

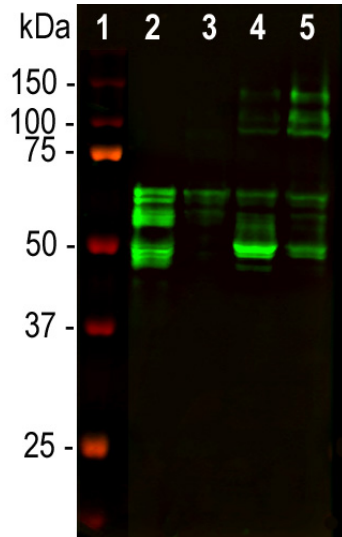
Ordering Information
Web www.encorbio.com
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Phone 352-372-7022
Fax 352-372-7066

HGNC Name: MAPT
UniProt: P10636
RRID: AB_2572350
Immunogen: Recombinant full length 441 amino acid human tau
Format: Purified antibody at 1mg/mL in 50% PBS, 50% glycerol plus 5mM Na₂S₂O₃
Storage: Stable at 4°C for one year, for longer term store at -20°C
Recommended dilutions:
Western blot: 1:10,000. IF/ICC 1:1,000. IHC 1:10,000

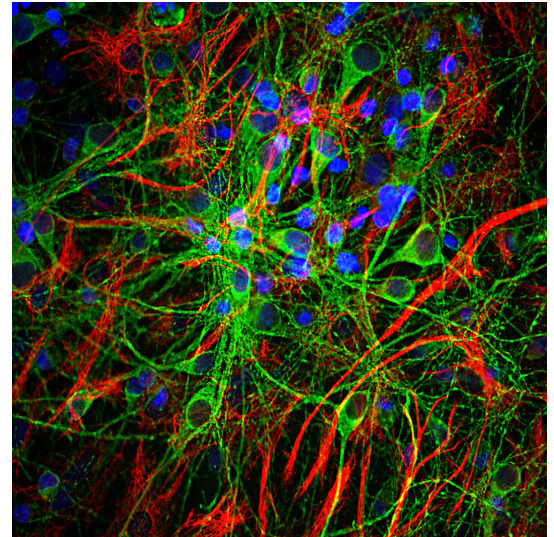
References:

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Applications	Host	Isotype	Molecular Wt.	Species Cross-Reactivity
WB, ICC/IF, IHC	Mouse	IgG1	48-67 kDa, with higher molecular weight "big tau" isoforms mostly in peripheral tissues.	Hu, Rt, Ms



Western blot analysis of tissue lysates using mouse mAb to MAP- τ , MCA-5B10, 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 region of the blot from 48 kDa to 67 kDa with some higher molecular weight "big tau" Isoforms.



Immunofluorescent analysis of cortical neuron-glia culture from E20 rat stained with mouse mAb to MAP- τ , MCA-5B10, dilution 1:2,000 in green, and costained with chicken pAb to GFAP, CPCA-GFAP, dilution 1:5,000 in red. The blue is DAPI staining of nuclear DNA. MCA-5B10 stains perikarya, dendrites and axons of neurons, while the GFAP antibody labels astrocytes.

Background:

MAP- τ is a low molecular weight member of the [microtubule associated protein](#) or MAP family. Several serious human diseases are associated with accumulations of MAP- τ , usually referred to as 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 isotypes 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-5B10 antibody was raised against a recombinant form of one of the lower molecular weight human tau isoform, specifically the human 441 amino acid httau40 form described by [Goedert et al.](#) The epitope for this antibody is located in the peptide HVPGGGNNKIETHKLTFRN, amino acids 362-381 of the sequence in [NP_005901.2](#). This corresponds to the C-terminus of the ultimate microtubule binding peptide repeat and some following sequence, see the exact sequence in [Tau-Epitopes.pdf](#). This sequence is expressed in all known human tau isotypes and is totally conserved in all mammals and other higher vertebrates. As a result the antibody will have wide applicability. The antibody works well for western blotting and for IF, ICC and IHC (see data under "Additional Info" tab). We have another mouse monoclonal antibody raised against the same form of human tau, [MCA-2E9](#), which binds the peptide KDRVQSKIGSLDNITHVPGG, amino acids 347-366, immediately preceding the epitope for MCA-5B10. This is within the ultimate microtubule binding peptide. Both antibodies recognize the unphosphorylated forms of tau. We have not to date examined the effect of tau phosphorylation on binding of either antibody. MCA-5B10 works well on western blots IF, ICC and 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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