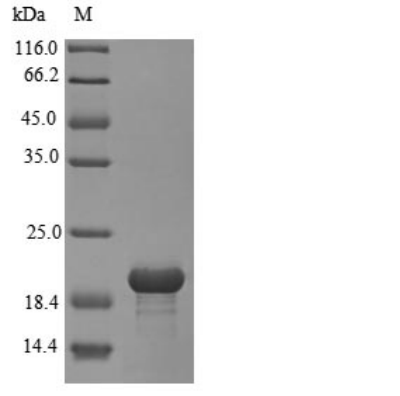
Recombinant Rat Sortilin (Sort1), partial

Product Code	CSB-EP022412RAa0
Relevance	Functions as a sorting receptor in the Golgi compartment and as a clearance receptor on the cell surface. Required for protein transport from the Golgi apparatus to the lysosomes by a pathway that is independent of the mannose-6-phosphate receptor (M6PR). Also required for protein transport from the Golgi apparatus to the endosomes. Promotes neuronal apoptosis by mediating endocytosis of the proapoptotic precursor forms of BDNF (proBDNF) and NGFB (proNGFB). Also acts as a receptor for neurotensin. May promote mineralization of the Extracellular domain matrix during osteogenic differentiation by scavenging Extracellular domain LPL. Probably required in adipocytes for the formation of specialized storage vesicles containing the glucose transporter SLC2A4/GLUT4 (GLUT4 storage vesicles, or GSVs). These vesicles provide a stable pool of SLC2A4 and confer increased responsiveness to insulin. May also mediate transport from the endoplasmic reticulum to the Golgi.
Abbreviation	Recombinant Rat Sort1 protein, partial
Storage	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.
Uniprot No.	O54861
Product Type	Recombinant Protein
Immunogen Species	Rattus norvegicus (Rat)
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	CEENDYTTWLAHSTDPGDYKDGCILGYKEQFLRLRKSSVCQNGRDYVVAKQP SICPCSLEDFLCDFGYFRPENASECVEQPELKGHELEFCLYGKEEHLTTNGYR KIPGDRCQGGMNPAREVKDLKKKCTSNFLNPKKQNSKSSS
Research Area	Others
Source	E.coli
Target Names	Sort1
Protein Names	Glycoprotein 110 ;Gp110Neurotensin receptor 3 ;NTR3
Expression Region	610-754aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal 6xHis-tagged
Mol. Weight	20.5 kDa
Protein Length	Partial
Image	



(Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.

Description

Recombinant Rat Sortilin (Sort1) is expressed in E.coli and consists of the 610-754 amino acid region with an N-terminal 6xHis-tag for convenient purification and detection. The protein is provided at a purity level greater than 90%, confirmed by SDS-PAGE analysis, ensuring high quality for research applications. It is intended for research use only and does not contain endotoxin specifications.

Sortilin appears to be a central player in cellular trafficking and signaling, functioning as a receptor that likely influences how various proteins get sorted within cells. The protein seems involved in pathways related to lipid metabolism and neurodegenerative processes. As a multifunctional receptor, studying Sortilin may be crucial for understanding mechanisms in cellular communication and disease-related pathways.

Potential Applications

Note: The applications listed below are based on what we know about this protein's biological functions, published research, and experience from experts in the field. However, we haven't fully tested all of these applications ourselves yet. We'd recommend running some preliminary tests first to make sure they work for your specific research goals.

1. Protein-Protein Interaction Studies Using Pull-Down Assays

The N-terminal 6xHis-tagged recombinant rat sortilin fragment (610-754aa) can be immobilized on nickel-affinity resins to identify potential binding partners from rat tissue lysates or cell extracts. This C-terminal region of sortilin might contain important protein interaction domains that could be systematically studied through pull-down experiments followed by mass spectrometry analysis. The high purity (>90%) ensures minimal background binding from contaminating proteins during interaction studies. This approach would help researchers piece together the molecular networks involving sortilin in rat cellular systems.

2. Antibody Development and Validation

This purified recombinant protein fragment works well as an immunogen for generating polyclonal or monoclonal antibodies specific to the 610-754aa region of rat sortilin. The high purity and defined sequence boundaries make it suitable

for immunization protocols and subsequent antibody characterization. Generated antibodies can be validated for specificity using ELISA, Western blot, and immunoprecipitation assays with the same recombinant protein as a positive control. Such antibodies would likely become valuable research tools for studying sortilin expression and localization in rat tissues and cell lines.

3. Structural and Biophysical Characterization Studies

The recombinant sortilin fragment can be used for detailed structural analysis through techniques such as circular dichroism spectroscopy, dynamic light scattering, and analytical ultracentrifugation to determine its folding state and oligomerization properties. Nuclear magnetic resonance or X-ray crystallography studies might provide atomic-level structural information about this specific C-terminal region of rat sortilin. The 6xHis tag makes protein purification straightforward for these biophysical studies while the high purity ensures reliable spectroscopic measurements. These studies would contribute to understanding the structure-function relationships within the sortilin protein family.

4. Comparative Species Analysis and Evolutionary Studies

This rat sortilin fragment can be used alongside corresponding recombinant fragments from other species to conduct comparative binding studies and evolutionary analysis of sortilin function. Cross-species interaction assays using this defined 610-754aa region would help identify conserved functional domains and species-specific binding preferences. The standardized expression system and purification approach allows for direct comparison with orthologous proteins from mouse, human, or other mammalian species. Such comparative studies may provide insights into the evolutionary conservation of sortilin's molecular functions across different mammalian lineages.

Reconstitution	We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Please reconstitute protein in deionized sterile water to a concentration of 0.1-1.0 mg/mL.We recommend to add 5-50% of glycerol (final concentration) and aliquot for long-term storage at -20°C/-80°C. Our default final concentration of glycerol is 50%. Customers could use it as reference.
Shelf Life	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.