Datasheet: MCA1334B

BATCH NUMBER 150910

Description:	MOUSE ANTI RAT CD31:Biotin
Specificity:	CD31
Other names:	PECAM-1
Format:	Biotin
Product Type:	Monoclonal Antibody
Clone:	TLD-3A12
Isotype:	IgG1
Quantity:	0.1 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	▪			Neat
Functional Assays (1)			▪	

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) **Bio-Rad recommend the use of MCA1334EL for use in functional studies**

Target Species

Rat

Species Cross Reactivity

Reacts with: Rhesus Monkey, Pig

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

Purified IgG conjugated to Biotin - liquid

Preparation

Purified IgG prepared by affinity chromatography on Protein A from tissue culture supernatant

Buffer Solution

Phosphate buffered saline

Preservative Stabilisers	0.09% Sodium Azide 1% Bovine Serum Albumin
Approx. Protein Concentrations	IgG concentration 0.1 mg/ml
Immunogen	Activated, Lewis rat derived microglial cells.
External Database Links	**UniProt:** Q3SWT0 Related reagents **Entrez Gene:** 29583 Pecam1 Related reagents
Synonyms	Pecam
RRID	AB_566718
Fusion Partners	Spleen cells from immunised BALB/c mouse were fused with cells of the mouse SP2 myeloma cell line.
Specificity	**Mouse anti Rat CD31 antibody, clone TLD-3A12** recognizes rat PECAM-1 (CD31), a 661 amino acid type 1 transmembrane protein expressed primarily on endothelial cells, platelets and leucocytes. Clone TLD-3A12 has been shown to partially block the proliferative response of antigen-specific CD4+ T cells to antigen-presenting cells and relevant antigen (Stevenson, K.S. *et al.*2009). Mouse anti Rat CD31 antibody, clone TLD-3A12 is suitable for use in IHC on formalin-fixed paraffin-embedded sections pre-treated with 0.2M boric acid, pH7.0. (Wilson *et al.* 2007). Mouse anti Rat CD31, clone TLD-3A12 has been shown to be cross-reactive with endothelial cells derived from rhesus macaque (Maclean *et al.* 2001)
Flow Cytometry	Use 10ul of the suggested working dilution to label 10^6 cells in 100ul.
References	1. Williams, K.C. *et al.* (1996) PECAM-1 (CD31) expression in the central nervous system and its role in experimental allergic encephalomyelitis in the rat. J Neurosci Res. 45 (6): 747-57. 2. Nakao, A. *et al.* (2003) Carbon monoxide inhalation protects rat intestinal grafts from ischemia/reperfusion injury. Am J Pathol. 163: 1587-98. 3. Stevenson, K.S. *et al.* (2009) Isolation, characterization, and differentiation of thy1.1-sorted pancreatic adult progenitor cell populations. Stem Cells Dev. 18 (10): 1389-98. 4. Ott, I. *et al.* (2005) Endothelial-like cells expanded from CD34+ blood cells improve left ventricular function after experimental myocardial infarction. FASEB J. 19 (8): 992-4. 5. Fujimoto, K.L. *et al.* (2007) An elastic, biodegradable cardiac patch induces contractile smooth muscle and improves cardiac remodeling and function in subacute myocardial

infarction. J Am Coll Cardiol. 49: 2292-300.
6. Thebault, P. *et al.* (2010) The C-type lectin-like receptor CLEC-1, expressed by myeloid cells and endothelial cells, is up-regulated by immunoregulatory mediators and moderates T cell activation. J Immunol. 183: 3099-108.
7. Graham, M.J. *et al.* (1998) *In vivo* distribution and metabolism of a phosphorothioate oligonucleotide within rat liver after intravenous administration. J Pharmacol Exp Ther. 286: 447-58.
8. Haywood, L. *et al.* (2003) Inflammation and angiogenesis in osteoarthritis. Arthritis Rheum. 48: 2173-7.
9. Kielian, T. and Hickey, W.F. (2010) Proinflammatory cytokine, chemokine, and cellular adhesion molecule expression during the acute phase of experimental brain abscess development. Am J Pathol. 157: 647-58.
10. Lochhead, J.J. *et al.* (2010) Oxidative stress increases blood-brain barrier permeability and induces alterations in occludin during hypoxia-reoxygenation. J Cereb Blood Flow Metab. 30: 1625-36.
11. Arkudas, A. *et al.* (2007) Fibrin gel-immobilized VEGF and bFGF efficiently stimulate angiogenesis in the AV loop model. Mol Med. 13: 480-7.
12. Nakao, A. *et al.* (2011) *Ex vivo* carbon monoxide delivery inhibits intimal hyperplasia in arterialized vein grafts. Cardiovasc Res. 89: 457-63.
13. Ohnishi, T. *et al.* (2007) Comparison of endothelial cell proliferation in normal liver and adipose tissue in B6C3F1 mice, F344 rats, and humans. Toxicol Pathol. 35: 904-9.
14. Schilte, M.N. *et al.* (2009) Long-term intervention with heparins in a rat model of peritoneal dialysis. Perit Dial Int. 29: 26-35.
15. Seegers, H.C. *et al.* (2003) Enhancement of angiogenesis by endogenous substance P release and neurokinin-1 receptors during neurogenic inflammation. J Pharmacol Exp Ther. 306: 8-12.
16. Wilson, E. *et al.* (2007) An evaluation of the immunohistochemistry benefits of boric acid antigen retrieval on rat decalcified joint tissues. J Immunol Methods. 322: 137-42.
17. Willis, C.L. *et al.* (2010) Protein kinase C activation modulates reversible increase in cortical blood-brain barrier permeability and tight junction protein expression during hypoxia and posthypoxic reoxygenation. J Cereb Blood Flow Metab. 30: 1847-59.
18. Salehi-Had, H. *et al.* (2011) Utilizing targeted gene therapy with nanoparticles binding alpha v beta 3 for imaging and treating choroidal neovascularization. PLoS One. 6: e18864.
19. MacLean, A.G. *et al.* (2001) Rhesus macaque brain microvessel endothelial cells behave in a manner phenotypically distinct from umbilical vein endothelial cells. J Neuroimmunol. 118: 223-32.
20. Ceelen, W. *et al.* (2007) Recombinant human erythropoietin alpha modulates the effects of radiotherapy on colorectal cancer microvessels. Br J Cancer. 96: 692-700.
21. Tung, H.C. *et al.* (2015) The Beneficial Effects of P2X7 Antagonism in Rats with Bile Duct Ligation-induced Cirrhosis. PLoS One. 10 (5): e0124654.
22. Oboshi, M. *et al.* (2015) Temporary dietary iron restriction affects the process of thrombus resolution in a rat model of deep vein thrombosis. PLoS One. 10 (5): e0126611.
23. Wu, S.H. *et al.* (2015) Autologous adipose-derived stem cells attenuate muscular atrophy and protect spinal cord ventral horn motor neurons in an animal model of burn injury. Cytotherapy. 17 (8): 1066-75.
24. Ikutomi, M. *et al.* (2015) Diverse contribution of bone marrow-derived late-outgrowth

endothelial progenitor cells to vascular repair under pulmonary arterial hypertension and arterial neointimal formation. J Mol Cell Cardiol. 86: 121-35.
25. Ferrantelli, E. *et al.* (2016) The dipeptide alanyl-glutamine ameliorates peritoneal fibrosis and attenuates IL-17 dependent pathways during peritoneal dialysis. Kidney Int. 89 (3): 625-35.
26. Lux, M. *et al.* (2016) *In vitro* maturation of large-scale cardiac patches based on a perfusable starter matrix by cyclic mechanical stimulation. Acta Biomater. 30: 177-87.
27. Kotaro, S. *et al.* (2015) Responses of pulp vasculature after cavity preparation in rat molars Journal of Oral Biosciences. 57 (3): 157-64.
28. Teng, B.T. *et al.* (2011) Protective effect of caspase inhibition on compression-induced muscle damage. J Physiol. 589: 3349-69.
29. Kakaiy, A. *et al.* (2015) Comparing protective effect of grape seed extract versus atorvastatin on endometriosis in rat model: Evidence for immunohistochemical and biochemical alterations. Vet Res Forum. 6 (2): 101-10.
30. Brandl, A. *et al.* (2014) A novel early precursor cell population from rat bone marrow promotes angiogenesis *in vitro*. BMC Cell Biol. 15: 12.
31. Sun, C.K. *et al.* (2015) Mixed serum-deprived and normal adipose-derived mesenchymal stem cells against acute lung ischemia-reperfusion injury in rats. Am J Transl Res. 7 (2): 209-31.
32. Matsugami, H.*et al.* (2014) VEGF secretion by adipose tissue-derived regenerative cells is impaired under hyperglycemic conditions via glucose transporter activation and ROS increase. Biomed Res. 35 (6): 397-405.
33. Park; J.R. *et al.* (2016) Effects of Peroxisome Proliferator-Activated Receptor-δ Agonist on Cardiac Healing after Myocardial Infarction. PLoS One. 11 (2): e0148510.
34. Naaijkens BA *et al.* (2015) Acute myocardial infarction does not affect functional characteristics of adipose-derived stem cells in rats, but reduces the number of stem cells in adipose tissue. Cell Tissue Res. 362 (3): 623-32.
35. Lim, S. *et al.* (2017) Attenuation of carotid neointimal formation after direct delivery of a recombinant adenovirus expressing glucagon-like peptide-1 in diabetic rats. Cardiovasc Res. 113 (2): 183-94.
36. Stavenuiter, A.W. *et al.* (2015) Protective Effects of Paricalcitol on Peritoneal Remodeling during Peritoneal Dialysis. Biomed Res Int. 2015: 468574.
37. Frye, C.A. & Patrick, C.W. Jr (2002) Isolation and culture of rat microvascular endothelial cells. In Vitro Cell Dev Biol Anim. 38 (4): 208-12.
38. Jiang, Y. *et al.* (2015) SOD1 nanozyme salvages ischemic brain by locally protecting cerebral vasculature. J Control Release. 213: 36-44.
39. Mirzaei, M. *et al.* (2017) Nanosilver particles increase follicular atresia: Correlation with oxidative stress and aromatization. Environ Toxicol. 32 (10): 2244-55.
40. Sønstevold,T. *et al.* (2017) Hyperbaric oxygen treatment did not significantly affect radiation injury in the mandibular area of rats. Oral Surgery, Oral Medicine, Oral Pathology and Oral Radiology. [Epub ahead of print].
41. Ichihara, Y. *et al.* (2018) Self-assembling peptide hydrogel enables instant epicardial coating of the heart with mesenchymal stromal cells for the treatment of heart failure. Biomaterials. 154: 12-23.
42. Melly, L. *et al.* (2018) Myocardial infarction stabilization by cell-based expression of controlled Vascular Endothelial Growth Factor levels. J Cell Mol Med. 22 (5): 2580-91.
43. Aminzadeh, A. *et al.* (2020) Investigating The Alterations of Oxidative Stress Status,

Antioxidant Defense Mechanisms, MAP Kinase and Mitochondrial Apoptotic Pathway in Adipose-Derived Mesenchymal Stem Cells from STZ Diabetic Rats. Cell J. 22 (Suppl 1): 38-48.
44. Pedram, M.S. *et al.* (2010) Transplantation of a combination of autologous neural differentiated and undifferentiated mesenchymal stem cells into injured spinal cord of rats. Spinal Cord. 48 (6): 457-63.
45. Sheu, J.J. *et al.* (2012) Combination of cilostazol and clopidogrel attenuates rat critical limb ischemia. J Transl Med. 10: 164.
46. Costa, B.P. *et al.* (2018) Intestinal Epithelial Stem Cells: Distinct Behavior After Surgical Injury and Teduglutide Administration. J Invest Surg. 31 (3): 243-52.

Storage	Store at +4°C or at -20°C if preferred. This product should be stored undiluted. Storage in frost-free freezers is not recommended. Avoid repeated freezing and thawing as this may denature the antibody. Should this product contain a precipitate we recommend microcentrifugation before use.
Guarantee	12 months from date of despatch
Health And Safety Information	Material Safety Datasheet documentation #10041 available at: https://www.bio-rad-antibodies.com/SDS/MCA1334B 10041
Regulatory	For research purposes only

Related Products

Recommended Negative Controls

MOUSE IgG1 NEGATIVE CONTROL:Biotin (MCA1209B)

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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'M365161:200529'

Printed on 25 Apr 2024