

Synaptotagmin VII (4H4): sc-293343

BACKGROUND

Synaptotagmins are a large gene family of synaptic vesicle type III integral membrane proteins that function as regulators of both exocytosis and endocytosis and are involved in neurotransmitter secretion from small secretory vesicles. Calcium binds to Synaptotagmin I which triggers neurotransmitter release at the synapse. Synaptotagmin II is phosphorylated by WNK1 in a process that regulates calcium-dependent interactions. Synaptotagmin III is involved in calcium-dependent exocytosis of secretory vesicles in endocrine cells and neurons. Synaptotagmin IV is expressed in neuronal tissues, and has the highest mRNA levels in the hippocampus. The proximity of the Synaptotagmin IV gene to markers of several psychiatric disorders suggest an involvement of Synaptotagmin IV in human disease. Synaptotagmin V is a dense-core vesicle-specific protein that regulates a specific type of calcium-regulated secretion. Synaptotagmin VI interacts with adaptor protein-2 in a calcium-independent manner. Synaptotagmin VII is widely expressed in non-neuronal tissues.

REFERENCES

1. Hilbush, B.S. and Morgan, J.I. 1994. A third synaptotagmin gene, Syt3, in the mouse. *Proc. Natl. Acad. Sci. USA* 91: 8195-8199.
2. Li, C., et al. 1995. Ca²⁺-dependent and -independent activities of neural and non-neural synaptotagmins. *Nature* 375: 594-599.

CHROMOSOMAL LOCATION

Genetic locus: SYT7 (human) mapping to 11q12.2; Syt7 (mouse) mapping to 19 A.

SOURCE

Synaptotagmin VII (4H4) is a mouse monoclonal antibody raised against amino acids 41-139 of Synaptotagmin VII of human origin.

PRODUCT

Each vial contains 100 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

Synaptotagmin VII (4H4) is recommended for detection of Synaptotagmin VII of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

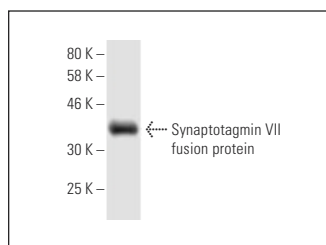
Suitable for use as control antibody for Synaptotagmin VII siRNA (h): sc-41320, Synaptotagmin VII siRNA (m): sc-41321, Synaptotagmin VII siRNA (r): sc-270176, Synaptotagmin VII shRNA Plasmid (h): sc-41320-SH, Synaptotagmin VII shRNA Plasmid (m): sc-41321-SH, Synaptotagmin VII shRNA Plasmid (r): sc-270176-SH, Synaptotagmin VII shRNA (h) Lentiviral Particles: sc-41320-V, Synaptotagmin VII shRNA (m) Lentiviral Particles: sc-41321-V and Synaptotagmin VII shRNA (r) Lentiviral Particles: sc-270176-V.

Molecular Weight of Synaptotagmin VII: 65 kDa.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



Synaptotagmin VII (4H4): sc-293343. Western blot analysis of human recombinant Synaptotagmin VII fusion protein.

SELECT PRODUCT CITATIONS

1. Gkanatsiou, E., et al. 2021. Amyloid pathology and synaptic loss in pathological aging. *J. Neurochem.* 159: 258-272.
2. Jung, J.W., et al. 2023. In-depth proteome analysis of brain tissue from Ewrs1 knockout mouse by multiplexed isobaric tandem mass tag labeling. *Sci. Rep.* 13: 15261.
3. Ma, Y., et al. 2024. The 8-oxoguanine DNA glycosylase-synaptotagmin 7 pathway increases extracellular vesicle release and promotes tumour metastasis during oxidative stress. *J. Extracell. Vesicles* 13: e12505.
4. Bagán, A., et al. 2025. Discovery of (3-Phenylcarbamoyl-3,4-dihydro-2H-pyrrol-2-yl)phosphonates as imidazoline I₂ receptor ligands with anti-Alzheimer and analgesic properties. *J. Med. Chem.* 68: 2551-2573.

STORAGE

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

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.