

Datasheet: MCA711G

BATCH NUMBER 163792

Description:	RAT ANTI MOUSE CD11b
Specificity:	CD11b
Other names:	INTEGRIN ALPHA M CHAIN, MAC-1
Format:	Purified
Product Type:	Monoclonal Antibody
Clone:	5C6
Isotype:	IgG2b
Quantity:	0.25 mg

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	▪			1/100
Immunohistology - Frozen	▪			
Immunohistology - Paraffin			▪	
ELISA			▪	
Immunoprecipitation	▪			
Western Blotting			▪	
Immunofluorescence	▪			

Where this antibody 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 antibody for use in their own system using appropriate negative/positive controls.

Target Species	Mouse
Species Cross Reactivity	<p>Reacts with: Human</p> <p>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.</p>
Product Form	Purified IgG - liquid

Preparation	Purified IgG prepared by affinity chromatography on Protein G from tissue culture supernatant
Buffer Solution	Phosphate buffered saline
Preservative Stabilisers	0.09% Sodium Azide
Carrier Free	Yes
Approx. Protein Concentrations	IgG concentration 1 mg/ml
Immunogen	Thioglycollate-elicited peritoneal macrophages (TPM)
External Database Links	<p>UniProt: P05555 Related reagents</p> <p>Entrez Gene: 16409 Itgam Related reagents</p>
RRID	AB_323167
Fusion Partners	Spleen cells from AO rats were fused with cells of the Y3 rat myeloma cell line
Specificity	<p>Rat anti Mouse CD11b antibody, clone 5C6 recognizes CD11b, also known as the integrin alpha M chain. CD11b is implicated in various adhesive interactions of monocytes, macrophages and granulocytes as well as in mediating the uptake of complement-coated particles.</p> <p>Rat anti Mouse CD11b antibody, clone 5C6 immunoprecipitates a heterodimer of ~165 and ~95 kDa. This clone also exhibits various functional properties, reportedly inhibiting adhesion <i>in vitro</i> and inflammatory recruitment <i>in vivo</i>. Rat anti Mouse CD11b antibody, clone 5C6 also inhibits delayed hypersensitivity, potentiates bacterial infections and inhibits type 1 diabetes.</p>
Flow Cytometry	Use 10ul of the suggested working dilution to label 10 ⁶ cells in 100ul.
Histology Positive Control Tissue	Spleen
References	<ol style="list-style-type: none"> Rosen, H. and Gordon, S. (1987) Monoclonal antibody to the murine type 3 complement receptor inhibits adhesion of myelomonocytic cells <i>in vitro</i> and inflammatory cell recruitment <i>in vivo</i>. J Exp Med. 166: 1685-701. Rosen, H. <i>et al.</i> (1989) Antibody to the murine type 3 complement receptor inhibits T lymphocyte-dependent recruitment of myelomonocytic cells <i>in vivo</i>. J Exp Med. 169: 535-48. Serafini, B. <i>et al.</i> (2000) Intracerebral recruitment and maturation of dendritic cells in the

- onset and progression of experimental autoimmune encephalomyelitis. [Am J Pathol. 157: 1991-2002.](#)
4. Platt, N. *et al.* (2000) Apoptotic thymocyte clearance in scavenger receptor class A-deficient mice is apparently normal. [J Immunol. 164: 4861-7.](#)
 5. Carenini, S. *et al.* (2001) The role of macrophages in demyelinating peripheral nervous system of mice heterozygously deficient in p0. [J Cell Biol. 152: 301-8.](#)
 6. Engwerda, C.R. *et al.* (2002) Locally up-regulated lymphotoxin alpha, not systemic tumor necrosis factor alpha, is the principle mediator of murine cerebral malaria. [J Exp Med. 195: 1371-7.](#)
 7. Mittal, A. *et al.* (2003) CD11b+ cells are the major source of oxidative stress in UV radiation-irradiated skin: possible role in photoaging and photocarcinogenesis. [Photochem Photobiol. 77 \(3\): 259-64.](#)
 8. Lesnik, P. *et al.* (2003) Decreased atherosclerosis in CX3CR1^{-/-} mice reveals a role for fractalkine in atherogenesis. [J Clin Invest. 111: 333-40.](#)
 9. Di Filippo, C. *et al.* (2005) Cannabinoid CB2 receptor activation reduces mouse myocardial ischemia-reperfusion injury: involvement of cytokine/chemokines and PMN. [J Leukoc Biol. 75 \(3\): 453-9.](#)
 10. Lin, H.H. *et al.* (2005) The macrophage F4/80 receptor is required for the induction of antigen-specific efferent regulatory T cells in peripheral tolerance. [J Exp Med. 201: 1615-25.](#)
 11. Mennini, T. *et al.* (2006) Nonhematopoietic erythropoietin derivatives prevent motoneuron degeneration *in vitro* and *in vivo*. [Mol Med. 12: 153-60.](#)
 12. Saura, J. (2007) Microglial cells in astroglial cultures: a cautionary note. [J Neuroinflammation. 4: 26.](#)
 13. Kondo, Y. *et al.* (2007) Osteopetrotic (op/op) mice have reduced microglia, no Aβ deposition, and no changes in dopaminergic neurons. [J Neuroinflammation. 4: 31.](#)
 14. Halle, A. *et al.* (2008) The NALP3 inflammasome is involved in the innate immune response to amyloid-beta. [Nat Immunol. 9: 857-65.](#)
 15. Devey, L. *et al.* (2008) Tissue-resident Macrophages protect the Liver From Ischemia Reperfusion Injury via a Heme Oxygenase-1-Dependent mechanism. [Mol Ther. 1: 65-72.](#)
 16. Hickman, S.E. *et al.* (2008) Microglial dysfunction and defective beta-amyloid clearance pathways in aging Alzheimer's disease mice. [J Neurosci. 28 \(33\): 8354-60.](#)
 17. Khorrooshi, R. *et al.* (2008) NF-kappaB-driven STAT2 and CCL2 expression in astrocytes in response to brain injury. [J Immunol. 181: 7284-91.](#)
 18. Basso, A.S. *et al.* (2008) Reversal of axonal loss and disability in a mouse model of progressive multiple sclerosis. [J Clin Invest. 118: 1532-43.](#)
 19. Weberpals, M. *et al.* (2009) NOS2 gene deficiency protects from sepsis-induced long-term cognitive deficits. [J Neurosci. 29: 14177-84.](#)
 20. Valerio, A. *et al.* (2009) Leptin is induced in the ischemic cerebral cortex and exerts neuroprotection through NF-kappaB/c-Rel-dependent transcription. [Stroke. 40: 610-7.](#)
 21. Traka, .M. *et al.* (2010) A genetic mouse model of adult-onset, pervasive central nervous system demyelination with robust remyelination. [Brain. 133: 3017-29.](#)
 22. Kim, D. *et al.* (2010) NADPH oxidase 2-derived reactive oxygen species in spinal cord microglia contribute to peripheral nerve injury-induced neuropathic pain. [Proc Natl Acad Sci U S A. 107: 14851-6.](#)
 23. Lu, J. *et al.* (2010) Ursolic acid attenuates D-galactose-induced inflammatory response in mouse prefrontal cortex through inhibiting AGEs/RAGE/NF-κB pathway activation.

[Cereb Cortex. 20: 2540-8.](#)

24. Heneka, M.T. *et al.* (2010) Locus ceruleus controls Alzheimer's disease pathology by modulating microglial functions through norepinephrine. [Proc Natl Acad Sci U S A. 107: 6058-63.](#)
25. Dohi, K. *et al.* (2010) Gp91phox (NOX2) in classically activated microglia exacerbates traumatic brain injury. [J Neuroinflammation. 7: 41.](#)
26. Cui, Y.F. *et al.* (2010) Embryonic stem cell-derived L1 overexpressing neural aggregates enhance recovery in Parkinsonian mice. [Brain. 133: 189-204.](#)
27. Wu, T. *et al.* (2011) Expression and cellular localization of cyclooxygenases and prostaglandin E synthases in the hemorrhagic brain. [J Neuroinflammation. 8:22.](#)
28. Tysseling, V.M.*et al.* (2011) SDF1 in the dorsal corticospinal tract promotes CXCR4+ cell migration after spinal cord injury. [J Neuroinflammation. 8:16.](#)
29. McDonald, J.U. *et al.* (2011) *In vivo* functional analysis and genetic modification of *in vitro*-derived mouse neutrophils. [FASEB J. 25: 1972-82.](#)
30. Terwel, D. *et al.* (2011) Critical Role of Astroglial Apolipoprotein E and Liver X Receptor- α Expression for Microglial A β Phagocytosis. [J Neurosci. 31: 7049-59.](#)
31. Sato, A. *et al.* (2012) Interleukin-1 participates in the classical and alternative activation of microglia/macrophages after spinal cord injury. [J Neuroinflammation. 9: 65.](#)
32. Heydenreich, N. *et al.* (2012) C1-inhibitor protects from brain ischemia-reperfusion injury by combined antiinflammatory and antithrombotic mechanisms. [Stroke. 43 \(9\): 2457-67.](#)
33. Yamanaka M *et al.* (2012) PPAR γ /RXR α -induced and CD36-mediated microglial amyloid- β phagocytosis results in cognitive improvement in amyloid precursor protein/presenilin 1 mice. [J Neurosci. 32 \(48\): 17321-31.](#)
34. Mencl, S. *et al.* (2014) FTY720 does not protect from traumatic brain injury in mice despite reducing posttraumatic inflammation. [J Neuroimmunol. 274 \(1-2\): 125-31.](#)
35. 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.](#)
36. Kan, M.J. *et al.* (2015) Arginine deprivation and immune suppression in a mouse model of Alzheimer's disease. [J Neurosci. 35 \(15\): 5969-82.](#)
37. Babcock, A.A. *et al.* (2015) Cytokine-producing microglia have an altered beta-amyloid load in aged APP/PS1 Tg mice. [Brain Behav Immun. 48: 86-101.](#)
38. Kaindlstorfer, C. *et al.* (2015) Failure of Neuroprotection Despite Microglial Suppression by Delayed-Start Myeloperoxidase Inhibition in a Model of Advanced Multiple System Atrophy: Clinical Implications. [Neurotox Res. 28 \(3\): 185-94.](#)
39. Liu, Z. *et al.* (2016) Transforming growth factor- β 1 acts via T β R-I on microglia to protect against MPP(+)-induced dopaminergic neuronal loss. [Brain Behav Immun. 51: 131-43.](#)
40. Garcia-Mesa, Y. *et al.* (2017) Immortalization of primary microglia: a new platform to study HIV regulation in the central nervous system. [J Neurovirol. 23 \(1\): 47-66.](#)
41. Lu, Y. *et al.* (2016) Annexin A10 is involved in the development and maintenance of neuropathic pain in mice. [Neurosci Lett. 631: 1-6.](#)
42. Hristova M *et al.* (2016) Inhibition of Signal Transducer and Activator of Transcription 3 (STAT3) reduces neonatal hypoxic-ischaemic brain damage. [J Neurochem. 136 \(5\): 981-994.](#)
43. Ye, M. *et al.* (2016) Neuroprotective effects of bee venom phospholipase A2 in the 3xTg AD mouse model of Alzheimer's disease. [J Neuroinflammation. 13 \(1\): 10.](#)

44. Nagai, J. *et al.* (2016) Inhibition of CRMP2 phosphorylation repairs CNS by regulating neurotrophic and inhibitory responses. [Exp Neurol. 277: 283-95.](#)
45. Tachibana, M. *et al.* (2016) Rescuing effects of RXR agonist bexarotene on aging-related synapse loss depend on neuronal LRP1. [Exp Neurol. 277: 1-9.](#)
46. Sun, H. *et al.* (2016) Aquaporin-4 mediates communication between astrocyte and microglia: Implications of neuroinflammation in experimental Parkinson's disease. [Neuroscience. 317: 65-75.](#)
47. Shinohara, M. *et al.* (2016) APOE2 eases cognitive decline during Aging: Clinical and preclinical evaluations. [Ann Neurol. 79 \(5\): 758-74.](#)
48. Kami, K. *et al.* (2016) Histone Acetylation in Microglia Contributes to Exercise-Induced Hypoalgesia in Neuropathic Pain Model Mice. [J Pain. 17 \(5\): 588-99.](#)
49. Bisht, K. *et al.* (2016) Dark microglia: A new phenotype predominantly associated with pathological states. [Glia. 64 \(5\): 826-39.](#)
50. Hilla, A.M. *et al.* (2017) Microglia Are Irrelevant for Neuronal Degeneration and Axon Regeneration after Acute Injury. [J Neurosci. 37 \(25\): 6113-24.](#)
51. Paizs, M. *et al.* (2017) Axotomy Leads to Reduced Calcium Increase and Earlier Termination of CCL2 Release in Spinal Motoneurons with Upregulated Parvalbumin Followed by Decreased Neighboring Microglial Activation. [CNS Neurol Disord Drug Targets. 16 \(3\): 356-67.](#)
52. Pulido-Salgado, M. *et al.* (2017) Myeloid C/EBP β deficiency reshapes microglial gene expression and is protective in experimental autoimmune encephalomyelitis. [J Neuroinflammation. 14 \(1\): 54.](#)
53. Thomsen, M.S. *et al.* (2017) Synthesis and deposition of basement membrane proteins by primary brain capillary endothelial cells in a murine model of the blood-brain barrier. [J Neurochem. 140 \(5\): 741-754.](#)
54. Laurent, C. *et al.* (2017) Hippocampal T cell infiltration promotes neuroinflammation and cognitive decline in a mouse model of tauopathy. [Brain. 140 \(Pt 1\): 184-200.](#)
55. Schuhmann, M.K. *et al.* (2017) Blocking of platelet glycoprotein receptor Ib reduces "thrombo-inflammation" in mice with acute ischemic stroke. [J Neuroinflammation. 14 \(1\): 18.](#)
56. Rabl, R. *et al.* (2017) Early start of progressive motor deficits in Line 61 α -synuclein transgenic mice. [BMC Neurosci. 18 \(1\): 22.](#)
57. Crépeaux, G. *et al.* (2017) Non-linear dose-response of aluminium hydroxide adjuvant particles: Selective low dose neurotoxicity. [Toxicology. 375: 48-57.](#)
58. Da Ros, F. *et al.* (2017) Targeting Interleukin-1 β Protects from Aortic Aneurysms Induced by Disrupted Transforming Growth Factor β Signaling. [Immunity. 47 \(5\): 959-973.e9.](#)
59. Hou, L. *et al.* (2018) Taurine protects noradrenergic locus coeruleus neurons in a mouse Parkinson's disease model by inhibiting microglial M1 polarization. [Amino Acids. 50 \(5\): 547-556.](#)
60. Zheng, J. *et al.* (2018) Evaluation of metastatic niches in distant organs after surgical removal of tumor-bearing lymph nodes. [BMC Cancer. 18 \(1\): 608.](#)
61. Soto, M. *et al.* (2018) Gut microbiota modulate neurobehavior through changes in brain insulin sensitivity and metabolism. [Mol Psychiatry. 23 \(12\): 2287-301.](#)
62. Mouton-Liger, F. *et al.* (2018) Parkin deficiency modulates NLRP3 inflammasome activation by attenuating an A20-dependent negative feedback loop. [Glia. 66 \(8\): 1736-51.](#)
63. Roberts, J.M. *et al.* (2018) Bilateral carotid artery stenosis causes unexpected early

- changes in brain extracellular matrix and blood-brain barrier integrity in mice. [PLoS One. 13 \(4\): e0195765.](#)
64. Cope, E.C. *et al.* (2018) Microglia Play an Active Role in Obesity-Associated Cognitive Decline. [J Neurosci. 38 \(41\): 8889-904.](#)
65. Song, S. *et al.* (2019) Noradrenergic dysfunction accelerates LPS-elicited inflammation-related ascending sequential neurodegeneration and deficits in non-motor/motor functions. [Brain Behav Immun. 81: 374-87.](#)
66. Liu, Z. *et al.* (2019) IL-17A exacerbates neuroinflammation and neurodegeneration by activating microglia in rodent models of Parkinson's disease. [Brain Behav Immun. 81: 630-45.](#)
67. Gomez-Nicola, D. *et al.* (2019) Measuring Microglial Turnover in the Adult Brain. [Methods Mol Biol. 2034: 207-15.](#)
68. Di Benedetto, G. *et al.* (2019) Beneficial effects of curtailing immune susceptibility in an Alzheimer's disease model. [J Neuroinflammation. 16 \(1\): 166.](#)
69. Bernier, L.P. *et al.* (2019) Nanoscale Surveillance of the Brain by Microglia via cAMP-Regulated Filopodia. [Cell Rep. 27 \(10\): 2895-2908.e4.](#)
70. Tunesi, M. *et al.* (2019) Hydrogel-based delivery of Tat-fused protein Hsp70 protects dopaminergic cells in vitro and in a mouse model of Parkinson's disease [NPG Asia Materials. 11: 28.](#)
71. Myhre, C.L. *et al.* (2019) Microglia Express Insulin-Like Growth Factor-1 in the Hippocampus of Aged APP_{swe}/PS1_{ΔE9} Transgenic Mice. [Front Cell Neurosci. 13: 308.](#)
72. Hauptmann, J. *et al.* (2020) Interleukin-1 promotes autoimmune neuroinflammation by suppressing endothelial heme oxygenase-1 at the blood-brain barrier. [Acta Neuropathol. 140 \(4\): 549-67.](#)
73. Yang, P. *et al.* (2020) Suppression of cGMP-Dependent Photoreceptor Cytotoxicity With Mycophenolate Is Neuroprotective in Murine Models of Retinitis Pigmentosa. [Invest Ophthalmol Vis Sci. 61 \(10\): 25.](#)
74. Poti, F. *et al.* (2020) Impact of S1P Mimetics on Mesenteric Ischemia/Reperfusion Injury. [Pharmaceuticals \(Basel\). 13 \(10\) 298.](#)
75. Wi, R. *et al.* (2020) Functional Crosstalk between CB and TRPV1 Receptors Protects Nigrostriatal Dopaminergic Neurons in the MPTP Model of Parkinson's Disease. [J Immunol Res. 2020: 5093493.](#)
76. Madore, C. *et al.* (2020) Essential omega-3 fatty acids tune microglial phagocytosis of synaptic elements in the mouse developing brain. [Nat Commun. 11 \(1\): 6133.](#)
77. Ellman, D.G. *et al.* (2020) Conditional Ablation of Myeloid TNF Improves Functional Outcome and Decreases Lesion Size after Spinal Cord Injury in Mice. [Cells. 9 \(11\): 2407.](#)
78. Elabi, O. *et al.* (2021) Human α -synuclein overexpression in a mouse model of Parkinson's disease leads to vascular pathology, blood brain barrier leakage and pericyte activation. [Sci Rep. 11 \(1\): 1120.](#)
79. Yoshizaki, S. *et al.* (2021) Microglial inflammation after chronic spinal cord injury is enhanced by reactive astrocytes via the fibronectin/ β 1 integrin pathway. [J Neuroinflammation. 18 \(1\): 12.](#)
80. Mañucat-Tan, N. *et al.* (2021) Hypochlorite-induced aggregation of fibrinogen underlies a novel antioxidant role in blood plasma. [Redox Biol. 40: 101847.](#)
81. Brunialti, E. *et al.* (2021) Inhibition of microglial β -glucocerebrosidase hampers the microglia-mediated antioxidant and protective response in neurons. [J Neuroinflammation. 18 \(1\): 220.](#)

82. Spitzel, M. *et al.* (2022) Dysregulation of Immune Response Mediators and Pain-Related Ion Channels Is Associated with Pain-like Behavior in the GLA KO Mouse Model of Fabry Disease. [Cells. 11 \(11\): 1730.](#)
83. Ji, N. *et al.* (2022) VSIG4 Attenuates NLRP3 and Ameliorates Neuroinflammation via JAK2-STAT3-A20 Pathway after Intracerebral Hemorrhage in Mice. [Neurotox Res. 40 \(1\): 78-88.](#)
84. Shanaki-Bavarsad, M. *et al.* (2022) Astrocyte-targeted Overproduction of IL-10 Reduces Neurodegeneration after TBI. [Exp Neurobiol. 31 \(3\): 173-95.](#)
85. Heiduschka, P. *et al.* (2023) Sub-Retinal Injection of Human Lipofuscin in the Mouse - A Model of "Dry" Age-Related Macular Degeneration? [Aging and disease. 14 \(1\): 184.](#)
86. Bani-Hani, M. *et al.* (2023) Interactions of Carboxylated Nanodiamonds With Mouse Macrophages Cell Line and Primary Cells [Int J Orthopaed Res. 6 \(1\): 30-43.](#)

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 #10040 available at: <https://www.bio-rad-antibodies.com/SDS/MCA711G>
10040

Regulatory For research purposes only

Related Products

Recommended Secondary Antibodies

Goat Anti Rat IgG (STAR69...)	FITC
Goat Anti Rat IgG (STAR73...)	RPE
Goat Anti Rat IgG (MOUSE ADSORBED) (STAR71...)	DyLight@550 , DyLight@650 , DyLight@800
Rabbit Anti Rat IgG (STAR21...)	HRP
Rabbit Anti Rat IgG (STAR16...)	DyLight@800
Goat Anti Rat IgG (STAR131...)	Alk. Phos. , Biotin
Rabbit Anti Rat IgG (STAR17...)	FITC
Goat Anti Rat IgG (STAR72...)	HRP

North & South America Tel: +1 800 265 7376

Fax: +1 919 878 3751

Email: antibody_sales_us@bio-rad.com

Worldwide

Tel: +44 (0)1865 852 700

Fax: +44 (0)1865 852 739

Email: antibody_sales_uk@bio-rad.com

Europe

Tel: +49 (0) 89 8090 95 21

Fax: +49 (0) 89 8090 95 50

Email: antibody_sales_de@bio-rad.com

To find a batch/lot specific datasheet for this product, please use our online search tool at: [bio-rad-antibodies.com/datasheets](https://www.bio-rad-antibodies.com/datasheets)

'M412251:221110'

Printed on 12 Aug 2023

