abcam

Product datasheet

Recombinant Human Alpha-synuclein (mutated A53T) protein aggregate Type 1 (Active) ab256150

4 Images

Description

Product name	Recombinant Human Alpha-synuclein (mutated A53T) protein aggregate Type 1 (Active)
Biological activity	100 µM **ab256149** seeded with 10 µM ab256150 in 25 µM Thioflavin T (PBS pH 7.4, 100 µL reaction volume) generated a fluorescence intensity of 28,000 Relative Fluorescence Units after incubation at 37°C with shaking at 600 rpm for 56 hours. Fluorescence was measured by excitation at 450 nm and emission at 485 nm on a Molecular Devices Gemini XPS microplate reader.
Purity	> 95 % Ion Exchange Chromatography. Certified >95% pure using SDS-PAGE analysis.
Endotoxin level	< 5.000 Eu/ml
Expression system	Escherichia coli
Accession	**P37840**
Protein length	Full length protein
Animal free	No
Nature	Recombinant
Species	Human
Sequence	MDVFMKGLSKAKEGVVAAAEKTKQGVAEAAGKTKEGVL YVGSKTKEGVVH GVTTVAEKTKEQVTNVGGAVVTGVTAVAQKTVEGAGSIA AATGFVKKDQL GKNEEGAPQEGILEDMPVDPDNEAYEMPSEEGYQDYEP EA
Predicted molecular weight	14 kDa
Amino acids	1 to 140
Modifications	mutated A53T
Additional sequence information	NP_000336.1

Specifications

Our **Abpromise guarantee** covers the use of **ab256150** in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

Applications	Functional Studies Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) Electron Microscopy
Form	Liquid
Additional notes	Preformed type I fibrils. For best results, sonicate immediately prior to use.

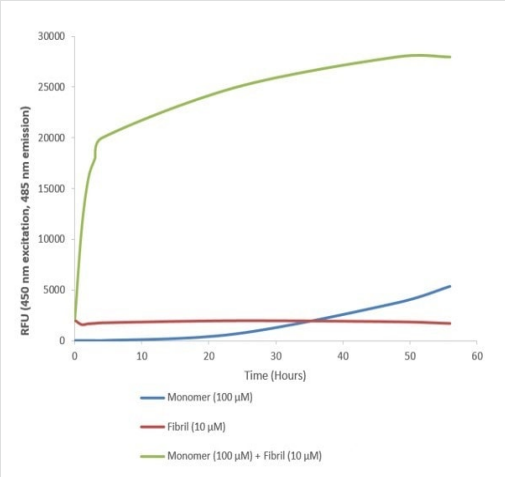
Preparation and Storage

Stability and Storage	Shipped on Dry Ice. Store at -80°C. pH: 7.40 Constituent: PBS This product is an active protein and may elicit a biological response in vivo, handle with caution.

General Info

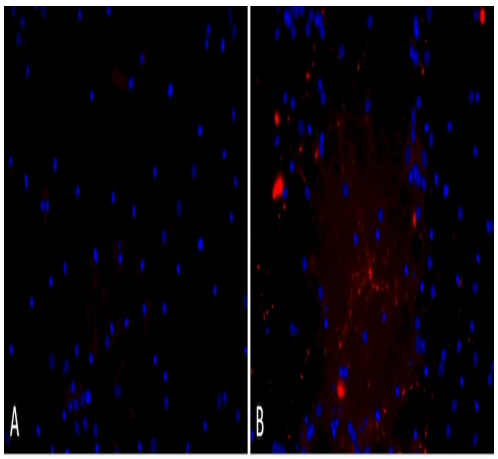
Function	May be involved in the regulation of dopamine release and transport. Induces fibrillization of microtubule-associated protein tau. Reduces neuronal responsiveness to various apoptotic stimuli, leading to a decreased caspase-3 activation.
Tissue specificity	Expressed principally in brain but is also expressed in low concentrations in all tissues examined except in liver. Concentrated in presynaptic nerve terminals.
Involvement in disease	Genetic alterations of SNCA resulting in aberrant polymerization into fibrils, are associated with several neurodegenerative diseases (synucleinopathies). SNCA fibrillar aggregates represent the major non A-beta component of Alzheimer disease amyloid plaque, and a major component of Lewy body inclusions. They are also found within Lewy body (LB)-like intraneuronal inclusions, glial inclusions and axonal spheroids in neurodegeneration with brain iron accumulation type 1. Parkinson disease 1 Parkinson disease 4 Dementia Lewy body
Sequence similarities	Belongs to the synuclein family.
Domain	The 'non A-beta component of Alzheimer disease amyloid plaque' domain (NAC domain) is involved in fibrils formation. The middle hydrophobic region forms the core of the filaments. The C-terminus may regulate aggregation and determine the diameter of the filaments.
Post-translational modifications	Phosphorylated, predominantly on serine residues. 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. Hallmark lesions of neurodegenerative synucleinopathies contain alpha-synuclein that is modified by nitration of tyrosine residues and possibly by dityrosine cross-linking to generated stable oligomers. Ubiquitinated. The predominant conjugate is the diubiquitinated form. Acetylation at Met-1 seems to be important for proper folding and native oligomeric structure.
Cellular localization	Cytoplasm, cytosol. Membrane. Nucleus. Cell junction, synapse. Secreted. Membrane-bound in dopaminergic neurons.

Images



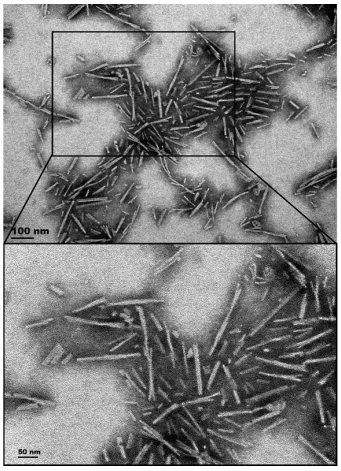
Functional Studies - Recombinant Human Alpha-synuclein (mutated A53T) protein aggregate (Active) (ab256150)

Thioflavin T is a fluorescent dye that binds to beta sheet-rich structures such as those in alpha synuclein fibrils. Upon binding, the emission spectrum of the dye experiences a red-shift and increased fluorescence intensity. Thioflavin T emission curves show a limited increase in fluorescence (correlated to alpha synuclein aggregation) over time in A53T alpha synuclein monomers (**ab256149**). A much greater increase in fluorescence is seen when 100 µM monomer (**ab256149**) is combined with 10 µM of fibrils (ab256150) as the fibrils seed the formation of new fibrils from the pool of active monomers. Thioflavin T ex = 450 nm, em = 485 nm.



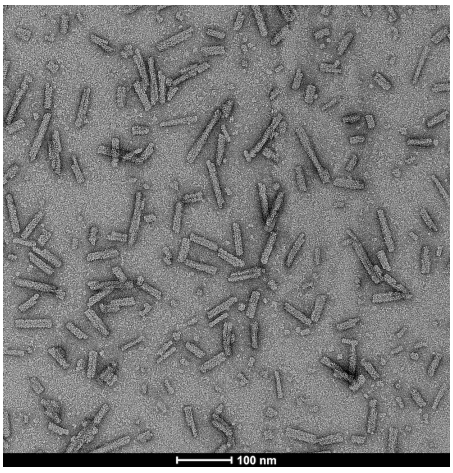
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Recombinant Human Alpha-synuclein (mutated A53T) protein aggregate (Active) (ab256150)

Immunohistochemical analysis of primary rat hippocampal neurons showing lewy body inclusion formation when treated with ab256150 (B) but not when treated with a media control (A). Tissue: Primary hippocampal neurons. Species: Sprague-Dawley rat. Primary Antibody: Rabbit anti-pSer129 Antibody. Fibrils were diluted to 1 ug/uL in neuronal media consisting of B27, Glutamax, penicillin/strip, and neurobasalA and sonicated for 1 hour in a water bath. The sonicated stock was then used to achieve the final concentration of 1 ug/mL in the wells.



TEM of ab256150.

Electron Microscopy - Recombinant Human Alpha-synuclein (mutated A53T) protein aggregate (Active) (ab256150)



TEM of ab256150.

Electron Microscopy - Recombinant Human Alpha-synuclein (mutated A53T) protein aggregate Type 1 (Active) (ab256150)

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