-63.
2. Daniels GL & Khalid G (1989) *Vox Sang* **57** 137-141.
3. Anstee D.J. (1990) *Vox Sang*. 58: 1-20.
4. Merry AH, Gardner B, Parsons SF *et al* (1987) *Vox Sang*. **53** 57-60.
5. Parsons SF *et al* (1995) *Proc.Natl. Acad. Sci.* (1995) **92** 5496-5500.
6. Parsons SF *et al* (2001) *Blood* **97**, 312-320.
7. Parsons SF *et al* (1997) *Blood* **89**, 4219-4225.