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Product Information

Anti-CD31(PECAM-1) antibody , Mouse monoclonal
clone WM-59, purified from hybridoma cell culture

Product Number **P8590**

Product Description

Monoclonal Anti-Human PECAM-1 (CD31) (mouse IgG1 isotype) is derived from the WM-59 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from an immunized mouse. The human cell line RC-2A originally derived from myeloid leukemia cells was used as the immunogen. The isotype is determined by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents, Product Number ISO2. The product is Protein A purified and provided as a 0.2 μm filtered solution in 0.01 M phosphate buffered saline, pH 7.4.

Monoclonal Anti-Human PECAM-1 (CD31) recognizes the human CD31 antigen expressed on platelets, endothelial cells, myeloid cells, B lymphocytes and certain T lymphocyte subsets.

Monoclonal Anti-Human PECAM-1 (CD31) may be used for studies of PECAM-1 function in cell-cell interactions, for the detection and enumeration of CD31 cells in blood and tissues, and for the isolation of PECAM-1 by immunoaffinity chromatography.

The human PECAM-1 antigen (Platelet Endothelial Cell Adhesion Molecule, CD31, endoCAM. gpIIa, hec7) is a 130-140 kD single chain integral membrane glycoprotein member of the immunoglobulin gene superfamily of cell adhesion molecules. It consists of 6 Ig-like loops in the extracellular domain, a transmembrane domain and a relatively long cytoplasmic domain.[1,2] Human PECAM-1 (CD31) is expressed on platelets, myeloid cells, B lymphocytes, certain T lymphocyte cell subsets, bone marrow precursor cells and NK cells.

PECAM is abundantly expressed in endothelial cells. It becomes localized to the intracellular junctions in monolayers of cultured endothelial cells.[3] PECAM-1 (CD31) functions in homophilic and heterophilic cell-cell adhesion and cell signaling activities. It plays a major role in the transmigration of monocytes, neutrophils, and NK cells between the endothelial cell junctions into the subendothelial matrix.

The $\alpha_v\beta_3$ (CD51/61) integrin has been suggested to interact with CD31.[4] PECAM-1 also binds to glycosaminoglycans (GAG).[5] Endothelial PECAM-1 is phosphorylated on tyrosine and serine residues. Tyrosine dephosphorylation following integrin engagement probably plays a role during endothelial cell engagement. Phosphorylation of serine residues in the cytoplasmic domain of platelet CD31 occurs following activation. PECAM-1 (CD31) is possibly involved in some of the interactive events taking place during cardiovascular development inflammation, thrombosis, wound healing, and angiogenesis. Monoclonal Anti-Human PECAM-1 (CD31) was shown to increase the rate of homotypic aggregation induced in U937 cells by TGFβ1.[6] Its binding to platelets was reported to be enhanced following their washing and concomitant activation.[6]

Precautions and Disclaimer

For R&D use only. Not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Storage

For continuous use, store at 2–8 °C. For extended, storage freeze in working aliquots. Repeated freezing and thawing is not recommended. Storage in "frost-free" freezers is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use.

Product Profile

Indirect immunofluorescence: a minimum working dilution of 1:100 is determined by staining of endothelial cells in human placenta frozen sections.

Note: In order to obtain best results in various techniques and preparations, it is recommended to determine optimal working dilutions by titration.

References

1. Newman, P.J., et al., *Science*, **247**, 1219 (1990).
2. Newman, P.J., *Ann. N.Y. Acad. Sci*., **714**, 165 (1990).
3. Albelda, S.M., et al., *J. Cell Biol*., **114**, 1059 (1991).
4. Piali, L., et al., *J. Cell Biol*., **130**, 451 (1995).
5. DeLisser, H.M., et al., *J. Biol. Chem*., **268**, 16037 (1993).
6. Leucocyte Typing V, Oxford University Press, pp 1259-1265, (PO25) (1995).

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