SANTA CRUZ BIOTECHNOLOGY, INC.

p-Synapsin Ia/b (Ser 9): sc-135710

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 synapsins 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. The Ser 553 residue of Synapsin I is phosphorylated *in vivo*. This phosphorylation site is immediately followed by a proline, suggesting that Synapsin I is an *in vivo* substrate of the proline-directed protein kinase, Cdk5.

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.
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. Hosaka, M. and Sudhof, T.C. 1998. Synapsin III, a novel Synapsin with an unusual regulation by Ca^{2+}. 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.
8. Kao, H.T., et al. 1998. A third member of the Synapsin gene family. Proc. Natl. Acad. Sci. USA 95: 4667-4672.
9. Ferreira, A., et al. 2000. Synapsin III: developmental expression, subcellular localization, and role in axon formation. J. Neurosci. 20: 3736-3744.

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 rat origin.

RESEARCH USE

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

PRODUCT

Each vial contains IgG in 100 µl of 10 mM HEPES with 150 mM NaCl, 50% glycerol and < 0.1% BSA.

APPLICATIONS

p-Synapsin Ia/b (Ser 9) is recommended for detection of Ser 9 phosphorylated Synapsin Ia/b of mouse, rat, human, *Xenopus laevis* and zebrafish origin by Western Blotting (starting dilution to be determined by researcher, dilution range 1:100-1:5000) and immunoprecipitation [1-2 µl 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.

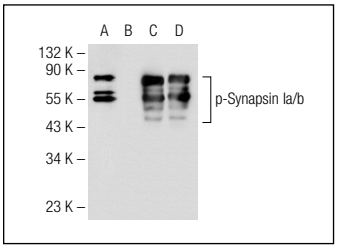
Molecular Weight of p-Synapsin Ib: 86 kDa.

Positive Controls: rat brain extract: sc-2392, mouse brain extract: sc-2253 or rat cerebellum extract: sc-2398.

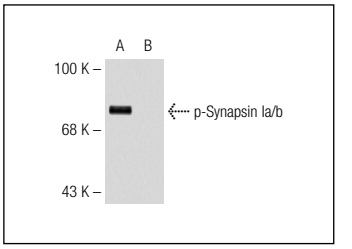
RECOMMENDED SECONDARY REAGENTS

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 untreated (**A**,**C**) and lambda protein phosphatase treated (**B**,**D**) rat brain tissue extracts. Antibodies tested include p-Synapsin Ia/b (Ser 9): sc-135710 (**A**,**B**) and Synapsin Ia/b (H-170): sc-20780 (**C**,**D**).



p-Synapsin Ia/b (Ser 9): sc-135710. Western blot analysis of Synapsin Ia/b phosphorylation in untreated (**A**) and lambda protein phosphatase (sc-200312A) treated (**B**) rat prefrontal cortex tissue extracts.

STORAGE

For immediate and continuous use, store at 4° C for up to one month. For sporadic use, freeze in working aliquots in order to avoid repeated freeze/thaw cycles. If turbidity is evident upon prolonged storage, clarify solution by centrifugation.