

DESCRIPTION

Source	Chinese Hamster Ovary cell line, CHO-derived human SIRP alpha/CD172a protein		
	Human SIRP α (Gly27-Arg370) & (Glu31-Arg370) Accession # NP_542970	IEGRMD	Human IgG ₁ (Pro100-Lys330)
	N-terminus		C-terminus
N-terminal Sequence Analysis	Gly27 & Glu31		
Structure / Form	Disulfide-linked homodimer		
Predicted Molecular Mass	64 kDa (monomer)		

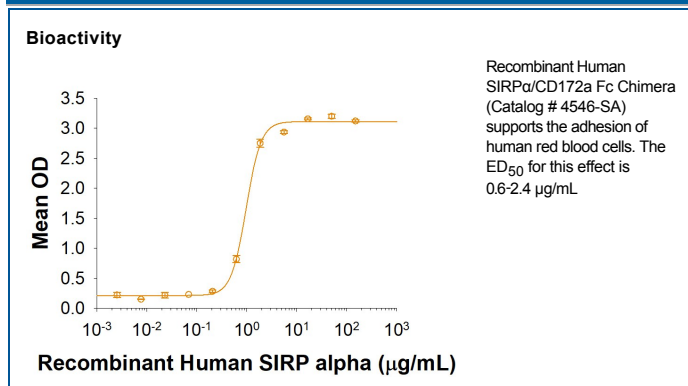
SPECIFICATIONS

SDS-PAGE	70-105 kDa, reducing conditions
Activity	Measured by the ability of the immobilized protein to support the adhesion of human red blood cells. Subramanian, S. <i>et al.</i> (2006) Blood 107 :2548. Red blood cells, added at 10×10^6 cells/mL (100 μ L/well) to SIRP α coated plates, will adhere after 1 hour at 37° C. The ED ₅₀ for this effect is 0.6-2.4 μ g/mL. Optimal dilutions should be determined by each laboratory for each application.
Endotoxin Level	<0.10 EU per 1 μ g of the protein by the LAL method.
Purity	>90%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
Formulation	Lyophilized from a 0.2 μ m filtered solution in PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 100 μ g/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. <ul style="list-style-type: none"> • 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



BACKGROUND

Signal regulatory protein alpha (SIRP α , 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 α 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 α has more than 40 described polymorphisms, including the prominent BIT (Brain Ig like molecule with Tyrosine-based activation motifs, also called SIRP α_2 or PTPNS) (5). One reported isoform lacks aa 1 - 101, which eliminates most of the V type Ig domain. Human SIRP α ECD shares 61%, 60%, 71%, 72% and 73% aa identity with mouse, rat, porcine, bovine and equine SIRP α , respectively; it shares 84% and 76% aa identity with human SIRP β 1 and SIRP γ , respectively (2). SIRP α 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 α shows adhesion to the ubiquitous CD47/IAP (integrin associated protein), while SIRP γ binds more weakly and SIRP α 1 does not bind at all (1, 2). Mouse and human SIRP α -CD47 binding only cross-reacts for specific polymorphisms and influences engraftment of xenotransplanted stem cells (6, 10). SIRP α engagement generally produces a negative regulatory signal (4). Low SIRP α recognition of CD47, which occurs on aged erythrocytes or platelets or xenogenic cells, promotes clearance of CD47^{low} cells from circulation (11, 13). SIRP α recognition of surfactants SP-A and SP-D in the lung can inhibit alveolar macrophage cytokine production (14). The CD47 integrin-SIRP α interaction is reported to promote macrophage fusion during osteoclastogenesis (15).

References:

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