

## Datasheet: MCA1749A647

<b>Description:</b>	MOUSE ANTI PIG CD4 ALPHA:Alexa Fluor® 647
<b>Specificity:</b>	CD4 ALPHA
<b>Other names:</b>	CD4
<b>Format:</b>	ALEXA FLUOR® 647
<b>Product Type:</b>	Monoclonal Antibody
<b>Clone:</b>	MIL17
<b>Isotype:</b>	IgG2b
<b>Quantity:</b>	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](http://www.bio-rad-antibodies.com/protocols).

	Yes	No	Not Determined	Suggested Dilution
Flow Cytometry	▪			Neat

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.

<b>Target Species</b>	Pig		
<b>Product Form</b>	Purified IgG conjugated to Alexa Fluor 647 - liquid		
<b>Max Ex/Em</b>	<b>Fluorophore</b>	<b>Excitation Max (nm)</b>	<b>Emission Max (nm)</b>
	Alexa Fluor®647	650	665
<b>Preparation</b>	Purified IgG prepared by affinity chromatography on Protein A from tissue culture supernatant		
<b>Buffer Solution</b>	Phosphate buffered saline		
<b>Preservative Stabilisers</b>	0.09% Sodium Azide (NaN <sub>3</sub> ) 1% Bovine Serum Albumin		
<b>Approx. Protein Concentrations</b>	IgG concentration 0.05 mg/ml		

## Immunogen

Leucocytes isolated from porcine gut lamina propria.

## Specificity

**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.

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](#))

Mouse anti Pig CD4 alpha, clone MIL17 stains a population of cells with characteristic lymphocyte morphology in immunohistochemistry (Inman et al. 2010).

## Flow Cytometry

Use 10ul of the suggested working dilution to label 10<sup>6</sup> cells in 100ul.

## References

1. Saalmüller A et al. (2001) Summary of workshop findings for porcine T-lymphocyte-specific monoclonal antibodies. [Vet Immunol Immunopathol. 80 \(1-2\): 35-52.](#)
2. Castellano, G. et al. (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. et al. (2010) Dendritic cells interact with CD4 T cells in intestinal mucosa. [J Leukoc Biol. 88 \(3\): 571-8.](#)
4. Kick AR et al. (2011) Evaluation of peripheral lymphocytes after weaning and vaccination for *Mycoplasma hyopneumoniae*. [Res Vet Sci. 91 \(3\): e68-72.](#)
5. Kick, A.R. et al. (2012) Effects of stress associated with weaning on the adaptive immune system in pigs. [J Anim Sci. 90: 649-56.](#)
6. Goujon, J.M. et al. (2000) Influence of cold-storage conditions on renal function of autotransplanted large pig kidneys. [Kidney Int. 58: 838-50.](#)
7. Tambuyzer BR et al. (2012) Osteopontin alters the functional profile of porcine microglia *in vitro*. [Cell Biol Int. 36 \(12\): 1233-8.](#)
8. Tuchscherer, M. et al. (2012) Effects of inadequate maternal dietary protein:carbohydrate ratios during pregnancy on offspring immunity in pigs. [BMC Vet Res. 8: 232.](#)
9. Cao, D. et al. (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. Kick, A.R. *et al.* (2012) Effects of stress associated with weaning on the adaptive immune system in pigs. [J Anim Sci. 90: 649-56.](#)
17. 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.](#)
18. Lu, X. *et al.* (2012) Genome-wide association study for T lymphocyte subpopulations in swine. [BMC Genomics. 13: 488.](#)
19. 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.](#)
20. 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.](#)
21. 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.](#)
22. Tambuyzer, B.R. *et al.* (2012) Osteopontin alters the functional profile of porcine microglia in vitro. [Cell Biol Int. 36: 1233-8.](#)
23. 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.](#)
24. Kvist, P.H. *et al.* (2010) Effect of subcutaneous glucose sensor implantation on skin mRNA expression in pigs. [Diabetes Technol Ther. 12: 791-9.](#)
25. 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.](#)
26. 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.](#)
27. 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.](#)
28. 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.](#)
29. 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.](#)
30. 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.](#)
31. Dąbrowski, M. *et al.* (2017) The Effect of Deoxynivalenol on Selected Populations of Immunocompetent Cells in Porcine Blood-A Preliminary Study. [Molecules. 22 \(5\)Apr 26](#)

[\[Epub ahead of print\]](#).

32. Hsu, W.T. *et al.* (2013) Prostaglandin E2 potentiates mesenchymal stem cell-induced IL-10+IFN- $\gamma$ +CD4+ regulatory T cells to control transplant arteriosclerosis. [J Immunol. 190 \(5\): 2372-80.](#)
33. 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.](#)
34. Hu, Z. *et al.* (2019) Genomic variant in porcine TNFRSF1A gene and its effects on TNF signaling pathway *in vitro*. [Gene. 700: 105-9.](#)
35. 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.](#)
36. Forner, R. *et al.* (2021) Distribution difference of colostrum-derived B and T cells subsets in gilts and sows. [PLoS One. 16 \(5\): e0249366.](#)
37. Christoforidou, Z. *et al.* (2019) Sexual Dimorphism in Immune Development and in Response to Nutritional Intervention in Neonatal Piglets. [Front Immunol. 10: 2705.](#)
38. López, E. *et al.* (2019) Identification of very early inflammatory markers in a porcine myocardial infarction model. [BMC Vet Res. 15 \(1\): 91.](#)
39. 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.](#)
40. Giese, I.M. *et al.* (2020) Chronic Hyperglycemia Drives Functional Impairment of Lymphocytes in Diabetic *INS*<sup>C94Y</sup> Transgenic Pigs. [Front Immunol. 11: 607473.](#)
41. Nielsen, O.L. *et al.* (2021) A porcine model of subcutaneous *Staphylococcus aureus* infection: a pilot study. [APMIS. Mar 01 \[Epub ahead of print\]](#).

---

**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

---

**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](mailto:outlicensing@thermofisher.com)

**Health And Safety Information** Material Safety Datasheet documentation #10041 available at:  
10041: <https://www.bio-rad-antibodies.com/uploads/MSDS/10041.pdf>

---

**Regulatory** For research purposes only

---

## Related Products

### Recommended Negative Controls

[MOUSE IgG2b NEGATIVE CONTROL:Alexa Fluor® 647 \(MCA691A647\)](#)

<b>North &amp; South America</b>	Tel: +1 800 265 7376 Fax: +1 919 878 3751 Email: <a href="mailto:antibody_sales_us@bio-rad.com">antibody_sales_us@bio-rad.com</a>	<b>Worldwide</b>	Tel: +44 (0)1865 852 700 Fax: +44 (0)1865 852 739 Email: <a href="mailto:antibody_sales_uk@bio-rad.com">antibody_sales_uk@bio-rad.com</a>	<b>Europe</b>	Tel: +49 (0) 89 8090 95 21 Fax: +49 (0) 89 8090 95 50 Email: <a href="mailto:antibody_sales_de@bio-rad.com">antibody_sales_de@bio-rad.com</a>
----------------------------------	---	------------------	---	---------------	---

To find a batch/lot specific datasheet for this product, please use our online search tool at: [bio-rad-antibodies.com/datasheets](https://bio-rad-antibodies.com/datasheets)  
'M384359:210513'

Printed on 07 Jan 2022

---

© 2022 Bio-Rad Laboratories Inc | [Legal](#) | [Imprint](#)