

Synaptotagmin I (15): sc-136480

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.

CHROMOSOMAL LOCATION

Genetic locus: SYT1 (human) mapping to 12q21.2; Syt1 (mouse) mapping to 10 D1.

SOURCE

Synaptotagmin I (15) is a mouse monoclonal antibody raised against amino acids 250-259 of Synaptotagmin I of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml PBS with < 0.1% sodium azide and 0.1% gelatin.

Synaptotagmin I (15) is available conjugated to agarose (sc-136480 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; and to HRP (sc-136480 HRP), 200 µg/ml, for WB, IHC(P) and ELISA.

APPLICATIONS

Synaptotagmin I (15) is recommended for detection of Synaptotagmin I 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 I siRNA (h): sc-41310, Synaptotagmin I siRNA (m): sc-41311, Synaptotagmin I siRNA (r): sc-270316, Synaptotagmin I shRNA Plasmid (h): sc-41310-SH, Synaptotagmin I shRNA Plasmid (m): sc-41311-SH, Synaptotagmin I shRNA Plasmid (r): sc-270316-SH, Synaptotagmin I shRNA (h) Lentiviral Particles: sc-41310-V, Synaptotagmin I shRNA (m) Lentiviral Particles: sc-41311-V and Synaptotagmin I shRNA (r) Lentiviral Particles: sc-270316-V.

Molecular Weight of Synaptotagmin I: 65 kDa.

Positive Controls: rat brain extract: sc-2392, mouse brain extract: sc-2253 or rat cerebellum extract: sc-2398.

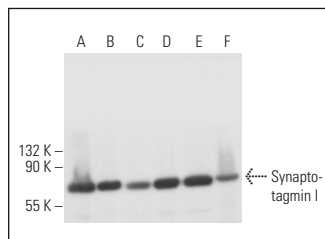
RESEARCH USE

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

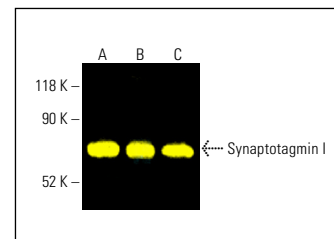
STORAGE

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

DATA



Synaptotagmin I (15): sc-136480. Western blot analysis of Synaptotagmin I expression in rat brain (A), human cerebral cortex (B), rat cerebellum (C), rat hippocampus (D), mouse brain (E) and human cerebellum (F) tissue extracts.



Synaptotagmin I (15): sc-136480. Fluorescent western blot analysis of Synaptotagmin I expression in rat brain (A), rat cerebellum (B) and human cerebellum (C) tissue extracts. Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgG₁ BP-CFL 488: sc-533661.

SELECT PRODUCT CITATIONS

- Sarkar, S., et al. 2016. Expression of microRNA-34a in Alzheimer's disease brain targets genes linked to synaptic plasticity, energy metabolism, and resting state network activity. *Brain Res.* 1646: 139-151.
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- Ishizuka, Y. and Bramham, C.R. 2019. A simple DMSO-based method for cryopreservation of primary hippocampal and cortical neurons. *J. Neurosci. Methods* 333: 108578.
- Mohseni Ahooyi, T., et al. 2019. Perturbation of synapsins homeostasis through HIV-1 Tat-mediated suppression of BAG3 in primary neuronal cells. *Cell Death Dis.* 10: 473.
- Sriram, K., et al. 2020. Biological effects of inhaled hydraulic fracturing sand dust VII. Neuroinflammation and altered synaptic protein expression. *Toxicol. Appl. Pharmacol.* 409: 115300.
- Correia, S.C., et al. 2021. Intermittent hypoxic conditioning rescues cognition and mitochondrial bioenergetic profile in the triple transgenic mouse model of Alzheimer's disease. *Int. J. Mol. Sci.* 22: 461.
- Popek, M., et al. 2022. The effect of TGF-β1 reduced functionality on the expression of selected synaptic proteins and electrophysiological parameters: implications of changes observed in acute hepatic encephalopathy. *Int. J. Mol. Sci.* 23: 1081.
- Li, X., et al. 2024. Polygenic risk for alcohol use disorder affects cellular responses to ethanol exposure in a human microglial cell model. *Sci. Adv.* 10: eado5820.

PROTOCOLS

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