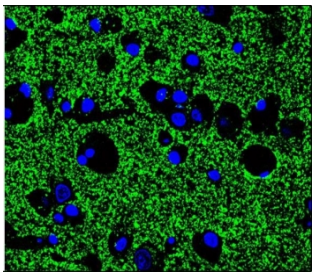
Synaptophysin Antibody for Immunofluorescence / SYP Immunofluorescence Antibody (F54316)

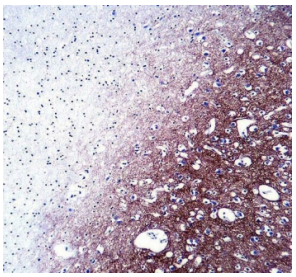
Catalog No.	Formulation	Size
F54316-0.4ML	In 1X PBS, pH 7.4, with 0.09% sodium azide	0.4 ml
F54316-0.08ML	In 1X PBS, pH 7.4, with 0.09% sodium azide	0.08 ml

Bulk quote request

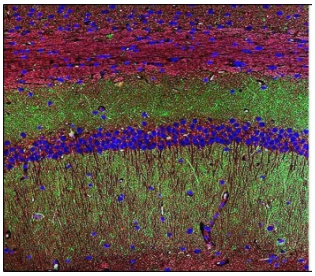
Availability	1-3 business days
Species Reactivity	Human, Mouse
Format	Purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit Ig
Purity	Antigen affinity purified
UniProt	P08247
Applications	Western Blot : 1:500-1:2000 Immunohistochemistry (FFPE) : 1:25 Immunofluorescence : 1:25 Flow Cytometry : 1:25 (1x10e6 cells)
Limitations	This Synaptophysin antibody is available for research use only.



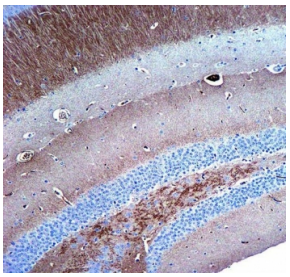
Synaptophysin Antibody for Immunofluorescence. Immunofluorescence staining of human brain tissue demonstrates dense punctate cytoplasmic fluorescence corresponding to Synaptophysin (SYP) localization in presynaptic vesicles throughout neuronal neuropil. Green fluorescent signal highlights abundant synaptic vesicle clusters characteristic of neuronal synapses, while DAPI counterstain (blue) marks cell nuclei. The staining pattern reflects the high synaptic density typical of brain tissue, where Synaptophysin-positive vesicles are distributed along neuronal processes and presynaptic terminals. This rabbit polyclonal Synaptophysin antibody was used to visualize synaptic vesicle protein localization in neuronal cells by fluorescence microscopy.



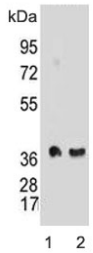
IHC testing of FFPE human brain tissue with Synaptophysin antibody. HIER: steam section in pH6 citrate buffer for 20 min and allow to cool prior to staining.



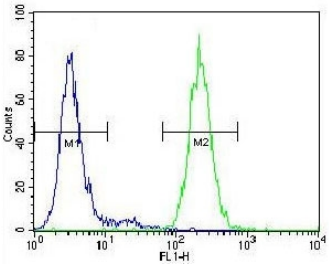
Synaptophysin Antibody for Immunofluorescence. Immunofluorescence staining of mouse brain tissue shows widespread punctate green fluorescence corresponding to Synaptophysin (SYP) localization in presynaptic vesicles throughout neuronal layers of the brain. Fluorescent signal highlights dense synaptic vesicle clusters distributed within neuronal neuropil and surrounding neuronal cell bodies, consistent with Synaptophysin's role as a presynaptic vesicle membrane protein. DAPI counterstain (blue) marks cell nuclei within the layered brain tissue architecture. This rabbit polyclonal Synaptophysin antibody was used to visualize synaptic vesicle protein distribution in neuronal tissue by fluorescence microscopy.



IHC testing of FFPE mouse hippocampus tissue with Synaptophysin antibody. HIER: steam section in pH6 citrate buffer for 20 min and allow to cool prior to staining.



Western blot testing of mouse 1) brain and 2) cerebellum lysate with Synaptophysin antibody. Predicted molecular weight: 34-38 kDa.



Flow cytometry testing of mouse Neuro-2a cells with Synaptophysin antibody; Blue=isotype control, Green= Synaptophysin antibody.

Description

Synaptophysin (SYP) is an integral synaptic vesicle membrane glycoprotein that is highly enriched in presynaptic terminals of neurons and in neuroendocrine secretory vesicles. Synaptophysin Antibody for Immunofluorescence is widely used in fluorescence microscopy to visualize presynaptic vesicle populations and synaptic structures within neuronal cells. Because Synaptophysin is tightly associated with synaptic vesicle membranes, immunofluorescence staining produces a distinctive punctate fluorescence pattern that corresponds to vesicle clusters located at presynaptic boutons and along neuronal processes.

Synaptophysin is also known as synaptic vesicle glycoprotein p38 or major synaptic vesicle protein p38 and is encoded by the SYP gene. The protein contains four transmembrane domains that anchor it within synaptic vesicle membranes where it participates in vesicle trafficking, vesicle recycling, and neurotransmitter release. Through interactions with vesicle fusion proteins and other components of the synaptic vesicle machinery, Synaptophysin helps organize vesicle pools that support regulated neurotransmitter secretion at neuronal synapses.

In immunofluorescence imaging experiments, Synaptophysin is most commonly detected as bright punctate cytoplasmic fluorescence corresponding to presynaptic vesicle clusters. This punctate staining pattern is widely used by neuroscientists to identify synapses, analyze synaptic density, and map neuronal connectivity in cultured neurons and brain tissue. Fluorescence labeling of SYP-positive vesicles also allows researchers to visualize presynaptic boutons distributed along axons and dendrites, making Synaptophysin one of the most widely used markers for imaging synaptic vesicle localization.

Synaptophysin expression is abundant throughout the central nervous system including regions such as the cerebral cortex, hippocampus, cerebellum, and spinal cord. The protein is also present in neuroendocrine cells found in pancreatic islets, adrenal medulla, and gastrointestinal endocrine tissues. Because of this distribution, immunofluorescence detection of Synaptophysin is frequently used to identify neuronal and neuroendocrine cell populations and to evaluate synaptic vesicle organization within these specialized secretory cells.

Fluorescence microscopy using a rabbit polyclonal Synaptophysin antibody enables detailed visualization of synaptic vesicle protein distribution within neuronal cytoplasm and synaptic terminals. In neuronal cultures and tissue sections, SYP-positive vesicles appear as discrete fluorescent puncta that align along neuronal processes or cluster within presynaptic regions. This staining pattern allows investigators to monitor synapse formation, analyze synaptic remodeling, and study changes in synaptic density associated with neurological disease or neuronal development.

Due to its vesicle-specific localization and characteristic punctate fluorescence pattern, Synaptophysin remains one of the most reliable markers for imaging presynaptic vesicles by immunofluorescence. Detection of SYP using fluorescence microscopy supports studies of neuronal circuitry, synaptic vesicle trafficking, and neuroendocrine secretory vesicles, making Synaptophysin antibodies valuable tools for visualizing synaptic structures in neuroscience and cell biology research.

Application Notes

The stated application concentrations are suggested starting points. Titration of the Synaptophysin Antibody for Immunofluorescence may be required due to differences in protocols and secondary/substrate sensitivity.

Immunogen

A portion of amino acids 225-253 from the human protein was used as the immunogen for the Synaptophysin Antibody.

Storage

Aliquot the Synaptophysin antibody and store frozen at -20oC or colder. Avoid repeated freeze-thaw cycles.

Alternate Names

SYP antibody, Synaptic vesicle glycoprotein antibody, Major synaptic vesicle protein p38 antibody, Synaptophysin p38 antibody