

Active Recombinant Human MAPT Protein

Cat. No. MAPT-516H **Lot. No.** (See product label)

SPECIFICATION

Product Overview	Active Human Recombinant Tau (K18), P301L mutant Protein (Pre-formed Fibrils) without tag was expressed in E. coli.
Species	Human
Source	E.coli
Description	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.
Bio-activity	Thioflavin T emission curve shows increased fluorescence (correlated to tau protein fibrillation) when active tau PFFs are combined with active tau monomers.
Molecular Mass	~15.1 kDa
AA Sequence	SRLQTAPVPMPDLKNVSKIGSTENLKHQPGGGKVQIINKKLDLSNVQSKCGSKDNI KHAVLGGGSVQIVYKPVDSLKVTSKCGSLGNIHHKPGGGQVEVKSEKLDFKDRVQSKI GSLDNITHVPGGGNKKIETHKLTFRE
Purity	>95%

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Applications	WB, SDS-PAGE, In vivo assay, In vitro assay
Usage	Not for use in humans. Not for use in diagnostics or therapeutics. For in vitro research use only.
Storage	At -80 centigrade.
Storage Buffer	10 mM HEPES, 100 mM NaCl pH 7.4

GENE INFORMATION

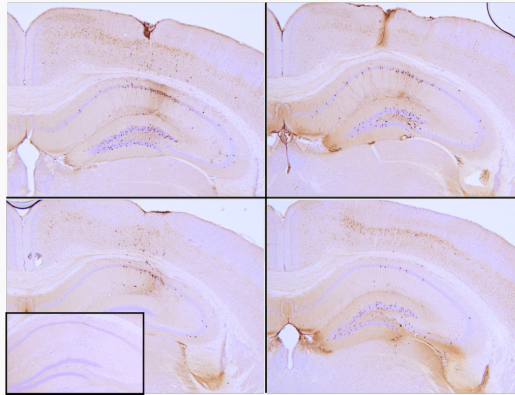
Gene Name	MAPT microtubule associated protein tau [Homo sapiens (human)]
Official Symbol	MAPT
Synonyms	MAPT; microtubule associated protein tau; TAU; MSTD; PPND; DDPAC; MAPTL; MTBT1; MTBT2; FTDP-17; PPP1R103. microtubule-associated protein tau; G protein beta1/gamma2 subunit-interacting factor 1; PHF-tau; neurofibrillary tangle protein; paired helical filament-tau; protein phosphatase 1, regulatory subunit 103
Gene ID	4137
mRNA Refseq	NM_016841
Protein Refseq	NP_058525
MIM	157140
UniProt ID	P10636

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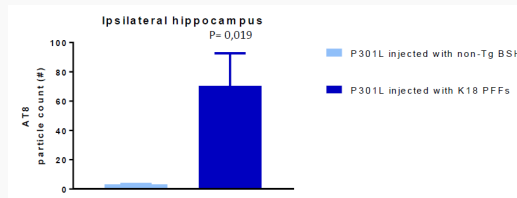
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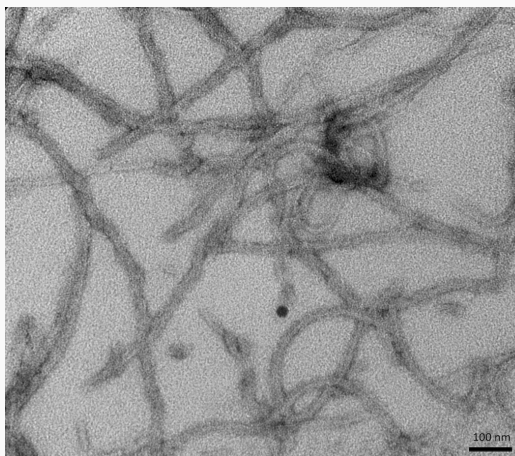
IHC



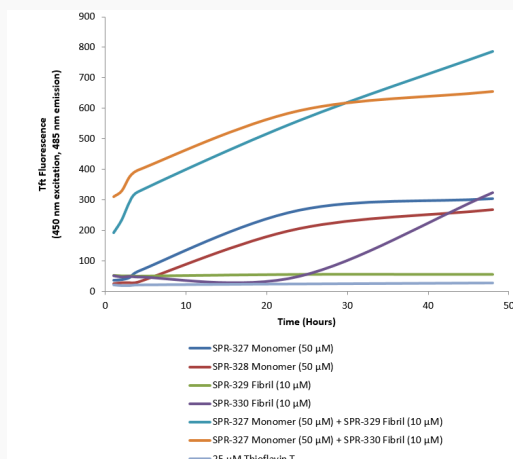
Immunohistochemistry analysis of P301L mouse hippocampus injected with K18 P301L tau PFFs shows seeding of tau pathology at injection site nine weeks post-injection. AT8 (pSer202/pThr205) tau antibody shows tangle-like inclusions. Inset: negative control.



AT8 is an anti-pSer202/pThr205 tau antibody. Tau P301L mice injected with brainstem homogenate (BSH) of non-Tg mice have hardly any AT8-positive inclusions. AT8-positive tangle-like inclusions is significantly higher in K18 PFF injected mice compared to the negative control.



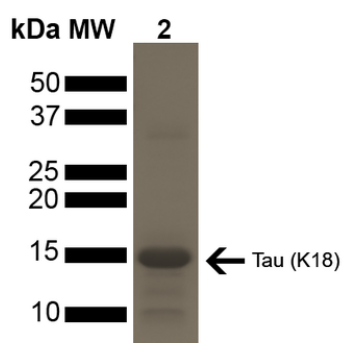
TEM of recombinant Tau (K18), P301L mutant preformed fibrils (PFFs) at 150 kx magnification. HV=80 kV.



Thioflavin T is a fluorescent dye that binds to beta sheet-rich structures, such as those in tau 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 tau aggregation) over time in tau preformed

fibrils. Tau preformed fibrils seed the formation of new tau fibrils when combined with tau monomers. Thioflavin T $\lambda_{\text{ex}} = 450 \text{ nm}$, $\lambda_{\text{em}} = 485 \text{ nm}$. $10 \mu\text{M}$ heparin was added to each well.

SDS-PAGE



SDS-PAGE of ~15 kDa Active Human Tau Protein K18 P301L Preformed Fibrils.

Lane 1: MW Ladder.

Lane 2: Tau Protein Preformed Fibrils.