Product datasheet

Anti-Myelin Protein Zero antibody ab31851

Overview

Product name: Anti-Myelin Protein Zero antibody
Description: Rabbit polyclonal to Myelin Protein Zero
Host species: Rabbit
Tested applications:
- Suitable for: WB, IHC-FoFr, IHC-P, ICC/IF
- Unsuitable for: IHC-Fr
Species reactivity: Reacts with: Mouse, Rat, Human
Immunogen: Synthetic peptide conjugated to KLH derived from within residues 200 to the C-terminus of Rat Myelin Protein Zero. Read Abcam's proprietary immunogen policy (Peptide available as ab31869.)
Positive control: Recombinant Human Myelin Protein Zero (ab114281) can be used as a positive control in WB. Mouse Sciatic Nerve Whole Tissue Lysate.

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:
- pH: 7.40
- Preservative: 0.02% Sodium azide
- Constituent: PBS

Batches of this product that have a concentration < 1mg/ml may have BSA added as a stabilising agent. If you would like information about the formulation of a specific lot, please contact our scientific support team who will be happy to help.

Purity: Immunogen affinity purified
Clonality: Polyclonal
Isotype: IgG

Applications

Our Abpromise guarantee covers the use of ab31851 in the following tested applications.
Application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

<table>
<thead>
<tr>
<th>Application</th>
<th>Abreviews</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>WB</td>
<td>⭐⭐⭐⭐⭐</td>
<td>Use a concentration of 1 µg/ml. Detects a band of approximately 25 kDa (predicted molecular weight: 27 kDa).</td>
</tr>
<tr>
<td>IHC-FoFr</td>
<td>⭐⭐⭐⭐☆</td>
<td>Use at an assay dependent concentration.</td>
</tr>
<tr>
<td>IHC-P</td>
<td>⭐⭐⭐⭐☆</td>
<td>1/200. Perform heat mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.</td>
</tr>
<tr>
<td>ICC/IF</td>
<td>⭐⭐⭐⭐☆</td>
<td>1/100.</td>
</tr>
</tbody>
</table>

Application notes

Is unsuitable for IHC-Fr.

Target

Function

Creation of an extracellular membrane face which guides the wrapping process and ultimately compacts adjacent lamellae.

Tissue specificity

Found only in peripheral nervous system Schwann cells.

Involvement in disease

Defects in MPZ are the cause of Charcot-Marie-Tooth disease type 1B (CMT1B) [MIM:118200]. CMT1B is a form of Charcot-Marie-Tooth disease, the most common inherited disorder of the peripheral nervous system. Charcot-Marie-Tooth disease is classified in two main groups on the basis of electrophysiologic properties and histopathology: primary peripheral demyelinating neuropathy or CMT1, and primary peripheral axonal neuropathy or CMT2. Neuropathies of the CMT1 group are characterized by severely reduced nerve conduction velocities (less than 38 m/sec), segmental demyelination and remyelination with onion bulb formations on nerve biopsy, slowly progressive distal muscle atrophy and weakness, absent deep tendon reflexes, and hollow feet.

Defects in MPZ are the cause of Charcot-Marie-Tooth disease type 2I (CMT2I) [MIM:607677]. CMT2I is a form of Charcot-Marie-Tooth disease, the most common inherited disorder of the peripheral nervous system. Charcot-Marie-Tooth disease is classified in two main groups on the basis of electrophysiologic properties and histopathology: primary peripheral demyelinating neuropathy or CMT1, and primary peripheral axonal neuropathy or CMT2. Neuropathies of the CMT2 group are characterized by signs of axonal regeneration in the absence of obvious myelin alterations, normal or slightly reduced nerve conduction velocities, and progressive distal muscle weakness and atrophy. CMT2I is characterized by late onset (range 47 to 60 years).

Defects in MPZ are the cause of Charcot-Marie-Tooth disease type 2J (CMT2J) [MIM:607736]. CMT2J is a form of Charcot-Marie-Tooth disease characterized by the association of axonal peripheral neuropathy with hearing loss and pupillary abnormalities such as Adie pupil. Inheritance is autosomal dominant.

Defects in MPZ are the cause of Adie pupil (ADIEP) [MIM:103100]. A stationary, benign disorder characterized by tonic, sluggishly reacting pupil and hypoactive or absent tendon reflexes. Adie pupil is a characteristic of Charcot-Marie-Tooth disease type 2J.

Defects in MPZ may be the cause of Charcot-Marie-Tooth disease dominant intermediate type D (CMTDID) [MIM:607791]. CMTDID is a form of Charcot-Marie-Tooth disease characterized by features intermediate between demyelinating and axonal peripheral neuropathies, and motor median nerve conduction velocities ranging from 25 to 45 m/sec.

Defects in MPZ are a cause of Dejerine-Sottas syndrome (DSS) [MIM:145900]; also known as Dejerine-Sottas neuropathy (DSN) or hereditary motor and sensory neuropathy III (HMSN3). DSS
is a severe degenerating neuropathy of the demyelinating Charcot-Marie-Tooth disease category, with onset by age 2 years. DSS is characterized by motor and sensory neuropathy with very slow nerve conduction velocities, increased cerebrospinal fluid protein concentrations, hypertrophic nerve changes, delayed age of walking as well as areflexia. There are both autosomal dominant and autosomal recessive forms of Dejerine-Sottas syndrome.

Defects in MPZ are a cause of congenital hypomyelination neuropathy (CHN) [MIM:605253]. CHN is characterized clinically by early onset of hypotonia, areflexia, distal muscle weakness, and very slow nerve conduction velocities.

Defects in MPZ are a cause of Roussy-Levy syndrome (ROULS) [MIM:180800]; also known as Roussy-Levy hereditary areflexic dystasia. This autosomal dominant disorder resembles Charcot-Marie-Tooth disease type 1 in that it presents with foot deformity, weakness and atrophy of distal limb muscles, especially the peronei, and absent tendon reflexes. The phenotype differs, however, in that it includes static tremor of the upper limbs and gait ataxia.

<table>
<thead>
<tr>
<th>Sequence similarities</th>
<th>Belongs to the myelin P0 protein family.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Contains 1 Ig-like V-type (immunoglobulin-like) domain.</td>
</tr>
<tr>
<td>Post-translational modifications</td>
<td>N-glycosylated; contains sulfate-substituted glycan.</td>
</tr>
<tr>
<td>Cellular localization</td>
<td>Membrane.</td>
</tr>
</tbody>
</table>

Images

Anti-Myelin Protein Zero antibody (ab31851) at 1 µg/ml + Mouse Sciatic Nerve Whole Tissue Lysate at 20 µg

Secondary

IRDye 680 Conjugated Goat Anti-Rabbit IgG (H+L) at 1/15000 dilution

Performed under reducing conditions.

Predicted band size: 27 kDa
Observed band size: 25 kDa

why is the actual band size different from the predicted?

We also see a similar banding pattern in Rat Sciatic Nerve lysate although the band is more smeared than observed in the Western Blot shown here. We believe the smearing is caused by glycosylation of the target protein.
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Myelin Protein Zero antibody (ab31851)

This image is courtesy of an Abreview submitted by Carl Hobbs

ab31851 staining human brainstem sections by IHC-P. The tissue was fixed with formaldehyde and a heat mediated antigen retrieval step was performed with citric acid pH 6. Blocking of the sample was done with 1% BSA for 10 minutes at 21°C, followed by staining with ab31851 at 1/200 in TBS/BSA/azide for 16h at 21°C. A biotinylated goat anti-rabbit polyclonal antibody at 1/200 was used as the secondary antibody. The myelinated fibres in the rootlet are positive for this antibody (peripheral nerves).

Immunocytochemistry/ Immunofluorescence - Anti-Myelin Protein Zero antibody (ab31851)

This image is courtesy of an Abreview submitted by Tom Hu

ab31851 staining Myelin Protein Zero in Rat Schwann Cells by ICC/IF (Immunocytochemistry/Immunofluorescence). Cells were fixed with formaldehyde and blocked with 5% BSA for 1 hour at room temperature. Samples were incubated with primary antibody (1/250 in 5% NGS/0.3% Triton X-100 in PBS) for 4 hours at 4°C. A Cy2®-conjugated Goat anti-rabbit IgG polyclonal (1/1000) was used as the secondary antibody.

Mpz - Myelin Protein Zero; Mag - Myelin Associated Glycoprotein; Mbp - Myelin Basic Protein; dCKO - double conditional knockout.
ab31851 staining rat cochlear nerve cells by ICC/IF. Cells were PFA fixed and permeabilized in 0.1% Triton X-100 prior to blocking in 5% serum for 30 minutes at 25°C. The primary antibody was diluted 1/100 (HBSS with 5% FBS) and incubated with the sample for 18 hours at 4°C. An Alexa Fluor® 568 conjugated goat anti-rabbit antibody, diluted 1/2000, was used as the secondary.

ab31851 staining Myelin Protein Zero in mouse sciatic nerve tissue section by Immunohistochemistry (PFA perfusion fixed frozen sections). Tissue from 4% PFA perfused animals underwent overnight fixation in 4% paraformaldehyde, cryoprotected in 30% sucrose and cut using cryostat. The primary antibody was diluted, 1/1000 (PBS + 0.3% Triton X100) and incubated with sample for 18 hours at 20°C. An Alexa Fluor® 488 conjugated goat polyclonal to rabbit IgG was used at 1/1000 dilution, as secondary.

This image is courtesy of an Abreview submitted by Dr Sophie Pezet.

Please note: All products are "FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES"

Our Abpromise to you: Quality guaranteed and expert technical support

- Replacement or refund for products not performing as stated on the datasheet
- Valid for 12 months from date of delivery
- Response to your inquiry within 24 hours
- We provide support in Chinese, English, French, German, Japanese and Spanish
- Extensive multi-media technical resources to help you
- We investigate all quality concerns to ensure our products perform to the highest standards

If the product does not perform as described on this datasheet, we will offer a refund or replacement. For full details of the Abpromise, please visit https://www.abcam.com/abpromise or contact our technical team.

Terms and conditions
• Guarantee only valid for products bought direct from Abcam or one of our authorized distributors