Product datasheet

Anti-Myelin Basic Protein antibody ab40390

13 Abreviews | 19 References | 6 Images

Overview

- Product name: Anti-Myelin Basic Protein antibody
- Description: Rabbit polyclonal to Myelin Basic Protein
- Tested applications: Suitable for: ICC/IF, WB, IHC-FoFr, IHC-Fr, IHC-P
- Species reactivity: Reacts with: Mouse, Rat
- Immunogen: Synthetic peptide conjugated to KLH derived from within residues 150 to the C-terminus of Mouse Myelin Basic Protein. Read Abcam’s proprietary immunogen policy (Peptide available as ab40389.)
- Positive control: This antibody gave a positive signal in the following Tissue Lysates: Brain (Mouse) and Brain (Rat).
- General notes: For a recombinant version of Myelin Basic Protein antibody (WB, ICC/IF, IHC-P, Human, Mouse, Rat) - see Ab209328 - clone IGX3421

Properties

- Form: Liquid
- Storage instructions: Shipped at 4°C. Store at +4°C short term (1-2 weeks). Upon delivery aliquot. Store at -20°C or -80°C. Avoid freeze / thaw cycle.
- Storage buffer: Preservative: 0.02% Sodium Azide
  Constituents: 1% BSA, PBS, pH 7.4
- Purity: Immunogen affinity purified
- Clonality: Polyclonal
- Isotype: IgG

Applications

Our Abpromise guarantee covers the use of ab40390 in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

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<tr>
<th>Application</th>
<th>Abreviews</th>
<th>Notes</th>
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<tbody>
<tr>
<td>ICC/IF</td>
<td>★★★★★</td>
<td>Use a concentration of 5 µg/ml.</td>
</tr>
<tr>
<td>WB</td>
<td>★★★★★</td>
<td>Use a concentration of 1 µg/ml. Predicted molecular weight: 33 kDa. Can be blocked with Mouse Myelin Basic Protein peptide (ab40389).</td>
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</table>
The classic group of MBP isoforms (isoform 4-isoform 14) are with PLP the most abundant protein components of the myelin membrane in the CNS. They have a role in both its formation and stabilization. The smaller isoforms might have an important role in remyelination of denuded axons in multiple sclerosis. The non-classic group of MBP isoforms (isoform 1-isoform 3/Golli-MBPs) may preferentially have a role in the early developing brain long before myelination, maybe as components of transcriptional complexes, and may also be involved in signaling pathways in T-cells and neural cells. Differential splicing events combined with optional post-translational modifications give a wide spectrum of isomers, with each of them potentially having a specialized function. Induces T-cell proliferation.

**Tissue specificity**

MBP isoforms are found in both the central and the peripheral nervous system, whereas Golli-MBP isoforms are expressed in fetal thymus, spleen and spinal cord, as well as in cell lines derived from the immune system.

**Involvement in disease**

Note=The reduction in the surface charge of citrullinated and/or methylated MBP could result in a weakened attachment to the myelin membrane. This mechanism could be operative in demyelinating diseases such as chronic multiple sclerosis (MS), and fulminating MS (Marburg disease).

**Sequence similarities**

Belongs to the myelin basic protein family.

**Developmental stage**

Expression begins abruptly in 14-16 week old fetuses. Even smaller isoforms seem to be produced during embryogenesis; some of these persisting in the adult. Isoform 4 expression is more evident at 16 weeks and its relative proportion declines thereafter.

**Post-translational modifications**

Several charge isomers of MBP; C1 (the most cationic, least modified, and most abundant form), C2, C3, C4, C5, C6, C7, C8-A and C8-B (the least cationic form); are produced as a result of optional PTM, such as phosphorylation, deamidation of glutamine or asparagine, arginine citrullination and methylation. C8-A and C8-B contain each two mass isoforms termed C8-A(H), C8-A(L), C8-B(H) and C8-B(L), (H) standing for higher and (L) for lower molecular weight. C3, C4 and C5 are phosphorylated. The ratio of methylated arginine residues decreases during aging, making the protein more cationic.

The N-terminal alanine is acetylated (isoform 3, isoform 4, isoform 5 and isoform 6). Arg-241 was found to be 6% monomethylated and 60% symmetrically dimethylated.

**Cellular localization**

Myelin membrane. Cytoplasmic side of myelin.

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<td>IHC-FoFr</td>
<td>★★★★★</td>
<td>1/1000.</td>
</tr>
<tr>
<td>IHC-Fr</td>
<td>★★★★★★</td>
<td>Use at an assay dependent concentration.</td>
</tr>
<tr>
<td>IHC-P</td>
<td>★★★★★</td>
<td>1/100 - 1/200. Perform heat mediated antigen retrieval before commencing with IHC staining protocol.</td>
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</tbody>
</table>
All lanes: Anti-Myelin Basic Protein antibody (ab40390) at 1 µg/ml

Lane 1: Brain (Mouse) Tissue Lysate
Lane 2: Brain (Rat) Tissue Lysate - normal tissue

Lysates/proteins at 10 µg per lane.

Secondary
Goat polyclonal to rabbit IgG - H&L - Pre adsorbed (HRP) at 1/3000 dilution

Performed under reducing conditions.

Predicted band size: 33 kDa
Observed band size: 18,23 kDa
Additional bands at: 45 kDa. We are unsure as to the identity of these extra bands. This antibody was raised against an immunogen that is predicted to recognize isoforms (5, 7, 8, 10 and 13) of Myelin Basic Protein (MBP). The predicted molecular weights of isoforms (5, 7, 8, 10 and 13) are 18.5kDa, 17kDa, 14kDa, 21kDa and 13kDa respectively.

ICC/IF image of ab40390 stained PC12 cells.
The cells were 100% methanol fixed (5 min) and then incubated in 1%BSA / 10% normal goat serum / 0.3M glycine in 0.1% PBS-Tween for 1h to permeabilise the cells and block non-specific protein-protein interactions. The cells were then incubated with the antibody (ab40390, 5µg/ml) overnight at +4°C. The secondary antibody (green) was Alexa Fluor® 488 goat anti-rabbit IgG (H+L) used at a 1/1000 dilution for 1h. Alexa Fluor® 594 WGA was used to label plasma membranes (red) at a 1/200 dilution for 1h. DAPI was used to stain the cell nuclei (blue).
Immunohistochemical detection of Myelin Basic Protein antibody using (ab40390) on PFA perfusion fixed free-floating rat brain sections. Primary antibody used at 1/1000 and incubated for 18 hours @ 20°C in PBS + 0.3 % Triton X100. Secondary antibody: Goat anti-rabbit Alexa Fluor® 488 (1/1000).

Immunostaining is observed widely in tracts of axons, as expected. The pictures show the staining obtained at the level of the cerebral cortex, using the objective X5 (left) or X10 (right). The tissues were perfusion fixed with 4% PFA and later postfixed overnight in the same fixative. They were cryoprotected in 30% sucrose and cut using a cryostat.

Immunocytochemistry/ Immunofluorescence - Anti-Myelin Basic Protein antibody (ab40390)

The cells were 4% formaldehyde fixed (10 min) and then incubated in 1%BSA / 10% normal goat serum / 0.3M glycine in 0.1% PBS-Tween for 1h to permeabilise the cells and block non-specific protein-protein interactions. The cells were then incubated with the antibody (ab40390, 5µg/ml) overnight at +4°C. The secondary antibody (green) was ab96899, DyLight® 488 goat anti-rabbit IgG (H+L) used at a 1/250 dilution for 1h. Alexa Fluor® 594 WGA was used to label plasma membranes (red) at a 1/200 dilution for 1h. DAPI was used to stain the cell nuclei (blue) at a concentration of 1.43µM.
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