

Datasheet: MCA1781A647

Description:	MOUSE ANTI CANINE CD21:Alexa Fluor® 647
Specificity:	CD21
Format:	ALEXA FLUOR® 647
Product Type:	Monoclonal Antibody
Clone:	CA2.1D6
Isotype:	IgG1
Quantity:	100 TESTS/1ml

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

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	Dog								
Species Cross Reactivity	Reacts with: Horse, Cat, Raccoon 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 Alexa Fluor® 647 - liquid								
Max Ex/Em	<table><tr><th>Fluorophore</th><th>Excitation Max (nm)</th><th>Emission Max (nm)</th></tr><tr><td>Alexa Fluor®647</td><td>650</td><td>665</td></tr></table>	Fluorophore	Excitation Max (nm)	Emission Max (nm)	Alexa Fluor®647	650	665		
Fluorophore	Excitation Max (nm)	Emission Max (nm)							
Alexa Fluor®647	650	665							
Preparation	Purified IgG prepared by affinity chromatography on Protein A from tissue culture supernatant								
Buffer Solution	Phosphate buffered saline								

Preservative	0.09% sodium azide (NaN ₃)
Stabilisers	1% bovine serum albumin
Approx. Protein Concentrations	IgG concentration 0.05mg/ml
RRID	AB_1658137
Specificity	<p>Mouse anti Canine CD21 antibody, clone CA2.1D6 recognizes canine CD21, also known as Complement receptor type 2. CD21 is a cell surface antigen expressed by canine B lymphocytes.</p> <p>The antigen recognized may be the canine homologue of human CD21, but this has not been fully confirmed.</p> <p>Mouse anti Canine CD21 antibody , clone CA2.1D6 also recognizes the CD21 antigen in Felids. Expression in cats is analogous to that seen in dogs with strong expression on lymphocytes, in a manner mutually exclusive with expression of CD4 or CD8. Mouse anti Canine CD21 antibody, clone CA2.1D6 immunoprecipitates a ~145 kDa protein from feline lymphocytes, similar to the protein immunoprecipitated by the antibody from canine lymphocytes (Dean et al. 1996).</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. Cobbold, S. & Metcalfe, S. (1994) Monoclonal antibodies that define canine homologues of human CD antigens: summary of the First International Canine Leukocyte Antigen Workshop (CLAW). Tissue Antigens. 43 (3): 137-54. 2. Dean, G.A. <i>et al.</i> (1996) Proviral burden and infection kinetics of feline immunodeficiency virus in lymphocyte subsets of blood and lymph node. J Virol. 70 (8): 5165-9. 3. Brodersen, R. <i>et al.</i> (1998) Analysis of the immunological cross reactivities of 213 well characterized monoclonal antibodies with specificities against various leucocyte surface antigens of human and 11 animal species. Vet Immunol Immunopathol. 64 (1): 1-13. 4. Hsiao, Y.W. <i>et al.</i> (2004) Tumor-infiltrating lymphocyte secretion of IL-6 antagonizes tumor-derived TGF-beta 1 and restores the lymphokine-activated killing activity. J Immunol. 172: 1508-14. 5. Horn, P.A. <i>et al.</i> (2004) Efficient lentiviral gene transfer to canine repopulating cells using an overnight transduction protocol. Blood. 103: 3710-6. 6. Faldyna, M. <i>et al.</i> (2004) Lymphocyte subsets in synovial fluid from clinically healthy joints of dogs. Acta Vet. Brno 73: 73-8. 7. Jubala, C.M. <i>et al.</i> (2005) CD20 expression in normal canine B cells and in canine non-Hodgkin lymphoma. Vet Pathol. 42: 468-76. 8. Yuasa, K. <i>et al.</i> (2007) Injection of a recombinant AAV serotype 2 into canine skeletal muscles evokes strong immune responses against transgene products. Gene Ther. 14: 1249-60. 9. Wang, Y.S. <i>et al.</i> (2007) Characterization of canine monocyte-derived dendritic cells with phenotypic and functional differentiation. Can J Vet Res. 71: 165-74. 10. Huang, Y.C. <i>et al.</i> (2008) CD5-low expression lymphocytes in canine peripheral blood

- show characteristics of natural killer cells. [J Leukoc Biol. 84: 1501-10.](#)
11. Reggeti, F. *et al.* (2008) CD134 and CXCR4 expression corresponds to feline immunodeficiency virus infection of lymphocytes, macrophages and dendritic cells. [J Gen Virol. 89: 277-87.](#)
 12. Lankford, S. *et al.* (2008) Cloning of feline FOXP3 and detection of expression in CD4+CD25+ regulatory T cells. [Vet Immunol Immunopathol. 122: 159-66.](#)
 13. Mortarino, M. *et al.* (2009) ZAP-70 and Syk expression in canine lymphoid cells and preliminary results on leukaemia cases. [Vet Immunol Immunopathol. 128: 395-401.](#)
 14. Estrela-Lima, A. *et al.* (2010) Immunophenotypic features of tumor infiltrating lymphocytes from mammary carcinomas in female dogs associated with prognostic factors and survival rates. [BMC Cancer. 10: 256.](#)
 15. Bund, D. *et al.* (2010) Canine-DCs using different serum-free methods as an approach to provide an animal-model for immunotherapeutic strategies. [Cell Immunol. 263: 88-98.](#)
 16. Araujo, M.S.S. *et al.* (2011) Immunological changes in canine peripheral blood leukocytes triggered by immunization with first or second generation vaccines against canine visceral leishmaniasis. [Vet Immunol Immunopathol. 141: 64-75.](#)
 17. Gaurnier-Hausser, A. *et al.* (2011) NEMO-Binding Domain Peptide Inhibits Constitutive NF- κ B Activity and Reduces Tumor Burden in a Canine Model of Relapsed, Refractory Diffuse Large B-Cell Lymphoma. [Clin Cancer Res. 17: 4661-71.](#)
 18. Mitchell, L. *et al.* (2012) Induction of remission results in spontaneous enhancement of anti-tumor cytotoxic T-lymphocyte activity in dogs with B cell lymphoma. [Vet Immunol Immunopathol. 145 \(3-4\): 597-603.](#)
 19. Maiolini, A. *et al.* (2012) Toll-like receptors 4 and 9 are responsible for the maintenance of the inflammatory reaction in canine steroid-responsive meningitis-arteritis, a large animal model for neutrophilic meningitis. [J Neuroinflammation. 9: 226.](#)
 20. Cave, N.J. *et al.* (2012) Systemic effects of periodontal disease in cats. [Vet Q. 32: 131-44.](#)
 21. Aricò, A. *et al.* (2013) The role of vascular endothelial growth factor and matrix metalloproteinases in canine lymphoma: *in vivo* and *in vitro* study. [BMC Vet Res. 9: 94.](#)
 22. Michael, H.T. *et al.* (2013) Isolation and characterization of canine natural killer cells. [Vet Immunol Immunopathol. 155 \(3\): 211-7.](#)
 23. Aresu, L. *et al.* (2014) VEGF and MMP-9: biomarkers for canine lymphoma. [Vet Comp Oncol. 12: 29-36.](#)
 24. Gelain, M.E. *et al.* (2014) CD44 in canine leukemia: analysis of mRNA and protein expression in peripheral blood. [Vet Immunol Immunopathol. 159 \(1-2\): 91-6.](#)
 25. Lin, S-C. *et al.* (2014) Immune Characterization of Peripheral Blood Mononuclear cells of the Dogs Restored from Inoculation of Canine Transmissible Venereal Tumor Cells. [Tai Vet J. 40 \(04\): 181-90.](#)
 26. Izci C *et al.* (2015) Clinical and light microscopic studies of the conjunctival tissues of dogs with bilateral keratoconjunctivitis sicca before and after treatment with topical 2% cyclosporine. [Biotech Histochem. 90 \(3\): 223-30.](#)
 27. Heinrich, F. *et al.* (2015) Immunophenotyping of immune cell populations in the raccoon (*Procyon lotor*). [Vet Immunol Immunopathol. 168 \(3-4\): 140-6.](#)
 28. Ledbetter, E.C. *et al.* (2016) Clinical and immunological assessment of therapeutic immunization with a subunit vaccine for recurrent ocular canine herpesvirus-1 infection in dogs. [Vet Microbiol. 197: 102-10.](#)
 29. 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.](#)
30. Gibbons, N. *et al.* (2017) Phenotypic heterogeneity of peripheral monocytes in healthy dogs. [Vet Immunol Immunopathol. 190: 26-30.](#)
 31. Martini, V. *et al.* (2018) Flow cytometry for feline lymphoma: a retrospective study regarding pre-analytical factors possibly affecting the quality of samples. [J Feline Med Surg. 20 \(6\): 494-501.](#)
 32. 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.](#)
 33. 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.](#)
 34. Schmidli, M.R. *et al.* (2018) Inflammatory pattern of the infrapatellar fat pad in dogs with canine cruciate ligament disease. [BMC Vet Res. 14 \(1\): 161.](#)
 35. Miranda, L.H.M de M. *et al.* (2018) Co-infection with feline retrovirus is related to changes in immunological parameters of cats with sporotrichosis. [PLoS One. 13 \(11\): e0207644.](#)
 36. Shin, N. *et al.* (2018) INCB040093 Is a Novel PI3K δ Inhibitor for the Treatment of B Cell Lymphoid Malignancies. [J Pharmacol Exp Ther. 364 \(1\): 120-30.](#)
 37. Sato, M. *et al.* (2018) Prognostic significance of hypermethylation of death-associated protein kinase (DAPK) gene CpG island in dogs with high-grade B-cell lymphoma. [Vet Comp Oncol. 16 \(3\): 409-15.](#)
 38. Martini, V. *et al.* (2019) Prognostic role of non-neoplastic lymphocytes in lymph node aspirates from dogs with diffuse large B-cell lymphoma treated with chemo-immunotherapy. [Res Vet Sci. 125: 130-5.](#)
 39. Jimbo, S. *et al.* (2019) Natural and inducible regulatory B cells are widely distributed in ovine lymphoid tissues. [Vet Immunol Immunopathol. 211: 44-8.](#)
 40. Maeta, N. *et al.* (2019) Lymphokine-activated killer cell transplantation after anti-cancer treatment in two aged cats. [Open Vet J. 9 \(2\): 147-50.](#)
 41. Aguiar-Soares, R.D.O. *et al.* (2020) Phase I and II Clinical Trial Comparing the LBSap, Leishmune(®), and Leish-Tec(®) Vaccines against Canine Visceral Leishmaniasis. [Vaccines \(Basel\). 8 \(4\): 690.](#)
 42. Wolf-Ringwall, A. *et al.* (2020) Prospective evaluation of flow cytometric characteristics, histopathologic diagnosis and clinical outcome in dogs with naïve B-cell lymphoma treated with a 19-week CHOP protocol. [Vet Comp Oncol. 18 \(3\): 342-52.](#)
 43. Lucassen, A. *et al.* (2021) A *Saccharomyces cerevisiae* Fermentation Product (Olimond BB) Alters the Early Response after Influenza Vaccination in Racehorses. [Animals \(Basel\). 11\(9\):2726.](#)
 44. Lee, J. *et al.* (2021) Canine Natural Killer Cell-Derived Exosomes Exhibit Antitumor Activity in a Mouse Model of Canine Mammary Tumor. [Biomed Res Int. 2021: 6690704.](#)
 45. Grudzien, M. *et al.* (2021) A newly established canine NK-type cell line and its cytotoxic properties. [Vet Comp Oncol. 19 \(3\): 567-77.](#)
 46. Yang, Y. *et al.* (2021) Canine Multicentric Large B Cell Lymphoma with Increased Mott Cells Diagnosed by Flow Cytometry [Journal of Veterinary Clinics. 38 \(1\): 36-40.](#)
 47. Lee, S.H. *et al.* (2021) Safety and immunological effects of recombinant canine IL-15

- in dogs. [Cytokine. 148: 155599.](#)
48. Knebel, A. *et al.* (2021) Measurement of canine Th17 cells by flow cytometry. [Vet Immunol Immunopathol. 243: 110366.](#)
 49. Riccardo, F. *et al.* (2022) Antigen mimicry as an effective strategy to induce CSPG4-targeted immunity in dogs with oral melanoma: a veterinary trial. [J Immunother Cancer. 10 \(5\): e004007.](#)
 50. Jaensch, S.M. *et al.* (2022) Clinicopathologic and immunophenotypic features in dogs with presumptive large granular lymphocyte leukaemia. [Aust Vet J. 100 \(11\): 527-32.](#)
 51. Troupel, T. *et al.* (2022) Generalised idiopathic polymyositis mimicking masticatory myositis in a dog [Veterinary Record Case Reports. 10 \(4\) \[Epub ahead of print\].](#)
 52. Rotolo, A. *et al.* (2023) Unedited allogeneic iNKT cells show extended persistence in MHC-mismatched canine recipients. [Cell Rep Med. 4 \(10\): 101241.](#)
 53. Townsend, K.S. *et al.* (2023) Concurrent chronic lymphocytic leukemia and primary hyperparathyroidism in a mule. [J Vet Intern Med. 37 \(3\): 1250-5.](#)
 54. Wesolowski, M. *et al.* (2023) Long-term changes of Th17 and regulatory T cells in peripheral blood of dogs with spinal cord injury after intervertebral disc herniation. [BMC Vet Res. 19 \(1\): 90.](#)
 55. Martini, V. *et al.* (2018) A retrospective study of flow cytometric characterization of suspected extranodal lymphomas in dogs. [J Vet Diagn Invest. 30 \(6\): 830-6.](#)
 56. DeClue, A.E. *et al.* (2020) Transportation and Routine Veterinary Interventions Alter Immune Function in the Dog. [Top Companion Anim Med. 39: 100408.](#)
 57. Rütgen, B.C. *et al.* (2022) Composition of lymphocyte subpopulations in normal and mildly reactive peripheral lymph nodes in cats. [J Feline Med Surg. 24 \(2\): 77-90.](#)
 58. Cha, S. *et al.* (2023) Non-B, Non-T Acute Lymphoblastic Leukemia in a Cat [Journal of Veterinary Clinics. 40 \(4\): 298-302.](#)
 59. Lee, G.W. *et al.* (2021) Case Report: Long-Term Survival of a Dog With Chronic Lymphocytic Leukemia Treated With Chlorambucil, Prednisolone, and Imatinib. [Front Vet Sci. 8: 625527.](#)
 60. Sainz, Á. *et al.* (2021) Effect of chemically modified tetracycline-8 (CMT-8) on hematology, blood chemistry, cytokines and peripheral blood lymphocyte subsets of healthy dogs. [Res Vet Sci. 136: 200-8.](#)
 61. Placci, M. *et al.* (2020) Natural Horse Boarding Vs Traditional Stable: A Comparison of Hormonal, Hematological and Immunological Parameters. [J Appl Anim Welf Sci. 23 \(3\): 366-77.](#)
 62. Sheng, R. *et al.* (2023) Prognostic significance of CD25 expression in dogs with a noninvasive diagnosis of B-cell lymphoma treated with CHOP chemotherapy. [Vet Comp Oncol. 21 \(1\): 28-35.](#)
 63. Miguelena Chamorro, B. *et al.* (2023) Characterization of Canine Peyer's Patches by Multidimensional Analysis: Insights from Immunofluorescence, Flow Cytometry, and Single-Cell RNA Sequencing. [Immunohorizons. 7 \(11\): 788-805.](#)
 64. Terpeluk, R.E. *et al.* (2024) Supplementation of Foals with a *Saccharomyces cerevisiae* Fermentation Product Alters the Early Response to Vaccination [Animals. 14 \(6\): 960.](#)
 65. Mason, N.J. *et al.* (2021) Development of a fully canine anti-canine CTLA4 monoclonal antibody for comparative translational research in dogs with spontaneous tumors. [MAbs. 13 \(1\): 2004638.](#)
 66. Yuan, C. *et al.* (2024) Effects of Porcine Epidemic Diarrhea Virus Infection on CD21+

B cells Activation [Veterinary Microbiology. : 110087.](#)

67. Rütgen, B.C. *et al.* (2024) Flowcytometric data of intermediate-large cell gastrointestinal lymphoma presenting a gross mass in 32 cats - "let them glow in the flow". [Front Vet Sci. 11: 1378826.](#)

68. Wolfesberger, B. *et al.* (2024) Immunophenotype investigation in feline intestinal non-B-cell lymphoma. [J Comp Pathol. 212: 20-26.](#)

69. Rogato, F. *et al.* (2024) Leukemia cutis as a prominent clinical sign in a dog with acute myeloid leukemia. [Vet Clin Pathol. 53 \(4\): 448-57.](#)

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

Acknowledgements

This product is provided under an intellectual property licence from Life Technologies Corporation. The transfer of this product is contingent on the buyer using the purchase product solely in research, excluding contract research or any fee for service research, and the buyer must not sell or otherwise transfer this product or its components for (a) diagnostic, therapeutic or prophylactic purposes; (b) testing, analysis or screening services, or information in return for compensation on a per-test basis; (c) manufacturing or quality assurance or quality control, or (d) resale, whether or not resold for use in research. For information on purchasing a license to this product for purposes other than as described above, contact Life Technologies Corporation, 5791 Van Allen Way, Carlsbad CA 92008 USA or outlicensing@thermofisher.com

Health And Safety Information

Material Safety Datasheet documentation #10041 available at: <https://www.bio-rad-antibodies.com/SDS/MCA1781A647>
10041

Regulatory

For research purposes only

Related Products

Recommended Negative Controls

[MOUSE IgG1 NEGATIVE CONTROL:Alexa Fluor® 647 \(MCA928A647\)](#)

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

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

'M411488:221103'

Printed on 23 May 2025
