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TAU Antibody

Catalog # ASC11886

Product Information

Application	WB, E, IHC-P
Primary Accession	P10636
Other Accession	NP_058519, 294862261
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	78928
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	TAU antibody can be used for detection of TAU by Western blot at 1 - 2 □g/ml. Antibody can also be used for immunohistochemistry starting at 5 □g/mL.

Additional Information

Gene ID	4137
Other Names	Microtubule-associated protein tau, Neurofibrillary tangle protein, Paired helical filament-tau, PHF-tau, MAPT, MAPTL, MTBT1, TAU
Target/Specificity	TAU; TAU antibody is human, mouse and rat reactive. Multiple isoforms of TAU are known to exist; this antibody will only detect the two longest isoforms.
Reconstitution & Storage	TAU antibody can be stored at 4℃ for three months and -20℃, stable for up to one year.
Precautions	TAU Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	MAPT (HGNC:6893)
Synonyms	MAPTL, MTBT1, TAU
Function	Promotes microtubule assembly and stability, and might be involved in the establishment and maintenance of neuronal polarity (PubMed:21985311). The C-terminus binds axonal microtubules while the N-terminus binds neural plasma membrane components, suggesting that tau functions as a linker protein between both (PubMed:21985311, PubMed:32961270). Axonal polarity is predetermined by TAU/MAPT localization (in the neuronal cell) in the domain of the cell body defined by the centrosome. The short isoforms allow plasticity of the cytoskeleton whereas the longer isoforms may

	preferentially play a role in its stabilization.
Cellular Location	Cytoplasm, cytosol. Cell membrane; Peripheral membrane protein; Cytoplasmic side. Cytoplasm, cytoskeleton. Cell projection, axon. Cell projection, dendrite. Secreted Note=Mostly found in the axons of neurons, in the cytosol and in association with plasma membrane components (PubMed:10747907). Can be secreted; the secretion is dependent on protein unfolding and facilitated by the cargo receptor TMED10; it results in protein translocation from the cytoplasm into the ERGIC (endoplasmic reticulum-Golgi intermediate compartment) followed by vesicle entry and secretion (PubMed:32272059).
Tissue Location	Expressed in neurons. Isoform PNS-tau is expressed in the peripheral nervous system while the others are expressed in the central nervous system

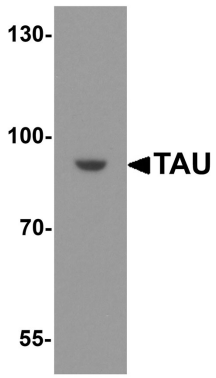
Background

The microtubial-associated protein TAU (MAPT), more commonly known as TAU, is is normally a highly soluble protein found predominantly in neurons (1), but accumulations of highly phosphorylated tau protein aggregates are observed in several neurodegenerative diseases including Alzheimer's disease, progressive supranuclear palsy, corticobasal degeneration, and frontotemporal lobar dementia. It was thought that these pathological tau aggregates were the toxic form of tau, but recent studies indicate that soluble and highly phosphorylated tau species are more closely associated with synaptic dysfunction and cell loss (2,3). Mutations in the TAU gene have also been associated with several of these neurodegenerative diseases (4).

References

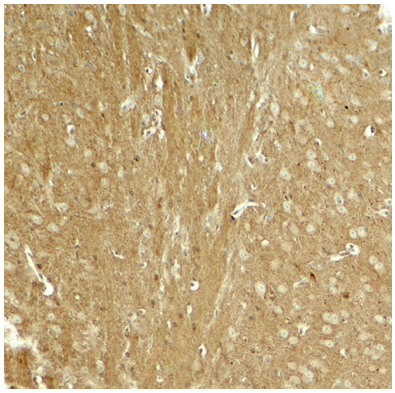
Dotti CG, Banker GA, and Binder LI. The expression and distribution of the microtubule-associated proteins tau and microtubule-associated protein 2 in hippocampal neurons in the rat in situ and in cell culture. Neuroscience 1987; 23:121-30.
Hanger DP, Brion JP, Gallo JM, et al. Tau in Alzheimer's disease and Down's syndrome is insoluble and abnormally phosphorylated. Biochem. J. 1991; 275:99–104.
Rocher AB, Crimins JL, Amatrudo JM, et al. Structural and functional changes in tau mutant mice neurons are not linked to the presence of NFTs. Exp. Neurol. 2010; 223:385–93.
Galimberti D and Scarpini E. Genetics and biology of Alzheimer's disease and frontotemporal lobar degeneration. IInt. J. Clin. Exp. Med. 2010; 3:129-43.

Images



Western blot analysis of TAU in SK-N-SH cell lysate with TAU antibody at 1 µg/ml.

Immunohistochemistry of TAU in mouse brain tissue with TAU antibody at 5 µg/ml.



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