

## CD154 (F-1): sc-374635



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 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.

## CHROMOSOMAL LOCATION

Genetic locus: CD40LG (human) mapping to Xq26.3; Cd40lg (mouse) mapping to X A5.

## SOURCE

CD154 (F-1) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 231-267 at the C-terminus of CD154 of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

CD154 (F-1) is available conjugated to agarose (sc-374635 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-374635 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-374635 PE), fluorescein (sc-374635 FITC), Alexa Fluor® 488 (sc-374635 AF488), Alexa Fluor® 546 (sc-374635 AF546), Alexa Fluor® 594 (sc-374635 AF594) or Alexa Fluor® 647 (sc-374635 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-374635 AF680) or Alexa Fluor® 790 (sc-374635 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-374635 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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## APPLICATIONS

CD154 (F-1) is recommended for detection of CD154 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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).

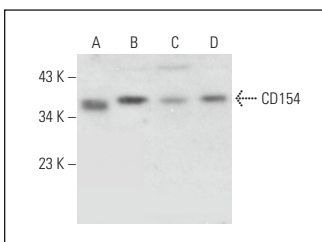
CD154 (F-1) is also recommended for detection of CD154 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for CD154 siRNA (h): sc-29965, CD154 siRNA (m): sc-29966, CD154 shRNA Plasmid (h): sc-29965-SH, CD154 shRNA Plasmid (m): sc-29966-SH, CD154 shRNA (h) Lentiviral Particles: sc-29965-V and CD154 shRNA (m) Lentiviral Particles: sc-29966-V.

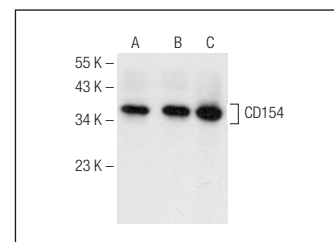
Molecular Weight of CD154: 36 kDa.

Positive Controls: CCRF-CEM cell lysate: sc-2225, HuT 78 whole cell lysate: sc-2208 or SUP-T1 whole cell lysate: sc-364796.

## DATA



CD154 (F-1): sc-374635. Western blot analysis of CD154 expression in SUP-T1 (A), WEHI-231 (B), BYDP (C) and RAW 264.7 (D) whole cell lysates.



CD154 (F-1): sc-374635. Western blot analysis of CD154 expression in CCRF-CEM (A), HuT 78 (B) and SUP-T1 (C) whole cell lysates.

## SELECT PRODUCT CITATIONS

1. Roy, A., et al. 2021. NOS1-mediated macrophage and endothelial cell interaction in the progression of atherosclerosis. *Cell Biol. Int.* 45: 1191-1201.
2. De Paepe, B., et al. 2022. An exploratory study of circulating cytokines and chemokines in patients with muscle disorders proposes CD40L and CCL5 represent general disease markers while CXCL10 differentiates between patients with an autoimmune myositis. *Cytokine X* 4: 100063.

## 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](http://www.scbt.com) for detailed protocols and support products.