

Recombinant Rat SYNJ1 Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP52488

Size: 10ug, 100ug

Protein Name: Polyphosphatidylinositol phosphatase SYNJ1 (Synaptojanin-1) [Includes: SAC-like phosphoinositide phosphatase SYNJ1 (Phosphatidylinositol-3,5-bisphosphate 3-phosphatase SYNJ1) (EC 3.1.3.95) (Phosphatidylinositol-4-phosphatase SYNJ1) (EC 3.1.3.-); Phosphoinositide 5-phosphatase SYNJ1 (EC 3.1.3.36) (Inositol polyphosphate-5-phosphatase G) (Synaptic inositol 1,4,5-trisphosphate 5-phosphatase 1)]

Synonym: Synj1

UniProt ID: Q62910

UniProt Link: www.uniprot.org/uniprotkb/Q62910/entry

Species Source: Rat

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 1574 AA

Molecular Weight: 173 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MAFSKGFRIYHKLDPPPFSLIVETRHKEECLMFESGAVAVLSSAEKEAIKGTYAKVLDAYGLLGVLRL
NLGDTMLHYLVLTGCMVGKIQESEVFRVTSTEFISLRVDASDEDRISEVRKVLNSGNFYFAWSAS
GVSLDLSLNAHRSMQEHTTDNRFFWNQSLHLHLKHYGVNCDDWLLRLMCGGVEIRTIYAAHKQAKA
CLISRLSCERAGTRFNVRGTTNDDGHVANFVETEQVIYLLDDCVSSFIQIRGSVPLFWEQPGQLQVGS
VRMSRGFEANAPAFDRHFRTLKDLYGKQIVVNLLGSKEGEHMLSKAFQSHLKASEHASDIHMVSFD
YHQMVKGGKAEKLHSLVKPQVQKFLDYGFFYFDGSAVQRCQSGTVRTNCLDCLDRTNSVQAFLGL
EMLAKQLEALGLAEKPQLVTRFQEVFRSMWSVNGDSISKIYAGTGALEGKAKLKDGARSVTRTIQNN
FFDSSKQEAIDVLLLGNLNSDLADKARALLTTGSLRVSEQTLQSASSKVLKNMCENFYKYSKPKKIR
VCVGTWNVNGGKQFRSIAFKNQTLDWLLDAPKLAGIQEFQDKRSKPTDIFAIGFEEMVELNAGNIV
NASTTNQKLWAVELQKTISRDNKYVLLASEQLVGVCVFVIRPQHAPFIRDVAVDTVKTGMGGATGN
KGAVAIRMLFHTTSLCFVCSHFAAGQSQVKERNEDFVEIARKLSFPMGRMLFSHDYVFWCGDFNYRI
DLPNEEVKELIRQQNWDSLIGDQLINQKNAGQIFRGFLEGKVTFAPTYKYDLFSEDYDTSEKCRTPA
WTDRLVWRRRKWPFDRSAEDLDLLNASFQDESKILYTWTPGTLLHYGRAELKTS DHRPVVALIDIDIF
EVEAEERQKIYKEVIAVQGPPDGTVLVSIKSSAQENTFFDDALIDELLQQFAHFGEVILIRFVEDKMWV
TFLEGSSALNVLSLNGKELLNRTITITLKSPDWIKTLEEEMSLKISVTLPSSTSSTLLGEDAEVSADFD



MEGDVDDYSAEVEELLPQHLQPSSSSGLGTSPSSSPRTSPCQSPTAPEYSAPSLPIRPSRAPSRTP
GPLSSQGAPVDTQPAAQKESSQTIEPKRPPPPRPVAPPARPAPPQRPPPPSGARSPAPARKEFGG
VGAPPSPGVTRREMEAPKSPGTARKDNIGRNQPSQAGLAGPGPSGYGAARPTIPARAGVISAPQS
QARVSAGRLTPESQSKPLETSKGPVLPPEPLKQAAFPQPQSLPTPAQKLQDPLVPIAAPMPPSIPQ
SNLETPPLPPPSRSSQSLPSDSSPQLQQEQPTGQQVKINGACGVKQEPTLKSDPFEDLSLSVLAV
SKAQPSAQISPVLTDPKMLIQLPSASQSKVNSLSSVSCMLTMPPVPEQSKSQESVGSSANPFPSLP
TRNPFTRTAAPGNPFRVQSQESEATSWLSKEEPVSNPFPPLMPLSHDMSKPSSSLDGFEDNFDL
QSQSTVKTSNPKGWVTFDEDEDFPTKGKRSRVYPDSLGNATAASFDDDWSKGTNVSFVLPARRPP
PPPPPVLLPPGTTSSAGPSTTLSSKASPTLDFTER

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 Polyphosphatidylinositol phosphatase SYNJ1 (Synaptojanin-1) [Includes: SAC-like phosphoinositide phosphatase SYNJ1 (Phosphatidylinositol-3,5-bisphosphate 3-phosphatase SYNJ1) (EC 3.1.3.95) (Phosphatidylinositol-4-phosphatase SYNJ1) (EC 3.1.3.-); Phosphoinositide 5-phosphatase SYNJ1 (EC 3.1.3.36) (Inositol polyphosphate-5-phosphatase G) (Synaptic inositol 1,4,5-trisphosphate 5-phosphatase 1)] 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: Phosphatase that hydrolyzes phosphate groups from the inositol ring of phosphoinositides and inositol phosphates, in a domain-specific manner (PubMed:8552192, PubMed:9710239). The 5-PPase domain catalyzes removal of the 5-phosphate from substrates such as phosphatidylinositol-4,5-bisphosphate (PtdIns(4,5)P₂), phosphatidylinositol-3,4,5-trisphosphate (PtdIns(3,4,5)P₃), inositol-1,4,5-trisphosphate (Ins(1,4,5)P₃) and inositol-1,3,4,5-tetrakisphosphate (Ins(1,3,4,5)P₄) (PubMed:8552192, PubMed:9710239). The SAC domain hydrolyzes phosphates at the 3- and 4-positions of the inositol ring, targeting phosphatidylinositol-3-phosphate (PI(3)P), phosphatidylinositol-4-phosphate (PI(4)P), and phosphatidylinositol-3,5-bisphosphate (PI(3,5)P₂) (By similarity). Plays a role in the phosphatidylinositol metabolic process during an unconventional endocytic mechanism, the ultrafast endocytosis where it participates in the rapid neck formation of the newly generated synaptic vesicle through its phosphoinositide 5-phosphatase activity (By similarity). Also, participates in the clathrin uncoating of synaptic vesicle formed via budding from synaptic endosomes after ultrafast endocytosis through combined activity of its phosphatase domains (PubMed:9428629). Additionally, regulates actin filament rearrangement by hydrolyzing PIP₂ bound to actin regulatory proteins (By similarity).

Subcellular Localization: Membrane . Cytoplasm, perinuclear region . Presynapse .

Note=Concentrates at clathrin-coated endocytic intermediates in nerve terminals (PubMed:9428629). Also recruited to clathrin- and dynamin-coated intermediates when brain cytosol was incubated with fibroblastic membranes (our unpublished observations) (PubMed:9428629).

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.