

APC anti-human CD137 (4-1BB) Antibody

Catalog# / Size	309809 / 25 tests 309810 / 100 tests
Clone	4B4-1
Regulatory Status	RUO
Workshop	VI C-7
Other Names	4-1BB, ILA, CD137, TNFRSF9
Isotype	Mouse IgG1, κ
Description	CD137 is a 39 kD transmembrane protein also known as 4-1BB. It is expressed on activated T cells. CD137 is a type I membrane protein and a member of the tumor necrosis factor receptor superfamily. CD137 appears to be important for T cell proliferation and survival, and induces monocyte activation through its interaction with 4-1BB ligand.

Product Details

Verified Reactivity	Human
Reported Reactivity	Chimpanzee, Baboon, Cynomolgus, Rhesus
Antibody Type	Monoclonal
Host Species	Mouse
Immunogen	Ectodomain of recombinant human 4-1BB fusion protein
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 APC under optimal conditions.
Concentration	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	FC - Quality tested
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 5 µl per million cells in 100 µl staining volume or 5 µl per 100 µl of whole blood.
Excitation Laser	Red Laser (633 nm)
Application Notes	Additional reported applications (for the relevant formats) include: immunoprecipitation ^{1,4} , inhibition of cytokine production ^{2,3} , and ELISA. For most successful immunofluorescent staining results, it may be important to maximize signal over background by using a relatively bright fluorochrome-antibody conjugate (Cat. No. 309804) or by using a high sensitivity, three-layer staining technique (e.g., including a biotinylated anti-mouse IgG second step (Cat. No. 405303), followed by Streptavidin-PE (Cat. No. 405204)).

Application References

(PubMed link indicates BioLegend citation)

1. Garni-Wagner B, *et al.* 1996. *Cell. Immunol.* 169:91. (IP)
2. Salih HR, *et al.* 2000. *J. Immunol.* 165:2903. (FA)
3. Kienzle G, *et al.* 2000. *Int. Immunol.* 12:73. (FA)
4. Langstein J, *et al.* 1998. *J. Immunol.* 160:2488. (IP)

Product Citations

1. Apostolidis SA, *et al.* 2021. *Nat Med.* 27:1990. [PubMed](#)
2. Nielsen MA, *et al.* 2022. *Front Immunol.* 13:915890. [PubMed](#)
3. Tarke A, *et al.* 2021. *Cell Reports Medicine.* 2(2):100204. [PubMed](#)

4. Luo X, *et al.* 2020. *Front Immunol.* 11:623. [PubMed](#)
5. Kimura I, *et al.* 2022. *Cell Rep.* 38:110218. [PubMed](#)
6. Stevenson EM, *et al.* 2022. *Nat Commun.* 13:4888. [PubMed](#)
7. van der Ploeg K, *et al.* 2022. *Cell Rep Med.* 3:100640. [PubMed](#)
8. Grifoni A, *et al.* 2020. *J Virol.* 94:00:00. [PubMed](#)
9. Qiu C, *et al.* 2022. *Front Immunol.* 12:764949. [PubMed](#)
10. Yarmarkovich M, *et al.* 2021. *Nature.* 599:477. [PubMed](#)
11. You M, *et al.* 2021. *Nat Cell Biol.* 23:620. [PubMed](#)
12. Painter MM, *et al.* 2021. *Immunity.* 54:2133. [PubMed](#)
13. Zhang J, *et al.* 2022. *Nature.* 609:369. [PubMed](#)
14. Fujigaki J, *et al.* 2015. *PLoS One.* 10: 0132521. [PubMed](#)
15. Tarke A, *et al.* 2021. *Cell Reports Medicine.* 2(7):100355. [PubMed](#)
16. Grifoni A, *et al.* 2020. *Cell.* 181(7):1489-1501.e15.. [PubMed](#)
17. Tarke A, *et al.* 2022. *Cell.* 185:847. [PubMed](#)
18. Ohue Y, *et al.* 2014. *Clin Cancer Res.* 20:5052. [PubMed](#)
19. Valenzuela NM, *et al.* 2021. *Front Immunol.* 12:648946. [PubMed](#)
20. Peluso MJ, *et al.* 2021. *Cell Rep.* 36:109518. [PubMed](#)
21. Voic H, *et al.* 2020. *J Virol.* 94: . [PubMed](#)
22. Kishton RJ, *et al.* 2022. *Cell Rep.* 40:111153. [PubMed](#)
23. Yu ED, *et al.* 2022. *Cell Host Microbe.* 30:1269. [PubMed](#)
24. Martin SD, *et al.* 2018. *Oncoimmunology.* 7:e1371895. [PubMed](#)
25. Cirelli KM *et al.* 2019. *Cell.* 177(5):1153-1171 . [PubMed](#)
26. Tarke A, *et al.* 2022. *Int J Mol Sci.* 23:. [PubMed](#)
27. Mo F, *et al.* 2021. *Nat Biotechnol.* 56:39. [PubMed](#)
28. Pahl JHW, *et al.* 2018. *Cancer Immunol Res.* 0.609027778. [PubMed](#)
29. Lederer K, *et al.* 2022. *Cell.* . [PubMed](#)
30. Schouest B, *et al.* 2021. *J Virol.* 95:. [PubMed](#)
31. Motozono C, *et al.* 2021. *Cell Host Microbe.* . [PubMed](#)
32. Eriksen LL, *et al.* 2021. *PLoS One.* 16:e0255574. [PubMed](#)
33. Reitingger C, *et al.* 2022. *Front Immunol.* 13:970290. [PubMed](#)
34. Yu ED, *et al.* 2022. *Cell Host Microbe.* . [PubMed](#)
35. Nuffel A, *et al.* 2012. *J Immunol Methods.* 377:23. [PubMed](#)
36. Nesterenko PA, *et al.* 2021. *Proc Natl Acad Sci U S A.* 118:. [PubMed](#)

RRID AB_830671 (BioLegend Cat. No. 309809)
 AB_830672 (BioLegend Cat. No. 309810)

Antigen Details

Structure	TNFR superfamily, type I transmembrane protein, 30 kD
Distribution	Activated T cells
Function	T cell costimulation
Ligand/Receptor	4-1BB ligand
Cell Type	T cells
Biology Area	Costimulatory Molecules, Immunology
Molecular Family	CD Molecules
Antigen References	<ol style="list-style-type: none"> 1. Gruss H, <i>et al.</i> 1995. <i>Blood</i> 85:3378. 2. Sica G, <i>et al.</i> 2000. <i>Adv. Exp. Med. Biol.</i> 465:355. 3. Alderson M, <i>et al.</i> 1994. <i>Eur. J. Immunol.</i> 24:2219. 4. Schwarz H, <i>et al.</i> 1996. <i>Blood</i> 87:2839.
Gene ID	3604

Related Protocols

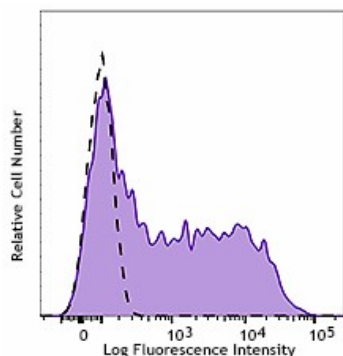
[Cell Surface Flow Cytometry Staining Protocol](#)

Other Formats

Purified anti-human CD137 (4-1BB), PE anti-human CD137 (4-1BB), Biotin anti-human CD137 (4-1BB), PE/Cyanine5 anti-human CD137 (4-1BB), APC anti-human CD137 (4-1BB), PerCP/Cyanine5.5 anti-human CD137 (4-1BB), Alexa Fluor® 700 anti-human

CD137 (4-1BB), PE/Cyanine7 anti-human CD137 (4-1BB), Brilliant Violet 421™ anti-human CD137 (4-1BB), APC/Cyanine7 anti-human CD137 (4-1BB), Brilliant Violet 605™ anti-human CD137 (4-1BB), Alexa Fluor® 647 anti-human CD137 (4-1BB), PE/Dazzle™ 594 anti-human CD137 (4-1BB), Brilliant Violet 650™ anti-human CD137 (4-1BB), Brilliant Violet 711™ anti-human CD137 (4-1BB), APC/Fire™ 750 anti-human CD137 (4-1BB), TotalSeq™-A0355 anti-human CD137 (4-1BB), TotalSeq™-B0355 anti-human CD137 (4-1BB), TotalSeq™-C0355 anti-human CD137 (4-1BB), Ultra-LEAF™ Purified anti-human CD137 (4-1BB), Brilliant Violet 750™ anti-human CD137 (4-1BB), TotalSeq™-D0355 anti-human CD137 (4-1BB)

Product Data



PHA-stimulated (3 days) human peripheral blood mononuclear cells stained with CD137 (clone 4B4-1) APC (filled histogram) or mouse IgG1, κ APC isotype control (open histogram).

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