**Product Information**

**α-Synuclein A53T**  
human, recombinant, expressed in *E.coli*

Catalog Number **S 1071**  
Storage Temperature: −20 °C

**Product Description**  
α-Synuclein, also known as the non-amyloid component of plaques precursor protein or NACP, is a 140-amino-acid protein (apparent molecular weight 19-20 kDa) encoded by a simple gene consisting of six exons on human chromosome 4. 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. In addition, α-synuclein was found to function in the modulation of dopamine transporter function, regulating the synaptic tone of dopamine. 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). LBs are neuronal cytoplasmic inclusions that are found in diverse neurodegenerative disorders. The deposition of α-synuclein as fibrillar 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. Pathogenic point mutations in the α-synuclein gene, like the Ala30-Pro (A30P) and Ala53-Thr (A53T) missense mutations, are linked to familial Parkinson’s disease. However, most neurodegenerative disorders involving LBs are associated with abnormal accumulation of wild-type α-synuclein. Mice expressing A53T human α-synuclein, but not wild-type or the A30P variants, develop adult-onset neurodegenerative disease with a progressive motoric dysfunction leading to death. Deletion of the α-synuclein gene in mice results in functional deficits of the nigrostriatal dopamine system. Neuronal over-expression of wild-type human α-synuclein in mice resulted in progressive accumulation of α-synuclein in neurons, associated with loss of dopaminergic terminals in the basal ganglia and with motor impairment, suggesting that α-synuclein may play a role in Parkinson Disease and related conditions.

**Purity:** ≥90% (SDS-PAGE)

**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**  
The product is shipped on dry ice and stored at −20°C. Reconstitute with water to ~1 mg/ml. Store the reconstituted solution in working aliquots at −20°C. The reconstituted product is stable for at least 1 year.

**References:**