

Purified anti-human CD3 Antibody

Catalog# / Size	300401 / 25 µg 300402 / 100 µg
Clone	UCHT1
Regulatory Status	RUO
Workshop	III 471
Other Names	T3, CD3ε
Isotype	Mouse IgG1, κ
Description	CD3ε is a 20 kD chain of the CD3/T-cell receptor (TCR) complex which is composed of two CD3ε, one CD3γ, one CD3δ, one CD3ζ (CD247), and a T-cell receptor (α/β or γ/δ) heterodimer. It is found on all mature T cells, NKT cells, and some thymocytes. CD3, also known as T3, is a member of the immunoglobulin superfamily that plays a role in antigen recognition, signal transduction, and T cell activation.

Product Details

Verified Reactivity	Human
Reported Reactivity	Chimpanzee
Antibody Type	Monoclonal
Host Species	Mouse
Formulation	Phosphate-buffered solution, pH 7.2, containing 0.09% sodium azide.
Preparation	The antibody was purified by affinity chromatography.
Concentration	0.5 mg/ml
Storage & Handling	The antibody solution should be stored undiluted between 2°C and 8°C.
Application	FC - Quality tested CyTOF®. IHC-F - Verified IP, Activ, WB - Reported in the literature, not verified in house
Recommended Usage	Each lot of this antibody is quality control tested by immunofluorescent staining with flow cytometric analysis . For flow cytometric staining, the suggested use of this reagent is ≤ 0.25 µg per million cells in 100 µl volume. For immunohistochemistry, a concentration range of 5.0 - 10 µg/ml is suggested. It is recommended that the reagent be titrated for optimal performance for each application.
Application Notes	Additional reported applications (for the relevant formats) include: immunohistochemical staining of acetone-fixed frozen sections ^{4,6,7} and formalin-fixed paraffin-embedded sections ¹¹ , immunoprecipitation ¹ , activation of T cells ^{2,3,5} , Western blotting ⁹ , and spatial biology (IBEX) ^{16,17} . The LEAF™ purified antibody (Endotoxin < 0.1 EU/µg, Azide-Free, 0.2 µm filtered) is recommended for functional assays (Cat. No. 300413, 300414, and 300432). For highly sensitive assays, we recommend Ultra-LEAF™ purified antibody (Cat. No. 300437, 300438, 300465, 300466, 300473, 300474) with a lower endotoxin limit than standard LEAF™ purified antibodies (Endotoxin < 0.01 EU/µg).
Application References	<ol style="list-style-type: none"> 1. Salmeron A, <i>et al.</i> 1991. <i>J. Immunol.</i> 147:3047. (IP) 2. Graves J, <i>et al.</i> 1991. <i>J. Immunol.</i> 146:2102. (Activ) 3. Lafont V, <i>et al.</i> 2000. <i>J. Biol. Chem.</i> 275:19282. (Activ) 4. Ryschich E, <i>et al.</i> 2003. <i>Tissue Antigens</i> 62:48. (IHC) 5. Thompson AG, <i>et al.</i> 2004. <i>J. Immunol.</i> 173:1671. (Activ) 6. Sakkas LI, <i>et al.</i> 1998. <i>Clin. Diagn. Lab. Immunol.</i> 5:430. (IHC) 7. Mack CL, <i>et al.</i> 2004. <i>Pediatr. Res.</i> 56:79. (IHC) 8. Thakral D, <i>et al.</i> 2008. <i>J. Immunol.</i> 180:7431. (FC) PubMed 9. Van Dongen JJM, <i>et al.</i> 1988. <i>Blood</i> 71:603. (WB)
(PubMed link indicates BioLegend citation)	

10. Yoshino N, *et al.* 2000. *Exp. Anim. (Tokyo)* 49:97. (FC)
11. Pollard, K. *et al.* 1987. *J. Histochem. Cytochem.* 35:1329. (IHC)
12. Luckashenak N, *et al.* 2013. *J. Immunol.* 190:27. [PubMed](#)
13. Laurent AJ, *et al.* 2014. *PLoS One.* 9:103683. [PubMed](#)
14. Li J, *et al.* 2015. *Cancer Res.* 75:508. [PubMed](#)
15. Stoeckius M, *et al.* 2017. *Nat. Methods.* 14:865-868. (PG)
16. Radtke AJ, *et al.* 2020. *Proc Natl Acad Sci USA.* 117:33455-33465. (SB) [PubMed](#)
17. Radtke AJ, *et al.* 2022. *Nat Protoc.* 17:378-401. (SB) [PubMed](#)

Product Citations

1. Özcan A, *et al.* 2020. *J Invest Dermatol.* 1003:140. [PubMed](#)
2. Dallari S, *et al.* 2017. *Nat Commun.* 8:14830. [PubMed](#)
3. Mousset CM, *et al.* 2018. *Oncoimmunology.* 7:e1488565. [PubMed](#)
4. Rouers A, *et al.* 2021. *Cell Rep Med.* 2:100278. [PubMed](#)
5. Laurent A, *et al.* 2014. *PLoS One.* 9:103683. [PubMed](#)
6. Webb LMC, *et al.* 2021. *Aging Cell.* 20:e13295. [PubMed](#)
7. Alroqi F, *et al.* 2017. *J Clin Immunol.* . 10.1007/s10875-017-0451-1. [PubMed](#)
8. Wagner J *et al.* 2019. *Cell.* 177(5):1330-1345 . [PubMed](#)
9. Nguyen LT, *et al.* 2019. *Cancer Immunol Immunother.* 68:773. [PubMed](#)
10. Wang W, *et al.* 2018. *Cancer Cell.* 34:757. [PubMed](#)
11. Korn MA, *et al.* 2020. *J Immunol.* 205:2595. [PubMed](#)
12. González-Mancha N, *et al.* 2022. *Front Immunol.* 12:814570. [PubMed](#)
13. Cao Q, *et al.* 2018. *Am J Physiol Renal Physiol.* 314:F561. [PubMed](#)
14. Fasbender F, *et al.* 2017. *Front Immunol.* 0.88125. [PubMed](#)
15. Kollis PM, *et al.* 2022. *Front Immunol.* 13:850226. [PubMed](#)
16. Tocheva AS, *et al.* 2020. *J Biol Chem.* 295:18036. [PubMed](#)
17. Santos R, *et al.* 2017. *Nat Commun.* . 10.1038/s41467-017-01760-5. [PubMed](#)
18. Bobardt M, *et al.* 2020. *PLoS One.* 15:e0227715. [PubMed](#)
19. Song C, *et al.* 2022. *Stem Cell Res Ther.* 13:48. [PubMed](#)
20. Mann ER, *et al.* 2020. *Sci Immunol.* :5. [PubMed](#)
21. Alcántara-Hernández M, *et al.* 2021. *Nat Protoc.* 16:4855. [PubMed](#)
22. Tian Y, *et al.* 2019. *Cell Rep.* 29:4482. [PubMed](#)
23. Wang C, *et al.* 2022. *Exp Ther Med.* 23:221. [PubMed](#)
24. Coelho CH, *et al.* 2020. *JCI Insight.* 5:. [PubMed](#)
25. Cribbs AP, *et al.* 2021. *Front Immunol.* 12:626255. [PubMed](#)
26. Yoshihara S, *et al.* 2019. *Front Immunol.* 0.545833333. [PubMed](#)
27. Le X, *et al.* 2021. *J Thorac Oncol.* 16:583. [PubMed](#)
28. Gunawan M, *et al.* 2017. *Sci Rep.* . 10.1038/s41598-017-16999-7. [PubMed](#)
29. Guo T, *et al.* 2018. *J Immunol.* 200:500. [PubMed](#)
30. Jimenez RV, *et al.* 2019. *Front Immunol.* 1.932638889. [PubMed](#)
31. Martin JC, *et al.* 2020. *Cell.* 178(6):1493-1508.e20.. [PubMed](#)
32. Michlmayr D, *et al.* 2020. *Cell Reports.* 31(4):107569. [PubMed](#)
33. Syrimi E, *et al.* 2021. *iScience.* 24:103215. [PubMed](#)
34. Eldredge LC, *et al.* 2019. *Am J Physiol Lung Cell Mol Physiol.* 317:L49. [PubMed](#)
35. Hejazi M, *et al.* 2022. *Front Immunol.* 12:798087. [PubMed](#)
36. Khanolkar A, *et al.* 2020. *Immunohorizons.* 4:153. [PubMed](#)
37. Speir M, *et al.* 2017. *Sci Rep.*. 10.1038/s41598-017-14690-5. [PubMed](#)
38. Agrawal N, *et al.* 2018. *Front Immunol.* 2.053472222. [PubMed](#)
39. Kacherovsky N, *et al.* 2019. *Nat Biomed Eng.* 0.66875. [PubMed](#)
40. Del Alcazar D, *et al.* 2019. *Cell Rep.* 28:3047. [PubMed](#)
41. Jakob M, *et al.* 2020. *Cells.* 10:. [PubMed](#)
42. Tocheva AS, *et al.* 2020. *J Biol Chem.* 295:18036. [PubMed](#)
43. Guerrero A, *et al.* 2012. *J Immunol.* 190:27. [PubMed](#)
44. Wright CC, *et al.* 2017. *Infect Immun.* 85:e00131. [PubMed](#)
45. Hunter S, *et al.* 2018. *J Hepatol.* 69:654. [PubMed](#)
46. Roussel M, *et al.* 2021. *Cell Reports Medicine.* 2(6):100291. [PubMed](#)
47. Chng MHY, *et al.* 2020. *Immunity.* 51(6):1119-1135.e5.. [PubMed](#)
48. Hartmann FJ, *et al.* 2019. *Cell Rep.* 28:819. [PubMed](#)
49. Mishra A, *et al.* 2021. *Cell.* 184(13):3394-3409.e20. [PubMed](#)
50. Schwabenland M, *et al.* 2021. *Immunity.* . [PubMed](#)
51. Bengsch B *et al.* 2018. *Immunity.* 48(5):1029-1045 . [PubMed](#)
52. Evrard M *et al.* 2018. *Immunity.* 48(2):364-379 . [PubMed](#)
53. Silva-Cardoso SC, *et al.* 2017. *J Immunol.* 199:253. [PubMed](#)
54. Tang JS, *et al.* 2020. *Food Funct.* 11:5782. [PubMed](#)
55. Thompson A, *et al.* 2004. *J Immunol.* 173:1671. [PubMed](#)
56. Oda H, *et al.* 2019. *Front Immunol.* 10:479. [PubMed](#)
57. Manes TL, *et al.* 2020. *Free Radic Biol Med.* 147:102. [PubMed](#)
58. Kennedy-Darling J, *et al.* 2021. *Eur J Immunol.* 51:1262. [PubMed](#)
59. Han M, *et al.* 2022. *Cell Mol Immunol.* 19:805. [PubMed](#)
60. Chevrier S, *et al.* 2018. *Cell Syst.* 0.675. [PubMed](#)
61. Crawford LB, *et al.* 2021. *J Virol.* 95:. [PubMed](#)
62. Ainaï A, *et al.* 2020. *Microbiol Immunol.* 64:313. [PubMed](#)
63. Martin E, *et al.* 2020. *JCI Insight.* :5. [PubMed](#)
64. Li J, *et al.* 2015. *Cancer Res.* 75:508. [PubMed](#)
65. Yamaguchi K, *et al.* 2018. *Cancer Sci.* 109:3032. [PubMed](#)
66. Lavin Y *et al.* 2017. *Cell.* 169(4):750-765 . [PubMed](#)
67. Umeda M, *et al.* 2021. *Proc Natl Acad Sci U S A.* 118:. [PubMed](#)
68. Kim ML, *et al.* 2021. *iScience.* 24:103509. [PubMed](#)
69. Chiou SH, *et al.* 2021. *Immunity.* 54:586. [PubMed](#)

RRID AB_314055 (BioLegend Cat. No. 300401)
AB_314056 (BioLegend Cat. No. 300402)

Antigen Details

Structure	Ig superfamily, with the subunits of CD3 γ , CD3 δ , CD3 ζ (CD247) and TCR (α/β or γ/δ) forms CD3/TCR complex, 20 kD
Distribution	Mature T and NK T cells, thymocyte differentiation
Function	Antigen recognition, signal transduction, T cell activation
Ligand/Receptor	Peptide antigen bound to MHC
Cell Type	NKT cells, T cells, Thymocytes, Tregs
Biology Area	Immunology, Innate Immunity
Molecular Family	CD Molecules, TCRs
Antigen References	1. Barclay N, <i>et al.</i> 1993. The Leucocyte FactsBook. Academic Press. San Diego. 2. Beverly P, <i>et al.</i> 1981. <i>Eur. J. Immunol.</i> 11:329. 3. Lanier L, <i>et al.</i> 1986. <i>J. Immunol.</i> 137:2501-2507.
Gene ID	916

Related Protocols

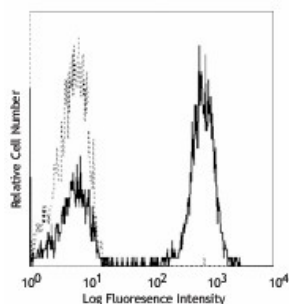
[Immunohistochemistry Protocol for Frozen Sections](#)

[Cell Surface Flow Cytometry Staining Protocol](#)

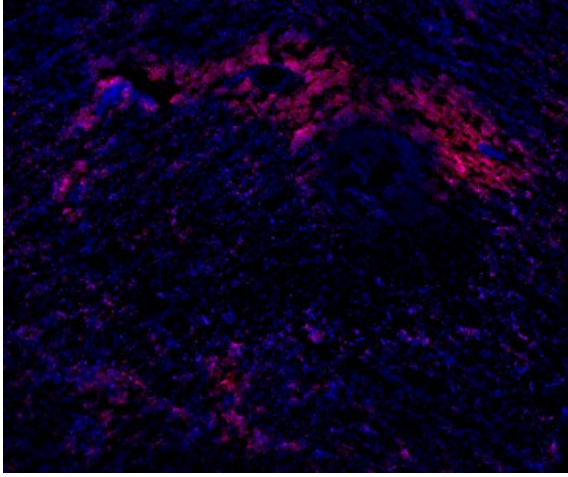
Other Formats

APC anti-human CD3, Biotin anti-human CD3, FITC anti-human CD3, PE anti-human CD3, PE/Cyanine5 anti-human CD3, Purified anti-human CD3, Alexa Fluor® 647 anti-human CD3, Alexa Fluor® 488 anti-human CD3, Pacific Blue™ anti-human CD3, PE/Cyanine7 anti-human CD3, Alexa Fluor® 700 anti-human CD3, APC/Cyanine7 anti-human CD3, PerCP anti-human CD3, PerCP/Cyanine5.5 anti-human CD3, Brilliant Violet 421™ anti-human CD3, Brilliant Violet 570™ anti-human CD3, Ultra-LEAF™ Purified anti-human CD3, Purified anti-human CD3 (Maxpar® Ready), Alexa Fluor® 594 anti-human CD3, PE/Dazzle™ 594 anti-human CD3, Brilliant Violet 510™ anti-human CD3, Brilliant Violet 605™ anti-human CD3, Brilliant Violet 711™ anti-human CD3, Brilliant Violet 650™ anti-human CD3, APC/Fire™ 750 anti-human CD3, Brilliant Violet 785™ anti-human CD3, TotalSeq™-A0034 anti-human CD3, TotalSeq™-B0034 anti-human CD3, TotalSeq™-C0034 anti-human CD3, KIRAVIA Blue 520™ anti-human CD3, Spark Violet™ 538 anti-human CD3 Antibody, TotalSeq™-D0034 anti-human CD3, Spark Blue™ 574 anti-human CD3 Antibody, GMP Pacific Blue™ anti-human CD3, GMP PE anti-human CD3, GMP PE/Dazzle™ 594 anti-human CD3

Product Data



Human peripheral blood lymphocytes stained with purified UCHT1 and then detected with anti-mouse IgGs FITC



Human frozen spleen tissue slices were fixed with 4% PFA for ten minutes and blocked with 5% FBS for 30 minutes. Then, the tissue was stained with 10 µg/mL of purified anti-human CD3 antibody (clone UCHT1, red) overnight at 4°C. On the next day, tissue was incubated with Alexa Fluor® 594 Goat anti-mouse IgG (clone Poly4053, red). Nuclei were counter-stained with DAPI (blue). The image was scanned with a 10X objective and stitched with MetaMorph® software.

For research use only. Not for diagnostic use. Not for resale. BioLegend will not be held responsible for patent infringement or other violations that may occur with the use of our products.

*These products may be covered by one or more Limited Use Label Licenses (see the BioLegend Catalog or our website, www.biolegend.com/ordering#license). BioLegend products may not be transferred to third parties, resold, modified for resale, or used to manufacture commercial products, reverse engineer functionally similar materials, or to provide a service to third parties without written approval of BioLegend. By use of these products you accept the terms and conditions of all applicable Limited Use Label Licenses. Unless otherwise indicated, these products are for research use only and are not intended for human or animal diagnostic, therapeutic or commercial use.

BioLegend Inc., 8999 BioLegend Way, San Diego, CA 92121 www.biolegend.com
Toll-Free Phone: 1-877-Bio-Legend (246-5343) Phone: (858) 768-5800 Fax: (877) 455-9587