

Synaptojanin 1 (N-15): sc-12129

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

- 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.
- 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.
- Zhang, X. and Majerus, P.W. 1998. Phosphatidylinositol signalling reactions. *Semin. Cell Dev. Biol.* 9: 153-160.
- 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.
- Khvotchev, M. and Sudhof, T.C. 1998. Developmentally regulated alternative splicing in a novel synaptojanin. *J. Biol. Chem.* 273: 2306-2311.
- 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.
- 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.
- 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 (N-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-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-12129 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

Synaptojanin 1 (N-15) is recommended for detection of all Synaptojanin 1 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 (N-15) is also recommended for detection of all Synaptojanin 1 isoforms in additional species, including equine, canine, bovine and porcine.

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 (N-15).