

## Synapsin 1/2

Cat.No. 106 004; Polyclonal Guinea pig antibody, 100 µl antiserum (lyophilized)

### Data Sheet

Reconstitution/Storage	100 µl antiserum, lyophilized. For reconstitution add 100 µl H <sub>2</sub> O, then aliquot and store at -20°C until use.
Applications	<b>WB:</b> 1 : 1000 (AP staining) <b>IP:</b> not tested yet <b>ICC:</b> 1 : 1000 <b>IHC:</b> 1 : 500 <b>IHC-P/FFPE:</b> 1 : 500
Immunogen	Synthetic peptide corresponding to AA 2 to 28 from rat Synapsin1 (UniProt Id: P09951)
Reactivity	Reacts with: human (P17600, Q92777), rat (P09951, Q63537), mouse (O88935, Q64332), hamster, cow, zebrafish. Other species not tested yet.
Specificity	Specific for synapsins 1a/b and 2a/b. (K.O. verified)
matching control	106-0P

### 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 hippocampus. 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

- Resting state fMRI reveals diminished functional connectivity in a mouse model of amyloidosis. Shah D, Jonckers E, Praet J, Vanhoutte G, Delgado Y, Palacios R, Bigot C, D'Souza DV, Verhoye M, Van der Linden A. *PLoS one* (2013) 8(12): e84241. **IHC; tested species: mouse**
- Insulin-like growth factor 1 (IGF1) and its active peptide (1-3)IGF1 enhance the expression of synaptic markers in neuronal circuits through different cellular mechanisms. Corvin AP, Molinos I, Little G, Donohoe G, Gill M, Morris DW, Tropea D. *Neuroscience letters* (2012) 520(1): 51-6. **ICC**
- Mapping molecular assemblies with fluorescence microscopy and object-based spatial statistics. Lagache T, Grassart A, Dallozeville S, Faklaris O, Sauvonnnet N, Dufour A, Danglot L, Olivo-Marin JC. *Nature communications* (2018) 9(1): 698. **ICC; tested species: mouse**
- Kinesin-3 Responds to Local Microtubule Dynamics to Target Synaptic Cargo Delivery to the Presynapse. Guedes-Dias P, Nirschl JJ, Abreu N, Tokito MK, Janke C, Magiera MM, Holzbaue ELF. *Current biology* : CB (2018) : . **ICC; tested species: rat**
- GLUT4 Mobilization Supports Energetic Demands of Active Synapses. Ashrafi G, Wu Z, Farrell RJ, Ryan TA. *Neuron* (2017) 93(3): 606-615.e3. **ICC**
- Genetically Induced Retrograde Amnesia of Associative Memories After Neuroplastin Ablation. Bhattacharya S, Herrera-Molina R, Sabanov V, Ahmed T, Iscru E, Stöber F, Richter K, Fischer KD, Angenstein F, Goldschmidt J, Beesley PW, et al. *Biological psychiatry* (2017) 81(2): 124-135. **IHC**
- Long-term enzyme replacement therapy improves neurocognitive functioning and hippocampal synaptic plasticity in immune-tolerant alpha-mannosidosis mice. Stroobants S, Damme M, Van der Jeugd A, Vermaercke B, Andersson C, Fogh J, Saftig P, Blanz J, D'Hooge R. *Neurobiology of disease* (2017) 106: 255-268. **IHC; tested species: mouse**
- Loss of X-linked Protocadherin-19 differentially affects the behavior of heterozygous female and hemizygous male mice. Hayashi S, Inoue Y, Hattori S, Kaneko M, Shioi G, Miyakawa T, Takeichi M. *Scientific reports* (2017) 7(1): 5801. **ICC; tested species: mouse**
- Synaptic Vesicle Endocytosis Occurs on Multiple Timescales and Is Mediated by Formin-Dependent Actin Assembly. Soykan T, Kaempf N, Sakaba T, Vollweider D, Goerdeler F, Puchkov D, Kononenko NL, Hauke V. *Neuron* (2017) 93(4): 854-866.e4. **ICC; tested species: mouse**
- Dynamic changes in the relationship of microglia to cardiovascular neurons in response to increases and decreases in blood pressure. Kapoor K, Bhandare AM, Nedoboy PE, Mohammed S, Farnham MM, Pilowsky PM. *Neuroscience* (2016) 329: 12-29. **IHC**
- Unconventional molecular regulation of synaptic vesicle replenishment in cochlear inner hair cells. Vogl C, Cooper BH, Neef J, Wojcik SM, Reim K, Reisinger E, Brose N, Rhee JS, Moser T, Wichmann C. *Journal of cell science* (2015) 128(4): 638-44. **IHC**
- Synaptic activity controls localization and function of CtBP1 via binding to Bassoon and Piccolo. Ivanova D, Dirks A, Montenegro-Venegas C, Schöne C, Altmann WD, Marini C, Frischknecht R, Schanze D, Zenker M, Gundelfinger ED, Fejtova A, et al. *The EMBO journal* (2015) 34(8): 1056-77. **ICC**
- Vesicular glutamate transporter 1 orchestrates recruitment of other synaptic vesicle cargo proteins during synaptic vesicle recycling. Pan PY, Marrs J, Ryan TA. *The Journal of biological chemistry* (2015) 290(37): 22593-601. **ICC**
- Activity-dependent synaptic GRIP1 accumulation drives synaptic scaling up in response to action potential blockade. Gainey MA, Tatavarty V, Nahmani M, Lin H, Turrigiano GG. *Proceedings of the National Academy of Sciences of the United States of America* (2015) 112(27): E3590-9. **ICC; tested species: rat**
- Structure of excitatory synapses and GABA<sub>A</sub> receptor localization at inhibitory synapses are regulated by neuroplastin-65. Herrera-Molina R, Sarto-Jackson I, Montenegro-Venegas C, Heine M, Smalla KH, Seidenbecher CI, Beesley PW, Gundelfinger ED, Montag D. *The Journal of biological chemistry* (2014) 289(13): 8973-88. **ICC; tested species: mouse**
- Neuronal profilin isoforms are addressed by different signalling pathways. Murk K, Wittenmayer N, Michaelsen-Preusse K, Dresbach T, Schoenenberger CA, Korte M, Jockusch BM, Rothkegel M. *PLoS one* (2012) 7(3): e34167. **ICC; tested species: mouse, rat**