

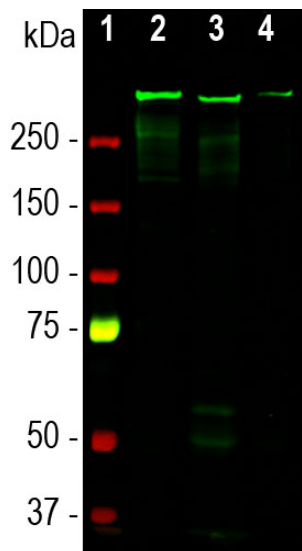
Ordering Information
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HGNC Name: MAP2
UniProt: P11137
RRID: AB_2572346
Immunogen: Full length purified bovine protein, epitope mapped to projection domain of human sequence, amino acids 631-1056 using EnCor product *Prot-r-MAP2-P2*
Format: Purified antibody at 1mg/mL in 50% PBS, 50% glycerol plus 5mM NaN₃
Storage: Stable at 4°C for one year, for longer term store at -20°C
Recommended dilutions:
 WB: 1:10,000. IF/ICC and IHC: 1:1,000.

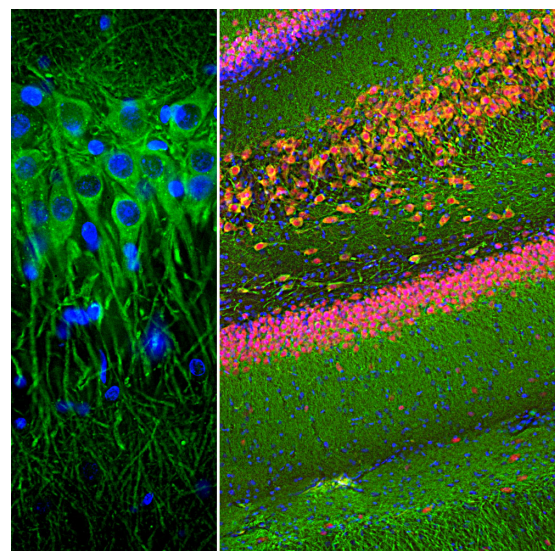
References:

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2. Nunez J. Immature and mature variants of MAP2 and tau proteins and neuronal plasticity. *Trends Neurosci.* 11:477-9 (1998).
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Applications	Host	Isotype	Molecular Wt.	Species Cross-Reactivity
WB, IF/ICC, IHC	Mouse	IgG1	~280kDa by SDS-PAGE	Hu, Rt, Ms, Co



Western blot analysis of tissue and cell lysates using mouse mAb to MAP2, MCA-4H5, dilution 1:10,000 in green: [1] protein standard (red), [2] rat brain, [3] mouse brain, and [4] embryonic rat cortical neuron-glia cell lysate. A band at about 280 kDa corresponds to the MAP2A and MAP2B proteins.



Immunofluorescent analysis of a rat hippocampus section stained with mouse mAb to MAP2, MCA-4H5, dilution 1:2,000 in green, and costained with rabbit pAb to FOX3/NeuN, *RPCA-FOX3*, dilution 1:2,000 in red. Following transcardial perfusion of rat with 4% paraformaldehyde, brain was post fixed for 24 hours, cut to 45µM, and free-floating sections were stained with above antibodies. The MCA-4H5 antibody labels MAP2 protein in the perikarya and dendrites of most neurons while the FOX3/NeuN antibody selectively stains nuclei and proximal soma of neuronal cells.

Background:

Microtubules are 25nm diameter protein rods found in most kinds of eukaryotic cells and are associated with a family of proteins called microtubule associated proteins (MAPs). MAPs play a crucial role in the regulation of microtubule dynamics and interactions *in vivo*. MAP2 was originally named as one of the higher molecular weight MAPs with an SDS-PAGE molecular weight of about 280kDa (1-3). There is a single mammalian MAP2 gene which may generate two high molecular weight proteins of ~280kDa name MAP2A and MAP2B and multiple lower molecular weight forms usually named MAP2C and MAP2D which run on SDS-PAGE gels at 60-70kDa. The lower molecular weight forms are found in neurons early in development, but as the animal matures they are replaced by the higher molecular weight forms (2). The MAP2A and MAP2B forms include a protein sequence which forms fine filamentous protrusions from the sides of brain microtubules, which is therefore referred to as the projection domain. The epitope for this antibody was mapped to the projection domain sequences so the antibody is specific for MAP2A and MAP2B. This region is one of the prototypes for "intrinsically unstructured regions", a widespread type of protein sequence (4). MAP2 isoforms are expressed only in neurons, specifically in the perikarya and dendrites of these cells. Antibodies to MAP2 isotypes are therefore excellent markers of neuronal dendrites and are useful for identifying neurons in cell culture and sections (e.g. 5-9).

This antibody was raised against purified full length bovine brain MAP2 and the epitope was mapped to amino acids 631-1056 of the human sequence since it bound to EnCor product *Prot-r-MAP2-P2*, a recombinant human construct containing these sequences. EnCor markets another mouse monoclonal antibody binding a different epitope in MAP2A and MAP2B *MCA-5H11* and a monoclonal recognizing all MAP2 isoforms, *MCA-2C4*. EnCor also markets chicken and goat polyclonal antibodies specific for MAP2A and MAP2B *CPCA-MAP2* and *GPCA-MAP2*.

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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*.