

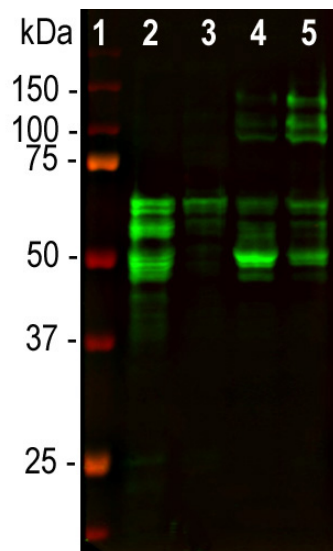
Ordering Information
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HGNC Name: MAPT
UniProt: P10636
RRID: AB_2572349
Immunogen: Recombinant full length 441 amino acid human tau
Format: Affinity purified antibody at 1mg/mL in 50% PBS, 50% glycerol plus 5mM NaN₃
Storage: Store at 4°C for short term, for longer term at -20°C. Avoid freeze / thaw cycles.
Recommended dilutions:
 WB: 1:10,000. IF/ICC 1:1,000. IHC 1:10,000

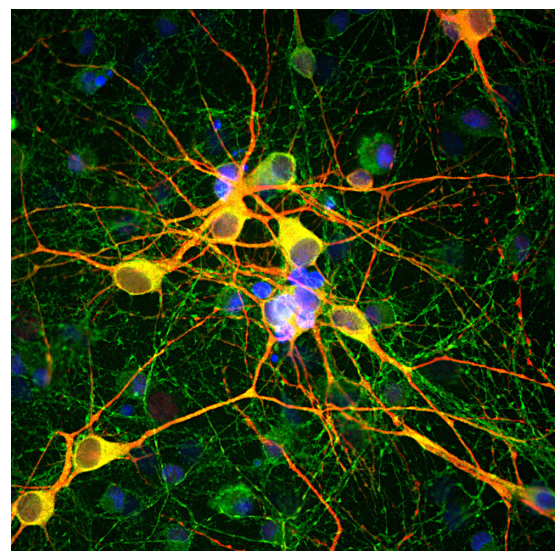
References:

- Weingarten, M. D., Lockwood, A. H., Hwo, S.-Y. and Kirschner, M. W. A protein factor essential for microtubule assembly. *Proc. Nat. Acad. Sci. USA* 72:1858-1862 (1975).
- Cleveland, D. W., Hwo, S. Y., Kirschner, M. W. Purification of tau, a microtubule-associated protein that induces assembly of microtubules from purified tubulin. *J Mol Biol.* 116:207-25 (1977).
- Goedert, M., Spillantini, M. G. A century of Alzheimer's disease. *Science* 314:777-81 (2006).
- Ballatore, C., Lee, V. M., Trojanowski, J. Q. Tau-mediated neurodegeneration in Alzheimer's disease and related disorders. *Nat. Rev. Neurosci.* 8:663-72 (2007).
- Wolfe, M. S. Tau mutations in neurodegenerative diseases. *J. Biol. Chem.* 284:6021-25 (2009).
- Goedert M, Spillantini MG, Crowther RA. Cloning of a big tau microtubule-associated protein characteristic of the peripheral nervous system. *PNAS* 89:1983-7 (1992).
- Boyne LJ, Tessler A, Murray M, Fischer I. Distribution of Big tau in the central nervous system of the adult and developing rat. *J. Comp. Neurol.* 358:279-93 (1995).
- Goedert M, et al. Multiple isoforms of human microtubule-associated protein in tau: Sequences and localization in neurofibrillary tangles of Alzheimer's disease. *Neuron* 3:519-526 (1989).

Applications	Host	Isotype	Molecular Wt.	Species Cross-Reactivity
WB, IF/ICC, IHC	Mouse	IgG1 heavy, κ light	48-67kDa	Hu, Rt, Ms, Bo, Po, Ho



Western blot analysis of different tissue lysates using mouse mAb to MAP- τ , MCA-2E9, dilution 1:2,000 in green: [1] protein standard (red), [2] rat brain, [3] rat spinal cord, [4] mouse brain, [5] mouse spinal cord. Tau protein is expressed as up to 9 different isoforms of different molecular weight, and so appears as multiple closely spaced bands in the range from 48 kDa to 67 kDa in the CNS and including larger "big tau" forms in the PNS, visible in lane 5.



Immunofluorescent analysis of cortical neuron-glia culture from E20 rat stained with mouse mAb to MAP- τ , MCA-2E9, dilution 1:1,000 in green, and costained with chicken pAb to MAP2, CPCA-MAP2, dilution 1:5,000 in red. The blue is DAPI staining of nuclear DNA. MCA-2E9 antibody stains perikarya, dendrites and axons of neurons, while MAP2 antibody labels only dendrites and perikarya. As a result, perikarya and dendrites appear orange-yellow, since they contain both proteins.

Background:

Tau is a low molecular weight member of the **microtubule associated protein** or MAP family. Several serious human diseases are associated with accumulations of tau protein, most notably the **neurofibrillary tangles of Alzheimer's disease**. Accumulations of tau in neurons are also characteristic of **chronic traumatic encephalopathy**, **Pick's disease** and several other neurodegenerative diseases. Together these disorders are known as "**tauopathies**". The single mammalian tau gene produces at least 9 different proteins by alternate transcription. In the central nervous system 6 isoforms ranging from 48-67kDa by SDS-PAGE predominate, though larger isoforms are seen mostly in the peripheral nervous system. The tau molecules are very heavily charged and run on SDS-PAGE much more slowly than predicted from their real molecular size. For example the smallest human tau isotype runs at 48kDa on SDS-PAGE but the real molecular weight is 32kDa. Tau proteins are substrates for ser/thr phosphorylation and other post-translational modifications.

The MCA-2E9 antibody was raised against a recombinant form of one of the lower molecular weight human tau isoform, specifically the human 441 amino acid htau40 form described by [Goedert et al.](#) The epitope for this antibody is located in the peptide KDRVQSKIGSLDNITHVPGG, amino acids 347-366 of the sequence in [NP_005901.2](#). This sequence is expressed in all known human tau isotypes and is totally conserved in all mammals, for exact sequence see [Tau-Epitopes.pdf](#). As a result the antibody will have wide applicability. We have another mouse monoclonal antibody raised against the same form of human tau, **MCA-5B10**, which binds the peptide HVPGGGNKKIETHKLTFRN, immediately C-terminal to the epitope for MCA-2E9. This is within the ultimate microtubule binding peptide. Both antibodies recognize the unphosphorylated forms of tau, and there is currently no evidence that phosphorylation impacts the binding of either antibody. MCA-5B10 works well on western blots IF, ICC and also for IHC of human brain tissue.

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Abbreviation Key:

mAb—Monoclonal Antibody **pAb**—Polyclonal Antibody **WB**—Western Blot **IF**—Immunofluorescence **ICC**—Immunocytochemistry
IHC—Immunohistochemistry **E**—ELISA **Hu**—Human **Mo**—Monkey **Do**—Dog **Rt**—Rat **Ms**—Mouse **Co**—Cow **Pi**—Pig **Ho**—Horse **Ch**—Chicken
Dr—*D. rerio* **Dm**—*D. melanogaster* **Sm**—*S. mutans* **Ce**—*C. elegans* **Sc**—*S. cerevisiae* **Sa**—*S. aureus* **Ec**—*E. coli*.

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