Recombinant Human SIRPα/CD172a His-tag

Catalog Number: 9378-SA

DESCRIPTION

Source	Chinese Hamster Ovary cell line, CHO-derived Gly27 & Glu31-Arg370, with a C-terminal 6-His tag Accession # P78324-1
N-terminal Sequence Analysis	Gly27 & Glu31
Predicted Molecular Mass	38 kDa

SPECIFICATIONS

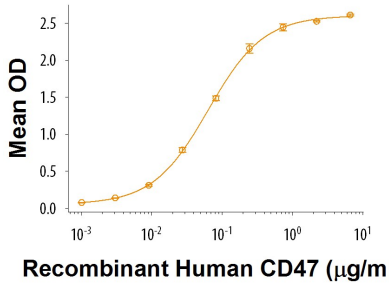
SDS-PAGE	44-63 kDa, reducing conditions
Activity	Measured by its binding ability in a functional ELISA. When Recombinant Human SIRPα/CD172a His-tag is coated at 0.5 µg/mL, 100 µL/well, Recombinant Human CD47 Fc Chimera (Catalog # 4670-CD) binds with an ED_{50} of 0.04-0.24 µg/mL.
Endotoxin Level	<0.10 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

Bioactivity



When Recombinant Human SIRP alpha/CD172a (Catalog # 9378-SA) is immobilized at 0.5 µg/mL, 100 µL/well, Recombinant Human CD47 Fc Chimera (Catalog # 4670-CD) binds with an ED_{50} of 0.04-0.24 µg/mL.

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BACKGROUND

Signal regulatory protein alpha (SIRP alpha, 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 SIRP alpha 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 SIRP alpha 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 SIRP alpha ECD shares 61%, 60%, 71%, 72% and 73% aa identity with mouse, rat, porcine, bovine and equine SIRP alpha, respectively; it shares 84% and 76% aa identity with human SIRP beta 1 and SIRP gamma, respectively (2). SIRP alpha 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). SIRP alpha shows adhesion to the ubiquitous CD47/IAP (integrin associated protein), while SIRP gamma binds more weakly and SIRP alpha 1 does not bind at all (1, 2). Mouse and human SIRP alpha -CD47 binding only cross-reacts for specific polymorphisms and influences engraftment of xenotransplanted stem cells (6, 10). SIRP alpha engagement generally produces a negative regulatory signal (4). Low SIRP alpha recognition of CD47, which occurs on aged erythrocytes or platelets or xenogenic cells, promotes clearance of CD47low cells from circulation (11, 13). SIRP alpha recognition of surfactants SP-A and SP-D in the lung can inhibit alveolar macrophage cytokine production (14). The CD47 integrin-SIRP alpha interaction is reported to promote macrophage fusion during osteoclastogenesis (15).

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