SANTA CRUZ BIOTECHNOLOGY, INC.

CD28 (37.51.1): sc-12727

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The Power to Question

BACKGROUND

T cell proliferation and lymphokine production are triggered by occupation of the TCR by antigen, followed by a costimulatory signal that is delivered by a ligand expressed on antigen presenting cells. The B7-related cell surface proteins CD80 (B7-1) and CD86 (B7-2) are expressed on antigen presenting cells, bind the homologous T cell receptors CD28 and CTLA-4 (cytotoxic T lymphocyte-associated protein-4) and trigger costimulatory signals for optimal T cell activation. CTLA-4 shares 31% overall amino acid identity with CD28 and it has been proposed that CD28 and CTLA-4 are functionally redundant. SLAM is a novel receptor on T cells that, when engaged, potentiates T cell expansion in a CD28-independent manner. B7, also designated BB1, is another ligand or counterreceptor for CD28 and CTLA-4 that is expressed on the antigen-presenting cell.

REFERENCES

1. Chambers, C.A., et al. 1997. Lymphoproliferation in CTLA-4-deficient mice is mediated by costimulation-dependent activation of $CD4^+$ T cells. Immunity 7: 885-895.
2. Deshpande, M., et al. 2002. A novel CD28 mRNA variant and simultaneous presence of various CD28 mRNA isoforms in human T lymphocytes. Hum. Immunol. 63: 20-23.
3. Krummel, M.F. and Allison, J.P. 2011. Pillars article: CD28 and CTLA-4 have opposing effects on the response of T cells to stimulation. The journal of experimental medicine. 1995. 182: 459-465. J. Immunol. 187: 3459-3465.
4. Körmendy, D., et al. 2013. Impact of the CTLA-4/CD28 axis on the processes of joint inflammation in rheumatoid arthritis. Arthritis Rheum. 65: 81-87.
5. Yu, X., et al. 2013. Artificial antigen-presenting cells plus IL-15 and IL-21 efficiently induce melanoma-specific cytotoxic $CD8^+$ $CD28^+$ T lymphocyte responses. Asian Pac. J. Trop. Med. 6: 467-472.
6. Ewing, M.M., et al. 2013. T-cell co-stimulation by CD28-CD80/86 and its negative regulator CTLA-4 strongly influence accelerated atherosclerosis development. Int. J. Cardiol. 168: 1965-1974.
7. Chen, L. and Flies, D.B. 2013. Molecular mechanisms of T cell co-stimulation and co-inhibition. Nat. Rev. Immunol. 13: 227-242.
8. Yamaguchi, T., et al. 2013. Construction of self-recognizing regulatory T cells from conventional T cells by controlling CTLA-4 and IL-2 expression. Proc. Natl. Acad. Sci. USA 110: E2116-E2125.

CHROMOSOMAL LOCATION

Genetic locus: Cd28 (mouse) mapping to 1 C2.

SOURCE

CD28 (37.51.1) is a Syrian hamster monoclonal antibody raised against the extracellular fomain of CD28 of mouse origin.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Also available azide-free for biological studies, sc-12727 L, 200 µg/0.1 ml.

CD28 (37.51.1) is available conjugated to either phycoerythrin (sc-12727 PE) or fluorescein (sc-12727 FITC), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM.

APPLICATIONS

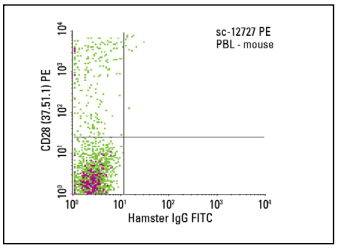
CD28 (37.51.1) is recommended for detection of CD28 of mouse origin by immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and flow cytometry (1 µg per 1 x 10^6 cells).

Suitable for use as control antibody for CD28 siRNA (m): sc-29982, CD28 shRNA Plasmid (m): sc-29982-SH and CD28 shRNA (m) Lentiviral Particles: sc-29982-V.

Molecular Weight of CD28 monomer: 44 kDa.

Molecular Weight of CD28 homodimer: 90 kDa.

DATA



CD28 (37.51.1) PE: sc-12727 PE. FCM analysis of mouse peripheral blood leukocytes. Quadrant markers were set based on the isotype control, normal syrian hamster IgG.

SELECT PRODUCT CITATIONS

1. Noboru, Y., et al. 2006. Effects of 1-Kestose and nystose on the intestinal microorganisms and immune system in mice. J. Appl. Glycosci. 53: 175-180.
2. Lou, Q., et al. 2014. The C-type lectin OCILRP2 costimulates EL4 T cell activation via the DAP12-Raf-MAP kinase pathway. PLoS ONE 9: e113218.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.