IBGRL RESEARCH PRODUCTS

NHS Blood and Transplant

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Antigen	CD 66b (granulocytes)
Clone	BIRMA 17C
Product Code	9453
Immunoglobulin Class	Mouse IgG1, kappa light chain

Antigen Description and Distribution

The CD66b antigen, a member of the immunoglobulin (Ig) superfamily, is a 95-100 kDa membrane bound protein encoded by a gene located on chromosome 19. The molecular structure of CD66b reveals a leader sequence of 34 amino acids (aa), an extracellular region of 284 aa and a 29aa hydrophobic domain replaced by GPI. CD66b has 2 Ig C2 domains and 1 IgG-V like domain. The CD66b antigen is expressed on granulocytes. CD66b exhibits only heterotypic adhesion with CD66c with no homophilic activity, suggesting the possibility that CD66b plays a role in the interaction between granulocytes or between granulocytes and epithelial cells. The data are consistent with the hypothesis that CD66b plays a signalling role and regulates the adhesion activity of CD11/CD18 in neutrophils. While the details of the "activation signal" transmitted by CD66 antigens are not known, the finding of tyrosine kinase activity associated with CD66a, CD66b, and CD66c suggests that these kinase activities may be involved in signal transduction via CD66 family members. CD66b is released during granulocyte activation, leading *in vitro* and *in vivo* to a soluble protein with unknown function[1].

Clone

BIRMA 17C was produced from a mouse hybridoma derived from the fusion of Balb/c spleen cells with X63Ag8.653 myeloma cells. BIRMA 17C reacts with granulocytes in whole peripheral blood. It has no reactivity with erythrocytes, platelets, lymphocytes or monocytes in whole peripheral blood. BIRMA 17C has no reactivity with human cell lines Molt 4, Raji, Daudi, HL60, Kg1a, HEL. 5637. BIRMA 17C was submitted to the 6th leucocyte workshop[2]. The use of BIRMA 17C conjugated to R-Phycoerythrin (PE) in FMH cases allows the removal of granulocytes during flow cytometry which may otherwise interfere in the assay and thus affect the final calculated bleed. PE conjugated BIRMA 17C is used in conjunction with FITC conjugated BRAD 3 (anti-D) as a two (dual) colour reagent used for FMH quantitation[3,4].

References

1. Skubitz KM. *et al*, (Review) PROW CD66b (1999).
2. Skubitz KM. *et al*, (1997) Leucocyte Typing VI CD66 family workshop panel report p992-1000: sixth international workshop and conference on human leucocyte differentiation antigens, Japan, 1996 Garland Publishing Inc.
3. Kumpel B, Hazell M, Guest A, Mushens R. (2012). A novel reagent for rapid and accurate fetomaternal haemorrhage quantitation by flow cytometry that eliminates leucocytes from analysis. Transfusion Medicine, 22 (suppl. 1), 22.
4. Belinda Kumpel, Matthew Hazell, Alan Guest, Jonathan Dixey, Rosey Mushens, Debbie Bishop, Tim Wreford-Bush and Edmond Lee (2014) Accurate quantitation of D+ fetomaternal hemorrhage by flow cytometry using a novel reagent to eliminate granulocytes from analysis. Transfusion, **54**, 1305–1316.