3050 Spruce Street, St. Louis, MO 63103 USA
Tel: (800) 521-8956 (314) 771-5765 Fax: (800) 325-5052 (314) 771-5757
email: techservice@sial.com sigma-aldrich.com

Product Information

Anti-Synaptophysin antibody, Mouse monoclonal clone SVP-38, purified from hybridoma cell culture

Catalog Number **SAB4200544**

Product Description

Anti-Synaptophysin antibody, Mouse monoclonal (mouse IgG1 isotype) is derived from the hybridoma SVP-38 produced by the fusion of mouse myeloma cells and splenocytes from BALB/c mice immunized with a synaptosome preparation from rat retina. The isotype is determined by ELISA using Mouse Monoclonal Antibody Isotyping Reagents, Catalog Number ISO2. The antibody is purified from culture supernatant of hybridoma cells grown in a bioreactor.

Anti-Synaptophysin antibody, Mouse monoclonal recognizes rat, human, guinea-pig, and pig synaptophysin. The antibody may be used in various immunochemical techniques including immunoblotting (38 kDa), immunocytochemistry and immunohistochemistry. The antibody localizes synaptophysin in neurons, neuromuscular junctions, paraganglia cells, hypophysis, pancreatic islet cells, and adrenal cells. The antibody detects synaptophysin in many types of benign and malignant neural and epithelial neuroendocrine neoplasmas. Synaptophysin has not been detected in non-neural or non-neuroendocrine tumors.

Nerve communication or neurotransmission is dependent on the release of neurotransmitters from the nerve terminal of a neuron. These molecules are stored in specialized organelles, the synaptic vesicles (SVs), from which they are released by exocytosis at the arrival of nerve impulse.[1] One of the most abundant proteins in SVs is the integral membrane protein synaptophysin (comprising 8% of total SV protein). It was one of the first SV proteins to be identified and cloned.[2] The identification of synaptophysin as a molecular component selectively and permanently associated with the membrane of SVs opened the possibility of using antibodies to the protein for tracing the movements of SVs in neurons, shedding light on the mechanisms of membrane trafficking.[1]

Synaptophysin is a glycoprotein with four transmembrane domains, and both amino and carboxyl termini face the cytoplasm. Although the function of synaptophysin is not fully understood, it is known to interact with other synaptic proteins including the v-SNARE vesicle-associated membrane protein 2/synaptobrevin II (VAMP2), suggesting a role in vesicle docking and neurotransmitter release. Synaptophysin has also been implicated in the recycling of synaptic vesicles by associating with dynamin I, a GTPase required for endocytosis.[3] Synaptophysin expression has also been found to be differentially regulated by neuroendocrine phenotype-specific factors, thus frequently expressed in lung neuroendocrine tumors, irrespective of malignancy grade.[4]

Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide as a preservative.

Antibody Concentration: ~ 1.0 mg/mL

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

For extended storage, freeze at –20 °C in working aliquots. Repeated freezing and thawing, or storage in "frost-free" freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilution samples should be discarded if not used within 12 hours.

Product Profile

Immunoblotting: a working concentration of 1-2 µg/mL is recommended using newborn rat brain extracts.

Immunofluorescence: a working concentration of 10-20 µg/mL is recommended using B35 cells.

Immunohistochemistry: a working concentration of 10-20 µg/mL is recommended using formalin-fixed paraffin embedded rat cerebellum.

Note: In order to obtain the best results using various techniques and preparations, we recommend determining optimal working dilutions by titration.

References

1. Valtorata, F., et al., *Bioessays*, **26**, 445-453 (2004).
2. Evans, G.J.O., and Cousin, M.A., *Biochem, Soc. Trans.,* **33**, 1350-1353 (2005).
3. D'Cruz, T.S., et al., *Plos One,* **7**, e44711 (2012).
4. Kashiwagi, K., et al., *Pathol. Int.,* **62,** 232-245 (2012).

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