abcam

ab8049

Anti-Synaptophysin antibody [SY38] - Synaptic Marker

Anti-Synaptophysin antibody [SY38] (ab8049) is a mouse monoclonal antibody detecting Synaptophysin in **Western Blot, Flow Cytometry, IHC-P, IHC-Fr, ICC/IF**. Suitable for **Cow, Hamster, Human, Mouse, Rat**.

- Over 220 publications
- Trusted since 2001

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	pH: 7.3 Preservative: 0.09% Sodium azide Constituents: PBS, 0.5% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	Native Full Length Protein corresponding to Human SYP. Database link P08247
Clone number	SY38
Purification technique	Affinity purification Protein A

Reactivity data

Flow Cyt

Tested

Species	Rat
Dilution info	1/20

Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Expected

Species	Mouse
Dilution info	Use at an assay dependent concentration.
Notes	-

Predicted

Species	Human, Cow, Hamster
Dilution info	-
Notes	-

WB

Tested

Species	Mouse
Dilution info	1/500
Notes	-

Expected

Species	Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

Predicted

Species	Human, Cow, Hamster
Dilution info	-
Notes	-

IHC-P

Tested

Species	Mouse
Dilution info	-
Notes	-

Expected

Species	Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

Predicted

Species	Human, Cow, Hamster
Dilution info	-
Notes	-

ICC/IF

Expected

Species	Mouse, Rat, Hamster, Human, Cow
Dilution info	Use at an assay dependent concentration.
Notes	-

IHC-Fr

Expected

Species	Mouse, Rat, Hamster, Human, Cow
Dilution info	Use at an assay dependent concentration.
Notes	-

Target data

See full target information SYP

Function	Possibly involved in structural functions as organizing other membrane components or in targeting the vesicles to the plasma membrane. Involved in the regulation of short-term and long-term synaptic plasticity (By similarity).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage duration	1-2 weeks
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C
Aliquoting information	Upon delivery aliquot

Notes

Product Specifications
Anti-Synaptophysin antibody [SY38] (ab8049) is a mouse monoclonal antibody and is validated for use in Flow Cyt, ICC/IF, IHC-Fr, IHC-P, WB in cow, hamster, human, mouse, rat samples.
Anti-Synaptophysin antibody [SY38] (ab8049) specifically detects Synaptophysin (UniProt ID: P20488; Molecular weight: 34kDa) and is sold in 500 µL selling sizes.

Quality and Validation
Abcam's high quality validation processes ensure Anti-Synaptophysin antibody [SY38] (ab8049) has high sensitivity and specificity.
Anti-Synaptophysin antibody [SY38] (ab8049) has been cited over 228 times in peer reviewed journals and is trusted by the scientific community.
Anti-Synaptophysin antibody [SY38] (ab8049) has 15 independent reviews from customers.

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	Synaptophysin also known as SYP is a glycoprotein approximately 38 kDa in size. It is expressed abundantly in the presynaptic vesicle membranes of neurons and in neuroendocrine cells. Synaptophysin serves as a marker for synaptic vesicles and neuroendocrine tumors. The protein plays a significant role in synaptic vesicle cycling processes engaging in the release and recycling of neurotransmitters.

Biological function summary	Synaptophysin contributes to synaptic transmission and is engaged in the formation and maintenance of the synaptic vesicle pools. It is a part of the complex involved in neuronal communication and might interact with other vesicular proteins to ensure efficient neurotransmitter exchange. Researchers often utilize anti-Synaptophysin antibodies such as Alexa Fluor 647 labeled ones for visualization under confocal microscopy.
Pathways	Synaptophysin operates within pathways involving neurotransmitter release and synaptic vesicle cycle. It connects to proteins like Synaptotagmin and SNAP-25 integral to the facilitation of synaptic transmission and exocytosis. These pathways ensure efficient signal conduction across neurons which is critical for normal nervous system functioning.
Associated diseases and disorders	Synaptophysin shows a strong association with neurodegenerative diseases and certain cancers like neuroblastoma. Altered expression levels or dysfunction of Synaptophysin can serve as a diagnostic marker for these conditions. The protein is connected with proteins like Bcl-2 in neurodegenerative diseases affecting cell survival and apoptosis pathways.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

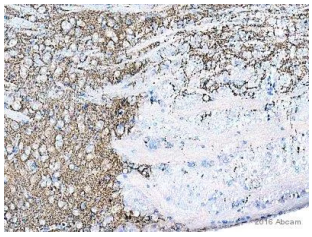
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

6 product images

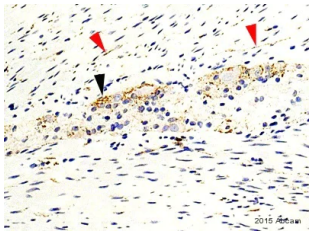


This image is courtesy of a customer review provided by Carl Hobbs

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Synaptophysin antibody [SY38] - Synaptic Marker (ab8049)

Synaptophysin Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-Synaptophysin antibody

ab8049 staining Synaptophysin in Mouse brain tissue sections by Immunohistochemistry (IHC-P - paraformaldehyde-fixed, paraffin-embedded sections). Tissue was fixed with formaldehyde and blocked with 2% BSA for 10 minutes at 21°C; antigen retrieval was by heat mediation in a citric acid. Samples were incubated with primary antibody (1/100) for 16 hours at 21°C. A Biotin-conjugated Goat anti-mouse IgG polyclonal (1/300) was used as the secondary antibody.

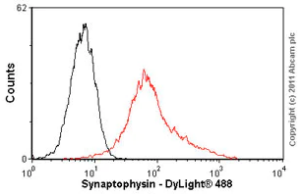


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Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Synaptophysin antibody [SY38] - Synaptic Marker (ab8049)

Synaptophysin Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-Synaptophysin antibody

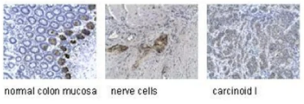
ab8049 staining MAFA in human colon tissue sections by Immunohistochemistry (IHC-P - paraformaldehyde-fixed, paraffin-embedded sections). Tissue was fixed with formaldehyde and blocked with 1% BSA for 10 minutes at 21°C; antigen retrieval was by heat mediation in citric acid. Samples were incubated with primary antibody (1/100 in TBS/BSA/azide) for 16 hours at 21°C. A Biotin-conjugated goat anti-mouseIgG polyclonal (1/300) was used as the secondary antibody.



Flow Cytometry - Anti-Synaptophysin antibody [SY38] - Synaptic Marker (ab8049)

Synaptophysin Flow Cytometry staining using mouse Anti-Synaptophysin antibody

Overlay histogram showing PC12 cells stained with ab8049 (red line). The cells were fixed with methanol (5 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab8049, 1/20 dilution) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-mouse IgG (H+L) (ab96879) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was mouse IgG1 [ICIGG1] (ab91353, 2µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed. This antibody gave a decreased signal in PC12 cells fixed with 4% paraformaldehyde (10 min)/permeabilized with 0.1% PBS-Tween used under the same conditions.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Synaptophysin antibody [SY38] - Synaptic Marker (ab8049)

Synaptophysin Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-Synaptophysin antibody

The pictures show immunohistochemical staining of normal mucosa and neuroendocrine tumour of the small intestine. The antibody (ab8049) stains positive in a 1:10 dilution in nerve cells of the colon as well as some cells in normal colon mucosa and some neuroendocrine tumors of the digestive tract. Staining protocol: Mouse monoclonal to Synaptophysin (ab8049), diluted 1:10 in

PBS plus BSA, 60 min at room temperature,
secondary antibody: HRP solution with anti mouse polyclonal antibodies, 30min. DAB staining 10 min; Hematoxylin 30 sec.

These images were kindly supplied as part of the review submitted by Karin Birkenkamp-Demtroeder.

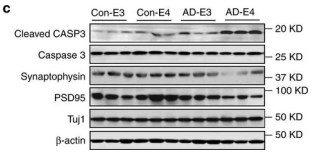


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Western blot - Anti-Synaptophysin antibody [SY38] - Synaptic Marker (ab8049)

Synaptophysin Western blot staining using mouse Anti-Synaptophysin antibody

Western Blotting using Anti-Synaptophysin antibody [SY38], ab8049. Publication image from Jia, L. et al., 2020, Nat Commun, 33139712. Legend direct from paper.

APOE4 enhances apoptosis and synaptic loss in cerebral organoids from AD patients.cerebral organoids were subjected to immunostaining and western blotting at week 12. a Representative images and quantification of cellular apoptosis evaluated by immunostaining of cleaved CASP3. Scale bar: 100 µm. b Cleaved CASP3 immunoreactivities were quantified from 5 cerebral organoids per line, and the averaged values were compared among the groups (APOE4:p = 0.032, AD: p = 0.0569, APOE4 x AD: p = 0.018, Con-E3 vs. AD-E4: p = 0.0523, Con-E4 vs. AD-E4: p = 0.0112, AD-E3 vs. AD-E4: p = 0.014). All data are expressed as mean ± SEM (N = 5). c–f Cleaved CASP3, CASP3, synaptophysin, PSD95, and Tuj1 levels in the lysates of 4–5 cerebral organoids per line were analyzed by western blotting and quantified. All data are expressed as mean ± SEM (N = 5). d Cleaved CASP3 levels were normalized to total CASP3 levels and compared among groups (APOE4:p < 0.0001, AD: p < 0.0001, APOE4 x AD: p = 0.0020, Con-E3 vs. Con-E4: p = 0.009, Con-E3 vs. AD-E3: p = 0.0206, Con-E4 vs. AD-E4: p < 0.0001, AD-E3 vs. AD-E4: p < 0.0001). Synaptophysin and PSD95 levels were normalized to Tuj1 levels and compared among groups (eAPOE4:p = 0.5841, AD: p = 0.0002, APOE4 x AD: p = 0.0453, Con-E3 vs. AD-E4: p = 0.0069, Con-E4 vs. AD-E4: p = 0.0002, Con-E4 vs. AD-E3: p = 0.0077. fAPOE4:p = 0.8794, AD: p = 0.0025, APOE4 x AD: p = 0.0551, Con-E4 vs. AD-E3: p = 0.0404, Con-E4 vs. AD-E4: 0.0019). ANCOVA for APOE4, AD status, and APOE4 x AD status was performed by including sex, sampling age, and source of iPSCs as co-variables, which was followed by two-sided Tukey–Kramer tests to compare between the groups with two factors (APOE4 and AD status). *p < 0.05, **p < 0.01, ***p < 0.001, ****p < 0.0001.

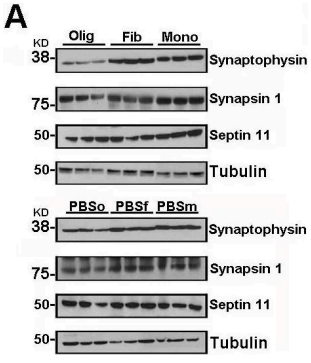


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Western blot - Anti-Synaptophysin antibody [SY38] - Synaptic Marker (ab8049)

Synaptophysin Western blot staining using mouse Anti-Synaptophysin antibody

Western Blotting using Anti-Synaptophysin antibody [SY38], ab8049. Publication image from Jackson, G. R. et al., 2011, Mol Neurodegener, 21645391. Legend direct from paper.

Tau oligomers induce synaptic dysfunction. (A) Representative Western blot of mouse hippocampus homogenate. The levels of synaptophysin, synapsin-1, and septin-11 were measured by band quantification and normalized with the levels of tubulin. PBSo indicates representative bands of hippocampal area injected with PBS in mice also injected with tau oligomers, PBSf indicates PBS injection in mice also injected with tau fibrils, and PBSm indicates PBS injection in mice also injected with tau monomers. (B) Synaptophysin levels were significantly lower in the hemispheres injected with tau oligomers in comparison with the ones injected with fibrils, monomers, or PBS. (C) No significant differences in the levels of synapsin-1 were observed. (D) Only the hemisphere injected with tau oligomers presents a decrease in the level of septin-11. Data are represented as the mean ± SE. *p < 0.01, n = 6

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