SANTA CRUZ BIOTECHNOLOGY, INC.

PEN-2 (F-19): sc-30232

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Four proteins comprise the γ-secretase complex: presenilin, nicastrin, aph-1, and PEN-2. Together, these proteins mediate cell surface signaling pathways for a variety of type I membrane proteins, notably amyloid-β precursor protein, a protein implicated in the development of Alzheimer's disease, via intramembrane proteolysis. The proteins assemble into a proteolytically active complex in the Golgi/*trans*-Golgi network (TGN) compartments. Assembly leads to autocleavage of presenilin into two subunits to create the active site of γ-secretase, an important step in understanding the mechanisms involved in the etiology and possible treatment of Alzheimer's disease.

REFERENCES

1. Kimberly, W.T., et al. 2003. Identity and function of γ-secretase. J. Neurosci. Res. 74: 353-360.
2. Baulac, S., et al. 2003. Functional γ-secretase complex assembly in Golgi/*trans*-Golgi network: interactions among Presenilin, nicastrin, Aph-1, PEN-2 and γ-secretase substrates. Neurobiol. Dis. 14: 194-204.
3. Wolfe, M.S. 2003. γ-secretase—intramembrane protease with a complex. Sci. Aging Knowledge Environ. 11: PE7
4. Fortna, R.R., et al. 2004. Membrane topology and nicastrin-enhanced endoproteolysis of Aph-1, a component of the γ-secretase complex. J. Biol. Chem. 279: 3685-3693.
5. Bergman, A., et al. 2004. PEN-2 is sequestered in the endoplasmic reticulum and subjected to ubiquitylation and proteasome-mediated degradation in the absence of Presenilin. J. Biol. Chem. 279: 16744-16753.
6. Prokop, S., et al. 2004. Requirement of PEN-2 for stabilization of the Presenilin N/C terminal fragment heterodimer within the γ-secretase complex. J. Biol. Chem. 279: 23255-23261.
7. Hasegawa, H., et al. 2004. Both the sequence and length of the C terminus of PEN-2 are critical for intermolecular interactions and function of Presenilin complexes. J. Biol. Chem. 279: 46455-46463.
8. Shiraishi, H., et al. 2004. PEN-2 enhances γ-cleavage after Presenilin heterodimer formation. J. Neurochem. 90: 1402-1413.
9. Kim, S.H. 2005. A sequence within the first transmembrane domain of PEN-2 is critical for PEN-2-mediated endoproteolysis of Presenilin 1. J. Biol. Chem. 280: 1992-2001.

CHROMOSOMAL LOCATION

Genetic locus: PSENEN (human) mapping to 19q13.12.

SOURCE

PEN-2 (F-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of PEN-2 of human origin.

STORAGE

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

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-30232 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

PEN-2 (F-19) is recommended for detection of PEN-2 (presenilin enhancer 2) of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

PEN-2 (F-19) is also recommended for detection of PEN-2 (presenilin enhancer 2) in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for PEN-2 siRNA (h): sc-45986, PEN-2 shRNA Plasmid (h): sc-45986-SH and PEN-2 shRNA (h) Lentiviral Particles: sc-45986-V.

Molecular Weight of PEN-2: 12 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. Fuso, A., et al. 2007. γ-secretase is differentially modulated by alterations of homocysteine cycle in neuroblastoma and glioblastoma cells. J. Alzheimers Dis. 11: 275-290.
2. Fuso, A., et al. 2808. B-vitamin deprivation induces hyperhomocysteinemia and brain S-adenosylhomocysteine, depletes brain S-adenosylmethionine, and enhances PS1 and BACE expression and Amyloid-β deposition in mice. Mol. Cell Neurosci. 37: 731-746.

RESEARCH USE

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

PROTOCOLS

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