

# Tau Protein

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Human Recombinant Tau-352 (fetal 0N3R) Wild-Type Pre-formed Fibrils  
Catalog No. SPR-491



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## Product Name

Tau Protein

## Description

Human Recombinant Tau-352 (fetal 0N3R) Wild-Type Pre-formed Fibrils

## Applications

WB, SDS-PAGE, In vitro Assay

## Concentration

Lot/batch specific. See included datasheet.

## Conjugates

No tag

## Nature

Recombinant

## Species

Human

## Expression System

E. coli

## Amino Acid Sequence

MAEPRQEFEVMEHDHAGTYGLGDRKDQGGYTMHQDQEGDTDAGLKAEEAGIGDTPSLEDEAAGHVTQARMVSKSKDGTGS  
DDKKAKGADGKTKIATPRGAAPPQKQGANATRIPAKTPPAPKTPPSSGEPKSGDRSGYSSPGSPGTPGSRSRTPSLPTPPTP  
EPKKVAVVRTPPKSPSSAKSRLQTAPVPMPLKKNVSKIGSTENLKHQPGGGKVQIVYKVDLSKVTSKCGSLGNIHHKPGGG  
QVEVKSEKLDKDRVQSKIGSLDNITHVPGGGNKKIETHKLTFRENAKAKTDHGAEIVYKSPVVSVDTSRHLNSVSTGSIDMV  
DSPQLATLADEVASLAKQGL

## Purity

>95%

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## Other Resources

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## Protein Length

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Full Length (1-352 aa)

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## Field Of Use

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

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## Properties

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### Storage Buffer

10 mM HEPES pH 7.4, 100 mM NaCl

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### Storage Temperature

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-80°C

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### Shipping Temperature

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

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### Purification

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Ion-exchange Purified

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### Cite This Product

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Human Recombinant Tau352 (fetal 0N3R) Pre-formed Fibrils (StressMarq Biosciences Inc., Victoria BC CANADA, Catalog # SPR-491)

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### Certificate Of Analysis

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

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## Biological Description

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### Alternative Names

Tau aggregate, tau protein, microtubule-associated protein tau, MAPT, MAP, microtubule-associated protein, Truncated Tau Protein Aggregate, Paired Helical Filament- Tau, Phf-Tau, Neurofibrillary Tangle Protein, G Protein Beta1/Gamma2 Subunit-Interacting Factor 1, Isoform 2, tubulin-associated unit, 95-amino acid tau protein fragment, Truncated Tau

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## Research Areas

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Alzheimer's Disease, Axon Markers, Cell Markers, Cell Signaling, Cytoskeleton, Microtubules, MT Associated Proteins, Neurodegeneration, Neuron Markers, Neuroscience, Tangles & Tau

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## Cellular Localization

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Axolemma, Axolemma Plasma Membrane, Axon, Cell Body, Cell membrane, Cytoplasm, Cytoplasmic Ribonucleoprotein Granule, Cytoplasmic Side, Cytoskeleton, Cytosol, Dendrite, Growth cone, Microtubule, Microtubule Associated Complex, Neurofibrillary Tangle, Neuronal Cell Body, Nuclear Periphery, Nuclear Speck, Nucleus, Peripheral membrane protein, Plasma Membrane, Tubulin Complex

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## Accession Number

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NP\_058525.1

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## Gene ID

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4137

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## Swiss Prot

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P10636-2

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## Scientific Background

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Alzheimer's Disease (AD) is the most common neurodegenerative disease, affecting 10% of seniors over the age of 65 (1). Tau (tubulin-associated unit) is normally located in the axons of neurons where it stabilizes microtubules. Tauopathies such as AD are characterized by neurofibrillary tangles containing paired helical filaments (PHFs). 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 (2). Three-repeat (3R) isoforms have been shown to be more prone than four-repeat (4R) isoforms to form oligomers in vitro (3). The  $\beta$ -sheet core of Tau 0N3R fibrillized using heparin differs from all other tau fibril structures known to date (4). +

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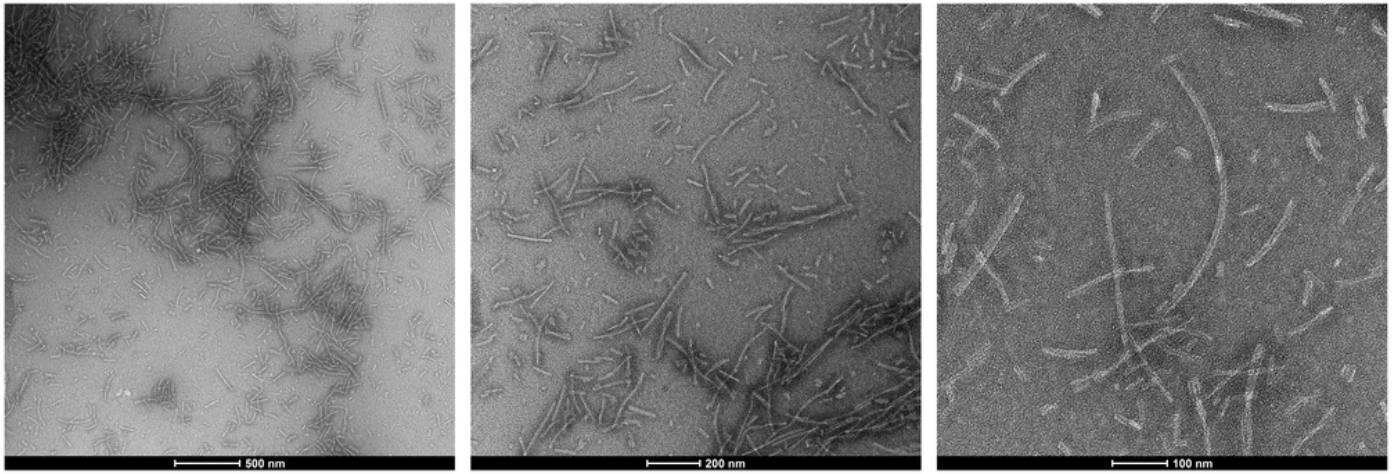
## References

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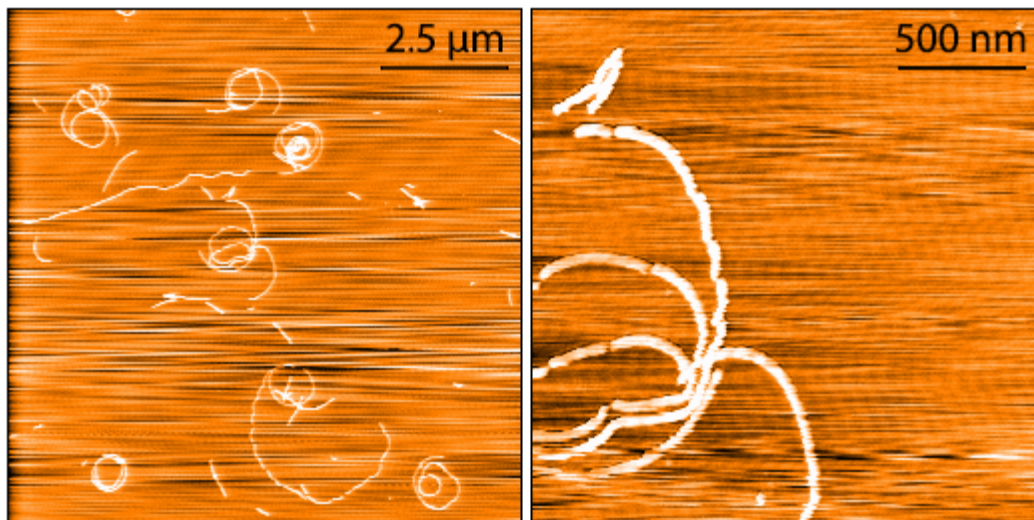
1. [www.alz.org/alzheimers-dementia/facts-figures](http://www.alz.org/alzheimers-dementia/facts-figures)
  2. Goedert et al. Multiple isoforms of human microtubule-associated protein tau: Sequences and localization in neurofibrillary tangles of Alzheimer's disease. *Neuron*. 1989;3(4):519-526.
  3. Shahpasand-Kroner et al. Three-repeat and four-repeat tau isoforms for different oligomers. *Prot. Sci.* 2021;doi: 10.1002/pro4257
  4. Dregni, et al. Inclusion of the C-Terminal Domain in the  $\beta$ -Sheet Core of Heparin-Fibrillized Three-Repeat Tau Protein Revealed by Solid-State Nuclear Magnetic Resonance Spectroscopy. *JACS*. 2021. <https://doi.org/10.1021/jacs.1c03314>
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## Product Images

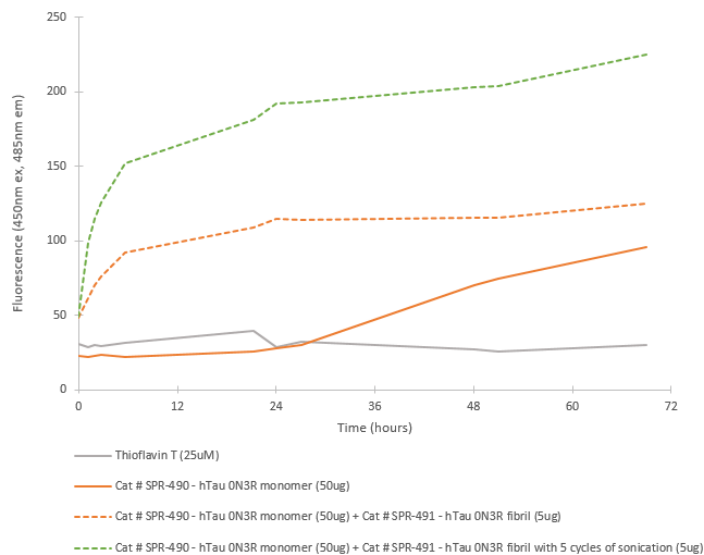
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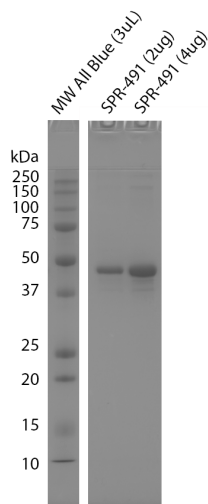
TEM of Fetal Tau 0N3R fibrils. Negative stain transmission electron microscopy images acquired at 80 Kv on carbon coated 400 mesh copper grids using phosphotungstic acid and uranyl acetate stain. Scale bar = 500, 200 and 100 nm (left to right). Method: Samples were prepared for examination in the transmission electron microscope using the 'direct application method' (Doane and Anderson 1987).



AFM of Fetal Tau 0N3R fibrils. Atomic force microscopy analysis of 1.0 mg/mL samples diluted to 0.1 mg/mL in dH<sub>2</sub>O, mounted on freshly cleaved mica, washed, dried and analyzed with tapping mode. Representative images are 10 x 10 μm x-y (left) and 2 x 2 μm x-y (right) both with a z-range of 6 nm. Note: AFM images display significant twisting and curvature not observed under TEM.



Fibril formation activity of Fetal Tau 0N3R monomers seeded by pre-formed fibrils in ThT seeding assay. Tau 0N3R pre-formed fibrils seed fibril formation in Tau 0N3R monomers. The graph shows an increased ThT signal in fibrils with 5 cycles of sonication prior to seeding. 10uM heparin and 1mM DTT was added to each well.



Tris-glycine SDS-PAGE (12%) of Fetal Tau 0N3R fibrils. MW ladder = Precision Plus Protein All Blue prestained standards.


## Product Citations

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94/100 | 1 CITATIONS

### Flow cytometric isolation of drug-like conformational antibodies specific for amyloid fibrils

Desai Alec A., Zupancic Jennifer M., ..., Tessier Peter M.

bioRxiv | 2023 Jul 04 | [Read Article](#) 

"**PrePrint:** Human HT40 fibrils (Stressmarq, SPR-329), **human 0N3R fibrils (Stressmarq, SPR-491)**, human K1 synuclein fibrils (Stressmarq, SPR-317), human N-acetylated  $\alpha$ -synuclein fibrils (Stressmarq, SPR-332), and mouse before loading onto the nitrocellulose membrane." [More...](#) | [Article Share](#)

## Reviews

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Based on validation through cited publications.



**StressMarq Biosciences**

July 12, 2023: