

Synaptotagmin IV (28-N): sc-101302

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., Ullrich, B., Zhang, J.Z., Anderson, R.G., Brose, N. and Sudhof, T.C. 1995. Ca²⁺-dependent and -independent activities of neural and non-neural Synaptotagmins. *Nature* 375: 594-599.
- Kishore, B.K., Wade, J.B., Schorr, K., Inoue, T., Mandon, B. and Knepper, M.A. 1998. Expression of Synaptotagmin VIII in rat kidney. *Am. J. Physiol.* 275: 131-142.
- Xi, D., Chin, H. and Gainer, H. 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., Chen, X.N., Korenberg, J.R. and Herschman, H.R. 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: SYT4 (human) mapping to 18q12.3.

SOURCE

Synaptotagmin IV (28-N) is a mouse monoclonal antibody raised against recombinant Synaptotagmin IV of human origin.

PRODUCT

Each vial contains 100 µg IgG₃ kappa light chain 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 IV (28-N) is recommended for detection of Synaptotagmin IV of 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).

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

Molecular Weight of Synaptotagmin IV: 41-44 kDa.

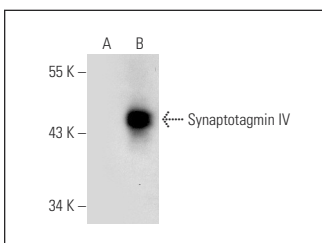
Positive Controls: SK-N-MC cell lysate: sc-2237, Jurkat whole cell lysate: sc-22040 or Synaptotagmin IV (m): 293T Lysate: sc-123868.

RECOMMENDED SUPPORT REAGENTS

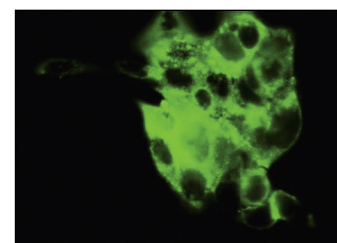
To ensure optimal results, the following support reagents are recommended:

- 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, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048.
- Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).
- Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



Synaptotagmin IV (28-N): sc-101302. 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.



Synaptotagmin IV (28-N): sc-101302. Immunofluorescence staining of paraformaldehyde-fixed A-431 cells showing membrane and cytoplasmic localization.

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.