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ProductInformation

Amyloid b Protein Fragment 1-40

Product Number **A 1075**
Storage Temperature -0 °C

Product Description

Molecular Formula: $C_{194}H_{295}N_{53}O_{58}S$
Molecular Weight: 4,329.8 Da
CAS Number: 131438-79-4
Structure:
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-OH

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] Fragments of β-amyloid peptide, including residues 1-28, (Gln^{11})-1-28, and 12-28, have been shown to form fibrils *in vitro* that have the same structure and antigenicity as those found in Alzheimer's patients.[3,4,5] Soluble β-amyloid protein fragment 1-40 is secreted from cells and is a normal constituent of plasma and cerebrospinal fluid. It contributes to the amyloid plaque deposits characteristic of Alzheimer's disease.[4,5] *In vitro* and *in vivo* neurotoxicity has been reported for fragments 25-35, 1-28, and 1-40.[1,6,7,8]

Mutation of Glu^{22} to Gln^{22} and Ala^{21} to Gly^{21} on the 1-40 fragment have been found to increase β-amyloid aggregation.[9,10] Aggregation increases the toxicity of the fragment.[2,4]

Precautions and Disclaimer

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

Preparation Instructions

The lyophilized peptide can be dissolved initially in water (approximately 6 mg/ml). Do not dissolve the lyophilized peptide directly into saline or buffer as the peptide will not be soluble. For maximal biological activity, it should be further diluted with PBS that does not contain calcium to 1 mg/ml and incubated at 37 °C for 4 days before adding to culture media at the final desired concentration.

References

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4. Whitson, J. S., et al., Amyloid beta protein enhances the survival of hippocampal neurons *in vitro*. Science, **243(4897)**, 1488-1490 (1989).
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7. Emre, M., et al., The acute neurotoxicity and effects upon cholinergic axons of intracerebrally injected beta-amyloid in the rat brain. Neurobiol. Aging, **13(5)**, 553-559 (1992).

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9. Clements, A., et al., Aggregation and metal-binding properties of mutant forms of the amyloid A beta peptide of Alzheimer's disease. J. Neurochem., **66(2)**, 740-747 (1996).
10. Clements, A., et al., Effects of the mutations Glu22 to Gln and Ala21 to Gly on the aggregation of a synthetic fragment of the Alzheimer's amyloid beta/A4 peptide. Neurosci. Lett., **161(1)**, 17-20 1993).

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