Anti-Myelin Basic Protein antibody [12] ab7349

Overview

Product name  Anti-Myelin Basic Protein antibody [12]
Description  Rat monoclonal [12] to Myelin Basic Protein
Host species  Rat
Specificity  The antibody reacts weakly with peptides ending in the Phe 91 where the 91-92 Phe-Phe bond is broken. Synthetic peptide 82-99 reacts very well, as does intact MBP. Further epitope analysis indicates binding to a region defined by amino acids 82-87 (DENPVV). Mapped by Geyson method to DENPW method.

Tested applications  Suitable for: IHC-FoFr, IHC-P, WB, ELISA, RIA, IHC-Fr, ICC/IF
Species reactivity  Reacts with: Mouse, Rat, Sheep, Rabbit, Guinea pig, Cow, Dog, Human, Pig, Apteronotus leptorhynchus
Immunogen  Full length protein (Cow).
Epitope  Amino acids 82-87 (DENPVV).

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: 0.1% Sodium azide
Constituent: Tissue culture supernatant
Purity  Tissue culture supernatant
Clonality  Monoclonal
Clone number  12
Myeloma  NS0
Isotype  IgG2a

Applications

Our Abpromise guarantee covers the use of ab7349 in the following tested applications.
The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.
### Function
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.

<table>
<thead>
<tr>
<th>Application</th>
<th>Abreviews</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>IHC-FoFr</td>
<td>★★★★★</td>
<td>Use at an assay dependent concentration. PubMed: 18678887</td>
</tr>
<tr>
<td>IHC-P</td>
<td>★★★★★</td>
<td>Use at an assay dependent concentration.</td>
</tr>
<tr>
<td>WB</td>
<td>★★★★★</td>
<td>Use at an assay dependent concentration.</td>
</tr>
<tr>
<td>ELISA</td>
<td></td>
<td>Use at an assay dependent concentration.</td>
</tr>
<tr>
<td>RIA</td>
<td></td>
<td>Use at an assay dependent concentration.</td>
</tr>
<tr>
<td>IHC-Fr</td>
<td>★★★★★</td>
<td>Use at an assay dependent concentration. PubMed: 23584610</td>
</tr>
<tr>
<td>ICC/IF</td>
<td></td>
<td>Use at an assay dependent concentration.</td>
</tr>
</tbody>
</table>
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Myelin Basic Protein antibody [12] (ab7349)

This image is courtesy of an Abreview submitted by April Rempel

ab7349 staining Myelin Basic Protein in human trigeminal ganglia tissue sections by Immunohistochemistry (IHC-P - paraformaldehyde-fixed, paraffin-embedded sections). Tissue was fixed with paraformaldehyde and blocked with 10% serum for 1 hour at 20°C; antigen retrieval was by heat mediation in citrate buffer, pH 6.0. Samples were incubated with primary antibody (1/1000 in 10% NDS) for 16 hours at 22°C. ab150165, a goat anti-rat IgG H&L (Alexa Fluor® 488) preadsorbed polyclonal (1/1000) was used as the secondary antibody.

Anti-Myelin Basic Protein antibody [12] (ab7349) + Mouse brain tissue lysate

**Observed band size:** 19.26 kDa

*why is the actual band size different from the predicted?*
ab7349 staining Myelin Basic Protein in murine cerebral cortex tissue by Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections). Tissue was not fixed. Samples were blocked with 2.5% serum for 1 hour followed by incubation with the primary antibody at a 1/200 dilution for 18 hours. A Biotin-conjugated rabbit anti-rat polyclonal was used as the secondary antibody at a 1/500 dilution.

ab7349 at 1/100 staining mouse spinal cord tissue sections by IHC-Fr. The tissue was formaldehyde fixed and blocked with 3% serum prior to incubation with the antibody for 18 hours. A biotinylated horse anti-rat antibody was used as the secondary.

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