SANTA CRUZ BIOTECHNOLOGY, INC.

SYP (H-8): sc-55507

BACKGROUND

Synaptic vesicles participate in a cycle of fusion with the plasma membrane and reformation by endocytosis. Synaptic vesicle protein synaptophysin (SYP) is targeted to early endosomes in transfected fibroblasts and in neuroendocrine cells. SYP is an N-glycosylated intergral membrane protein found in neurons and endocrine cells that associates into hexamers to form a large conductance channel. SYP contains four transmembrane domains and may function as a gap juction-like channel. Membrane cholesterol specfically interacts with SYP to play a role in vesicle formation. Synaptobrevin (VAMP) also binds to SYP and the resultant complex is upregulated during neuronal development, but is absent in exocytosis fusion complex. Thus, the synaptophysin-synaptobrevin complex is not essential for exocytosis, but rather provides a pool of synaptobrevin for exocytosis. In addition, the tail domain of brain Myosin V also forms a stable complex with synaptobrevin II and SYP, and this complex is disassembled upon the depolarization-induced entry of Ca^{2+} into intact nerve endings.

CHROMOSOMAL LOCATION

Genetic locus: SYP (human) mapping to Xp11.23; Syp (mouse) mapping to X A1.1.

SOURCE

SYP (H-8) is a mouse monoclonal antibody raised against amino acids 221-313 of SYP of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

SYP (H-8) is available conjugated to agarose (sc-55507 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-55507 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-55507 PE), fluorescein (sc-55507 FITC), Alexa Fluor® 488 (sc-55507 AF488), Alexa Fluor® 546 (sc-55507 AF546), Alexa Fluor® 594 (sc-55507 AF594) or Alexa Fluor® 647 (sc-55507 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-55507 AF680) or Alexa Fluor® 790 (sc-55507 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

SYP (H-8) is recommended for detection of synaptophysin of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

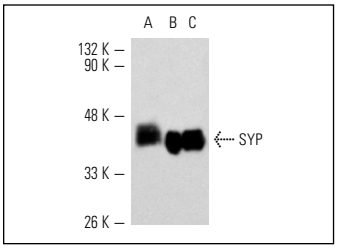
Suitable for use as control antibody for SYP siRNA (h): sc-36597, SYP siRNA (m): sc-36596, SYP shRNA Plasmid (h): sc-36597-SH, SYP shRNA Plasmid (m): sc-36596-SH, SYP shRNA (h) Lentiviral Particles: sc-36597-V and SYP shRNA (m) Lentiviral Particles: sc-36596-V.

Molecular Weight of SYP: 38-48 kDa.

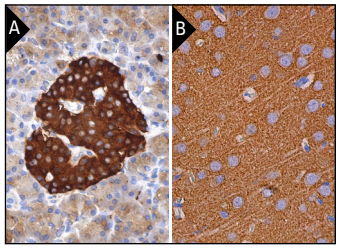
STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

DATA



SYP (H-8): sc-55507. Western blot analysis of SYP expression in IMR-32 whole cell lysate (**A**) and rat brain (**B**) and mouse brain (**C**) tissue extracts.



SYP (H-8): sc-55507. Immunoperoxidase staining of formalin fixed, paraffin-embedded human pancreas tissue showing cytoplasmic staining of Islets of Langerhans and glandular cells (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded rat brain tissue showing neuropil staining (**B**).

SELECT PRODUCT CITATIONS

1. Zhou, K., et al. 2010. NMDA receptor hypofunction induces dysfunctions of energy metabolism and semaphorin signaling in rats: a synaptic proteome study. Schizophr. Bull. 38: 579-591.
2. Giannopoulos, P.F., et al. 2013. 5-lipoxygenase activating protein reduction ameliorates cognitive deficit, synaptic dysfunction, and neuropathology in a mouse model of Alzheimer's disease. Biol. Psychiatry 74: 348-356.
3. Shim, K.W., et al. 2013. Epigenetic modification after inhibition of IGF-1R signaling in human central nervous system atypical teratoid rhabdoid tumor (AT/RT). Childs Nerv. Syst. 29: 1245-1251.
4. Zhang, Y., et al. 2014. BBS mutations modify phenotypic expression of CEP290-related ciliopathies. Hum. Mol. Genet. 23: 40-51.
5. Sialana, F.J., et al. 2016. Mass spectrometric analysis of synaptosomal membrane preparations for the determination of brain receptors, transporters and channels. Proteomics 16: 2911-2920.
6. Györffy, B.A., et al. 2016. Widespread alterations in the synaptic proteome of the adolescent cerebral cortex following prenatal immune activation in rats. Brain Behav. Immun. 56: 289-309.
7. Li, J.G., et al. 2017. Genetic absence of ALOX5 protects from homocysteine-induced memory impairment, Tau phosphorylation and synaptic pathology. Hum. Mol. Genet. 26: 1855-1862.
8. Lauretti, E., et al. 2017. Extra-virgin olive oil ameliorates cognition and neuropathology of the 3xTg mice: role of autophagy. Ann. Clin. Transl. Neurol. 4: 564-574.

RESEARCH USE

For research use only, not for use in diagnostic procedures.