



Product Information

Amyloid β -Protein Fragment 1-42

Product Number **A 9810**
Storage Temperature -0 °C

Product Description

CAS Number: 107761-42-2

Amyloid β -protein is neurotrophic and neurotoxic.¹ β -Amyloid peptides (amino acids 1-42 and 1-43) are the major constituents of senile plaques and neurofibrillary tangles that occur in the hippocampus, neocortex and amygdala of patients with Alzheimer's disease.² β -Amyloid peptide fragments of 39-43 residues in length are the major components of amyloid plaques in Alzheimer's disease and late Down's Syndrome. The gene for this peptide is located on human chromosome 21.³

The amino acid sequence is as follows: NH₂-Asp-Ala-Glu-Phe-Arg-His-Asp-Ser-Gly-Tyr-Glu-Val-His-His-Gln-Lys-Leu-Val-Phe-Phe-Ala-Glu-Asp-Val-Gly-Ser-Asn-Lys-Gly-Ala-Ile-Ile-Gly-Leu-Met-Val-Gly-Gly-Val-Val-Ile-Ala-COOH

This peptide adopts a mixture of β -sheet, α -helix, and random coil structures. In aqueous solution the β -sheet conformation is preferred.⁴ The rate of aggregation to the oligomeric β -sheet structure characteristic of β -amyloid plaques is dependent on pH and on peptide concentration. The hydrophobic carboxy terminus of the peptide is critical for plaque formation.^{4,5}

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

This product is soluble in ammonium hydroxide, pH > 9, or in DMSO at 0.4 to 4 M.³ Solutions can then be diluted into aqueous buffers such as 10 mM sodium phosphate for use.

Storage/Stability

This product should be stored desiccated in the freezer. This product should be allowed to warm to room temperature in a desiccator prior to opening the vial.

References

1. Yankner, B. A., et al., Neurotrophic and neurotoxic effects of amyloid beta protein: Reversal by tachykinin neuropeptides. *Science*, **250(4978)**, 279-282 (1990).
2. Roher, A. E., et al., Beta-Amyloid-(1-42) is a major component of cerebrovascular amyloid deposits: Implications for the pathology of Alzheimer's disease. *Proc. Natl. Acad. Sci. USA*, **90(22)**, 10836-10840 (1993).
3. Kang, J., et al., The precursor of Alzheimer's disease amyloid A4 protein resembles a cell-surface receptor. *Nature*, **325**, 733-736 (1987).
4. Barrow, C. J., et al., Solution conformations and aggregational properties of synthetic amyloid beta-peptides of Alzheimer's disease. Analysis of circular dichroism spectra. *J. Mol. Biol.*, **225**, 1075-1093 (1992).
5. Jarrett, J. T., et al., The carboxy terminus of the beta amyloid protein is critical for the seeding of amyloid formation: implications for the pathogenesis of Alzheimer's disease. *Biochemistry*, **32**, 4693-4697 (1993).

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