

Synaptojanin 1 (K-15): sc-12131

BACKGROUND

The inositol polyphosphate 5-phosphatases selectively remove the phosphate from the 5-position of various phosphatidylinositols, which generate second messengers in response to extracellular signals. Synaptojanins are characterized by an N-terminal SAC1-like sequence, a central 5-phosphate domain, and a unique C-terminal sequence and have been shown to use phosphatidylinositol 4,5-bisphosphate as a substrate. Synaptojanins exist as two isoforms, synaptojanin 1 and 2, which differ in the C-terminal domain, and each isoform has multiple variants produced by alternative splicing. Synaptojanin 1 is expressed as two major forms: the shorter is found in brain while the longer is expressed in peripheral tissues. Eight splice variants of synaptojanin 2 have been detected, including a brain specific isoform. Synaptojanins are thought to participate in the endocytosis of synaptic vesicles and the regulation of the actin cytoskeleton.

REFERENCES

1. Mitchell, C.A., Brown, S., Campbell, J.K., Munday, A.D. and Speed, C.J. 1996. Regulation of second messengers by the inositol polyphosphate 5-phosphatases. *Biochem. Soc. Trans.* 24: 994-1000.
2. Nemoto, Y., Arribas, M., Haffner, C. and DeCamilli, P. 1997. Synaptojanin 2, a novel synaptojanin isoform with a distinct targeting domain and expression pattern. *J. Biol. Chem.* 272: 30817-30821.
3. Zhang, X. and Majerus, P.W. 1998. Phosphatidylinositol signalling reactions. *Semin. Cell Dev. Biol.* 9: 153-160.
4. Erneux, C., Govaerts, C., Communi, D. and Pesesse, X. 1998. The diversity and possible functions of the inositol polyphosphate 5-phosphatases. *Biochim. Biophys. Acta* 1436: 185-199.
5. Khvotchev, M. and Sudhof, T.C. 1998. Developmentally regulated alternative splicing in a novel synaptojanin. *J. Biol. Chem.* 273: 2306-2311.
6. Seet, L.F., Cho, S., Hessel, A. and Dumont, D.J. 1998. Molecular cloning of multiple isoforms of synaptojanin 2 and assignment of the gene to mouse chromosome 17A2-3.1. *Biochem. Biophys. Res. Commun.* 247: 116-122.
7. Takenawa, T., Itoh, T. and Fukami, K. 1999. Regulation of phosphatidylinositol 4,5-bisphosphate levels and its roles in cytoskeletal re-organization and malignant transformation. *Chem. Phys. Lipids* 98: 13-22.
8. Haffner, C., Paolo, G.D., Rosenthal, J.A. and de Camilli, P. 2000. Direct interaction of the 170 kDa isoform of synaptojanin 1 with clathrin and with the clathrin adaptor AP-2. *Curr. Biol.* 10: 471-474.

CHROMOSOMAL LOCATION

Genetic locus: SYNJ1 (human) mapping to 21q22.11.

SOURCE

Synaptojanin 1 (K-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of Synaptojanin 1 of human origin.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-12131 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

Synaptojanin 1 (K-15) is recommended for detection of Synaptojanin 1 of 170 kDa and 16 amino acid insertless isoforms of rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Synaptojanin 1 (K-15) is also recommended for detection of Synaptojanin 1 of 170 kDa and 16 amino acid insertless isoforms in additional species, including equine.

Suitable for use as control antibody for Synaptojanin 1 siRNA (h): sc-39079, Synaptojanin 1 shRNA Plasmid (h): sc-39079-SH and Synaptojanin 1 shRNA (h) Lentiviral Particles: sc-39079-V.

Molecular Weight of Synaptojanin 1: 145/170 kDa.

Positive Controls: rat brain extract: sc-2392.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.



Try **Synaptojanin 1 (5H1): sc-32770** or **Synaptojanin 1 (AC1): sc-56966**, our highly recommended monoclonal alternatives to Synaptojanin 1 (K-15).