Datasheet: MCA838A647

BATCH NUMBER 173945

Description:	MOUSE ANTI BOVINE WC1:Alexa Fluor® 647
Specificity:	WC1
Format:	ALEXA FLUOR® 647
Product Type:	Monoclonal Antibody
Clone:	CC15
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

Bovine

Species Cross Reactivity

Reacts with: Sheep, Goat

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

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 Stabilisers	0.09% Sodium Azide (NaN_3) 1% Bovine Serum Albumin
Approx. Protein Concentrations	IgG concentration 0.05 mg/ml
Immunogen	Bovine lymphocytes
External Database Links	**UniProt:** P30205 Related reagents **Entrez Gene:** 338056 CD163L1 Related reagents
Fusion Partners	Spleen cells from immunized BALB/c mice were fused with cells of the mouse NS1 myeloma cell line
Specificity	**Mouse anti Bovine WC1 antibody, clone CC15** recognizes bovine WC1. WC1 is a ~215/300 kDa antigen expressed on the majority of gamma/delta T lymphocytes. These cells also express low levels of CD5, but are negative for other B and T cell markers. The WC1 antigen is reported to be involved in a number of processes, including activation of gamma/delta T cells and the development of a Th1-biased acquired immune response (Rogers *et al.* 2005). Mouse anti Bovine WC1 antibody, clone CC15 is routinely tested in flow cytometry on bovine peripheral blood lymphocytes.
Flow Cytometry	Use 10ul of the suggested working dilution to label 10^6 cells in 100ul.
References	1. Howard, C.J. *et al.* (1989) *In vivo* depletion of BoT4 (CD4) and of non-T4/T8 lymphocyte subsets in cattle with monoclonal antibodies. Eur J Immunol. 19 (4): 757-64. 2. Clevers, H. *et al.* (1990) Identification of a bovine surface antigen uniquely expressed on CD4-CD8- T cell receptor gamma/delta+ T lymphocytes. Eur J Immunol. 20 (4): 809-17. 3. Gutierrez, M. *et al.* (1999) The detection of CD2+, CD4+, CD8+, and WC1+ T lymphocytes, B cells and macrophages in fixed and paraffin embedded bovine tissue using a range of antigen recovery and signal amplification techniques. Vet Immunol Immunopathol. 71 (3-4): 321-34. 4. Brodersen, R. *et al.* (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. 5. Winkler, M.T. *et al.* (2000) Persistence and reactivation of bovine herpesvirus 1 in the tonsils of latently infected calves. J Virol. 74 (11): 5337-46. 6. Sanchez, J. *et al.* (2011) Microscopical and immunological features of tuberculoid granulomata and cavitary pulmonary tuberculosis in naturally infected goats. J Comp Pathol. 145 (2-3): 107-17.

7. Fulton, B.E. Jr. *et al.* (2006) Dissemination of bovine leukemia virus-infected cells from a newly infected sheep lymph node. J Virol. 80: 7873-84.
8. Glew, E.J. and Howard, C.J. (2001) Antigen-presenting cells from calves persistently infected with bovine viral diarrhoea virus, a member of the Flaviviridae, are not compromised in their ability to present viral antigen. J Gen Virol. 82: 1677-85.
9. Liebana, E. *et al.* (2007) Distribution and activation of T-lymphocyte subsets in tuberculous bovine lymph-node granulomas. Vet Pathol. 44: 366-72.
10. Lynch, E.M. *et al.* (2010) Effect of abrupt weaning at housing on leukocyte distribution, functional activity of neutrophils, and acute phase protein response of beef calves. BMC Vet Res. 6: 39.
11. Summers, C. *et al.* (2012) The distribution of immune cells in the lungs of classical and atypical ovine pulmonary adenocarcinoma. Vet Immunol Immunopathol. 146: 1-7.
12. Maślanka T *et al.* (2012) The presence of CD25 on bovine WC1+ γ/δ T cells is positively correlated with their production of IL-10 and TGF-β, but not IFN-γ. Pol J Vet Sci. 15 (1): 11-20.
13. Herzig, C.T. *et al.* (2010) Evolution of the CD163 family and its relationship to the bovine gamma delta T cell co-receptor WC1. BMC Evol Biol. 10: 181.
14. Romero-Palomo, F. *et al.* (2017) Immunopathologic Changes in the Thymus of Calves Pre-infected with BVDV and Challenged with BHV-1. Transbound Emerg Dis. 64 (2): 574-84.
15. Goh, S. *et al.* (2016) Identification of *Theileria lestoquardi* Antigens Recognized by CD8+ T Cells. PLoS One. 11 (9): e0162571.
16. Wattegedera, S.R. *et al.* (2017) Enhancing the toolbox to study IL-17A in cattle and sheep. Vet Res. 48 (1): 20.
17. Franzin, A.M. *et al.* (2017) Immune and biochemical responses in skin differ between bovine hosts genetically susceptible and resistant to the cattle tick *Rhipicephalus microplus*. Parasit Vectors. 10 (1): 51.
18. Palomares, R.A. *et al.* (2015) Acute infection with bovine viral diarrhea virus of low or high virulence leads to depletion and redistribution of WC1(+) γδ T cells in lymphoid tissues of beef calves. Vet Immunol Immunopathol. 167 (3-4): 190-5.
19. Blumerman SL *et al.* (2007) Molecular cloning of bovine chemokine receptors and expression by WC1+ γδ T cells. Dev Comp Immunol. 31 (1): 87-102.
20. Hecker YP *et al.* (2013) Immune response and protection provided by live tachyzoites and native antigens from the NC-6 Argentina strain of *Neospora caninum* in pregnant heifers. Vet Parasitol. 197 (3-4): 436-46.
21. Martínez CM *et al.* (2005) Immunophenotypical characterization of lymphocyte subpopulations of the uterus of non-pregnant and pregnant goats. Anat Histol Embryol. 34 (4): 240-6.
22. Silva, A.P. *et al.* (2015) Encapsulated *Brucella ovis* Lacking a Putative ATP-Binding Cassette Transporter (ΔabcBA) Protects against Wild Type *Brucella ovis* in Rams. PLoS One. 10 (8): e0136865.
23. Albertsson, A.M. *et al.* (2018) γδ T Cells Contribute to Injury in the Developing Brain. Am J Pathol. 188 (3): 757-67.
24. Higgins, J.L. *et al.* (2018) Cell mediated immune response in goats after experimental challenge with the virulent *Brucella melitensis* strain 16M and the reduced virulence strain Rev. 1. Vet Immunol Immunopathol. 202: 74-84.
25. Baliu-piqué, M. *et al.* (2019) Age-related distribution and dynamics of T-cells in blood

and lymphoid tissues of goats. Dev Comp Immunol. 93: 1-10.
26. Pérez-caballero, R. *et al.* (2018) Comparative dynamics of peritoneal cell immunophenotypes in sheep during the early and late stages of the infection with *Fasciola hepatica* by flow cytometric analysis. Parasit Vectors. 11 (1): 640.
27. Gondaira, S. *et al.* (2020) Immunosuppression in Cows following Intramammary Infusion of *Mycoplasma bovis*. Infect Immun. 88 (3)Feb 20 [Epub ahead of print].
28. Park, D.S. *et al.* (2021) Dynamic changes in blood immune cell composition and function in Holstein and Jersey steers in response to heat stress. Cell Stress Chaperones. 26 (4): 705-20.
29. de Arujo, F.F. *et al.* (2019) Distinct immune response profile during *Rhipicephalus (Boophilus) microplus.* infestations of guzerat dairy herd according to the maternal lineage ancestry (mitochondrial DNA). Vet Parasitol. 273: 36-44.
30. Zecconi, A. *et al.* (2018) Effects of herd and physiological status on variation of 16 immunological and inflammatory parameters in dairy cows during drying off and the transition period. J Dairy Res. 85 (2): 167-73.
31. Colombatti, M.O. *et al.* (2021) Evaluation of a virulent strain of *Mycobacterium avium* subsp. *Paratuberculosis* used as a heat-killed vaccine. Vaccine. 39 (51): 7401-12.
32. Bidart, J. *et al.* (2020) A New Cage-Like Particle Adjuvant Enhances Protection of Foot-and-Mouth Disease Vaccine. Front Vet Sci. 7: 396.
33. Kolar, Q.K. *et al.* (2020) Anatomical distribution of respiratory tract leukocyte cell subsets in neonatal calves. Vet Immunol Immunopathol. 227: 110090.
34. Elsayed, M.S.A.E. *et al.* (2022) Real-time PCR using atpE, conventional PCR targeting different regions of difference, and flow cytometry for confirmation of *Mycobacterium bovis.* in buffaloes and cattle from the Delta area of Egypt. BMC Microbiol. 22 (1): 154.
35. Andrés, S. *et al.* (2024) Essential oil supplementation in milk replacers: short- and long-term impacts on feed efficiency, the faecal microbiota and the plasma metabolome in dairy calves. J Dev Orig Health Dis. : 1-11.
36. Gillespie, A. *et al.* (2022) Next generation sequencing of transcribed genes in ruminant γδ T cell populations. Mol Immunol. 149: 129-42.
37. Cainelli, S. *et al.* (2025) Dynamics of peripheral B and γδ T cells during postpartum and pregnancy in dairy cows. Anim Reprod Sci. 282: 108012.
38. Royo, M. *et al.* (2025) Effect of paratuberculosis vaccination before and after oral experimental infection with *Mycobacterium avium* subspecies *paratuberculosis* in goats. Vet Q. 45 (1): 2566363.
39. Godoy, K.M.G. *et al.* (2026) Evaluation of cross-reactivity of monoclonal antibodies against cytokines and cellular molecules of bovine and human origin to identify immunological markers in buffaloes (*Bubalus bubalis*). Vet Immunol Immunopathol. 295: 111090.

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/MCA838A647
Regulatory	For research purposes only

Related Products

Recommended Negative Controls

MOUSE IgG2a NEGATIVE CONTROL:Alexa Fluor® 647 (MCA929A647)

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

'M395605:220517'

Printed on 21 Aug 2026