10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

Phospho-Ser9 Synapsin I Antibody

Affinity purified rabbit polyclonal antibody

Catalog # AN1024

Specification

Phospho-Ser9 Synapsin I Antibody - Product Information

Application	**WB, IHC**
Primary Accession	P17599
Reactivity	**Rat**
Predicted	**Bovine, Human, Mouse, Xenopus, Zebrafish**
Host	**Rabbit**
Clonality	**polyclonal**
Calculated MW	**78 KDa**

Phospho-Ser9 Synapsin I Antibody - Additional Information

Gene ID	**281510**
Gene Name	**SYN1**

Other Names
Synapsin-1, Synapsin I, SYN1

Target/Specificity
Synthetic phospho-peptide corresponding to amino acid residues surrounding Ser9 conjugated to KLH.

Dilution
WB~~ 1:1000
IHC~~ 1:500

Format
Prepared from rabbit serum by affinity purification via sequential chromatography on phospho- and dephosphopeptide affinity columns.

Antibody Specificity
Specific for ~78k synapsin I doublet protein phosphorylated at Ser9. Theantibody also weakly labels the ~55k synapsin II protein which has a similar phosphorylationsite to that of Ser9on synapsin I. Immunolabeling is blocked by preadsorption of the antibodywith the phosphopeptide used as antigen but not by the corresponding dephosphopeptide.Immunolabeling is also completely eliminated by treatment withλphosphatase.

Storage
Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.

Precautions
Phospho-Ser9 Synapsin I Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Shipping
Blue Ice

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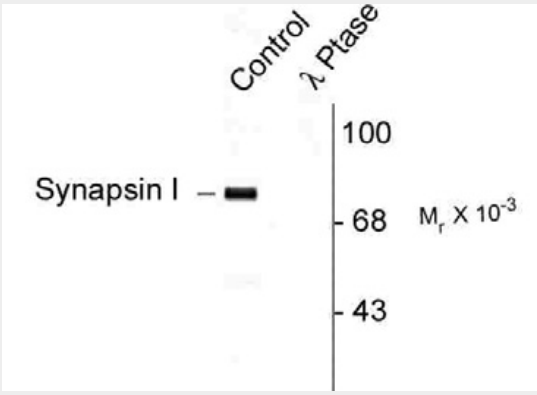
Phospho-Ser9 Synapsin I Antibody - Protocols

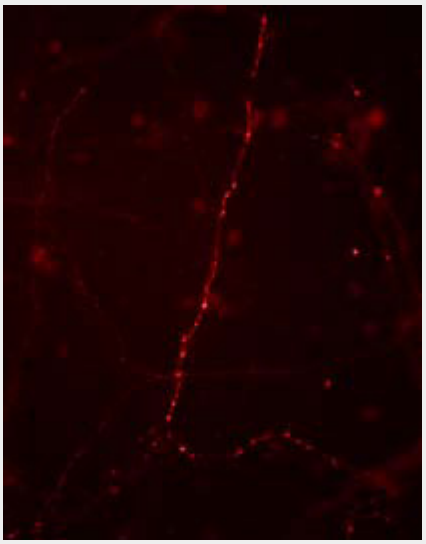
Provided below are standard protocols that you may find useful for product applications.

- Western Blot
- Blocking Peptides
- Dot Blot
- Immunohistochemistry
- Immunofluorescence
- Immunoprecipitation
- Flow Cytomety
- Cell Culture

Phospho-Ser9 Synapsin I Antibody - Images



Western blot of rat cortex lysate showing specific immunolabeling of ~78k synapsin I phosphorylated at Ser9 (Control). Phosphospecificity is shown in the second lane (lambda-phosphatase: λ-Ptase). The blot is identical to the control except that it was incubated in λ-Ptase (1200 units for 30 min) before being exposed to the phospho-Ser9 synapsin I antibody. The immunolabeling is completely eliminated by treatment with λ-Ptase.



Cultured mouse caudate neurons showing synapsin I when phosphorylated at Ser9.

Phospho-Ser9 Synapsin I Antibody - Background

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).

Phospho-Ser9 Synapsin I Antibody - 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.
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.
Sachiko Shimomura, Tadashi Nagamine, Naoya Hatano, Noriyuki Sueyoshi, and Isamu Kameshita (2010) Identification of an endogenous substrate of zebrafish doublecortin-like

protein kinase using a highly active
truncation mutant
.
J. Biochem.,
147: 711 - 722.
Note: Dr. Michael Browning co-author of t
he cited papers is the President and founder of
PhosphoSolutions.

Phospho-Ser9 Synapsin I Antibody - Citations

- SS31, a Small Molecule Antioxidant Peptide, Attenuates β-Amyloid Elevation, Mitochondrial/Synaptic Deterioration and Cognitive Deficit in SAMP8 Mice.