SANTA CRUZ BIOTECHNOLOGY, INC.

CD154 (TRAP1): sc-19985

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Resting B cells can be activated and clonally expanded into antibody-producing cells in response to a combination of cell contact and soluble signals provided by primed helper T (Th) cells. While cytokines IL-4 and IL-13 alone are inadequate for B cell activation, contact with Th cells seems to be sufficient for delivery of proliferative signals. CD40 and CD154 (also designated CD40L or TRAP) comprise a receptor ligand pair central to the transmission of this signal. CD40 is expressed on the surface of B cells and CD154 is expressed on activated T cells. In the presence of such stimulus, IL-4 and IL-13 are capable of triggering immunoglobulin class switching and secretion of IgE. CD154 is a 261 amino acid protein that is is expressed as a soluble cytokine as well as a homotrimeric type II transmembrane protein. Its expression is tightly regulated, and abnormal levels of CD154 are associated with the pathogenesis of atheromatous plaque destabilization and thrombotic events. Mutations in the gene encoding for CD154 are implicated in hyper-IgM immunodeficiency syndrome type 1.

REFERENCES

1. Kehry, M.R. and Hodgkin, P.D. 1994. B cell activation by helper T cell membranes. Crit. Rev. Immunol. 14: 221-238.
2. Hu, H.M., et al. 1994. A novel RING finger protein interacts with the cytoplasmic domain of CD40. J. Biol. Chem. 269: 30069-30072.
3. Rothe, M., et al. 1994. A novel family of putative signal transducers associated with the cytoplasmic domain of the 75 kDa tumor necrosis factor receptor. Cell 78: 681-682.
4. Gordon, J. 1995. CD40 and its ligand: central players in B lymphocyte survival, growth and differentiation. Blood Rev. 9: 53-56.
5. Fuleihan, R., et al. 1995. Expression of the CD40 ligand in T lymphocytes and induction of IgE isotype switching. Int. Arch. Allergy Immunol. 107: 43-44.
6. Cheng, G., et al. 1995. Involvement of CRAF1, a relative of TRAF, in CD40 signaling. Science 267: 1494-1498.
7. Rothe, M., et al. 1995. TRAF2-mediated activation of NFκB by TNF receptor 2 and CD40. Science 269: 1424-1427.

CHROMOSOMAL LOCATION

Genetic locus: CD40LG (human) mapping to Xq26.3.

SOURCE

CD154 (TRAP1) is a mouse monoclonal antibody raised against CD154 expressed on CV-1 cells of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin. Also available azide-free for biological studies, sc-19985 L, 200 µg/0.1 ml.

CD154 (TRAP1) is available conjugated to either phycoerythrin (sc-19985 PE) or fluorescein (sc-19985 FITC), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM.

APPLICATIONS

CD154 (TRAP1) is recommended for detection of CD154 of human 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).

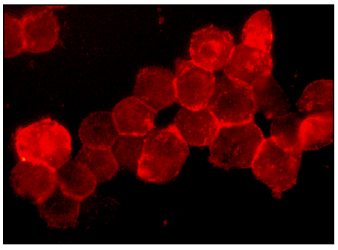
Suitable for use as control antibody for CD154 siRNA (h): sc-29965, CD154 shRNA Plasmid (h): sc-29965-SH and CD154 shRNA (h) Lentiviral Particles: sc-29965-V.

Molecular Weight of CD154: 36 kDa.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



CD154 (TRAP-1): sc-19985. Immunofluorescence staining of methanol-fixed NAMALWA cells showing membrane localization.

SELECT PRODUCT CITATIONS

1. Nedvetzki, S., et al. 2007. Reciprocal regulation of human natural killer cells and macrophages associated with distinct immune synapses. Blood 109: 3776-3785.
2. Crist, S.A., et al. 2008. Nuclear factor of activated T cells (NFAT) mediates CD154 expression in megakaryocytes. Blood 111: 3553-3561.
3. Imadome, K., et al. 2009. CD40 signaling activated by Epstein-Barr virus promotes cell survival and proliferation in gastric carcinoma-derived human epithelial cells. Microbes Infect. 11: 429-433.
4. Wang, Q., et al. 2022. Circadian protein CLOCK modulates regulatory B cell functions of nurses engaging day-night shift rotation. Cell. Signal. 96: 110362.

STORAGE

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

RESEARCH USE

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