

PRODUCT INFORMATION



Tau 1N4R (human, recombinant)

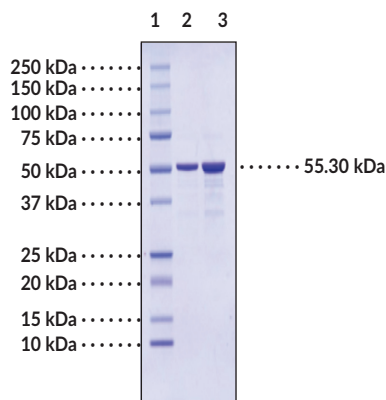
Item No. 41306

Overview and Properties

Synonyms:	htau34, CALR, Calregulin, MAPTL 1N4R, Microtubule-associated Protein Tau Isoform E, MTBT2 1N4R, Neurofibrillary Tangle Protein 1N4R, Paired Helical Filament Tau 1N4R, Tau412, Tau-E
Source:	Recombinant human N-terminal His- and tau 1N4R expressed in <i>E. coli</i>
Amino Acids:	2-412
Uniprot No.:	P10636
Molecular Weight:	55.3 kDa
Storage:	-80°C (as supplied)
Stability:	≥1 year
Purity:	≥90% estimated by SDS-PAGE
Supplied in:	20 mM HEPES, pH 7.2, 100 mM sodium chloride, and 20% glycerol
Protein	
Concentration:	<i>batch specific</i> mg/ml

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Image



Lane 1: MW Markers

Lane 2: Microtubule-associated protein tau 1N4R (2 µg)

Lane 3: Microtubule-associated protein tau 1N4R (4 µg)

Representative gel image shown; actual purity may vary between each batch.

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY
Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

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Description

Tau is a member of the microtubule-associated protein (MAP) family that facilitates microtubule formation in axons.^{1,2} It is primarily expressed in neurons and localized to axons, but trace amounts have been observed in glial cells and several peripheral tissues, including kidney, lung, and testis. Tau is composed of an N-terminal projection domain that interacts with neurofilaments, cytoplasmic organelles, and neuronal cell membranes and a C-terminal microtubule-binding domain that facilitates microtubule polymerization and stabilization. It is encoded by *MAPT* in humans, a 16-exon gene that produces six isoforms *via* alternative mRNA splicing, which differ from each other based on the presence of zero (0N), one (1N), or two (2N) inserts at the amino terminus and the number of microtubule-binding repeat (MTBR) domains at the C-terminus (3R or 4R for three and four repeats, respectively).³ Tau is subject to post-translational modifications, including phosphorylation, and hyperphosphorylation of tau is associated with the formation of neurofibrillary tangles and neuronal cell death in postmortem brains from patients with Alzheimer's disease.⁴ Mutations in *MAPT* lead to changes in expression of tau isoforms and the formation of insoluble protein aggregates that cause familial frontotemporal dementia (FTD) and parkinsonism linked to chromosome 17 (FTDP-17). Transgenic mice expressing wild-type human tau 1N4R exhibit motor and spatial memory impairments, and postmortem brain levels of insoluble tau 1N4R are increased in patients with Parkinson's disease.^{5,6}

References

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2. Arendt, T., Stieler, J.T., and Holzer, M. Tau and tauopathies. *Brain Res. Bull.* **126(Pt 3)**, 238-292 (2016).
3. Waheed, Z., Choudhary, J., Jatala, F.H., *et al.* The role of tau proteoforms in health and disease. *Mol. Neurobiol.* **60(9)**, 5155-5166 (2023).
4. P r scoveanu, D.F.V., Pirici, I., Tudoric , V., *et al.* Tau protein in neurodegenerative diseases - a review. *Rom. J. Morphol. Embryol.* **58(4)**, 1141-1150 (2017).
5. Wheeler, J.M., McMillan, P.J., Hawk, M., *et al.* High copy wildtype human 1N4R tau expression promotes early pathological tauopathy accompanied by cognitive deficits without progressive neurofibrillary degeneration. *Acta Neuropathol. Commun.* **3**, 33 (2015).
6. Tauber, C.V., Schwarz, S.C., R sler, T.W., *et al.* Different *MAPT* haplotypes influence expression of total *MAPT* in postmortem brain tissue. *Acta Neuropathol. Commun.* **11(1)**, 40 (2023).

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