Recombinant Rat SIRPα/CD172a

Catalog Number: 7307-SA

DESCRIPTION

Source	Mouse myeloma cell line, NS0-derived rat SIRP alpha/CD172a protein Lys32-Asn373, with a C-terminal 6-His tag Accession # P97710
N-terminal Sequence Analysis	Lys32
Predicted Molecular Mass	38.3 kDa

SPECIFICATIONS

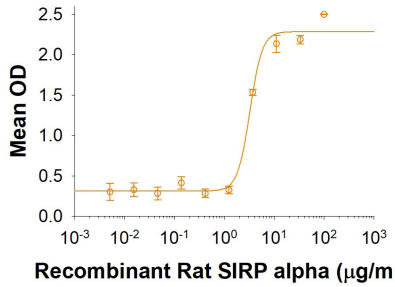
SDS-PAGE	75-95 kDa, reducing conditions
Activity	Measured by the ability of the immobilized protein to support the adhesion of mouse red blood cells. The ED_{50} for this effect is 1.2-4.8 µg/mL. **Optimal dilutions should be determined by each laboratory for each application.**
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE under reducing conditions and visualized by silver stain.
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



Recombinant Rat SIRPα/CD172a Fc Chimera (Catalog # 4546-SA) supports the adhesion of mouse red blood cells. The ED_{50} for this effect is 1.2-4.8 µg/mL.

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BACKGROUND

Signal regulatory protein alpha (SIRPα, designated CD172a), also called SHPS-1 (SHP substrate 1) and previously, MyD-1 (Myeloid/Dendritic-1), is a homodimeric, 100 - 120 kDa type I transmembrane glycoprotein that belongs to the SIRP/SHPS (CD172) family of the immunoglobulin superfamily (1 - 6). SIRPs are paired receptors, with similar extracellular domains but differing C-termini and functions (1, 2). The 509 amino acid (aa) rat SIRPα contains a 342 aa extracellular domain (ECD) with one V-type and two C1 type Ig domains and many potential N-glycosylation sites. It has a 113 aa cytoplasmic sequence with ITIM motifs that recruit tyrosine phosphatases SHP-1 and SHP-2 when phosphorylated (6). Rat SIRPα ECD shares 60% and 75% aa sequence identity with human and mouse SIRPα, respectively. Mouse and human SIRPα have at least 30 described polymorphisms, including the human SIRPα prominent variant BIT (Brain Ig like molecule with Tyrosine-based activation motifs, also called $SIRP\alpha_2$ or PTPNS) (2). Less is known about rat SIRPα polymorphisms and family members. SIRPα is expressed mainly on myeloid cells, including macrophages, neutrophils, dendritic and Langerhans cells (3 - 7). It is also found on neurons, smooth muscle and endothelial cells (8 - 10). SIRPα shows adhesion to the ubiquitous CD47/IAP (integrin associated protein) (1, 2). Interaction between SIRPα and CD47 on red blood cells occurs in a species specific manner (17). Mouse and human SIRPα are allelic in nature, and variations in the V-type Ig-like domain likely impacts its binding to CD47 (11). 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 (12-14). SIRPα recognition of surfactants SP-A and SP-D in the lung can inhibit alveolar macrophage cytokine production (15). The CD47 integrin-SIRPα interaction is reported to promote macrophage fusion during osteoclastogenesis (16).

References:

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