ProductInformation

ANTI-PRESENILIN 1 [31-46]
Developed in Rabbit, IgG Fraction of Antiserum

Product Number **P4985**

Product Description

Anti-Presenilin 1 [31-46] is developed in rabbit using a highly purified peptide DSQERQQQHDRQRLDN corresponding to amino acid residues 31-46 from the N-terminal region of mouse presenilin 1.[1]

Anti-Presenilin 1 [31-46] recognizes presenilin 1 protein from mouse and rat brain. It is useful for immunoblotting and immunofluorescence. Anti-Presenilin 1 [31-46] recognizes a 98 kDa protein corresponding to a presenilin 1 dimer. A smaller 30 kDa endoproteolytic fragment is also detected.

Alzheimer's disease (AD), the most common human neurodegenerative disease, is associated with selective degeneration of synapses and neuronal death in brain regions critical for cognition and memory, leading to progressive and severe deterioration of cognitive functions and dementia. The majority of early-onset cases of AD and familial (FAD) autosomal disorders, associated with mutations of several genes.[2,3] These include the amyloid precursor proteins (APPs), and the newly discovered genes presenilin 1 (PS1, S182) and presenilin 2 (PS2, STM2) located on chromosome 14 and 1, respectively.[2-6] PS1 and PS2 are highly homologous proteins (approx. 43-52 kDa) with eight transmembrane domains.

The presenilins are homologous to the *C. elegans* sel-12 protein involved in the *Notch* signaling pathway. PS1 and PS2 mRNA are ubiquitously expressed in peripheral tissues and in the CNS. In the brain, PS1 and PS2 are expressed primarily in neurons and localized mainly in cell bodies, axons and dendrites.[7,8] In non-neuronal cells, PS1 and PS2 are localized to the nuclear membrane, endoplasmic reticulum and Golgi.[8,9]

The biological functions of the presenilins are yet unknown, but they are thought to be involved in protein trafficking. Proteolytic processing of PS1 results in a 27 kDa N-terminal and a 18 kDa C-terminal fragment, which are thought to associate following cleavage.[10] At least thirty pathogenic mutations in the PS1 gene have been found in about half of the early-onset FAD. In contrast, only two pathogenic mutations have been found in PS2. PS1 mutations have been linked to the increased formation of βA4 peptide in AD[11] and defective intracellular trafficking of β-catenin after activation of the Wnt/β-catenin signal transduction pathway.[12] Hippocampal neurons from PS1 mutant knock-in mice exhibit increased vulnerability to β-amyloid toxicity, associated with increased superoxide production, mitochondrial dysfunction and caspase activation.[13]

Reagents

Anti-Presenilin 1 [31-46] is supplied as 50 µg purified rabbit polyclonal antibody in 1 ml of 0.05M sodium phosphate buffer containing 0.1% sodium azide and 0.2% gelatin.

Precautions and Disclaimer

Due to the sodium azide content, a material safety data sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazardous and safe handling practices.

Storage/Stability

Store at 4°C. Do not freeze.

Product Profile

The recommended working dilution is 1:2000 for use in immunoblotting studies of neuronal cell lysates using peroxidase-conjugated goat anti-rabbit IgG and chemiluminescent detection. For immunofluorescence on dissociated cultured rat hippocampal neurons, this antibody was diluted 1:25 in blocking buffer and incubated with the cells for 2 hours at 37°C.

Note: In order to obtain best results and assay sensitivities of different techniques and preparations, we recommend determining optimal working dilutions by titration test.

References

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