

SYP (SY38): sc-58304

BACKGROUND

Synaptic vesicles participate in a cycle of fusion with the plasma membrane and reformation by endocytosis. Synaptic vesicle protein synaptophysin (SYP) is targeted to early endosomes in transfected fibroblasts and in neuroendocrine cells. SYP is an N-glycosylated intergral membrane protein found in neurons and endocrine cells that associates into hexamers to form a large conductance channel. SYP contains four transmembrane domains and may function as a gap junction-like channel. Membrane cholesterol specifically interacts with SYP to play a role in vesicle formation. Synaptobrevin (VAMP) also binds to SYP and the resultant complex is upregulated during neuronal development, but is absent in exocytosis fusion complex. Thus, the synaptophysin-synaptobrevin complex is not essential for exocytosis, but rather provides a pool of synaptobrevin for exocytosis. In addition, the tail domain of brain Myosin V also forms a stable complex with synaptobrevin II and SYP, and this complex is disassembled upon the depolarization-induced entry of Ca²⁺ into intact nerve endings.

REFERENCES

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2. Linstedt, A.D. and Kelly, R.B. 1991. Endocytosis of the synaptic vesicle protein, synaptophysin, requires the COOH-terminal tail. *J. Physiol.* 85: 90-96.
3. Calakos, N. and Scheller, R.H. 1994. Vesicle-associated membrane protein and synaptophysin are associated on the synaptic vesicle. *J. Biol. Chem.* 269: 24534-24537.
4. Leimer, U., Franke, W.W. and Leube, R.E. 1996. Synthesis of the mammalian synaptic vesicle protein synaptophysin in insect cells: a model for vesicle biogenesis. *Exp. Cell Res.* 224: 88-95.
5. Prekeris, R. and Terrian, D.M. 1997. Brain Myosin V is a synaptic vesicle-associated motor protein: evidence for a Ca²⁺-dependent interactions with the synaptobrevin-synaptophysin complex. *J. Cell Biol.* 137:1589-1601.
6. Becher, A., Drenckhahn, A., Pahner, I., Margittai, M., Jahn, R. and Ahnert-Hilger, G. 1999. The synaptophysin-synaptobrevin complex: a hallmark of synaptic vesicle maturation. *J. Neurosci.* 19: 1922-1931.

CHROMOSOMAL LOCATION

Genetic locus: SYP (human) mapping to Xp11.23; Syp (mouse) mapping to X A1.1.

SOURCE

SYP (SY38) is a mouse monoclonal antibody raised against SYP of bovine origin.

PRODUCT

Each vial contains 200 µg IgG₁ in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

SYP (SY38) is recommended for detection of SYP of mouse, rat and 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)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

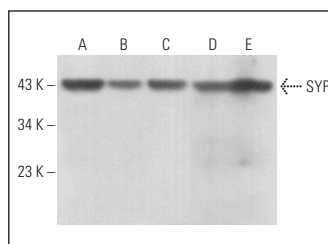
SYP (SY38) is also recommended for detection of SYP in additional species, including bovine.

Suitable for use as control antibody for SYP siRNA (h): sc-36597, SYP siRNA (m): sc-36596, SYP shRNA Plasmid (h): sc-36597-SH, SYP shRNA Plasmid (m): sc-36596-SH, SYP shRNA (h) Lentiviral Particles: sc-36597-V and SYP shRNA (m) Lentiviral Particles: sc-36596-V.

Molecular Weight of SYP: 38-48 kDa.

Positive Controls: mouse brain extract: sc-2253, rat brain extract: sc-2392 or IMR-32 cell lysate: sc-2409.

DATA



SYP (SY38): sc-58304. Western blot analysis of SYP expression in IMR-32 (A), EOC 20 (B) and C6 (C) whole cell lysates and mouse brain (D) and rat brain (E) tissue extracts.

SELECT PRODUCT CITATIONS

1. Sun, X., Chen, M., Li, J., Zhuang, J., Gao, Q., Zhong, X., Huang, B., Zhang, W., Huang, L. and Ge, J. 2011. E13.5 retinal progenitors induce mouse bone marrow mesenchymal stromal cells to differentiate into retinal progenitor-like cells. *Cytotherapy* 13: 294-303.

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.