# Datasheet: MCA1783A647

| | |
|---|---|
| **Description:** | MOUSE ANTI BOVINE INTERFERON GAMMA:Alexa Fluor®647 |
| **Specificity:** | IFN GAMMA |
| **Other names:** | INTERFERON GAMMA |
| **Format:** | ALEXA FLUOR® 647 |
| **Product Type:** | Monoclonal Antibody |
| **Clone:** | CC302 |
| **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 (1) | ▪ | | | 1/10 - 1/100 |

Where this antibody has not been tested for use in a particular technique this does not necessarily exclude its use in such procedures. It is recommended that the user titrates the antibody for use in their own system using appropriate negative/positive controls.

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

**Target Species**

Bovine

**Species Cross Reactivity**

Reacts with: Human, Pig, Dog, Horse, Sheep, Goat, Dolphin, Ferret, Mink, Fin Whale, Rabbit
Based on sequence similarity, is expected to react with:Mustelid
**N.B.** Antibody reactivity and working conditions may vary between species.

**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 G 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 0.05mg/ml

| | |
|---|---|
| **External Database Links** | **UniProt:**<br>P07353 Related reagents<br><br>**Entrez Gene:**<br>281237 IFNG Related reagents |
| **Fusion Partners** | Spleen cells from immunised BALB/c mice were fused with cells of the mouse SP2/0 myeloma cell line. |
| **Specificity** | **Mouse anti Bovine IFNγ antibody, clone CC302,** recognizes bovine interferon-gamma, a 143 amino acid cytokine with potent activating, antiviral and anti proliferitive properties, produced as a pro-peptide with an additional 23 amino acid N-terminal signal peptide sequence having a molecular weight of ~20 kDa. IFNγ is predominantly secreted by activated T lymphocytes in response to specific mitogens as a result of infection (Rhodes *et al.* 2000).<br><br>Mouse anti bovine γ inerferon antibody, clone CC302 has been demonstrated to be reactive to a number of mammalian species including human, sheep, dog, pig, goat and mink (Pedersen *et al.* 2002). Clone CC302 has been successfully used for the evaluation of γ interferon levels in the sera of calves naturally infected with *M. avium.* subsp *paratuberculosis* (Appana *et al.* 2013) as a detection reagent using an ELISA. |
| **Flow Cytometry** | Use 10ul of the suggested working dilution to label 1x10$^6$ cells in 100ul. |
| **References** | 1. Hasvold, H.J. *et al.* (2002) *In vitro* responses to purified protein derivate of caprine T lymphocytes following vaccination with live strains of *Mycobacterium avium* subsp *paratuberculosis*. Vet Immunol Immunopathol. 90 (1-2): 79-89.<br>2. Mwangi, W. *et al.* (2002) DNA-encoded fetal liver tyrosine kinase 3 ligand and granulocyte macrophage-colony-stimulating factor increase dendritic cell recruitment to the inoculation site and enhance antigen-specific CD4$^+$ T cell responses induced by DNA vaccination of outbred animals. J Immunol. 169 (7): 3837-46.<br>3. Pedersen, L.G. *et al.* (2002) Identification of monoclonal antibodies that cross-react with cytokines from different animal species. Vet Immunol Immunopathol. 88 (3-4): 111-22.<br>4. Aasted, B. *et al.* (2002) Cytokine profiles in peripheral blood mononuclear cells and lymph node cells from piglets infected in utero with porcine reproductive and respiratory syndrome virus. Clin Diagn Lab Immunol. 9 (6): 1229-34.<br>5. Nielsen, L. *et al.* (2009) Lymphotropism and host responses during acute wild-type canine distemper virus infections in a highly susceptible natural host. J Gen Virol. 90: 2157-65.<br>6. Jaber, J.R. *et al.* (2010) Cross-reactivity of anti-human, anti-porcine and anti-bovine cytokine antibodies with cetacean tissues. J Comp Pathol. 143: 45-51.<br>7. Martel, C.J. & Aasted, B. (2009) Characterization of antibodies against ferret immunoglobulins, cytokines and CD markers. Vet Immunol Immunopathol. 132:109-15.<br>8. Sow, F.B. *et al.* (2011) Respiratory syncytial virus is associated with an inflammatory response in lungs and architectural remodeling of lung-draining lymph nodes of newborn lambs. Am J Physiol Lung Cell Mol Physiol. 300 (1): L12-24.<br>9. Ferret-Bernard, S. *et al.* (2011) Mesenteric lymph node cells from neonates present a prominent IL-12 response to CpG oligodeoxynucleotide via an IL-15 feedback loop of amplification. Vet Res. 42:19.<br>10. Lybeck, K.R. *et al.* (2009) Neutralization of interleukin-10 from CD14(+) monocytes enhances gamma interferon production in peripheral blood mononuclear cells from *Mycobacterium avium* subsp. *paratuberculosis*-infected goats. Clin Vaccine Immunol. 16 (7): 1003-11.<br>11. Contreras, V. *et al.* (2010) Existence of CD8α-like dendritic cells with a conserved functional specialization and a common molecular signature in distant mammalian species. J Immunol. 185: |

3313-25.
12. Fellman, C.L. *et al.* (2011) Cyclosporine A affects the *in vitro* expression of T cell activation-related molecules and cytokines in dogs. Vet Immunol Immunopathol. 140: 175-80.
13. Pillet, S. *et al.* (2011) Cellular immune response in the presence of protective antibody levels correlates with protection against 1918 influenza in ferrets. Vaccine. 29 (39): 6793-801.
14. Jensen, T.H. *et al.* (2009) Early life DNA vaccination with the H gene of Canine distemper virus induces robust protection against distemper. Vaccine. 27: 5178-83.
15. Skyberg, J.A. *et al.* (2011) Murine and bovine γδ T cells enhance innate immunity against *Brucella abortus* infections. PLoS One. 6:e21978.
16. Whelan, A.O. *et al.* (2011) Development of an Antibody to Bovine IL-2 Reveals Multifunctional CD4 T(EM) Cells in Cattle Naturally Infected with Bovine Tuberculosis. PLoS One. 6: e29194.
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. 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.
19. Maślanka T *et al.* (2012) The presence of CD25 on bovine WC1+ γδ 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.
20. Duncombe, L. *et al.* (2013) Investigating the Use of Protein Saver Cards for Storage and Subsequent Detection of Bovine Anti-*Brucella abortus* Smooth Lipopolysaccharide Antibodies and Gamma Interferon. Clin Vaccine Immunol. 20: 1669-74.
21. Verhelst, D. *et al.* (2014) Parasite distribution and associated immune response during the acute phase of *Toxoplasma gondii* infection in sheep. BMC Vet Res. 2014 Dec 16;10(1):293.
22. Köhler. H, *et al.* (2015) Characterization of a caprine model for the subclinical initial phase of *Mycobacterium avium* subsp. paratuberculosis infection BMC Veterinary Research. 11 (1): 74.
23. Moreira Marcela L. *et al.* (2016) Vaccination against canine leishmaniosis increases the phagocytic activity, nitric oxide production and expression of cell activation/migration molecules in neutrophils and monocytes Veterinary Parasitology. 15 Feb [Epub ahead of print]
24. Rodríguez-Gómez IM *et al.* (2016) Expression of T-bet, Eomesodermin and GATA-3 in porcine αβ T cells. Dev Comp Immunol. 60: 115-26.
25. Taylor, G. *et al.* (2015) Efficacy of a virus-vectored vaccine against human and bovine respiratory syncytial virus infections. Sci Transl Med. 7 (300): 300ra127.
26. Moreira, M.L. *et al.* (2015) Cross-reactivity of commercially available anti-human monoclonal antibodies with canine cytokines: establishment of a reliable panel to detect the functional profile of peripheral blood lymphocytes by intracytoplasmic staining. Acta Vet Scand. 57: 51.
27. El-Naggar, M.M. *et al.* (2015) Development of an improved ESAT-6 and CFP-10 peptide-based cytokine flow cytometric assay for bovine tuberculosis. Comp Immunol Microbiol Infect Dis. 42: 1-7.
28. McGill, J.L. *et al.* (2016) Vaccination with an Attenuated Mutant of *Ehrlichia chaffeensis* Induces Pathogen-Specific CD4+ T Cell Immunity and Protection from Tick-Transmitted Wild-Type Challenge in the Canine Host. PLoS One. 11 (2): e0148229.
29. Vida, B. *et al.* (2016) Immunologic progression of canine leishmaniosis following vertical transmission in United States dogs. Vet Immunol Immunopathol. 169: 34-8.
30. Totté, P. *et al.* (2010) CD62L defines a subset of pathogen-specific bovine CD4 with central memory cell characteristics. Dev Comp Immunol. 34 (2): 177-82.
31. Sun L *et al.* (2012) The role of proliferation in the regulation of interferon gamma (IFNγ) expression in foals. Dev Comp Immunol. 36 (3): 534-9.
32. Reber, A.J. *et al.* (2006) Evaluation of multiple immune parameters after vaccination with modified live or killed bovine viral diarrhea virus vaccines. Comp Immunol Microbiol Infect Dis. 29 (1): 61-77.
33. Katepalli, M.P. *et al.* (2008) The effect of age and telomere length on immune function in the horse. Dev Comp Immunol. 32 (12): 1409-15.
34. Hansen, S. *et al.* (2013) Age-related changes in intracellular expression of IFN-γ and TNF-α in equine lymphocytes measured in bronchoalveolar lavage and peripheral blood. Dev Comp Immunol. 39 (3): 228-33.

35. Boshra H *et al.* (2015) A lumpy skin disease virus deficient of an IL-10 gene homologue provides protective immunity against virulent capripoxvirus challenge in sheep and goats. Antiviral Res. 123: 39-49.
36. Hedges, J.F. *et al.* (2015) Amphotericin B stimulates γδ T and NK cells, and enhances protection from *Salmonella* infection. Innate Immun. 21 (6): 598-608.
37. Johnson, W.C. *et al.* (2008) Bovine WC1(-) gammadeltaT cells incubated with IL-15 express the natural cytotoxicity receptor CD335 (NKp46) and produce IFN-gamma in response to exogenous IL-12 and IL-18. Dev Comp Immunol. 32 (8): 1002-10.
38. Dewals, B.G., *et al.*l (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(1): 95.
39. Maggioli, M.F. *et al.* (2016) Increased TNF-α/IFN-γ/IL-2 and Decreased TNF-α/IFN-γ Production by Central Memory T Cells Are Associated with Protective Responses against Bovine Tuberculosis Following BCG Vaccination. Front Immunol. 7: 421.
40. Cassady-Cain, R.L. *et al.* (2017) Inhibition of Antigen-Specific and Nonspecific Stimulation of Bovine T and B Cells by Lymphostatin from Attaching and Effacing *Escherichia coli*. Infect Immun. 85 (2): pii: e00845-16. [Epub ahead of print]
41. Wattegedera, S.R. *et al.* (2017) Enhancing the toolbox to study IL-17A in cattle and sheep. Vet Res. 48 (1): 20.
42. 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.

| | |
|---|---|
| **Further Reading** | 1. Rhodes, S. *et al*. (2000) Distinct response kinetics of gamma interferon and interleukin-4 in bovine tuberculosis. Infect Immun. 68:5393-400. |
| **Storage** | Store at +4$^{o}$C or at -20$^{o}$C if preferred.<br>Storage in frost-free freezers is not recommended.<br>This product should be stored undiluted. This product is photosensitive and should be protected from light.<br>Avoid repeated freezing and thawing as this may denature the antibody. |
| **Shelf Life** | 18 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:<br>10041: https://www.bio-rad-antibodies.com/uploads/MSDS/10041.pdf |
| **Regulatory** | For research purposes only |

# Related Products

## Recommended Negative Controls

MOUSE IgG1 NEGATIVE CONTROL:Alexa Fluor® 647 (MCA928A647)


| | | | | | |
|---|---|---|---|---|---|
| **North & South America** | Tel: +1 800 265 7376<br>Fax: +1 919 878 3751<br>Email: antibody_sales_us@bio-rad.com | **Worldwide** | Tel: +44 (0)1865 852 700<br>Fax: +44 (0)1865 852 739<br>Email: antibody_sales_uk@bio-rad.com | **Europe** | Tel: +49 (0) 89 8090 95 21<br>Fax: +49 (0) 89 8090 95 50<br>Email: antibody_sales_de@bio-rad.com |


'M300533:170105'

**Printed on 05 May 2018**