

# Synaptotagmin II (26): sc-136089

## 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. Ca<sup>2+</sup>-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: F131-F142.
- 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: 36920-36926.
- LocusLink Report (LocusID: 6860). <http://www.ncbi.nlm.nih.gov/LocusLink/>

## CHROMOSOMAL LOCATION

Genetic locus: SYT2 (human) mapping to 1q32.1; Syt2 (mouse) mapping to 1 E4.

## SOURCE

Synaptotagmin II (26) is a mouse monoclonal antibody raised against amino acids 413-422 of Synaptotagmin II of rat origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>1</sub> 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 II (26) is recommended for detection of Synaptotagmin II of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg 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.

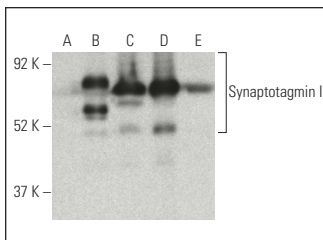
Molecular Weight of Synaptotagmin II: 67 kDa.

Positive Controls: Synaptotagmin II (m): 293T Lysate: sc-123867, rat brain extract: sc-2392 or mouse brain extract: sc-2253.

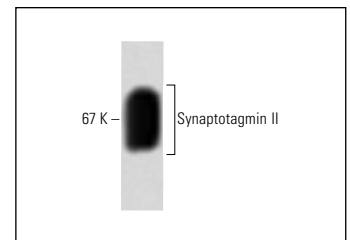
## RECOMMENDED SUPPORT REAGENTS

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 II (26): sc-136089. Western blot analysis of Synaptotagmin II expression in non-transfected: sc-117752 (A) and mouse Synaptotagmin II transfected: sc-123867 (B) 293T whole cell lysates and mouse brain (C), rat brain (D) and human brain (E) tissue extracts. Detection reagent used: m-IgGκ BP-HRP: sc-516102.



Synaptotagmin II (26): sc-136089. Western blot analysis of Synaptotagmin II expression in rat cerebrum tissue extract.

## SELECT PRODUCT CITATIONS

- Aparisi Rey, A., et al. 2019. Gadd45α modulates aversive learning through post-transcriptional regulation of memory-related mRNAs. *EMBO Rep.* 20: e46022
- Ruiz de Azua, I., et al. 2021. Cannabinoid CB1 receptor in dorsal telencephalic glutamatergic neurons drives overconsumption of palatable food and obesity. *Neuropsychopharmacology* 46: 982-991.

## RESEARCH USE

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