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Product Information

SILu™Prot MAPT,
Microtubule-associated protein tau-441, human recombinant, expressed in HEK cells
SIL MS Protein Standard, ^{13}C- and ^{15}N-labeled

Catalog Number **MSST0031**
Storage Temperature –20 °C

Synonyms: Neurofibrillary tangle protein, Paired helical filament-tau (PHF-tau), Tau-F

Product Description
SILu™Prot MAPT is a recombinant, stable isotope-labeled human MAPT which incorporates [$^{13}C_6$, $^{15}N_4$]-Arginine and [$^{13}C_6$, $^{15}N_2$]-Lysine. Expressed in human 293 cells, it is designed to be used as an internal standard for bioanalysis of MAPT in mass spectrometry. SILu™Prot MAPT is a protein of 481 amino acids (including C-terminal polyhistidine and V5 tags) with a calculated molecular mass of 50.9 kDa.

Tau-441 is a member of the Tau family of proteins.[1] Tau proteins are mainly expressed in the neurons of the central nervous system where they exert a role in stabilizing microtubules, key components of axonal transport, as well as in signal transduction.[1]
Tau proteins are subject to phosphorylation and this phenomenon regulates the association of the Tau protein with the microtubules.[2] Deposits of Alzheimer's disease AD-associated proteins, such as hyperphosphorylated Tau, as well as other shared misfolded proteins, such as β-amyloid precursor protein (βAPP), ubiquitin, and various chaperones and protein kinases, are thought to play a pathologic role in the cognitive decline and muscular failure.[3] Malfunctioning of Tau proteins is associated with microtubules disintegration and collapsing of the neuronal transport system.[3] Among other diseases, Tau forms in cerebrospinal fluid are considered a reliable biomarker for progressive supranuclear palsy, where the levels of Tau forms ratio were significantly reduced.[4]

Each vial contains ≥10μg/vial of SILu™Prot MAPT standard, lyophilized from a solution of phosphate buffered saline. Vial content was determined by the Bradford method using BSA as a calibrator. The correction factor from the Bradford method to Amino Acid Analysis is 110% for this protein.

Identity: Confirmed by peptide mapping

Purity: ≥95% (SDS-PAGE)

Heavy amino acid incorporation efficiency: ≥98% (MS)

UniProt: P10636

Sequence Information
The C-terminal polyhistidine and V5 tags are italicized.

MAEPRQEFEVMEDHAGTYGLGDRKDQGGYTMHQD
QEGDTDAGLKESPLQTPTEDGSEEPGSETSDAKSTP
TAEDVTAPLVDEGAPGKQAAAQPHTEIPEGTTAEEAG
IGDTPSLEDEAAGHVTQARMVSKSKDGTGSDDKKAK
GADGKTKIATPRGAAPPGQKGQANATRIPAKTPPAPK
TPPSSGEPPKSGDRSGYSSPGSPGTPGSRSRTPSLP
TPPTREPKKVAVVRTPPKSPSSAKSRLQTAPVPMPDL
KNVKSKIGSTENLKHQPGGGKVQIINKKLDLSNVQSK
CGSKDNIKHVPGGGSVQIVYKPVDLSKVTSKCGSLG
NIHHKPGGGQVEVKSEKLDFKDRVQSKIGSLDNITHV
PGGGNKKIETHKLTFRENAKAKTDHGAEIVYKSPVVS
GDTSPRHLSNVSSTGSIDMVDSPQLATLADEVSASLA
KQGL*DRIRGRKLGPFEGKPIPNPLLGLDSTRTGHHHH*
HHHHGGQ

Precautions and Disclaimer
For R&D use only. Not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices..

Preparation Instructions
Briefly centrifuge the vial before opening. It is recommended to reconstitute the protein in sterile ultrapure water to a final concentration of 100 μg/mL.

Storage/Stability
Store the lyophilized product at –20 °C. The product is stable for at least 2 years as supplied. After reconstitution, it is recommended to store the protein in working aliquots at –20 °C.

References

1. Schraen-Maschke, S. et al., Tau as a biomarker of neurodegenerative diseases. *Biomark. Med.,* **2**, 363-384 (2010).
2. Zilka, N. et al., Truncated tau from sporadic Alzheimer's disease suffices to drive neurofibrillary degeneration in vivo, *FEBS Lett.,* **580**, 3582-3588 (2006).
3. Christensen, R.A. et al., Calcium Dyshomeostasis in β-Amyloid and Tau-bearing Skeletal Myotubes. *J. Biol. Chem.,* **279**, 53524-53532 (2004).
4. Borroni, B. et al., Tau forms in CSF as a reliable biomarker for progressive supranuclear palsy. *Neurology,* **71**, 1796-803 (2008).

Legal Information

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