

Synaptotagmin I/II (H-147): sc-13993

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

- Hilbush, B.S. and Morgan, J.I. 1994. A third Synaptotagmin gene, Syt3, in the mouse. *Proc. Natl. Acad. Sci. USA* 91: 8195-8199.
- Li, C., et al. 1995. Ca²⁺-dependent and -independent activities of neural and non-neural synaptotagmins. *Nature* 375: 594-599.
- Kishore, B.K., et al. 1998. Expression of Synaptotagmin VIII in rat kidney. *Am. J. Physiol.* 275: 131-142.
- Xi, D., et al. 1999. Analysis of Synaptotagmin I-IV messenger RNA expression and developmental regulation in the rat hypothalamus and pituitary. *Neuroscience* 88: 425-435.
- Ferguson, G.D., et al. 2000. The human Synaptotagmin IV gene defines an evolutionary break point between syntenic mouse and human chromosome regions but retains ligand inducibility and tissue specificity. *J. Biol. Chem.* 275: 36920-3696.

CHROMOSOMAL LOCATION

Genetic locus: SYT1 (human) mapping to 12q21.2, SYT2 (human) mapping to 1q32.1; Syt1 (mouse) mapping to 10 D1, Syt2 (mouse) mapping to 1 E4.

SOURCE

Synaptotagmin I/II (H-147) is a rabbit polyclonal antibody raised against amino acids 1-147 mapping near the N-terminus of Synaptotagmin I/II of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

APPLICATIONS

Synaptotagmin I/II (H-147) is recommended for detection of Synaptotagmin I/II 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)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Synaptotagmin I/II (H-147) is also recommended for detection of Synaptotagmin I/II in additional species, including canine, bovine, porcine and avian.

Suitable for use as control antibody for Synaptotagmin I/II siRNA (h): sc-44135, Synaptotagmin I/II shRNA Plasmid (h): sc-44135-SH and Synaptotagmin I/II shRNA (h) Lentiviral Particles: sc-44135-V.

Molecular Weight of Synaptotagmin I/II: 40/65 kDa.

Positive Controls: mouse brain extract: sc-2253 or rat brain extract: sc-2392.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

- Cho, W.J., et al. 2007. Neuronal fusion pore assembly requires membrane cholesterol. *Cell Biol. Int.* 31: 1301-1308.

RESEARCH USE

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

PROTOCOLS

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



Try **Synaptotagmin I/II (H-9): sc-393392**, our highly recommended monoclonal alternative to Synaptotagmin I/II (H-147).