SANTA CRUZ BIOTECHNOLOGY, INC.

Synaptojanin 1 (AC1): sc-56966

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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

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2. Nemoto, Y., et al. 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., et al. 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., et al. 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: 116-22.
7. Takenawa, T., et al. 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., et al. 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; Synj1 (mouse) mapping to 16 C3.3.

SOURCE

Synaptojanin 1 (AC1) is a mouse monoclonal antibody raised against amino acids 1156-1286 of Synaptojanin 1 of rat origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

Synaptojanin 1 (AC1) is recommended for detection of the 145 kDa isoform of Synaptojanin 1 of mouse, rat and, to a lesser extent, human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for Synaptojanin 1 siRNA (h): sc-39079, Synaptojanin 1 siRNA (m): sc-153973, Synaptojanin 1 shRNA Plasmid (h): sc-39079-SH, Synaptojanin 1 shRNA Plasmid (m): sc-153973-SH, Synaptojanin 1 shRNA (h) Lentiviral Particles: sc-39079-V and Synaptojanin 1 shRNA (m) Lentiviral Particles: sc-153973-V.

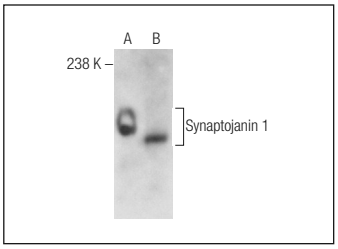
Molecular Weight of Synaptojanin 1: 145/170 kDa.

Positive Controls: rat brain extract: sc-2392 or EOC 20 whole cell lysate: sc-364187 or rat testis extract: sc-2400.

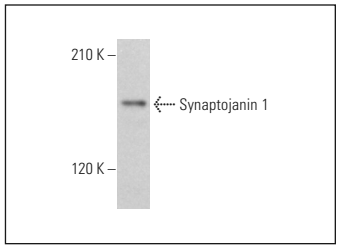
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



Synaptojanin 1 (AC1): sc-56966. Western blot analysis of Synaptojanin 1 expression in EOC 20 whole cell lysate (**A**) and rat testis tissue extract (**B**).



Synaptojanin 1 (AC1): sc-56966. Western blot analysis of Synaptojanin 1 expression in SH-SY5Y whole cell lysate.

STORAGE

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

RESEARCH USE

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

PROTOCOLS

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