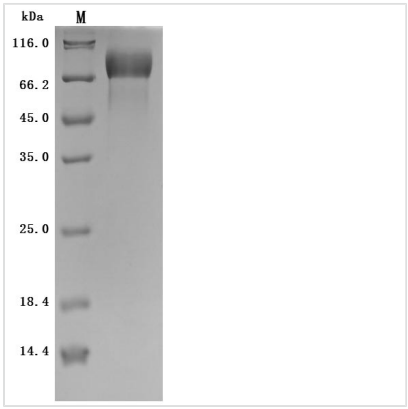
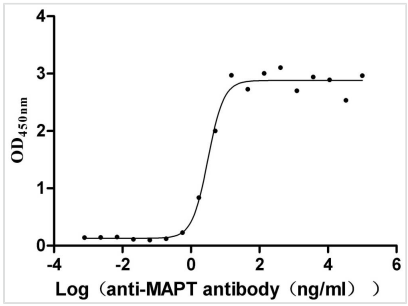
Recombinant Macaca mulatta Microtubule-associated protein tau (MAPT) (Active)

Product Code	CSB-MP013481MOW
Abbreviation	Recombinant Rhesus macaque MAPT protein (Active)
Storage	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.
Uniprot No.	P57786
Form	Lyophilized powder
Storage Buffer	Lyophilized from a 0.2 μm filtered 20 mM Tris-HCl, 0.5 M NaCl, 6% Trehalose, pH 8.0
Product Type	Recombinant Protein
Immunogen Species	Macaca mulatta (Rhesus macaque)
Biological Activity	Measured by its binding ability in a functional ELISA. Immobilized Macaca mulatta MAPT at 2 μg/mL can bind anti-MAPT recombinant antibody (CSB-RA013481A1HU),the EC_{50} is 2.464-3.979 ng/mL.
Purity	Greater than 95% as determined by SDS-PAGE.
Sequence	AEPRQEFDVMEDHAGTYGLGDRKDQEGYTMLQDQEGDTDAGLKESPLQTPA EDGSEELGSETSDAKSTPTAEDVTAPLVDERAPGEQAAAQPHMEIPEGTTAEE AGIGDTPSLEDEAAGHVTQARMVSKSKDGTGSDDKKAKGADGKTKIATPRGA APPGQKGQANATRIPAKTPPAPKTPPSSATKQVQRKPPPAEPTSERGEPPKS GDRSGYSSPGSPGTPGSRSRTPSLPTPPAREPKKVAVVRTPPKSPSSAKSRL QTAPVPMPDLKNVKSKIGSTENLKHQPGGGKVQIINKKLDLSNVQSKCGSKDN IKHVPGGGSVQIVYKPVDLSKVTSKCGSLGNIHHKPGGGQVEVKSEKLDFKDR VQSKIGSLDNITHVPGGGNKKIETHKLTFRENAKAKTDHGAEIVYKSPVVSGDT SPRHLSNVSSTGSIDMVDSPQLATLADEVSASLAKQGL
Source	Mammalian cell
Target Names	MAPT
Expression Region	2-459aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal 10xHis-tagged
Mol. Weight	50.6 kDa
Protein Length	Full Length of Mature Protein
Image	



(Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.



Activity
Measured by its binding ability in a functional ELISA. Immobilized Macaca mulatta MAPT at 2 μg/ml can bind anti-MAPT recombinant antibody (CSB-RA013481A1HU),the EC_{50} is 2.464-3.979 ng/mL.

Description

This recombinant microtubule-associated protein tau (MAPT) from Macaca mulatta is produced in mammalian cells with an N-terminal 10×His tag. Its expression region corresponds to the amino acids 2-459 of the Macaca mulatta MAPT protein. The recombinant MAPT protein exhibits high purity (>95% by SDS-PAGE) and meets strict endotoxin standards (<1.0 EU/μg, LAL method), ensuring research-grade quality for neuroscience applications.

Functional characterization confirms its biological activity through specific antibody binding in ELISA (EC_{50}: 2.464-3.979 ng/mL against anti-MAPT antibody at 2 μg/mL immobilization). The mammalian expression system preserves critical post-translational modifications essential for MAPT protein function, including potential phosphorylation sites. The N-terminal 10×His tag facilitates purification while maintaining structural integrity. This recombinant MAPT protein serves as a valuable tool for investigating MAPT's role in microtubule stabilization, neurodegenerative mechanisms, and therapeutic development for tau-related disorders.

Macaca mulatta (rhesus macaque) serves as an important model organism for studying neurodegenerative diseases, particularly Alzheimer's disease (AD), and the role of microtubule-associated protein tau. Tau protein is integral to neuronal function, primarily by stabilizing microtubules within neuronal axons, a role that is vital for maintaining neuronal structure and function. In healthy neurons, tau exists in multiple isoforms generated through alternative splicing, which allows it to bind and stabilize microtubules effectively [1][2].

In the context of neurodegeneration, tau protein becomes hyperphosphorylated and forms pathological aggregates, leading to the development of neurofibrillary tangles, which are key hallmarks of Alzheimer's disease and other tauopathies

[3-5]. Recent studies suggest that pathological tau conformers can be propagated from human to non-human primate brains, including in Macaca mulatta. This supports the notion that these animals can recapitulate facets of human tau pathology and may serve as a viable model for studying tau-related neurodegenerative processes [6].

Moreover, evidence indicates that tau pathology in Macaca mulatta can be influenced by amyloid-beta deposition. For instance, the intrathecal administration of amyloid-beta oligomers has been shown to elevate tau phosphorylation levels, thus mimicking aspects of Alzheimer's pathology [7]. Similarly, investigations have highlighted that the dura mater of Macaca mulatta displays significant anatomical and pathological features relevant to tauopathies, reinforcing the notion that these primates exhibit neurodegenerative disease characteristics akin to those seen in humans [8]. The ability to study tau dynamics and neurodegeneration in non-human primates adds depth to our understanding of human neurodegenerative diseases, potentially informing future therapeutic strategies [9].

References:

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[3] J. Chang, H. Liu, et al. Effect of times to blood processing on the stability of blood proteins associated with dementia. Dementia and Geriatric Cognitive Disorders, vol. 49, no. 3, p. 303-311, 2020. https://doi.org/10.1159/000509358
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[8] C. Janson, K. Hauser, et al. Characterization of non-human primate dura in health and neurodegeneration. 2022. https://doi.org/10.1101/2022.06.03.477517
[9] G. Stonebarger, H. Bimonte?Nelson, & H. Urbanski. The rhesus macaque as a translational model for neurodegeneration and alzheimer’s disease. Frontiers

	in Aging Neuroscience, vol. 13, 2021. https://doi.org/10.3389/fnagi.2021.734173
Endotoxin	Less than 1.0 EU/ug as determined by LAL method.
Reconstitution	We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Please reconstitute protein in deionized sterile water to a concentration of 0.1-1.0 mg/mL.We recommend to add 5-50% of glycerol (final concentration) and aliquot for long-term storage at -20°C/-80°C. Our default final concentration of glycerol is 50%. Customers could use it as reference.
Shelf Life	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.