

## Biotin anti-mouse CD28 Antibody

<b>Catalog# / Size</b>	102103 / 50 µg 102104 / 500 µg
<b>Clone</b>	37.51
<b>Regulatory Status</b>	RUO
<b>Other Names</b>	Tp44, T44
<b>Isotype</b>	Syrian Hamster IgG
<b>Description</b>	CD28 is a 44 kD glycoprotein, also known as Tp44 or T44. It is a member of the Ig superfamily, expressed on thymocytes, most peripheral T cells, and NK cells. In association with CD80 (B7-1) and CD86 (B7-2), CD28 acts as the second signal for T and NK cell activation and proliferation. The 37.51 antibody has been reported to augment <i>in vitro</i> T cell proliferation and cytokine production, and promote CTL development.

### Product Details

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<b>Verified Reactivity</b>	Mouse
<b>Antibody Type</b>	Monoclonal
<b>Host Species</b>	Syrian Hamster
<b>Immunogen</b>	C57BL/6 mouse T-cell lymphoma EL-4
<b>Formulation</b>	Phosphate-buffered solution, pH 7.2, containing 0.09% sodium azide.
<b>Preparation</b>	The antibody was purified by affinity chromatography, and conjugated with biotin under optimal conditions.
<b>Concentration</b>	0.5 mg/ml
<b>Storage &amp; Handling</b>	The antibody solution should be stored undiluted between 2°C and 8°C. <b>Do not freeze.</b>
<b>Application</b>	<a href="#">FC - Quality tested</a>
<b>Recommended Usage</b>	Each lot of this antibody is quality control tested by <a href="#">immunofluorescent staining with flow cytometric analysis</a> . For flow cytometric staining, the suggested use of this reagent is ≤1.0 µg per million cells in 100 µl volume. It is recommended that the reagent be titrated for optimal performance for each application.
<b>Application Notes</b>	Additional reported applications (for the relevant formats) include: immunoprecipitation <sup>1</sup> , <i>in vitro</i> costimulation of T and NK cells <sup>1</sup> , <i>in vitro</i> blocking of allogeneic mixed leukocyte response and inhibition of MHC-unrestricted CTL cytotoxicity <sup>3,4</sup> , <i>in vitro</i> induction of thymocyte differentiation <sup>2,5-9,11</sup> , and immunohistochemical staining of acetone-fixed frozen sections. For <i>in vivo</i> studies or highly sensitive assays, we recommend Ultra-LEAF™ purified antibody (Endotoxin < 0.01 EU/µg, Azide-Free, 0.2 µm filtered) (Cat. No. 102116).

### Application References

(PubMed link indicates BioLegend citation)

- Gross JA, *et al.* 1992. *J. Immunol.* 149:380. (IP, Costim)
- Cibotti R, *et al.* 1997. *Immunity* 6:245. (Costim)
- Masten BJ, *et al.* 1997. *Am. J. Respir. Cell Mol. Biol.* 16:335. (Block)
- Nishio M, *et al.* 1996. *J. Immunol.* 157:4347. (Block)
- Zhang N and He Y-W, 2005. *J. Exp. Med.* 202:395. (Costim)
- Terrazas LI, *et al.* 2005. *Intl. J. Parasitology.* 35:1349. (Costim)
- Perchonock CE, *et al.* 2006. *Mol Cell Biol.* 26(16):6005. (Costim)
- Wang W, *et al.* 2007. *J. Immunol.* 178:4885. (Costim)
- Pua HH, *et al.* 2007. *J. Exp. Med.* 204:25. (Costim)
- Perchonock CE, *et al.* 2007. *J. Immunol.* 179:1768.
- Barbi J, *et al.* 2007. *Blood* 110:2215.
- Milpied P, *et al.* 2011. *Blood* 118:2993. [PubMed](#)
- Cunningham NR, *et al.* 2011. *Int Immunol.* 23:693. [PubMed](#)
- Crispin JC, *et al.* 2012. *J. Immunol.* 188:3567. [PubMed](#)
- Li CR, *et al.* 2014. *J Immunol.* 192:1425. [PubMed](#)

## Product Citations

1. Pearce V, *et al.* 2015. *J Immunol.* 195: 3206 - 3217. [PubMed](#)
2. Hu K, Butte M 2016. *J Cell Biol.* 213: 535 - 542. [PubMed](#)
3. Timilshina M, *et al.* 2020. *Cell Reports.* 27(10):2948-2961.e7.. [PubMed](#)
4. Yoshida H, *et al.* 2019. *Cell.* 176:897. [PubMed](#)

## RRID

AB\_312868 (BioLegend Cat. No. 102103)  
AB\_312869 (BioLegend Cat. No. 102104)

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## Antigen Details

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<b>Structure</b>	Ig superfamily, 44 kD
<b>Distribution</b>	Thymocytes, CD4 <sup>+</sup> , CD8 <sup>+</sup> peripheral T cells, NK cells
<b>Function</b>	Costimulates T and NK cells
<b>Ligand/Receptor</b>	CD80 (B7-1), CD86 (B7-2)
<b>Cell Type</b>	NK cells, T cells, Thymocytes, Tregs
<b>Biology Area</b>	Costimulatory Molecules, Immunology
<b>Molecular Family</b>	CD Molecules
<b>Antigen References</b>	<ol style="list-style-type: none"><li>1. Barclay AN, <i>et al.</i> 1997. <i>The Leukocyte Antigen FactsBook</i> Academic Press.</li><li>2. Lenschow DJ, <i>et al.</i> 1996. <i>Annu. Rev. Immunol.</i> 14:233.</li><li>3. Gross JA, <i>et al.</i> 1992. <i>J. Immunol.</i> 149:380.</li></ol>
<b>Gene ID</b>	<a href="#">12487</a>

## Related Protocols

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[Cell Surface Flow Cytometry Staining Protocol](#)

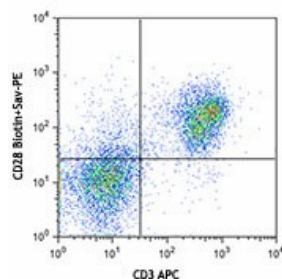
## Other Formats

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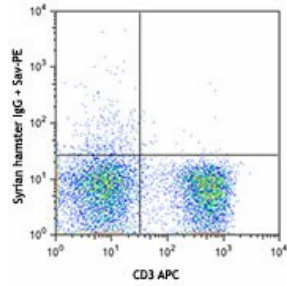
APC anti-mouse CD28, Biotin anti-mouse CD28, PE anti-mouse CD28, PE/Cyanine5 anti-mouse CD28, Purified anti-mouse CD28, PerCP/Cyanine5.5 anti-mouse CD28, Ultra-LEAF™ Purified anti-mouse CD28, Purified anti-mouse CD28 (Maxpar® Ready), PE/Cyanine7 anti-mouse CD28, PE/Dazzle™ 594 anti-mouse CD28, Brilliant Violet 421™ anti-mouse CD28, TotalSeq™-C0204 anti-mouse CD28, KIRAVIA Blue 520™ anti-mouse CD28

## Product Data

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C57BL/6 mouse splenocytes were stained with CD3 APC and Biotinylated CD28 (clone 37.51) (top) or Syrian Hamster IgG isotype control (bottom), followed by Sav-PE (bottom).



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