

Datasheet: MCA409S

BATCH NUMBER 158446

Description:	RAT ANTI MBP (aa82-87)
Specificity:	MBP (aa82-87)
Other names:	MYELIN BASIC PROTEIN
Format:	S/N
Product Type:	Monoclonal Antibody
Clone:	12
Isotype:	IgG2a
Quantity:	2 ml

Product Details

Applications

This product has been reported to work in the following applications. This information is derived from testing within our laboratories, peer-reviewed publications or personal communications from the originators. Please refer to references indicated for further information. For general protocol recommendations, please visit www.bio-rad-antibodies.com/protocols.

	Yes	No	Not Determined	Suggested Dilution
Flow Cytometry			▪	
Immunohistology - Frozen			▪	
Immunohistology - Paraffin			▪	
ELISA	▪			
Immunoprecipitation			▪	
Western Blotting	▪			
Immunofluorescence	▪			
Radioimmunoassays	▪			

Where this product has not been tested for use in a particular technique this does not necessarily exclude its use in such procedures. Suggested working dilutions are given as a guide only. It is recommended that the user titrates the product for use in their own system using appropriate negative/positive controls.

Target Species

Bovine

Species Cross Reactivity

Reacts with: Mouse, Rabbit, Rat, Guinea Pig, Sheep, Human, Chicken, Pig
Based on sequence similarity, is expected to react with: Mammals

N.B. Antibody reactivity and working conditions may vary between species. Cross reactivity is derived from testing within our laboratories, peer-reviewed publications or personal communications from the originators. Please refer to references indicated for further information.

Product Form	Tissue Culture Supernatant - liquid
Buffer Solution	0.1M TRIS
Preservative Stabilisers	0.1% Sodium Azide
Immunogen	Bovine MBP.
External Database Links	<p>UniProt: P02687 Related reagents</p> <p>Entrez Gene: 618684 MBP Related reagents</p>
RRID	AB_325004
Fusion Partners	Spleen cells from an immunised outbred rat were fused with cells of the mouse NS0 myeloma cell line.
Specificity	<p>Rat anti MBP antibody, clone 12 recognizes myelin basic protein from a wide range of species. Rat anti MBP antibody, clone 12 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 with Rat anti MBP antibody, clone 12, as does intact MBP. Further epitope analysis indicates binding to a region defined by amino acids 82-87 (DENPVV).</p> <p>Rat anti MBP antibody, clone 12 has been reported as being suitable for use in western blotting (Glynn <i>et al.</i> 1987).</p>
References	<ol style="list-style-type: none"> Groome, N.P. <i>et al.</i> (1986) Region-specific immunoassays for human myelin basic protein. J Neuroimmunol. 12 (4): 253-64. Glynn, P. <i>et al.</i> (1987) Basic protein dissociating from myelin membranes at physiological ionic strength and pH is cleaved into three major fragments. J Neurochem. 48 (3): 752-9. Hruby, S. <i>et al.</i> (1987) Monoclonal antibodies reactive with myelin basic protein. Mol Immunol. 24 (12): 1359-64. Homchaudhuri L <i>et al.</i> (2009) Influence of membrane surface charge and post-translational modifications to myelin basic protein on its ability to tether the Fyn-SH3 domain to a membrane <i>in vitro</i>. Biochemistry. 48 (11): 2385-93. Pohl, H.B. <i>et al.</i> (2011) Genetically induced adult oligodendrocyte cell death is associated with poor myelin clearance, reduced remyelination, and axonal damage. J Neurosci. 31 (3): 1069-80. Laursen, L.S. <i>et al.</i> (2011) Translation of myelin basic protein mRNA in oligodendrocytes is regulated by integrin activation and hnRNP-K. J Cell Biol. 192: 797-811. Relucio, J. <i>et al.</i> (2009) Laminin alters fyn regulatory mechanisms and promotes oligodendrocyte development. J Neurosci. 29: 11794-806.

8. Savvaki, M. *et al.* (2010) The expression of TAG-1 in glial cells is sufficient for the formation of the juxtaparanodal complex and the phenotypic rescue of tag-1 homozygous mutants in the CNS. [J Neurosci. 30: 13943-54.](#)
9. Massa, P.T. *et al.* (2004) Dysmyelination and reduced myelin basic protein gene expression by oligodendrocytes of SHP-1-deficient mice. [J Neurosci Res. 77: 15-25.](#)
10. Monk, K.R. *et al.* (2011) Gpr126 is essential for peripheral nerve development and myelination in mammals. [Development. 138: 2673-80.](#)
11. Massa, P.T. *et al.* (2002) Critical role for protein tyrosine phosphatase SHP-1 in controlling infection of central nervous system glia and demyelination by Theiler's murine encephalomyelitis virus. [J Virol. 76:8335-46.](#)
12. Relvas, J.B. *et al.* (2001) Expression of dominant-negative and chimeric subunits reveals an essential role for beta1 integrin during myelination. [Curr Biol. 11: 1039-43.](#)
13. Rittchen S *et al.* (2015) Myelin repair *in vivo* is increased by targeting oligodendrocyte precursor cells with nanoparticles encapsulating leukaemia inhibitory factor (LIF). [Biomaterials. 56: 78-85.](#)
14. Ioannidou, K. *et al.* (2012) Time-lapse imaging of the dynamics of CNS glial-axonal interactions *in vitro* and *ex vivo*. [PLoS One. 7: e30775.](#)
15. Horn, M. *et al.* (2012) Myelin is dependent on the Charcot-Marie-Tooth Type 4H disease culprit protein FRABIN/FGD4 in Schwann cells. [Brain. 135 \(Pt 12\): 3567-83.](#)
16. Müller, C. *et al.* (2015) SncRNA715 Inhibits Schwann Cell Myelin Basic Protein Synthesis. [PLoS One. 10 \(8\): e0136900.](#)
17. Brügger V *et al.* (2015) HDAC1/2-Dependent P0 Expression Maintains Paranodal and Nodal Integrity Independently of Myelin Stability through Interactions with Neurofascins. [PLoS Biol. 13 \(9\): e1002258.](#)
18. Natrajan, M.S. *et al.* (2015) Retinoid X receptor activation reverses age-related deficiencies in myelin debris phagocytosis and remyelination. [Brain. 138\(Pt 12\):3581-97](#)
19. Fernandes, A.R. & Chari, D.M. (2016) Part I: Minicircle vector technology limits DNA size restrictions on *ex vivo* gene delivery using nanoparticle vectors: Overcoming a translational barrier in neural stem cell therapy. [J Control Release. 238: 289-99.](#)
20. Friess, M. *et al.* (2016) Intracellular ion signaling influences myelin basic protein synthesis in oligodendrocyte precursor cells. [Cell Calcium. 60 \(5\): 322-30.](#)
21. Fernandes, A.R. & Chari, D.M. (2016) Part II: Functional delivery of a neurotherapeutic gene to neural stem cells using minicircle DNA and nanoparticles: Translational advantages for regenerative neurology. [J Control Release. 238: 300-10.](#)
22. Crawford, A.H. *et al.* (2016) Pre-Existing Mature Oligodendrocytes Do Not Contribute to Remyelination following Toxin-Induced Spinal Cord Demyelination. [Am J Pathol. 186 \(3\): 511-6.](#)
23. Lim, J.L. *et al.* (2016) Protandim Protects Oligodendrocytes against an Oxidative Insult. [Antioxidants \(Basel\). 5 \(3\): pii: E30.](#)
24. Isoda, M. *et al.* (2016) Robust production of human neural cells by establishing neuroepithelial-like stem cells from peripheral blood mononuclear cell-derived feeder-free iPSCs under xeno-free conditions. [Neurosci Res. 110: 18-28.](#)
25. Grigoletto, J. *et al.* (2017) Higher levels of myelin phospholipids in brains of neuronal α -Synuclein transgenic mice precede myelin loss. [Acta Neuropathol Commun. 5 \(1\): 37.](#)
26. Moreno, B. *et al.* (2017) Methylthioadenosine promotes remyelination by inducing oligodendrocyte differentiation [Multiple Sclerosis and Demyelinating Disorders. 2 \(1\) \[Epub ahead of print\].](#)

27. Qin, J. *et al.* (2017) GD1a Overcomes Inhibition of Myelination by Fibronectin via Activation of Protein Kinase A: Implications for Multiple Sclerosis. [J Neurosci. 37 \(41\): 9925-38.](#)
28. Aranmolate, A. *et al.* (2017) Myelination is delayed during postnatal brain development in the mdx mouse model of Duchenne muscular dystrophy. [BMC Neurosci. 18 \(1\): 63.](#)
29. Yu, Q. *et al.* (2017) Strain differences in cuprizone induced demyelination. [Cell Biosci. 7: 59.](#)
30. Dillenburg, A. *et al.* (2018) Activin receptors regulate the oligodendrocyte lineage in health and disease. [Acta Neuropathol. 135 \(6\): 887-906.](#)
31. Sekizar, S. & Williams, A. (2019) *Ex Vivo* Slice Cultures to Study Myelination, Demyelination, and Remyelination in Mouse Brain and Spinal Cord. [Methods Mol Biol. 1936: 169-83.](#)
32. Martinez-rachadell, L. *et al.* (2019) Cell-specific expression of insulin/insulin-like growth factor-I receptor hybrids in the mouse brain. [Growth Horm IGF Res. 45: 25-30.](#)
33. Nocita, E. *et al.* (2019) EGFR/ErbB Inhibition Promotes OPC Maturation up to Axon Engagement by Co-Regulating PIP2 and MBP. [Cells. 8 \(8\) Aug 06 \[Epub ahead of print\].](#)
34. Vogel, J.K. *et al.* (2020) Sox9 overexpression exerts multiple stage-dependent effects on mouse spinal cord development. [Glia. 68 \(5\): 932-46.](#)
35. Vanheel, H. *et al.* (2020) Duodenal acidification induces gastric relaxation and alters epithelial barrier function by a mast cell independent mechanism. [Sci Rep. 10 \(1\): 17448.](#)
36. Swire, M. *et al.* (2019) Endothelin signalling mediates experience-dependent myelination in the CNS. [Elife. 8:e49493](#)
37. di Petna, A. *et al.* (2013) Oxidative stress and proinflammatory cytokines contribute to demyelination and axonal damage in a cerebellar culture model of neuroinflammation. [PLoS One. 8 \(2\): e54722.](#)
38. Melero-Jerez, C. *et al.* (2020) Myeloid-derived suppressor cells support remyelination in a murine model of multiple sclerosis by promoting oligodendrocyte precursor cell survival, proliferation, and differentiation. [Glia. 20 Nov \[Epub ahead of print\].](#)
39. Klein, B. *et al.* (2020) DCX⁺ neuronal progenitors contribute to new oligodendrocytes during remyelination in the hippocampus. [Sci Rep. 10 \(1\): 20095.](#)
40. Yetiş, Ç. *et al.* (2020) Myelin detection in fluorescence microscopy images using machine learning. [J Neurosci Methods. 346: 108946.](#)
41. Werkman, I.L. *et al.* (2020) Transcriptional heterogeneity between primary adult grey and white matter astrocytes underlie differences in modulation of *in vitro* myelination. [J Neuroinflammation. 17 \(1\): 373.](#)
42. Kerman, B.E. *et al.* (2020) Motoneuron expression profiling identifies an association between an axonal splice variant of HDGF-related protein 3 and peripheral myelination. [J Biol Chem. 295 \(34\): 12233-46.](#)
43. Holloway, R.K. *et al.* (2021) Microglial inflammasome activation drives developmental white matter injury. [Glia. Jan 08 \[Epub ahead of print\].](#)
44. Schultz, V. *et al.* (2021) Zika Virus Infection Leads to Demyelination and Axonal Injury in Mature CNS Cultures. [Viruses. 13 \(1\): 91.](#)
45. Meireles, A.M. *et al.* (2018) The Lysosomal Transcription Factor TFEB Represses Myelination Downstream of the Rag-Ragulator Complex. [Dev Cell. 47 \(3\): 319-330.e5.](#)
46. Lloyd, A.F. *et al.* (2019) Central nervous system regeneration is driven by microglia necroptosis and repopulation. [Nat Neurosci. 22 \(7\): 1046-52.](#)
47. Yamazaki, R. *et al.* (2021) Macroscopic detection of demyelinated lesions in mouse

- PNS with neutral red dye. [Sci Rep. 11 \(1\): 16906.](#)
48. Alhajlah, S. *et al.* (2021) Overexpression of Reticulon 3 Enhances CNS Axon Regeneration and Functional Recovery after Traumatic Injury. [Cells. 10 \(8\): 2015.](#)
49. Swire, M. *et al.* (2021) Oligodendrocyte HCN2 Channels Regulate Myelin Sheath Length. [J Neurosci. 41 \(38\): 7954-64.](#)
50. Niu, J. *et al.* (2021) Oligodendroglial ring finger protein Rnf43 is an essential injury-specific regulator of oligodendrocyte maturation. [Neuron. 109 \(19\): 3104-18.e6.](#)
51. Moyon, S. *et al.* (2021) TET1-mediated DNA hydroxymethylation regulates adult remyelination in mice. [Nat Commun. 12 \(1\): 3359.](#)
52. Bechler, M.E. (2019) A Neuron-Free Microfiber Assay to Assess Myelin Sheath Formation. [Methods Mol Biol. 1936: 97-110.](#)
53. Sekizar, S. & Williams, A. (2019) *Ex Vivo*. Slice Cultures to Study Myelination, Demyelination, and Remyelination in Mouse Brain and Spinal Cord. [Methods Mol Biol. 1936: 169-83.](#)
54. Li, S. *et al.* (2019) Induction of immunological tolerance to myelinogenic glial-restricted progenitor allografts. [Brain. 142 \(11\): 3456-72.](#)
55. Berghoff, S.A. *et al.* (2021) Microglia facilitate repair of demyelinated lesions via post-squalene sterol synthesis. [Nat Neurosci. 24 \(1\): 47-60.](#)
56. Kalafatakis, I. *et al.* (2021) The beneficial role of the synthetic microneurotrophin BNN20 in a focal demyelination model. [J Neurosci Res. 99 \(5\): 1474-95.](#)
57. Grigoletto, J. *et al.* (2022) Loss of Corticostriatal Mu-Opioid Receptors in α -Synuclein Transgenic Mouse Brains. [Life \(Basel\). 12 \(1\): 63.](#)
58. Poggi, G. *et al.* (2022) Effects of chronic social stress on oligodendrocyte proliferation-maturation and myelin status in prefrontal cortex and amygdala in adult mice [Neurobiol Stress. 18: 100451.](#)

Storage	This product is shipped at ambient temperature. It is recommended to aliquot and store at -20°C on receipt. When thawed, aliquot the sample as needed. Keep aliquots at 2-8°C for short term use (up to 4 weeks) and store the remaining aliquots at -20°C. Avoid repeated freezing and thawing as this may denature the antibody. Storage in frost-free freezers is not recommended.
Guarantee	12 months from date of despatch
Health And Safety Information	Material Safety Datasheet documentation #10451 available at: https://www.bio-rad-antibodies.com/SDS/MCA409S 10451
Regulatory	For research purposes only

Related Products

Recommended Secondary Antibodies

Rabbit Anti Rat IgG (STAR16...)	DyLight®800
Rabbit Anti Rat IgG (STAR17...)	FITC
Goat Anti Rat IgG (STAR72...)	HRP

Goat Anti Rat IgG (STAR69...) [FITC](#)
Goat Anti Rat IgG (STAR73...) [RPE](#)
Rabbit Anti Rat IgG (STAR21...) [HRP](#)
Goat Anti Rat IgG (MOUSE ADSORBED) (STAR71...) [DyLight®550](#), [DyLight®650](#), [DyLight®800](#)
Goat Anti Rat IgG (STAR131...) [Alk. Phos.](#), [Biotin](#)

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'M384024:210513'

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