Amyloid Beta Protein

Human Amyloid Beta Pyroglutamate 3-42 Pre-formed Fibrils
Catalog No. SPR-492

Product Name

Amyloid Beta Protein

Description

Human Amyloid Beta Pyroglutamate 3-42 Pre-formed Fibrils

Applications

WB, In vivo Assay, In vitro Assay

Concentration

Lot/batch specific. See included datasheet.

Conjugates

No tag

Nature

Synthetic (TFA preparation, HFIP treated precursor)

Species

Human

Expression System

N/A

Amino Acid Sequence

pyroEFRHDSGYEVHHQKLVFFAEDVGSNKGAIIGLMVGGVVIA

Purity

>95%

Other Resources

Protein Length

40 amino acids

Field Of Use

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

Properties

Storage Buffer

10mM HCl with 2% DMSO

Storage Temperature

-80ºC

Shipping Temperature

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

Purification

N/A

Cite This Product

Human Amyloid Beta pyroglutamate 3-42 Pre-formed Fibrils (StressMarq Biosciences Inc., Victoria BC CANADA, Catalog # SPR-492)

Certificate Of Analysis

Protein certified >95% pure by mass spec and HPLC

Biological Description

Alternative Names

pyro abeta, pyro amyloid beta, Abeta, Amyloid beta peptide, Beta amyloid peptide, amyloid beta precursor protein peptide, pyroglutamate amyloid beta, AβPE3, APP

Research Areas

Alzheimer's Disease, Amyloid, Neurodegeneration, Neuroscience

Cellular Localization

Cell membrane, Intracellular Vesicles

Gene ID

351

Swiss Prot

P05067

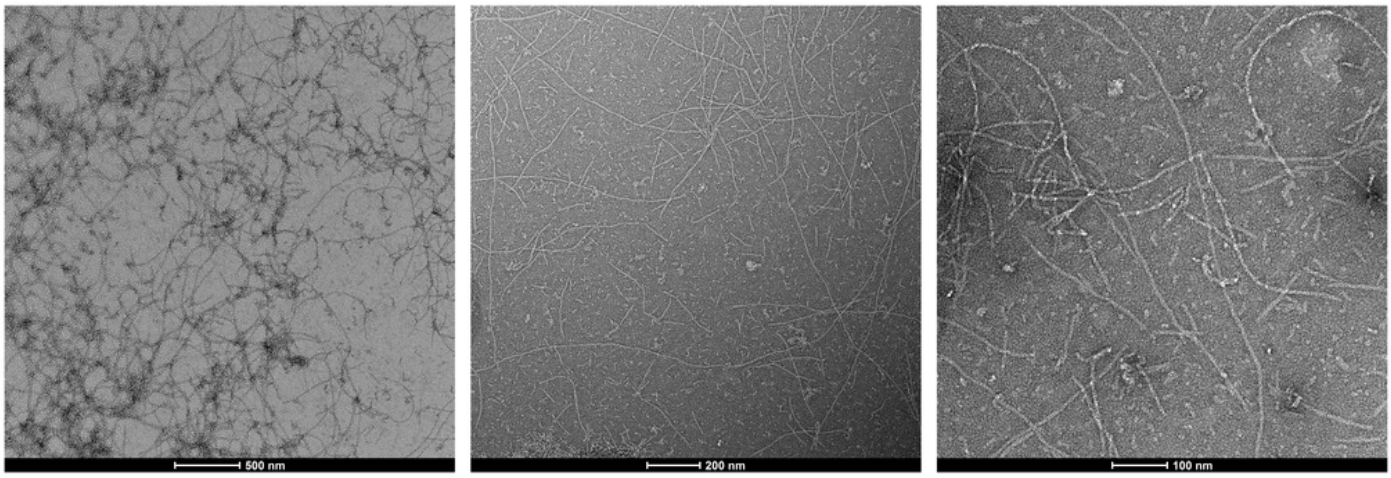
Scientific Background

Our Amyloid Beta pyroglutamate 3-42 (pyro Aβ) Pre-formed Fibrils are generated from Amyloid Beta Peptide 3-42 pre-treated with 1,1,1,3,3,3-Hexafluoro-2-propanol (HFIP) using a previously published method (1,2). Our pyro Aβ3-42 fibrils present as primarily long strands when observed under TEM and AFM, and have a unique high molecular weight signal on a Western Blot with an anti-amyloid beta antibody. Amyloid beta peptide (Aβ) is generated by protease cleavage of amyloid precursor protein (APP), which aggregates into oligomers, protofibrils, fibrils and ultimately plaques. The accumulation of Aβ plaques in the brain is considered a hallmark of Alzheimer's disease (AD), and most of the drugs tested for AD in the past 20 years have targeted amyloid beta accumulation (3). Pyroglutamate Aβ 3-42 is an N-terminally truncated peptide species that is modified by glutaminyl cyclase and has been reported to compromise 15-45% of total amyloid beta deposits in brains of AD patients (4,5). Pyroglutamate Aβ 3-42 exhibits higher aggregation propensity and neurotoxicity compared with full-length Aβ 1-42 (6,7) and is an active target in the next generation AD therapeutic development (8).

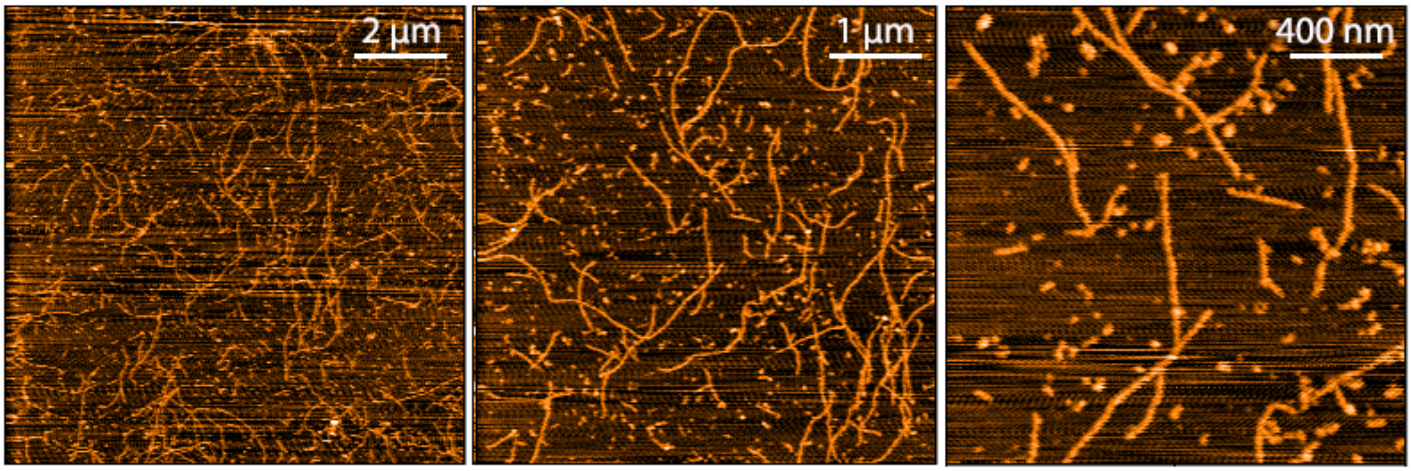
References

1. Stine et al. 2003. JBC. 278(13):11612-22; doi: 10.1074/jbc.M210207200
2. Chromy et al. 2003. Biochemistry. 42:12749-12760; doi: 10.1021/bi030029q
3. Panza et al. 2019. Nat Rev Neurol. 15:73-88; https://doi.org/10.1038/s41582-018-0116-6
4. Valverde et al. 2021. JBC. 297:100963; https://doi.org/10.1016/j.jbc.2021.100963
5. Schilling et al. 2008. Nat Med. 14:1106-11; DOI: 10.1038/nm.1872
6. Hartlage-Rubsamen et al. 2011. Acta Neuropathol. 121:705-19; 10.1007/s00401-011-0806-2
7. Xu, Wang and Wu. 2021. J Med Chem. 64:6549–65; DOI: 10.1021/acs.jmedchem.1c00325
8. Bayer. 2021. Nat Mol Psych. 27:1880-1885; https://doi.org/10.1038/s41380-021-01409-2

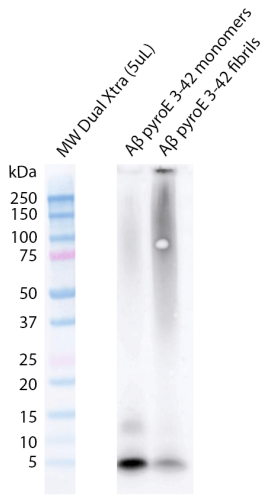
Product Images



TEM of amyloid beta pyroglutamate 3-42 fibrils (catalog# SPR-492). Negative stain transmission electron microscopy images acquired at 80 Kv on carbon coated 400 mesh copper grids using phosphotungstic acid and uranyl acetate stain. Scale bar = 500, 200 and 100 nm (left to right). Method: Samples were prepared for examination in the transmission electron microscope using the 'direct application method' (Doane and Anderson 1987).



AFM of amyloid beta pyroglutamate 3-42 fibrils (catalog# SPR-492). Atomic force microscopy analysis of 1.0 mg/mL samples diluted to 0.1 mg/mL in 2% DMSO + 10 mM HCl, mounted on freshly cleaved mica, washed, dried and analyzed with tapping mode. Representative images are 10 x 10 µm x-y (left) and 5 x 5 µm x-y (middle) and 2 x 2 µm x-y (right), all with a z-range of 6 nm.



Western blot of amyloid beta pyroglutamate 3-42 fibrils (catalog# SPR-492) using anti-amyloid beta 6E10 antibody. Amyloid beta pyroglutamate 3-42 at 160 pmol was run on 4-12% Bis-Tris SDS-PAGE, transferred to nitrocellulose in the presence of 0.02% v/v Tween-20, and blotted with 1:1000 mouse 6E10 primary antibody (Biolegend). Compared to monomers re-suspended in 2% DMSO and immediately run on SDS-PAGE, fibrils show monomer depletion, a signal from 37 kDa upwards and a distinct signal in the stacking gel. MW ladder = Precision Plus Dual Xtra prestained standards.

Product Citations (0)

Currently there are no citations for this product.

Reviews

There are no reviews yet.