

#### DESCRIPTION

<b>Species Reactivity</b>	Porcine
<b>Specificity</b>	Detects porcine CD31/PECAM-1 in direct ELISAs and Western blots. In direct ELISAs and Western blots, no cross-reactivity with recombinant human (rh) CD31, recombinant mouse (rm) CD31, rhVCAM-1, rhICAM-1, rhICAM-2, rhICAM-3, rmICAM-5, or rmMADCAM-1 is observed.
<b>Source</b>	Monoclonal Rat IgG <sub>1</sub> Clone # 377537
<b>Purification</b>	Protein A or G purified from hybridoma culture supernatant
<b>Immunogen</b>	Mouse myeloma cell line NS0-derived recombinant porcine CD31/PECAM-1 Gln28-Lys602 (predicted) Accession # Q95242
<b>Conjugate</b>	Alexa Fluor 594 Excitation Wavelength: 590 nm Emission Wavelength: 617 nm
<b>Formulation</b>	Supplied 0.2 mg/mL in a saline solution containing BSA and Sodium Azide. See Certificate of Analysis for details.  *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.

	Recommended Concentration	Sample
<b>Flow Cytometry</b>	0.25-1 µg/10 <sup>6</sup> cells	Porcine peripheral blood mononuclear cells

#### PREPARATION AND STORAGE

<b>Shipping</b>	The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below.
<b>Stability &amp; Storage</b>	<b>Protect from light. Do not freeze.</b> <ul style="list-style-type: none"> <li>12 months from date of receipt, 2 to 8 °C as supplied.</li> </ul>

#### BACKGROUND

CD31, also known as PECAM-1 (platelet-endothelial cell adhesion molecule-1), is a 130 kDa type I transmembrane glycoprotein adhesion molecule in the immunoglobulin superfamily (1, 2). Expression is restricted to the vascular system, 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-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). Porcine CD31 ECD shows 74%, 73%, 70%, 63% and 62% amino acid (aa) identity with bovine, canine, human, mouse and rat CD31, respectively. CD31 participates with other adhesion molecules for most 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, PECAM-1 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<sup>-/-</sup> mice are deficient in chemokine-mediated chemotaxis (14).

#### References:

1. Ilan, N. and J.A. Madri (2003) *Curr Opin. Cell Biol.* **15**:515.
2. Nasu, K. *et al.* (1999) *Transplantation* **68**:861.
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) **99**:169.
9. Wang, Y. *et al.* (2003) *Am. J. Physiol. Heart Circ. Physiol.* **284**:H1008.
10. Mamdough, 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.

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