

**BM4001S****Monoclonal Antibody to CD163 - Purified**

<b>Alternate names:</b>	Hemoglobin scavenger receptor, M130, Macrophage marker, Scavenger receptor cysteine-rich type 1 protein M130
<b>Quantity:</b>	0.1 mg
<b>Concentration:</b>	0.5 mg/ml
<b>Background:</b>	CD163 is a scavenger receptor for the haemoglobin-haptoglobin complex, and is upregulated by glucocorticoids and IL-10. The extracellular portion of the receptor is regularly shed and can be found in the circulation. An important function of CD163 seems to be in the adhesion of monocytes to activated endothelial cells. CD163 is expressed by approximately 50% of peritoneal macrophages, a subset of splenic macrophages, and by macrophages in most other tissues. However, it is not expressed by monocytes, alveolar macrophages or microglial cells.
<b>Uniprot ID:</b>	<a href="#">Q86VBZ</a>
<b>NCBI:</b>	<a href="#">NP_004235</a>
<b>GeneID:</b>	<a href="#">9332</a>
<b>Host / Isotype:</b>	Mouse / IgG1
<b>Recommended Isotype Controls:</b>	SM20P (for use in rat samples), AM03095PU-N
<b>Clone:</b>	ED2
<b>Immunogen:</b>	Rat Spleen cell homogenate. Spleen cells from immunised BALB/c mice were fused with cells of the SP2/0Ag 14 mouse myeloma cell line.
<b>Format:</b>	<b>State:</b> Liquid purified IgG fraction from Tissue Culture Supernatant <b>Purification:</b> Affinity Chromatography on Protein A <b>Buffer System:</b> PBS <b>Preservatives:</b> 0.09% Sodium Azide
<b>Applications:</b>	<b>Western blot.</b> <b>Immunoprecipitation.</b> <b>Immunofluorescence.</b> <b>Flow Cytometry:</b> Use 10 µl of 1/10-1/100 diluted CD163 antibody to label 10 <sup>6</sup> cells in 100 µl. <b>Immunohistochemistry on Frozen Sections:</b> 1/50-1/100. <b>Immunohistochemistry on Paraffin Sections:</b> This product requires antigen retrieval using pronase prior to staining of paraffin sections. IHC on paraffin-embedded material following PLP fixation (Periodate-lysine-paraformaldehyde) - refer to <i>Whiteland et al</i> (Ref.5.) <b><i>Histology Positive Control:</i></b> Liver tissue. Other applications not tested. Optimal dilutions are dependent on conditions and should be determined by the user.

<b>Specificity:</b>	<p>This antibody recognises the Rat CD163 cell surface glycoprotein, a 175kD molecule also known as ED2.</p> <p>It does <u>not</u> react with Human.</p> <p>Mouse anti Rat CD163, clone ED2 was shown to detect approximately 50% of peritoneal macrophages, a subset of splenic macrophages, and most tissue macrophages. However, no staining was observed in monocytes or alveolar macrophages (<i>Dijkstra et al.</i> 1985, <i>Beelen et al.</i> 1987). In freshly isolated bone marrow, expression of CD163 was limited to mature macrophages only (<i>Barbe et al.</i> 1990).</p>
<b>Species Reactivity:</b>	<b>Tested:</b> Rat.
<b>Storage:</b>	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.
<b>Product Citations:</b>	<b>Purchased from Acris:</b> <ol style="list-style-type: none"><li>1. Bonjoch Gassol, L. Estudi dels exosomes com a mecanisme de comunicació intercel·lular en patologies pancreàtiques. Thesis 2017. <a href="http://diposit.ub.edu/dspace/handle/2445/115304">http://diposit.ub.edu/dspace/handle/2445/115304</a></li></ol>
<b>General Readings:</b>	<ol style="list-style-type: none"><li>1. 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. <i>Immunology.</i> 1985 Mar;54(3):589-99. PubMed PMID: 3882559.</li><li>2. Beelen, R.H.J. et al. (1987) Monoclonal antibodies ED1, ED2 and ED3 against rat macrophages: Expression of recognized antigens in different stages of differentiation. <i>Transplant. Proc.</i> 3: 3166-3170.</li><li>3. Barbé E, Damoiseaux JG, Döpp EA, Dijkstra CD. Characterization and expression of the antigen present on resident rat macrophages recognized by monoclonal antibody ED2. <i>Immunobiology.</i> 1990 Dec;182(1):88-99. PubMed PMID: 2098324.</li><li>4. Dijkstra CD, Damoiseaux JG. Macrophage heterogeneity established by immunocytochemistry. <i>Prog Histochem Cytochem.</i> 1993;27(2):1-65. PubMed PMID: 8248543.</li><li>5. Whiteland JL, Nicholls SM, Shimeld C, Easty DL, Williams NA, Hill TJ. Immunohistochemical detection of T-cell subsets and other leukocytes in paraffin-embedded rat and mouse tissues with monoclonal antibodies. <i>J Histochem Cytochem.</i> 1995 Mar;43(3):313-20. PubMed PMID: 7868861.</li><li>6. Polfliet, M.M.J. et al. (2002) Identification of the rat mature macrophage antigen ED2 as CD163: Regulation by glucocorticoids and role in the production of proinflammatory mediators. PhD Thesis. Vrije University, Amsterdam.</li><li>7. Deng X, Wang L, Elm MS, Gabazadeh D, Diorio GJ, Eagon PK, et al. Chronic alcohol consumption accelerates fibrosis in response to cerulein-induced pancreatitis in rats. <i>Am J Pathol.</i> 2005 Jan;166(1):93-106. PubMed PMID: 15632003.</li><li>8. Dorval-Coiffec I, Delcros JG, Hakovirta H, Toppari J, Jégou B, Piquet-Pellorce C. Identification of the leukemia inhibitory factor cell targets within the rat testis. <i>Biol Reprod.</i> 2005 Mar;72(3):602-11. Epub 2004 Nov 10. PubMed PMID: 15537862.</li><li>9. Fujita, E. et al. (2010) Statin Attenuates Experimental Anti-Glomerular Basement Membrane Glomerulonephritis Together with the Augmentation of Alternatively</li></ol>

- Activated Macrophages. *Am J Pathol*. Aug 9. [Epub ahead of print].
10. Schwartzkopff J, Schlereth SL, Berger M, Bredow L, Birnbaum F, Böhringer D, et al. NK cell depletion delays corneal allograft rejection in baby rats. *Mol Vis*. 2010 Oct 2;16:1928-35. PubMed PMID: 21031017.
  11. 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.
  12. 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.
  13. Banerjee S, Figueiredo FC, Easty DL, Dick AD, Nicholls SM. Development of organised conjunctival leucocyte aggregates after corneal transplantation in rats. *Br J Ophthalmol*. 2003 Dec;87(12):1515-22. PubMed PMID: 14660464.
  14. Moghaddami M, Mayrhofer G, Cleland LG. MHC class II compartment, endocytosis and phagocytic activity of macrophages and putative dendritic cells isolated from normal tissues rich in synovium. *Int Immunol*. 2005 Aug;17(8):1117-30. Epub 2005 Jul 18. PubMed PMID: 16027140.
  15. Wójcik M, Ramadori P, Blaschke M, Sultan S, Khan S, Malik IA, et al. Immunodetection of cyclooxygenase-2 (COX-2) is restricted to tissue macrophages in normal rat liver and to recruited mononuclear phagocytes in liver injury and cholangiocarcinoma. *Histochem Cell Biol*. 2012 Feb;137(2):217-33. doi: 10.1007/s00418-011-0889-9. Epub 2011 Dec 1. PubMed PMID: 22131058.
  16. Kawakami AP, Sato C, Cardoso TN, Bonamin LV. Inflammatory Process Modulation by Homeopathic *Arnica montana* 6CH: The Role of Individual Variation. *Evid Based Complement Alternat Med*. 2011;2011:917541. doi: 10.1155/2011/917541. Epub 2011 Jan 19. PubMed PMID: 21318109.
  17. Kajita M, Murata T, Horiguchi K, Iizuka M, Hori M, Ozaki H. iNOS expression in vascular resident macrophages contributes to circulatory dysfunction of splanchnic vascular smooth muscle contractions in portal hypertensive rats. *Am J Physiol Heart Circ Physiol*. 2011 Mar;300(3):H1021-31. doi: 10.1152/ajpheart.00563.2009. Epub 2010 Dec 30. PubMed PMID: 21193589.
  18. Jiao K, Zhang J, Zhang M, Wei Y, Wu Y, Qiu ZY, et al. The identification of CD163 expressing phagocytic chondrocytes in joint cartilage and its novel scavenger role in cartilage degradation. *PLoS One*. 2013;8(1):e53312. doi: 10.1371/journal.pone.0053312. Epub 2013 Jan 11. PubMed PMID: 23326413.
  19. Fujii, Y. et al. (2013) Effect of enzymatically modified isoquercitrin on preneoplastic liver cell lesions induced by thioacetamide promotion in a two-stage hepatocarcinogenesis model using rats. *Toxicology*. pii: S0300-483X(13)00006-1.
  20. Lobato-Pascual A, Saether PC, Dahle MK, Gaustad P, Dissen E, Fossum S, et al. Rat macrophage C-type lectin is an activating receptor expressed by phagocytic cells. *PLoS One*. 2013;8(2):e57406. doi: 10.1371/journal.pone.0057406. Epub 2013 Feb 28. PubMed PMID: 23468983.
  21. Fabriek, B.O. et al. (2007) The macrophage CD163 surface glycoprotein is an erythroblast adhesion receptor. *Blood*, 15:5223-5229.
  22. Park, E.S. et al. (2014) Establishment of a Rat Model for Canine Necrotizing

Meningoencephalitis (NME). *Vet Pathol.* Jan 21 [Epub ahead of print]

23. Keitel V, Donner M, Winandy S, Kubitz R, Häussinger D. Expression and function of the bile acid receptor TGR5 in Kupffer cells. *Biochem Biophys Res Commun.* 2008 Jul 18;372(1):78-84. doi: 10.1016/j.bbrc.2008.04.171. Epub 2008 May 9. PubMed PMID: 18468513.

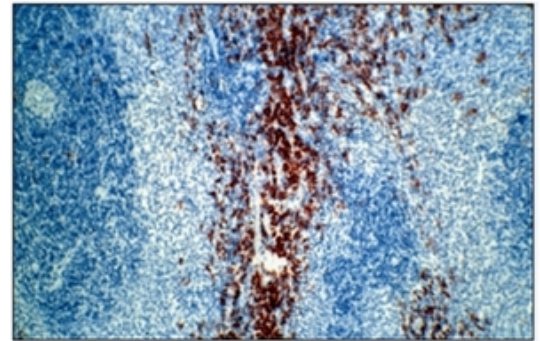
24. Hozumi, Y. et al. (2015) Expression and localization of the diacylglycerol kinase family and of phosphoinositide signaling molecules in adrenal gland. *Cell Tissue Res.* May 24. [Epub ahead of print]

25. Fernandez-Bustamante A, Agazio A, Wilson P, Elkins N, Domaleski L, He Q, et al. Brief Glutamine Pretreatment Increases Alveolar Macrophage CD163/Heme Oxygenase-1/p38-MAPK Dephosphorylation Pathway and Decreases Capillary Damage but Not Neutrophil Recruitment in IL-1/LPS-Insufflated Rats. *PLoS One.* 2015 Jul 6;10(7):e0130764. doi: 10.1371/journal.pone.0130764. eCollection 2015. PubMed PMID: 26147379.

26. Adamo HH, Strömvall K, Nilsson M, Halin Bergström S, Bergh A. Adaptive (TINT) Changes in the Tumor Bearing Organ Are Related to Prostate Tumor Size and Aggressiveness. *PLoS One.* 2015 Nov 4;10(11):e0141601. doi: 10.1371/journal.pone.0141601. eCollection 2015. PubMed PMID: 26536349.

#### Pictures:

Staining of ED2 antibody on Rat spleen (frozen section) Cat.-No. BM4001



Staining of acetone fixed, cryostat sectioned Rat spleen with Mouse anti Rat CD163 Cat.-No BM4001

