

Datasheet: MCA463A488

BATCH NUMBER 1014

Description:	MOUSE ANTI HUMAN CD3:Alexa Fluor® 488
Specificity:	CD3
Format:	ALEXA FLUOR® 488
Product Type:	Monoclonal Antibody
Clone:	UCHT1
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	▪			Neat - 1/4

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

Human

Species Cross Reactivity

Reacts with: Chimpanzee

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® 488 - liquid

Max Ex/Em

Fluorophore	Excitation Max (nm)	Emission Max (nm)
Alexa Fluor®488	495	519

Preparation

Purified IgG prepared by affinity chromatography on Protein G from tissue culture supernatant

Buffer Solution

Phosphate buffered saline

Preservative	0.09% Sodium Azide
Stabilisers	1% Bovine Serum Albumin
Approx. Protein Concentrations	IgG concentration 0.05 mg/ml
Immunogen	Human infant thymocytes and lymphocytes from a patient with Sezary Syndrome.
External Database Links	<p>UniProt: P07766 Related reagents</p> <p>Entrez Gene: 916 CD3E Related reagents</p>
Synonyms	T3E
RRID	AB_322146
Fusion Partners	Spleen cells from immunised BALB/c mice were fused with cells of the P3/NS1/1-Ag4-1 mouse myeloma cell line.
Specificity	<p>Mouse anti Human CD3 antibody, clone UCHT1 recognizes the human T-cell surface glycoprotein CD3 epsilon chain, also known as T-cell surface antigen T3/Leu-4 epsilon chain or CD3ε. CD3ε is a 207 amino acid, ~21kDa single pass type 1 transmembrane protein containing a single Ig-like and a single ITAM domain. Mouse anti Human CD3 antibody, clone UCHT1 was originally described as only binding to CD3ε when complexed with either the CD3δ or CD3γ subunits, as indicated by co-transfection immunofluorescence studies on COS cells (Salmerón et al. 1991). Mouse anti Human CD3 antibody, clone UCHT1 binds to a region in the ectodomain of human CD3ε and has been shown to bind to a discontinuous epitope near an acidic region of CD3ε opposite the dimer interface; as shown by crystallographic studies of the CD3ε/δ dimer complexed with a single chain UCHT1 antibody fragment (Arnett et al. 2004).</p> <p>CD3 is expressed by all T lymphocytes and is seen in all lymphoid organs including lymph nodes and spleen. It is involved in thymocyte differentiation (Brodeur et al. 2009). Deficiency of the CD3ε chain contributes to blocking T-cell development and presentation of a severe combined immunodeficiency phenotype (Fischer et al. 2005).</p> <p>Mouse anti Human CD3 antibody, clone UCHT1 has been used successfully for the activation of human peripheral blood lymphocytes by cross linking and subsequently for CD3ε surface expression by flow cytometry (Hirsh and Cohen 2006).</p>
Flow Cytometry	Use 10ul of the suggested working dilution to label 10 ⁶ cells or 100ul whole blood.
References	1. Beverley, P.C. & Callard, R.E. (1981) Distinctive functional characteristics of human "T" lymphocytes defined by E rosetting or a monoclonal anti-T cell antibody. Eur J Immunol. 11 (4): 329-34.

2. Kung, P. *et al.* (1979) Monoclonal antibodies defining distinctive human T cell surface antigens. [Science. 206: 347-9.](#)
3. Clevers, H. *et al.* (1988) The transmembrane orientation of the epsilon chain of the TcR/CD3 complex. [Eur J Immunol. 18 \(5\): 705-10.](#)
4. Salmerón, A. *et al.* (1991) A conformational epitope expressed upon association of CD3-epsilon with either CD3-delta or CD3-gamma is the main target for recognition by anti-CD3 monoclonal antibodies. [J Immunol. 147: 3047-52.](#)
5. Hirsh, M.I. and Cohen, V. (2006) Chloroquine prevents T lymphocyte suppression induced by anthrax lethal toxin. [J Infect Dis. 194: 1003-7.](#)
6. Mahon, N.G. *et al.* (2002) Immunohistologic evidence of myocardial disease in apparently healthy relatives of patients with dilated cardiomyopathy. [J Am Coll Cardiol. 39: 455-62.](#)
7. Lawson, C.A. *et al.* (2006) Early rheumatoid arthritis is associated with a deficit in the CD4+CD25high regulatory T cell population in peripheral blood. [Rheumatology \(Oxford\). 45: 1210-7.](#)
8. Campana, D. *et al.* (1987) The cytoplasmic expression of CD3 antigens in normal and malignant cells of the T lymphoid lineage. [J Immunol. 138 \(2\): 648-55.](#)
9. Battaglia, A. *et al.* (2003) Lymphocyte populations in human lymph nodes. Alterations in CD4+ CD25+ T regulatory cell phenotype and T-cell receptor Vbeta repertoire. [Immunology. 110: 304-12.](#)
10. McIntosh, R.S. *et al.* (1997) Analysis of the T cell receptor V alpha repertoire in Hashimoto's thyroiditis: evidence for the restricted accumulation of CD8+ T cells in the absence of CD4+ T cell restriction. [J Clin Endocrinol Metab. 82: 1140-6.](#)
11. Aird, I.A. *et al.* (1999) Leukocytes in semen from men with spinal cord injuries. [Fertil Steril. 72: 97-103.](#)
12. Colić, M. *et al.* (2006) Correlation between phenotypic characteristics of mononuclear cells isolated from human periapical lesions and their in vitro production of Th1 and Th2 cytokines. [Arch Oral Biol. 51: 1120-30.](#)
13. Oliver, B. *et al.* (2001) Low-dose theophylline does not exert its anti-inflammatory effects in mild asthma through upregulation of interleukin-10 in alveolar macrophages. [Allergy. 56: 1087-90.](#)
14. Guntermann, C. and Alexander, D.R. (2002) CTLA-4 suppresses proximal TCR signaling in resting human CD4(+) T cells by inhibiting ZAP-70 Tyr(319) phosphorylation: a potential role for tyrosine phosphatases. [J Immunol. 168: 4420-9.](#)
15. Baturcam, E. *et al.* (2014) Physical exercise reduces the expression of RANTES and its CCR5 receptor in the adipose tissue of obese humans. [Mediators Inflamm. 2014: 627150.](#)
16. Clark, E.A. *et al.* (1983) Evolution of epitopes on human and nonhuman primate lymphocyte cell surface antigens. [Immunogenetics. 18 \(6\): 599-615.](#)
17. Erber, W.N. *et al.* (1984) Immunocytochemical detection of T and B cell populations in routine blood smears. [Lancet. 1 \(8385\): 1042-6.](#)
18. Maggiorella, M. *et al.* (1998) Detection of Infectious Simian Immunodeficiency Virus in B- and T- cell lymphomas of experimentally infected macaques. [Blood. 91 \(9\): 3103 - 3111.](#)
19. Kumpel, B. *et al.* (2014) Accurate quantitation of D+ fetomaternal hemorrhage by flow cytometry using a novel reagent to eliminate granulocytes from analysis. [Transfusion. 54 \(5\): 1305-16.](#)

20. Mjösberg, J. *et al.* (2009) Systemic reduction of functionally suppressive CD4^{dim}CD25^{high}Foxp3⁺ Tregs in human second trimester pregnancy is induced by progesterone and 17β-estradiol. [J Immunol. 183: 759-69.](#)
21. Hess, C. *et al.* (2000) Induction of neutrophil responsiveness to myeloperoxidase antibodies by their exposure to supernatant of degranulated autologous neutrophils. [Blood. 96: 2822-7.](#)
22. Choudhuri, K. *et al.* (2009) Peptide-major histocompatibility complex dimensions control proximal kinase-phosphatase balance during T cell activation. [J Biol Chem. 284: 26096-105.](#)
23. Dong, D. *et al.* (2006) T cell receptor for antigen induces linker for activation of T cell-dependent activation of a negative signaling complex involving Dok-2, SHIP-1, and Grb-2. [J Exp Med. 203: 2509-18.](#)
24. Libri, V. *et al.* (2008) Jakmip1 is expressed upon T cell differentiation and has an inhibitory function in cytotoxic T lymphocytes. [J Immunol. 181: 5847-56.](#)
25. Churchman, S.M. *et al.* (2014) Modulation of peripheral T-cell function by interleukin-7 in rheumatoid arthritis. [Arthritis Res Ther. 16 \(6\): 511.](#)
26. Ward, S.T. *et al.* (2015) The effects of CCR5 inhibition on regulatory T-cell recruitment to colorectal cancer. [Br J Cancer. 112 \(2\): 319-28.](#)
27. Saavedra, D. *et al.* (2015) Biomarkers related to immunosenescence: relationships with therapy and survival in lung cancer patients. [Cancer Immunol Immunother. Nov 20. \[Epub ahead of print\]](#)
28. Bhat, S.S. *et al.* (2016) Syntaxin 8 is required for efficient lytic granule trafficking in cytotoxic T lymphocytes. [Biochim Biophys Acta. Apr 17. pii: S0167-4889\(16\)30103-3. \[Epub ahead of print\]](#)
29. Hasib, L. *et al.* (2016) Functional and homeostatic defects of regulatory T cells in patients with coronary artery disease [Journal of Internal Medicine. 279 \(1\): 63-77.](#)
30. Siska, E.K. *et al.* (2017) Generation of an immortalized mesenchymal stem cell line producing a secreted biosensor protein for glucose monitoring. [PLoS One. 12 \(9\): e0185498.](#)
31. Suárez, G.M. *et al.* (2021) Associations among cytokines, EGF and lymphocyte subpopulations in patients diagnosed with advanced lung cancer. [Cancer Immunol Immunother. Jan 02 \[Epub ahead of print\].](#)

Further Reading

1. Clevers, H. *et al.* (1988) The T cell receptor/CD3 complex: a dynamic protein ensemble. [Annu Rev Immunol. 6: 629-62.](#)
2. Arnett, K.L. *et al.* (2004) Crystal structure of a human CD3-epsilon/delta dimer in complex with a UCHT1 single-chain antibody fragment. [Proc Natl Acad Sci U S A. 101: 16268-73.](#)

Storage

Store at +4°C or at -20°C if preferred.

This product should be stored undiluted.

Storage in frost free freezers is not recommended. This product is photosensitive and should be protected from light.

Avoid repeated freezing and thawing as this may denature the antibody. Should this

product contain a precipitate we recommend microcentrifugation before use.

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 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: <https://www.bio-rad-antibodies.com/SDS/MCA463A488>
10041

Regulatory For research purposes only

Related Products

Recommended Negative Controls

[MOUSE IgG1 NEGATIVE CONTROL:Alexa Fluor® 488 \(MCA928A488\)](#)

Recommended Useful Reagents

[HUMAN SEROBLOCK \(BUF070A\)](#)

[HUMAN SEROBLOCK \(BUF070B\)](#)

North & South Tel: +1 800 265 7376

America 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

'M367761:200529'

Printed on 14 Mar 2023

© 2023 Bio-Rad Laboratories Inc | [Legal](#) | [Imprint](#)