SANTA CRUZ BIOTECHNOLOGY, INC.

rapsyn (1234): sc-58585



BACKGROUND

The RAPSN gene locus is located on chromosome 11p11.2 and encodes a peripheral membrane protein. Rapsyn (receptor-associated protein of the synapse) is expressed in the postsynaptic membrane of skeletal muscle. rapsyn is required for the clustering of nicotinic acetylcholine receptors (nAChR). Rapsyn self-associates through at least two of its seven tetratricopeptide repeats (TPRs). Rapsyn interacts with the large intracellular domain of the nAChR α subunit through the hydrophobic surface of the coiled-coil domain. Rapsyn modifies trafficking of AChR within the cell. Expression is essential for agrin-induced AChR clustering. Overexpression inhibits agrin-induced AChR clustering pathway. Absence of rapsyn causes deficit in the formation of postsynaptic specializations at neuromuscular synapse, which increases axonal branching and motonueron survival. Rapsyn plays a role in selective targeting of newly synthesized intracellular AChR to postsynaptic membrane.

REFERENCES

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- Maimone, M.M. and Enigk, R.E. 1999. The intracellular domain of the nicotinic acetylcholine receptor α subunit mediates its coclustering with rapsyn. Mol. Cell. Neurosci. 14: 340-354.
- Han, H., et al. 1999. Overexpression of rapsyn inhibits agrin induced acetylcholine receptor clustering in muscle cells. J. Neurocytol. 28: 763-775.
- Han, H., et al. 2000. Overexpression of rapsyn modifies the intracellular trafficking of acetylcholine receptors. J. Neurosci. Res. 60: 155-163.
- Ramarao, M.K., et al. 2001. Role of rapsyn tetratricopeptide repeat and coiled-coil domains in self-association and nicotinic acetlycholine receptor clustering. J. Biol. Chem. 276: 7475-7483.
- Banks, G.B., et al. 2001. Promotion of motoneuron survival and branching in rapsyn-deficient mice. J. Comp. Neurol. 429: 156-165.

CHROMOSOMAL LOCATION

Genetic locus: RAPSN (human) mapping to 11p11.2; Rapsn (mouse) mapping to 2 E1.

SOURCE

rapsyn (1234) is a mouse monoclonal antibody raised against purified rapsyn from the electric organ postsynaptic membrane of *Torpedo californica*.

PRODUCT

Each vial contains 50 $\mu g~lgG_1$ in 0.5 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

rapsyn (1234) is recommended for detection of rapsyn of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for rapsyn siRNA (h): sc-42206, rapsyn siRNA (m): sc-42207, rapsyn shRNA Plasmid (h): sc-42206-SH, rapsyn shRNA Plasmid (m): sc-42207-SH, rapsyn shRNA (h) Lentiviral Particles: sc-42206-V and rapsyn shRNA (m) Lentiviral Particles: sc-42207-V.

Molecular Weight of rapsyn: 43 kDa.

Positive Controls: A-673 cell lysate: sc-2414, mouse skeletal muscle extract: sc-364250 or Hs 732.Sk/Mu whole cell lysate: sc-364362.

DATA



rapsyn (1234): sc-58585. Western blot analysis of rapsyn expression in Hs 732.Sk/Mu whole cell lysate (\mathbf{A}) and mouse skeletal muscle tissue extract (\mathbf{B}).

rapsyn (1234): sc-58585. Western blot analysis of rapsyn expression in A-673 (**A**) and HeLa (**B**) whole cell lysates.

SELECT PRODUCT CITATIONS

- Lv, B., et al. 2019. Alleviating sepsis-induced neuromuscular dysfunction linked with acetylcholine receptors by Agrin. J. Surg. Res. 241: 308-316.
- Lee, C.Y., et al. 2020. A spontaneous missense mutation in the chromodomain helicase DNA binding protein 8 (CHD8) gene: a novel association with congenital myasthenic syndrome. Neuropathol. Appl. Neurobiol. 46: 588-601.
- Leite, A.P.S., et al. 2023. Acetylcholine receptors of the neuromuscular junctions present normal distribution after peripheral nerve injury and repair through nerve guidance associated with fibrin biopolymer. Injury 54: 345-361.
- Muller, K.S., et al. 2023. Statin exposure during pregnancy promotes neuromuscular junction alterations in postpartum Wistar rats. Muscle Nerve 67: 537-547.

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.