PhosphoSolutions®
Antibodies that work™

Colorado Biosciences Park
12635 East Montview Boulevard, #213
Aurora, CO 80045-7337
Tel: (888) 442-7100

Anti-Phospho-Ser^{603} Synapsin I

Catalog Number: p1560-603 **Size:** 100 µl $310.00

Product Description: Affinity purified rabbit polyclonal antibody

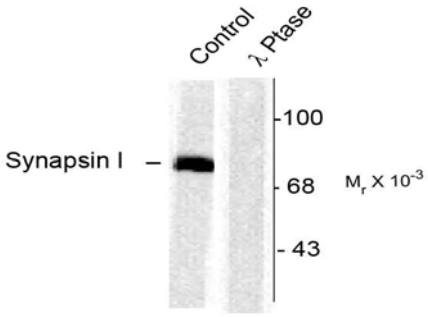
Applications: **WB**: 1:1000

Antigen: Phosphopeptide corresponding to amino acid residues surrounding the phospho-Ser^{603} of synapsin I.

Species reactivity: The antibody has been directly tested for reactivity in Western blots with rat tissue. It is anticipated that the antibody will react with bovine, human, mouse, *Xenopus* and zebra fish tissue based on the fact that these species have 100% homology with the amino acid sequence used as antigen.

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. The role of synapsin in synaptic plasticity and in synaptogensis is regulated by phosphorylation (Jovanovic et al., 2001; Kao et al., 2002). Serine 603 is the site on synapsin I that is phosphorylated by calcium calmodulin kinase II and by p21-activated kinases (Sakurada et al., 2002; Czernik et al., 1987). Phosphorylation of this site is thought to regulate synaptic vesicle function (Nayak et al., 1996; Bahler and Greengard, 1987; McGuinness et al., 1989).

Anti-Phospho-Ser^{603} Synapsin I



Western blot of rat cortex lysate showing specific immunolabeling of the ~78k synapsin I phosphorylated at Ser^{603} (Control). The phosphospecificity of this labeling 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-Ser^{603} synapsin I antibody. The immunolabeling is completely eliminated by treatment with λ-Ptase.

WB = Western Blot **IF** = Immunofluorescence **IHC** = Immunohistochemistry **IP** = Immunoprecipitation
Packaging: 100 µl in 10 mM HEPES (pH 7.5), 150 mM NaCl, 100 µg per ml BSA and 50% glycerol. 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 - Blue Ice; International – Blue Ice or Dry Ice.

Purification Method: 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 Ser^{603}. Immunolabeling of the synapsin I band is blocked by λ-phosphatase treatment.

Quality Control Tests: Western blots performed on each lot.

References:

Bahler M, Greengard P (1987) Synapsin I bundles F-actin in a phosphorylation-dependent manner. Nature (London) 326:704-707.

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.

McGuinness TL, Brady ST, Gruner JA, Sugimori M, Llinás RR, Greengard P (1989) Phosphorylation-dependent inhibition by synapsin I of organelle movement in squid axoplasm. J Neurosci 9:4138-4149.

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.

Sakurada K, Kato H, Nagumo H, Hiraoka H, Furuya K, Ikuhara T, Yamakita Y, Fukunaga K, Miyamoto E, Matsumura F, Matsuo YI, Naito Y, Sasaki Y (2002) Synapsin I is phosphorylated at Ser^{603} by p21-activated kinases (PAKs) *in vitro* and in PC12 cells stimulated with bradykinin. J Biol Chem 277:45473-45479.

Note: Dr. Michael Browning and Dr. Andrew Czernik, co-authors of the cited papers are the President and Chief Scientific Officer of PhosphoSolutions and two of its founders.

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

Packaging: 100 µl in 10 mM HEPES (pH 7.5), 150 mM NaCl, 100 µg per ml BSA and 50% glycerol. 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 - Blue Ice; International – Blue Ice or Dry Ice.