

Datasheet: MCA1334EL BATCH NUMBER 1804

Description:	MOUSE ANTI RAT CD31:Low Endotoxin		
Specificity:	CD31		
Other names:	PECAM-1		
Format:	Low Endotoxin		
Product Type:	Monoclonal Antibody		
Clone:	TLD-3A12		
lsotype:	lgG1		
Quantity:	0.5 mg		

Product Details

Applications	This product has been re	ported to	work in t	he following applicatior	ns. 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 <u>www.bio-</u> rad-antibodies.com/protocols.					
		Yes	No	Not Determined	Suggested Dilution	
	Flow Cytometry	•	no	Not Determined	1/50 - 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.					
	system using appropriate negative/positive controls.					
Target Species	Rat					
Species Cross	Reacts with: Rhesus Monkey, Pig					
Reactivity	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 - liquid					

Preparation	Purified IgG prepared by affinity chromatography on Protein G from tissue culture supernatant
Buffer Solution	Phosphate buffered saline
Preservative Stabilisers	None present
Carrier Free	Yes
Endotoxin Level	<0.01 EU/ug
Approx. Protein Concentrations	IgG concentration 1 mg/ml
Immunogen	Activated, Lewis rat derived microglial cells.
External Database Links	UniProt: <u>Q3SWT0</u> <u>Related reagents</u> Entrez Gene: <u>29583</u> Pecam1 <u>Related reagents</u>
Synonyms	Pecam
RRID	AB_2161160
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 (<u>Stevenson, K.S. <i>et</i></u> <u>al.2009</u>).
	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. (<u>Wilson et al. 2007</u>). Mouse anti Rat CD31, clone TLD-3A12 has been shown to be cross-reactive with endothelial cells derived from rhesus macaque (<u>Maclean et al. 2001</u>)
Flow Cytometry	Use 10ul of the suggested working dilution to label 10 ⁶ cells in 100ul.
References	1. Williams, K.C. <i>et al.</i> (1996) PECAM-1 (CD31) expression in the central nervous system and its role in experimental allergic encephalomyelitis in the rat. <u>J Neurosci Res. 45 (6):</u> 747-57.

2. Nakao, A. *et al.* (2003) Carbon monoxide inhalation protects rat intestinal grafts from ischemia/reperfusion injury. <u>Am J Pathol. 163: 1587-98.</u>

3. Stevenson, K.S. *et al.* (2009) Isolation, characterization, and differentiation of thy1.1sorted pancreatic adult progenitor cell populations. <u>Stem Cells Dev. 18 (10): 1389-98.</u>

4. Ott, I. *et al.* (2005) Endothelial-like cells expanded from CD34+ blood cells improve left ventricular function after experimental myocardial infarction. <u>FASEB J. 19 (8): 992-4.</u>

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. <u>J Pharmacol Exp Ther.</u> <u>286: 447-58.</u>

8. Haywood, L. *et al.* (2003) Inflammation and angiogenesis in osteoarthritis. <u>Arthritis</u> <u>Rheum. 48: 2173-7.</u>

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. <u>Am J Pathol. 157: 647-58.</u>

10. Lochhead, J.J. *et al.* (2010) Oxidative stress increases blood-brain barrier permeability and induces alterations in occludin during hypoxia-reoxygenation. <u>J Cereb Blood Flow</u> Metab. 30: 1625-36.

11. Arkudas, A. *et al.* (2007) Fibrin gel-immobilized VEGF and bFGF efficiently stimulate angiogenesis in the AV loop model. <u>Mol Med. 13: 480-7.</u>

12. Nakao, A. *et al.* (2011) *Ex vivo* carbon monoxide delivery inhibits intimal hyperplasia in arterialized vein grafts. <u>Cardiovasc Res. 89: 457-63.</u>

13. Ohnishi, T. *et al.* (2007) Comparison of endothelial cell proliferation in normal liver and adipose tissue in B6C3F1 mice, F344 rats, and humans. <u>Toxicol Pathol. 35: 904-9.</u>

14. Schilte, M.N. *et al.* (2009) Long-term intervention with heparins in a rat model of peritoneal dialysis. <u>Perit Dial Int. 29: 26-35.</u>

15. Seegers, H.C. *et al.* (2003) Enhancement of angiogenesis by endogenous substance P release and neurokinin-1 receptors during neurogenic inflammation. <u>J Pharmacol Exp</u> <u>Ther. 306: 8-12.</u>

Wilson, E. *et al.* (2007) An evaluation of the immunohistochemistry benefits of boric acid antigen retrieval on rat decalcified joint tissues. <u>J Immunol Methods. 322: 137-42.</u>
 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. <u>J Cereb Blood Flow Metab. 30: 1847-59.</u>
 Salehi-Had, H. *et al.* (2011) Utilizing targeted gene therapy with nanoparticles binding alpha v beta 3 for imaging and treating choroidal neovascularization. <u>PLoS One. 6:</u> 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. <u>Br J Cancer. 96: 692-700.</u>

21. Tung, H.C. *et al.* (2015) The Beneficial Effects of P2X7 Antagonism in Rats with Bile Duct Ligation-induced Cirrhosis. <u>PLoS One. 10 (5): e0124654.</u>

22. Oboshi, M. *et al.* (2015) Temporary dietary iron restriction affects the process of thrombus resolution in a rat model of deep vein thrombosis. <u>PLoS One. 10 (5): e0126611.</u>
 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. <u>Cytotherapy. 17 (8): 1066-75.</u>

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. <u>Kidney Int.</u> <u>89 (3): 625-35.</u>

26. Lux, M. *et al.* (2016) *In vitro* maturation of large-scale cardiac patches based on a perfusable starter matrix by cyclic mechanical stimulation. <u>Acta Biomater. 30: 177-87.</u>
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. <u>J Physiol. 589: 3349-69.</u>

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. <u>Vet Res Forum. 6 (2): 101-10.</u>

30. Brandl, A. *et al.* (2014) A novel early precursor cell population from rat bone marrow promotes angiogenesis *in vitro*. <u>BMC Cell Biol. 15: 12.</u>

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. <u>Am J</u> <u>Transl Res. 7 (2): 209-31.</u>

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. <u>Biomed Res. 35 (6): 397-405.</u>

33. Park; J.R. *et al.* (2016) Effects of Peroxisome Proliferator-Activated Receptor-δ
Agonist on Cardiac Healing after Myocardial Infarction. <u>PLoS One. 11 (2): e0148510.</u>
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. <u>Cell Tissue Res. 362 (3): 623-32.</u>

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. <u>Cardiovasc</u> <u>Res. 113 (2): 183-94.</u>

36. Stavenuiter, A.W. *et al.* (2015) Protective Effects of Paricalcitol on Peritoneal Remodeling during Peritoneal Dialysis. <u>Biomed Res Int. 2015</u>: 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. <u>J Control Release</u>. 213: 36-44.

39. Mirzaei, M. *et al.* (2017) Nanosilver particles increase follicular atresia: Correlation with oxidative stress and aromatization. <u>Environ Toxicol. 32 (10): 2244-55.</u>

40. Sønstevold, T. et al. (2018) Hyperbaric oxygen treatment did not significantly affect

	 radiation injury in the mandibular area of rats. <u>Oral Surg Oral Med Oral Pathol Oral Radiol.</u> <u>125 (2): 112-9.</u> 41. Ichihara, Y. <i>et al.</i> (2018) Self-assembling peptide hydrogel enables instant epicardial coating of the heart with mesenchymal stromal cells for the treatment of heart failure. <u>Biomaterials. 154: 12-23.</u> 42. Melly, L. <i>et al.</i> (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. <i>et al.</i> (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. <u>Cell J. 22 (Suppl 1)</u>: <u>38-48.</u> 44. Pedram, M.S. <i>et al.</i> (2010) Transplantation of a combination of autologous neural differentiated and undifferentiated mesenchymal stem cells into injured spinal cord of rats. <u>Spinal Cord. 48 (6): 457-63.</u> 45. Sheu, J.J. <i>et al.</i> (2012) Combination of cilostazol and clopidogrel attenuates rat critical limb ischemia. <u>J Transl Med. 10: 164.</u> 46. Costa, B.P. <i>et al.</i> (2021) Mitestinal Epithelial Stem Cells: Distinct Behavior After Surgical Injury and Teduglutide Administration. <u>J Invest Surg. 31 (3): 243-52.</u> 47. Pun, C.K. <i>et al.</i> (2021) Matrix metalloproteinase-9 inhibition or deletion attenuates portal hypertension in rodents. <u>J Cell Mol Med. 25 (21): 10073-87.</u> 49. Huang, H.C. <i>et al.</i> (2021) Microbiota transplants from feces or gut content attenuated portal hypertension and portosystemic collaterals in cirrhotic rats. <u>Clin Sci (Lond). 135 (24): 7709-2728.</u> 50. Cąkata-Jakimowicz, M. & Puzianowska-Kuznicka, M. (2022) Towards Understanding the Lymph Node Response to Skin Infection with Saprophytic <i>Staphylococcus epidermidis.</i>. <u>Biomedicines. 10 (5): 1021.</u> 51. Huang, H.C. <i>et al.</i> (2022) Effects of PCSK-9 Inhibition by Alirocumab Treatments on
Storage	Biliary Cirrhotic Rats. Int J Mol Sci. 23 (13): 7378. Store at -20°C only
	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 #10162 available at: https://www.bio-rad-antibodies.com/SDS/MCA1334EL 10162
Regulatory	For research purposes only

Related Products

Recommended Secondary Antibodies

Rabbit Anti Mouse IgG (STAR12)	RPE			
Goat Anti Mouse IgG IgA IgM (STAR87) <u>HRP</u>				
Goat Anti Mouse IgG (STAR76)	RPE			
Goat Anti Mouse IgG (STAR70)	<u>FITC</u>			
Goat Anti Mouse IgG (H/L) (STAR117)	Alk. Phos., DyLight®488, DyLight®550,			
	<u>DyLight®650</u> , <u>DyLight®680</u> , <u>DyLight®800</u> ,			
	FITC, HRP			
Goat Anti Mouse IgG (STAR77)	HRP			
Goat Anti Mouse IgG (Fc) (STAR120)	FITC, HRP			
Rabbit Anti Mouse IgG (STAR13)	HRP			
Rabbit Anti Mouse IgG (STAR9)	FITC			
Recommended Negative Controls				
MOUSE IgG1 NEGATIVE CONTROL:Low Endotoxin (MCA1209EL)				

North & South	Tel: +1 800 265 7376	Worldwide	Tel: +44 (0)1865 852 700	Europe	Tel: +49 (0) 89 8090 95 21
America	Fax: +1 919 878 3751		Fax: +44 (0)1865 852 739		Fax: +49 (0) 89 8090 95 50
	Email: antibody_sales_us@bio-rad.com		Email: antibody_sales_uk@bio-rad.com		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 'M365162:200529'

Printed on 25 Apr 2024

© 2024 Bio-Rad Laboratories Inc | Legal | Imprint