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ProductInformation

α-Synuclein E46K human
recombinant, expressed in *E. coli*
N-terminal histidine tagged

Catalog Number**: S4447**
Storage Temperature: –20 °C

Synonyms: non A4 component of amyloid precursor; NACP (Non-Amyloid component of senile plaques precursor protein); Non-A-beta component of AD Amyloid; PARK1; PARK4; PD1

Product Description

α-Synuclein is a 140 amino acid protein (19-20 kDa, apparent molecular weight) encoded by a simple gene consisting of six exons on human chromosome 4.[1] The physiological role of α-synuclein is not clear. In the search for its function, it was found that α-synuclein induces polymerization of tubulin into microtubules.[2] In addition, α-synuclein was found to function in the modulation of dopamine transporter function, regulating the synaptic tone of dopamine.[3] Disruption of this function can ultimately lead to neurodegeneration of nerve terminals. α-Synuclein is highly abundant in presynaptic terminals and is a major component of Lewy bodies (LBs).[4] LBs are neuronal cytoplasmic inclusions that are found in diverse neurodegenerative disorders. The deposition of α-synuclein as fibrillary aggregates in neurons or glial cells is a hallmark lesion in a subset of neurodegenerative disorders. These disorders include Parkinson's disease (PD), dementia with Lewy bodies (filamentous inclusions), Lewy body variant of Alzheimer's disease, and multiple system atrophy.[2] Familial parkinsonism and dementia with cortical and subcortical Lewy bodies were found to be associated with a 14,460 Da mutated form of α-synuclein. This mutation is a 188G-A transition resulting in a Glu^{46}-to-Lys (E46K) substitution in the amino-terminal region of the protein. Among the familial mutations of α-synuclein in PD, E46K has the greatest potential to aggregate.[3, 4]

Reagent

Supplied as a white lyophilized solid.

Purity: ≥90% (SDS-PAGE).

Preparation Instructions

Reconstitute the product in 0.5 mL water (~1 mg/mL).

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

Shipped on dry ice. Recommended storage –20 °C. Stable for at least 2 years.

Store the reconstituted solution in working aliquots at –20 °C. Stable for at least 1 year.

References

1. Chen, X., et al., The human NACP/α-synuclein gene: chromosome assignment to 4q21.3-q22 and TaqI RFLP analysis. *Genomics*, **26**, 425-427 (1995).
2. Alim, M.A., et al., Demonstration of a role for α–synuclein as a functional microtubule-associated protein. *J. Alzheimers Dis.*, **6**, 435-442 (2004).
3. Pandey, N., et al., The α-synuclein mutation E46K promotes aggregation in cultured cells. *Exp. Neurol.*, **197**, 515-520 (2006).
4. Zarranz, J.J., et al., The new mutation, E46K, of α-synuclein causes Parkinson and Lewy body dementia. *Ann. Neurol.*, **55**, 164-173 (2004).

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