CD28 antibodies – functional grade
human

CD28-Biotin	130-093-386
CD28 pure	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

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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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