

# Synapsin Ia/b (B-12): sc-398846

## 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

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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., Rahman, D. and Baines, A.J. 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. Esser, L., Wang, C.R., Hosaka, M., Smagula, C.S., Sudhof, T.C. and Deisenhofer, J. 1998. Synapsin I is structurally similar to ATP-utilizing enzymes. *EMBO J.* 17: 977-984.
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## CHROMOSOMAL LOCATION

Genetic locus: SYN1 (human) mapping to Xp11.23; Syn1 (mouse) mapping to X A1.3.

## SOURCE

Synapsin Ia/b (B-12) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 667-686 at the C-terminus of Synapsin Ia/b of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>3</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

Synapsin Ia/b (B-12) is recommended for detection of Synapsin Ia/b of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ 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 Ia/b siRNA (h): sc-37012, Synapsin Ia/b siRNA (m): sc-37013, Synapsin Ia/b shRNA Plasmid (h): sc-37012-SH, Synapsin Ia/b shRNA Plasmid (m): sc-37013-SH, Synapsin Ia/b shRNA (h) Lentiviral Particles: sc-37012-V and Synapsin Ia/b shRNA (m) Lentiviral Particles: sc-37013-V.

Molecular Weight of Synapsin Ia: 80 kDa.

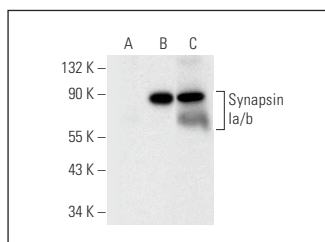
Molecular Weight of Synapsin Ib: 86 kDa.

Positive Controls: Synapsin Ia/b (m): 293T Lysate: sc-123862, mouse brain extract: sc-2253 or human brain extract: sc-364375.

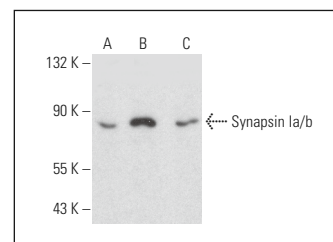
## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 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-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  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



Synapsin Ia/b (B-12): sc-398846. Western blot analysis of Synapsin Ia/b expression in non-transfected: sc-117752 (A) and mouse Synapsin Ia/b transfected: sc-123862 (B) 293T whole cell lysates and mouse brain tissue extract (C).



Synapsin Ia/b (B-12): sc-398846. Western blot analysis of Synapsin Ia/b expression in human brain (A), human hypothalamus (B) and human cerebral cortex (C) tissue extracts.

## 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.