

Brilliant Violet 421™ anti-T-bet Antibody

Catalog# / Size	644815 / 125 µL 644832 / 50 µg 644816 / 500 µL
Clone	4B10
Regulatory Status	RUO
Other Names	T-box expressed in T cells, T box 21, TBLYM
Isotype	Mouse IgG1, κ
Description	T-bet, also known as T-box transcription factor T-bet, is considered to be a "master regulator" of Th1 lymphoid development controlling the production of the cytokine IFN-γ. T-bet is widely expressed in hematopoietic cells including stem cells, NK cells, B cells, and T cells. T-bet is critical for the control of microbial pathogens, and knockout animals show multiple physiologic and inflammatory features characteristic of asthma. T-bet expression is optimally observed after IL-12 stimulation and can be suppressed by addition of the Th2 cytokine IL-4 or neutralization of IL-12.

Product Details

Verified Reactivity	Human, Mouse
Antibody Type	Monoclonal
Host Species	Mouse
Formulation	Phosphate-buffered solution, pH 7.2, containing 0.09% sodium azide and BSA (origin USA).
Preparation	The antibody was purified by affinity chromatography and conjugated with Brilliant Violet 421™ under optimal conditions.
Concentration	µg size: 0.2 mg/mL µL size: lot-specific (to obtain lot-specific concentration, please enter the lot number in our Concentration and Expiration Lookup or Certificate of Analysis online tools.)
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	ICFC - Quality tested
Recommended Usage	<p>Each lot of this antibody is quality control tested by intracellular immunofluorescent staining using our True-Nuclear™ Transcription Factor Staining Protocol. For flow cytometric staining using the µL size, the suggested use of this reagent is 5 µl per million cells in 100 µl staining volume or 5 µl per 100 µl of whole blood. For flow cytometric staining using the µg size, the suggested use of this reagent is ≤ 0.4 µg per million cells in 100 µl volume. It is recommended that the reagent be titrated for optimal performance for each application.</p> <p>Brilliant Violet 421™ excites at 405 nm and emits at 421 nm. The standard bandpass filter 450/50 nm is recommended for detection. Brilliant Violet 421™ is a trademark of Sirigen Group Ltd.</p> <p>Learn more about Brilliant Violet™.</p> <p>This product is subject to proprietary rights of Sirigen Inc. and is made and sold under license from Sirigen Inc. The purchase of this product conveys to the buyer a non-transferable right to use the purchased product for research purposes only. This product may not be resold or incorporated in any manner into another product for resale. Any use for therapeutics or diagnostics is strictly prohibited. This product is covered by U.S. Patent(s), pending patent applications and foreign equivalents.</p>
Excitation Laser	Violet Laser (405 nm)
Application Notes	Additional reported applications (for the relevant formats) include: immunoprecipitation ² and immunofluorescence microscopy ³ .

NOTE: For flow cytometric staining with this clone, True-Nuclear™ Transcription Factor Buffer Set (Cat. No. [424401](#)) offers improved staining and is highly recommended over the Foxp3 Fix/Perm Buffer Set (Cat. No. 421403) and the Nuclear Factor Fixation and Permeabilization Buffer Set (Cat. No. 422601).

Application References

(PubMed link indicates BioLegend citation)

1. Szabo SJ, *et al.* 2000. *Cell* 100:655. (ICFC, WB)
2. Hwang ES, *et al.* 2005. *J. Exp. Med.* 202:1289. (ICFC, WB, IP)
3. Neurath MF, *et al.* 2002. *J. Exp. Med.* 195:1129. (IF)
4. Hsieh CY, *et al.* 2012. *J Pharmacol Exp.* 343:125. [PubMed](#).

Product Citations

1. Harsha Krovi S, *et al.* 2020. *Nat Commun.* 4.790277778. [PubMed](#)
2. Wragg KM, *et al.* 2020. *Cell Reports.* 31(11):107773. [PubMed](#)
3. Han SJ *et al.* 2017. *Immunity.* 47(6):1154-1168 . [PubMed](#)
4. Gerber AN, *et al.* 2021. *Cell Rep.* 37:109816. [PubMed](#)
5. Otano I, *et al.* 2021. *Nat Commun.* 12:7296. [PubMed](#)
6. Saleh MM, *et al.* 2019. *Cell Host Microbe.* 25:756. [PubMed](#)
7. McLane LM, *et al.* 2021. *Cell Reports.* 35(6):109120. [PubMed](#)
8. Clement M, *et al.* 2016. *PLoS Pathog.* 12:e1006050. [PubMed](#)
9. Aalderen M, *et al.* 2015. *J Virol.* 89:5110. [PubMed](#)
10. Yasuoka T, *et al.* 2016. *PLoS One.* 11: 0157395. [PubMed](#)
11. Wang HQ, *et al.* 2021. *Cancer Research.* 81(11):3079-3091. [PubMed](#)
12. Glaubitz J, *et al.* 2022. *Nat Commun.* 13:4502. [PubMed](#)
13. Proding J, *et al.* 2016. *J Leukoc Biol.* 99: 583-594. [PubMed](#)
14. Marquardt N, *et al.* 2019. *Nat Commun.* 10:3841. [PubMed](#)
15. Rodda LB, *et al.* 2020. *Cell.* 184(1):169-183.e17. [PubMed](#)
16. Singh PP, *et al.* 2021. *Ocul Surf.* 21:271. [PubMed](#)
17. Linehan JL *et al.* 2018. *Cell.* 172(4):784-796 . [PubMed](#)
18. Darragh LB, *et al.* 2022. *Nat Commun.* 13:7015. [PubMed](#)
19. Alhaj Hussien K, *et al.* 2017. *Immunity.* 47:680. [PubMed](#)
20. Lorentsen KJ, *et al.* 2018. *Nat Commun.* 9:1679. [PubMed](#)
21. Schaik B, *et al.* 2015. *J Virol.* 89:568. [PubMed](#)
22. Sandler M, *et al.* 2020. *Gastroenterology.* 158:253. [PubMed](#)
23. Ganguly S, *et al.* 2021. *Cell Mol Gastroenterol Hepatol.* 12:891. [PubMed](#)
24. Hombrink P, *et al.* 2016. *Nat Immunol.* 17:1467-1478. [PubMed](#)
25. Toshiro Hirai *et al.* 2019. *Immunity.* 50(5):1249-1261 . [PubMed](#)
26. Phalke SP, *et al.* 2019. *PLoS One.* 14:e0218827. [PubMed](#)
27. Roybal KT *et al.* 2016. *Cell.* 167(2):419-432 . [PubMed](#)
28. Clancy-Thompson E, *et al.* 2019. *EMBO J.* 38:e101260. [PubMed](#)
29. Cheng J, *et al.* 2022. *iScience.* 25:103588. [PubMed](#)
30. Collins N, *et al.* 2020. *Cell.* 178(5):1088-1101.e15.. [PubMed](#)
31. Berrien-Elliott MM, *et al.* 2020. *Immunity.* 51(3):479-490. [PubMed](#)
32. Di Pilato M, *et al.* 2021. *Cell.* 184(17):4512-4530.e22. [PubMed](#)
33. Chao JL, *et al.* 2021. *Cell Rep Med.* 2:100399. [PubMed](#)
34. Aalderen M, *et al.* 2013. *J Virol.* 87:10263. [PubMed](#)
35. Hirota K *et al.* 2018. *Immunity.* 48(6):1220-1232 . [PubMed](#)
36. Goc J, *et al.* 2021. *Cell.* .: [PubMed](#)
37. Schreurs RRCE, *et al.* 2019. *Immunity.* 50:462. [PubMed](#)
38. Shao TY *et al.* 2019. *Cell host & microbe.* 25(3):404-417 . [PubMed](#)
39. Song W, *et al.* 2022. *Immunity.* 55:290. [PubMed](#)

RRID

AB_10896427 (BioLegend Cat. No. 644815)
AB_2686976 (BioLegend Cat. No. 644832)
AB_10959653 (BioLegend Cat. No. 644816)

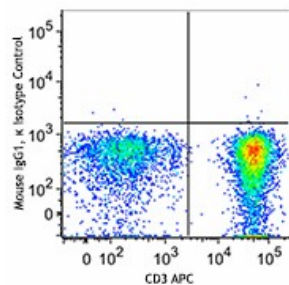
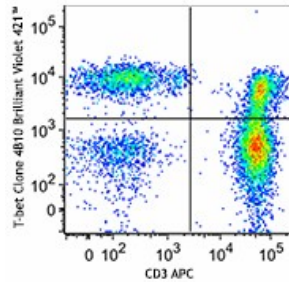
Antigen Details

Structure	T-box transcription factor, approximately 58 kD.
Distribution	Nuclear; expressed in T cells, hematopoietic stem cells, NK cells, B cells, lung, spleen.
Function	Th1-specific T-box transcription factor controlling expression of the hallmark Th1 cytokine, interferon gamma (IFN- γ). T-bet expression is critical for the control of microbial pathogens.
Cell Type	B cells, Hematopoietic stem and progenitors, NK cells, T cells, Tregs
Biology Area	Cell Biology, Immunology, Transcription Factors
Molecular Family	Nuclear Markers
Antigen References	<ol style="list-style-type: none">1. Szabo SJ, <i>et al.</i> 2000. <i>Cell</i> 100:655.2. Szabo SJ, <i>et al.</i> 2002. <i>Science</i> 295:338.3. Finotto S, <i>et al.</i> 2002. <i>Science</i> 295:336.4. Mullen AC, <i>et al.</i> 2001. <i>Science</i> 292:1907.
Gene ID	30009

Other Formats

APC anti-T-bet, Purified anti-T-bet, Alexa Fluor® 647 anti-T-bet, PerCP/Cyanine5.5 anti-T-bet, Pacific Blue™ anti-T-bet, PE anti-T-bet, Brilliant Violet 711™ anti-T-bet, FITC anti-T-bet, Brilliant Violet 421™ anti-T-bet, Brilliant Violet 605™ anti-T-bet, PE/Cyanine7 anti-T-bet, PE/Dazzle™ 594 anti-T-bet, Purified anti-T-bet (Maxpar® Ready), Alexa Fluor® 488 anti-T-bet, Direct-Blot™ HRP anti-T-bet, Brilliant Violet 785™ anti-T-bet, Alexa Fluor® 594 anti-T-bet, KIRAVIA Blue 520™ anti-T-bet

Product Data



Human peripheral blood lymphocytes were surface stained with CD3 APC and then treated with True-Nuclear™ Transcription Factor Buffer Set (Cat# 424401). Cells were then stained with T-bet (clone 4B10) Brilliant Violet 421™ (top) or mouse IgG1, κ Brilliant Violet 421™ isotype control (bottom).

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