Datasheet: MCA1477FT

BATCH NUMBER 159644

Description:	RAT ANTI HUMAN CD3:FITC
Specificity:	CD3
Format:	FITC
Product Type:	Monoclonal Antibody
Clone:	CD3-12
Isotype:	IgG1
Quantity:	25 µg

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)	▪			1/5 - 1/10

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 systems with appropriate negative/positive controls.

(1)**Membrane permeabilization is required for this application. Bio-Rad recommends the use of Leucoperm™ (BUF09) for this purpose.**

Target Species

Human

Species Cross Reactivity

Reacts with: Bovine, Dog, Horse, Rhesus Monkey, Pig, Chicken, Mouse, Duck, Koala, Harbour Porpoise, Alpaca, Cynomolgus monkey, Spotted Hyena, Sea Lion, Cat, Amazon Parrot, Raccoon, Great horned owl (Bubo virginianus), Bullfrog, Xenopus, Rabbit, African green monkey

Based on sequence similarity, is expected to react with:Mammals, Birds, Amphibia

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 G 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	Synthetic peptide sequence derived from cytoplasmic epitope of CD3 (Glu-Arg-Pro-Pro-Pro-Val-Pro-Asn-Pro-Asp-Tyr-Glu-Pro-Cys) (ERPPPVPNPDYEPC)
External Database Links	**UniProt:** P07766 Related reagents **Entrez Gene:** 916 CD3E Related reagents
Synonyms	T3E
RRID	AB_1101849
Specificity	**Rat anti Human CD3 antibody, clone CD3-12** raised against a peptide representing an invariant cytoplasmic sequence within the CD3ε chain recognizes human CD3ε. CD3 is a multimeric protein complex composed of four distinct polypeptide chains (ε, γ, δ, ζ) that assemble and function as three pairs of dimers (εγ, εδ, ζζ). The CD3 complex serves as a T cell co-receptor that associates non-covalently with the T cell receptor (TCR) (Malissen 2008; Guy and Vignali 2009; Smith-Garvin *et al.* 2009). CD3 is a defining feature of cells belonging to the T cell lineage and can therefore be used as T cell marker. As Rat anti Human CD3, clone CD3-12 has been specifically raised against an epitope within the epsilon peptide chain, highly conserved among species clone CD3-12 has a very broad species crossreactivity for the CD3 marker. (Jones *et al.* 1993; Kothlow *et al.* 2005).
References	1. Jones, M. *et al.* (1993) Detection of T and B cells in many animal species using cross-reactive anti-peptide antibodies. J Immunol. 150 (12): 5429-35. 2. Shulga-Morskaya, S. *et al.* (2004) B cell-activating factor belonging to the TNF family acts through separate receptors to support B cell survival and T cell-independent antibody formation. J Immunol. 173 (4): 2331-41. 3. Kapturczak, M.H. *et al.* (2004) Heme oxygenase-1 modulates early inflammatory responses: evidence from the heme oxygenase-1-deficient mouse. Am J Pathol. 165 (3): 1045-53.

4. Kothlow, S. *et al.* (2005) Characterization of duck leucocytes by monoclonal antibodies. Dev Comp Immunol. 29 (8): 733-48.
5. Patole, P.S. *et al.* (2006) Expression and regulation of Toll-like receptors in lupus-like immune complex glomerulonephritis of MRL-Fas(lpr) mice. Nephrol Dial Transplant 21 (11): 3062-73.
6. Foryst-Ludwig, A. *et al.* (2010) PPARgamma activation attenuates T-lymphocyte-dependent inflammation of adipose tissue and development of insulin resistance in obese mice. Cardiovasc Diabetol. 9: 64.
7. Osorio, Y. *et al.* (2011) Identification of small molecule lead compounds for visceral leishmaniasis using a novel *ex vivo* splenic explant model system. PLoS Negl Trop Dis. 5:e962.
8. Flatz, L. *et al* (2011) T cell-dependence of Lassa fever pathogenesis. PLoS Pathog. 6: e1000836.
9. Gendronneau, G. *et al.* (2010) Influence of Hoxa5 on p53 tumorigenic outcome in mice. Am J Pathol. 176: 995-1005.
10. Herrmann, I. *et al.* (2006) *Streptococcus pneumoniae* Infection aggravates experimental autoimmune encephalomyelitis via Toll-like receptor 2. Infect Immun. 74: 4841-8.
11. Ruf, M.T. *et al.* (2012) Chemotherapy-Associated Changes of Histopathological Features of *Mycobacterium ulcerans* Lesions in a Buruli Ulcer Mouse Model. Antimicrob Agents Chemother. 56: 687-96.
12. Roy, M. *et al.* (2012) CXCL1 can be regulated by IL-6 and promotes granulocyte adhesion to brain capillaries during bacterial toxin exposure and encephalomyelitis. J Neuroinflammation. 9: 18.
13. Campuzano, O. *et al.* (2012) Arrhythmogenic right ventricular cardiomyopathy: severe structural alterations are associated with inflammation. J Clin Pathol. 65 (12): 1077-83.
14. Lau, Q. *et al.* (2012) Expression and *in vitro* upregulation of MHCII in koala lymphocytes. Vet Immunol Immunopathol. 147: 35-43.
15. Beineke, A. *et al.* (2007) Phenotypical characterization of changes in thymus and spleen associated with lymphoid depletion in free-ranging harbor porpoises (*Phocoena phocoena*). Vet Immunol Immunopathol. 117: 254-65.
16. Pusterla, N. *et al.* (2006) Multicentric T-cell lymphosarcoma in an alpaca. Vet J. 171: 181-5.
17. Wiessner, C. *et al.* (2011) The Second-Generation Active A{beta} Immunotherapy CAD106 Reduces Amyloid Accumulation in APP Transgenic Mice While Minimizing Potential Side Effects. J Neurosci. 31: 9323-31.
18. Singleton, C.L. *et al.* (2007) Diagnosis and treatment of chronic T-lymphocytic leukemia in a spotted hyena (*Crocuta crocuta*). J Zoo Wildl Med. 38: 488-91.
19. Colegrove, K.M. *et al.* (2010) Polyomavirus infection in a free-ranging California sea lion (*Zalophus californianus*) with intestinal T-cell lymphoma. J Vet Diagn Invest. 22: 628-32.
20. Steinberg, J.D. and Keating, J.H. (2008) What is your diagnosis? Cervical mass in a cat. Vet Clin Pathol. 37: 323-7.
21. Osofsky, A. *et al.* (2011) T-cell chronic lymphocytic leukemia in a double yellow-headed Amazon parrot (*Amazona ochrocephala oratrix*). J Avian Med Surg. 25: 286-94.
22. Giannitti, F. *et al.* (2014) Temporal and geographic clustering of polyomavirus-associated olfactory tumors in 10 free-ranging raccoons (*Procyon lotor*). Vet Pathol. 51

(4): 832-45.
23. Malka, S. *et al.* (2008) Disseminated lymphoma of presumptive T-cell origin in a great horned owl (*Bubo virginianus*). J Avian Med Surg. 22: 226-33.
24. Bricker, N.K. *et al.* (2012) Cytochemical and immunocytochemical characterization of blood cells and immunohistochemical analysis of spleen cells from 2 species of frog, *Rana (Aquarana) catesbeiana* and *Xenopus laevis*. Vet Clin Pathol. 41: 353-61.
25. de Winde, C.M. *et al.* (2015) Multispectral imaging reveals the tissue distribution of tetraspanins in human lymphoid organs. Histochem Cell Biol. 144 (2): 133-46.
26. Dewals B.G., *et al.* (2011) Malignant catarrhal fever induced by Alcelaphine herpesvirus 1 is characterized by an expansion of activated CD3+CD8+CD4- T cells expressing a cytotoxic phenotype in both lymphoid and non-lymphoid tissues Vet Res. 42:95
27. Muljono, A. *et al.* (2009) Primary cutaneous lymphoblastic lymphoma in children: series of eight cases with review of the literature. Pathology. 41 (3): 223-8.
28. Sommer, A. *et al.* (2016) Infiltrating T lymphocytes reduce myeloid phagocytosis activity in synucleinopathy model. J Neuroinflammation 13 (1): 174.
29. Velu, V. *et al.* (2016) Induction of Th1-Biased T Follicular Helper (Tfh) Cells in Lymphoid Tissues during Chronic Simian Immunodeficiency Virus Infection Defines Functionally Distinct Germinal Center Tfh Cells. J Immunol. 197 (5): 1832-42.
30. Wen, J. *et al.* (2015) TNF-like weak inducer of apoptosis promotes blood brain barrier disruption and increases neuronal cell death in MRL/lpr mice. J Autoimmun. 60: 40-50.
31. Sample, S.J. *et al.* (2017) Radiographic and magnetic resonance imaging predicts severity of cruciate ligament fiber damage and synovitis in dogs with cranial cruciate ligament rupture. PLoS One. 12 (6): e0178086.
32. 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.
33. Kallikourdis, M. *et al.* (2017) T cell costimulation blockade blunts pressure overload-induced heart failure. Nat Commun. 8: 14680.
34. Bonnefont-Rebeix, C. *et al.* (2016) Characterization of a novel canine T-cell line established from a spontaneously occurring aggressive T-cell lymphoma with large granular cell morphology. Immunobiology. 221 (1): 12-22.
35. Montes-Cobos, E. *et al.* (2017) Targeted delivery of glucocorticoids to macrophages in a mouse model of multiple sclerosis using inorganic-organic hybrid nanoparticles. J Control Release. 245: 157-169.
36. Bartlett SL *et al.* (2010) Intestinal lymphoma of granular lymphocytes in a fisher (*Martes pennanti*) and a Eurasian otter (*Lutra lutra*). J Zoo Wildl Med. 41 (2): 309-15.
37. Houser, K.V. *et al.* (2017) Enhanced inflammation in New Zealand white rabbits when MERS-CoV reinfection occurs in the absence of neutralizing antibody. PLoS Pathog. 13 (8): e1006565.
38. Sparger, E.E. *et al.* (2018) Investigation of immune cell markers in feline oral squamous cell carcinoma. Vet Immunol Immunopathol. 202: 52-62.
39. Palomo, J. *et al.* (2018) The severity of imiquimod-induced mouse skin inflammation is independent of endogenous IL-38 expression. PLoS One. 13 (3): e0194667.
40. Declue, A.E. *et al.* (2018) Identification of immunologic and clinical characteristics that predict inflammatory response to C. Novyi-NT bacteriolytic immunotherapy. BMC Vet Res. 14 (1): 119.
41. DaSilva, A.V.A. *et al.* (2018) Morphophysiological changes in the splenic extracellular

matrix of *Leishmania infantum*-naturally infected dogs is associated with alterations in lymphoid niches and the CD4+ T cell frequency in spleens. PLoS Negl Trop Dis. 12 (4): e0006445.
42. Withers, S.S. *et al.* (2018) Multi-color flow cytometry for evaluating age-related changes in memory lymphocyte subsets in dogs. Dev Comp Immunol. 87: 64-74.
43. Basu, A. *et al.* (2019) Association of PD-L1, PD-L2, and Immune Response Markers in Matched Renal Clear Cell Carcinoma Primary and Metastatic Tissue Specimens. Am J Clin Pathol. 151 (2): 217-25.
44. Pellegrini, S. *et al.* (2019) Selective local irradiation improves islet engraftment and survival in intra-bone marrow islet transplantation. Cytotherapy. 21 (10): 1025-32.
45. Ricat, C.M. *et al.* (2020) Immunohistochemical Findings in Idiopathic Inflammatory Bowel Disease in Nine Cats BioMed Res Int. 2020: 1-6.
46. Gasparitsch, M. *et al.* (2019) Tyrphostin AG490 reduces inflammation and fibrosis in neonatal obstructive nephropathy. PLoS One. 14 (12): e0226675.
47. Datta, M. *et al.* (2020) Microglial Expression of Hdac1 and Hdac2 is Dispensable for Experimental Autoimmune Encephalomyelitis (EAE) Progression J. 3 (4): 358-65.
48. Tigano, M. *et al.* (2021) *In Vivo* Analysis of mtDNA Replication at the Single Molecule Level and with High Resolution. Methods Mol Biol. 2192: 21-34.
49. Ishida, Y. *et al.* (2020) Prevention of $CaCl_2$-induced aortic inflammation and subsequent aneurysm formation by the CCL3-CCR5 axis. Nat Commun. 11 (1): 5994.
50. Cohen, M. *et al.* (2021) Meningeal lymphoid structures are activated under acute and chronic spinal cord pathologies. Life Sci Alliance. 4 (1) Dec 04 [Epub ahead of print].
51. Bagnoud, M. *et al.* (2020) c-Jun N-Terminal Kinase as a Therapeutic Target in Experimental Autoimmune Encephalomyelitis. Cells. 9(10): 2154.
52. Choi, S.C. *et al.* (2020) Gut microbiota dysbiosis and altered tryptophan catabolism contribute to autoimmunity in lupus-susceptible mice. Sci Transl Med. 12 (551): eaax2220.
53. Bianchi, A. *et al.* (2021) Moderate Exercise Inhibits Age-Related Inflammation, Liver Steatosis, Senescence, and Tumorigenesis. J Immunol. ji2001022.
54. Huot, N. *et al.* (2021) SIV-induced terminally differentiated adaptive NK cells in lymph nodes associated with enhanced MHC-E restricted activity. Nat Commun. 12 (1): 1282.
55. Erdmann, N. *et al.* (2010) Evaluation of the soft tissue biocompatibility of MgCa0.8 and surgical steel 316L in vivo: a comparative study in rabbits. Biomed Eng Online. 9: 63.
56. Khodadoust, M.S. *et al.* (2020) Pembrolizumab in Relapsed and Refractory Mycosis Fungoides and Sézary Syndrome: A Multicenter Phase II Study. J Clin Oncol. 38 (1): 20-8.
57. Thiele, L.S.N. *et al.* (2020) Functional relevance of the multi-drug transporter abcg2 on teriflunomide therapy in an animal model of multiple sclerosis. J Neuroinflammation. 17 (1): 9.
58. Winkler, A. *et al.* (2021) Blood-brain barrier resealing in neuromyelitis optica occurs independently of astrocyte regeneration. J Clin Invest. 131 (5) [Epub ahead of print].
59. Sahin, M. *et al.* (2021) The Janus Kinase Inhibitor Ruxolitinib Prevents Terminal Shock in a Mouse Model of Arenavirus Hemorrhagic Fever Microorganisms. 9 (3): 564.
60. Datta, M. & Staszewski, O. (2021) Hdac1 and Hdac2 are essential for physiological maturation of a Cx3cr1 expressing subset of T-lymphocytes. BMC Res Notes. 14 (1): 135.
61. Häusler, D. *et al.* (2021) CNS inflammation after natalizumab therapy for multiple sclerosis: A retrospective histopathological and CSF cohort study. Brain Pathol. May 6; e12969 [Epub ahead of print].
62. Ito, D. *et al.* (2015) A double blinded, placebo-controlled pilot study to examine

reduction of CD34 $^{+}$/CD117 $^{+}$/CD133 $^{+}$ lymphoma progenitor cells and duration of remission induced by neoadjuvant valspodar in dogs with large B-cell lymphoma. F1000Res. 4: 42.
63. Rajendran, R. *et al.* (2021) Oligodendrocyte-Specific Deletion of *FGFR1* Reduces Cerebellar Inflammation and Neurodegeneration in MOG_{35-55}-Induced EAE. Int J Mol Sci. 22 (17): 9495.
64. Ricart, C.M. *et al.* (2020) Immunohistochemical Findings in Idiopathic Inflammatory Bowel Disease in Nine Cats BioMed Research International. 2020: 1-6.
65. Arad, T. *et al.* (2021) CD200 -dependent and -independent immune-modulatory functions of neural stem cells. Stem Cell Res. 56: 102559.
66. Mejido, D.C.P. *et al.* (2019) Evidences of HEV genotype 3 persistence and reactivity in liver parenchyma from experimentally infected cynomolgus monkeys (*Macaca fascicularis.*). PLoS One. 14 (6): e0218472.
67. Srivastava, S. *et al.* (2021) Immunogenic Chemotherapy Enhances Recruitment of CAR-T Cells to Lung Tumors and Improves Antitumor Efficacy when Combined with Checkpoint Blockade. Cancer Cell. 39 (2): 193-208.e10.
68. Nishri, Y. *et al.* (2020) Continuous Immune-Modulatory Effects of Human Olig2+ Precursor Cells Attenuating a Chronic-Active Model of Multiple Sclerosis. Mol Neurobiol. 57 (2): 1021-34.
69. Jala, V.R. *et al.* (2021) Absence of CCR2 reduces spontaneous intestinal tumorigenesis in the $Apc^{Min\ /+}$ mouse model. Int J Cancer. Jan 26 [Epub ahead of print].
70. Sahin, M. *et al.* (2021) The Janus Kinase Inhibitor Ruxolitinib Prevents Terminal Shock in a Mouse Model of Arenavirus Hemorrhagic Fever. Microorganisms. 9(3):564.
71. Phillips, D. *et al.* (2021) Immune cell topography predicts response to PD-1 blockade in cutaneous T cell lymphoma. Nat Commun. 12 (1): 6726.
72. Berghoff, S.A. *et al.* (2021) Microglia facilitate repair of demyelinated lesions via post-squalene sterol synthesis. Nat Neurosci. 24 (1): 47-60.
73. Watts, D. *et al.* (2021) Transient Depletion of $Foxp3^{+}$ Regulatory T Cells Selectively Promotes Aggressive β Cell Autoimmunity in Genetically Susceptible DEREG Mice. Front Immunol. 12: 720133.
74. Portillo, S. *et al.* (2019) A prophylactic α-Gal-based glycovaccine effectively protects against murine acute Chagas disease. NPJ Vaccines. 4: 13.
75. Cequier, A. *et al.* (2022) Equine Mesenchymal Stem Cells Influence the Proliferative Response of Lymphocytes: Effect of Inflammation, Differentiation and MHC-Compatibility. Animals (Basel). 12 (8): 984.
76. Spitzel, M. *et al.* (2022) Dysregulation of Immune Response Mediators and Pain-Related Ion Channels Is Associated with Pain-like Behavior in the GLA KO Mouse Model of Fabry Disease. Cells. 11 (11): 1730.

Further Reading

1. Alterio de Goss, M. *et al.* (1998) Control of cytomegalovirus in bone marrow transplantation chimeras lacking the prevailing antigen-presenting molecule in recipient tissues rests primarily on recipient-derived CD8 T cells. J Virol. 72 (10): 7733-44.
2. Burudi, E.M. *et al.* (2002) Regulation of indoleamine 2,3-dioxygenase expression in simian immunodeficiency virus-infected monkey brains. J Virol. 76 (23): 12233-41.
3. Piriou-Guzylack, L. (2008) Membrane markers of the immune cells in swine: an update. Vet Res. 39: 54.

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/MCA1477FT 10041
Regulatory	For research purposes only

Related Products

Recommended Negative Controls

RAT IgG1 NEGATIVE CONTROL:FITC (MCA6004F)

Recommended Useful Reagents

HUMAN SEROBLOCK (BUF070A)
HUMAN SEROBLOCK (BUF070B)

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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