SANTA CRUZ BIOTECHNOLOGY, INC.

p-Synaptotagmin II (Thr 202): sc-135711

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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. Mouse, rat and human Synaptotagmin II are phosphorylated by WNK1 on Thr 202, which is located within the calcium binding domain and, upon phosphorylation, allows Synaptotagmin II to bind to phospholipid vesicles.

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., Ullrich, B., Zhang, J.Z., Anderson, R.G., Brose, N. and Sudhof, T.C. 1995. Ca^{2+}-dependent and -independent activities of neural and non-neural synaptotagmins. Nature 375: 594-599.
3. 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.
4. 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.
5. 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: SYT2 (human) mapping to 1q32.1; Syt2 (mouse) mapping to 1 E4.

SOURCE

p-Synaptotagmin II (Thr 202) is a rabbit polyclonal antibody raised against a short amino acid sequence containing phosphorylated Thr 202 of Synaptotagmin II of rat origin.

RESEARCH USE

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

PRODUCT

Each vial contains IgG in 100 µl of 10 mM HEPES with 150 mM NaCl, 50% glycerol and < 0.1% BSA.

APPLICATIONS

p-Synaptotagmin II (Thr 202) is recommended for detection of Thr 202 phosphorylated Synaptotagmin II of mouse and rat origin and correspondingly Thr 199 phosphorylated Synaptotagmin II of mouse, rat, human and zebrafish origin by Western Blotting (starting dilution to be determined by researcher, dilution range 1:100-1:5000) and immunoprecipitation [1-2 µl per 100-500 µg of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for Synaptotagmin II siRNA (h): sc-41312, Synaptotagmin II siRNA (m): sc-41313, Synaptotagmin II shRNA Plasmid (h): sc-41312-SH, Synaptotagmin II shRNA Plasmid (m): sc-41313-SH, Synaptotagmin II shRNA (h) Lentiviral Particles: sc-41312-V and Synaptotagmin II shRNA (m) Lentiviral Particles: sc-41313-V.

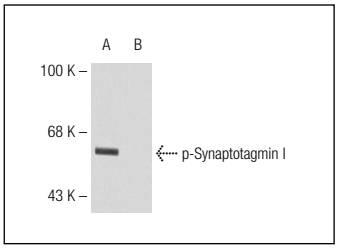
Molecular Weight of p-Synaptotagmin II: 67 kDa.

Positive Controls: rat prefrontal cortex tissue extract.

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 B Blocking Reagent: sc-2335 (use 50 mM NaF, sc-24988, as diluent), Western Blotting Luminol Reagent: sc-2048 and Lambda Phosphatase: sc-200312A. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



p-Synaptotagmin II (Thr 202): sc-135711. Western blot analysis of Synaptotagmin I phosphorylation in untreated (**A**) and lambda protein phosphatase (sc-200312A) treated (**B**) rat prefrontal cortex tissue extracts.

STORAGE

For immediate and continuous use, store at 4° C for up to one month. For sporadic use, freeze in working aliquots in order to avoid repeated freeze/thaw cycles. If turbidity is evident upon prolonged storage, clarify solution by centrifugation.