

Synaptotagmin IV (L-15): sc-14446

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.
- 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: 36920-36926.
- Ferguson, G.D., et al. 2001. Synaptotagmin IV: biochemistry, genetics, behavior, and possible links to human psychiatric disease. *Mol. Neurobiol.* 23: 173-185.
- Ibata, K., et al. 2002. Non-polarized distribution of Synaptotagmin IV in neurons: evidence that Synaptotagmin IV is not a synaptic vesicle protein. *Neurosci. Res.* 43: 401-406.

CHROMOSOMAL LOCATION

Genetic locus: SYT4 (human) mapping to 18q12.3; Syt4 (mouse) mapping to 18 B1.

SOURCE

Synaptotagmin IV (L-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of Synaptotagmin IV of mouse origin.

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.

PRODUCT

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

Blocking peptide available for competition studies, sc-14446 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

Synaptotagmin IV (L-15) is recommended for detection of Synaptotagmin IV 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).

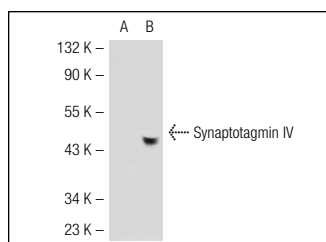
Synaptotagmin IV (L-15) is also recommended for detection of Synaptotagmin IV in additional species, including canine, bovine and avian.

Suitable for use as control antibody for Synaptotagmin IV siRNA (h): sc-41316, Synaptotagmin IV siRNA (m): sc-41317, Synaptotagmin IV shRNA Plasmid (h): sc-41316-SH, Synaptotagmin IV shRNA Plasmid (m): sc-41317-SH, Synaptotagmin IV shRNA (h) Lentiviral Particles: sc-41316-V and Synaptotagmin IV shRNA (m) Lentiviral Particles: sc-41317-V.

Molecular Weight of Synaptotagmin IV: 41-44 kDa.

Positive Controls: Synaptotagmin IV (m): 293T Lysate: sc-123868, Jurkat whole cell lysate: sc-2204 or A-431 whole cell lysate: sc-2201.

DATA



Synaptotagmin IV (L-15): sc-14446. Western blot analysis of Synaptotagmin IV expression in non-transfected: sc-117752 (A) and mouse Synaptotagmin IV transfected: sc-123868 (B) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

- Ting, J.T., et al. 2006. Synaptotagmin IV does not alter excitatory fast synaptic transmission or fusion pore kinetics in mammalian CNS neurons. *J. Neurosci.* 26: 372-380.



Try **Synaptotagmin IV (H-4): sc-271936** or **Synaptotagmin IV (28-N): sc-101302**, our highly recommended monoclonal alternatives to Synaptotagmin IV (L-15).