

Datasheet: MCA1038A700

BATCH NUMBER 152607

Description:	RAT ANTI DOG CD4:Alexa Fluor® 700
Specificity:	CD4
Format:	ALEXA FLUOR® 700
Product Type:	Monoclonal Antibody
Clone:	YKIX302.9
Isotype:	IgG2a
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 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.

Target Species	Dog		
Product Form	Purified IgG conjugated to Alexa Fluor® 700 - liquid		
Max Ex/Em	Fluorophore	Excitation Max (nm)	Emission Max (nm)
	Alexa Fluor®700	702	723
Preparation	Purified IgG prepared by affinity chromatography on Protein G 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 0.05 mg/ml		

Immunogen Canine concanavilin A activated T cell blasts.

External Database Links

UniProt:

[P33705](#) [Related reagents](#)

Entrez Gene:

[403931](#) CD4 [Related reagents](#)

Fusion Partners

Spleen cells from immunised DA rats were fused with cells of the Y3/Ag1.2.3 rat myeloma cell line.

Specificity

Rat anti Dog CD4 antibody, clone YKIX302.9, is a monoclonal antibody specific for the canine CD4 cell surface antigen. Clone YKIX302.9 was clustered at the first Canine Leukocyte Antigen Workshop (CLAW) [[Cobbold et al. 1992](#)] along with clone [CA13.1E4](#).

Rat anti Dog CD4 antibody, clone YKIX302.9 partially depletes circulating T lymphocytes when administered *in vivo*, but alone is not sufficient to prolong allograft survival in a canine transplant model ([Watson et al. 1993](#)).

Uniquely amongst mammals, canine CD4 is expressed by neutrophils as well as by lymphocyte subsets ([Moore et al. 1992](#)).

Flow Cytometry

Use 10ul of the suggested working dilution to label 10⁶ cells or 100ul whole blood.

References

1. Schaut, R.G. *et al.* (2016) Recovery of antigen-specific T cell responses from dogs infected with *Leishmania (L.) infantum* by use of vaccine associated TLR-agonist adjuvant. [Vaccine. 34 \(44\): 5225-34.](#)
2. Gorman, S.D. *et al.* (1994) Isolation and expression of cDNA encoding the canine CD4 and CD8 alpha antigens. [Tissue Antigens. 43 \(3\): 184-8.](#)
3. Watson, C.J. *et al.* (1993) CD4 and CD8 monoclonal antibody therapy: strategies to prolong renal allograft survival in the dog. [Br J Surg. 80 \(11\): 1389-92.](#)
4. Papadogiannakis, E.I. *et al.* (2009) Determination of intracellular cytokines IFN-gamma and IL-4 in canine T lymphocytes by flow cytometry following whole-blood culture. [Can J Vet Res. 73 \(2\): 137-43.](#)
5. Bauer, T.R. Jr. *et al.* (2006) Correction of the disease phenotype in canine leukocyte adhesion deficiency using *ex vivo* hematopoietic stem cell gene therapy. [Blood. 108: 3313-20.](#)
6. Reis, A.B. *et al.* (2006) Phenotypic features of circulating leucocytes as immunological markers for clinical status and bone marrow parasite density in dogs naturally infected by *Leishmania chagasi*. [Clin Exp Immunol. 146: 303-11.](#)
7. Araújo, M.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.](#)
8. Benyacoub, J. *et al.* (2003) Supplementation of food with *Enterococcus faecium* (SF68) stimulates immune functions in young dogs. [J Nutr. 133: 1158-62.](#)
9. 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.](#)

10. 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.](#)
11. Out, T.A. *et al.* (2002) Local T-cell activation after segmental allergen challenge in the lungs of allergic dogs. [Immunology. 105: 499-508.](#)
12. Boggiatto, P.M. *et al.* (2010) Immunologic indicators of clinical progression during canine *Leishmania infantum* infection. [Clin Vaccine Immunol. 17: 267-73.](#)
13. Mitchell, L. *et al.* (2012) Clinical and immunomodulatory effects of toceranib combined with low-dose cyclophosphamide in dogs with cancer. [J Vet Intern Med. 26: 355-62.](#)
14. Tominaga, M. *et al.* (2010) Flow cytometric analysis of peripheral blood and tumor-infiltrating regulatory T cells in dogs with oral malignant melanoma. [J Vet Diagn Invest. 22: 438-41.](#)
15. Figueiredo, M.M. *et al.* (2014) Expression of Regulatory T Cells in Jejunum, Colon, and Cervical and Mesenteric Lymph Nodes of Dogs Naturally Infected with *Leishmania infantum*. [Infect Immun. 82: 3704-12.](#)
16. Aresu, L. *et al.* (2014) VEGF and MMP-9: biomarkers for canine lymphoma. [Vet Comp Oncol. 12: 29-36.](#)
17. Costa-Pereira, C. *et al.* (2015) One-year timeline kinetics of cytokine-mediated cellular immunity in dogs vaccinated against visceral leishmaniasis. [BMC Vet Res. 11 \(1\): 92.](#)
18. Hauck, V. *et al.* (2016) Increased numbers of FoxP3-expressing CD4(+) CD25(+) regulatory T cells in peripheral blood from dogs with atopic dermatitis and its correlation with disease severity. [Vet Dermatol. 27 \(1\): 26-e9.](#)
19. Riondato, F. *et al.* (2015) Analytical and diagnostic validation of a flow cytometric strategy to quantify blood and marrow infiltration in dogs with large b-cell lymphoma. [Cytometry B Clin Cytom. Dec 13. \[Epub ahead of print\]](#)
20. Miranda, S. *et al.* (2007) Characterization of circulating lymphocyte subpopulations in canine leishmaniasis throughout treatment with antimonials and allopurinol. [Vet Parasitol. 144 \(3-4\): 251-60.](#)
21. Yamaya, Y. & Watari, T. (2015) Increased proportions of CCR4(+) cells among peripheral blood CD4(+) cells and serum levels of allergen-specific IgE antibody in canine chronic rhinitis and bronchitis. [J Vet Med Sci. 77 \(4\): 421-5.](#)
22. Schaut, R.G. *et al.* (2016) Regulatory IgDhi B Cells Suppress T Cell Function via IL-10 and PD-L1 during Progressive Visceral Leishmaniasis. [J Immunol. 196 \(10\): 4100-9.](#)
23. Tagawa, M. *et al.* (2016) Evaluation of Costimulatory Molecules in Peripheral Blood Lymphocytes of Canine Patients with Histiocytic Sarcoma. [PLoS One. 11 \(2\): e0150030.](#)
24. Munhoz.T.D. *et al.* (2016) Regulatory T cells in dogs with multicentric lymphoma: peripheral blood quantification at diagnosis and after initial stage chemotherapy. [Arg. Bras. Med. Vet. Zootec. 68 \(1\): 1-9.](#)
25. Miller, J. *et al.* (2015) Humoral and Cellular Immune Response in Canine Hypothyroidism. [J Comp Pathol. 153 \(1\): 28-37.](#)
26. Duz AL *et al.* (2014) The TcI and TcII *Trypanosoma cruzi* experimental infections induce distinct immune responses and cardiac fibrosis in dogs. [Mem Inst Oswaldo Cruz. 109 \(8\): 1005-13.](#)
27. 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.](#)
28. Viana, K.F. *et al.* (2015) Setting the proportion of CD4+ and CD8+ T-cells co-cultured with canine macrophages infected with *Leishmania chagasi*. [Vet Parasitol. 211 \(3-4\):](#)

[124-32.](#)

29. Viana, K.F. *et al.* (2016) Application of rapid in vitro co-culture system of macrophages and T-cell subsets to assess the immunogenicity of dogs vaccinated with live attenuated *Leishmania donovani* centrin deleted parasites (LdCen-/-). [Parasit Vectors. 9: 250.](#)
30. Michael HT *et al.* (2013) Isolation and characterization of canine natural killer cells. [Vet Immunol Immunopathol. 155 \(3\): 211-7.](#)
31. 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.](#)
32. 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.](#)
33. Deravi, N. *et al.* (2017) Specific immunotypes of canine T cell lymphoma are associated with different outcomes. [Vet Immunol Immunopathol. 191: 5-13.](#)
34. Bahamondes, F. *et al.* (2017) Omental adipose tissue is a more suitable source of canine Mesenchymal stem cells. [BMC Vet Res. 13 \(1\): 166.](#)
35. Pinheiro, D. (2011) Phenotypic and functional characterization of a CD4(+) CD25(high) FOXP3(high) regulatory T-cell population in the dog. [Immunology. 132: 111-22.](#)
36. 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.](#)
37. 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.](#)
38. 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.](#)
39. Roatt, B.M. *et al.* (2017) A Vaccine Therapy for Canine Visceral Leishmaniasis Promoted Significant Improvement of Clinical and Immune Status with Reduction in Parasite Burden. [Front Immunol. 8: 217.](#)
40. Lisiecka, U. *et al.* (2019) Evaluation of T regulatory lymphocytes and serum concentration of selected cytokines in dogs with perianal tumors. [Vet Immunol Immunopathol. 207: 10-17.](#)
41. 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.](#)
42. 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 \(4\)Nov 17 \[Epub ahead of print\].](#)
43. Akiyama, S. *et al.* (2019) Th17 cells increase during maturation in peripheral blood of healthy dogs. [Vet Immunol Immunopathol. 209: 17-21.](#)
44. 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.](#)
45. Yasuda, N. *et al.* (2008) CC chemokine receptor 4-positive CD4(+) lymphocytes in peripheral blood increases during maturation in healthy beagles. [J Vet Med Sci. 70 \(9\): 989-92.](#)
46. Martins, G.C. *et al.* (2018) Clinical-pathological and immunological biomarkers in dogs

- with atopic dermatitis. [Vet Immunol Immunopathol. 205: 58-64.](#)
47. Anai, L.A. *et al.* (2017) Quantification of Treg cells in peripheral blood and lymph nodes of dogs with multicentric lymphoma [Arquivo Brasileiro de Medicina Veterinária e Zootecnia. 69 \(6\): 1496-502.](#)
48. 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.](#)
49. Sayag, D. *et al.* (2020) Proof-of-concept study: Evaluation of plasma and urinary electrolytes as markers of response to L-asparaginase therapy in dogs with high-grade lymphoma. [Vet Clin Pathol. 49 \(3\): 476-83.](#)
50. 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.](#)
51. Grudzien, M. *et al.* (2021) A newly established canine NK-type cell line and its cytotoxic properties. [Vet Comp Oncol. 19 \(3\): 567-77.](#)
52. Pellin, M.A. *et al.* (2017) Safety evaluation of combination doxorubicin and toceranib phosphate (Palladia®) in tumour bearing dogs: a phase I dose-finding study. [Vet Comp Oncol. 15 \(3\): 919-31.](#)
53. Kanei, T. *et al.* (2021) Expression and functional analysis of chemokine receptor 7 in canine lymphoma cell lines. [J Vet Med Sci. Dec 03 \[Epub ahead of print\].](#)
54. Lee, S.H. *et al.* (2021) Safety and immunological effects of recombinant canine IL-15 in dogs. [Cytokine. 148: 155599.](#)
55. Knebel, A. *et al.* (2021) Measurement of canine Th17 cells by flow cytometry. [Vet Immunol Immunopathol. 243: 110366.](#)
56. do Prado Duzanski, A. *et al.* (2022) Cell-mediated immunity and expression of MHC class I and class II molecules in dogs naturally infected by canine transmissible venereal tumor: Is there complete spontaneous regression outside the experimental CTVT? [Res Vet Sci. 145: 193-204.](#)
57. Karayannopoulou, M. *et al.* (2022) Effect of major versus minor mastectomy on host immunity in canine mammary cancer [Vet Immunol Immunopathol. Feb 24: 110403.](#)
58. Bragato, J.P. *et al.* (2022) miRNA-21 regulates CD69 and IL-10 expression in canine leishmaniasis. [PLoS One. 17 \(3\): e0265192.](#)
59. 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. \[Epub ahead of print\].](#)

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.

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 purchased 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/MCA1038A700>

Regulatory For research purposes only

Related Products

Recommended Negative Controls

[RAT IgG2a NEGATIVE CONTROL:Alexa Fluor® 700 \(MCA1212A700\)](#)

Product inquiries: www.bio-rad-antibodies.com/technical-support

To find a batch/lot specific datasheet for this product, please use our online search tool at: bio-rad-antibodies.com/datasheets
'M387666:210702'

Printed on 05 Feb 2026