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	Blood Group Lutheran (Lu) / CD239
Clone	BRIC 224
Product Code	9427
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 CD239. 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 of low abundance on red cells (1600 - 4000 sites/cell[4]) and are destroyed by disulphide bond reduction. The mature protein is predicted to be a type I membrane protein of 597 amino acids with five potential N-glycosylation sites. There are five disulphide-bonded, extracellular, immunoglobulin superfamily (IgSF) domains (two variable-region and three constant-region), a single hydrophobic, membrane spanning domain, and a cytoplasmic domain of 59 residues. The extracellular and cytoplasmic regions contain consensus motifs for the binding of integrin and Src homology domains respectively, suggesting possible receptor and signal-transduction function. Monoclonal antibodies against Lu, including BRIC 108, showed extensive reactivity with a range of human tissues and the glycoprotein could be under developmental control in human liver[5]. Lu is a specific adhesion receptor for the extracellular matrix protein human laminin 10/11[6].

Clone

BRIC 224 was made in response to erythrocytes[7]. BRIC 224 agglutinated normal erythrocytes but not erythrocytes lacking Lutheran blood group antigens. It reacts with a non-polymorphic determinant present on both the 85 and 78 kDa Lu glycoproteins by immunoblotting of erythrocyte membranes under non-reducing conditions. Of the five predicted IgSF domains, BRIC 108 and BRIC 224 epitopes are mapped to the N-terminal domain 1 and BRIC 221 epitope is mapped to domain 4[8].

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* (1982) J. Immunogenet. **9**, 377-380.
8. Parsons SF *et al* (1997) Blood **89**, 4219-4225.