Rabbit (polyclonal) Anti-α-Synuclein

PRODUCT ANALYSIS SHEET

Catalog Number:	AHB0401
Lot Number:	See product label
Quantity:	0.1 mL
Form of Antibody:	Purified immunoglobulin in phosphate buffered saline.
Preservation:	10 mM sodium azide (Caution: sodium azide is a poisonous and hazardous substance. Handle with care and dispose of properly.)
Purification:	Purified by caprylic acid and ammonium sulfate precipitation.
Immunogen:	A synthetic peptide, corresponding to amino acid residues 117-131 (PVDPDNEAVEMPSEE) of human α-synuclein, conjugated to keyhole limpet hemocyanin via an N-terminal cysteine residue.
Specificity:	α-Synuclein (Genbank accession number 2136215; known alternatively as NACP, PARK1, and PD1 [Parkinson disease, familial 1]) is a member of the synuclein family of proteins that also includes β-synuclein and γ-synuclein. The gene for human α-synuclein maps to chromosome 4 (cytogenetic band 4q21). Alternative splicing produces at least three variants. The major splice variant is a protein with M_r=14.5 kDa, comprised of 140 amino acid residues. α-Synuclein's N-terminus contains 11 positively charged amino acid repeat sequences that have the potential to form amphipathic alpha helices. α-Synuclein's central region is hydrophobic, while its C-terminal region is highly acidic and contains several □mygdal residues. In physiological solutions, α-synuclein is found as three major forms: (1) soluble, natively unfolded monomers; (2) structured, beta pleated sheet-containing protofibrils; and (3) amyloid fibrils. Residues 71 and 81 of α-synuclein are essential for filament assembly. α-Synuclein undergoes several posttranslational modifications, including phosphorylation at serine 87, serine 129, and tyrosine 125, O-glycosylation, and nitrosylation. α-Synuclein is highly expressed in several areas of the brain, including the substantia nigra, thalamus, hippocampus, □mygdale, corpus callosum, and caudate nucleus, appearing both in neurons where it concentrates at synapses, and in glial cells. Most other tissues express α-synuclein at relatively low levels. Several neurodegenerative diseases are associated with the accumulation of α-synuclein, including: (1) Parkinson's Disease, (2) Dementia with Lewy Bodies (DLB), (3) Lewy Body Variant of Alzheimer's disease (LBVAD), (4) Multiple Systems Atrophy (MSA), and (5) Neurodegeneration with Brain Iron Accumulation type-1 (NBIA-1). α-Synuclein also appears as a minor protein within the neurofibrillary tangles of Alzheimer's disease.
Species Reactivity:	Human. Slight reactivity observed with α-synuclein from rat brain. Does not react with mouse. Other species have not been tested.

This product is for research use only. Not for use in diagnostic procedures.

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PI AHB0401 (Rev 10/08) DCC-08-1089

Applications:	This antibody is suitable for use in Western blotting and immunohistochemistry with formalin-fixed, paraffin-embedded tissue sections.
Suggested Working Dilutions:	In Western blotting, a 1:1,000 to 1:20,000 dilution is recommended. The optimal concentration should be determined for each specific application.
Recommended Positive Control:	Human brain temporal cortex exhibiting Dementia with Lewy Body pathology.
Storage:	Store at −20°C. Upon initial thawing, apportion into working aliquots and store at −20°C. Avoid repeated freeze-thaw cycles to prevent denaturing the antibody.
Expiration Date:	Expires one year from date of receipt when stored as instructed.
References:	Ancolio, K. et al. (2000) α-Synuclein and the Parkinson's disease-related mutant Ala53Thr-alpha-synuclein do not undergo protreasomal degradation in HEK293 and neuronal cell. Neurosci. Lett. 285:79-82. Bruening, W., et al. (2000) Synucleins are expressed in the majority of breast and ovarian carcinomas and in preneoplastic lesions of the ovary. Cancer 88(9):2154-2163. Dawson, T.M. and V.L. Dawson (2003) Molecular pathways of neurodegeneration in Parkinson's disease. Science 302:819-822. Dev K.K., et al. (2003) Part II: alpha-synuclein and its molecular pathophysiological role in neurodegenerative disease. Neuropharmacology 45(1):14-44. Glasson, B.I. and V. M.-Y. Lee (2003) Are ubiquitination pathways central to Parkinson's disease? Cell 114:1-8. Gorner, K., et al. (2003) Differential effects of Parkinson's disease-associated mutations on stability and folding of DJ-1. J. Biol. Chem. 279:6943-6951. Kaplan, B., et al. (2003) Alpha-synuclein: its biological function and role in neurodegenerative diseases. J. Mol. Neurosci. 20(2):83-92. Lim K.L., et al. (2003) The cast of molecular characters in Parkinson's disease: felons, conspirators, and suspects. Ann. N.Y. Acad. Sci. 991:80-92. McLean, P.J., et al. (2000) Membrane association and protein conformation of α-synuclein in intact neurons. J. Biol. Chem. 275 (12):8812-8816. Okochi, M., et al. (2000) Constitutive phosphorylation of the Parkinson's disease associated α-synuclein. J. Biol. Chem. 275(1):390-397. Richfield, E.K., et al. (2002) Behavioral and neurochemical effects of wild-type and mutated human α-synuclein in transgenic mice. Exp. Neurol. 175:35-48. Singleton, A.B., et al. (2003) α-Synuclein locus triplication causes Parkinson's disease. Science 308:841. Trojanowski, J.Q. and V.M. Lee (2003) Parkinson's disease and related alpha-synucleinopathies are brain amyloidoses. Ann. N. Y. Acad. Sci. 991:107-110.

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