

Datasheet: MCA463EL

BATCH NUMBER 172815

Description:	MOUSE ANTI HUMAN CD3:Low Endotoxin
Specificity:	CD3
Format:	Low Endotoxin
Product Type:	Monoclonal Antibody
Clone:	UCHT1
Isotype:	IgG1
Quantity:	0.5 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	▪			1/50 - 1/100
Immunohistology - Frozen	▪			
Immunohistology - Paraffin			▪	
ELISA			▪	
Immunoprecipitation			▪	
Western Blotting			▪	
Functional Assays	▪			

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 - liquid

Preparation

Purified IgG prepared by affinity chromatography on Protein A from tissue culture

supernatant

Buffer Solution Phosphate buffered saline

Preservative Stabilisers None present

Carrier Free Yes

Endotoxin Level < 0.01 EU/ug

Approx. Protein Concentrations IgG concentration 1mg/ml

Immunogen Human infant thymocytes and lymphocytes from a patient with Sezary Syndrome.

External Database Links

UniProt:

[P07766](#) [Related reagents](#)

Entrez Gene:

[916](#) CD3E [Related reagents](#)

Synonyms T3E

RRID AB_323900

Fusion Partners Spleen cells from immunized BALB/c mice were fused with cells of the P3/NS1/1-Ag4-1 mouse myeloma cell line.

Specificity

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 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 binds to a [discontinuous epitope](#) near an acidic region of CD3ε opposite the dimer interface; as shown by crystallography of the CD3ε/δ dimer complexed with a single chain UCHT1 antibody fragment ([Arnett et al. 2004](#)).

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](#)).

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

CD3 ϵ surface expression by flow cytometry ([Hirsh and Cohen 2006](#)).

Flow Cytometry

Use 10ul of the suggested working dilution to label 100ul of 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. Clevers, H. *et al.* (1988) The transmembrane orientation of the epsilon chain of the TcR/CD3 complex. [Eur J Immunol. 18 \(5\): 705-10.](#)
3. 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.](#)
4. Hirsh, M.I. and Cohen, V. (2006) Chloroquine prevents T lymphocyte suppression induced by anthrax lethal toxin. [J Infect Dis. 194: 1003-7.](#)
5. 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.](#)
6. 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.](#)
7. 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.](#)
8. 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.](#)
9. Aird, I.A. *et al.* (1999) Leukocytes in semen from men with spinal cord injuries. [Fertil Steril. 72: 97-103.](#)
10. Hirsh, M.I. *et al.* (2006) Ultrastructural features of lymphocyte suppression induced by anthrax lethal toxin and treated with chloroquine [Lab Invest. 87: 182-8.](#)
11. 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.](#)
12. 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.](#)
13. Clark, E.A. *et al.* (1983) Evolution of epitopes on human and nonhuman primate lymphocyte cell surface antigens. [Immunogenetics. 18 \(6\): 599-615.](#)
14. Erber, W.N. *et al.* (1984) Immunocytochemical detection of T and B cell populations in routine blood smears. [Lancet. 1 \(8385\): 1042-6.](#)
15. Mjösberg, J. *et al.* (2009) Systemic reduction of functionally suppressive CD4dimCD25highFoxp3+ Tregs in human second trimester pregnancy is induced by progesterone and 17beta-estradiol. [J Immunol. 183: 759-69.](#)
16. 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.](#)
17. 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.](#)

18. 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.](#)

19. 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.](#)

20. Churchman, S.M. *et al.* (2014) Modulation of peripheral T-cell function by interleukin-7 in rheumatoid arthritis. [Arthritis Res Ther. 16 \(6\): 511.](#)

21. 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.](#)

22. Saavedra, D. *et al.* (2016) Biomarkers related to immunosenescence: relationships with therapy and survival in lung cancer patients. [Cancer Immunol Immunother. 65 \(1\): 37-45.](#)

23. Bhat, S.S. *et al.* (2016) Syntaxin 8 is required for efficient lytic granule trafficking in cytotoxic T lymphocytes. [Biochim Biophys Acta. 1863 \(7 Pt A\): 1653-64.](#)

24. Hasib, L. *et al.* (2016) Functional and homeostatic defects of regulatory T cells in patients with coronary artery disease. [J Intern Med. 279 \(1\): 63-77.](#)

25. 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.](#)

26. Suárez, G.M. *et al.* (2021) Associations among cytokines, EGF and lymphocyte subpopulations in patients diagnosed with advanced lung cancer. [Cancer Immunol Immunother. 70 \(6\): 1735-43.](#)

27. Robinson, H. *et al.* (2022) The effect of expressive writing on wound healing: Immunohistochemistry analysis of skin tissue two weeks after punch biopsy wounding. [J Psychosom Res. 161: 110987.](#)

28. Zenere, A. *et al.* (2023) Prominent epigenetic and transcriptomic changes in CD4(+) and CD8(+) T cells during and after pregnancy in women with multiple sclerosis and controls. [J Neuroinflammation. 20 \(1\): 98.](#)

29. Hellberg, S. *et al.* (2021) Progesterone Dampens Immune Responses in In Vitro Activated CD4(+) T Cells and Affects Genes Associated With Autoimmune Diseases That Improve During Pregnancy. [Front Immunol. 12: 672168.](#)

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 -20°C only.

This product should be stored undiluted.

Storage in frost-free freezers is not recommended. 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
Health And Safety Information	Material Safety Datasheet documentation #10162 available at: https://www.bio-rad-antibodies.com/SDS/MCA463EL
Regulatory	For research purposes only

Related Products

Recommended Secondary Antibodies

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

Recommended Negative Controls

[MOUSE IgG1 NEGATIVE CONTROL:Low Endotoxin \(MCA928EL\)](#)

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

'M395756:220519'

Printed on 28 May 2026