SANTA CRUZ BIOTECHNOLOGY, INC.

nicastrin (35): sc-136003



BACKGROUND

The Presenilin 1 (PS1) and Presenilin 2 (PS2) transmembrane proteins are components of high molecular weight complexes. These complexes mediate proteolytic cleavage within the transmembrane domain of several proteins, including the β -Amyloid precursor protein (β APP) and Notch. Missense mutations in the genes encoding the presenilin proteins increase the proteolysis of β APP and results in the overproduction of the neurotoxic β -Amyloid peptide, which results in a condition associated with familial Alzheimer's disease (FAD). A novel component of the presenilin complex, nicastrin, is a type I transmembrane glycoprotein that is involved in mediating Notch/GLP-1 signaling. In addition, nicastrin contributes to the processing of β APP, which makes nicastrin an attractive potential target for modulating the production of β -Amyloid in patients with Alzheimer's disease. Originally purified from immunoprecipitated PS1 complexes from HEK293 cells, nicastrin contains hydrophilic amino and carboxy-terminal domains, a short, hydrophobic transmembrane domain and potential N-myristoylation and phosphorylation sites.

REFERENCES

- 1. Yu, G., et al. 1998. The Presenilin 1 protein is a component of a high molecular weight intracellular complex that contains β -catenin. J. Biol. Chem. 273: 16470-16475.
- 2. De Strooper, B., et al. 1998. Deficiency of Presenilin 1 inhibits the normal cleavage of amyloid precursor protein. Nature 391: 387-390.
- De Strooper, B., et al.1999. A Presenilin 1-dependent γ-secretase-like protease mediates release of Notch intracellular domain. Nature 398: 518-522.
- 4. Song, W., et al. 1999. Proteolytic release and nuclear translocation of Notch-1 are induced by Presenilin 1 and impaired by pathogenic Presenilin 1 mutations. Proc. Natl. Acad. Sci. USA 96: 6959-6963.
- Annaert, W., et al. 1999. Presenilins: molecular switches between proteolysis and signal transduction. Trends Neurosci. 22: 439-443.
- Kulic, L., et al. 2000. Separation of presenilin function in amyloid β-peptide generation and endoproteolysis of Notch. Proc. Natl. Acad. Sci. USA 97: 5913-5918.
- Yu, G., et al. 2000. Nicastrin modulates presenilin-mediated Notch/GLP-1 signal transduction and βAPP processing. Nature 407: 48-54.

CHROMOSOMAL LOCATION

Genetic locus: NCSTN (human) mapping to 1q23.2; Ncstn (mouse) mapping to 1 H3.

SOURCE

nicastrin (35) is a mouse monoclonal antibody raised against amino acids 168-289 of nicastrin of human origin.

PRODUCT

Each vial contains 50 μ g lgG_{2a} in 500 μ l of PBS with < 0.1% sodium azide, 0.1% gelatin, 20% glycerol and 0.04% stabilizer protein.

APPLICATIONS

nicastrin (35) is recommended for detection of nicastrin of mouse, rat, human and canine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for nicastrin siRNA (h): sc-36063, nicastrin siRNA (m): sc-36064, nicastrin shRNA Plasmid (h): sc-36063-SH, nicastrin shRNA Plasmid (m): sc-36064-SH, nicastrin shRNA (h) Lentiviral Particles: sc-36063-V and nicastrin shRNA (m) Lentiviral Particles: sc-36064-V.

Molecular Weight of nicastrin: 110/150 kDa.

Positive Controls: SH-SY5Y cell lysate: sc-3812, HeLa whole cell lysate: sc-2200 or WI-38 whole cell lysate: sc-364260.

DATA



nicastrin (35): sc-136003. Western blot analysis of nicastrin expression in WI-38 whole cell lysate.

SELECT PRODUCT CITATIONS

- 1. Qi, X.L., et al. 2013. Preventing expression of the nicotinic receptor subunit α 7 in SH-SY5Y cells with interference RNA indicates that this receptor may protect against the neurotoxicity of A β . Neurochem. Res. 38: 943-950.
- 2. Ren, J., et al. 2019. The expression of the nicotinic acetylcholine receptor α 3 subunit in the brains of patients with Alzheimer's disease and its effects on α and γ -secretases and Notch signal transduction in SH-SY5Y cells. Int. J. Clin. Exp. Pathol. 12: 3644-3652.

STORAGE

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

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.