Anti-Phospho-Ser^{9} Synapsin I Antibody

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Catalog #: p1560-9 **Size:** 100 µl

Cite This Antibody: PhosphoSolutions Cat# p1560-9, RRID:AB_2492244

Host	Applications	Species Tested	Species Reactivity*	Molecular Weight
Rabbit	WB 1:1000 ICC 1:200-1:500	M, R, Z	B, H, X	~78 kDa

Product Description: Affinity purified rabbit polyclonal antibody.

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 synaptogensis is regulated by phosphorylation (Jovanovic et al., 2001; Kao et al., 2002). Serine 9 is the site on synapsin I that is phosphorylated by cAMP-dependent protein kinase and by calcium calmodulin kinase I (Czernik et al., 1987). Phosphorylation of this site is thought to regulate synaptic vesicle function and neurite outgrowth (Kao et al., 2002).

Antigen: Phosphopeptide corresponding to amino acid residues surrounding the phospho-Ser^{9} of rat synapsin I.

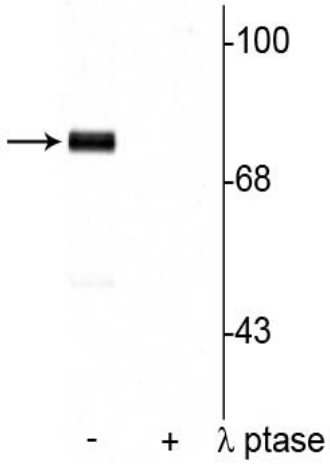
Antibody Specificity: Specific for endogenous levels of the ~78 kDa synapsin I doublet protein phosphorylated at Ser^{9}. Also weakly labels the ~55 kDa synapsin II protein which has a similar phosphorylation site to that of Ser^{9} on synapsin I. Immunolabeling is completely eliminated by treatment with λ-Ptase.

Purification Method: Prepared from pooled rabbit serum by affinity purification via sequential chromatography on phospho and non-phosphopeptide affinity columns.

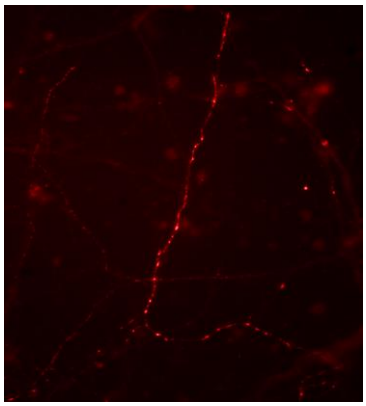
Quality Control Tests: Western blots performed on each lot.

Packaging: 100 µl in 10 mM HEPES (pH 7.5), 150 mM NaCl, 100 µg BSA per ml and 50% glycerol.

Storage and Stability: Shipped on blue ice. Storage at -20°C is recommended, as aliquots may be taken without freeze/thawing due to presence of 50% glycerol. Stable for at least 1 year at -20°C.



Western blot of rat cortical lysate showing specific immunolabeling of the ~78 kDa synapsin I phosphorylated at Ser^{9} in the first lane (-). Phosphospecificity is shown in the second lane (+) where the immunolabeling is completely eliminated by blot treatment with *lambda* phosphatase (λ-Ptase, 1200 units for 30 minutes).



Immunostaining of cultured mouse caudate neurons showing synapsin I when phosphorylated at Ser^{9} (catalog # p1560-9, 1:500, red). Cells and photo courtesy of QBMCellScience.

Application Key: WB = Western Blot **IF** = Immunofluorescence **IHC** = Immunohistochemistry **IP** = Immunoprecipitation
Species Reactivity Key: All-All Species **A**-Avian **Amp**-Amphibian **Ar**-*Arabidopsis* **B**-Bovine **C**-Canine **Ch**-Chicken **D**-*Drosophilia* **G**-Goat **GP**-Guinea Pig **H**-Human **Ha**-Hamster **M**-Mouse **NHP**- Non-human primate **P**-Pig **R**-Rat **S**-Sheep **X**-*Xenopus* **Z**-Zebrafish
*Species assumed based on 100% homology with sequence used as antigen **For Research Use Only**

Product Specific References:

Benleulmi-Chaachoua, A., Chen, L., Sokolina, K., Wong, V., Jurisica, I., Emerit, M.B., Darmon, M., Espin, A., Stagljar, I., Tafelmeyer, P. and Zamponi, G.W., 2016. Protein interactome mining defines melatonin MT 1 receptors as integral component of presynaptic protein complexes of neurons. *Journal of pineal research*, 60(1), pp.95-108.

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Shimomura, S., Nagamine, T., Hatano, N., Sueyoshi, N. and Kameshita, I., 2010. Identification of an endogenous substrate of zebrafish doublecortin-like protein kinase using a highly active truncation mutant. *The Journal of Biochemistry*, 147(5), pp.711-722.

General References:

Czernik AJ, Pang DT, Greengard P (1987) Amino acid sequences surrounding the cAMP-dependent and calcium/calmodulin-dependent phosphorylation sites in rat and bovine synapsin I. Proc Natl Acad Sci (USA) 84:7518-7522.

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.

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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.

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

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