

DESCRIPTION

Source Mouse myeloma cell line, NS0-derived mouse SIRP beta 1a protein
Val28-Gly360, with a C-terminal 6-His tag
Accession # NP001002898

N-terminal Sequence Analysis Val28

Predicted Molecular Mass 38 kDa

SPECIFICATIONS

SDS-PAGE 48-62 kDa, under reducing conditions

Activity Measured by its binding ability in a functional ELISA.
When Recombinant Mouse SIRP beta 1a His-tag (Catalog # 10289-SB) is immobilized at 1 µg/mL (100 µL/well), Recombinant Human SP-D (Catalog # 1920-SP) binds with an ED₅₀ of 30-180 ng/mL.

Endotoxin Level <0.10 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 500 µg/mL in PBS.

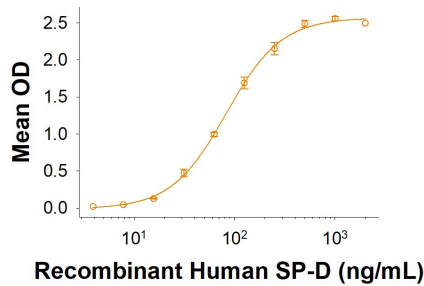
Shipping The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.

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.

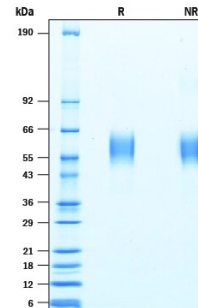
DATA

Binding Activity



When Recombinant Mouse SIRP beta 1a His-tag (Catalog # 10289-SB) is immobilized at 1 µg/mL (100 µL/well), Recombinant Human SP-D (Catalog # 1920-SP) binds with an ED₅₀ of 30-180 ng/mL.

SDS-PAGE



2 µg/lane of Recombinant Mouse SIRP beta 1a His-tag was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing bands at 48-62 kDa.

BACKGROUND

Signal-regulatory protein beta 1a (SIRP beta 1a) is a disulfide-linked type I membrane glycoprotein that belongs to the SIRP/SHPS (CD172) family of the immunoglobulin (Ig) superfamily. The SIRP family are paired receptors that have similar extracellular domains but differing C-terminal domains and functions (1). Members of this family are characterized by an extracellular region containing a V-set Ig domain containing a J-like sequence and two C1-set Ig domains. Positively charged residues within the transmembrane domain mediate interactions with DAP12 proteins which contain immunoreceptor tyrosine-based activation motifs (ITAMs) (3). Proteins in the SIRP family are typically expressed in cells of monocyte, macrophage or dendritic lineages (4). Mouse SIRP beta 1a shares 57% and 59% amino acid sequence identity with human SIRP beta 1 and rat SIRP alpha, respectively. SIRP beta 1 has a relatively short cytoplasmic region and lacks the signaling motifs for association with phosphatases. However, formation of the SIRP beta 1/DAP12 complex in myeloid cells induce tyrosine phosphorylation, mitogen-activated protein kinase activation, and cellular activation (5, 6). Engagement of SIRP beta 1 by specific monoclonal antibodies promoted Fc gamma receptor-dependent or -independent phagocytosis in mouse peritoneal macrophages (7). Surfactant protein D (Sp-D) has been shown to bind SIRP alpha and SIRP beta 1 in a calcium-dependent and sugar-specific manner on a distinct binding site from CD47 (8). Although the SIRP beta 1 extracellular regions share a high degree of homology with the SIRP alpha, SIRP beta 1 has been shown not to bind CD47 (9).

References:

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2. van den Berg, T. *et al.* (2008) *Trends in Immunology* **29**:203.
3. Liu, Y. *et al.* (2005) *Journal of Biological Chemistry* **280**:36132.
4. Matozaki, T. *et al.* (2009) *Trends in Cell Biology* **19**:72.
5. Dietrich, J. *et al.* (2000) *J Immunol.* **164**:9.
6. Brook, G. *et al.* (2004) *J. Immunol.* **173**:2562.
7. Hayashi, A. *et al.* (2004) *J Biol Chem.* **279**:29450.
8. Fournier, B. *et al.* (2012) *J. Biol. Chem.* **287**:19386.
9. Seiffert, M. *et al.* (2001) *Blood* **97**:2741.