



NHS Blood & Transplant
500 North Bristol Park
Northway
Filton
Bristol
BS34 7QH

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|-----------------------------|-------------------------------|
| Antigen | CD55 (DAF) |
| Clone | BRIC 110 |
| Product Code | 9402 |
| Immunoglobulin Class | Mouse IgG1, kappa light chain |

Tel: +44 (0)117 921 7200
Fax: +44 (0)117 912 5796
Web: <http://ibgri.blood.co.uk>

Antigen Description and Distribution

CD55 is the complement regulatory protein decay accelerating factor (DAF)¹. It is a 70kDa (in erythrocytes) glycoprotein anchored in the membrane by a glycosylphosphatidylinositol tail. In other cells the apparent molecular weight is somewhat larger. It has a substantial content of O- glycans, and also one N- glycan. The amino acid sequence (derived from the cDNA) is known. DAF binds to activated C4b or C3b complement fragments on the cell surface, preventing the assembly and accelerating the decay of both classical and alternative pathways. DAF carries the Cromer related blood group antigens². CD55 was first described on erythrocytes, but is also found on other circulating blood cells^{3,4}. DAF also has a wide distribution on cells in non-haemopoietic tissues, particularly epithelium and endothelium⁵. CD55 is found specifically at the foetal-maternal interface in placenta⁶. Soluble forms of DAF are found, for example, in plasma, saliva, urine etc. There are approximately 10,000 CD55 molecules per erythrocyte. CD55 has reduced expression on cells from individuals with paroxysmal nocturnal haemoglobinuria. Individuals with the rare Inab phenotype have an inherited deficiency of CD55². CD55 is also Echo virus⁷ and Coxsackie virus receptor and is a ligand for CD97.

Clone

BRIC 110 was made in response to K562 cells. It has a functional binding affinity to erythrocytes of $1.8 \times 10^7 \text{ M}^{-1}$. BRIC 110 reacts by immunoblotting with a component of 70 kDa in non-reduced erythrocyte membranes. The antigen on erythrocytes is Pronase, AET and chymotrypsin sensitive, but trypsin and sialidase resistant. BRIC 110 was used to study the defect which causes absence of DAF from the peripheral blood cells of an individual with the Inab phenotype⁸. BRIC 110 recognises an epitope on the second short consensus repeat (SCR2) of CD55⁹. These results were confirmed in the fifth leucocyte workshop¹⁰. BRIC 110 stains frozen tissue sections. BRIC 110 can be used in the monoclonal-antibody-specific immobilisation of erythrocyte antigens (MAIEA) technique when identifying DAF (CD55)¹¹.

References

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