



**PhosphoSolutions®**  
Antibodies that work™

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## Anti-Synapsin I

**Catalog Number:** 1925-SYNP

**Size:** 10 µg

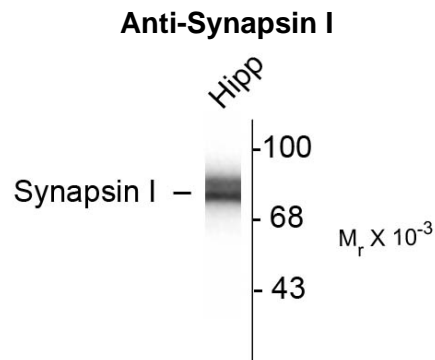
**Product Description:** Affinity purified rabbit polyclonal antibody

**Applications:** **WB:** 1:1000  
**IHC, IF** (frozen sections; unpublished observations): 1:2000  
**IP:** 1 µg per 200 µg lysate

**Antigen:** Native protein purified from bovine brain.

**Species reactivity:** The antibody has been directly tested for reactivity in Western blots with rat, mouse and human tissue.

**Biological Significance:** Synapsin I plays a key role in synaptic plasticity in brain (Feng et al., 2002; Nayak et al., 1996). This effect is due in large part to the ability of the synapsins to regulate the availability of synaptic vesicles for release. In addition to its role in plasticity, the expression of synapsin I is a precise indicator of synapse formation (Moore and Bernstein, 1989; Stone et al., 1994). Thus, synapsin I immunocytochemistry provides a valuable tool for the study of synaptogenesis. The role of synapsin in synaptic plasticity and in synaptogenesis is regulated by phosphorylation (Jovanovic et al., 2001; Kao et al., 2002).



**Western blot** of 10 µg of rat hippocampal (Hipp) lysate showing specific immunolabeling of the ~78k synapsin I doublet protein.

**Purification Method:** Prepared from rabbit serum by affinity purification using a column to which the native protein was coupled.

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**WB** = Western Blot **IF** = Immunofluorescence **IHC** = Immunohistochemistry **IP** = Immunoprecipitation

**Packaging:** 10 µg antibody vial; lyophilized from 5 mM ammonium bicarbonate. The antibody should be reconstituted in 50 µl phosphate buffered saline (PBS: 137 mM NaCl, 7.5 mM Na<sub>2</sub>HPO<sub>4</sub>, 2.7 mM KCl, 1.5 mM KH<sub>2</sub>PO<sub>4</sub>, pH 7.4) before use. After reconstitution the antibody should be aliquoted and stored at -20°C. Adequate amount of material to conduct 10-mini Western Blots.

**Storage and Stability:** For long term storage -20°C is recommended. Stable at -20°C for at least 1 year

**Shipment:** Domestic - Ambient; International - Ambient.

**Antibody Specificity:** Specific for the ~78k synapsin I doublet in Western blots of rat brain extracts. Immunolabeling blocked by preadsorption of antibody with the protein used to generate the antibody.

**Quality Control Tests:** Western blots performed on each lot.

**References:**

- Feng J, Chi P, Blanpied TA, Xu YM, Magarinos AM, Ferreira A, Takahashi RH, Kao HT, McEwen BS, Ryan TA, Augustine GJ, Greengard P (2002) Regulation of neurotransmitter release by synapsin III. *J Neurosci* 22:4372-4380.
- Jovanovic JN, Sihra TS, Nairn AC, Hemmings HC, Jr., Greengard P, Czernik AJ (2001) Opposing changes in phosphorylation of specific sites in synapsin I during  $Ca^{2+}$ -dependent glutamate release in isolated nerve terminals. *J Neurosci* 21:7944-7953.
- Kao HT, Song HJ, Porton B, Ming GL, Hoh J, Abraham M, Czernik AJ, Pieribone VA, Poo MM, Greengard P (2002) A protein kinase A-dependent molecular switch in synapsins regulates neurite outgrowth. *Nature Neurosci* 5:431-437.
- Moore RY, Bernstein M (1989) Synaptogenesis in the rat suprachiasmatic nucleus demonstrated by electron microscopy and synapsin I immunoreactivity. *J Neurosci* 9:2151-2162.
- Nayak AS, Moore CI, Browning MD (1996) CaM kinase II phosphorylation of the presynaptic protein synapsin is persistently increased during expression of long-term potentiation. *Proc Natl Acad Sci (USA)* 93:15451-15456.
- Stone LM, Browning MD, Finger TE (1994) Differential distribution of the synapsins in the rat olfactory bulb. *J Neurosci* 14:301-309.

Kurtis D. Davies, Susan M. Goebel-Goody, Steven J. Coultrap, and Michael D. Browning (2008) Long Term Synaptic Depression That Is Associated with GluR1 Dephosphorylation but Not  $\alpha$ -Amino-3-hydroxy-5-methyl-4-isoxazolepropionic Acid (AMPA) Receptor Internalization *J. Biol. Chem.*, 283: 33138 - 33146.

**Note:** Dr. Michael Browning, co-author of the cited papers is the President and founder PhosphoSolutions.

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