Datasheet: MCA497F

BATCH NUMBER 150381

Description:	RAT ANTI MOUSE F4/80:FITC
Specificity:	F4/80
Format:	FITC
Product Type:	Monoclonal Antibody
Clone:	Cl:A3-1
Isotype:	IgG2b
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
Immunofluorescence	▪			

Where this antibody has not been tested for use in a particular technique this does not necessarily exclude its use in such procedures. The suggested working dilution is 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.

Target Species

Mouse

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 G from tissue culture supernatant.

Buffer Solution

Phosphate buffered saline

Preservative Stabilisers

0.09% Sodium Azide
1% Bovine Serum Albumin

Approx. Protein

IgG concentration 0.1 mg/ml

Concentrations	
Immunogen	Thioglycollate stimulated peritoneal macrophages from C57BL/6 mice.
External Database Links	**UniProt:** Q61549 Related reagents **Entrez Gene:** 13733 Emr1 Related reagents
Synonyms	Gpf480
RRID	AB_322047
Fusion Partners	Spleen cells from immunised HOB2 rats were fused with cells of the mouse NS1 myeloma cell line.
Specificity	**Rat anti mouse F4/80 antibody, clone CI:A3-1** recognizes the murine F4/80 antigen, a ~160 kDa cell surface glycoprotein member of the EGF-TM7 family of proteins which shares 68% overall amino acid identity with human EGF module-containing mucin-like hormone receptor 1 (EMR1). Expression of F4/80 is heterogeneous and is modulated during macrophage maturation and activation. The F4/80 antigen is expressed on a wide range of mature tissue macrophages including Kupffer cells, Langerhans cells, microglia, macrophages located in the gut lamina propria, peritoneal cavity, lung, thymus, bone marrow stroma and macrophages in the red pulp of the spleen (Hume, *et al.* 1984). F4/80 antigen is also expressed on a subpopulation of dendritic cells but is absent from macrophages located in T cell areas of the spleen and lymph node (Gordon, *et al.* 1994). The ligands and biological functions of the F4/80 antigen have not been fully determined but a role for F4/80 in the generation of efferent CD8+ve regulatory T cells is proposed (Lin, *et al.* 2005) Rat anti mouse F4/80 antibody, clone CI:A3-1 modulates cytokine levels released in response to *Listeria monocytogenes* (Warschkau & Kiderlen, 1999). A Human anti-idiotypic CI:A31 antibody, clone 17867 (HCA154) which binds to and blocks activity of Rat anti mouse F4/80 antibody, clone CI:A3-1 is also available for use as a control in experiments utilizing clone A3-1.
Flow Cytometry	Use 10ul of the suggested working dilution to label 10^6 cells in 100ul.
References	1. Gordon, S. *et al.* (1992) Antigen markers of macrophage differentiation in murine tissues. Curr Top Microbiol Immunol. 181: 1-37. 2. Warschkau, H. & Kiderlen, A.F. (1999) A monoclonal antibody directed against the murine macrophage surface molecule F4/80 modulates natural immune response to *Listeria monocytogenes*. J Immunol. 163 (6): 3409-16. 3. Lin, H.H.*et al.* (2005) The macrophage F4/80 receptor is required for the induction of

antigen-specific efferent regulatory T cells in peripheral tolerance. J Exp Med. 201 (10): 1615-25.
4. Chan, R.J. *et al*. (2005) Human somatic PTPN11 mutations induce hematopoietic cell hypersensitivity to granulocyte-macrophage colony stimulating factor Blood. 105: 3737-3742.
5. Moore, K.J. *et al.* (2000) Divergent response to LPS and bacteria in CD14-deficient murine macrophages. J Immunol. 165 (8): 4272-80.
6. Dandekar, A.A.*et al.* (2004) Bystander CD8 T-cell-mediated demyelination is interferon-gamma-dependent in a coronavirus model of multiple sclerosis. Am J Pathol. 164: 363-9.
7. Muto, A. *et al.* (2011) Eph-B4 prevents venous adaptive remodeling in the adult arterial environment. J Exp Med. 208 (3): 561-75.
8. Pizza, F.X. *et al.* (2005) Neutrophils contribute to muscle injury and impair its resolution after lengthening contractions in mice. J Physiol. 562 (Pt 3): 899-913.
9. Tarallo, V. *et al.* (2011) The biflavonoid amentoflavone inhibits neovascularization preventing the activity of proangiogenic vascular endothelial growth factors. J Biol Chem. 286: 19641-51.
10. Rivollier, A. *et al.* (2012) Inflammation switches the differentiation program of Ly6Chi monocytes from antiinflammatory macrophages to inflammatory dendritic cells in the colon. J Exp Med. 209: 139-55.
11. Hemmi, H. *et al.* (2009) A new triggering receptor expressed on myeloid cells (Trem) family member, Trem-like 4, binds to dead cells and is a DNAX activation protein 12-linked marker for subsets of mouse macrophages and dendritic cells. J Immunol. 182:1278-86.
12. Seitz, O. *et al.* (2010) Wound Healing in Mice with High-Fat Diet- or ob Gene-Induced Diabetes-Obesity Syndromes: A Comparative Study Exp Diabetes Res. 2010: 476969.
13. Miao, E.A. *et al.* (2011) Caspase-1-induced pyroptosis is an innate immune effector mechanism against intracellular bacteria. Nat Immunol. 11: 1136-42.
14. Wang, X. *et al.* (2011) Activation of the cholinergic antiinflammatory pathway ameliorates obesity-induced inflammation and insulin resistance Endocrinology. 152: 836-46.
15. Cunningham, O. *et al.* (2009) Microglia and the urokinase plasminogen activator receptor/uPA system in innate brain inflammation. Glia. 57: 1802-14.
16. Gornicka, A. *et al.* (2012) Adipocyte hypertrophy is associated with lysosomal permeability both *in vivo* and *in vitro*: role in adipose tissue inflammation. Am J Physiol Endocrinol Metab. 303: E597-606.
17. Akbarshahi, H. *et al.* (2012) Enrichment of Murine CD68(+)CCR2(+) and CD68(+)CD206(+) Lung Macrophages in Acute Pancreatitis-Associated Acute Lung Injury. PLoS One. 7: e42654.
18. Banda NK *et al.* (2012) Role of C3a receptors, C5a receptors, and complement protein C6 deficiency in collagen antibody-induced arthritis in mice. J Immunol. 188 (3): 1469-78.
19. Bonde, A.K. *et al.* (2012) Intratumoral macrophages contribute to epithelial-mesenchymal transition in solid tumors. BMC Cancer. 12: 35.
20. Choi, K.M. *et al.* (2010) CD206-positive M2 macrophages that express heme oxygenase-1 protect against diabetic gastroparesis in mice. Gastroenterology. 138 (7): 2399-409, 2409.e1.
21. Tamaki, S. *et al.* (2013) Interleukin-16 promotes cardiac fibrosis and myocardial stiffening in heart failure with preserved ejection fraction. PLoS One. 8: e68893.

22. Kihira, Y. *et al.* (2014) Deletion of hypoxia-inducible factor-1α in adipocytes enhances glucagon-like Peptide-1 secretion and reduces adipose tissue inflammation. PLoS One. 9(4):e93856.
23. Chinzei, N. *et al.* (2015) P21 deficiency delays regeneration of skeletal muscular tissue. PLoS One. 10 (5): e0125765.
24. Sumiyoshi, M. *et al.* (2015) Antitumor and antimetastatic actions of xanthoangelol and 4-hydroxyderricin isolated from *Angelica keiskei* roots through the inhibited activation and differentiation of M2 macrophages. Phytomedicine. 22 (7-8): 759-67.
25. Kim, M. *et al.* (2015) Progression of Alport Kidney Disease in Col4a3 Knock Out Mice Is Independent of Sex or Macrophage Depletion by Clodronate Treatment. PLoS One. 10 (11): e0141231.
26. Nagase, M. *et al.* (2016) Deletion of Rac1GTPase in the Myeloid Lineage Protects against Inflammation-Mediated Kidney Injury in Mice. PLoS One. 11 (3): e0150886.
27. Bonaterra, G.A. *et al.* (2016) Morphological Alterations in Gastrocnemius and Soleus Muscles in Male and Female Mice in a Fibromyalgia Model. PLoS One. 11 (3): e0151116.
28. Lei, B. *et al.* (2016) Neuroprotective pentapeptide CN-105 improves functional and histological outcomes in a murine model of intracerebral hemorrhage. Sci Rep. 6: 34834.
29. Glastras, S.J. *et al.* (2017) The renal consequences of maternal obesity in offspring are overwhelmed by postnatal high fat diet. PLoS One. 12 (2): e0172644.
30. Zeng, J. & Howard, J.C. (2010) Spontaneous focal activation of invariant natural killer T (iNKT) cells in mouse liver and kidney. BMC Biol. 8: 142.
31. Pepe, G. *et al.* (2017) Self-renewal and phenotypic conversion are the main physiological responses of macrophages to the endogenous estrogen surge. Sci Rep. 7: 44270.
32. Kawada, S. *et al.* (2017) Impairment of cold injury-induced muscle regeneration in mice receiving a combination of bone fracture and alendronate treatment. PLoS One. 12 (7): e0181457.
33. Zhang, M.Z. *et al.* (2015) Inhibition of cyclooxygenase-2 in hematopoietic cells results in salt-sensitive hypertension. J Clin Invest. 125 (11): 4281-94.
34. Crompton, M. *et al.* (2017) A mutation in Nischarin causes otitis media via LIMK1 and NF-κB pathways. PLoS Genet. 13 (8): e1006969.
35. Sogawa, Y. *et al.* (2017) Infiltration of M1, but not M2, macrophages is impaired after unilateral ureter obstruction in Nrf2-deficient mice. Sci Rep. 7 (1): 8801.
36. Suzuki, Y. *et al.* (2017) Requisite role of vasohibin-2 in spontaneous gastric cancer formation and accumulation of cancer-associated fibroblasts. Cancer Sci. 108 (12): 2342-51.
37. Peng, Y. (2018) B cell responses to apoptotic cells in MFG-E8-/- mice. PLoS One. 13 (10): e0205172.
38. WasgewatteWijesinghe, D.K. *et al.* (2019) Normal inflammation and regeneration of muscle following injury require osteopontin from both muscle and non-muscle cells. Skelet Muscle. 9 (1): 6.
39. Wang, H. *et al.* (2019) Embelin can protect mice from thioacetamide-induced acute liver injury. Biomed Pharmacother. 118: 109360.
40. Maydan, O. *et al.* (2018) Uromodulin deficiency alters tubular injury and interstitial inflammation but not fibrosis in experimental obstructive nephropathy. Physiol Rep. 6 (6): e13654.
41. Bender, L.H. *et al.* (2020) Intratumoral Administration of a Novel Cytotoxic Formulation

with Strong Tissue Dispersive Properties Regresses Tumor Growth and Elicits Systemic Adaptive Immunity in *In Vivo* Models. Int J Mol Sci. 21 (12) Jun 24 [Epub ahead of print].
42. Tseng, W-C. *et al.*. (2020) Trichostatin A Alleviates Renal Interstitial Fibrosis Through Modulation of the M2 Macrophage Subpopulation Int J Mol Sci. 21(17):E5966.
43. Otobe, S. *et al.* (2020) CX3CR1 Deficiency Attenuates DNFB-Induced Contact Hypersensitivity Through Skewed Polarization Towards M2 Phenotype in Macrophages. Int J Mol Sci. 21 (19)Oct 07 [Epub ahead of print].
44. Choi, E.W. *et al.* (2020) Fas mutation reduces obesity by increasing IL-4 and IL-10 expression and promoting white adipose tissue browning. Sci Rep. 10 (1): 12001.
45. Park, J.S. *et al.* (2020) Clusterin overexpression protects against western diet-induced obesity and NAFLD. Sci Rep. 10 (1): 17484.
46. Yamashita, S. *et al.* (2020) Essential roles of oncostatin M receptor β signaling in renal crystal formation in mice. Sci Rep. 10 (1): 17150.
47. Hanson, K.M. *et al.* (2019) Apoptosis Resistance in Fibroblasts Precedes Progressive Scarring in Pulmonary Fibrosis and Is Partially Mediated by Toll-Like Receptor 4 Activation. Toxicol Sci. 170 (2): 489-498.
48. Teixeira, D.E. *et al.* (2019) Lithium ameliorates tubule-interstitial injury through activation of the mTORC2/protein kinase B pathway. PLoS One. 14 (4): e0215871.
49. Ellman, D.G. *et al.* (2020) Conditional Ablation of Myeloid TNF Improves Functional Outcome and Decreases Lesion Size after Spinal Cord Injury in Mice. Cells. 9 (11)Nov 03 [Epub ahead of print].
50. Wu, C.Y. *et al.* (2020) Tris DBA ameliorates IgA nephropathy by blunting the activating signal of NLRP3 inflammasome through SIRT1- and SIRT3-mediated autophagy induction. J Cell Mol Med. Nov 01 [Epub ahead of print].
51. Kerber, E.L. *et al.* (2020) The Importance of Hypoxia-Inducible Factors (HIF-1 and HIF-2) for the Pathophysiology of Inflammatory Bowel Disease. Int J Mol Sci. 21 (22)Nov 13 [Epub ahead of print].
52. Bae, C.R. *et al.* (2020) The endothelial dysfunction blocker CU06-1004 ameliorates choline-deficient L-amino acid diet-induced non-alcoholic steatohepatitis in mice. PLoS One. 15 (12): e0243497.
53. Hoover, A.A. *et al.* (2020) Increased canonical NF-kappaB signaling specifically in macrophages is sufficient to limit tumor progression in syngeneic murine models of ovarian cancer. BMC Cancer. 20 (1): 970.
54. Ni, J. *et al.* (2020) Dual deficiency of angiotensin-converting enzyme-2 and Mas receptor enhances angiotensin II-induced hypertension and hypertensive nephropathy. J Cell Mol Med. Sep 24 [Epub ahead of print].
55. Robichon, K. *et al.* (2020) Identification of Interleukin1β as an Amplifier of Interferon alpha-induced Antiviral Responses. PLoS Pathog. 16 (10): e1008461.
56. Zhang, J. *et al.* (2020) Triptolide attenuates renal damage by limiting inflammatory responses in DOCA-salt hypertension. Int Immunopharmacol. 89 (Pt A): 107035.
57. Lai, K. *et al.* (2020) Triptolide attenuates laser-induced choroidal neovascularization via M2 macrophage in a mouse model. Biomed Pharmacother. 129: 110312.
58. Munro, D.A.D. *et al.* (2020) CNS macrophages differentially rely on an intronic *Csf1r* enhancer for their development. Development. 147 (23) Dec 15 [Epub ahead of print].
59. Ehsanipour, A. *et al.* (2019) Injectable, Hyaluronic Acid-Based Scaffolds with Macroporous Architecture for Gene Delivery. Cell Mol Bioeng. 12 (5): 399-413.
60. Jablonski, K. *et al.* (2020) Physical activity prevents acute inflammation in a gout

model by downregulation of TLR2 on circulating neutrophils as well as inhibition of serum CXCL1 and is associated with decreased pain and inflammation in gout patients. PLoS One. 15 (10): e0237520.
61. Creed, J. *et al.* (2020) Argon Inhalation for 24 h After Closed-Head Injury Does not Improve Recovery, Neuroinflammation, or Neurologic Outcome in Mice. Neurocrit Care. Sep 21 [Epub ahead of print].
62. Takahashi, M. *et al.* (2020) Macrophages fine-tune pupil shape during development. Dev Biol. 464 (2): 137-44.
63. Guo, X. *et al.* (2020) Adoptive transfer of Pfkfb3-disrupted hematopoietic cells to wild-type mice exacerbates diet-induced hepatic steatosis and inflammation Liver Res. 4 (3): 136-44.
64. Ubil, E. *et al.* (2018) Tumor-secreted Pros1 inhibits macrophage M1 polarization to reduce antitumor immune response. J Clin Invest. 128 (6): 2356-69.
65. Wong, M.Y. *et al.* (2020) Semicarbazide-sensitive amine oxidase inhibition ameliorates albuminuria and glomerulosclerosis but does not improve tubulointerstitial fibrosis in diabetic nephropathy. PLoS One. 15 (6): e0234617.
66. Fukushima, H. *et al.* (2020) Changes in Function and Dynamics in Hepatic and Splenic Macrophages in Non-Alcoholic Fatty Liver Disease. Clin Exp Gastroenterol. 13: 305-14.
67. Graff, E.C. *et al.* (2020) The Absence of Adiponectin Alters Niacin's Effects on Adipose Tissue Inflammation in Mice. Nutrients. 12 (8): 2427.
68. Alendar, A. *et al.* (2020) Gene expression regulation by the Chromodomain helicase DNA-binding protein 9 (CHD9) chromatin remodeler is dispensable for murine development. PLoS One. 15 (5): e0233394.
69. Liguori, M. *et al.* (2020) The soluble glycoprotein NMB (GPNMB) produced by macrophages induces cancer stemness and metastasis via CD44 and IL-33. Cell Mol Immunol. Jul 29 [Epub ahead of print].
70. Saitoh, K. *et al.* (2019) Effect of dietary fish oil on enhanced inflammation and disturbed lipophagy in white adipose tissue caused by a high fat diet Fisheries Science. 86 (1): 187-96.
71. Otsuka, H. *et al.* (2021) Histidine decarboxylase deficiency inhibits NBP-induced extramedullary hematopoiesis by modifying bone marrow and spleen microenvironments. Int J Hematol. Jan 04 [Epub ahead of print].
72. Nosaka, M. *et al.* (2021) Intrathrombotic appearances of AQP-1 and AQP-3 in relation to thrombus age in murine deep vein thrombosis model. Int J Legal Med. Jan 07 [Epub ahead of print].
73. Zhu, B. *et al.* (2021) Adipose tissue inflammation and systemic insulin resistance in mice with diet-induced obesity is possibly associated with disruption of PFKFB3 in hematopoietic cells. Lab Invest. Jan 18 [Epub ahead of print].
74. Fantin, A. *et al.* (2021) KIT is required for fetal liver erythropoiesis but dispensable for angiogenesis . bioRxiv preprint Jan 17 [Epub ahead of print].
75. Fritz, N.M. *et al.* (2021) Cytomegalovirus chemokine receptor M33 knockout reduces chronic allograft rejection in a murine aortic transplant model. Transpl Immunol. 64: 101359.
76. Farahat, M. *et al.* (2021) Effect of Biomechanical Environment on Degeneration of Meckel's Cartilage. J Dent Res. 100 (2): 171-178.
77. Roche-Molina, M. *et al.* (2020) The pharmaceutical solvent N-methyl-2-pyrollidone

(NMP) attenuates inflammation through Krüppel-like factor 2 activation to reduce atherogenesis. Sci Rep. 10 (1): 11636.
78. Zhong, L. *et al.* (2020) RANKL Is Involved in Runx2-Triggered Hepatic Infiltration of Macrophages in Mice with NAFLD Induced by a High-Fat Diet. Biomed Res Int. 2020: 6953421.
79. Fan, A. *et al.* (2020) High-salt diet decreases mechanical thresholds in mice that is mediated by a CCR2-dependent mechanism. J Neuroinflammation. 17 (1): 179.
80. Kim, J.I. *et al.* (2021) *IDH2* gene deficiency accelerates unilateral ureteral obstructioninduced kidney inflammation through oxidative stress and activation of macrophages. Korean J Physiol Pharmacol. 25 (2): 139-146.
81. Sasaki, Y. *et al.* (2020) Pemafibrate, a selective PPARα modulator, prevents non-alcoholic steatohepatitis development without reducing the hepatic triglyceride content. Sci Rep. 10 (1): 7818.
82. Hayashi, Y. *et al.* (2020) Cochlear supporting cells function as macrophage-like cells and protect audiosensory receptor hair cells from pathogens. Sci Rep. 10 (1): 6740.
83. Hasuzawa, N. *et al.* (2021) Clodronate, an inhibitor of the vesicular nucleotide transporter, ameliorates steatohepatitis and acute liver injury. Sci Rep. 11 (1): 5192.
84. Tachibana, M. *et al.* (2020) Ablation of IL-17A leads to severe colitis in IL-10-deficient mice: implications of myeloid-derived suppressor cells and NO production. Int Immunol. 32 (3): 187-201.
85. Hitchcock, J.R. *et al.* (2020) Dynamic architectural interplay between leucocytes and mammary epithelial cells. FEBS J. 287 (2): 250-66.
86. Jain, U. *et al.* (2013) The C5a receptor antagonist PMX205 ameliorates experimentally induced colitis associated with increased IL-4 and IL-10. Br J Pharmacol. 168 (2): 488-501.
87. Henare, K. *et al.* (2012) Dissection of stromal and cancer cell-derived signals in melanoma xenografts before and after treatment with DMXAA. Br J Cancer. 106 (6): 1134-47.
88. Ubogu, E.E. *et al.* (2012) Behavioral, electrophysiological, and histopathological characterization of a severe murine chronic demyelinating polyneuritis model. J Peripher Nerv Syst. 17 (1): 53-61.
89. Mastrangelo, M.A. & Bowers, W.J. (2008) Detailed immunohistochemical characterization of temporal and spatial progression of Alzheimer's disease-related pathologies in male triple-transgenic mice. BMC Neurosci. 9: 81.
90. Zhang, J. *et al.* (2021) A pulsatile release platform based on photo-induced imine-crosslinking hydrogel promotes scarless wound healing. Nat Commun. 12 (1): 1670.
91. Laurien, L. *et al.* (2020) Autophosphorylation at serine 166 regulates RIP kinase 1-mediated cell death and inflammation. Nat Commun. 11 (1): 1747.
92. Morimoto, A. *et al.* (2019) Hemophagocytosis induced by *Leishmania donovani.* infection is beneficial to parasite survival within macrophages. PLoS Negl Trop Dis. 13 (11): e0007816.
93. Talamini, L. *et al.* (2019) Repeated administration of the food additive E171 to mice results in accumulation in intestine and liver and promotes an inflammatory status. Nanotoxicology. 13 (8): 1087-101.
94. Sugita, J. *et al.* (2021) Cardiac macrophages prevent sudden death during heart stress. Nat Commun. 12 (1): 1910.
95. Cheng, P. *et al.* (2021) Aldose reductase deficiency inhibits LPS-induced M1 response

in macrophages by activating autophagy. Cell Biosci. 11 (1): 61.
96. Iwama, H. *et al.* (2021) Cathepsin B and D deficiency in the mouse pancreas induces impaired autophagy and chronic pancreatitis. Sci Rep. 11 (1): 6596.
97. Dalla Pietà, A. *et al.* (2021) Hyaluronan is a natural and effective immunological adjuvant for protein-based vaccines. Cell Mol Immunol. Mar 24 [Epub ahead of print].
98. Kuzumoto, T. *et al.* (2021) Protective role of resolvin D1, a pro-resolving lipid mediator, in nonsteroidal anti-inflammatory drug-induced small intestinal damage. PLoS One. 16 (5): e0250862.
99. Makiishi, S. *et al.* (2021) Carnitine/organic cation transporter 1 precipitates the progression of interstitial fibrosis through oxidative stress in diabetic nephropathy in mice. Sci Rep. 11 (1): 9093.
100. Xu, H. *et al.* (2021) Adipocyte Inducible 6-phosphofructo-2-kinase Suppresses Adipose Tissue Inflammation and Promotes Macrophage Anti-inflammatory Activation. J Nutr Biochem. May 5;108764 [Epub ahead of print].

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. This product is photosensitive and should be protected from light. 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/MCA497F 10041
Regulatory	For research purposes only

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

To find a batch/lot specific datasheet for this product, please use our online search tool at: bio-rad-antibodies.com/datasheets
'M368092:200529'

Printed on 08 Mar 2024