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Antigen	CD41
Clone	5B12
Product Code	9461
Immunoglobulin Class	Mouse IgG1, kappa light chain

Antigen Description and Distribution

Integrin alpha 2b (CD41) is a 135 kDa calcium-dependent glycoprotein consisting of a heavy chain (GPIIb alpha; 120kDa) and a light chain (GPIIb beta; 23kDa) linked by a single disulphide bond. The alpha chain contains four calcium-binding sites and is entirely extracellular, while the beta chain has extracellular, transmembrane and cytoplasmic domains¹. The Integrin alpha 2B chain interacts with the Integrin beta 3 subunit (CD61) to form the platelet glycoprotein complex, GpIIb/IIIa (CD41/61). It is expressed on platelets and megakaryocytes. The GpIIb/IIIa complex appears early in megakaryocyte maturation². Ligands for the GpIIb/IIIa heterodimer include fibrinogen, von Willebrand factor, fibronectin, vitronectin, and thrombospondin. The GpIIb/IIIa complex is the major integrin on platelets and is important for clot retraction, platelet adhesion and aggregation.

Clone

5B12 was made in response to immunisation with normal human platelets. The mouse hybridoma was derived from fusion of Balb/c spleen cells with NS1 myeloma cells. 5B12, was included in the Fifth International Workshop and Conference on Human Leucocyte Differentiation Antigens and studies by a number of laboratories confirmed its reactivity with CD41³. 5B12 has been used in the platelet immunofluorescence test. Specificity has been confirmed with Bernard Soulier Platelets and platelets from patients with Glanzmann's thrombasthenia. In the monoclonal antibody immobilisation of platelet antigens assay⁴, 5B12 can be used to detect human platelet antigens (HPA) on the GpIIb/IIIa complex. 5B12 will detect platelets in human tissue and also label megakaryocytes in sections or smears prepared from human bone marrow. 5B12 does not inhibit aggregation by Ionophore, ADP collagen or risocetin. It does not have anti-HPA specificity. Activity is not destroyed by EDTA treatment of platelets, although this is reported to inactivate the GpIIb/IIIa complex. 5B12 binds equally well with thrombin activated and resting platelets.

Suggested dilution in MAIPA assay: 1/10

Suggested dilution for use in indirect immunofluorescence tests 1/20

Please perform your own experiments to confirm optimal dilutions for use in your laboratory.

References

1. Sun QH, Newman PJ. CD guide. CD41. In: Kishimoto T, Kikutani H, von dem Borne AEG, Goyert SM, Mason DY, Miyasaka M, et al., editors. Leucocyte typing VI. White cell differentiation antigens. Proceedings of the 6th International Workshop and Conference; 1996 Nov 10-14; Kobe, Japan. New York, London: Garland Publishing Inc.; 1997. p. 1139.
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3. Honda S, Felding-Habermann B, Loftus J, Annis D, Kunicki TJ. CD41/CD61 cluster workshop report: localization of epitopes on integrins α IIb β ₃ (CD41/CD61) and α v β ₃ (CD51/CD61). In: Schlossman SF, Boumsell L, Gilks W, Harlan JM, Kishimoto T, Morimoto C, et al., editors. Leucocyte typing V. White cell differentiation antigens. Proceedings of the 5th International Workshop and Conference; 1993 Nov 3-7; Boston, USA. Oxford, New York, Tokyo: Oxford University Press; 1995. p. 1293-8.
4. Kiefel, V., Santoso, S., Weisheit, M. & Mueller-Eckhardt, C. (1987) Monoclonal antibody-specific immobilization of platelet antigens (MAIPA): a new tool for the identification of platelet reactive antibodies. *Blood*, **70**, 1722-1726.