

p-Synapsin Ia/b (Ser 9): sc-101811

BACKGROUND

Synapsin I, which exists as two alternatively spliced isoforms designated Synapsin Ia and Synapsin Ib, has been characterized as one of the major phosphoproteins in nerve terminals and is thought to be involved in the regulation of neurotransmitter release. Synapsin I cross-links synaptic vesicles and the cytoskeleton, and the interactions of Synapsin with Actin filaments and synaptic vesicles are regulated by phosphorylation by calmodulin-dependent protein kinase II and cAMP-dependent protein kinase. Posttranslational modifications of Synapsin I result in phosphorylation of the protein at different sites and by different kinases. Serine 553 of Synapsin I is phosphorylated *in vivo*. This phosphorylation site is immediately followed by a proline, suggesting that the protein is an *in vivo* substrate of the proline-directed protein kinase, Cdk5-p23. Cdk5-p23 is a proline-directed protein kinase that is expressed highly in the brain.

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. Ca²⁺-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 Ca²⁺ 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 Ca²⁺. *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: SYN1 (human) mapping to Xp11.23; Syn1 (mouse) mapping to X A1.3.

SOURCE

p-Synapsin Ia/b (Ser 9) is a rabbit polyclonal antibody raised against a short amino acid sequence containing phosphorylated Ser 9 of Synapsin Ia/b of human origin.

PRODUCT

Each vial contains 100 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

RESEARCH USE

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

APPLICATIONS

p-Synapsin Ia/b (Ser 9) is recommended for detection of Ser 9 phosphorylated Synapsin Ia/b of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1–2 µg per 100–500 µg of total protein (1 ml of cell lysate)].

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 p-Synapsin Ia: 80 kDa.

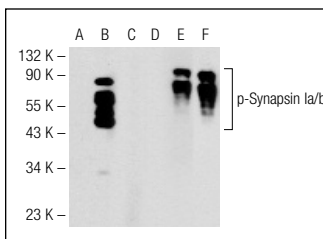
Molecular Weight of p-Synapsin Ib: 86 kDa.

Positive Controls: mouse brain tissue extract: sc-2253, MCF7 whole cell lysate: sc-2206 or Synapsin Ia/b (m): 293T Lysate: sc-123862.

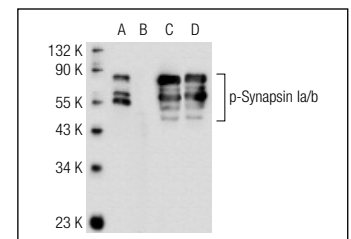
RECOMMENDED SECONDARY REAGENTS

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 B Blocking Reagent: sc-2335 (use 50 mM NaF, sc-24988, as diluent), Western Blotting Luminol Reagent: sc-2048 and Lambda Phosphatase: sc-200312A. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



Western blot analysis of Synapsin Ia/b phosphorylation in nontransfected: sc-117752 (A,D), untreated mouse Synapsin Ia/b transfected: sc-123862 (B,E) and lambda protein phosphatase (sc-200312A) treated mouse Synapsin Ia/b transfected: sc-123862 (C,F) 293T whole cell lysates. Anti-bodies tested include p-Synapsin Ia/b (Ser 9): sc-101811 (A,B,C) and Synapsin Ia/b (H-170): sc-20780 (D,E,F).



Western blot analysis of Synapsin Ia/b phosphorylation in untreated (A,C) and lambda protein phosphatase (sc-200312A) treated (B,D) rat brain tissue extracts. Antibodies tested include p-Synapsin Ia/b (Ser 9): sc-101811 (A,B) and Synapsin Ia/b (H-170): sc-20780 (C,D).

SELECT PRODUCT CITATIONS

1. Lau, B.Y., et al. 2011. Increased synapsin expression and neurite sprouting in lamprey brain after spinal cord injury. *Exp. Neurol.* 228: 283-293.

STORAGE

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