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**
- 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 actin and spectrin.
- Synapsin 1 is expressed in two splice variants (synapsin 1a and synapsin 1b). Synapsin 1 interacts with vesicle membranes as well as 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 hypcortex.

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

**Selected References SYSY Antibodies**


Suppression of guanylyl cyclase (beta1 subunit) expression impairs neurite outgrowth and synapse maturation in cultured cerebellar granule cells.

López-Jiménez ME, Bartolomé-Martín D, Sánchez-Prieto J, Torres M

Cell death and differentiation (2009) 16(9): 1666-78. **ICC, WB; tested species: rat**

Selective disruption of inhibitory synapses leading to neuronal hyperexcitability at an early stage of tau pathogenesis in a mouse model.


The Calmodulin Binding Region of the Synaptic Vesicle Protein Mover Is Required For Homomeric Interaction and Presynaptic Targeting.


Astrocytic mIR-324-5p is essential for synaptic formation by suppressing the secretion of CCL5 from astrocytes.


Synaptic control of mRNA translation by reversible assembly of XRN1 bodies.

Luchelli L, Thomas MG, Boccaccio GL


RIM proteins activate vescicle priming by reversing autoinhibitory homomerization of Munc13.

Deng L, Kaeser PS, Xu W, Sudhof TC


Immunogold labelling of synaptic vesicle proteins in developing hippocampal neurons.

Tao-Cheng JH


Certain ortho-hydroxylated brominated ethers are promiscuous kinase inhibitors that impair neuronal signaling and neurodevelopmental processes.

Poston RG, Murphy L, Regepova A, Ghaninejad-Esfahani M, Segales J, Mulligan K, Saha RN

The Journal of biological chemistry (2020) : **WB; tested species: rat**

Latrophin-2 and latrophilin-3 are redundantly essential for parallel-fiber synaptic function in cerebellum.

Zhang RS, Liakath-Ali K, Sudhof TC

eLife (2020) 9: **WB; tested species: mouse**

Vesicle Clustering in a Living Synapsin Region Depends on a Synapsin Region That Mediates Phase Separation.

Peitsch A, Tomlin N, Friedk F, Vorontsova O, Somova E, Evergren E, Haucke V, Brodin L, Shupliakov O

Cell reports (2020) 30(8): 2594-2602.e3. **WB**

Robust Induced Presynapse on Artificial Substrate as a Neural Interfacing Method.

Jeon J, Oh MA, Cho W, Yoon SH, Kim JY, Chung TD

ACS applied materials & interfaces (2019) : **ICC; tested species: rat**

Functional organization of vestibulospinal inputs on thoracic motoneurons responsible for trunk postural control in Xenopus.

Olechowski-Bessaguet A, Grandemange R, Cardot L, Courty E, Lambert FM, Ray DL

The Journal of physiology (2019) : **HIC; tested species: frog**

Activity-Dependent Nucleation of Dynamic Microtubules at Presynaptic Boutons Controls Neurotransmission.

Qu X, Kumar A, Blockus H, Waite C, Bartoloni F


Mechanisms of hyperexcitability in Alzheimer’s disease hiPSC-derived neurons and cerebral organoids vs. isogenic control.


Identification of a Core Amino Acid Motif within the a Subunit of GABAARs that Promotes Inhibitory Synaptogenesis and Resilience to Seizures.


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**Data Sheet**

| Reconstitution/Storage | 100 µg purified IgG, lyophilized. Albumin and azide were added for stabilization. For reconstitution add 100 µl H2O to get a 1mg/ml solution in PBS. Then aliquot and store at -20°C until use. |
| Applications | WB: 1 : 1000 up to 1 : 10000 (AP staining) |
| | IP: yes |
| | ICC: 1 : 100 up to 1 : 2000 |
| | IHC: 1 : 100 up to 1 : 200 |
| | IHC-P/FPPE: 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: P099951) |
| 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 | ELISA: Suitable as capture antibody for sandwich-ELISA with cat. no. 106 002 as detector antibody (protocol for sandwich-ELISA). |