OriGene Technologies, Inc.
9620 Medical Center Drive, Ste 200
Rockville, MD 20850
UNITED STATES
Phone: +1-888-267-4436
Fax: +1-301-340-8606
techsupport@origene.com

OriGene Technologies GmbH
Schillerstr. 5
32052 Herford
GERMANY
Phone: +49-5221-34606-0
Fax: +49-5221-34606-11
info-de@origene.com

BM4000S Monoclonal Antibody to CD68 - Purified

Alternate names:	Gp110, Macrophage marker, Macrosialin
Quantity:	0.1 mg
Concentration:	lot specific
Background:	The CD68 antigen is a 37kD transmembrane protein that is post-translationally glycosylated to give a protein of 87-115kD. CD68 is specifically expressed by tissue macrophages, Langerhans cells and at low levels by dendritic cells. It could play a role in phagocytic activities of tissue macrophages, both in intracellular lysosomal metabolism and extracellular cell-cell and cell-pathogen interactions. It binds to tissue- and organ-specific lectins or selectins, allowing homing of macrophage subsets to particular sites. Rapid recirculation of CD68 from endosomes and lysosomes to the plasma membrane may allow macrophages to crawl over selectin bearing substrates or other cells.
Uniprot ID:	Q4FZY1
NCBI:	NP_001026808.1
GeneID:	287435
Host / Isotype:	Mouse / IgG1
Recommended Isotype Controls:	SM20P (for use in rat samples), AM03095PU-N
Clone:	ED1
Immunogen:	Rat spleen cells. Spleen cells from immunised BALB/c mice were fused with cells of the SP2/0-Ag14 mouse myeloma cell line.
Format:	**State:** Liquid purified IgG fraction **Purification:** Affinity Chromatography on Protein G **Buffer System:** PBS, pH 7.4 containing 0.09% Sodium Azide as preservative
Applications:	**RIA.** **Western blotting.** **Immunoprecipitation.** **Immunofluorescence.** **Flow Cytometry:** Use 10 µl of 1/25-1/100 diluted CD68 antibody to label 10^6 cells in 100 µl (Membrane permeabilisation is required for best results). **Immunohistology on Frozen Sections.** **Immunohistology on Paraffin Sections:** 1/50-1/100. Requires protein digestion pretreatment of Paraffin sections with Pronase or Trypsin. Other applications not tested. Optimal dilutions are dependent on conditions and should be determined by the user.
Specificity:	CD68 Antibody (Cat#BM4000) recognises a single chain glycoprotein of 110 kD that is expressed predominantly on the lysosomal membrane of myeloid cells. Weak cell surface expression also occurs. The antigen is expressed by the majority of tissue

macrophages and weakly by peripheral blood granulocytes.

Species Reactivity: **Tested:** Rat, Bovine.

Add. Information: Studies have shown that the antigen recognised by ED1 is the Rat homologue of Human CD68.

Storage: Store undiluted at 2-8°C for one month or (in aliquots) at -20°C for longer.
Avoid repeated freezing and thawing.
Shelf life one year from despatch.

Product Citations:

Purchased from Acris:

1. Schneider R, Meusel M, Renker S, Bauer C, Holzinger H, Roeder M, et al. Low-dose indomethacin after ischemic acute kidney injury prevents downregulation of Oat1/3 and improves renal outcome. Am J Physiol Renal Physiol. 2009 Dec;297(6):F1614-21. doi: 10.1152/ajprenal.00268.2009. Epub 2009 Sep 30. PubMed PMID: 19794109.
2. Meyer J, Cunea A, Sonntag-Bensch D, Welker P, Licha K, Holz FG, et al. In vivo imaging of a new indocyanine green micelle formulation in an animal model of laser-induced choroidal neovascularization. Invest Ophthalmol Vis Sci. 2014 Sep 4;55(10):6204-12. doi: 10.1167/iovs.13-13617. PubMed PMID: 25190666.
3. Meyer, JH;Cunea, A;Licha, K;Welker, P;Sonntag-Bensch, D;Wafula, P;Dernedde, J;Fimmers, R;Holz, FG;Schmitz-Valckenberg, S. In Vivo Imaging of Fluorescent Probes Linked to Antibodies Against Human and Rat Vascular Endothelial Growth Factor. Invest. Ophthalmol. Vis. Sci. 2016, 759-70, 57. PubMed PMID: 226927569.
4. Tuleta, I;Stöckigt, F;Juergens, UR;Pizarro, C;Schrickel, JW;Kristiansen, G;Nickenig, G;Skowasch, D. Intermittent Hypoxia Contributes to the Lung Damage by Increased Oxidative Stress, Inflammation, and Disbalance in Protease/Antiprotease System. Lung 2016. PubMed PMID: 27738828.

General Readings:

1. Damoiseaux JG, Döpp EA, Calame W, Chao D, MacPherson GG, Dijkstra CD. Rat macrophage lysosomal membrane antigen recognized by monoclonal antibody ED1. Immunology. 1994 Sep;83(1):140-7. PubMed PMID: 7821959.
2. Dijkstra CD, Döpp EA, Joling P, Kraal G. The heterogeneity of mononuclear phagocytes in lymphoid organs: distinct macrophage subpopulations in the rat recognized by monoclonal antibodies ED1, ED2 and ED3. Immunology. 1985 Mar;54(3):589-99. PubMed PMID: 3882559.
3. Bauer J, Sminia T, Wouterlood FG, Dijkstra CD. Phagocytic activity of macrophages and microglial cells during the course of acute and chronic relapsing experimental autoimmune encephalomyelitis. J Neurosci Res. 1994 Jul 1;38(4):365-75. PubMed PMID: 7932870.
4. Bao F, Chen Y, Dekaban GA, Weaver LC. Early anti-inflammatory treatment reduces lipid peroxidation and protein nitration after spinal cord injury in rats. J Neurochem. 2004 Mar;88(6):1335-44. PubMed PMID: 15009633.
5. Zilka N, Stozicka Z, Kovac A, Pilipcinec E, Bugos O, Novak M. Human misfolded truncated tau protein promotes activation of microglia and leukocyte infiltration in the transgenic rat model of tauopathy. J Neuroimmunol. 2009 Apr 30;209(1-2):16-25. doi: 10.1016/j.jneuroim.2009.01.013. Epub 2009 Feb 20. PubMed PMID: 19232747.
6. Fujita, E. et al. (2010) Statin Attenuates Experimental Anti-Glomerular Basement Membrane Glomerulonephritis Together with the Augmentation of Alternatively Activated Macrophages. Am J Pathol. Aug 9. [Epub ahead of print]

7. Salegio EA, Pollard AN, Smith M, Zhou XF. Macrophage presence is essential for the regeneration of ascending afferent fibres following a conditioning sciatic nerve lesion in adult rats. BMC Neurosci. 2011 Jan 20;12:11. doi: 10.1186/1471-2202-12-11. PubMed PMID: 21251261.
8. Wei X, Melemedjian OK, Ahn DD, Weinstein N, Dussor G. Dural fibroblasts play a potential role in headache pathophysiology. Pain. 2014 Jul;155(7):1238-44. doi: 10.1016/j.pain.2014.03.013. Epub 2014 Mar 20. PubMed PMID: 24657451.
9. Naito Y, Hirotani S, Sawada H, Akahori H, Tsujino T, Masuyama T. Dietary iron restriction prevents hypertensive cardiovascular remodeling in Dahl salt-sensitive rats. Hypertension. 2011 Mar;57(3):497-504. doi: 10.1161/HYPERTENSIONAHA.110.159681. Epub 2011 Jan 24. PubMed PMID: 21263124.
10. Baker, S.C. et al. (2011) Cellular Integration and Vascularisation Promoted by a Resorbable, Particulate-Leached, Cross-Linked Poly(e-caprolactone) Scaffold. Macromol Biosci. doi: 10.1002/mabi.201000415.
11. Bedi A, Kovacevic D, Fox AJ, Imhauser CW, Stasiak M, Packer J, et al. Effect of early and delayed mechanical loading on tendon-to-bone healing after anterior cruciate ligament reconstruction. J Bone Joint Surg Am. 2010 Oct 20;92(14):2387-401. doi: 10.2106/JBJS.I.01270. PubMed PMID: 20962189.
12. Liew HK, Pang CY, Hsu CW, Wang MJ, Li TY, Peng HF, et al. Systemic administration of urocortin after intracerebral hemorrhage reduces neurological deficits and neuroinflammation in rats. J Neuroinflammation. 2012 Jan 19;9:13. doi: 10.1186/1742-2094-9-13. PubMed PMID: 22257737.
13. Chiu TL, Wang MJ, Su CC. The treatment of glioblastoma multiforme through activation of microglia and TRAIL induced by rAAV2-mediated IL-12 in a syngeneic rat model. J Biomed Sci. 2012 Apr 22;19:45. doi: 10.1186/1423-0127-19-45. PubMed PMID: 22520731.
14. Glorie LL, Verhulst A, Matheeussen V, Baerts L, Magielse J, Hermans N, et al. DPP4 inhibition improves functional outcome after renal ischemia-reperfusion injury. Am J Physiol Renal Physiol. 2012 Sep;303(5):F681-8. doi: 10.1152/ajprenal.00075.2012. Epub 2012 Jun 20. PubMed PMID: 22718884.
15. Quan LD, Purdue PE, Liu XM, Boska MD, Lele SM, Thiele GM, et al. Development of a macromolecular prodrug for the treatment of inflammatory arthritis: mechanisms involved in arthrotropism and sustained therapeutic efficacy. Arthritis Res Ther. 2010;12(5):R170. doi: 10.1186/ar3130. Epub 2010 Sep 13. PubMed PMID: 20836843.
16. Peng JH, Cui T, Sun ZL, Huang F, Chen L, Xu L, et al. Effects of Puerariae Radix Extract on Endotoxin Receptors and TNF-α Expression Induced by Gut-Derived Endotoxin in Chronic Alcoholic Liver Injury. Evid Based Complement Alternat Med. 2012;2012:234987. doi: 10.1155/2012/234987. Epub 2012 Oct 21. PubMed PMID: 23133491.
17. Matsuda K, Nomoto H, Kawamura Y, Someya Y, Koiwa M, Taniyama H. Hemophagocytic histiocytic sarcoma in a Japanese black cow. Vet Pathol. 2010 Mar;47(2):339-42. doi: 10.1177/0300985809358428. Epub 2009 Dec 31. PubMed PMID: 20133954.
18. Tian YF, He CT, Chen YT, Hsieh PS. Lipoic acid suppresses portal endotoxemia-induced steatohepatitis and pancreatic inflammation in rats. World J Gastroenterol. 2013 May 14;19(18):2761-71. doi: 10.3748/wjg.v19.i18.2761. PubMed PMID: 23687413.

19. Xiang Y, Piao SG, Zou HB, Jin J, Fang MR, Lei DM, et al. L-carnitine protects against cyclosporine-induced pancreatic and renal injury in rats. Transplant Proc. 2013 Oct;45(8):3127-34. doi: 10.1016/j.transproceed.2013.08.041. PubMed PMID: 24157049.
20. Wang-Rosenke Y, Khadzhynov D, Loof T, Mika A, Kawachi H, Neumayer HH, et al. Tyrosine kinases inhibition by Imatinib slows progression in chronic anti-thy1 glomerulosclerosis of the rat. BMC Nephrol. 2013 Oct 14;14:223. doi: 10.1186/1471-2369-14-223. PubMed PMID: 24119229.
21. Dort J, Leblanc N, Maltais-Giguère J, Liaset B, Côté CH, Jacques H. Beneficial effects of cod protein on inflammatory cell accumulation in rat skeletal muscle after injury are driven by its high levels of arginine, glycine, taurine and lysine. PLoS One. 2013 Oct 4;8(10):e77274. doi: 10.1371/journal.pone.0077274. eCollection 2013. PubMed PMID: 24124612.
22. Chang, C. et al. (2013) Docosahexaenoic acid reduces cellular inflammatory response following permanent focal cerebral ischemia in rats The Journal of Nutritional Biochemistry Aug 5. [Epub ahead of Print]
23. Machelska, H. et al. (2013) Selectins and integrins but not platelet–endothelial cell adhesion molecule-1 regulate opioid inhibition of inflammatory pain British Journal of Pharmacology 142:772-780.
24. Sakuraya, K. et al. (2013) The synergistic effect of mizoribine and a direct renin inhibitor, aliskiren, on unilateral ureteral obstruction-induced renal fibrosis in rats The Journal of Urology. Oct 17 [Epub ahead of Print]
25. Xu, X et al. (2013) Aging aggravates long-term renal ischemia-reperfusion injury in a rat model Journal of Surgical Research Oct 10 [E pub ahead of print]
26. Kim, Y. et al. (2013) Enhancement of bone regeneration by dual release of a macrophage recruitment agent and platelet-rich plasma from gelatin hydrogels. Biomaterials. Oct 11. [Epub ahead of print]
27. Lin YC, Kao CH, Chen CC, Ke CJ, Yao CH, Chen YS. Time-course effect of electrical stimulation on nerve regeneration of diabetic rats. PLoS One. 2015 Feb 17;10(2):e0116711. doi: 10.1371/journal.pone.0116711. eCollection 2015. PubMed PMID: 25689049.

Pictures:

Figure 1. Staining of rat liver, with induced hepatocellular damage, with Mouse anti Rat CD68 antibody Cat.-No BM4000

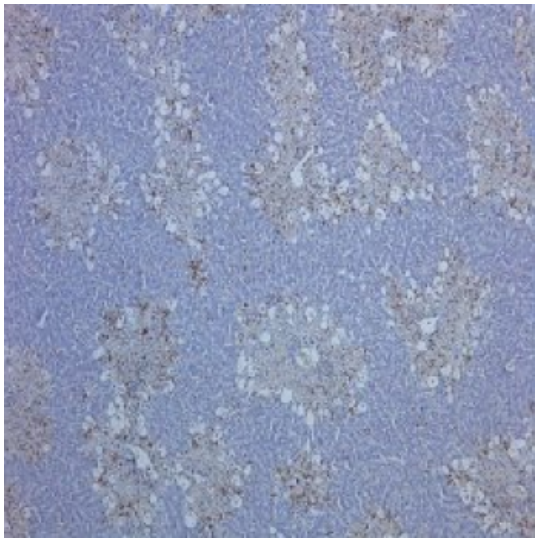

Figure 2. Staining of ED1 antibody on Rat spleen (frozen section) Cat.No.BM4000