

Alexa Fluor® 647 anti-mouse CD3ε Antibody

Catalog# / Size	100324 / 25 µg 100322 / 100 µg
Clone	145-2C11
Regulatory Status	RUO
Other Names	CD3ε, T3, CD3
Isotype	Armenian Hamster IgG
Description	CD3ε is a 20 kD transmembrane protein, also known as CD3 or T3. It is a member of the Ig superfamily and primarily expressed on T cells, NK-T cells, and at different levels on thymocytes during T cell differentiation. CD3ε forms a TCR complex by associating with the CD3δ, γ and ζ chains, as well as the TCR α/β or γ/δ chains. CD3 plays a critical role in TCR signal transduction, T cell activation, and antigen recognition by binding the peptide/MHC antigen complex.

Product Details

Verified Reactivity	Mouse
Antibody Type	Monoclonal
Host Species	Armenian Hamster
Immunogen	H-2K ^b -specific mouse cytotoxic T lymphocyte clone BM10-37
Formulation	Phosphate-buffered solution, pH 7.2, containing 0.09% sodium azide.
Preparation	The antibody was purified by affinity chromatography and conjugated with Alexa Fluor® 647 under optimal conditions.
Concentration	0.5 mg/ml
Storage & Handling	The antibody solution should be stored undiluted between 2°C and 8°C, and protected from prolonged exposure to light. Do not freeze.
Application	FC - Quality tested IHC-F, 3D IHC - Verified
Recommended Usage	<p>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 on frozen tissue sections, a concentration range of 5.0 - 10.0 µg/ml is suggested. For 3D immunohistochemistry on formalin-fixed tissues, a concentration of 5.0 µg/mL is suggested. It is recommended that the reagent be titrated for optimal performance for each application.</p> <p>* Alexa Fluor® 647 has a maximum emission of 668 nm when it is excited at 633nm / 635nm.</p> <p>Alexa Fluor® and Pacific Blue™ are trademarks of Life Technologies Corporation.</p> <p>View full statement regarding label licenses</p>
Excitation Laser	Red Laser (633 nm)
Application Notes	Clone 145-2C11 is useful for <i>in vitro</i> blocking of target-specific CTL-mediated cell lysis ¹ , as well as T cell activation assays, inducing proliferation and cytokine production ^{1,2,7,12,16} . It also induces apoptosis in immature thymocytes ³² , and <i>in vivo</i> T cell depletion ⁸⁻¹⁰ . Additional reported applications (for relevant formats of this clone) include: immunoprecipitation ¹ , immunohistochemical staining ^{14,15} of acetone-fixed frozen sections and zinc-fixed paraffin-embedded sections, Western blotting ⁴ , complement-mediated cytotoxicity ⁶ , <i>in vitro</i> and <i>in vivo</i> stimulation of T cells ^{1,2,7,12,16} , immunofluorescent staining ⁵ , and <i>in vivo</i> T cell depletion ⁸⁻¹⁰ . The 145-2C11 antibody has been reported to block the binding of 17A2 antibody to CD3 epsilon-specific T cells ¹¹ . Clone 145-2C11 is not recommended for formalin-fixed paraffin embedded sections. The LEAF™ purified antibody (Endotoxin <0.1 EU/µg, Azide-Free, 0.2 µm filtered) is recommended for functional assays (Cat. No.

100314). For *in vivo* studies or highly sensitive assays, we recommend Ultra-LEAF™ purified antibody (Cat. No. 100340) with a lower endotoxin limit than standard LEAF™ purified antibodies (Endotoxin <0.01 EU/μg).

Application References

(PubMed link indicates BioLegend citation)

1. Leo O, *et al.* 1987. *P. Natl. Acad. Sci. USA* 84:1374. (IP, Activ, Block)
2. Kruisbeek AM, *et al.* 1991. *In Current Protocols in Immunology*. 3.12.1. (Activ)
3. Duke RC, *et al.* 1995. *Current Protocols in Immunology*. 3.17.1.
4. Salvadori S, *et al.* 1994. *J. Immunol.* 153:5176. (WB)
5. Payer E, *et al.* 1991. *J. Immunol.* 146:2536. (IF)
6. Jacobs H, *et al.* 1994. *Eur. J. Immunol.* 24:934. (CMCD)
7. Vossen ACTM, *et al.* 1995. *Eur. J. Immunol.* 25:1492. (Activ)
8. Henrickson M, *et al.* 1995. *Transplantation* 60:828. (Deplete)
9. Kinnaert P, *et al.* 1996. *Transpl. Int.* 9:386. (Deplete)
10. Han WR, *et al.* 1999. *Transpl. Immunol.* 7:207. (Deplete)
11. Miescher GC, *et al.* 1989. *Immunol. Lett.* 23:113. (Block)
12. Terrazas LI, *et al.* 2005. *Intl. J. Parasitology*. 35:1349. (Activ)
13. Ko SY, *et al.* 2005. *J. Immunol.* 175:3309.
14. Podd BS, *et al.* 2006. *J. Immunol.* 176:6532. (IHC-F)
15. Tilley SL, *et al.* 2007. *J. Immunol.* 178:3208. (IHC-F)
16. Wang W, *et al.* 2007. *J. Immunol.* 178:4885. (Activ)
17. Xiao S, *et al.* 2007. *J. Exp. Med.* 204:1691.
18. Chappaz S, *et al.* 2007. *Blood* doi:10.1182/blood-2007-02-074245. (FC) [PubMed](#).
19. Curtsinger JM, *et al.* 2005. *J. Immunol.* 175:4392. [PubMed](#)
20. Guo Y, *et al.* 2008. *Blood* 112:480. [PubMed](#)
21. Kenna TJ, *et al.* 2008. *Blood* 111:2091.
22. Perchonock CE, *et al.* 2007. *J. Immunol.* 179:1768. [PubMed](#)
23. Perchonock GE, *et al.* 2006. *Mol. Cell. Biol.* 26:6005. [PubMed](#)
24. Kanaya T, *et al.* 2008. *Am. J. Physiol. Gastrointest. Liver Physiol.* 295:G273. [PubMed](#)
25. de Koning BA, *et al.* 2006. *Int. Immunol.* 18:941. [PubMed](#)
26. Schulteis RD, *et al.* 2008. *Blood* 295:G273. [PubMed](#)
27. Qi Q, *et al.* 2009. *Blood* 114:564. [PubMed](#)
28. Helmersson S, *et al.* 2013. *Am J Pathol.* 9440:123. [PubMed](#)
29. Wu S, *et al.* 2014. *Clin Vaccine Immunol.* 21:156. [PubMed](#)
30. Yan J, *et al.* 2014. *Vaccine.* 32:2833. [PubMed](#)
31. Guiterrez DA, *et al.* 2014. *Diabetes.* 63:3827. [PubMed](#)
32. Shi YF, *et al.* 1991. *J Immunol.* 146:3340. (Apop)

Product Citations

1. Tran NT, *et al.* 2019. *Cell Rep.* 28:3510. [PubMed](#)
2. Periasamy S, *et al.* 2017. *Nat Commun.* 8:15564. [PubMed](#)
3. Rattan A, *et al.* 2017. *PLoS Pathog.* 13:e1006248. [PubMed](#)
4. She L, *et al.* 2021. *JCI Insight.* 6:e143509. [PubMed](#)
5. Ly A, *et al.* 2020. *Cell Reports.* 29(8):2257-2269.e6. [PubMed](#)
6. Zhong W, *et al.* 2022. *Nat Commun.* 13:4390. [PubMed](#)
7. Werbner M, *et al.* 2019. *mSystems.* 4:e00292-18. [PubMed](#)
8. Titelbaum M, *et al.* 2021. *iScience.* 24:103093. [PubMed](#)
9. She L, *et al.* 2020. *PLoS One.* 15:e0236744. [PubMed](#)
10. Balzano M *et al.* 2019. *Cell reports.* 26(12):3257-3271. [PubMed](#)
11. Dholakia J, *et al.* 2022. *Gynecol Oncol.* 164:170. [PubMed](#)
12. Isvoranu G, *et al.* 2019. *Oncol Lett.* 17:4197. [PubMed](#)
13. Hendrikx S *et al.* 2019. *Cell reports.* 26(5):1227-1241. [PubMed](#)
14. Terlizzi M, *et al.* 2021. *Cell Physiol Biochem.* 55:539. [PubMed](#)
15. Tsai S, *et al.* 2018. *Cell Metab.* 28:922. [PubMed](#)

RRID

AB_492861 (BioLegend Cat. No. 100324)
AB_389322 (BioLegend Cat. No. 100322)

Antigen Details

Structure	Ig superfamily, forms CD3/TCR complex with CD3 δ , γ and ζ subunits and TCR (α/β and γ/δ), 20 kD
Distribution	Thymocytes (differentiation dependent), mature T cells, NK-T cells
Function	TCR signal transduction, T cell activation, antigen recognition
Ligand/Receptor	Peptide antigen/MHC-complex
Cell Type	NKT cells, T cells, Thymocytes, Tregs
Biology Area	Immunology
Molecular Family	CD Molecules, TCRs
Antigen References	1. Barclay A, <i>et al.</i> 1997. <i>The Leukocyte Antigen FactsBook</i> Academic Press. 2. Davis MM. 1990. <i>Annu. Rev. Biochem.</i> 59:475.

Gene ID [12501](#)

Related Protocols

[Immunohistochemistry Protocol for Frozen Sections](#)

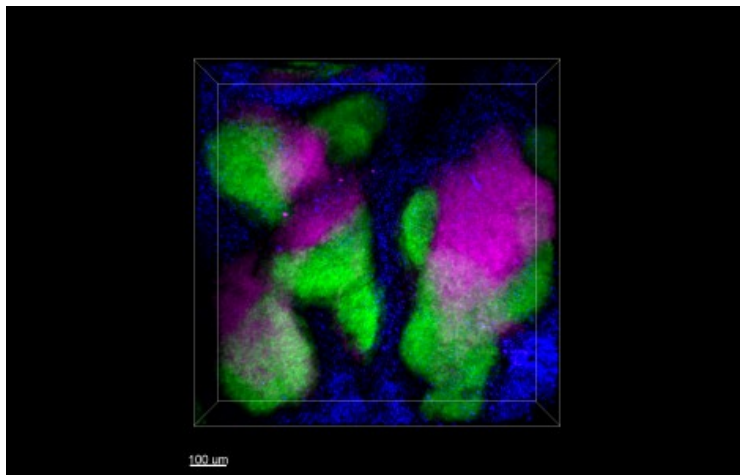
[Cell Surface Flow Cytometry Staining Protocol](#)

[Ce3D™ Tissue Clearing Kit](#)

Other Formats

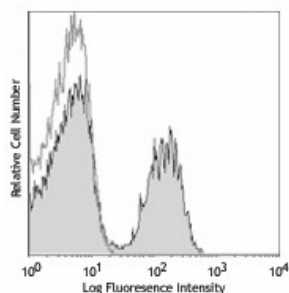
APC anti-mouse CD3ε, Biotin anti-mouse CD3ε, FITC anti-mouse CD3ε, PE anti-mouse CD3ε, PE/Cyanine5 anti-mouse CD3ε, Purified anti-mouse CD3ε, PE/Cyanine7 anti-mouse CD3ε, Alexa Fluor® 488 anti-mouse CD3ε, Alexa Fluor® 647 anti-mouse CD3ε, PerCP anti-mouse CD3ε, PerCP/Cyanine5.5 anti-mouse CD3ε, Purified anti-mouse CD3ε (Maxpar® Ready), APC/Cyanine7 anti-mouse CD3ε, Pacific Blue™ anti-mouse CD3ε, Brilliant Violet 421™ anti-mouse CD3ε, Ultra-LEAF™ Purified anti-mouse CD3ε, PE/Dazzle™ 594 anti-mouse CD3ε, Brilliant Violet 510™ anti-mouse CD3ε, Brilliant Violet 605™ anti-mouse CD3ε, Brilliant Violet 711™ anti-mouse CD3ε, Brilliant Violet 785™ anti-mouse CD3ε, APC/Fire™ 750 anti-mouse CD3ε, GolnVivo™ Purified anti-mouse CD3ε, Spark YG™ 593 anti-mouse CD3

Product Data

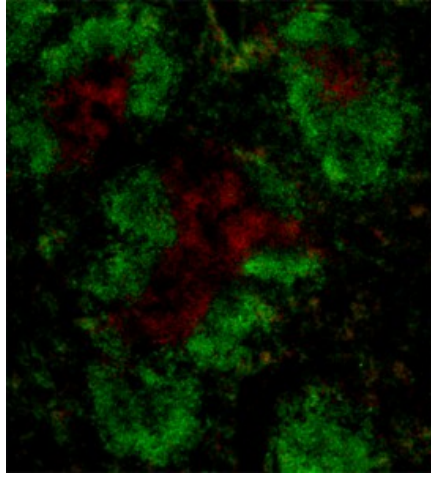


Paraformaldehyde-fixed (4%), 500 μm-thick mouse spleen section was processed according to the Ce3DTM Tissue Clearing Kit protocol (cat. no. 427701). The section was costained with anti-mouse/human CD45R/B220 Antibody (clone RA3-6B2) Alexa Fluor® 488 at 5 μg/mL (green), anti-mouse CD68 Antibody (clone FA-11) Alexa Fluor® 594 at 5 μg/mL (blue), and anti-mouse CD3ε Antibody (clone 145-2C11) Alexa Fluor® 647 at 5 μg/mL (magenta). The section was then optically cleared and mounted in a sample chamber. The image was captured with a 10X objective using Zeiss 780 confocal microscope and processed by Imaris image analysis software.

[Watch the video.](#)



C57BL/6 mouse splenocytes were stained with CD3ε (clone 145-2C11) Alexa Fluor® 647 (filled histogram) or Armenian hamster IgG Alexa Fluor® 647 isotype control (open histogram).



C57BL/6 mouse frozen spleen section was fixed with 4% paraformaldehyde (PFA) for 10 minutes at room temperature and blocked with 5% FBS for 30 minutes at room temperature. Then the section was stained with 10 µg/ml of CD3ε (clone 145-2c11) Alexa Fluor® 647 (red), and B220 (clone RA3-6B2) Alexa Fluor® 488 (green) overnight at 4°C. The image was captured by 10X objective.

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