SANTA CRUZ BIOTECHNOLOGY, INC.

CD154 (B-4): sc-74447

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., et al. 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.
8. Pan, M., et al. 2007. Enhanced NFATc1 nuclear occupancy causes T cell activation independent of CD28 costimulation. J. Immunol. 178: 4315-4321.

CHROMOSOMAL LOCATION

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

SOURCE

CD154 (B-4) is a mouse monoclonal antibody raised against amino acids 47-261 of CD154 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.

APPLICATIONS

CD154 (B-4) is recommended for detection of CD154 of human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), 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 solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

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.

Positive Controls: Ramos cell lysate: sc-2216, HuT 78 whole cell lysate: sc-2208 or CCRF-CEM cell lysate: sc-2225.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) 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.

SELECT PRODUCT CITATIONS

1. Djikic, J., et al. 2015. Age-related changes in spleen of Dark Agouti rats immunized for experimental autoimmune encephalomyelitis. J. Neuroimmunol. 278: 123-135.

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.

PROTOCOLS

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