Antibodies

Anti-Human Synaptophysin (SYP) Antibody, Clone 249

Rabbit monoclonal IgG antibody against human Synaptophysin, unconjugated

Catalog #100-1345

100 µL

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Product Description

This rabbit monoclonal antibody (clone 249) reacts with human synaptophysin, a 38 kDa integral transmembrane protein possessing four transmembrane domains and a major small synaptic vesicle protein. It interacts with a variety of different motor proteins and synaptic vesicles, including dynamin I, myosin V, vesicular proton pump V-ATPase, and adaptor protein 1 (AP-1). Synaptophysin is extensively involved in vesicular functions such as protein sorting and priming, as well as synapse formation, exocytosis, and endocytosis. It is also a potent marker of axonal damage; synaptophysin was discovered colocalized with amyloid precursor protein (APP), a marker of axonal damage in patients with multiple sclerosis. Synaptophysin deletion in knock-out mice has been correlated with reduced spatial learning and impaired object novelty recognition.

Target Antigen Name:	Synaptophysin
Alternative Names:	MRX96, MRXSYP, XLID96
Gene ID:	6855
Species Reactivity:	Human
Host Species:	Rabbit
Clonality:	Monoclonal
Clone:	249
Isotype:	IgG
Immunogen:	Synthetic peptide of human SYP C-terminus
Conjugate:	Unconjugated

Applications

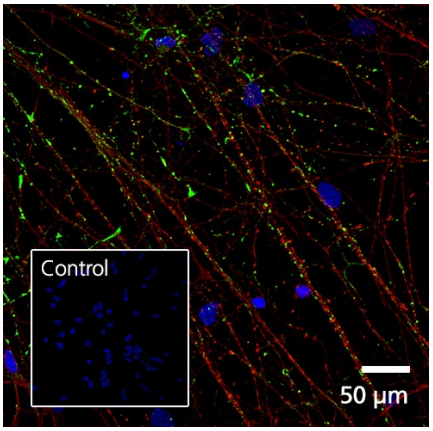
Verified:	ICC/IF
Special Applications:	This antibody clone has been verified for labeling synaptophysin-positive puncta in human pluripotent stem cell (hPSC)-derived forebrain-type neurons generated with STEMdiff™ Forebrain Neuron Differentiation Kit (Catalog #08600) and STEMdiff™ Forebrain Neuron Maturation Kit (Catalog #08605).

Abbreviations: CellSep: Cell separation; ChIP: Chromatin immunoprecipitation; FA: Functional assay; FACS: Fluorescence-activated cell sorting; FC: Flow cytometry; ICC: Immunocytochemistry; IF: Immunofluorescence microscopy; IHC: Immunohistochemistry; IHC-P: Immunohistochemistry (paraffin-embedded); IP: Immunoprecipitation; RIA: Radioimmunoassay; WB: Western blotting

Properties

Formulation:	Phosphate-buffered solution
Purification:	The antibody was purified by affinity chromatography.
Stability and Storage:	Product stable at -20°C when stored undiluted. Avoid repeated freeze-thaw cycles. Stable until expiry date (EXP) on label.
Directions for Use:	The suggested use of this antibody is: ICC/IF, 1 - 2 µg/mL. It is recommended that the antibody be titrated for optimal performance for each application. For antibody concentration, refer to the lot-specific Certificate of Analysis at www.stemcell.com/coa.

Data



Forebrain-type neurons were generated from hPSC-derived neural progenitor cells using STEMdiff™ Forebrain Neuron Differentiation Kit for 7 days and subsequently matured for the following 5 weeks using STEMdiff™ Forebrain Neuron Maturation Kit, then fixed and labeled with Anti-Human Synaptophysin Antibody, Clone 249, followed by Goat Anti-Rabbit IgG (H+L) Antibody, Polyclonal, iFluor™ 488 (green) (Catalog #100-1082). Nuclei were counterstained with DAPI (blue). Synaptophysin is concentrated as discrete puncta distributed along axonal processes that were labeled with Anti-Beta-Tubulin III Antibody, Clone TUJ1 (red) (Catalog #60052). Inset shows forebrain-type neurons labeled with a rabbit IgG isotype control antibody, followed by Goat Anti-Rabbit IgG (H+L) Antibody, Polyclonal, iFluor™ 488 (with DAPI staining).

Related Products

For a complete list of antibodies, including other conjugates, sizes, and clones, as well as related products available from STEMCELL Technologies, visit www.stemcell.com/antibodies, or contact us at techsupport@stemcell.com.

References

1. Disdier C et al. (2017) Brain inflammation, blood brain barrier dysfunction and neuronal synaptophysin decrease after inhalation exposure to titanium dioxide nano-aerosol in aging rats. Scientific Reports 7(1) : 1–13.

2. Seo H G et al. (2010) Early motor balance and coordination training increased synaptophysin in subcortical regions of the ischemic rat brain. Journal of Korean Medical Science 25(11) : 1638–45.

3. Gudi Viktoria et al. (2017) Synaptophysin is a reliable marker for axonal damage. Journal of Neuropatholgy & Experimental Neurology 76(2): 109–25.

4. Sarnat H B et al. (2010) Synaptophysin immunoreactivity in the human hippocampus and neocortex from 6 to 41 weeks of gestation. Journal of Neuropathology & Experimental Neurology 69(3): 234–45.