

DESCRIPTION

Species Reactivity	Mouse
Specificity	Detects recombinant mouse CD31/PECAM1 protein in Direct ELISA.
Source	Monoclonal Rat IgG _{2A} Clone # 1094515
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	Mouse myeloma cell line, NS0-derived mouse CD31/PECAM-1 Glu18-Lys590 Accession # Q08481
Conjugate	Alexa Fluor 750 Excitation Wavelength: 749 nm Emission Wavelength: 775 nm
Formulation	Supplied 0.2 mg/mL in a saline solution containing BSA and Sodium Azide. *Contains <0.1% Sodium Azide, which is not hazardous at this concentration according to GHS classifications. Refer to the Safety Data Sheet (SDS) for additional information and handling instructions.

APPLICATIONS

Please Note: Optimal dilutions should be determined by each laboratory for each application. [General Protocols](#) are available in the Technical Information section on our website.

Western Blot	Optimal dilution of this antibody should be experimentally determined.
Immunohistochemistry	Optimal dilution of this antibody should be experimentally determined.

PREPARATION AND STORAGE

Shipping	The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	Protect from light. Do not freeze. 12 months from date of receipt, 2 to 8 °C as supplied

BACKGROUND

PECAM-1 (platelet-endothelial cell adhesion molecule-1; also known as CD31) is a 130 kDa type I transmembrane glycoprotein adhesion molecule in the immunoglobulin superfamily (1, 2). Expression is restricted to cells involved in circulation, especially endothelial cells, platelets, monocytes, neutrophils and lymphocyte subsets. CD31 is concentrated at cell-cell junctions and is required for transendothelial migration (TEM) (1-3). The extracellular domain (ECD) of CD31 has ten potential N-linked glycosylation sites and six C2-type Ig-like domains, the first of which is critical for adhesion and extravasation (3, 4). The cytoplasmic domain contains immunoregulatory tyrosine-based inhibitory and switch motifs (ITIM, ITSM) that mediate both inhibition and activation via phosphotyrosine-mediated engagement of SH2-containing signaling molecules (1, 5). Metalloproteinase-mediated ectodomain shedding occurs during apoptosis (6) but increased serum CD31 ectodomain in HIV and active multiple sclerosis occurs independent of apoptosis (7, 8). In humans, expression of six isoforms with exon deletions in the cytoplasmic domain is tissue- and stage-specific, but full-length CD31 is predominant. A form lacking the ITSM predominates in mouse (9). Mouse CD31 ECD shows 77%, 63%, 63%, 63% and 61% amino acid (aa) identity with rat, human, canine, porcine and bovine CD31, respectively. CD31 participates with other adhesion molecules in some functions, but is the critical molecule for TEM. Homotypic CD31 adhesion in trans, combined with cycling of CD31 to and from surface-connected endothelial cell vesicles, leads leukocytes across endothelial tight junctions (3, 10). Homotypic adhesion and signaling functions also strongly suppress mitochondria-dependent apoptosis (11). In platelets, CD31 is necessary for limiting thrombus formation (12) and promoting integrin-mediated clot retraction and platelet spreading (13), but mechanisms for these phenomena are unclear. CD31^{-/-} mice are deficient in chemokine-mediated chemotaxis (14).

References:

1. Ilan, N. and J.A. Madri (2003) *Curr. Opin. Cell Biol.* **15**:515.
2. Xie, Y. and Muller, W.A. (1993) *Proc. Natl. Acad. Sci. USA* **90**:5569.
3. Liao, F. *et al.* (1997) *J. Exp. Med.* **185**:1349.
4. Nakada, M.T. *et al.* (2000) *J. Immunol.* **164**:452.
5. Chemnitz, J.M. *et al.* (2004) *J. Immunol.* **173**:945.
6. Ilan, N. *et al.* (2001) *FASEB J.* **15**:362.
7. Eugenin, E.A. *et al.* (2006) *J. Leukoc. Biol.* **79**:444.
8. Losy, J. *et al.* (1999) *J. Neuroimmunol.* **99**:169.
9. Wang, Y. *et al.* (2003) *Am. J. Physiol. Heart Circ. Physiol.* **284**:H1008.
10. Mamdouh, Z. *et al.* (2003) *Nature* **421**:748.
11. Gao, C. *et al.* (2003) *Blood* **102**:169.
12. Falati, S. *et al.* (2006) *Blood* **107**:535.
13. Wee, J.L. and D.E. Jackson (2005) *Blood* **106**:3816.
14. Wu, Y. *et al.* (2005) *J. Immunol.* **175**:3484.

PRODUCT SPECIFIC NOTICES

This product is provided under an agreement between Life Technologies Corporation and R&D Systems, Inc, and the manufacture, use, sale or import of this product is subject to one or more US patents and corresponding non-US equivalents, owned by Life Technologies Corporation and its affiliates. The purchase of this product conveys to the buyer the non-transferable right to use the purchased amount of the product and components of the product only in research conducted by the buyer (whether the buyer is an academic or for-profit entity). The sale of this product is expressly conditioned on the buyer not using the product or its components (1) in manufacturing; (2) to provide a service, information, or data to an unaffiliated third party for payment; (3) for therapeutic, diagnostic or prophylactic purposes; (4) to resell, sell, or otherwise transfer this product or its components to any third party, or for any other commercial purpose. Life Technologies Corporation will not assert a claim against the buyer of the infringement of the above patents based on the manufacture, use or sale of a commercial product developed in research by the buyer in which this product or its components was employed, provided that neither this product nor any of its components was used in the manufacture of such product. For information on purchasing a license to this product for purposes other than research, contact Life Technologies Corporation, Cell Analysis Business Unit, Business Development, 29851 Willow Creek Road, Eugene, OR 97402, Tel: (541) 465-8300. Fax: (541) 335-0354.
