Biotinylated Recombinant Human SIRPα/CD172a Fc Chimera Avi-tag

Catalog Number: AVI4546

DESCRIPTION

Source

Chinese Hamster Ovary cell line, CHO-derived human SIRP alpha/CD172a protein

Human SIRPα/CD172a (Glu31-Asn371) Accession # P78324.2	IEGRMD	Human IgG_1 (Pro100-Lys330)	Avi-tag

N-terminal Sequence Analysis	Glu31
Structure / Form	Disulfide-linked homodimer, biotinylated via Avi-tag
Predicted Molecular Mass	66 kDa

SPECIFICATIONS

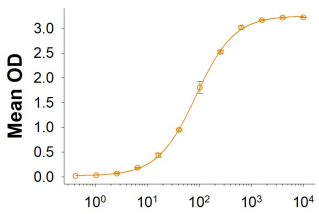
SDS-PAGE	86-96 kDa, under reducing conditions
Activity	The biotin to protein ratio is greater than 0.7 as determined by the HABA assay. Measured by its binding ability in a functional ELISA. When Recombinant Human CD47 Fc Chimera (Catalog # 4670-CD) is immobilized at 0.2 µg/mL (100 µL/well), Biotinylated Recombinant Human SIRPα/CD172a Fc Chimera Avi-tag (Catalog # AVI4546) binds with an ED_{50} of 20-180 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 with Trehalose. 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

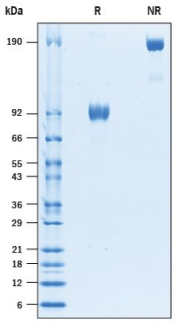
Binding Activity



Biotinylated Recombinant Human SIRPα/CD172a Fc Chimera Avi-tag (ng/mL)

When Recombinant Human CD47 Fc Chimera (Catalog # Catalog # 4670-CD) is immobilized at 0.2 µg/mL (100 µL/well), Biotinylated Recombinant Human SIRPa/CD172a Fc Chimera Avi-tag (Catalog # AVI4546) binds with an $ED_{50}$of 20-180 ng/mL.

SDS-PAGE



2 µg/lane of Biotinylated Recombinant Human SIRPα/CD172a Fc Chimera Avi-tag (Catalog # AVI4546) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing bands at 86-96 kDa and 170- 195 kDa, respectively.

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Catalog Number: AVI4546

BACKGROUND

Signal regulatory protein alpha (SIRPα, designated CD172a), also called SHPS-1 (SHP substrate 1) and previously, MyD-1 (Myeloid/Dendritic-1), is a monomeric ~90 kDa type I transmembrane glycoprotein that belongs to the SIRP/SHPS (CD172) family of the immunoglobulin superfamily (1 - 4). SIRPs are paired receptors, with similar extracellular domains but differing C-termini and functions (1, 2). The 503 amino acid (aa) human SIRPα contains a 342 aa extracellular domain (ECD), with one V-type, and two C1 type Ig domains, and three potential N glycosylation sites. It has a 110 aa cytoplasmic sequence with ITIM motifs that recruit tyrosine phosphatases SHP-1 and SHP-2 when phosphorylated (4). Human SIRPα has more than 40 described polymorphisms, including the prominent BIT (Brain Ig like molecule with Tyrosine-based activation motifs, also called $SIRP\alpha_2$ or PTPNS) (5). One reported isoform lacks aa 1 - 101, which eliminates most of the V type Ig domain. Human SIRPα ECD shares 61%, 60%, 71%, 72% and 73% aa identity with mouse, rat, porcine, bovine and equine SIRPα, respectively; it shares 84% and 76% aa identity with human SIRPβ1 and SIRPγ, respectively (2). SIRPα is expressed mainly on myeloid cells, including macrophages, neutrophils, dendritic and Langerhans cells (3 - 6). It is also found on neurons, smooth muscle and endothelial cells (7 - 9). SIRPα shows adhesion to the ubiquitous CD47/IAP (integrin associated protein), while SIRPγ binds more weakly and SIRPα1 does not bind at all (1, 2). Mouse and human SIRPα-CD47 binding only cross-reacts for specific polymorphisms and influences engraftment of xenotransplanted stem cells (6, 10). SIRPα engagement generally produces a negative regulatory signal (4). Low SIRPα recognition of CD47, which occurs on aged erythrocytes or platelets or xenogenic cells, promotes clearance of $CD47^{low}$ cells from circulation (11, 13). SIRPα recognition of surfactants SP-A and SP-D in the lung can inhibit alveolar macrophage cytokine production (14). The CD47 integrin-SIRPα interaction is reported to promote macrophage fusion during osteoclastogenesis (15).

References:

1. Barclay, A.N. & M.H. Brown (2006) Nat. Rev. Immunol. **6**:457.
2. vanBeek, E.M. *et al.* (2005) J. Immunol. **175**:7781.
3. Liu, Y. *et al.* (2005) J. Biol. Chem. **280**:36132.
4. Kharitonenkov, A. *et al.* (1997) Nature **386**:181.
5. Swissprot Accession # P78324.
6. Miyashita, M. *et al.* (2004) Mol. Biol. Cell **15**:3950.
7. Wang, X.X. & K.H. Pfenninger (2005) J. Cell Sci. **119**:172.
8. Maile, L.A. *et al.* (2003) Mol. Biol. Cell **14**:3519.
9. Johansen, M.L. & E.J. Brown (2007) J. Biol. Chem. **282**:24219.
10. Takenaka, K. *et al.* (2007) Nat. Immunol. **8**:1313.
11. Ishikawa-Sekigami, T. *et al.* (2006) Biochem. Biophys. Res. Commun. **343**:1197.
12. Olsson, M. *et al.* (2005) Blood **105**:3577.
13. Ide, K. *et al.* (2007) Proc. Natl. Acad. Sci. USA **104**:5062.
14. Gardai, S.J. *et al.* (2003) Cell **115**:13.
15. Lundberg, P. *et al.* (2007) Biochem. Biophys. Res. Commun. **352**:444.

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