Recombinant Porcine CD31/PECAM-1

Catalog Number: 3387-PC

DESCRIPTION

Source	Mouse myeloma cell line, NS0-derived porcine CD31/PECAM-1 protein Gln28-Lys602, with a C-terminal 6-His tag Accession # Q95242
N-terminal Sequence Analysis	No results obtained: Gln28 predicted
Predicted Molecular Mass	65 kDa

SPECIFICATIONS

SDS-PAGE	100-115 kDa, reducing conditions
Activity	Measured by its ability of the immobilized protein to support the adhesion of Jurkat human acute T cell leukemia cells. When 8 x 10^4 cells/well are added to PECAM-1 coated plates (4 µg/mL, 100 µL/well), approximately 45-65% will adhere after 10-20 minutes at 37° C. **Optimal dilutions should be determined by each laboratory for each application.**
Endotoxin Level	<0.01 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 100 µg/mL in sterile PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** • 12 months from date of receipt, -20 to -70 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 3 months, -20 to -70 °C under sterile conditions after reconstitution.

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. $CD31^{-/-}$ mice are deficient in chemokine-mediated chemotaxis (14).

References:

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