

# nicastrin (F-3): sc-377214

## 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 immuno-precipitated 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  $\beta$ -Amyloid-peptide generation and endoproteolysis of Notch. *Proc. Natl. Acad. Sci. USA* 97: 5913-5918.

## CHROMOSOMAL LOCATION

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

## SOURCE

nicastrin (F-3) is a mouse monoclonal antibody raised against amino acids 1-300 of nicastrin of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## RESEARCH USE

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

## APPLICATIONS

nicastrin (F-3) is recommended for detection of nicastrin of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

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 synthetic form: 110 kDa.

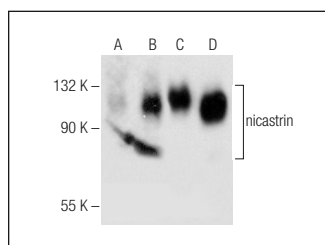
Molecular Weight of nicastrin mature form: 150 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, SK-N-SH cell lysate: sc-2410 or nicastrin (m): 293T Lysate: sc-122058.

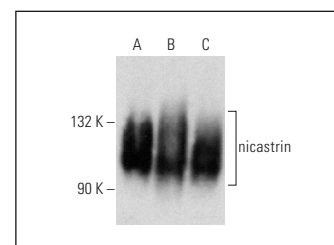
## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  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). 3) Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

## DATA



nicastrin (F-3): sc-377214. Western blot analysis of nicastrin expression in non-transfected 293T: sc-117752 (A), mouse nicastrin transfected 293T: sc-122058 (B), HeLa (C) and SK-N-SH (D) whole cell lysates.



nicastrin (F-3): sc-377214. Western blot analysis of nicastrin expression in HeLa (A), JAR (B) and SHP-77 (C) whole cell lysates.

## SELECT PRODUCT CITATIONS

1. Sun, Z., et al. 2018. Rab21, a novel PS1 interactor, regulates  $\gamma$ -secretase activity via PS1 subcellular distribution. *Mol. Neurobiol.* 55: 3841-3855.

## STORAGE

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