

# Alpha Synuclein Protein

Active Mouse Recombinant Alpha  
Synuclein Pre-Formed Fibrils (Type 1)  
Catalog No. SPR-324



Discovery through partnership | Excellence through  
quality

## Product Name

Alpha Synuclein Protein

## Description

Active Mouse Recombinant Alpha Synuclein Pre-Formed Fibrils (Type 1)

## Applications

WB, SDS-PAGE, In vivo assay, In vitro assay

## Concentration

Lot/batch specific. See included datasheet.

## Conjugates

No tag

## Nature

Recombinant

## Species

Mouse

## Expression System

E. coli

## Amino Acid Sequence

MDVFMKGLSK AKEGVVAAA E KTKQGVAEAA GKTKEGVLYV GSKTKEGVVH GVTTVAEKT E EQVTNV  
GGAV VTGVTAVAQK TVEGAGNIAA ATGFVKKDQM GKGEEGYPQE GILEDMPVDP GSEAYEMPSE E  
GYQDYEPEA

## Purity

>95%

## Protein Length

## Full Length

---

### Biological Activity

---

Endogenous alpha-synuclein phosphorylation. 100  $\mu$ M alpha synuclein protein monomer (SPR-323) seeded with 10 nM alpha synuclein protein PFF (SPR-324) in 25  $\mu$ M Thioflavin T (PBS pH 7.4, 100  $\mu$ l reaction volume) generated an increased fluorescence intensity after incubation at 37° C with shaking at 600 rpm for 24 hours. Fluorescence was measured by excitation at 450 nm and emission at 485 nm on a Molecular Devices Gemini XPS microplate reader.

---

### Field Of Use

---

Not for use in humans. Not for use in diagnostics or therapeutics. For in vitro research use only.

## Properties

---

### Storage Buffer

PBS

---

### Storage Temperature

-80°C

---

### Shipping Temperature

Dry Ice. Shipping note: Product will be shipped separately from other products purchased in the same order.

---

### Purification

Ion-exchange Purified

---

### Specificity

~14.46 kDa

---

### Cite This Product

Mouse Recombinant Alpha Synuclein Protein (StressMarq Biosciences Inc., Victoria BC CANADA, Catalog # SPR-324)

---

### Certificate Of Analysis

Certified >95% pure using SDS-PAGE analysis.

---

## Biological Description

---

## Alternative Names

Alpha synuclein PFFs, Alpha synuclein aggregates, Alpha synuclein protein aggregates, Active Alpha synuclein aggregates, Alpha-synuclein protein, Non-A beta component of AD amyloid protein, Non-A4 component of amyloid precursor protein, NACP protein, SNCA protein, NACP protein, PARK1 protein, Alpha synuclein monomers, SYN protein, Parkinson disease familial 1 Protein

## Research Areas

Alzheimer's Disease, Neurodegeneration, Neuroscience, Parkinson's Disease

## Cellular Localization

Cytoplasm, Membrane, Nucleus

## Accession Number

NP\_001035916.1

## Gene ID

20617

## Swiss Prot

O55042

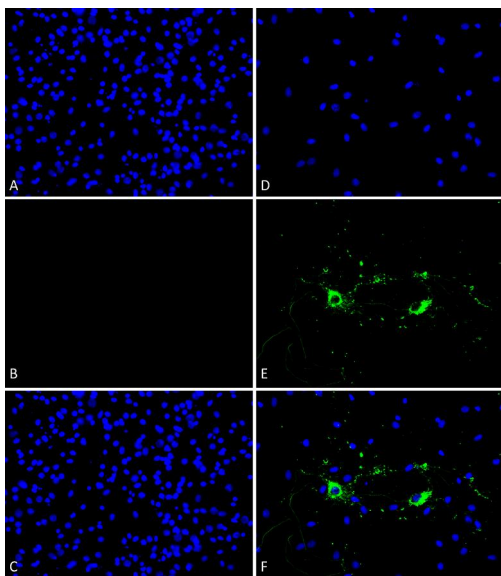
## Scientific Background

Alpha-Synuclein (SNCA) is expressed predominantly in the brain, where it is concentrated in presynaptic nerve terminals (1). Alpha-synuclein is highly expressed in the mitochondria of the olfactory bulb, hippocampus, striatum and thalamus (2). Functionally, it has been shown to significantly interact with tubulin (3), and may serve as a potential microtubule-associated protein. It has also been found to be essential for normal development of the cognitive functions; inactivation may lead to impaired spatial learning and working memory (4). SNCA fibrillar aggregates represent the major non A-beta component of Alzheimers disease amyloid plaque, and a major component of Lewy body inclusions, and Parkinson's disease. Parkinson's disease (PD) is a common neurodegenerative disorder characterized by the progressive accumulation in selected neurons of protein inclusions containing alpha-synuclein and ubiquitin (5, 6).

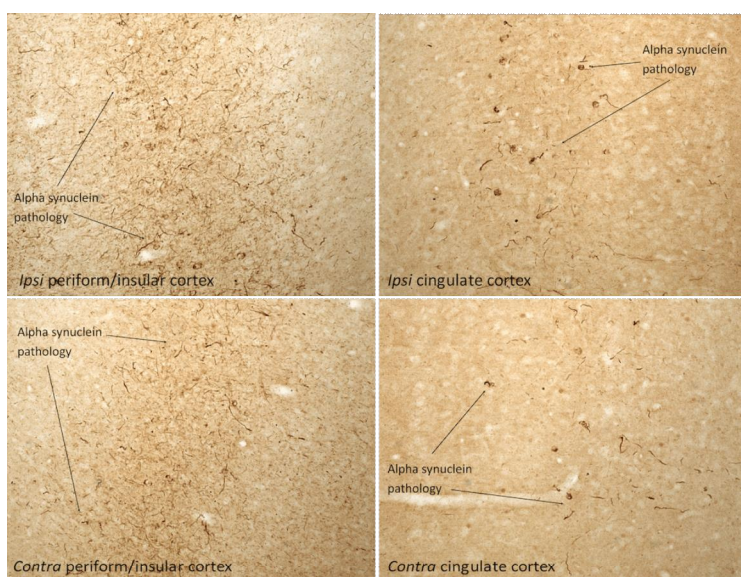
## References

1. "Genetics Home Reference: SNCA". US National Library of Medicine. (2013).
2. Zhang L., et al. (2008) Brain Res. 1244: 40-52.
3. Alim M.A., et al. (2002) J Biol Chem. 277(3): 2112-2117.
4. Kokhan V.S., Afanasyeva M.A., Van'kin G. (2012) Behav. Brain. Res. 231(1): 226-230.
5. Spillantini M.G., et al. (1997) Nature. 388(6645): 839-840.
6. Mezey E., et al. (1998) Nat Med. 4(7): 755-757.

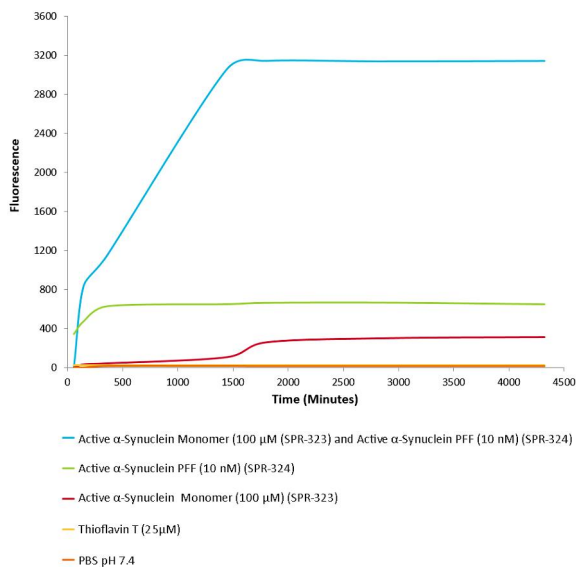
## Product Images



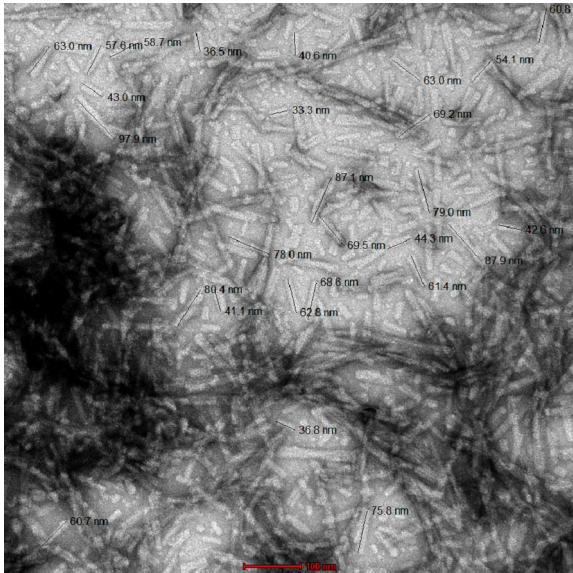
Primary rat hippocampal neurons (DIV16) show lewy body inclusion formation and loss of cells when treated with active mouse Alpha Synuclein Protein Preformed Fibrils (SPR-324) at 4  $\mu\text{g/ml}$  (D-F) on DVI2, but not when treated with a control (A-C). Tissue: Primary hippocampal neurons. Species: Sprague-Dawley rat. Fixation: 3% formaldehyde from PFA for 20 min. Blocker: 1:1 PBS:LiCOR Odyssey Block (LiCOR, 927-40010) and 30 mL/mL of 0.1% triton-X 100 for 30 min. Primary Antibody: Mouse anti-pSer129 Antibody (1:1000) and Rabbit anti-pSer129 (1:800) for 24 hours at 4°C. Secondary Antibody: ATTO 546 Donkey Anti-Mouse (1:700) and ATTO 488 Donkey Anti-Rabbit (1:700) for 1 hour at RT (composite green). Counterstain: Hoechst (blue) nuclear stain at 1:3000 for 1 hour at RT. Localization: Lewy body inclusions. Magnification: 20x.



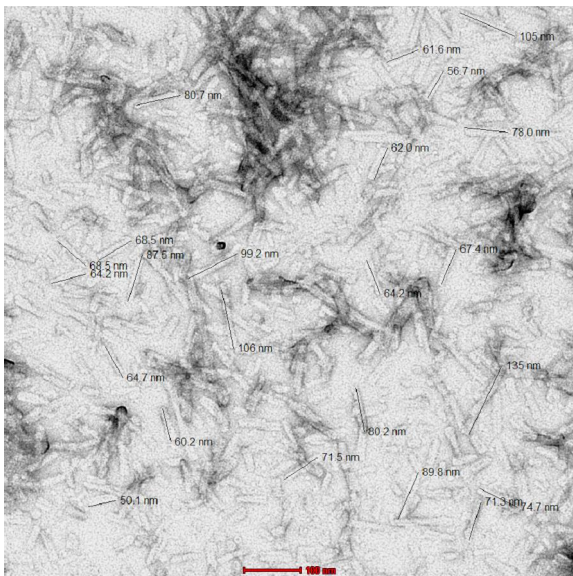
Immunohistochemistry analysis of rat brain injected with active mouse alpha synuclein PFFs (SPR-324). Species: Female Sprague-Dawley Rat. Rat was injected with 2 $\mu$ L active mouse alpha synuclein PFFs (SPR-324) in each of 2 injection sites: AP+1.6, ML+2.4, DV-4.2 from skull; and AP-1.4, ML+0.2, DV-2.8 from skull. 30 days post-injection. Fixation: Saline perfusion followed by 4% PFA fixation for 48 hrs. Secondary Antibody: Biotin-SP Donkey Anti-Rabbit IgG (H+L) at 1:500 for 2 hours in cold room with shaking. ABC signal amplification, DAB staining. Magnification: 20X. Alpha synuclein pathology is seen in the periform/insular cortex and the cingulate cortex on both the same (ipsi) and opposite (contra) sides as the injection sites.



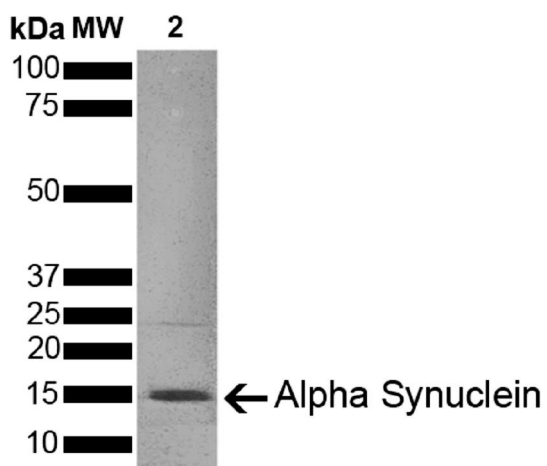
Active alpha synuclein preformed fibrils (SPR-324) seed the formation of new alpha synuclein fibrils from the pool of active alpha synuclein monomers (SPR-323). Thioflavin T is a fluorescent dye that binds to beta sheet-rich structures, such as those in alpha synuclein fibrils. Upon binding, the emission spectrum of the dye experiences a red-shift, and increased fluorescence intensity. Thioflavin T emission curves show increased fluorescence (correlated to alpha synuclein protein aggregation) over time when 10 nM of active alpha synuclein preformed fibrils (SPR-324) is combined with 100  $\mu$ M of active alpha synuclein monomer (SPR-323), as compared to active alpha synuclein preformed fibrils (SPR-324) and active alpha Synuclein monomer (SPR-323) alone. Thioflavin T  $\lambda_{ex}$  = 450 nm,  $\lambda_{em}$  = 485 nm.



TEM of active mouse alpha synuclein preformed fibrils (SPR-324). Image was taken at 100kx magnification.



TEM of active mouse alpha synuclein preformed fibrils (SPR-324). Fibrils were sonicated and image was taken at 100kx magnification.



SDS-PAGE of ~14 kDa Active Mouse Recombinant Alpha Synuclein Protein Preformed Fibrils (SPR-324). Lane 1: Molecular Weight Ladder (MW). Lane 2: Active Alpha Synuclein Protein Preformed Fibrils (2  $\mu$ g) (SPR-324).

## Product Citations

---

Currently there are no citations for this product.

## Reviews

---

There are no reviews yet.