Synaptophysin 1

Data Sheet

Reconstitution/Storage
50 µg purified IgG, lyophilized. For reconstitution add 50 µl H2O to get a 1mg/ml solution in PBS. Then aliquot and store at -20°C until use.

Applications
WB: 1 : 10000 (AP staining)
IP: yes
ICC: 1 : 100 up to 1 : 1000
IHC: 1 : 500 up to 1 : 1000
IHC-P/FFPE: 1 : 500 up to 1 : 1000
EM: yes
ELISA: yes (see remarks)

Clone
7.2

Subtype
IgG1 (λ 1 light chain)

Immunogen
Recombinant protein corresponding to AA 1 to 307 from rat Synaptophysin1 (UniProt Id: P07825)

Epitop
Epitop: AA 219 to 307 from rat Synaptophysin1 (UniProt Id: P07825)

Reactivity
Reacts with: human (P08247), rat (P07825), mouse (Q62277), mammals. Weaker signal: zebrafish, other vertebrates. Other species not tested yet.

Specificity
Specific for synaptophysin 1, no cross-reactivity to other synaptophysins. (K.O. verified)

Remarks
Widey used as marker for nerve terminals and neuroendocrine tumors. For still unknown reason, neuronal synaptophysin is better recognised than neuroendocrine synaptophysin. If this is a problem, the polyclonal rabbit antibody, cat. no. 101 002, is recommended.

ELISA: Suitable as capture antibody for sandwich-ELISA with cat. no. 101 002 as detector antibody (protocol for sandwich-ELISA).

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

Synaptophysin 1, also referred to as p38-1, is a membrane glycoprotein of synaptic vesicles that is ubiquitously expressed in all neurons and in many endocrine cells. It is currently the most widely used marker for nerve terminals and probably the best marker for the pathologist in differentiating neuroendocrine tumors. Synaptophysin 1 has four transmembrane domains with both N- and C-terminus facing the cytoplasm. It binds to synaptobrevin 1 and synaptobrevin 2 in detergent extracts but its function has not been elucidated completely. It forms a complex with dynamin at high Ca2+ concentration suggesting an involvement in synaptic vesicle endocytosis. As typical for synaptic vesicle proteins, synaptophysin 1 represents a small protein family with two additional members, synaptoporin (synaptophysin 2) and panthophysin. Like synaptophysin 1, synaptoporin is widely expressed in neurons and colocalizes with synaptophysin 1 on synaptic vesicles whereas panthophysin is expressed in all tissues.

Selected References SYSY Antibodies

SV2B regulates synaptotagmin 1 by direct interaction.

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Composition of isolated synaptic boutons reveals the volumes of vesicle trafficking proteins.


Synaptic membrane proteins form stable microdomains in early endosomes.

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Identification and characterization of the BR22 interactome in the brain.

Martinis F, Marafona AM, Pereira CD, Müller T, Loosse C, Kolbe K, da Cruz E Silva OA, Rebelo S


Microtubule-associated protein 1B (MAP1B)-deficient neurons show structural presynaptic deficiencies in vitro and altered presynaptic physiology.

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Synaptophysin 1 clears Synaptobrevin 2 from the Presynaptic Active Zone to Prevent Short-Term Depression.

Rajappaa R, Gautier-Kempea A, Böninga D, Hüe J, Klingaufaj


CDKL5 ensures excytatory synapse stability by reinforcing NGL-1-PSD95 interaction in the postsynaptic compartment and is impaired in patient iPSC-derived neurons.


SV31 is a Zn2+-binding synaptic vesicle protein.

Barth JA, Zimmermann H, Volkman J


Synaptic and vesicular co-localization of the glutamate transporters VGLUT1 and VGLUT2 in the mouse hippocampus.

Heczko E, Takami S, Jahn R, Brose N, Wojcik SM


EBAG9 adds a new layer of control on large dense-core vesicle exocytosis via interaction with Snapin.


The synaptophysin/synaptobrevin complex dissociates independently of neuroexocytosis.


Distribution of synaptic vesicle proteins in the mammalian retina identifies obligatory and facultative components of ribbon synapses.


The synaptophysin/synaptobrevin complex binds independently of neuroexocytosis.


Distribution of synaptic vesicle proteins in the mammalian retina identifies obligatory and facultative components of ribbon synapses.

Von Kriegstein K, Schmitz F, Link E, Südhof TC


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Synaptotagmin: a membrane constituent of neuroepitope-containing large dense-cored vesicles.

Wolf-Solmsena C, Takei K, Marek KL, Midyett K, Südhof TC, De Camilli P, Jahn R


Synapsin-dependent reserve pool of synaptic vesicles supports replenishment of the readily releasable pool under intense synaptic transmission.

Vasileva M, Horstmann H, Geumann C, Gitter D, Kuner T