SANTA CRUZ BIOTECHNOLOGY, INC.

CD154 (hBA-149): sc-4557

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) 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. Expression of CD154 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., O'Rourke, K., Boguski, M.S. and Dixit, V.M. 1994. A novel RING finger protein interacts with the cytoplasmic domain of CD40. J. Biol. Chem. 269: 30069-30072.
3. Rothe, M., Wong, S.C., Henzel, W.J. and Goeddel, D.V. 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., Ahern, D. and Geha, R.S. 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., Cleary, A.M., Ye, Z.-S., Hong, D.I., Lederman, S. and Baltimore, D. 1995. Involvement of CRAF1, a relative of TRAF, in CD40 signaling. Science 267: 1494-1498.
7. Rothe, M., Sarma, V., Dixit, V.M. and Goeddel, D.V. 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; Cd40lg (mouse) mapping to X A5.

SOURCE

CD154 (hBA-149) is produced in *E. coli* as 44 kDa biologically active, GST-tagged protein corresponding to 149 amino acids composing the receptor binding TNF-like domain of CD154 of human origin.

PRODUCT

CD154 (hBA-149) is purified from bacterial lysates (> 98%); supplied as 50 µg purified protein.

RECONSTITUTION

In order to avoid freeze/thaw damaging of the active protein, dilute protein when first used to desired working concentration. Either a sterile filtered standard buffer (such as 50mM TRIS or 1X PBS) or water can be used for the dilution. Store any thawed aliquot in refrigeration at 2° C to 8° C for up to four weeks, and any frozen aliquot at -20° C to -80° C for up to one year. It is recommended that frozen aliquots be given an amount of standard cryopreservative (such as Ethylene Glycol or Glycerol 5-20% v/v), and refrigerated samples be given an amount of carrier protein (such as heat inactivated FBS or BSA to 0.1% v/v) or non-ionic detergent (such as Triton X-100 or Tween 20 to 0.005% v/v), to aid stability during storage.

SELECT PRODUCT CITATIONS

1. Sommer, S., Pudrith, C.B., Colvin, C.J. and Coussens, P.M. 2009. *Mycobacterium avium* subspecies paratuberculosis suppresses expression of IL-12p40 and iNOS genes induced by signalling through CD40 in bovine monocyte-derived macrophages. Vet. Immunol. Immunopathol. 128: 44-52.

STORAGE

Store desiccated at -20° C; stable for one year from the date of shipment.

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.