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DATASHEET

Anti-Myelin Basic Protein (MBP) Antibody ValidAb™

Product overview

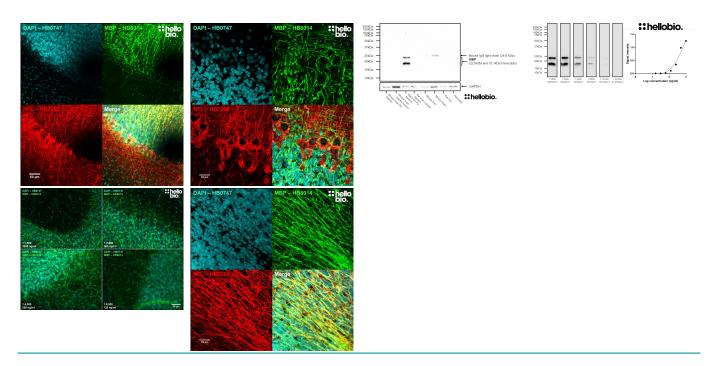
Name Anti-Myelin Basic Protein (MBP) Antibody ValidAbTM

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 Rat, Mouse (no staining)

Applications WB. IHC(IF)

Western blot optimal 250ng/ml (1:4,000 dilution) as tested in a rat brain P2 membrane preparation

concentration

Positive control

IHC(IF) optimal concentration 500ng/ml (1:2,000 dilution) as tested in rat cerebellum sections

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 MBP Gene name

NCBI full gene name myelin basic protein

Entrez gene ID 4155

160 - 304 (17.3 - 33.1kDa) depending upon isotype Amino acids

Myelin basic protein has a number of isoforms expressed under the control of alternative splicing: Isoforms

• 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 MBP isoforms are subject to numerous post-translational modifications including phosphorylation, modifications citrullination and acetylation. Some of these modification fall within the epitope of HB8014.

Mouse and rat isoforms have a 74.6% and 92.9% identity to human MBP in a BLAST search Homology (compared to

human) Similar proteins No similar proteins reported in a BLAST search

Epitope homology (between

species)

Epitope homology (other proteins)

In a BLAST search only MBP resulted as a match with the epitope sequence.

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 **Shipping Conditions** -20°C On ice

This product is for RESEARCH USE ONLY and is not intended for therapeutic or diagnostic use. Not **Important**

References

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

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

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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

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