

Datasheet: MCA1746F

Description:	MOUSE ANTI PIG CD31:FITC
Specificity:	CD31
Other names:	PECAM-1
Format:	FITC
Product Type:	Monoclonal Antibody
Clone:	LCI-4
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 - 1/10
Immunofluorescence	▪			

Where this product 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 product for use in their own system using appropriate negative/positive controls.

Target Species	Pig		
Species Cross Reactivity	Reacts with: Human Does not react with:Mouse 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 Fluorescein Isothiocyanate Isomer 1 (FITC) - liquid		
Max Ex/Em	Fluorophore	Excitation Max (nm)	Emission Max (nm)
	FITC	490	525
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 (NaN ₃) 1% bovine serum albumin
Approx. Protein Concentrations	IgG concentration 0.1 mg/ml
Immunogen	Porcine CD31/human IgGFc fusion protein.
External Database Links	<p>UniProt: Q95242 Related reagents</p> <p>Entrez Gene: 396941 PECAM1 Related reagents</p>
RRID	AB_323951
Specificity	<p>Mouse anti Pig CD31, clone LCI-4 recognizes porcine CD31, also known as Platelet endothelial cell adhesion molecule (PECAM-1). CD31 is constitutively expressed by platelets, monocytes and some lymphocytes, it is expressed by endothelial cells at a level, an order of magnitude greater than that of other cell types (Fawcett <i>et al.</i> 1995). The extracellular region contains six Ig-like domains. Mouse anti Pig CD31, clone LCI-4 is cross reactive with human CD31 and binds to the 5th extracellular Ig domain, proximal to the transmembrane region as demonstrated by human CD31 domain deletion mutants (Nasu <i>et al.</i> 1999).</p> <p>Mouse anti Pig CD31, clone LCI-4 immunoprecipitates a protein of ~130 kDa from lysates of porcine aortic endothelial cells and is strongly expressed at cell junctions (Nasu <i>et al.</i> 1999).</p>
Flow Cytometry	Use 10µl of the suggested working dilution to label 10 ⁶ cells or 100µl whole blood
References	<ol style="list-style-type: none"> 1. Nasu, K. <i>et al.</i> (1999) Alpha-galactosyl-mediated activation of porcine endothelial cells: studies on CD31 and VE-cadherin in adhesion and signaling. Transplantation. 68: 861-7. 2. Evans, P.C. <i>et al.</i> (2001) Signaling through CD31 protects endothelial cells from apoptosis. Transplantation. 71 (3): 343-4. 3. Campos, E. <i>et al.</i> (2004) <i>In vitro</i> effect of classical swine fever virus on a porcine aortic endothelial cell line Vet Res. 35: 625-33. 4. Waksman, R. <i>et al.</i> (2006) Intracoronary photodynamic therapy reduces neointimal growth without suppressing re-endothelialisation in a porcine model. Heart. 92: 1138-44. 5. Iohara, K. <i>et al.</i> (2008) A novel stem cell source for vasculogenesis in ischemia: subfraction of side population cells from dental pulp. Stem Cells. 26 (9): 2408-18. 6. Katchman, H. <i>et al.</i> (2008) Embryonic porcine liver as a source for transplantation: advantage of intact liver implants over isolated hepatoblasts in overcoming homeostatic inhibition by the quiescent host liver. Stem Cells. 26: 1347-55. 7. Tchorsh-Yutis, D. <i>et al.</i> (2009) Pig embryonic pancreatic tissue as a source for

- transplantation in diabetes: transient treatment with anti-LFA1, anti-CD48, and FTY720 enables long-term graft maintenance in mice with only mild ongoing immunosuppression. [Diabetes. 58: 1585-94.](#)
8. Gesslein, B. *et al.* (2010) Mitogen-activated protein kinases in the porcine retinal arteries and neuroretina following retinal ischemia-reperfusion. [Mol Vis. 16: 392-407.](#)
 9. Gyöngyösi, M. *et al.* (2010) Differential effect of ischaemic preconditioning on mobilisation and recruitment of haematopoietic and mesenchymal stem cells in porcine myocardial ischaemia-reperfusion. [Thromb Haemost. 104 \(2\): 376-84.](#)
 10. Poirier, N. *et al.* (2010) Inducing CTLA-4-dependent immune regulation by selective CD28 blockade promotes regulatory T cells in organ transplantation. [Sci Transl Med. 2 \(17\): 17ra10.](#)
 11. Graham, J.J. *et al.* (2010) Long-term tracking of bone marrow progenitor cells following intracoronary injection post-myocardial infarction in swine using MRI. [Am J Physiol Heart Circ Physiol. 299: H125-33.](#)
 12. Chitalia, V.C. *et al.* (2011) Matrix-embedded endothelial cells are protected from the uremic milieu. [Nephrol Dial Transplant. 26: 3858-65.](#)
 13. Sokoli, A. *et al.* (2013) *Mycoplasma suis* infection results endothelial cell damage and activation: new insight into the cell tropism and pathogenicity of hemotrophic mycoplasma. [Vet Res.44: 6.](#)
 14. Kang, S.D. *et al.* (2013) Isolation of functional human endothelial cells from small volumes of umbilical cord blood. [Ann Biomed Eng. 41 \(10\): 2181-92.](#)
 15. Azimzadeh, A.M. *et al.* (2014) Development of a consensus protocol to quantify primate anti-non-Gal xenoreactive antibodies using pig aortic endothelial cells. [Xenotransplantation. 21 \(6\): 555-66.](#)
 16. Peng, X. *et al.* (2015) Phenotypic and Functional Properties of Porcine Dedifferentiated Fat Cells during the Long-Term Culture *In Vitro*. [Biomed Res Int. 2015: 673651.](#)
 17. Ramirez, H.A. *et al.* (2015) Comparative Genomic, MicroRNA, and Tissue Analyses Reveal Subtle Differences between Non-Diabetic and Diabetic Foot Skin. [PLoS One. 10 \(8\): e0137133.](#)
 18. Balaoing, L.R. *et al.* (2015) Laminin Peptide-Immobilized Hydrogels Modulate Valve Endothelial Cell Hemostatic Regulation. [PLoS One. 10 \(6\): e0130749.](#)
 19. Barsotti, M.C. *et al.* (2015) Oligonucleotide biofunctionalization enhances endothelial progenitor cell adhesion on cobalt/chromium stents. [J Biomed Mater Res A. 103 \(10\): 3284-92.](#)
 20. Zhang, Q. *et al.* (2015) Engineering vascularized soft tissue flaps in an animal model using human adipose-derived stem cells and VEGF+PLGA/PEG microspheres on a collagen-chitosan scaffold with a flow-through vascular pedicle. [Biomaterials. 73: 198-213.](#)
 21. Puperi, D.S. *et al.* (2015) 3-Dimensional spatially organized PEG-based hydrogels for an aortic valve co-culture model. [Biomaterials. 67: 354-64.](#)
 22. Ramm, R. *et al.* (2016) Decellularized GGTA1-KO pig heart valves do not bind preformed human xenoantibodies. [Basic Res Cardiol. 111 \(4\): 39.](#)
 23. Leitão, A.F. *et al.* (2016) A Novel Small-Caliber Bacterial Cellulose Vascular Prosthesis: Production, Characterization, and Preliminary *In Vivo* Testing. [Macromol Biosci. 16 \(1\): 139-50.](#)
 24. Chen, P. *et al.* (2017) Altered expression of eNOS, prostacyclin synthase, prostaglandin G/H synthase, and thromboxane synthase in porcine aortic endothelial cells

after exposure to human serum-relevance to xenotransplantation. [Cell Biol Int. 41 \(7\): 798-808.](#)

25. Maïga, S. *et al.* (2017) Renal auto-transplantation promotes cortical microvascular network remodeling in a preclinical porcine model. [PLoS One. 12 \(7\): e0181067.](#)

26. Jaff, N. *et al.* (2018) Transcriptomic analysis of the harvested endothelial cells in a swine model of mechanical thrombectomy. [Neuroradiology. 60 \(7\): 759-68.](#)

27. Strbo, N. *et al.* (2019) Single cell analyses reveal specific distribution of anti-bacterial molecule Perforin-2 in human skin and its modulation by wounding and *Staphylococcus aureus* infection. [Exp Dermatol. 28 \(3\): 225-32.](#)

28. Hättinen, O.A. *et al.* (2019) Isolation of fresh endothelial cells from porcine heart for cardiovascular studies: a new fast protocol suitable for genomic, transcriptomic and cell biology studies. [BMC Mol Cell Biol. 20 \(1\): 32.](#)

29. Bernardini, C. *et al.* (2020) Effects of Hydrogen Sulfide Donor NaHS on Porcine Vascular Wall-Mesenchymal Stem Cells. [Int J Mol Sci. 21\(15\):5267.](#)

30. Zhu, H. *et al.* (2022) Production of cultured meat from pig muscle stem cells. [Biomaterials. 287: 121650.](#)

31. Arenal, Á. *et al.* (2022) Effects of Cardiac Stem Cell on Postinfarction Arrhythmogenic Substrate. [Int J Mol Sci. 23 \(24\): 16211.](#)

32. Burdorf, L. *et al.* (2023) Expression of human thrombomodulin by GalTKO.hCD46 pigs modulates coagulation cascade activation by endothelial cells and during ex vivo lung perfusion with human blood. [Xenotransplantation. : e12828.](#)

33. Bernardini, C. *et al.* (2023) Isolation of Vascular Wall Mesenchymal Stem Cells from the Thoracic Aorta of Adult Göttingen Minipigs: A New Protocol for the Simultaneous Endothelial Cell Collection. [Animals \(Basel\). 13 \(16\): 2601.](#)

34. Burdorf, L. *et al.* (2023) Expression of human thrombomodulin by GalTKO.hCD46 pigs modulates coagulation cascade activation by endothelial cells and during ex vivo lung perfusion with human blood. [Xenotransplantation. 30 \(6\): e12828.](#)

Further Reading

1. Piriou-Guzylack, L. (2008) Membrane markers of the immune cells in swine: an update. [Vet Res. 39: 54.](#)

2. Rayat, G.R. *et al.* (2016) First update of the International Xenotransplantation Association consensus statement on conditions for undertaking clinical trials of porcine islet products in type 1 diabetes - Chapter 3: Porcine islet product manufacturing and release testing criteria. [Xenotransplantation. 23 \(1\): 38-45.](#)

Storage

This product is shipped at ambient temperature. It is recommended to aliquot and store at -20°C on receipt. When thawed, aliquot the sample as needed. Keep aliquots at 2-8°C for short term use (up to 4 weeks) and store the remaining aliquots at -20°C.

Avoid repeated freezing and thawing as this may denature the antibody. Storage in frost-free freezers is not recommended. This product is photosensitive and should be protected from light.

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/MCA1746F>
10041

Related Products

Recommended Negative Controls

[MOUSE IgG1 NEGATIVE CONTROL:FITC \(MCA928F\)](#)

North & South Tel: +1 800 265 7376

America 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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