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Synaptic Neuron Marker Antibody Sampler Kit

#74798

Cell Signaling TECHNOLOGY®

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Product Includes	Product #	Quantity	Mol. Wt.	Isotype/Source
PSD95 (D74D3) XP® Rabbit mAb	3409	20 µL	95 kDa	Rabbit IgG
Synaptophysin (D8F6H) XP® Rabbit mAb	36406	20 µL	38 kDa	Rabbit IgG
Bassoon (D63B6) Rabbit mAb	6897	20 µL	420 kDa	Rabbit IgG
Complexin-1/2 (D8A6E) Rabbit mAb	28070	20 µL	14-16 kDa	Rabbit IgG
Synaptotagmin-1 (D33B7) Rabbit mAb	14558	20 µL	60 kDa	Rabbit IgG
SHANK3 (D5K6R) Rabbit mAb	64555	20 µL	220 kDa	Rabbit IgG
Synapsin-1 (D12G5) XP® Rabbit mAb	5297	20 µL	77 kDa	Rabbit IgG
SynGAP (D78B11) Rabbit mAb	5540	20 µL	140 kDa	Rabbit IgG
Anti-rabbit IgG, HRP-linked Antibody	7074	100 µL		Goat

See www.cellsignal.com for individual component applications, species cross-reactivity, dilutions, and additional application protocols.

Description: The Synaptic Neuron Marker Antibody Sampler Kit provides an economical means of detecting presynaptic and postsynaptic proteins by western blot. This kit includes enough primary antibodies to perform at least two western blot experiments with each primary antibody.

Background: Synaptophysin (SYP) is a neuronal synaptic vesicle glycoprotein that is expressed in neuroendocrine cells and neoplasms (1). Synapsin-1 is a neuronal phospho-protein localized to presynaptic terminals. Synapsin-1 plays an important role in synapse formation, neurotransmitter regulation, and regulation of synaptic vesicle fusion and trafficking (2,3). Synaptotagmin-1 (SYT1) is an integral membrane protein found in synaptic vesicles thought to play a role in vesicle trafficking and exocytosis (4). Complexin isoforms 1 and 2 are small synaptic proteins that bind to SNARE complexes, responsible for regulating exocytosis and synaptic vesicle fusion (5). SynGAP is a synaptic GTPase-activating protein selectively expressed in the brain and found at higher concentrations specifically at excitatory synapses in the mammalian forebrain. SynGAP interacts with the PDZ domains of PSD95, a postsynaptic scaffolding protein that couples SynGAP to NMDA receptors (6). PSD95 is involved in the assembly and function of the postsynaptic density (PSD) complex (7,8). SHANK proteins act as scaffolds at the neuronal PSD (9), where they play a critical role in PSD assembly of excitatory synapses during development (10). Bassoon (BSN) is a scaffolding protein component of the synaptic ribbon and of the cytomatrix at the active zones of both excitatory and inhibitory synapses with a presumptive role in orchestrating events of the synaptic vesicle cycle (11-13). Together, these proteins can be used to measure presynaptic and postsynaptic proteins and synaptic development under normal and disease conditions.

Specificity/Sensitivity: Each antibody in the Synaptic Neuron Marker Antibody Sampler Kit detects endogenous levels of its target protein. Synapsin-1 (D12G5) XP® Rabbit mAb detects endogenous levels of total synapsin protein. The antigen is 100% conserved between human synapsin-1a and synapsin-1b. Bassoon (D63B6) Rabbit mAb recognizes endogenous levels of total bassoon protein. Some background staining was observed in muscle tissue and the choroid plexus by confocal immunofluorescent analysis. Synaptotagmin-1 (D33B7) Rabbit mAb recognizes endogenous levels of total synaptotagmin-1 protein. This antibody may also cross-react with an unidentified protein of approximately 45 kDa.

Source/Purification: Monoclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Gly299 of human Synaptophysin protein, Gln1217 of human bassoon protein, Pro125 of human complexin-2 protein, Arg400 of human synaptotagmin-1 protein, Ile1210 of human SHANK3 protein, Gln483 of human synapsin-1 protein, Arg732 of human SynGAP protein, and the amino-terminal of human PSD95 protein.

Storage: Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/mL BSA, 50% glycerol, and less than 0.02% sodium azide. Store at –20°C. *Do not aliquot the antibodies.*

Please visit www.cellsignal.com for validation data and a complete listing of recommended companion products.

Background References:

(1) Wiedenmann, B. et al. (1986) *Proc Natl Acad Sci* U S A 83, 3500-4.

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(3) Takei, Y. et al. (1995) *J Cell Biol* 131, 1789-800.

(4) Fukuda, M. and Mikoshiba, K. (2001) *Biochem Biophys Res Commun* 281, 1226-33.

(5) Chang, S. et al. (2015) *J Neurosci* 35, 8272-90.

(6) Kim, J.H. et al. (1998) *Neuron* 20, 683-91.

(7) Cao, J. et al. (2005) *J Cell Biol* 168, 117-26.

(8) Chetkovich, D.M. et al. (2002) *J Neurosci* 22, 6415-25.

(9) Grabrucker, A.M. et al. (2011) *Trends Cell Biol* 21, 594-603.

(10) Boeckers, T.M. et al. (1999) *J Neurosci* 19, 6506-18.

(11) Winter, C. et al. (1999) *Genomics* 57, 389-97.

(12) Hallermann, S. et al. (2010) *Neuron* 68, 710-23.

(13) Frank, T. et al. (2010) *Neuron* 68, 724-38.

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Applications: W—Western **IP**—Immunoprecipitation **IHC**—Immunohistochemistry **ChIP**—Chromatin Immunoprecipitation **IF**—Immunofluorescence **F**—Flow cytometry **E-P**—ELISA-Peptide **Species Cross-Reactivity: H**—human **M**—mouse **R**—rat **Hm**—hamster **Mk**—monkey **Mi**—mink **C**—chicken **Dm**—D. melanogaster **X**—Xenopus **Z**—zebrafish **B**—bovine **Dg**—dog **Pg**—pig **Sc**—S. cerevisiae **Ce**—C. elegans **Hr**—Horse **All**—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.