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ProductInformation

ANTI-PRESENILIN (PS1, S182)
Developed in Rabbit,
IgG Fraction of Antiserum

Product Number **P 7854**

Product Description

Anti-Presenilin 1 (PS1, S182) is developed in rabbit using a synthetic peptide (K-DYLVQPFMDQLAF-HQFYI) corresponding to the C-terminal of presenilin 1 of human origin (PS1, amino acids 450-467 with N-terminal added lysine) conjugated to KLH as immunogen. This sequence is identical in rat, mouse and frog PS1. Whole antiserum is fractionated and then further purified by ion-exchange chromatography to provide the IgG fraction of antiserum that is essentially free of other rabbit serum proteins.

Anti-Presenilin 1 (PS1, S182) specifically recognizes presenilin 1 by immunoblotting (48 kDa). The product is useful in immunohistochemistry for the detection of neurite plaques in Alzheimer's Disease (AD) brain. By immunoblotting, the product may also detect an approximately 18 kDa band representing a PS1 degradation product. Staining of PS1 by immunoblotting is specifically inhibited with PS1 immunizing peptide (PS1 human, amino acids 450-467 with N-terminally added lysine).

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 are familial (FAD) autosomal disorders, associated with mutations of several genes.[1,2] These include the amyloid precursor proteins (APPs), and the newly discovered genes presenilin 1 (PS1,S182) and presenilin 2 (PS2, STM2) located on chromosomes 14 and 1, respectively.[1-5] PS1 and PS2 are highly homologous proteins (approx. 43-52kD) 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. [6,7] In non-neuronal cells, PS1 and PS2 are localized to the nuclear membrane, endoplasmic reticulum and Golgi.[7,8] 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 kD N-terminal and a 18 kD C-terminal fragment, which are thought to associate following cleavage.[9] Mutations in the PS1 gene (>30 known pathogenic mutations) have been found in about half of the early-onset FAD, while only two pathogenic mutations have been found in PS2. PS1 mutations have been linked to the increased formation of βA4 peptide in AD[10] and defective intracellular trafficking of β-catenin after activation of the Wnt/β-catenin signal transduction pathway.[11] 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.[12]

Reagents

The product is supplied as IgG fraction in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide as a preservative.

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
For continuous use, store at 2-8 °C for up to one month. For extended storage freeze in working aliquots. Repeated freezing and thawing is not recommended. Storage in "frost-free" freezers is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilution samples should be discarded if not used within 12 hours.

Product Profile
A minimum working dilution of 1:10,000 is determined by immunoblotting using a whole extract of the rat pheochromocytoma PC12 cell line.

A minimum working dilution of 1:100 is determined by immunohistochemistry of methacarn-fixed, paraffin-embedded, sections of human Alzheimer's Disease (AD) brain.

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

References

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