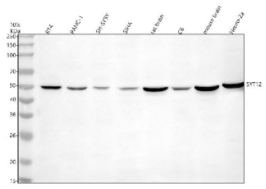
SYT12 Antibody / Synaptotagmin 12 (FY12570)

Catalog No.	Formulation	Size
FY12570	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

Availability	1-2 days
Species Reactivity	Human, Mouse, Rat
Format	Lyophilized
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	Q8IV01
Applications	Western Blot : 0.25-0.5ug/ml ELISA : 0.1-0.5ug/ml
Limitations	This SYT12 antibody is available for research use only.



Western blot analysis of SYT12 using anti-SYT12 antibody. Electrophoresis was performed on a 10% SDS-PAGE gel at 80V (Stacking gel) / 120V (Resolving gel) for 2 hours. Lane 1: human RT4 whole cell lysates, Lane 2: human PANC-1 whole cell lysates, Lane 3: human SH-SY5Y whole cell lysates, Lane 4: human SIHA whole cell lysates, Lane 5: rat brain tissue lysates, Lane 6: rat C6 whole cell lysates, Lane 7: mouse brain tissue lysates, Lane 8: mouse Neuro-2a whole cell lysates. After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-SYT12 antibody at 0.5 ug/ml overnight at 4oC, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal was developed using an ECL Plus Western Blotting Substrate. A specific band was detected for SYT12 at approximately 47 kDa. The expected molecular weight of SYT12 is ~47 kDa.

Description

SYT12 antibody detects Synaptotagmin 12, a member of the synaptotagmin family of membrane-trafficking proteins that regulate neurotransmitter release and synaptic vesicle exocytosis. Unlike calcium-sensing synaptotagmins, SYT12 lacks functional calcium-binding domains but modulates synaptic transmission by controlling vesicle docking and fusion probability. The SYT12 antibody is widely used in neurobiology and synaptic physiology to study vesicle release mechanisms, synaptic modulation, and neuronal signaling.

SYT12 is encoded by the SYT12 gene located on human chromosome 11q12.1. The protein is approximately 240 amino acids long and contains two C2-like domains typical of the synaptotagmin family. However, substitutions in key residues render these domains calcium-insensitive, distinguishing SYT12 as a regulator of synaptic machinery rather than a classical calcium sensor. SYT12 localizes predominantly to presynaptic terminals and associates with SNARE complex components that drive vesicle fusion.

An SYT12 antibody detects a 28 kilodalton band by western blot and reveals punctate staining at presynaptic sites under confocal microscopy. SYT12 interacts with SNAP25 and syntaxin, modulating the assembly of the SNARE complex and influencing vesicle priming efficiency. Experimental silencing of SYT12 in neurons decreases spontaneous and evoked neurotransmitter release, indicating its role in maintaining basal synaptic transmission.

Beyond synaptic function, SYT12 participates in hormone secretion and calcium-independent vesicle trafficking in endocrine cells. Mutations in SYT12 have been linked to neurological and psychiatric conditions, including epilepsy and movement disorders. In cancer research, SYT12 overexpression correlates with poor prognosis in lung and colorectal cancers, where it enhances tumor cell migration through altered vesicle dynamics.

SYT12 exemplifies the regulatory diversity of synaptotagmin family proteins, balancing vesicle fusion without directly sensing calcium. NSJ Bioreagents provides a validated SYT12 antibody optimized for its applications, supporting investigations into neurotransmission, vesicle priming, and secretory pathway control.

Application Notes

Optimal dilution of the SYT12 antibody should be determined by the researcher.

Immunogen

E.coli-derived human Synaptotagmin-12/SYT12 recombinant protein (Position: Q63-R410) was used as the immunogen for the SYT12 antibody.

Storage

After reconstitution, the SYT12 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.