SANTA CRUZ BIOTECHNOLOGY, INC.

p-Synapsin Ia/b (Ser 553): sc-12913

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.

CHROMOSOMAL LOCATION

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

SOURCE

p-Synapsin Ia/b (Ser 553) is available as either goat (sc-12913) or rabbit (sc-12913-R) polyclonal antibody raised against a short amino acid sequence containing Ser 553 phosphorylated Synapsin I of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-12913 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

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.

PROTOCOLS

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

APPLICATIONS

p-Synapsin Ia/b (Ser 553) is recommended for detection of Ser 553 phosphorylated Synapsin Ia and Ser 553 phosphorylated Synapsin Ib 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 solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

p-Synapsin Ia/b (Ser 553) is also recommended for detection of correspondingly phosphorylated Synapsin Ia and phosphorylated Synapsin Ib in additional species, including bovine.

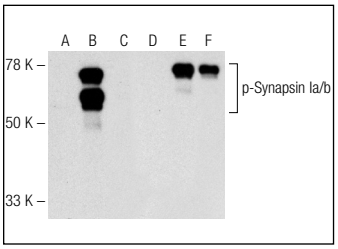
Suitable for use as control antibody for Synapsin Ia/b siRNA (h): sc-37012, Synapsin Ia/b siRNA (m): sc-37013, Synapsin Ia/b shRNA Plasmid (h): sc-37012-SH, Synapsin Ia/b shRNA Plasmid (m): sc-37013-SH, Synapsin Ia/b shRNA (h) Lentiviral Particles: sc-37012-V and Synapsin Ia/b shRNA (m) Lentiviral Particles: sc-37013-V.

Molecular Weight of p-Synapsin Ia: 80 kDa.

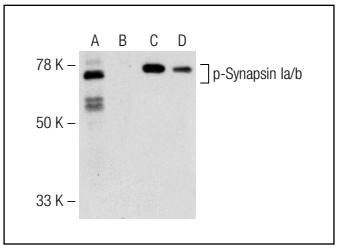
Molecular Weight of p-Synapsin Ib: 86 kDa.

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

DATA



Western blot analysis of Synapsin Ia/b phosphorylation in non-transfected: 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. Antibodies tested include p-Synapsin Ia/b (Ser 553)-R: sc-12913-R (**A**,**B**,**C**) and Synapsin Ia/b (C-20)-R: sc-8295-R (**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 553)-R: sc-12913-R (**A**,**B**) and Synapsin Ia/b (C-20)-R: sc-8295-R (**C**,**D**).

SELECT PRODUCT CITATIONS

1. Levy, M., et al. 2003. Mitochondrial regulation of synaptic plasticity in the hippocampus. J. Biol. Chem. 278: 17727-17734.
2. Ohtani-Kaneko, R., et al. 2010. Effects of estrogen on synapsin I distribution in developing hypothalamic neurons. Neurosci. Res. 66: 180-188.