

Datasheet: MCA2388

Description:	RAT ANTI MOUSE CD31
Specificity:	CD31
Other names:	PECAM-1
Format:	Purified
Product Type:	Monoclonal Antibody
Clone:	ER-MP12
Isotype:	IgG2a
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	■			1/50 - 1/200
Immunohistology - Frozen (1)	■			1/10 - 1/100
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.

(1)The epitope recognised by this antibody is reported to be sensitive to formaldehyde fixation and tissue processing. Bio-Rad recommends the use of acetone fixation for frozen sections.

Target Species	Mouse
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	IgG concentration 1.0 mg/ml

Concentrations

Immunogen	BALB/c macrophage precursor cell hybrids
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External Database Links

UniProt:

[Q08481](#) [Related reagents](#)

Entrez Gene:

[18613](#) Pecam1 [Related reagents](#)

Synonyms	Pecam, Pecam-1
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Fusion Partners	Cells from immunised rats were fused with the cells of the rat Y3-Ag1.2.3 myeloma cell line
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Specificity	Rat anti Mouse CD31 antibody, clone ER-MP12 recognizes mouse CD31, a 140 kDa cell surface glycoprotein that is expressed at high levels on endothelial cells, platelets and most leukocyte subpopulations.
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CD31 is also expressed on a major population of macrophage / dendritic cell precursors in the bone marrow. Studies show that clone ER-MP12 can be used in conjunction with clone ER-MP20 ([MCA2389GA](#)) in two colour flow cytometric analysis, to identify different stages of myeloid progenitor cells in mouse bone marrow ([de Bruijn et al. 1998](#)).

Flow Cytometry	Use 10ul of the suggested working dilution to label 10 ⁶ cells in 100ul.
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References

1. Leenen, P.J. *et al.* (1990) Murine macrophage precursor characterization. II. Monoclonal antibodies against macrophage precursor antigens. [Eur J Immunol. 20 \(1\): 27-34.](#)
2. Iavarone, A. *et al.* (2004) Retinoblastoma promotes definitive erythropoiesis by repressing Id2 in fetal liver macrophages. [Nature. 432 \(7020\): 1040-5.](#)
3. Wynn, A.A. *et al.* (2001) Role of granulocyte/macrophage colony-stimulating factor in zymocel-induced hepatic granuloma formation. [Am J Pathol. 158 \(1\): 131-45.](#)
4. de Bruijn, M.F. *et al.* (1998) Bone marrow cellular composition in *Listeria monocytogenes* infected mice detected using ER-MP12 and ER-MP20 antibodies: a flow cytometric alternative to differential counting. [J Immunol Methods. 217 \(1-2\): 27-39.](#)
5. Revermann, M. *et al.* (2010) Soluble epoxide hydrolase deficiency attenuates neointima formation in the femoral cuff model of hyperlipidemic mice. [Arterioscler Thromb Vasc Biol. 30: 909-14.](#)
6. Thorp, E. *et al.* (2011) A reporter for tracking the UPR in vivo reveals patterns of temporal and cellular stress during atherosclerotic progression. [J Lipid Res. 52 \(5\): 1033-8.](#)
7. Thum, T. *et al.* (2011) Impairment of endothelial progenitor cell function and vascularization capacity by aldosterone in mice and humans. [Eur Heart J. 32: 1275-86.](#)
8. Ross, E.A. *et al.* (2011) CD31 Is Required on CD4+ T Cells To Promote T Cell Survival during *Salmonella* Infection. [J Immunol. 187: 1553-65.](#)
9. Geutskens, S.B. *et al.* (2005) Macrophages in the murine pancreas and their involvement in fetal endocrine development *in vitro*. [J Leukoc Biol. 78: 845-52.](#)
10. Schledzewski, K. *et al.* (2011) Deficiency of liver sinusoidal scavenger receptors stabilin-1 and -2 in mice causes glomerulofibrotic nephropathy via impaired hepatic clearance of noxious blood factors. [J Clin Invest. 121: 703-14.](#)
11. Sumagin, R. and Sarelius, I.H. (2010) Intercellular adhesion molecule-1 enrichment near tricellular endothelial junctions is preferentially associated with leukocyte transmigration and signals for reorganization of these junctions to accommodate leukocyte passage. [J Immunol. 184: 5242-52.](#)
12. Loureiro, J. *et al.* (2011) Blocking TGF- β 1 Protects the Peritoneal Membrane from

Dialysate-Induced Damage. [J Am Soc Nephrol. 22: 1682-95.](#)

13. Matsakas, A. *et al.* (2012) Exercise training attenuates the hypermuscular phenotype and restores skeletal muscle function in the myostatin null mouse. [Exp Physiol. 97 \(1\): 125-40.](#)
14. Baumeister, T. *et al.* (2003) Interleukin-3 α myeloid dendritic cells and mast cells develop simultaneously from different bone marrow precursors in cultures with interleukin-3. [J Invest Dermatol. 121: 280-8.](#)
15. Moen, I. *et al.* (2012) Gene expression in tumor cells and stroma in dsRed 4T1 tumors in eGFP-expressing mice with and without enhanced oxygenation. [BMC Cancer. 12: 21.](#)
16. Trottier, M.D. *et al.* (2012) Enhanced production of early lineages of monocytic and granulocytic cells in mice with colitis [Proc Natl Acad Sci U S A. 109: 16594-9.](#)
17. Ling, V. *et al.* (1997) Structural identification of the hematopoietic progenitor antigen ER-MP12 as the vascular endothelial adhesion molecule PECAM-1 (CD31). [Eur J Immunol. 27:509-14.](#)
18. Nikolic, T. *et al.* (2002) Developmental stages of myeloid dendritic cells in mouse bone marrow. [Int Immunol. 15:515-24.](#)
19. Tagoh, H. *et al.* (2002) Transcription factor complex formation and chromatin fine structure alterations at the murine c-fms (CSF-1 receptor) locus during maturation of myeloid precursor cells. [Genes Dev. 16:1721-37.](#)
20. van Rijt, L. *et al.* (2002) Allergen-induced accumulation of airway dendritic cells is supported by an increase in CD31(hi)Ly-6C(neg) bone marrow precursors in a mouse model of asthma. [Blood. 100:3663-71.](#)
21. van der Loo, J. *et al.* (1995) Identification of hematopoietic stem cell subsets on the basis of their primitiveness using antibody ER-MP12. [Blood. 85:952-62.](#)
22. Fraccarollo, D. *et al.* (2015) Efficacy of mineralocorticoid receptor antagonism in the acute myocardial infarction phase: eplerenone versus spironolactone [ESC Heart Failure. 2 \(3\): 150-8.](#)
23. Stein-Merlob, A.F. *et al.* (2015) Blood Accessibility to Fibrin in Venous Thrombosis is Thrombus Age-Dependent and Predicts Fibrinolytic Efficacy: An *In Vivo* Fibrin Molecular Imaging Study. [Theranostics. 5 \(12\): 1317-27.](#)
24. Yip, H.K. *et al.* (2016) Tissue plasminogen activator deficiency preserves neurological function and protects against murine acute ischemic stroke. [Int J Cardiol. 205: 133-41.](#)
25. Shi, H. *et al.* (2016) Hiding inside? Intracellular expression of non-glycosylated c-kit protein in cardiac progenitor cells. [Stem Cell Res. 16 \(3\): 795-806.](#)
26. Ono, N. *et al.* (2014) A subset of chondrogenic cells provides early mesenchymal progenitors in growing bones. [Nat Cell Biol. 16 \(12\): 1157-67.](#)
27. Kroon, P. *et al.* (2013) JAK-STAT blockade inhibits tumor initiation and clonogenic recovery of prostate cancer stem-like cells. [Cancer Res. 73 \(16\): 5288-98.](#)
28. Trottier MD *et al.* (2012) Enhancement of hematopoiesis and lymphopoiesis in diet-induced obese mice. [Proc Natl Acad Sci U S A. 109 \(20\): 7622-9.](#)
29. Ryan, T.E. *et al.* (2016) Mitochondrial therapy improves limb perfusion and myopathy following hindlimb ischemia. [J Mol Cell Cardiol. Jun 1. pii: S0022-2828\(16\)30147-X. \[Epub ahead of print\]](#)
30. Chowdhury, B. *et al.* (2016) Hyaluronidase 2 (HYAL2) is expressed in endothelial cells, as well as some specialized epithelial cells, and is required for normal hyaluronan catabolism. [Histochem Cell Biol. 145 \(1\): 53-66.](#)
31. Nakamura, Y. *et al.* (2015) Mesenchymal-stem-cell-derived exosomes accelerate skeletal muscle regeneration. [FEBS Lett. 589 \(11\): 1257-65.](#)
32. Reigstad, I. *et al.* (2016) The Effect of Stromal Integrin β 3-Deficiency on Two Different Tumors in Mice. [Cancers \(Basel\). 8 \(1\): pii: E14.](#)
33. Cao Y *et al.* (2016) IL-1 β differentially stimulates proliferation and multinucleation of distinct mouse bone marrow osteoclast precursor subsets. [J Leukoc Biol. 100 \(3\): 513-23.](#)
34. Bongiorno EK *et al.* (2017) Type 1 Immune Mechanisms Driven by the Response to Infection with Attenuated Rabies Virus Result in Changes in the Immune Bias of the Tumor Microenvironment and Necrosis of Mouse GL261 Brain Tumors. [J Immunol. May 1. pii: 1601444. \[Epub ahead of print\]](#)
35. Eskilsson, A. *et al.* (2014) Distribution of microsomal prostaglandin E synthase-1 in the mouse

brain. [J Comp Neurol. 522 \(14\): 3229-44.](#)

36. Bongiorno, E.K. *et al.* (2017) Type 1 Immune Mechanisms Driven by the Response to Infection with Attenuated Rabies Virus Result in Changes in the Immune Bias of the Tumor Microenvironment and Necrosis of Mouse GL261 Brain Tumors. [J Immunol. 198 \(11\): 4513-23.](#)

37. Cao Y *et al.* (2017) TNF- α has both stimulatory and inhibitory effects on mouse monocyte-derived osteoclastogenesis. [J Cell Physiol. :.](#)

Storage	Store at +4°C or at -20°C if preferred. Storage in frost-free freezers is not recommended. This product should be stored undiluted. Avoid repeated freezing and thawing as this may denature the antibody. Should this product contain a precipitate we recommend microcentrifugation before use.
Shelf Life	18 months from date of despatch.
Health And Safety Information	Material Safety Datasheet documentation #10040 available at: 10040: https://www.bio-rad-antibodies.com/uploads/MSDS/10040.pdf
Regulatory	For research purposes only

Related Products

Recommended Secondary Antibodies

Rabbit Anti Rat IgG (STAR16...)	DyLight®800
Goat Anti Rat IgG (STAR73...)	RPE
Rabbit Anti Rat IgG (STAR21...)	HRP
Rabbit Anti Rat IgG (STAR17...)	FITC
Goat Anti Rat IgG (MOUSE ADSORBED) (STAR71...)	DyLight®649 , DyLight®800
Goat Anti Rat IgG (STAR131...)	Alk. Phos. , Biotin
Goat Anti Rat IgG (STAR69...)	FITC
Goat Anti Rat IgG (STAR72...)	HRP

Recommended Negative Controls

[RAT IgG2a NEGATIVE CONTROL \(MCA1212\)](#)

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
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