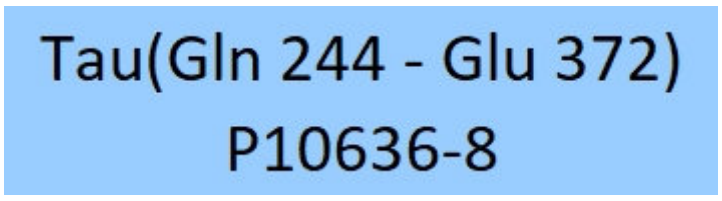
Synonym

DDPAC, FTDP-17, MAPT, MSTD, MTBT1, Tau, PHF-tau, TAU

Source

Human Tau-441 K18 Pre-formed Fibrils Protein, Tag Free(TAU-H5116) is expressed from E. coli cells. It contains AA Gln 244 - Glu 372 (Accession # P10636-8).
Predicted N-terminus: Met

Molecular Characterization



This protein carries no "tag".

The protein has a calculated MW of 13.8 kDa.

Application

1. Sonication Conditions, Dissolution, Aliquoting, Storage, and Notes for PFF
Thawing: Thaw PFFs rapidly in a 37 °C water bath, or allow to thaw at room temperature.
Aliquoting: Since PFFs are supplied as a suspension, pipette up and down thoroughly before aliquoting to ensure homogeneity.
Storage: Store at -80 °C at all times; avoid storage at 4 °C or -20 °C, which can induce fibril depolymerization. * α-Syn fibrils cold-denatured to monomers at 0-20 °C and heat-denatured at 60-110 °C.
Sonication: The sonication protocols below are based on cell-based assay conditions.
-Option 1 (Probe Sonicator): Use a probe sonicator (SCIENTZ) at 10% power (-95 W), applying 60 pulses of 0.5 s on/0.5 s off (recommended).
-Option 2 (Ultrasonic Bath): Sonicate in an ultrasonic cleaner (40 kHz, 200-400 W) at 37 °C for 1 hour; avoid performing the treatment at 4 °C or 20 °C.
Note: The above sonication protocols are based on cell-based assays; other applications (e.g., in vivo injections) may require optimization-users should determine their optimal settings for their specific use case.
2. Recommendations for PFF Use in Animal Models
Minimize Freeze-Thaw Cycles: For animal studies, it is recommend to use the PFF at once or aliquot before use to avoid repeated freeze-thaw cycles.
PFF Maintenance During Injections: During stereotaxic injections, keep the sonicated PFFs in a 37 °C water bath to prevent re-aggregation or sedimentation.

Endotoxin

Less than 1.0 EU per μg by the LAL method / rFC method.

Purity

>95% as determined by SDS-PAGE.

Formulation

Supplied as 0.2 μm filtered solution in PBS, pH7.4.

Contact us for customized product form or formulation.

Shipping

This product is supplied and shipped with dry ice, please inquire the shipping cost.

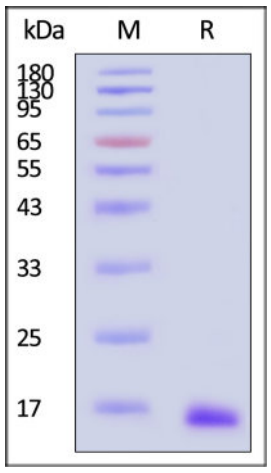
Storage

Please avoid repeated freeze-thaw cycles.

This product is stable after storage at:

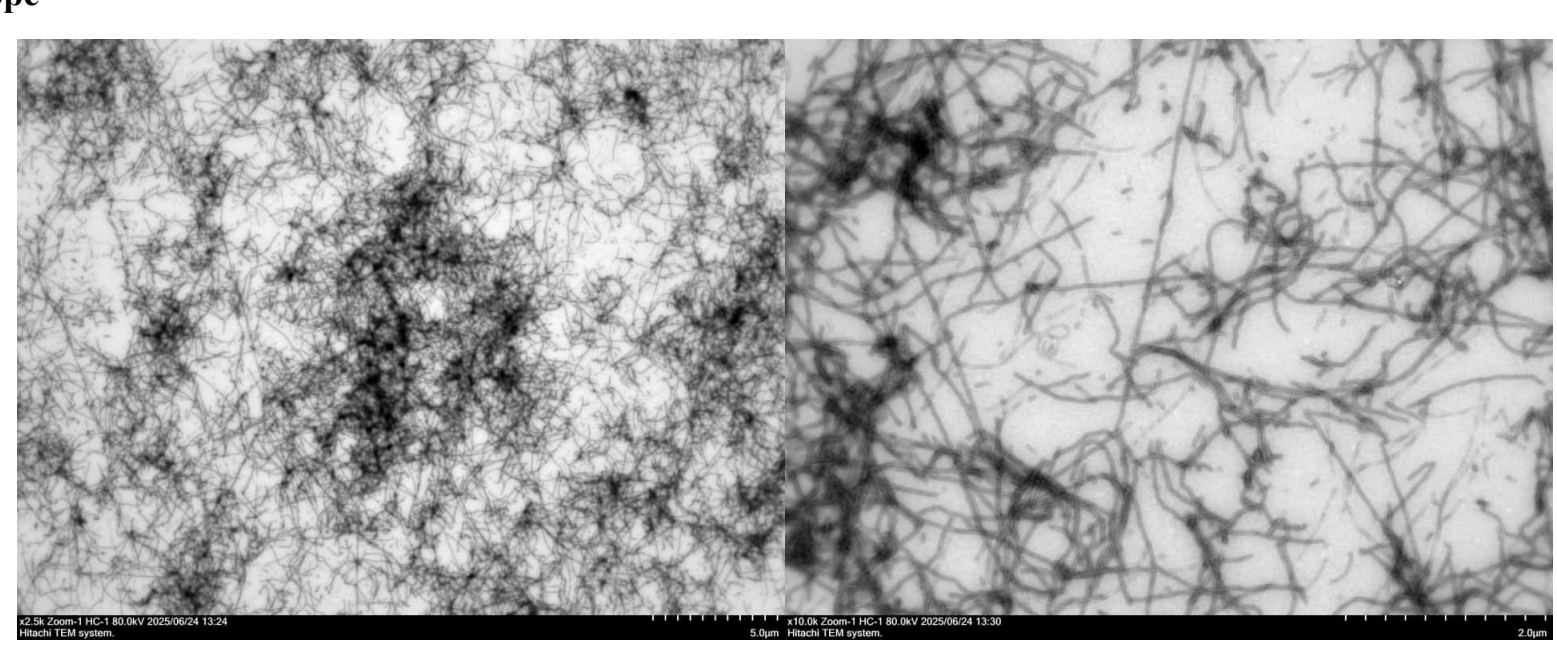
- The product should be stored at -70°C or room temperature for short storage. Do not store fibrils on ice or at 4°C;
- The unsonicated fibril is validated to be stable after storage at -70°C for 1 year under sterile conditions;
- The sonicated fibril should be stored at -70°C for not more than 8 weeks.

SDS-PAGE



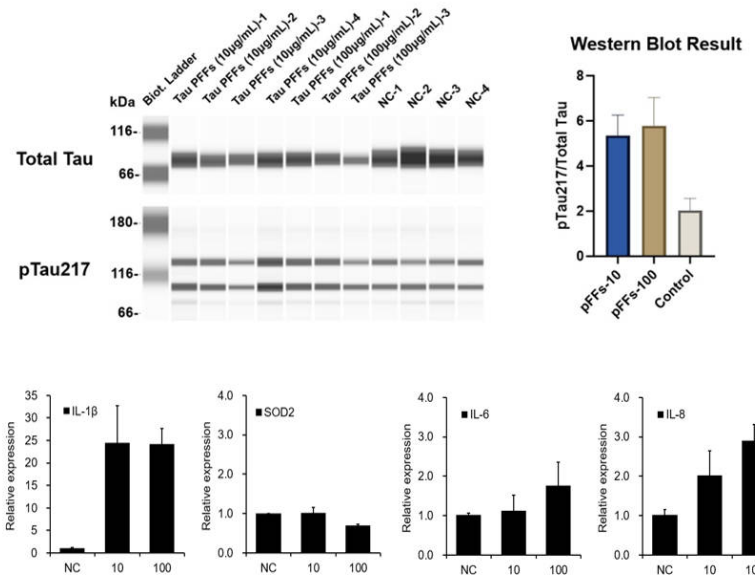
Tau-441 K18 monomer on SDS-PAGE under reducing (R) condition. The gel was stained overnight with Coomassie Blue. The purity of the protein is greater than 95% (With Star Ribbon Pre-stained Protein Marker).

Electron Microscope



Transmission electron microscopy (TEM) of Human Tau-441 K18 Pre-formed Fibrils Protein, Tag Free (Cat. No. TAU-H5116). Fibril structure is visible on negative stain TEM images of TAU-H5116.

Application Data



In brain organoids (CIPO-BWL002K), Human Tau-441 K18 Pre-formed Fibrils Protein, Tag Free (Cat. No. TAU-H5116) dose-dependently upregulate IL-1β, IL-6 and IL-8, increase the tau phosphorylation at Thr217 and suppress SOD2, indicating that PFF treatment induces tau phosphorylation, neuroinflammation and disrupts antioxidant balance.

Background

This gene encodes the microtubule-associated protein tau (MAPT) whose transcript undergoes complex, regulated alternative splicing, giving rise to several mRNA species. MAPT transcripts are differentially expressed in the nervous system, depending on stage of neuronal maturation and neuron type. MAPT gene mutations have been associated with several neurodegenerative disorders such as Alzheimer's disease, Pick's disease, frontotemporal dementia, cortico-basal degeneration and progressive supranuclear palsy. [provided by RefSeq, Jul 2008]