Technical Data Sheet

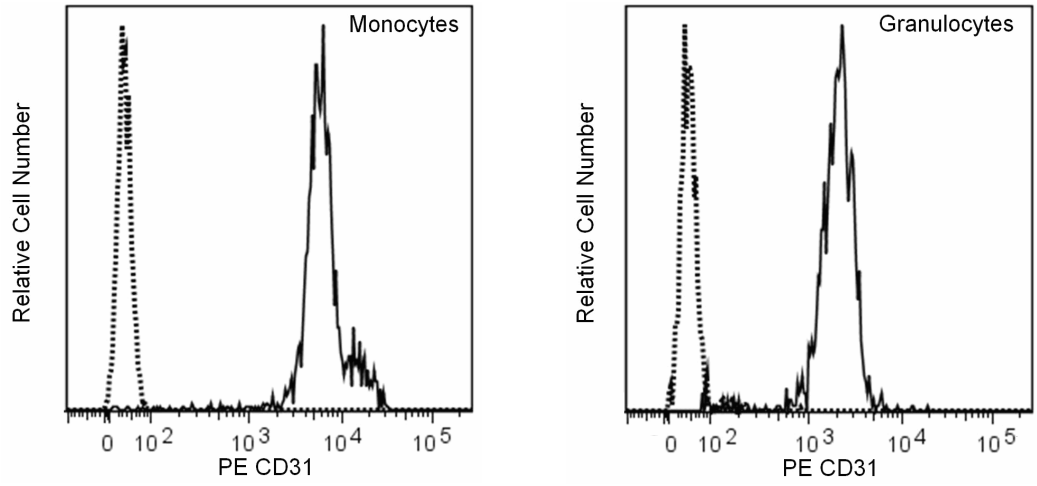
PE Mouse Anti-Human CD31

Product Information

Material Number:	**566177**
Alternate Name:	PECAM-1; PECAM1; EndoCAM; GPIIA'
Size:	25 Tests
Vol. per Test:	5 µl
Clone:	MBC 78.2 (also known as PECAM-1.2; 1.2)
Immunogen:	Human CD31
Isotype:	Mouse (BALB/c) IgG1, κ
Reactivity:	QC Testing: Human
Workshop:	V P112
Storage Buffer:	Aqueous buffered solution containing BSA and ≤0.09% sodium azide.

Description

The MBC 78.2 monoclonal antibody recognizes CD31 which is also known as, Platelet endothelial cell adhesion molecule (PECAM-1), platelet GPIIa, or EndoCAM. CD31 is a ~130 kDa type I transmembrane glycoprotein that belongs to the Ig gene superfamily. CD31 is comprised of an extracellular region with six IgC-like domains, a transmembrane region, and a cytoplasmic domain that contains two immunoreceptor tyrosine-based inhibitory motifs (ITIMs). The MBC 78.2 antibody specifically binds to an epitope located on membrane-proximal, extracellular Ig-like domain 6 of CD31. This epitope remains expressed by activated T cells after enzymatic cleavage and shedding of a soluble extracellular CD31 fragment comprised of Ig-like domains 1 to 5 from cells. In contrast to the MBC 78.2 antibody, the WM59 monoclonal antibody reportedly binds to the extracellular Ig-like domain 2 of CD31. WM59 can thus bind to cells that express intact CD31 but not to cells that express a truncated form CD31 that lacks at least the membrane distal Ig-like domains 1 and 2 of CD31. CD31 has wide tissue distribution and is expressed on platelets, monocytes, granulocytes, some T cell subsets, and at high levels on endothelial cells. This cell adhesion molecule has been implicated in a number of cellular phenomena, including vascular wound healing. angiogenesis, transendothelial migration of leucocytes, and the regulation of T cell responses.



Flow cytometric analysis of human CD31 expression on human peripheral blood leucocytes. *Human whole blood was stained with either PE Mouse IgG1, κ Isotype Control (Cat. No.554680; dashed line histograms) or PE Mouse Anti-Human CD31 antibody (Cat. No. 566125/566177; solid line histograms). Erythrocytes were lysed with BD Pharm Lyse™ Lysing Buffer (Cat. No. 555899).The fluorescence histograms showing CD31 expression (or Ig Isotype control staining) were derived from gated events with the forward and side light-scatter characteristics of viable monocytes (Left Panel) or granulocytes (Right Panel). Flow cytometric analysis was performed using a BD FACSCanto™ II Flow Cytometer System.*

Preparation and Storage

Store undiluted at 4°C and protected from prolonged exposure to light. Do not freeze.

The monoclonal antibody was purified from tissue culture supernatant or ascites by affinity chromatography.

The antibody was conjugated with R-PE under optimum conditions, and unconjugated antibody and free PE were removed.

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Application Notes

Application

Flow cytometry	Routinely Tested

Suggested Companion Products

Catalog Number	Name	Size	Clone
554656	Stain Buffer (FBS)	500 mL	(none)
554657	Stain Buffer (BSA)	500 mL	(none)
554680	PE Mouse IgG1, κ Isotype Control	0.1 mg	MOPC-21
555899	Lysing Buffer	100 mL	(none)
349202	BD FACS™ Lysing Solution	100 mL	(none)
566125	PE Mouse Anti-Human CD31	100 Tests	MBC 78.2
560983	PE Mouse Anti-Human CD31	25 Tests	WM59

Product Notices

1. This reagent has been pre-diluted for use at the recommended Volume per Test. We typically use 1 × 10^6 cells in a 100-µl experimental sample (a test).
2. Please refer to www.bdbiosciences.com/pharmingen/protocols for technical protocols.
3. Caution: Sodium azide yields highly toxic hydrazoic acid under acidic conditions. Dilute azide compounds in running water before discarding to avoid accumulation of potentially explosive deposits in plumbing.
4. For fluorochrome spectra and suitable instrument settings, please refer to our Multicolor Flow Cytometry web page at www.bdbiosciences.com/colors.
5. Source of all serum proteins is from USDA inspected abattoirs located in the United States.
6. An isotype control should be used at the same concentration as the antibody of interest.

References

DeLisser HM, Chilkotowsky J, Yan HC, Daise ML, Buck CA, Albelda SM. Deletions in the cytoplasmic domain of platelet-endothelial cell adhesion molecule-1 (PECAM-1, CD31) result in changes in ligand binding properties. *J Cell Biol.* 1994; 124(1-2):195-203. (Immunogen: Flow cytometry, Functional assay, Inhibition)

Fawcett J, Buckley C, Holness CL, et al. Mapping the homotypic binding sites in CD31 and the role of CD31 adhesion in the formation of interendothelial cell contacts. *J Cell Biol.* 1995; 128(6):1229-1241. (Biology)

Fornasa G, Groyer E, Clement M, et al. TCR stimulation drives cleavage and shedding of the ITIM receptor CD31. *J Immunol.* 2010; 184(10):5485-5492. (Clone-specific: Cytometric Bead Array, Flow cytometry, Immunofluorescence)

Newman PJ, Paddock C. CD31 cluster workshop report. In: Schlossman SF, Boumsell L, Gilks W, et al, ed. *Leukocyte Typing V: White Cell Differentiation Antigens.* Oxford: Oxford University Press; 1995:1259-1260. (Clone-specific)

Tanaka Y, Albelda SM, Horgan KJ, et al. CD31 expressed on distinctive T cell subsets is a preferential amplifier of beta 1 integrin-mediated adhesion. *J Exp Med.* 1992; 176(1):245-53. (Clone-specific: Activation, Functional assay)

Yan H-C, Newman PJ, Albelda SM. Epitope mapping of CD31 (PECAM-1) mAb. In: Schlossman SF, Boumsell L, Gilks W, et al, ed. *Leukocyte Typing V: White Cell Differentiation Antigens.* Oxford: Oxford University Press; 1995:1261-1262. (Clone-specific: Immunoprecipitation)

Yan HC, Pilewski JM, Zhang Q, DeLisser HM, Romer L, Albelda SM. Localization of multiple functional domains on human PECAM-1 (CD31) by monoclonal antibody epitope mapping. *Cell Adhes Commun.* 1995; 3(1):45-66. (Clone-specific: Immunoprecipitation)