

# Recombinant Rat SORL Protein

**For Research Use Only**

## 1. Basic Product Information

Catalog No.: REP52265

Size: 10ug, 100ug

Protein Name: Sortilin-related receptor (Low-density lipoprotein receptor relative with 11 ligand-binding repeats) (LDLR relative with 11 ligand-binding repeats) (LR11) (Sorting protein-related receptor containing LDLR class A repeats) (SorLA)

Synonym: Sorl1

UniProt ID: P0DSP1

UniProt Link: [www.uniprot.org/uniprotkb/P0DSP1/entry](http://www.uniprot.org/uniprotkb/P0DSP1/entry)

Species Source: Rat

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 2215 AA

Molecular Weight: 247 KD

Protein Tag: C-terminal His6

## 2. Amino Acid Sequence

MATRSSRRESRLPFLFTLVALLPPGALGGGWTQRLHGGGAPLPQDRGFFVVGQDPHELRLGTHGD  
AWGASPAARKPLRTRRSAAALQPQPIQVYGQVSLNDSHNQMVVHWAGEKSNVIVALARDSLALTRPK  
SSDVVYSYDYGKSFNKISEKLNFGVGNSSSEAVISQFYHSPADNKRYIFVDAYARYLWITDFDGFSTIHG  
FSIPFRAADLLLHASKASNLLLGFDSSHPNKQLWKSDDFGQTWIMIQEHVKSFSWGIDPYDQNPNTIYIE  
RHEPFGFSTVFRSTDFFQSRENQEVILEEVRDFQLRDKYLFATKVVHLPGSQQQSSVQLWVSFGRK  
PMRAAQFVTKHPINEYYIADASEDQVFVCVSHSNNSTNLYISEAEGKFLSLLENVLYYSPGGAGSDT  
LVRYFANEPFADFHRVEGLQGVYIATLINGSMSSEENMRSVITFDKGGTWEFLQAPFTGYGEKINCE  
LSQGCSLHLAQRLSLLNLQLRRMPILSKESAPGLIATGSVGKNLASKTNVYISSAGARWREALPG  
PHYYTWGDHGGIIMAIQAQGMETNELKYSTNEGETWKTFFVFSEKPVFVYGLLTPGEKSTVFTIFGSN  
KESVHSWLILQVNATDALGVPCCTENDYKLWSPSDERGNECLLGHKTVFKRRTPHATCFNGEDFDRP  
VVVSNCSCTREDYECDFGFKMSedisLEVCVPDPEFSGKPYSPVPCPVGSSYRRTRGYRKISGDT  
CSGGDVEARLEGELVPCPLAEENEFILYAMRKSIRYDLASGATEQLPLSGLRAAVALDFDYEHNCL  
YWSDLALDTIQRLCLNGSTGQEVINSGLTVEALAFEPLSLLYWVDAGFKKIEVANPDGDFRLTIVN  
SSVLDPRPRALVLPQEGVMFWTDWGDLPKGIYRSNMDGSAAYRLVSEDVKWPNGISVDGHWIYWT  
DAYLDCIERITFSGQQRSVILDNLPHYPYIAVFKNEIYWDDWSQLSIFRASKYSRSQVETLASQLTGLM  
DMKIFYKGNAGSNACIPQPCSLCLPKANNSKSCRCPEGVASSVLPSTGYLMCDPCQGYERKNNTC  
VKEENTCLRNQYHCSNGNCINSIWWCDFDNDGDMSDERNCPPTTICDADTQFRCQESGTCIPLSYK



CDLEDDCGDNSDESHCEMHQCRSDEFNCSSGMCIRSSWVCDGDNDRCRDWSDEANCTAIYHTCEA  
SNFQCHNGHCIPQRWACDGDADCQDGSDEDPISCEKKCNFGHCPNGTCIPSSKHCDGLRDCPDG  
SDEQHCEPFCTRFDVCKNRQQCLFHSMVCDGIIQCRDGSDEDAFAGCSQDPEFHKECDEFGF  
QCQNGVCISLIWKCDGMDDCGDYSEANCENPTEAPNCSRYFQFHCENGRCIPNRWKCDREND  
GDWSDEKDCGDSHIFPSPTPGPSTCLPNYFRCSSGACVMGTWVCDGYRDCADGSDEEACPSLAN  
STAASTPTQLGQCDRFEFECRQPKKIPNWKRCQDGHQDCQDQGQDEANCPHSTLTCTMSREFKCE  
DGEACIVLSERCDGFLDCSDESDEKACSDLTVYKVQNLQWIADFSGDVTLTWTRPKKMPSASCYV  
NVYYRVVGESIWKTLETHSNKTSTVLKVLKPDTTYQVKVQVHCLSKVHNTNDFVTLRTPEGLPDAPR  
NLQLSLNSEEGLVILGHWAPPVHTHGLIREYIVEYSRSGSKMWASQRAASNSTEIKNLLLNALYTVRV  
AAVTSRGIGNWSDSKSITTTKGKVIQAPNIHIDSYDENSLSFTLTMDGDIKVNGYVNLFWSFDAHKQ  
EKKTLNFRGGSSSLSHKVSNLTAHTSYEVSAAWAKTDLGDSPLAFEHILTRGISPPAPSLKAKAINQTAV  
ECIWTGPKNVVYGIFYATSFLDLYRNPKSLTSLHNKTIVVSKDEQYFLVRLIPYQGPSSDYVVVKM  
IPDSRLPPRHLHAVQIGKTSVAVIKWESPYDSPDQDLFYAIAVKDLIRKTDRSYKVRSRNSTVEYSLSKL  
EPGGKYHIIVQLGNMSKDSSIKITTVSLSAPDALKIITENDHVLLFWKSLALKEKQFNETRGYEIHMFD  
AVNLTAYLGNNTDNNFFKVSNLKMGHNYTFTVQARCLFGSQICGEPVLLYDELSSGGDATVVQTARS  
TDVAVVVLPILFLILLSLGVGFAVLYTKHRRQLSSFTAFANSHYSSRLGSAIFSSGDDLGEDDEDAPMI  
TGFSDDVPMVIA

### 3. Buffer Composition

Liquid format: PBS-based buffer containing 50% glycerol. Glycerol concentration can be customized upon customer request; please state special requirements when placing your order.

Lyophilized format: Buffer before lyophilization is PBS supplemented with 6% trehalose.

### 4. Storage Conditions

Upon receipt, store the product at -20 °C or -80 °C. Aliquot the product for on-demand use to preserve protein activity and prevent denaturation and inactivation caused by repeated freeze-thaw cycles.

### 5. Product Description

This product is recombinant Sortilin-related receptor (Low-density lipoprotein receptor relative with 11 ligand-binding repeats) (LDLR relative with 11 ligand-binding repeats) (LR11) (Sorting protein-related receptor containing LDLR class A repeats) (SorLA) produced using the HEK293T eukaryotic cell expression system. It is suitable for in-vitro functional assays, protein-protein interaction studies, antibody preparation and other biomedical research applications.

**Protein Function:** Sorting receptor that directs several proteins to their correct location within the cell. Along with AP-1 complex, involved Golgi apparatus - endosome sorting. Sorting receptor for APP, regulating its intracellular trafficking and processing into amyloidogenic-beta peptides. Retains APP in the trans-Golgi network, hence preventing its transit through late endosomes where amyloid beta peptides Aβ40 and Aβ42 are generated. May also sort newly produced amyloid-beta peptides to lysosomes for catabolism. Does not affect APP trafficking from the endoplasmic reticulum to Golgi compartments. Sorting receptor for the BDNF receptor NTRK2/TRKB that facilitates NTRK2 trafficking between synaptic plasma membranes, postsynaptic densities and cell soma, hence positively regulates BDNF signaling by controlling the intracellular location of its receptor (By similarity). Sorting receptor for GDNF that promotes GDNF regulated, but not constitutive secretion (PubMed:21994944). Sorting receptor for the GDNF-GFRA1 complex, directing it from the cell surface to endosomes. GDNF is then targeted to lysosomes and degraded, while its receptor GFRA1 recycles back to the cell membrane, resulting in a GDNF clearance pathway. The SORL1-GFRA1 complex further targets RET for endocytosis, but not for degradation, affecting GDNF-induced



neurotrophic activities (PubMed:23333276). Sorting receptor for ERBB2/HER2. Regulates ERBB2 subcellular distribution by promoting its recycling after internalization from endosomes back to the plasma membrane, hence stimulating phosphoinositide 3-kinase (PI3K)-dependent ERBB2 signaling (By similarity). Sorting receptor for lipoprotein lipase LPL. Promotes LPL localization to endosomes and later to the lysosomes, leading to degradation of newly synthesized LPL. Potential sorting receptor for APOA5, inducing APOA5 internalization to early endosomes, then to late endosomes, wherefrom a portion is sent to lysosomes and degradation, another portion is sorted to the trans-Golgi network. Sorting receptor for the insulin receptor INSR. Promotes recycling of internalized INSR via the Golgi apparatus back to the cell surface, thereby preventing lysosomal INSR catabolism, increasing INSR cell surface expression and strengthening insulin signal reception in adipose tissue. Does not affect INSR internalization (By similarity). Plays a role in renal ion homeostasis, controlling the phospho-regulation of SLC12A1/NKCC2 by STK39/SPAK kinase and PPP3CB/calcineurin A beta phosphatase, possibly through intracellular sorting of STK39 and PPP3CB (PubMed:25967121). Stimulates, via the N-terminal ectodomain, the proliferation and migration of smooth muscle cells, possibly by increasing cell surface expression of the urokinase receptor uPAR/PLAUR. This may promote extracellular matrix proteolysis and hence facilitate cell migration. By acting on the migration of intimal smooth muscle cells, may accelerate intimal thickening following vascular injury (By similarity). Stimulates proliferation and migration monocytes/macrophages. Through its action on intimal smooth muscle cells and macrophages, may accelerate intimal thickening and macrophage foam cell formation in the process of atherosclerosis (By similarity). Regulates hypoxia-enhanced adhesion of hematopoietic stem and progenitor cells to the bone marrow stromal cells via a PLAUR-mediated pathway. This function is mediated by the N-terminal ectodomain (By similarity). Metabolic regulator, which functions to maintain the adequate balance between lipid storage and oxidation in response to changing environmental conditions, such as temperature and diet. The N-terminal ectodomain negatively regulates adipose tissue energy expenditure, acting through the inhibition the BMP/Smad pathway (By similarity). Sorting receptor that may regulate signaling by the heterodimeric neurotrophic cytokine CLCF1-CRLF1 bound to the CNTFR receptor by promoting the endocytosis of the tripartite complex CLCF1-CRLF1-CNTFR and lysosomal degradation. Might regulate IL6 signaling, decreasing cis signaling, while up-regulating trans signaling (By similarity).

**Subcellular Localization:** Golgi apparatus membrane ; Single-pass type I membrane protein . Golgi apparatus, trans-Golgi network membrane ; Single-pass type I membrane protein . Endosome membrane ; Single-pass type I membrane protein . Early endosome membrane ; Single-pass type I membrane protein . Recycling endosome membrane ; Single-pass type I membrane protein . Endoplasmic reticulum membrane ; Single-pass type I membrane protein . Endosome, multivesicular body membrane ; Single-pass type I membrane protein . Cell membrane ; Single-pass type I membrane protein . Cytoplasmic vesicle, secretory vesicle membrane ; Single-pass type I membrane protein . Secreted . Note=Mostly intracellular, predominantly in the trans-Golgi network (TGN) and in endosome, as well as in endosome-to-TGN recycling compartments; found at low levels on the plasma membrane. At the cell surface, partially subjected to proteolytic shedding that releases the ectodomain (also called soluble SORLA, solLR11 or sLR11) in the extracellular milieu. The shedding may be catalyzed by ADAM17/TACE. Following shedding, PSEN1/presenilin-1 cleaves the remaining transmembrane fragment and catalyzes the release of a C-terminal fragment in the cytosol and of a soluble N-terminal beta fragment in the extracellular milieu. The C-terminal cytosolic fragment localizes to the nucleus. At the cell surface, the full-length protein undergoes partial clathrin-dependent endocytosis guided by the clathrin adapter protein 2 (AP-2).

## 6. Notes

- Avoid repeated freeze-thaw cycles to maintain protein stability and biological activity.
- Please specify special buffer-composition requirements at the time of order placement.
- For research use only. Not intended for clinical diagnosis, therapeutic use or commercial manufacturing.