Synaptic Systems

Rudolf-Wissell-Str. 28
37079 Göttingen, Germany
Phone: +49 551-50556-0
Fax: +49 551-50556-384
E-mail: sales@sysy.com
Web: www.sysy.com

Synapsin 1

Cat.No. 106 001; Monoclonal mouse antibody, 100 µl ascites (lyophilized)

Data Sheet

Reconstitution/ Storage	100 µl ascites, lyophilized. For reconstitution add 100 µl H_2O, then aliquot and store at -20°C until use.
Applications	**WB**: 1 : 1000 up to 1 : 10000 (AP staining) **IP**: yes (see remarks) **ICC**: 1 : 500 up to 1 : 2000 **IHC**: 1 : 500 **IHC-P/FFPE**: 1 : 200 **EM**: yes **ELISA**: yes (see remarks)
Clone	46.1
Subtype	IgG1
Immunogen	Recombinant protein corresponding to AA 1 to 704 from rat Synapsin1 (UniProt Id: P09951)
Epitop	Epitop: AA 435 to 475 from rat Synapsin1 (UniProt Id: P09951)
Reactivity	Reacts with: human (P17600), rat (P09951), mouse (O88935), mammals. Weaker signal: zebrafish, chicken, other vertebrates. Other species not tested yet.
Specificity	Specific for synapsin 1a and 1b independent of phosphorylation state. (K.O. verified)
Remarks	**IP**: Protein A sepharose is recommended for immunoprecipitation, since this antibody does not bind efficiently to Protein G. Adjust pH to 8.6 to improve binding to protein A. **ELISA**: Suitable as capture antibody for sandwich-ELISA with cat. no. 106 002 as detector antibody (protocol for sandwich-ELISA).

TO BE USED IN VITRO / FOR RESEARCH ONLY
NOT TOXIC, NOT HAZARDOUS, NOT INFECTIOUS, NOT CONTAGIOUS

Synapsins are neuron-specific phosphoproteins that are exclusively associated with small synaptic vesicles, with little or no expression in other tissues including neuroendocrine cells. In mammals, three distinct synapsin genes (synapsin 1, 2, and 3) encode more than eight neuronal isoforms.
Synapsin 1 is one of the most specific markers of synapses throughout the central and peripheral nervous system. In addition to synaptic nerve terminals, the protein is also present in certain sensory nerve endings. It is expressed in two splice variants (synapsin 1a and synapsin 1b). Synapsin 1 interacts with vesicle membranes as well as with actin and spectrin.
Synapsin 2 is expressed in the nervous system and also two splice variants were described so far, while synapsin 3 shows a more restricted expression pattern and is mainly found in the hypocampus.
Synapsins are major phosphoproteins and are substrates for several protein kinases such as PKA, CaMK I and CaMK II. Synapsin 1 is widely used as reference substrate for calmodulin-dependent protein kinases.

Selected References SYSY Antibodies

A surface antigen delineating a subset of neurons in the primary somatosensory cortex of the mouse.
Nowicka D, Liguz-Lecznar M, Skangiel-Kramska J
Acta neurobiologiae experimentalis (2003) 63(3): 185-95. **WB, ICC, IHC; tested species: mouse**

Oxidative stress and altered mitochondrial protein expression in the absence of amyloid-β and tau pathology in iPSC-derived neurons from sporadic Alzheimer's disease patients.
Birnbaum JH, Wanner D, Gietl AF, Saake A, Kündig TM, Hock C, Nitsch RM, Tackenberg C
Stem cell research (2018) 27: 121-130. **WB, ICC; tested species: human**

The active zone protein family ELKS supports Ca2+ influx at nerve terminals of inhibitory hippocampal neurons.
Liu C, Bickford LS, Held RG, Nyitrai H, Südhof TC, Kaeser PS
The Journal of neuroscience : the official journal of the Society for Neuroscience (2014) 34(37): 12289-303. **WB, ICC**

Efficient synaptic vesicle recycling after intense exocytosis concomitant with the accumulation of non-releasable endosomes at early developmental stages.
Bartolomé-Martín D, Ramírez-Franco J, Castro E, Sánchez-Prieto J, Torres M
Journal of cell science (2012) 125(Pt 2): 422-34. **WB, ICC; tested species: rat**

Synaptotagmin I and II are present in distinct subsets of central synapses.
Fox MA, Sanes JR
The Journal of comparative neurology (2007) 503(2): 280-96. **WB, IHC; tested species: zebrafish**

Dysbindin-1 is reduced in intrinsic, glutamatergic terminals of the hippocampal formation in schizophrenia.
Talbot K, Eidem WL, Tinsley CL, Benson MA, Thompson EW, Smith RJ, Hahn CG, Siegel SJ, Trojanowski JQ, Gur RE, Blake DJ, et al.
The Journal of clinical investigation (2004) 113(9): 1353-63. **IHC-P; tested species: human**

The primate-specific peptide Y-P30 regulates morphological maturation of neocortical dendritic spines.
Neumann JR, Dash-Wagh S, Jack A, Räk A, Jüngling K, Hamad MIK, Pape HC, Kreutz MR, Puskarjov M, Wahle P
PloS one (2019) 14(2): e0211151. **WB; tested species: rat**

Loss of Atoh1 from neurons regulating hypoxic and hypercapnic chemoresponses causes neonatal respiratory failure in mice.
van der Heijden ME, Zoghbi HY
eLife (2018) 7: . **IHC; tested species: mouse**

Genetic targeting and chemogenetic inhibition of new born neurons.
Schoderboeck L, Wicky HE, Abraham WC, Hughes S
Human gene therapy methods (2018) : . **ICC; tested species: mouse**

Impact of modular organization on dynamical richness in cortical networks.
Yamamoto H, Moriya S, Ide K, Hayakawa T, Akima H, Sato S, Kubota S, Tanii T, Niwano M, Teller S, Soriano J, et al.
Science advances (2018) 4(11): eaau4914. **ICC; tested species: rat**

Loss of Protein Arginine Methyltransferase 8 Alters Synapse Composition and Function, Resulting in Behavioral Defects.
Penney J, Seo J, Kritskiy O, Elmsaouri S, Gao F, Pao PC, Su SC, Tsai LH
The Journal of neuroscience : the official journal of the Society for Neuroscience (2017) 37(36): 8655-8666. **ICC; tested species: mouse**

The Kohlschütter-Tönz syndrome associated gene Rogdi encodes a novel presynaptic protein.
Riemann D, Wallrafen R, Dresbach T
Scientific reports (2017) 7(1): 15791. **ICC; tested species: rat**

MicroRNA-mediated disruption of dendritogenesis during a critical period of development influences cognitive capacity later in life.
Lin Q, Ponnusamy R, Widagdo J, Choi JA, Ge W, Probst C, Buckley T, Lou M, Bredy TW, Fanselow MS, Ye K, et al.
Proceedings of the National Academy of Sciences of the United States of America (2017) 114(34): 9188-9193. **IHC; tested species: mouse**

Unique versus Redundant Functions of Neuroligin Genes in Shaping Excitatory and Inhibitory Synapse Properties.
Chanda S, Hale WD, Zhang B, Wernig M, Südhof TC
The Journal of neuroscience : the official journal of the Society for Neuroscience (2017) 37(29): 6816-6836. **IHC; tested species: mouse**