

Datasheet: MCA1749GA

Description:	MOUSE ANTI PIG CD4 ALPHA
Specificity:	CD4 ALPHA
Other names:	CD4
Format:	Purified
Product Type:	Monoclonal Antibody
Clone:	MIL17
Isotype:	IgG2b
Quantity:	0.1 mg

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	▪			1/25 - 1/200
Immunohistology - Frozen (1)	▪			
Immunohistology - Paraffin		▪		
ELISA			▪	
Immunoprecipitation			▪	
Western Blotting			▪	

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.

(1)The epitope recognised by this antibody is reported to be sensitive to formaldehyde fixation and tissue processing. Bio-Rad recommends the use of acetone fixation for frozen sections.

Target Species	Pig
Product Form	Purified IgG - liquid
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)
Carrier Free	Yes
Approx. Protein Concentrations	IgG concentration 1.0 mg/ml
Immunogen	Leucocytes isolated from porcine gut lamina propria.
Specificity	<p>Mouse anti Porcine CD4 alpha, clone MIL17 recognizes a ~55 kDa porcine homologue to the human CD4 antigen found on the surface of helper-T cells. MIL-17 was confirmed as a member of the CD4 alpha cluster at the 'Third International Workshop on Swine Leukocyte Differentiation Antigens' (Haverson et al. 2001). Porcine CD4 is a type 1 trans-membrane member of the immunoglobulin superfamily.</p> <p>Pigs appear unusual amongst mammalian species as they appear to have four populations of resting T lymphocytes. In addition to the two populations of mutually exclusive CD4+/CD8- and CD4-/CD8+ lymphocytes, they also appear to have significant populations of CD4-/CD8- and CD4+/CD8+ cells. Lymphoblasts with a double positive phenotype have been described in other species but this is not the case for mature T lymphocytic cells (Saalmuller et al. 1987)</p> <p>Mouse anti Pig CD4 alpha, clone MIL17 stains a population of cells with characteristic lymphocyte morphology in immunohistochemistry (Inman <i>et al.</i> 2010).</p>
Flow Cytometry	Use 10µl of the suggested working dilution to label 10 ⁶ cells in 100µl
References	<ol style="list-style-type: none"> 1. Saalmüller A <i>et al.</i> (2001) Summary of workshop findings for porcine T-lymphocyte-specific monoclonal antibodies. Vet Immunol Immunopathol. 80 (1-2): 35-52. 2. Castellano, G. <i>et al.</i> (2010) Therapeutic targeting of classical and lectin pathways of complement protects from ischemia-reperfusion-induced renal damage. Am J Pathol. 176: 1648-59. 3. Inman, C.F. <i>et al.</i> (2010) Dendritic cells interact with CD4 T cells in intestinal mucosa. J Leukoc Biol. 88 (3): 571-8. 4. Kick, A.R. <i>et al.</i> (2011) Evaluation of peripheral lymphocytes after weaning and vaccination for <i>Mycoplasma hyopneumoniae</i>. Res Vet Sci. 91 (3): e68-72. 5. Kick, A.R. <i>et al.</i> (2012) Effects of stress associated with weaning on the adaptive immune system in pigs. J Anim Sci. 90: 649-56. 6. Goujon, J.M. <i>et al.</i> (2000) Influence of cold-storage conditions on renal function of autotransplanted large pig kidneys. Kidney Int. 58: 838-50. 7. Tambuyzer BR <i>et al.</i> (2012) Osteopontin alters the functional profile of porcine microglia <i>in vitro</i>. Cell Biol Int. 36 (12): 1233-8. 8. Tuchscherer, M. <i>et al.</i> (2012) Effects of inadequate maternal dietary protein:carbohydrate ratios during pregnancy on offspring immunity in pigs. BMC Vet Res. 8: 232. 9. Cao, D. <i>et al.</i> (2010) Synthetic innate defence regulator peptide enhances in vivo immunostimulatory effects of CpG-ODN in newborn piglets. Vaccine. 28: 6006-13.

10. Clapperton, M. *et al.* (2005) Associations of weight gain and food intake with leukocyte sub-sets in Large White pigs [Livestock Production Science 96: 249-60](#)
11. Clapperton, M. *et al.* (2005) Innate immune traits differ between Meishan and Large White pigs. [Vet Immunol Immunopathol. 104: 131-44.](#)
12. Clapperton, M. *et al.* (2008) Pig peripheral blood mononuclear leucocyte subsets are heritable and genetically correlated with performance. [Animal. 2: 1575-84.](#)
13. Faure, J.P. *et al.* (2002) Polyethylene glycol reduces early and long-term cold ischemia-reperfusion and renal medulla injury. [J Pharmacol Exp Ther. 2002 Sep;302\(3\):861-70.](#)
14. Faure, J.P. *et al.* (2004) Evidence for protective roles of polyethylene glycol plus high sodium solution and trimetazidine against consequences of renal medulla ischaemia during cold preservation and reperfusion in a pig kidney model. [Nephrol Dial Transplant. 19: 1742-51.](#)
15. Inman, C.F. *et al.* (2012) Neonatal colonisation expands a specific intestinal antigen-presenting cell subset prior to CD4 T-cell expansion, without altering T-cell repertoire. [PLoS One. 7\(3\): e33707.](#)
16. Langerhuus, S.N. *et al.* (2010) Brief report: biomarkers of aortic vascular prosthetic graft infection in a porcine model with *Staphylococcus aureus*. [Eur J Clin Microbiol Infect Dis. 29: 1453-6.](#)
17. Lu, X. *et al.* (2012) Genome-wide association study for T lymphocyte subpopulations in swine. [BMC Genomics. 13: 488.](#)
18. Monroy-Salazar, H.G. *et al.* (2012) Effects of a live yeast dietary supplement on fecal coliform counts and on peripheral blood CD4+ and CD8+ lymphocyte subpopulations in nursery pigs. [J Swine Health Prod 20: 276-282.](#)
19. Shi, K. *et al.* (2008) Changes in peripheral blood leukocyte subpopulations in piglets co-infected experimentally with porcine reproductive and respiratory syndrome virus and porcine circovirus type 2. [Vet Microbiol. 129: 367-77.](#)
20. Spreeuwenberg, M.A. *et al.* (2001) Small intestine epithelial barrier function is compromised in pigs with low feed intake at weaning. [J Nutr. 131: 1520-7.](#)
21. Zelnickova, P. *et al.* (2007) Intracellular cytokine detection by flow cytometry in pigs: fixation, permeabilization and cell surface staining. [J Immunol Methods. 327: 18-29.](#)
22. Lefevre, E.A. *et al.* (2012) Immune responses in pigs vaccinated with adjuvanted and non-adjuvanted A(H1N1)pdm/09 influenza vaccines used in human immunization programmes. [PLoS One. 7\(3\): e32400.](#)
23. Akershoek, J.J. *et al.* (2016) Cell therapy for full-thickness wounds: are fetal dermal cells a potential source? [Cell Tissue Res. 364 \(1\): 83-94.](#)
24. Liu J *et al.* (2016) The Role of Porcine Monocyte Derived Dendritic Cells (MoDC) in the Inflammation Storm Caused by *Streptococcus suis* Serotype 2 Infection. [PLoS One. 11 \(3\): e0151256.](#)
25. Liermann, W. *et al.* (2017) Effects of two commercial diets and technical feed treatment on stomach lesions and immune system of fattening pigs. [J Anim Physiol Anim Nutr \(Berl\). 101 \(5\): e414-26.](#)
26. Gardner, D.S. *et al.* (2016) Remote effects of acute kidney injury in a porcine model. [Am J Physiol Renal Physiol. 310 \(4\): F259-71.](#)
27. Hemmink, J.D. *et al.* (2016) Distinct immune responses and virus shedding in pigs following aerosol, intra-nasal and contact infection with pandemic swine influenza A virus, A(H1N1)09. [Vet Res. 47 \(1\): 103.](#)

28. Dąbrowski, M. *et al.* (2017) The Effect of Deoxynivalenol on Selected Populations of Immunocompetent Cells in Porcine Blood-A Preliminary Study. [Molecules. 22 \(5\): 691.](#)
29. Hsu, W.T. *et al.* (2013) Prostaglandin E2 potentiates mesenchymal stem cell-induced IL-10+IFN- γ +CD4+ regulatory T cells to control transplant arteriosclerosis. [J Immunol. 190 \(5\): 2372-80.](#)
30. Matsubara, T. *et al.* (2015) Identification of a CD4 variant in Microminipigs not detectable with available anti-CD4 monoclonal antibodies. [Vet Immunol Immunopathol. 168 \(3-4\): 176-83.](#)
31. Hu, Z. *et al.* (2019) Genomic variant in porcine TNFRSF1A gene and its effects on TNF signaling pathway *in vitro*. [Gene. 700: 105-9.](#)
32. Fogle, J.E. *et al.* (2019) Antibiotic Therapy Does Not Alter the Humoral Response to Vaccination for Porcine Circovirus 2 in Weaned Pigs. [Vet Sci. 6\(2\): 51.](#)
33. Forner, R. *et al.* (2021) Distribution difference of colostrum-derived B and T cells subsets in gilts and sows. [PLoS One. 16 \(5\): e0249366.](#)
34. Christoforidou, Z. *et al.* (2019) Sexual Dimorphism in Immune Development and in Response to Nutritional Intervention in Neonatal Piglets. [Front Immunol. 10: 2705.](#)
35. López, E. *et al.* (2019) Identification of very early inflammatory markers in a porcine myocardial infarction model. [BMC Vet Res. 15 \(1\): 91.](#)
36. Liu, K.Y. *et al.* (2021) Fallopian tube stem cell medium of porcine and bovine: *In vitro* regenerative effect on maturation and parthenogenesis of porcine oocytes. [Res Vet Sci. 140: 83-90.](#)
37. Giese, I.M. *et al.* (2020) Chronic Hyperglycemia Drives Functional Impairment of Lymphocytes in Diabetic *INS*^{C94Y} Transgenic Pigs. [Front Immunol. 11: 607473.](#)
38. Nielsen, O.L. *et al.* (2022) A porcine model of subcutaneous *Staphylococcus aureus* infection: a pilot study. [APMIS. 130 \(7\): 359-70.](#)
39. Maciag, S.S. *et al.* (2022) On the influence of the source of porcine colostrum in the development of early immune ontogeny in piglets. [Sci Rep. 12 \(1\): 15630.](#)
40. Melgoza-González, A.E. *et al.* (2022) Antigen Targeting of Porcine Skin DEC205+ Dendritic Cells [Vaccines. 10 \(5\): 684.](#)
41. Zhou, L. *et al.* (2022) Clinical improvement of sepsis by extracorporeal centrifugal leukocyte apheresis in a porcine model. [J Transl Med. 20 \(1\): 538.](#)
42. Wu, M.C. *et al.* (2023) A protein-based subunit vaccine with biological adjuvants provides effective protection against *Pasteurella multocida* in pigs. [Vet Res. 54 \(1\): 17.](#)
43. Bujňák, L. *et al.* (2023) The Effect of Dietary Humic Substances on Cellular Immunity and Blood Characteristics in Piglets [Agriculture. 13 \(3\): 636.](#)
44. Schilloks, M.C. *et al.* (2023) Effects of GHR Deficiency and Juvenile Hypoglycemia on Immune Cells of a Porcine Model for Laron Syndrome. [Biomolecules. 13 \(4\): 597.](#)
45. Haach, V. *et al.* (2023) A polyvalent virosomal influenza vaccine induces broad cellular and humoral immunity in pigs. [Virol J. 20 \(1\): 181.](#)

Further Reading

1. 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.

Guarantee	12 months from date of despatch
------------------	---------------------------------

Health And Safety Information	Material Safety Datasheet documentation #10040 available at: https://www.bio-rad-antibodies.com/SDS/MCA1749GA 10040
--------------------------------------	--

Regulatory	For research purposes only
-------------------	----------------------------

Related Products

Recommended Secondary Antibodies

Rabbit Anti Mouse IgG (STAR12...)	RPE
Goat Anti Mouse IgG IgA IgM (STAR87...)	HRP
Goat Anti Mouse IgG (STAR76...)	RPE
Goat Anti Mouse IgG (STAR70...)	FITC
Goat Anti Mouse IgG (H/L) (STAR117...)	Alk. Phos. , DyLight®488 , DyLight®550 , DyLight®650 , DyLight®680 , DyLight®800 , FITC , HRP
Rabbit Anti Mouse IgG (STAR9...)	FITC
Goat Anti Mouse IgG (STAR77...)	HRP
Goat Anti Mouse IgG (Fc) (STAR120...)	FITC , HRP
Rabbit Anti Mouse IgG (STAR13...)	HRP

Recommended Negative Controls

[MOUSE IgG2b NEGATIVE CONTROL \(MCA691\)](#)

Recommended Useful Reagents

[MOUSE ANTI PIG CD45 \(MCA1222GA\)](#)

[MOUSE ANTI PIG wCD8 ALPHA \(MCA1223GA\)](#)

[RAT ANTI HUMAN CD3 \(MCA1477\)](#)

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
----------------------------------	---	------------------	---	---------------	---

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

'M411329:221102'

Printed on 29 Feb 2024