Hello Bio, Inc.
304 Wall St., Princeton, NJ 08540 USA

T. 609-683-7500
F. 609-228-4994

customercare-usa@hellobio.com

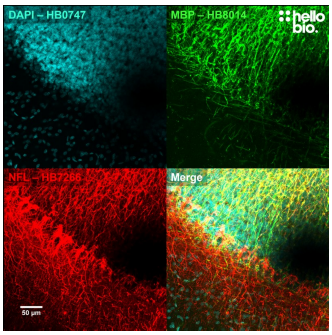
DATASHEET

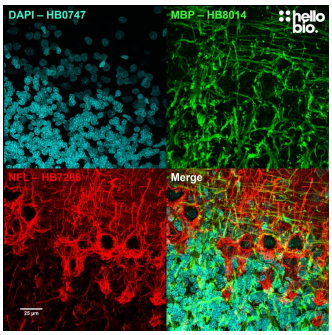
Anti-Myelin Basic Protein (MBP) Antibody ValidAb™

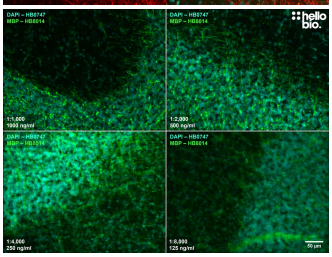
Product overview

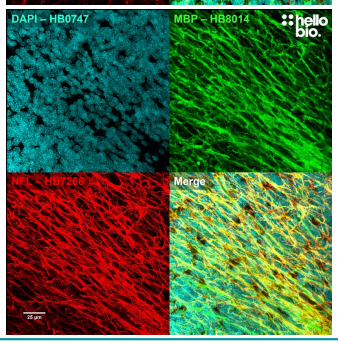
Name	Anti-Myelin Basic Protein (MBP) Antibody ValidAb™
Cat No	HB8014
Host	Mouse
Clonality	Monoclonal
Target	Myelin basic protein
Description	Antibody to myelin basic protein (MBP) - marker for oligodendrocytes and Schwann cells. Part of the ValidAb™ range of highly validated, data-rich antibodies.

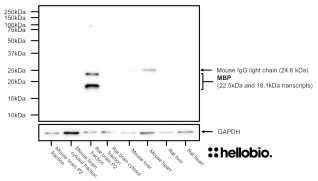
Validation data

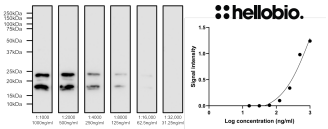












Product information

Immunogen	Myelin basic protein (MBP) purified from bovine brain
Epitope	Amino acids 145 - 184 of the human 21.5kDa sequence corresponding to the amino acid sequence: AEGQRPGFGYGGRASDYKSAHKGFKGVDAQGTLSKIFKLG
Clone number	7D2
Isotype	IgG1
Purification	Protein G affinity purification
Concentration	1 mg/ml
Formulation	50% PBS, 50% glycerol + 5mM sodium azide
Predicted species reactivity	Rat, Human, Pig, Horse, Cow
Tested species reactivity	Rat, Mouse (no staining)

Tested applications

Applications	WB, IHC(IF)
Western blot optimal concentration	250ng/ml (1:4,000 dilution) as tested in a rat brain P2 membrane preparation
IHC(IF) optimal concentration	500ng/ml (1:2,000 dilution) as tested in rat cerebellum sections
Positive control	Myelin basic protein is present in large quantities within the CNS and PNS therefore brain and/or other nerve samples form an excellent positive control. MBP expression has been reported (see the human protein atlas) in some cell lines such as SK-MEL-30 cells.
Negative control	MBP is not found in appreciable quantities in peripheral tissues therefore these can be used as a negative control. Within the brain MBP is associated with the membrane bound fraction and is absent from the cytosol therefore this can be used as a negative control. MBP is also absent from many common cells lines such as SH-SY5Y, HeLa and HEK293 cells.
Open data link	Please follow this link to OSF

Target information

Other names	Myelin A1 protein, Myelin membrane encephalitogenic protein
UniProt ID	P02686
Gene name	MBP
NCBI full gene name	myelin basic protein
Entrez gene ID	4155
Amino acids	160 - 304 (17.3 - 33.1kDa) depending upon isotype
Isoforms	Myelin basic protein has a number of isoforms expressed under the control of alternative splicing: • Isoform 1 (canonical), also known as Golli-MBP1, HOG7: 304aa, 33.1kDa • Isoform 2, also known as Golli-MBP2, HOG5: 197aa, 21.5kDa • Isoform 3, also known as MBP1, 197aa, 21.5kDa • Isoform 4, also known as MBP2, 186aa, 20.2kDa • Isoform 5, also known as MBP3, 171aa, 18.6kDa • Isoform 6, also known as MBP4, 160 aa, 17.3kDa
Expression	MBP isoforms are expressed widely in the CNS and PNS within the myelin sheaths that surround axons. Oligodendrocytes in the CNS and their equivalent in the PNS, Schwann cells, express MBP strongly therefore MBP is a good marker for them. The golli forms of MBP are also expressed in the immune system and bone marrow.
Subcellular expression	Expressed within the cytosol of oligodendrocytes and Schwann cells and the myelin sheath of axons. The 21.kDa isoform (MBP1) is also found in the nucleus of oligodendrocytes.
Target function	MBP is essential for the formation and maintenance of the myelin sheaths that surround and insulate the axons of neurones. Amongst many roles, MBP helps anchor the layers of the myelin sheath together to ensure they are as compact as possible, reducing the permeability to escaping ions from the neuron. This enables the long distance transmission of signals down axons with limited loss in signal strength.
Processing	The initiator methionine is removed from isoforms 3-6.
Post translational modifications	MBP isoforms are subject to numerous post-translational modifications including phosphorylation, citrullination and acetylation. Some of these modification fall within the epitope of HB8014.
Homology (compared to human)	Mouse and rat isoforms have a 74.6% and 92.9% identity to human MBP in a BLAST search
Similar proteins	No similar proteins reported in a BLAST search
Epitope homology (between species)	In a BLAST search only MBP resulted as a match with the epitope sequence.
Epitope homology (other proteins)	In a BLAST search the following species' MBP proteins had the following homology with the epitope sequence: • Human – 100% identity • Bovine – 92.5% identity • Chimpanzee – 95.1% identity • Rat – 92.7% identity • Mouse – 92.7% mouse • Rabbit – 85% identity • Horse – 85.4% identity • Pig – 85.4% identity • Chicken – 61.0% identity

Storage & Handling

Storage instructions	-20°C
Important	This product is for RESEARCH USE ONLY and is not intended for therapeutic or diagnostic use. Not for human or veterinary use

References

Myelin basic protein: a multifunctional protein.

Boggs JM (2006) Cellular and molecular life sciences : CMLS 63
PubMedID 16794783

Multiple sclerosis and myelin basic protein: insights into protein disorder and disease.

Martinsen V et al (2022) Amino acids 54
PubMedID 34889995

Myelin basic protein immunoreactivity in the human embryonic CNS

Zecevic N et al (1998) Brain research. Developmental brain research 105
PubMedID 9473608

Immunosignals of Oligodendrocyte Markers and Myelin-Associated Proteins Are Critically Affected after Experimental Stroke in Wild-Type and Alzheimer Modeling Mice of Different Ages.

Michalski D et al (2018) Frontiers in cellular neuroscience 12
PubMedID 29467621

The myelin basic protein gene is expressed in differentiated blood cell lineages and in hemopoietic progenitors.

Marty MC et al (2002) Proceedings of the National Academy of Sciences of the United States of America 99
PubMedID 12084930

gamma-Aminobutyric acid outside the mammalian brain.

Erdö SL et al (1990) Journal of neurochemistry 54
PubMedID 2405103