Myelin Basic Protein Goat Polyclonal Antibody

GPCA-MBP

Ordering Information
Web *www.encorbio.com*
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Phone *352-372-7022*
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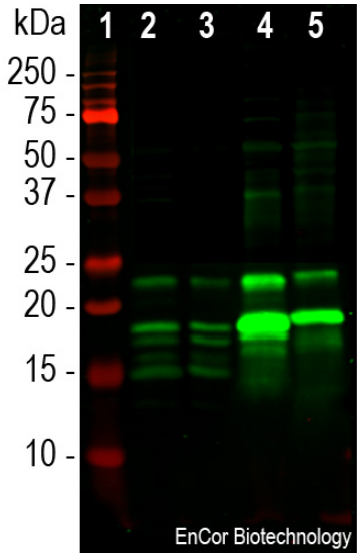
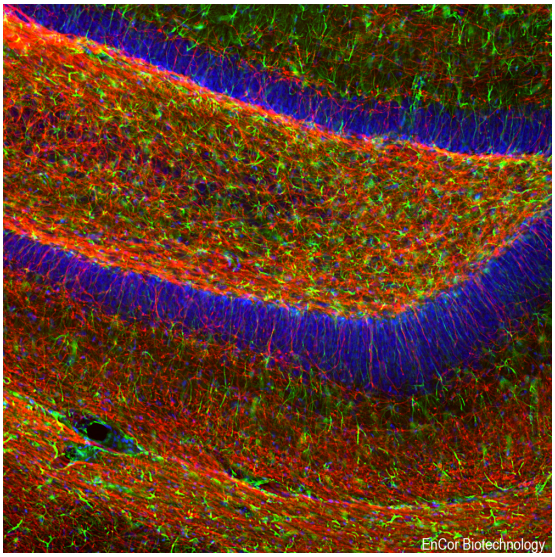
HGNC Name: *MBP*
UniProt: *P11226*
RRID: *AB_2861184*
Immunogen: *Purified myelin basic protein isolated from bovine brain*
Format: *Affinity purified antibody at 1mg/mL in 50% PBS, 50% glycerol plus 5mM NaN_3*
Storage: *Store at 4°C for short term, for longer term at -20°C*
Recommended dilutions:
WB: 1:5,000-10,000. IF/ICC 1:2,000-5,000

Applications	Host	Isotype	Molecular Wt.	Species Cross-Reactivity
WB, IF/ICC	Goat		14, 17, 18.5 and 21.5kDa in rodent	Hu, Rt, Ms, Co, Pi



Western blot analysis of different tissue lysates using goat pAb to myelin basic protein (MBP), GPCA-MBP, dilution 1:5,000 in green: [1] protein standard (red), [2] rat cerebellum, [3] mouse cerebellum, [4] cow midbrain and [5] pig midbrain. Multiple bands between 15-25 kDa mark correspond to the various alternate transcripts of the single MBP gene.



Immunofluorescent analysis of mouse hippocampus section stained with goat pAb to myelin basic protein (MBP), GPCA-MBP, dilution 1:5,000 in red, and costained with rabbit pAb to GFAP, RPCA-GFAP, dilution 1:5,000 in green. The blue is Hoechst staining of nuclear DNA. The GPCA-MBP antibody stains oligodendrocytes and myelin sheathes around axons, while the GFAP antibody reveals the network of glial cells.

Background:

Myelin Basic Protein (MBP) is one of the major proteins of the myelin sheath surrounding axons in the nervous system. Since it is of relatively low molecular weight and high abundance the protein sequence was determined from purified protein over 30 years ago (1). The protein is made by oligodendrocytes in the central nervous system, so antibodies to MBP are good markers of this cell type. In the peripheral nervous system MBP is expressed by myelinating Schwann cells so this antibody can be used to identify these cells in culture or sections. In the central nervous system four different forms of the protein made by alternate transcription from a single gene, the protein products with molecular weights of 21.5, 20.5, 18.5, and 17.2kDa in humans. The single gene of rodents also produces 4 different proteins, but of slightly different sizes, 21.5, 18.5, 17 and 14kDa. Some interest has focused on MBP as a potentially significant auto-antigen involved in mouse models of multiple sclerosis (MS, 3) and in human patients (4). Detection of MBP released into blood and CSF has some potential as a surrogate biomarker of demyelination and axonal loss in MS and other relevant damage and disease states (e.g. 5).

The GPCA-MBP antibody was made against a preparation of MBP purified from bovine brain. It can be used to identify oligodendrocytes and Schwann cells in neural cell culture, to visualize myelin sheaths and myelinating cells in sections and to probe western blots for MBP gene products. The antibody is also rather insensitive to aldehyde fixation and so can be used in immunohistochemistry of paraffin sections. The antibody binds all four of isoforms of MBP on western blots. In contrast our mouse monoclonal MCA-7D2 binds only the 21.5kDa and 18.5kDa rat isotypes, mapping the epitope to the product on one exon, while our MCA-7G7 binds all four isoforms. We also market a chicken polyclonal antibody to MBP CPCA-MBP. A sequence alignment of the four CNS MBP isotypes in human and rat can be downloaded from here.

References:

1. Eylar EH, et al. Basic A1 protein of the myelin membrane. The complete amino acid sequence. J. Biol. Chem. 246:5770-84 (1971).
2. Marty MC, et al. The myelin basic protein gene is expressed in differentiated blood cell lineages and in hemopoietic progenitors. PNAS 99:8856-61 (2002).
3. Libbey JE, Fujinami RS. Experimental Autoimmune Encephalomyelitis as a Testing Paradigm for Adjuvants and Vaccines. Vaccine 29:3356–62 (2011).
4. Wucherpfennig KW, Strominger JL. Molecular mimicry in T cell-mediated autoimmunity: Viral peptides activate human T cell clones specific for myelin basic protein. Cell 80:695-705 (1995).
5. Berger RP, et al. Serum neuron-specific enolase, S100B, and myelin basic protein concentrations after inflicted and noninflicted traumatic brain injury in children. J. Neurosurg. 103:61-8 (2005).

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.