SANTA CRUZ BIOTECHNOLOGY, INC.

Synapsin IIa (1): sc-136086

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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.

CHROMOSOMAL LOCATION

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

SOURCE

Synapsin IIa (1) is a mouse monoclonal antibody raised against amino acids 451-586 of Synapsin IIa of rat origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

Synapsin IIa (1) 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 immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

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.

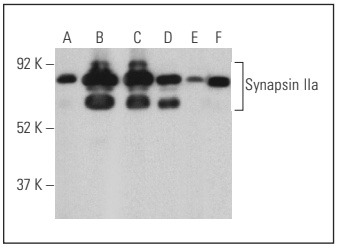
Molecular Weight of Synapsin IIa: 74 kDa.

Positive Controls: human brain extract: sc-364375, mouse brain extract: sc-2253 or rat brain extract: sc-2392.

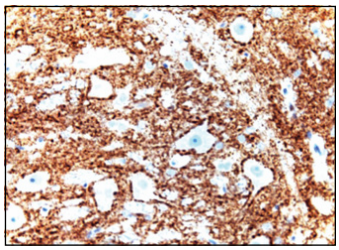
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



Synapsin IIa (1): sc-136086. Western blot analysis of Synapsin IIa expression in human brain (**A**), mouse brain (**B**), rat brain (**C**) and rat spinal cord (**D**) tissue extracts and IMR-32 (**E**) and Neuro-2A (**F**) whole cell lysates. Detection reagent used: m-IgGκ BP-HRP: sc-516102.



Synapsin IIa (1): sc-136086. Immunoperoxidase staining of rat brain tissue showing membrane and cell junction localization.

SELECT PRODUCT CITATIONS

1. Jiao, Z., et al. 2020. Fenpropathrin induces degeneration of dopaminergic neurons via disruption of the mitochondrial quality control system. Cell Death Discov. 6: 78.
2. Sun, J., et al. 2021. Ligustilide enhances hippocampal neural stem cells activation to restore cognitive function in the context of postoperative cognitive dysfunction. Eur. J. Neurosci. 54: 5000-5015.
3. Sun, J., et al. 2021. Ligustilide enhances hippocampal neural stem cells activation to restore cognitive function in the context of postoperative cognitive dysfunction. Eur. J. Neurosci. 54: 5000-5015.

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. Not for resale.

PROTOCOLS

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