

# 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  $\beta$ -Amyloid precursor protein ( $\beta$ APP) and Notch. Missense mutations in the genes encoding the presenilin proteins increase the proteolysis of  $\beta$ APP and results in the overproduction of the neurotoxic  $\beta$ -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  $\beta$ APP, which makes nicastrin an attractive potential target for modulating the production of  $\beta$ -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  $\beta$ -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.
3. De Strooper, B., et al. 1999. A Presenilin 1-dependent  $\gamma$ -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.
5. Annaert, W., et al. 1999. Presenilins: molecular switches between proteolysis and signal transduction. *Trends Neurosci.* 22: 439-443.
6. Kulic, L., et al. 2000. Separation of presenilin function in amyloid  $\beta$ -peptide generation and endoproteolysis of Notch. *Proc. Natl. Acad. Sci. USA* 97: 5913-5918.
7. Yu, G., et al. 2000. Nicastrin modulates presenilin-mediated Notch/GLP-1 signal transduction and  $\beta$ APP 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  $\mu$ g IgG<sub>2a</sub> in 500  $\mu$ l of PBS with < 0.1% sodium azide, 0.1% gelatin, 20% glycerol and 0.04% stabilizer protein.

## APPLICATIONS

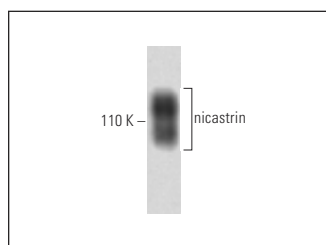
nicastrin (35) is recommended for detection of nicastrin of mouse, rat, human and canine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)].

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  $\alpha 7$  in SH-SY5Y cells with interference RNA indicates that this receptor may protect against the neurotoxicity of A $\beta$ . *Neurochem. Res.* 38: 943-950.
2. Ren, J., et al. 2019. The expression of the nicotinic acetylcholine receptor  $\alpha 3$  subunit in the brains of patients with Alzheimer's disease and its effects on  $\alpha$ - and  $\gamma$ -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](http://www.scbt.com) for detailed protocols and support products.