

Synapsin III (H-90): sc-30098

BACKGROUND

Synapsins are synaptic vesicle-associated phosphoproteins that regulate synaptic vesicle exocytosis and may be involved in synaptogenesis. Evidence suggests that Synapsin I, Synapsin II and Synapsin IIIa are ATP-binding proteins that are regulated by Ca^{2+} and calmodulin binding. Ca^{2+} has been shown to stimulate ATP binding to Synapsin I, to have no effect on Synapsin II and to inhibit Synapsin III. Synapsin I and Synapsin II both undergo alternative splicing to produce two forms of each protein, Synapsin Ia and Ib and Synapsin IIa and IIb, respectively. Synapsin III gives rise to at least one isoform, Synapsin IIIa. Synapsin III plays unique roles both in early axon outgrowth and in the regulation of synaptic vesicle trafficking. In cultured mouse hippocampal neurons, Synapsin III is expressed early during development, with levels peaking seven days after plating and declining thereafter. Synapsin III is highly concentrated in growth cones.

REFERENCES

1. Sudhof, T.C., et al. 1989. Synapsins: mosaics of shared and individual domains in a family of synaptic vesicle phosphoproteins. *Science* 245: 1474-1480.
2. Sudhof, T.C. 1990. The structure of the human Synapsin I gene and protein. *J. Biol. Chem.* 265: 7849-7852.
3. Melloni, R.H. Jr. and DeGennaro, L.J. 1994. Temporal onset of Synapsin I gene expression coincides with neuronal differentiation during the development of the nervous system. *J. Comp. Neurol.* 342: 449-462.
4. Nicol, S., et al. 1997. Ca^{2+} -dependent interaction with calmodulin is conserved in the Synapsin family: identification of a high-affinity site. *Biochemistry* 36: 11487-11495.
5. Hosaka, M. and Sudhof, T.C. 1998. Synapsins I and II are ATP-binding proteins with differential Ca^{2+} regulation. *J. Biol. Chem.* 273: 1425-1429.
6. Hosaka, M. and Sudhof, T.C. 1998. Synapsin III, a novel Synapsin with an unusual regulation by Ca^{2+} . *J. Biol. Chem.* 273: 13371-13374.
7. Esser, L., et al. 1998. Synapsin I is structurally similar to ATP-utilizing enzymes. *EMBO J.* 17: 977-984.

CHROMOSOMAL LOCATION

Genetic locus: SYN3 (human) mapping to 22q12.3; Syn3 (mouse) mapping to 10 C2.

SOURCE

Synapsin III (H-90) is a rabbit polyclonal antibody raised against amino acids 31-120 mapping near the N-terminus of Synapsin IIIa of human origin.

PRODUCT

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

STORAGE

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

APPLICATIONS

Synapsin III (H-90) is recommended for detection of Synapsin IIIa, b and c of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1–2 μ g per 100–500 μ g of total protein (1 ml of cell lysate)], 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).

Suitable for use as control antibody for Synapsin III siRNA (h): sc-36584, Synapsin III siRNA (m): sc-36585, Synapsin III shRNA Plasmid (h): sc-36584-SH, Synapsin III shRNA Plasmid (m): sc-36585-SH, Synapsin III shRNA (h) Lentiviral Particles: sc-36584-V and Synapsin III shRNA (m) Lentiviral Particles: sc-36585-V.

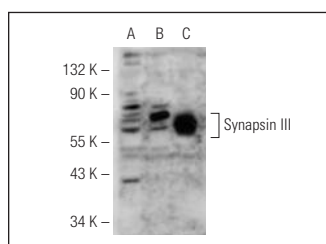
Molecular Weight of Synapsin III: 65 kDa.

Positive Controls: Synapsin III (h): 293T Lysate: sc-129896, mouse brain extract: sc-2253 or rat cerebellum extract: sc-2398.

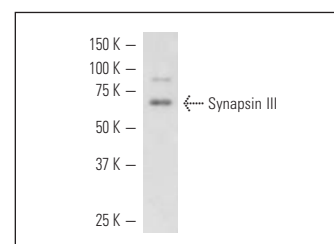
RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



Synapsin III (H-90): sc-30098. Western blot analysis of Synapsin III expression in non-transfected: sc-117752 (A) and human Synapsin III transfected: sc-129896 (B) 293T whole cell lysates and mouse brain tissue extract (C).



Synapsin III (H-90): sc-30098. Western blot analysis of Synapsin III expression in mouse brain tissue extract.

RESEARCH USE

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

PROTOCOLS

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