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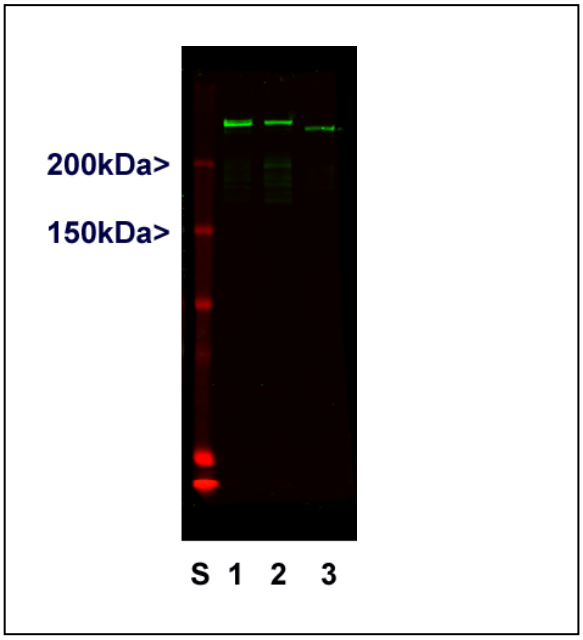
Catalogue# CPCA-MAP2: Chicken Polyclonal Antibody to Microtubule associated protein 2 (MAP2) Lot 7225-4

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 ~280 kDa apparent molecular weight bands referred to as MAP2a and MAP2b. Lower molecular weight forms, usually called MAP2c and MAP2d corresponds to a pair of protein bands running at ~70 kDa 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 (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 on neuronal cells, their perikarya and neuronal dendrites. In contrast t (tau) is found predominantly in neuronal axons. The immunogen for this antibody is comprised of three peptide constructs spanning the projection domain of MAP2 (aa 377-1505), specifically our products Prot-r-MAP2-P1, Prot-r-MAP2-P2 and Prot-r-MAP2-P3. As a result this antibody only binds to the mature forms of MAP2. specifically MAP2a and MAP2b and not the lower molecular weight MAP2c and MAP2d forms which are found early in development. Our mouse monoclonal MCA-2H2 binds an epitope shared by all MAP2 forms and so binds both embryonic and mature MAP2. The HGNC name for this protein is MAP2.



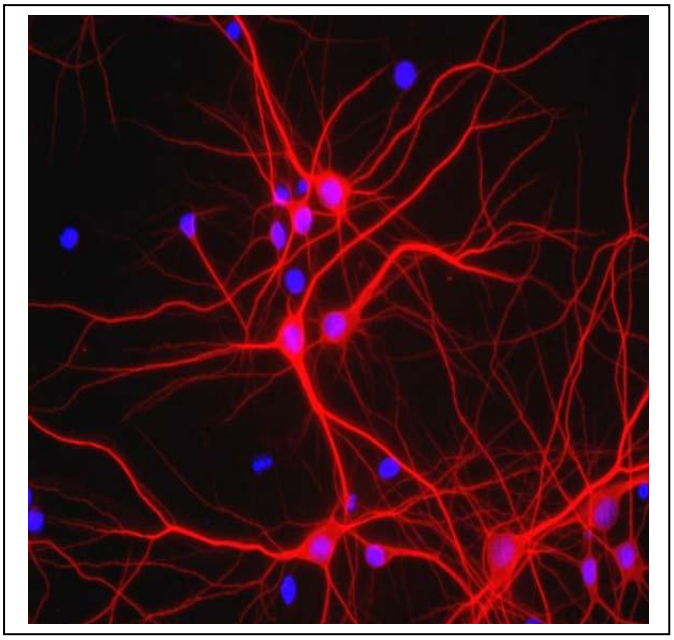


Figure Left: Western blot of in lane 1 adult rat brain lysate, lane 2 E20 rat brain lysate and lane 3 adult mouse brain extract, run at a concentration of 1;50,000. The band running at ~260-280 kDa corresponds to intact rat and mouse MAP2. The mouse protein is known to slightly smaller and ehe embryonic forms of MAP2, MAP2D and MAP2C are not detected with this antibody. MAP2 is a quite unstable protein an on longer exposure or higher antibody concentration numerous proteolytic fragments of MAP2 below 260-280kDa can be seen. Antibody was used at 1:50,000 dilution. **Right:** View of mixed neuron/glial cultures stained with CPCA-MAP2 (red). The perikarya and dendrites of neurons are strongly and specifically stained with the MAP2 antibody, while the axons of the neurons and the processes of all other cell types in these cultures (astrocytes, oligodendrocytes, microglia, endothelia and fibroblasts) are all negative. Cell nuclei are visualized with DAPI DNA stain.

Antibody Characteristics: This antibody was generated in chicken by standard procedures and immunoglobulin was extracted from egg yolk. The resulting polyclonal antibody belongs to the IgY subclass. This is the chicken homologue of mammalian IgG and can be used in the same general way, with the caveat that this type of antibody does not bind

either Protein A or Protein G. Suitable second antibody reagents can be obtained from many vendors including Molecular Probes and Sigma-Aldrich. Store at 4°C or -20°C. Avoid repeat freezing and thawing.

Suggestions for use: The IgY solution is at a concentration of ~23 mg/mL and has a high titer against MAP2. It can be used at dilutions of at 1:5,000 in immunofluorescence experiments. In western blotting using chemiluminescence, it can be used at dilutions of 1:10,000 or lower.

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).