



CD28 antibodies – functional grade human

CD28-Biotin
CD28 pure

130-093-386
130-093-375

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1. Description

Components	100 µg in 1 mL CD28-Biotin – functional grade, human: monoclonal CD28 antibody conjugated to biotin or 100 µg in 1 mL CD28 pure – functional grade, human.
Clone	15E8 (isotype: mouse IgG1).
Product format	Antibodies are supplied in phosphate-buffered saline (PBS), pH 7.2. Endotoxin levels have been tested and do not exceed 0.01 ng/µg of protein.
Storage	Store protected from light at 2–8 °C. Do not freeze. The expiration date is indicated on the vial label.

This product contains no preservative and is sterile filtered; always handle under aseptic conditions.

1.1 Background information

CD28 (formerly Tp44) is a type I transmembrane protein belonging to the Ig receptor superfamily. CD28 is found on most CD4⁺ T cells, many CD8⁺ T cells, and on activated malignant plasma cells (myeloma cells).^{1–3} CD28 is expressed on naive and memory T cells but is downregulated at late stages of terminal effector T cell differentiation.

Ligation of CD28 with CD80 (B7-1) or CD86 (B7-2) on target cells provides a critical costimulatory signal for T cell activation.⁴ Blockade of CD28-B7 interaction leads to an inhibition of immune responses both *in vivo* and *in vitro*.⁵ T cell stimulation can also be achieved artificially with CD28 antibodies.⁶

1.2 Applications

- *In vitro* T cell activation and expansion in combination with CD2 or CD3 antibodies. T cells can be isolated, for example, by using CD4 MicroBeads (# 130-045-101) or the CD4⁺ T Cell Isolation Kit II (# 130-091-155).
- T cell activation and expansion by using CD28-Biotin – functional grade in combination with CD2-Biotin – functional grade

(# 130-093-376), CD3-Biotin (# 130-093-377), and Anti-Biotin MACSiBead™ Particles, cell culture grade (# 130-092-357).⁷

1.3 Cross-reactivity

- The CD28 antibody is tested to react with rhesus monkey (*Macaca mulatta*) and cynomolgus monkey (*Macaca fascicularis*) cells.

1.4 Reagent requirements

- (Optional) CD2-Biotin – functional grade (# 130-093-376), CD3 pure – functional grade (# 130-093-387), or CD3-Biotin – functional grade (# 130-093-377) for T cell activation and expansion.
- (Optional) Anti-Biotin MACSiBead Particles, cell culture grade (# 130-092-357).

2. References

1. June, C. H. *et al.* (1990) Role of the CD28 receptor in T-cell activation. *Immunol. Today* 11: 211–216.
2. Kozbor, D. J. *et al.* (1987) Tp44 molecules involved in antigen-independent T cell activation are expressed on human plasma cells. *J. Immunol.* 138: 4128–4132.
3. Bahlis, N. J. *et al.* (2007) CD28-mediated regulation of multiple myeloma cell proliferation and survival. *Blood E-publication ahead of print.*
4. Freeman, G. J. *et al.* (1993) Cloning of B7-2: a CTLA-4 counter-receptor that costimulates human T cell proliferation. *Science* 262: 909–911.
5. Linsley, P. S. and Ledbetter, J. A. (1993) The role of the CD28 receptor during T cell responses to antigen. *Annu. Rev. Immunol.* 11: 191–212.
6. Krummel, M. F. and Allison, J. P. (1995) CD28 and CTLA-4 have opposing effects on the response of T cells to stimulation. *J. Exp. Med.* 182: 459–465.
7. Lecureuil, C. *et al.* (2007) Trapping and apoptosis of novel subsets of memory T lymphocytes expressing CCR6 in the spleen of HIV-infected patients. *Blood* 109: 3649–3657.

All protocols and data sheets are available at www.miltenyibiotec.com.

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140-002-152/02

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