

Synapsin IIa (R-20): sc-8293

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 three isoforms: Synapsin IIIa, IIIb and IIIc. 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.

CHROMOSOMAL LOCATION

Genetic locus: SYN2 (human) mapping to 3p25.2; Syn2 (mouse) mapping to 6 E3.

SOURCE

Synapsin IIa (R-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of Synapsin IIa of rat origin.

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-8293 P, (100 μg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

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.

APPLICATIONS

Synapsin IIa (R-20) is recommended for detection of Synapsin IIa 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 solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

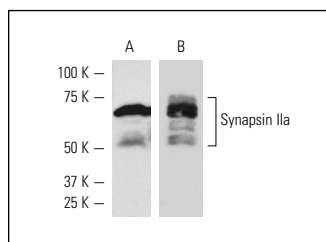
Synapsin IIa (R-20) is also recommended for detection of Synapsin IIa in additional species, including equine and canine.

Suitable for use as control antibody for Synapsin IIa siRNA (h): sc-36582, Synapsin IIa siRNA (m): sc-36583, Synapsin IIa shRNA Plasmid (h): sc-36582-SH, Synapsin IIa shRNA Plasmid (m): sc-36583-SH, Synapsin IIa shRNA (h) Lentiviral Particles: sc-36582-V and Synapsin IIa shRNA (m) Lentiviral Particles: sc-36583-V.

Molecular Weight of Synapsin IIa: 74 kDa.

Positive Controls: mouse brain extract: sc-2253.

DATA



Western blot analysis of Synapsin IIa expression in mouse brain tissue extract (A,B). Antibodies tested include Synapsin IIa (R-20): sc-8293 (A) and Synapsin IIa (H-75): sc-25538 (B).

SELECT PRODUCT CITATIONS

1. Frederikse, P.H., et al. 2004. Synapsin and synaptic vesicle protein expression during embryonic and post-natal lens fiber cell differentiation. *Mol. Vis.* 10: 794-804.
2. Revest, J.M., et al. 2010. The enhancement of stress-related memory by glucocorticoids depends on synapsin-Ia/Ib. *Mol. Psychiatry*. E-Published.

RESEARCH USE

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

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Try **Synapsin IIa (1): sc-136086**, our highly recommended monoclonal alternative to Synapsin IIa (R-20).