

# Synapsin Ia/b (B-11): sc-376622

## 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 IIIa and IIIb, 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.

## SOURCE

Synapsin Ia/b (B-11) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 2-29 at the N-terminus of Synapsin Ia/b of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-376622 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

## APPLICATIONS

Synapsin Ia/b (B-11) is recommended for detection of a broad range of synapsin family members 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).

Synapsin Ia/b (B-11) is also recommended for detection of a broad range of synapsin family members in additional species, including canine, bovine and porcine.

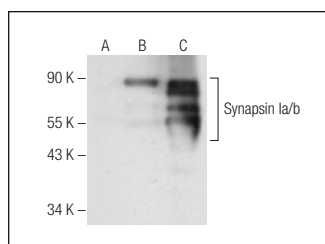
Molecular Weight of Synapsin Ia/b: 80/86 kDa.

Positive Controls: SK-N-SH cell lysate: sc-2410, rat brain extract: sc-2392 or Synapsin Ia/b (m): 293T Lysate: sc-123862.

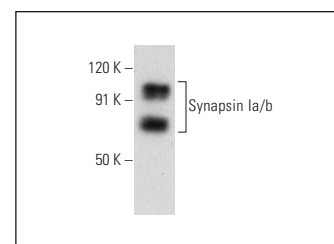
## RECOMMENDED SUPPORT REAGENTS

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-11): sc-376622. 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 rat brain tissue extract (C).



Synapsin Ia/b (B-11): sc-376622. Western blot analysis of Synapsin Ia/b expression in SK-N-SH whole cell lysate.

## SELECT PRODUCT CITATIONS

1. Coleman, W.L., et al. 2015. Functional distribution of Synapsin I in human sperm. *FEBS Open Bio* 5: 801-808.
2. Marsh, J., et al. 2017. Synapsin I phosphorylation is dysregulated by  $\beta$ -Amyloid oligomers and restored by valproic acid. *Neurobiol. Dis.* 106: 63-75.
3. Domise, M., et al. 2019. Neuronal AMP-activated protein kinase hyperactivation induces synaptic loss by an autophagy-mediated process. *Cell Death Dis.* 10: 221.
4. Barone, C.M., et al. 2019. Altered cochlear innervation in developing and mature naked and Damaraland mole rats. *J. Comp. Neurol.* 527: 2302-2316.
5. Caus Capdevila, M.Q., et al. 2021. Developmental maturation of presynaptic ribbon numbers in chicken basilar-papilla hair cells and its perturbation by long-term overexpression of Wnt9a. *Dev. Neurobiol.* 81: 817-832.

## 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.