

## Active Recombinant Human SIRPA protein, Fc/Avi-tagged, Biotinylated

**Cat. No.** SIRPA-051H    **Lot. No.** (See product label)

### SPECIFICATION

|                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
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| <b>Product Overview</b> | Biotinylated Recombinant Human SIRPA(Glu31-Asn371) protein, fused to Fc/Avi tag at the C-terminus, was expressed in CHO cells .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Species</b>          | Human                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Source</b>           | CHO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>ProteinLength</b>    | Glu31-Asn371                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Description</b>      | <p>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%</p> |

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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 CD47<sup>low</sup> 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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| <b>Predicted N Terminal</b> | Glu31                                                                                                                                                                                                                                                                                                               |
| <b>Form</b>                 | Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose.                                                                                                                                                                                                                                                  |
| <b>Bio-activity</b>         | 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 is immobilized at 0.2 g/mL (100 µ/well), Biotinylated Recombinant Human SIRPA Fc Chimera Avi-tag binds with an ED50 of 20-180 ng/mL. |
| <b>Molecular Mass</b>       | 86-96 kDa, under reducing conditions                                                                                                                                                                                                                                                                                |
| <b>Endotoxin</b>            | <0.10 EU per 1 µg of the protein by the LAL method.                                                                                                                                                                                                                                                                 |
| <b>Purity</b>               | >95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.                                                                                                                                                                                                        |

| Applications          | Bioactivity                                                                                                                                                                                                                                                             |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Storage</b>        | 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. |
| <b>Reconstitution</b> | Reconstitute at 500 µg/mL in PBS.                                                                                                                                                                                                                                       |
| <b>Conjugation</b>    | Biotin                                                                                                                                                                                                                                                                  |

## GENE INFORMATION

|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Gene Name</b>       | SIRPA signal-regulatory protein alpha [ Homo sapiens ]                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Official Symbol</b> | SIRPA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Synonyms</b>        | SIRPA; signal-regulatory protein alpha; protein tyrosine phosphatase, non receptor type substrate 1 , PTPNS1; tyrosine-protein phosphatase non-receptor type substrate 1; BIT; CD172a; MFR; MYD 1; P84; SHPS 1; SHPS1; SIRP; SIRP ALPHA 1; SIRPalpha; SIRPalpha2; myd-1 antigen; inhibitory receptor SHPS-1; macrophage fusion receptor; CD172 antigen-like family member A; tyrosine phosphatase SHP substrate 1; brain-immunoglobulin-like molecule with tyrosine-based activation motifs; MYD-1; CD172A; PTPNS1; |
| <b>Gene ID</b>         | 140885                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>mRNA Refseq</b>     | NM_001040022                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Protein Refseq</b>  | NP_001035111                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

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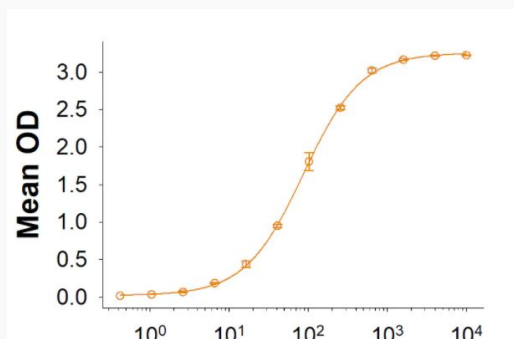
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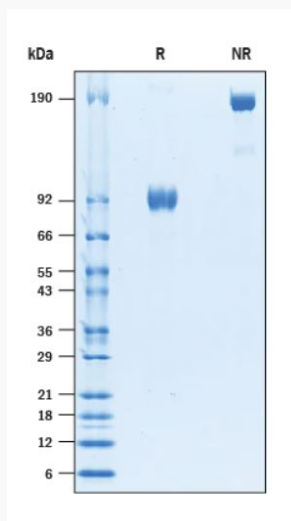
**MIM** 602461

**UniProt ID** P78324

**Binding Activity**



**SDS-PAGE**



2 µg/lane Protein was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining.

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