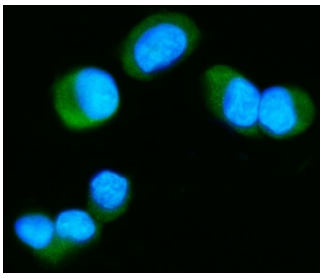
MAPT Antibody / Tau (RQ6776)

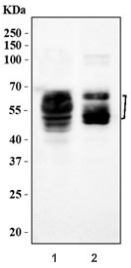
Catalog No.	Formulation	Size
RQ6776	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

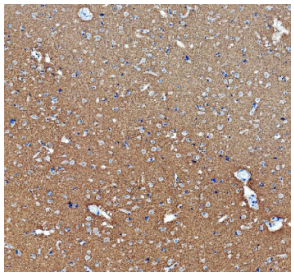
Availability	1-3 business days
Species Reactivity	Human, Mouse, Rat
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Antigen affinity purified
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	P10636
Localization	Cytoplasm, cell membrane
Applications	Western blot: 1-2ug/ml Immunofluorescence: 5ug/ml Immunohistochemistry (FFPE): 2-5ug/ml Direct ELISA: 0.1-0.5ug/ml
Limitations	This MAPT antibody is available for research use only.



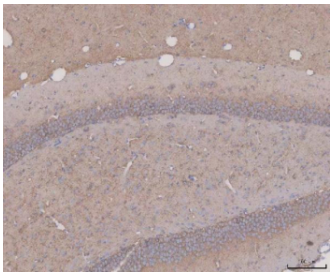
Immunofluorescent staining of FFPE human T-47D cells with MAPT antibody (green) and DAPI nuclear stain (blue). HIER: steam section in pH6 citrate buffer for 20 min.



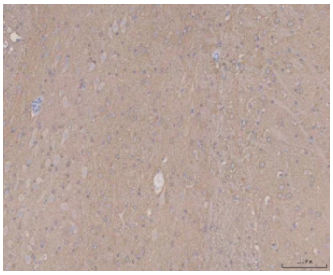
Western blot testing of 1) rat brain and 2) mouse brain tissue lysate with MAPT antibody. The MAPT antibody detects multiple bands between approximately 50 and 70 kDa, representing the known mixture of Tau splice isoforms and heavily phosphorylated forms in adult brain. This characteristic multi-band ladder is consistent with published MAPT western blot patterns rather than a single band at the theoretical ~79 kDa mass.



Immunohistochemical staining of FFPE human brain tissue with MAPT antibody, HRP-secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



Immunohistochemical staining of FFPE mouse brain tissue with MAPT antibody, HRP-secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



Immunohistochemical staining of FFPE rat brain tissue with MAPT antibody, HRP-secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.

Description

MAPT antibody recognizes Microtubule associated protein Tau, the neuronal cytoskeletal protein encoded by the MAPT gene. Tau is predominantly expressed in central nervous system neurons where it stabilizes microtubules, supports axonal transport, and maintains neuronal morphology. The human MAPT gene is located on chromosome 17q21.31 and undergoes extensive alternative splicing that produces several isoforms differing in microtubule binding domain composition and projection domain length. These isoforms are developmentally regulated, with shorter forms appearing during early brain development and longer forms predominating in mature neurons. Tau is localized mainly in axons, though it can also be detected in dendrites, growth cones, and, under pathological conditions, the somatodendritic compartment.

Tau functions as an essential regulator of microtubule stability and cytoskeletal organization. It binds along microtubules to modulate polymerization dynamics, facilitate long-distance cargo transport, and maintain axonal architecture. Tau also interacts with actin networks, motor proteins, and signaling molecules involved in neuronal polarity and synaptic function. Additionally, Tau participates in stress response pathways and undergoes regulated phosphorylation that influences compartment localization, microtubule binding affinity, and activity in neuroplasticity contexts.

Pathologically, Tau is central to a broad class of neurodegenerative disorders collectively known as tauopathies.

Abnormal phosphorylation, cleavage, or misfolding of Tau can lead to the formation of intracellular inclusions including neurofibrillary tangles. These aggregates disrupt cytoskeletal integrity, impair axonal transport, and contribute to neuronal degeneration. Tau pathology is a hallmark of Alzheimer disease and is also found in progressive supranuclear palsy, corticobasal degeneration, Pick disease, chronic traumatic encephalopathy, and frontotemporal dementia associated with MAPT mutations. In these conditions, Tau redistributes from axons to cell bodies and dendrites, co-localizing with pathological aggregates and leading to widespread synaptic dysfunction. Mutations in MAPT that alter splicing or protein stability can accelerate misfolding and promote familial tauopathies.

Tau is also involved in developmental and plasticity related processes. During embryogenesis, Tau supports axon extension and growth cone dynamics, co-localizing with microtubule rich regions that define emerging neuronal pathways. In mature neurons, activity dependent phosphorylation events enable Tau to modulate synaptic signaling and cytoskeletal adaptability. Isoform switching during development further shapes neuronal compartmentalization and transport efficiency. Tau expression extends to selected non neuronal tissues including peripheral nerves and some muscle cells, though at significantly lower levels.
This MAPT antibody is suitable for detecting Tau expression in research focused on neuronal cytoskeleton dynamics, axonal transport, neurodegeneration, tauopathy models, synaptic regulation, and developmental neurobiology. Its utility extends to studies investigating phosphorylation dependent signaling, cytoskeletal remodeling, and disease associated aggregation. NSJ Bioreagents provides this reagent for use in neuroscience and neurodegeneration related research applications.

Application Notes

Optimal dilution of the MAPT antibody should be determined by the researcher.

Immunogen

Recombinant human protein (amino acids M1-L322) was used as the immunogen for the MAPT antibody.

Storage

After reconstitution, the MAPT antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

Copyright © NSJ Bioreagents. All rights reserved.