Purified anti-α-Synuclein Phospho (Ser129)

Catalog # / Size: 825701 / 100 µl
Previously: Covance Catalog# MMS-5091
Clone: P-syn/81A
Isotype: Mouse IgG2a
Immunogen: This monoclonal antibody was raised against a synthetic peptide corresponding to amino acids 124 - 134 of α-synuclein, phosphorylated at Serine 129, and conjugated to KLH via a C-terminal Cysteine.
Reactivity: Human, Mouse, Rat (by sequence identity)
Preparation: The antibody was purified by affinity chromatography.
Formulation: Phosphate-buffered solution with 0.1% azide.
Concentration: 1 mg/ml
Storage: Store at 2-8°C. Do not freeze.

Applications:
Applications: IHC - Quality tested
IF - Reported in the literature
Recommended Usage: Each lot of this antibody is quality control tested by immunohistochemical staining.

The optimal working dilution should be determined for each specific assay condition.
• IHC: 1:500 - 1:1000
Tissue: Formalin-fixed Paraffin-embedded sections
Pretreatment: 70% Formalic Acid
Primary Incubation: 24 hours at 4°C

Application Notes: This antibody is effective in immunohistochemistry (IHC) and immunofluorescence (IF)1,2.

81A is a mAb that is specific to alpha synuclein that has been phosphorylated on serine 129.

IHC Positive Control: Diseased Human Brain (PD)

Application References:

Description: Alpha-synuclein is expressed principally in the central nervous system (brain) but is also expressed in low concentrations in a variety of tissues except liver. It is predominantly expressed in the neocortex, hippocampus, substantia nigra, thalamus, and cerebellum of the CNS. It is primarily a neuronal protein, but can also be found in the neuroglial cells. It is concentrated in presynaptic nerve terminals of neurons, as well as having reported nuclear and mitochondrial localization. Alpha-synuclein interacts with plasma membrane phospholipids. Alpha-synuclein in solution is considered to be an intrinsically disordered protein and thus lacks a stable secondary or tertiary structure. However, data suggests the presence of partial alpha helical as well as beta sheet structures as well as mostly structured tetrameric states in solution, the equilibrium of which may be altered by binding partners.

The human alpha-synuclein protein is made of 140 amino acids, encoded by the SNCA gene. The primary structure is divided in three distinct domains: (1-60) - An amphipathic N-terminal region dominated by four 11-residue repeats including the consensus sequence KTKEGV. This sequence has a structural alpha helix propensity similar to apolipoproteins-binding domains. (61-95) - a central hydrophobic region which includes the non-amyloid-β component (NAC) region, involved in protein aggregation. (96-140) - a highly acidic and proline-rich region. At least three isoforms of synuclein are produced through alternative splicing. The most common form of the protein, is the full 140 amino acid-long transcript. Other isoforms are alpha-synuclein-126, lacking residues 41-54; and alpha-synuclein-112, which lacks residues 103-130. a-synuclein may be involved in the regulation of dopamine release and transport and also may function to induce fibrillization of microtubule-associated protein tau. alpha-synuclein functions as a molecular chaperone in the formation of SNARE complexes. In particular, it can bind to phospholipids of the plasma membrane and to synaptobrevin-2 via its C-terminus domain to influence synaptic activity. alpha-synuclein is essential for normal development of the cognitive functions and that it significantly interacts with tubulin. It also reduces neuronal responsiveness to various apoptotic stimuli, leading to decreased caspase-3 activation.

Alpha-synuclein fibrils are major substituent of the intracellular Lewy bodies seen in Parkinson's disease.

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Phosphorylation by CK1 appears to occur on residues distinct from the residue phosphorylated by other kinases. Phosphorylation of Ser-129 is selective and extensive in synucleinopathy lesions. In vitro, phosphorylation at Ser-129 promoted insoluble fibril formation. Phosphorylated on Tyr-125 by a PTK2B-dependent pathway upon osmotic stress.

Other Names: Synuclein alpha-140, non-A4 component of amyloid, alpha-synuclein, isoform NACP140, non-A beta component of AD amyloid Parkinson disease (autosomal dominant, Lewy body)

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<th>Application</th>
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<td>Purified anti-α-Synuclein</td>
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<td>Purified anti-α-Synuclein, 103-108</td>
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