

Product Specification Sheet

Human Synuclein, Recombinant protein

Cat. # SYN-11-R-100

Human Alpha SYN Recombinant protein (140-aa, wild type)

SIZE: 100 ug

FORM: Soln

Lyophilized

Parkinson's disease (**PD**) is a common neurodegenerative disorder with a lifetime incidence of approximately 2 percent; the clinical manifestations of this neurodegenerative disorder include resting tremor, muscular rigidity, bradykinesia, and postural instability. A relatively specific pathological feature accompanying the neuronal degeneration is an intracytoplasmic inclusion body, known as the **Lewy body**. A mutation was identified in the α -**synuclein** gene, which codes for a presynaptic protein thought to be involved in neuronal plasticity, this mutation may cause a conformational change that renders α -synuclein more prone to self aggregation and deposition in Lewy bodies, which finally leads to oxidative stress and misfolding of α -synuclein.

Parkin gene, mutations in this gene are reported in early autosomal-recessive form of PD, however these mutations do not degenerate **Lewy bodies**. The Parkin gene product (**Parkin**) is involved in protein degradation as a ubiquitin protein ligase, the known substrates of Parkin include Pael-R (Parkin-associated endothelin receptor-like receptor), Ubiquitination of Pael-R by Parkin leads to its degradation in the proteasome, however failure to ubiquitinate it leads to death of neuron.

The synuclein exists in 3 isoform α -**syn** (**chrM 4q21**), a 140aa protein, implicated in pathogenesis of PD and related neurodegenerative disorders, it is mainly expressed in brain specifically in neuronal cell bodies and synapses. The 134 aa β -**syn** (**chrM 5q35**) is homologous to 14 kDa bovine phosphonuroprotein 14; SCNB has been shown to be highly expressed in the substantia nigra of the brain. Recently a new isoform termed γ -**synuclein** (**SNCG**) or breast cancer gene 1 (**BCG1**) has been cloned (human 127 aa (**chrM 10q23**), rat/mouse 123 aa). Higher levels of expression of SNCG has been reported in advanced breast carcinomas. All three synuclein show ~40% identity.

Source and Storage

Human Alpha synuclein (140-aa) was expressed E. coli and purified (>95% by SDS-PAGE, mol. wt 14.5kD). It is provided in 10mM Tris, pH 7.4 in liquid (100 ug/100 ul) or lyophilized. The lyophilized products should be reconstituted (Add 100 ml water or a desired buffer at a given volume and lightly vortex and mix for 15 min at room temp). It can then be used or aliquoted for storage in small aliquots at -70oC or below.

General References:

Kim. J et al (1997) Mo. Cells 7, 78; Paik, S.R et al (1997) Arch Biochem. Biophys, 344, 325, Jakes. R et al. 1994, FEBS Lett. 345, 27.

Citation of ADI's Antibodies for Synuclein Alpha:

Sudo S et al, 2002, Acta Neuropathologica DOI 10.1007, Motor neuron disease with dementia combined with degeneration of striatonigral and pallidolulsian systems

*This product is for *in vitro* research use only.

Related material available from ADI

Anti-Presenilins 1, 2; Synuclein alpha and beta, APP, Amyloids, ERAB, Dopamine, dopamine transporter, and Dopamine receptors, Serotonin transporter, etc.

SYN11-R-100

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India Contact:

Life Technologies (India) Pvt. Ltd.

306, Aggarwal City Mall, Opposite M2K Pitampura, Delhi – 110034 (INDIA). Ph: +91-11-42208000, 42208111, 42208222, Mobile: +91-9810521400, Fax: +91-11-42208444

Email: customerservice@lifetechindia.com Website: www.lifetechindia.com