

Monoclonal Antibody CD28

PN IM1376 – Purified – Freeze-dried – 0.2 mg – Clone CD28.2

For Research Use Only. Not for use in diagnostic procedures.

SPECIFICITY

The CD28 antigen (Tp44) is a homodimeric, disulfide-linked, type 1 transmembrane protein; the monomer is 202 amino acid-long, with a molecular weight of 44 kDa (1, 2). The extracellular region, homologous to an Ig V-like domain, shares significant amino acid sequence with the CD152 antigen (CTLA-4) (3).

The CD28 antigen is involved in the adhesion of T lymphocytes with B lymphocytes through the B7-1/BB-1 (CD80) and B7-2/B70 (CD86) glycoproteins and provides a major co-stimulatory signal for T cell activation, proliferation and cytokine production.

The CD28 receptor can enhance T cell antigen receptor (TCR) signals, as well as deliver independent signals. Although the signals through CD28 are crucial for the initial co-stimulation of interleukin-2 (IL-2) production (4), a TCR-independent CD28 signal leads to the selective transcription of survival (Bcl-x_L) and inflammatory (IL-8 and B cell activation factor), but not proliferative (IL-2), genes, in a NF-κB-dependent manner (5).

CD4⁺ T lymphocytes express CD28 more frequently than CD8⁺ T lymphocytes do (1, 6). The CD28 antigen is also present on plasma cells and thymocytes.

Studies report that mouse dendritic cells can be induced by soluble CD28 to express interleukin-6 and interferon-γ (7).

The CD28.2 monoclonal antibody costimulates T-cell proliferation and cytokine production in the presence of T cell activators (αCD3, PMA, SEB) (1). It also inhibits CD4⁺ lymphocytes proliferation (1).

The CD28.2 monoclonal antibody has been assigned to the CD28 cluster of differentiation at the 5th International Workshop on Human Leucocyte Differentiation Antigens held in Boston, U.S.A., in 1993 (1).

REAGENT

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Clone CD28.2
Isotype IgG1, mouse
Immunogen Transfected murine cell line
Hybridoma Source P3-X63-Ag.8.653 Ascites fluid
Purification Ion exchange or affinity chromatography
Buffer 1 mg/mL bovine serum albumin in phosphate-buffered saline

APPLICATION

In vitro studies of T-lymphocyte costimulation.
T- and B-lymphocyte adhesion studies.

STATEMENT OF WARNINGS

1. Specimens, samples and all material coming in contact with them should be handled as if capable of transmitting infection and disposed of with proper precautions.
2. Never pipet with mouth and avoid contact of samples with skin and mucous membranes.
3. Do not use antibody beyond the expiration date on the label.
4. Avoid microbial contamination of reagents or incorrect results might occur.
5. Use good laboratory practices when handling this reagent.

STORAGE CONDITIONS AND STABILITY

This freeze-dried form may be stored at 2 – 8°C until the expiration date stated on the vial label.

No preservative has been added.

REAGENT PREPARATION

Depending of usage, reconstitute with 1 mL of distilled water, with or without 0.1% sodium azide (w/v).

The reconstituted form including 0.1% sodium azide may be stored for up to one month at 2 – 8°C.

The reconstituted form without sodium azide can be stored at –20°C or less,

until the expiration date stated on the vial label.

In this case, aliquotting is recommended to avoid multiple freezing / thawing cycles.

PROCEDURE

For each application, it is recommended to establish the right range of antibody dilutions to be used for the experiment.

SELECTED RESEARCH REFERENCES

1. Olive, D., Cerdan, C., Costello, R., Sielleur, I., Ragueneau, M., Pages, F., Klasen, S., Nunès, J., Imbert, J., "CD28 and CTLA-4 cluster report", 1995, Leucocyte Typing V, White Cell Differentiation Antigens, Schlossman, S.F., et al., Eds., Oxford University Press, p 360-370.
2. Ghiotto-Ragueneau, M., Battifora, M., Truneh, A., Waterfield, M.D., Olive, D., "Comparison of CD28-B7.1 and B7.2 functional interaction in resting human T cells: phosphatidylinositol 3-kinase association to CD28 and cytokine production", 1996, Eur. J. Immunol., 26, 34-41.
3. Buonavista, N., "Molecular linkage of the human CTLA4 and CD28 Ig-superfamily genes in yeast artificial chromosomes", 1992, Genomics, 13, 856-861.
4. Sharpe, A.H., Freeman, G.J., "The B7-CD28 superfamily", 2002, Nature Rev. Immunol., 2, 116-126.
5. Marinari, B., Costanzo, A., Marzano, V., Piccolella, E., Tuosto, L., "CD28 delivers a unique signal leading to the selective recruitment of RelA and p52 NF-κB subunits on IL-8 and Bcl-x_L gene promoters", 2004, Proc. Natl. Acad. Sci. USA, 101, 6098-6103.
6. Bani, L., David, D., Moreau, J.L., Cayota, A., Nakarai, T., Ritz, J., Thèze, J., "Expression of the IL-2 receptor γ subunit in resting human CD4 T lymphocytes: mRNA is constitutively transcribed and the protein stored as an intracellular component", 1997, Int. Immunol., 9, 573-580.
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PRODUCT AVAILABILITY

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