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Lieferung & Zahlungsart

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Zuschläge

- Mindermengenzuschlag
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- Gefahrgutzuschlag
- Expressversand

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Tau and Alpha Synuclein Co-Polymer Fibrils



Discovery through Partnership | Excellence through Quality

Human Recombinant Tau-352 (fetal 0N3R) and Human Recombinant Alpha Synuclein Co-Polymer Fibrils
Catalog No. SPR-494

Product Name

Tau and Alpha Synuclein Co-Polymer Fibrils

Description

Human Recombinant Tau-352 (fetal 0N3R) and Human Recombinant Alpha Synuclein Co-Polymer Fibrils

Applications

WB, SDS PAGE, In vitro assay

Concentration

Total Protein Concentration: 2mg/mL (1mg/ml of tau and 1mg/ml of aSyn)

Conjugates

No tag

Nature

Recombinant

Species

Human

Expression System

E. coli

Amino Acid Sequence

Tau:
MAEPRQEFVEMEDHAGTYGLGDRKDQGGYTMHQDQEGDTDAGLKAEAEAGIGDTPSLEDEAAGHVTQARMVSKSKDGT
GSDDKKAKGADGKTKIATPRGAAPPG
QKGQANATRIPAKTPAPKTPSSGEPKSGDRSGYSSPGSPGTPGSRSRTPSLPTPTREPKKVAVVRTPPKSPSSAKSRLQ
TAPVMPDLKNVSKIGSTENLKHQPGGG
KVQIVYKPVDSLKVTSKCGSLGNIHHKPGGGQVEVKSEKLDKDRVQSKIGSLDNITHVPGGGNKKIETHKLTFRENA KAKT
DHGAEIVYKSPVWVGDTSPRHLSNVSTGSIDMVDSPQLATLADEV SASLAKQGL

Asyn:

MDVFMKGLSKAKEGVVAAA ETKQGVAAEAGKTKEGVLYVGSKTKEGVVHGVATVAEKTKEQVTN VGGAVVTGVTAVAQ

KTVEGAGSIAAATGFVKKDQLGKNEEGAP
QEGILEDMPVDPDNEAYEMPSEEGYQDYEPEA

Purity

>95%

Other Resources

Protein Length

Full Length (Tau 0N3R: 1-352 aa, Asyn: 1-140 aa)

Field Of Use

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

Properties

Storage Buffer

1X PBS pH 7.4

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

Cite This Product

Human Recombinant Tau and Alpha Synuclein Co-Polymer Fibrils (StressMarq Biosciences Inc., Victoria BC CANADA, Catalog # SPR-494)

Certificate Of Analysis

Protein certified >95% pure on SDS-PAGE & Nanodrop analysis

Biological Description

Alternative Names

MAPT, Fetal Tau, 0N3R, neurofibrillary tangle protein, paired-helical filament, PHFs, SNCA, NACP, PARK1, asyn, alpha-synuclein, pre-formed fibril, PFFs, mixed fibrils

Research Areas

Alzheimer's Disease, Neurodegeneration, Neuroscience, Parkinson's Disease, Synuclein, Tangles & Tau, Multiple System Atrophy

Swiss Prot

P10636-2 and P37840-1

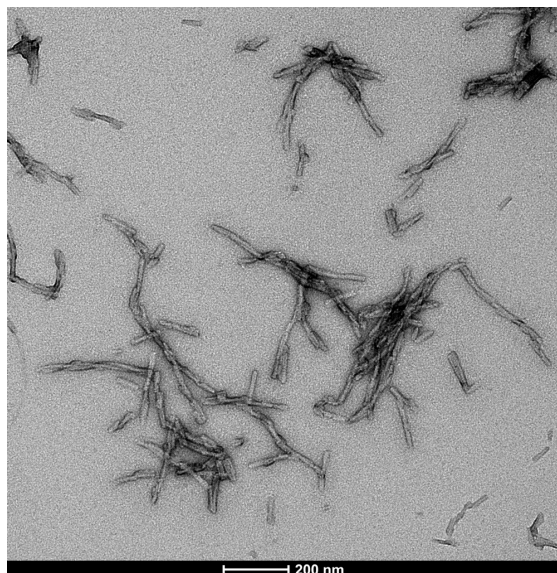
Scientific Background

Brain-specific tau isoforms vary in the number of N-terminal inserts and C-terminal repeat domains due to alternative splicing of exons; only the shortest isoform of tau, 0N3R, is expressed in the fetal brain during neurogenesis (1). Tau and alpha-synuclein polymerize into amyloid fibrils to form filamentous inclusions in neurodegenerative diseases such as Alzheimer's and Parkinson's disease. Tau has been shown to interact with alpha-synuclein in vitro (2), with synergistic cross-seeding between tau and alpha-synuclein resulting in polymerization of each other into fibrillary amyloid lesions in neuronal cultures and in vivo (3,4). Recombinant tau and alpha-synuclein co-polymer fibrils have demonstrated a more widespread transmission of induced pathology in a rodent model of tauopathies compared to pure Tau or alpha-synuclein fibrils alone (5). These co-polymer fibrils have also shown enhanced alpha-synuclein aggregation in vitro, and more severe alpha-synuclein pathology and Parkinson's disease-like symptoms in mice (6).

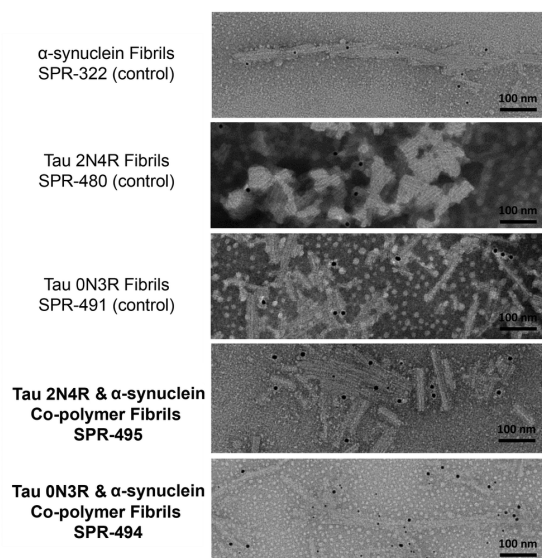
References

1. Goedert et al. Multiple Isoforms of Human Microtubule-associated Protein Tau: Sequences and Localization in Neurofibrillary Tangles of Alzheimer's Disease. *Neuron*. 1989;3(4):519-526. +
 2. Jensen et al. α -synuclein Binds to Tau and Stimulates the Protein Kinase A-catalyzed Tau Phosphorylation of Serine Residues 262 and 356. 1999. *JBC*. 274(36): 25481-25489. DOI:<https://doi.org/10.1074/jbc.274.36.25481>
 3. Giasson et al. Initiation and Synergistic Fibrillization of Tau and Alpha-Synuclein. *Science*. 2003; 300: 636-40. DOI: 10.1126/science.1082324
 4. Guo et al. Distinct α -synuclein Strains Differentially Promote Tau Inclusions in Neurons. 2013. *Cell*. 154(1) doi:10.1016/j.cell.2013.05.057.
 5. Williams et al. Differential Cross-seeding Properties of Tau and α -synuclein in Mouse Models of Tauopathy and Synucleinopathy. *Brain Communications*. 2020; 2(2):fcaa090. doi:10.1093/braincomms/fcaa090
 6. Pan et al. Tau Accelerates α -synuclein Aggregation and Spreading in Parkinson's Disease. 2022. *Brain*. Doi: 10.1093/brain/awac171
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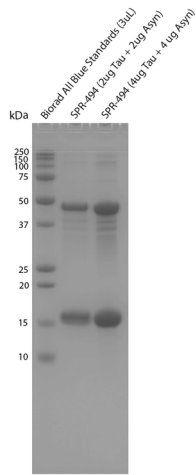
Product Images



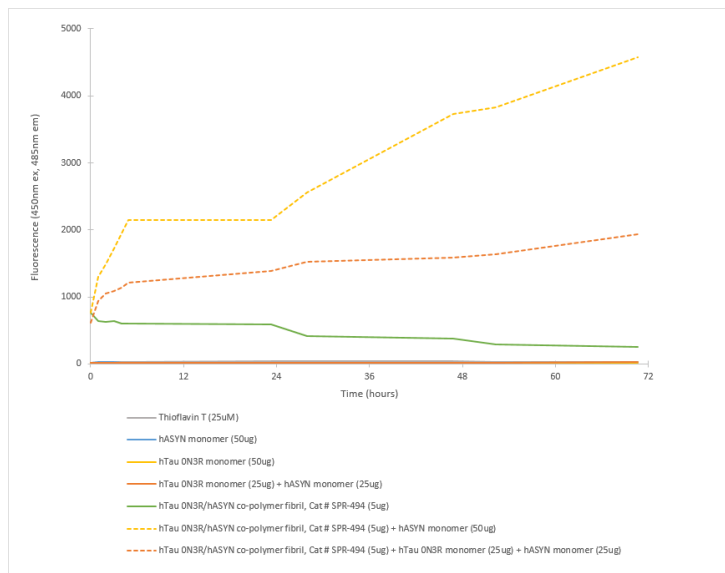
TEM of Fetal Tau 0N3R & Alpha Synuclein Co-Polymer Fibrils (SPR-494). Negative stain transmission electron microscopy images of SPR-494 acquired at 80 Kv on carbon coated 400 mesh copper grids using phosphotungstic acid and uranyl acetate stain.



Immuno-TEM of Tau & Alpha Synuclein Co-Polymer Fibrils. Fibrils absorbed onto carbon-coated copper grids. Grids were blocked with 1% BSA and 0.1% Tween-20 in PBS, incubated sequentially with primary antibodies at 20 $\mu\text{g}/\text{mL}$ in blocking buffer, washed, then incubated with secondary antibodies at 20 $\mu\text{g}/\text{mL}$ in blocking buffer, washed and stained with 2% uranyl acetate as a negative stain. 6nm (asyn) and 12nm (tau) signals only appear together in the same fibril strand for the co-polymer fibril samples, and no antibody cross reactivity is observed in control alpha-synuclein or tau fibrils. Primary antibodies: Mouse anti-human asyn monoclonal (StressMarq SMC-532) and rabbit anti-human tau polyclonal (StressMarq SPC-802); Secondary antibodies: 6nm Colloidal Gold-conjugated Goat Anti-Mouse (Jackson ImmunoResearch 115-195-146) and 12nm Colloidal Gold-conjugated Goat Anti-Rabbit (Jackson ImmunoResearch 111-205-144).



Bis-Tris SDS-PAGE (12%) of Fetal Tau 0N3R & Alpha Synuclein Co-Polymer Fibrils. MW ladder = Precision Plus Protein All Blue pre-stained standards.



In vitro Seeding activity of Fetal Tau 0N3R & Alpha Synuclein Co-Polymer Fibrils in ThT Assay. Tau 0N3R and Alpha Synuclein co-polymer fibrils seed fibril formation of both Alpha Synuclein monomers and of a mixture of Alpha Synuclein and Tau 0N3R monomers over 72 hours. Reactions (100uL) shaken at 600 rpm in Greiner-Bio 96 Well Non-Binding Cell Culture Microplates, Black (Greiner-Bio Catalog #655900) at 37°C and read with an XPS Microplate Reader set at 450nmex/485nmem.

Product Citations (0)

Currently there are no citations for this product.

Reviews

There are no reviews yet.