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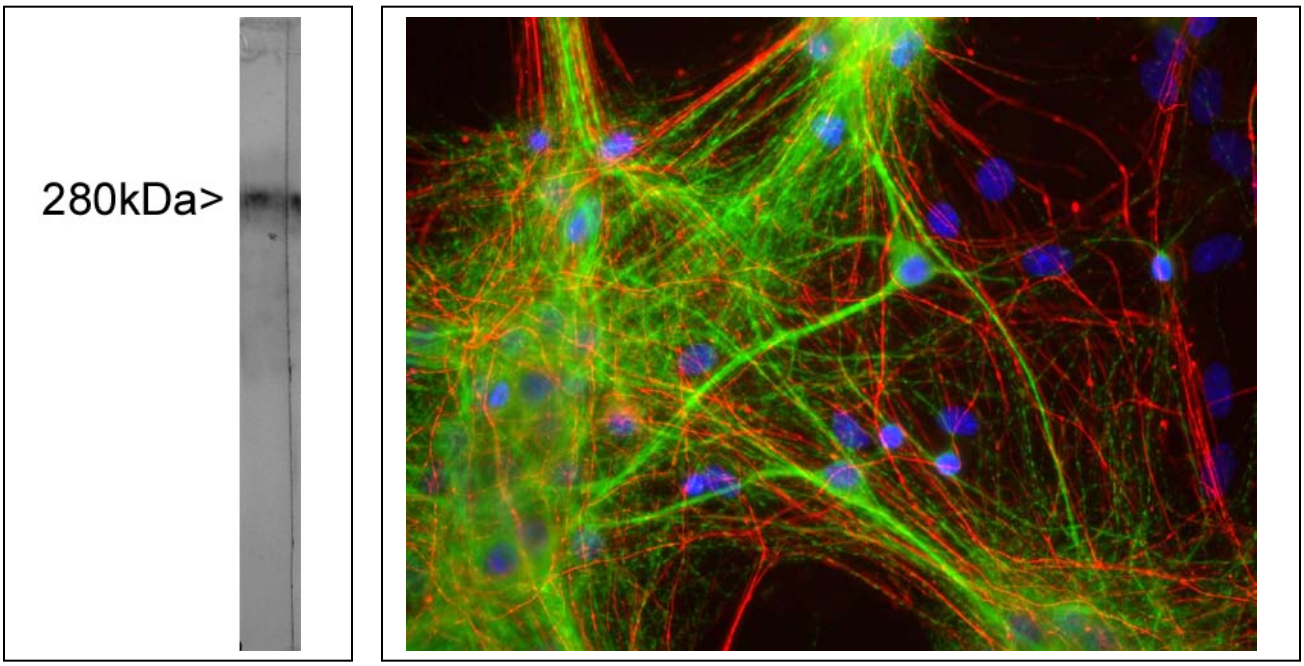
Catalogue# MCA-4H5: Mouse Monoclonal Antibody to Microtubule Associated Protein 2 (MAP2)

The Immunogen: Microtubules are 25nm diameter protein rods found in most kinds of eukaryotic cells. They are polymerized from a dimeric subunit made of one a subunit and one b tubulin subunit. Microtubules are associated with a family of proteins called microtubule associated proteins (MAPs), which includes the protein t (tau) and a group of proteins referred to as MAP1, MAP2, MAP3, MAP4 and MAP5. MAP2 is made up of two ~280kDa apparent molecular weight bands referred to as MAP2a and MAP2b. A third lower molecular weight form, usually called MAP2c, corresponds to a pair of protein bands running at ~70kDa on SDS-PAGE gels. All these MAP2 forms are derived from a single gene by alternate transcription, and all share a C-terminal sequence which includes either three or four microtubule binding peptide sequences, which are very similar to those found in the related microtubule binding protein t (a.k.a. MAP-tau or tau).

MAP2 isoforms are expressed only in neuronal cells and specifically in the perikarya and dendrites of these cells. Antibodies to MAP2 are therefore excellent markers of neuronal cells, their perikarya and neuronal dendrites. In contrast MAP-t (MAP-tau) is found predominantly but not exclusively in neuronal axons. The HGNC name for this protein is MAP2.



Left: Western blot of rat brain extract probed with MCA-4H5; note that the strong single band running at about 280kDa corresponds to MAP2. **Right:** Mixed neuron and glia cultures stained with MCA-4H5 (green), and RPCA-NF-H rabbit antibody to neurofilament NF-H (red) and DNA (blue). MCA-4H5 antibody reveals strong cytoplasmic staining for of dendrites and perikarya, which does not overlap with the NF-H antibody, which primarily binds to axons.

Antibody characteristics: MCA-4H5 is a mouse IgG1 class antibody with a k light chain. MCA-4H5 recognizes MAP2 specifically both in western blots and in immunocytochemical experiments. MCA-4H5 has been tested to react with MAP2 from human, cow, mouse.

Suggestions for use: The antibody solution is affinity purified from tissue culture supernatant and is at concentration of 1mg/ml in phosphate buffered saline preparation containing 10 mM sodium azide preservative (Link to http://www.encorbio.com/MSDS/azide.htm for Material Safety Data Sheet). The antibody solution can be used at dilutions of at least 1:1,000 in immunofluorescence experiments. In western blotting using

chemiluminescence it can be used at dilutions of 1:10,000 or lower. Avoid repeated freezing and thawing, store at 4°C or -20°C.

OMIM Link: http://omim.org/entry/157130

Limitations: This product is for research use only and is not approved for use in humans or in clinical diagnosis.

References:

1. Goetz AK, Scheffler B, Chen HX, Wang S, Suslov O, Xiang H, Brüstle O, Roper SN, Steindler DA. Temporally restricted substrate interactions direct fate and specification of neural precursors derived from embryonic stem cells. Proc Natl Acad Sci U S A. 103:11063-11068 (2006).

2. Walton NM, Snyder GE, Park D, Kobeissy F, Scheffler B, Steindler DA. Gliotypic neural stem cells transiently adopt tumorigenic properties during normal differentiation. Stem Cells 27:280-289 (2009).

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