

MAP2A/B Goat Polyclonal Antibody

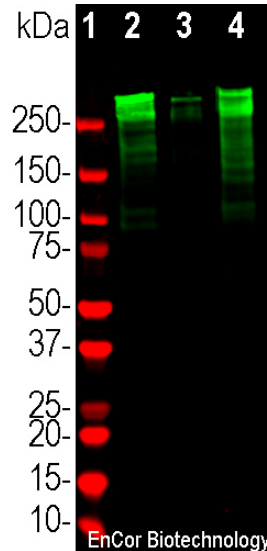
Ordering Information
 Web www.encorbio.com
 Email admin@encorbio.com
 Phone 352-372-7022
 Fax 352-372-7066

HGNC Name: MAP2
UniProt: P11137
RRID: AB_2889161
Immunogen: Recombinant human projection domain sequences, amino acids 377-1505, EnCor products [Prot-r-MAP2-P1](#), [Prot-r-MAP2-P2](#) and [Prot-r-MAP2-P3](#).
Format: Supplied as an aliquot of serum plus 5mM NaN₃
Storage: Stable at 4°C for one year, for longer term store at -20°C
Recommended dilutions:
 WB: 1:50,000. IF/ICC 1:10,000

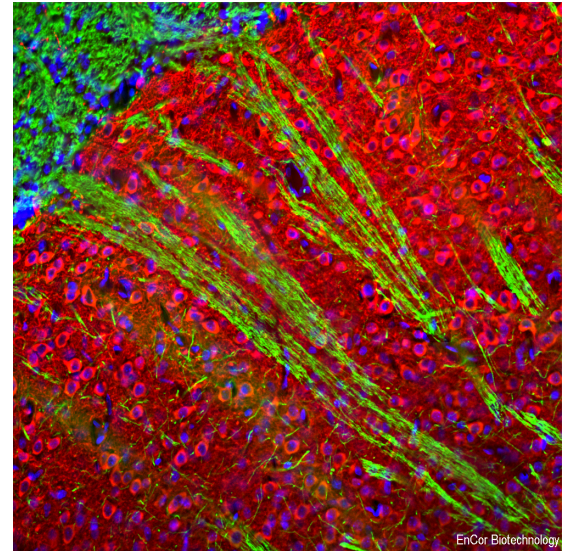
References:

1. Dehmelt H, Halpain S. The MAP2/Tau family of microtubule-associated proteins. *Genome Biol.* 6:204 (2005).
2. Nunez J. Immature and mature variants of MAP2 and tau proteins and neuronal plasticity. *Trends Neurosci.* 11:477-9 (1998).
3. Vallee R. A taxol-dependent procedure for the isolation of microtubules and microtubule-associated proteins (MAPs). *J. Cell Biol.* 92:435-42 (1992).
4. Goetz AK, et al. Temporally restricted substrate interactions direct fate and specification of neural precursors derived from embryonic stem cells. *PNAS* 103:11063-8 (2006).
5. Walton NM et al. Gliotypic neural stem cells transiently adopt tumorigenic properties during normal differentiation. *Stem Cells* 27:280-9 (2009).
6. Gasser A, et al. An ankyrinG-binding motif is necessary and sufficient for targeting Nav1.6 sodium channels to axon initial segments and nodes of Ranvier. *J. Neurosci.* 32:7232-43 (2012).
7. Rush AM, et al. Differential modulation of sodium channel Nav1.6 by two members of the fibroblast growth factor homologous factor 2 subfamily. *Eur. J. Neurosci.* 23:2551-62 (2006).
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Applications	Host	Isotype	Molecular Wt.	Species Cross-Reactivity
WB, IF/ICC	Rabbit		280kDa by SDS-PAGE	Hu, Rt, Ms, Co



Western blot analysis of different tissue lysates using rabbit pAb to microtubule associated protein 2A and 2B (MAP2A/B), RPCA-MAP2A/B, dilution 1:50,000 in green: [1] protein standard (red), [2] rat brain, [3] mouse brain, and [4] cow cortex. Strong band at about 280kDa mark corresponds to the two major high molecular weight MAP2 isoforms referred to as MAP2A and MAP2B. Smaller fragments of these isoforms are also detected on the blot, but the MAP2C and MAP2D isoforms are not.



Immunofluorescent analysis of rat brain striatum stained with rabbit pAb to microtubule associated protein 2A and 2B isoforms (MAP2A/B), RPCA-MAP2A/B, dilution 1:10,000 in red, and costained with chicken pAb to myelin basic protein (MBP), CPCA-MBP, dilution 1:5,000 in green. The blue is Hoechst staining of nuclear DNA. The MAP2A/B antibody stains dendrites and perikarya of neurons, while the MBP antibody labels oligodendrocytes and myelin sheaths around axons.

Background:

Microtubules are 25nm diameter protein rods found in 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 named 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 later are replaced by the higher molecular weight forms (2). The MAP2A and MAP2B forms include a protein insert missing in MAP2C and MAP2D which forms fine filamentous protrusions from the sides of brain microtubules referred to as the "projection domain". This antibody was made against the projection domain sequences and so is specific for MAP2A and MAP2B. MAP2 isoforms are expressed only in neuronal perikarya and dendrites so appropriate antibodies are used to identify these structures in cell culture and sections (for example images in references 4-8 used EnCor MAP2 antibodies).

The RPCA-MAP2A/B antibody was made against a mixture of recombinant human projection domain sequences, amino acids 377-1505, EnCor products [Prot-r-MAP2-P1](#), [Prot-r-MAP2-P2](#) and [Prot-r-MAP2-P3](#). It binds to the MAP2A and MAP2B isoforms but not the lower molecular weight MAP2C and MAP2D forms which lack the projection domain sequences. This antibody is of very high titre, working well at dilutions of 1:10,000. EnCor also markets a mouse monoclonal antibody specific for sequence found in all MAP2 isoforms, [MCA-2C4](#), and also monoclonal antibodies binding epitopes only in MAP2A/B [MCA-4H5](#) and [MCA-5H11](#). We also market chicken and goat polyclonal antibodies to MAP2A/B with properties similar to this rabbit antibody, [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.