

Datasheet: MCA463SBY720

BATCH NUMBER 100007477

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| Description: | MOUSE ANTI HUMAN CD3:StarBright Yellow 720 |
| Specificity: | CD3 |
| Format: | StarBright Yellow 720 |
| Product Type: | Monoclonal Antibody |
| Clone: | UCHT1 |
| Isotype: | IgG1 |
| Quantity: | 100 TESTS/0.5ml |

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 |

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.

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 StarBright Yellow 720 - liquid

Max Ex/Em

| Fluorophore | Excitation Max (nm) | Emission Max (nm) |
|-----------------------|---------------------|-------------------|
| StarBright Yellow 720 | 548 | 719 |

Preparation

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

Buffer Solution

Phosphate buffered saline

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| Preservative | 0.09% Sodium Azide (NaN ₃) |
| Stabilisers | 1% Bovine Serum Albumin 0.1% Pluronic F68 0.1% PEG 3350 0.05% Tween 20 |
| 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 |
| 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 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).</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 5ul of the suggested working dilution to label 10 ⁶ cells in 100ul. Best practices suggest a 5 minutes centrifugation at 6,000g prior to sample application. |
| References | <ol style="list-style-type: none"> 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. 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

- CD4dimCD25highFoxp3+ Tregs in human second trimester pregnancy is induced by progesterone and 17beta-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. 1863 \(7 Pt A\): 1653-64.](#)
29. 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.](#)
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. 70 \(6\): 1735-43.](#)

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| Further Reading | <p>1. Clevers, H. <i>et al.</i> (1988) The T cell receptor/CD3 complex: a dynamic protein ensemble. Annu Rev Immunol. 6: 629-62.</p> <p>2. Arnett, K.L. <i>et al.</i> (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.</p> |
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| Storage | <p>Store at +4°C. DO NOT FREEZE.</p> <p>This product should be stored undiluted.</p> |
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| Guarantee | 12 months from date of despatch |
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| Acknowledgements | This product is covered by U.S. Patent No. 10,150,841 and related U.S. and foreign counterparts |
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| Health And Safety Information | <p>Material Safety Datasheet documentation #20471 available at: https://www.bio-rad-antibodies.com/SDS/MCA463SBY720</p> <p>20471</p> |
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Related Products

Recommended Useful Reagents

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

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

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