

Data Sheet

Product Name: 15N Tau-441 (2N4R) Uniform Labeled

Catalog #: T-1101

Source: Recombinant. DNA sequence encoding the human Tau-441 isoform (2N4R) sequence was expressed in E. coli with N15 as the nitrogen source. No his-tag.

Sequence: MAEPRQEFEV MEDHAGTYGL GDRKDQGGYT MHQDQEGDTD AGLKESPLQT
PTEDGSEEPG SETSDAKSTP TAEDVTAPLV DEGAPGKQAA AQPHEIPEG
TTAAEEAGIGD TPSLEDEAAG HVTQARMVSK SKDGTGSDDK KAKGADGKTK
IATPRGAAPP GQKGQANATR IPAKTPPAPK TPPSSGEPPK SGDRSGYSSP
GSPGTPGSRs RTPSLTPPT REPKKVAVVR TPPKSPSSAK SRLQTAPVPM
PDLKNVSKSI GSTENLKHQP GGGKVQIINK KLDLSNVQSK CGSKDNIKHV
PGGGSVQIVY KVDLSKVTS KCGSLGNIHH KPGGGQVEVK SEKLDKDRV
QSKIGSLDNI THVPGGGNKK IETHKLTFRN NAKAKTDHGA EIVYKSPVVS
GDTSPRHLSN VSSTGSIDMV DSPQLATLAD EVSASLAKQGL

Molecular Mass: 46,481 Da

Protein Purity: >90% by SDS-PAGE.

Quantity: 50 µg

Counter Ion: Lyophilized in final buffer of 50mM MES, pH 6.8, 0.5mM EGTA, 100mM NaCl

Supplied As: White lyophilized powder

Resuspension: Resuspend in water at conc. of 1 mg/ml. This will give you a final of 50mM MES, pH 6.8, 100 mM NaCl, 0.5 mM EGTA.

Storage: -20°C

Description: Tau is a family of six isoforms, derived from a single gene by alternative mRNA splicing¹. They vary in size from 352 to 441 amino acids (36.8 to 45.9 kDa), and differ from one another in having three or four microtubule binding repeats (R) of 31-32 amino acids each, and two, one or none amino terminal inserts (N) of 29 amino acids each².

<u>Catalog #</u>	<u>Product</u>	<u>Variant</u>	<u>Exon 2</u>	<u>Exon 3</u>	<u>Exon 10</u>	<u>AA</u>	<u>Mass (kDa)</u>	<u>Expressed</u>
T-1001-1	Tau-441	2N4R	+	+	+	441	45.9	adult
T-1002-1	Tau-410	2N3R	+	+	-	410	42.6	adult
T-1003-1	Tau-412	1N4R	+	-	+	412	42.9	adult
T-1004-1	Tau-381	1N3R	+	-	-	381	39.7	adult
T-1005-1	Tau-383	0N4R	-	-	+	383	40	adult
T-1006-1	Tau-352	0N3R	-	-	-	352	36.8	fetal

Tau promotes the assembly and maintains the structure of microtubules in neuronal cells^{3,4,5}. While the fetal brain contains a single isoform of tau (Tau-352) the adult brain has several isoforms. Tau is both phosphorylated and O-GlcNAcylated⁶. The normal brain tau contains 2-3 moles of phosphate/mole of the protein. In Alzheimer disease tau is hyperphosphorylated, containing 3-4-fold more phosphate/mole of the protein than the normal tau^{7,8} and is the major protein subunit of paired helical filaments (PHF) that form the neurofibrillary tangles (NFT). NFT accumulation correlates with the clinical progression of Alzheimer's disease.

References:

1. Himmler, et. al., 1989, Mol Cell Biol. **9**, 1381
2. Goedert, M., et. al. 1989, Neuron. **3**, 519.
3. Avila J. et. al., 2004, Physiol Rev. **84**, 361.
4. Goedert, M., 1993, Trends Neurosci. **16**, 460.
5. Mandelkow, E. et al. 1996, Ann N Y Acad Sci. **777**, 96.
6. Liu, F., et. al., 2004, Proc. Natl. Acad. Sci. U.S.A. **101**, 10804.
7. Iqbal, K., et. al., 1986, Lancet **2**, 421.
8. Kopke, et. al., 1993, J. Biol. Chem. **268**, 2437

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Approved By: Quentin

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