

CD40 (MAB89): sc-59047

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. A receptor ligand pair central to the transmission of this signal is CD40, expressed on the surface of B cells, together with CD40L, 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. B cells are sensitive to these cytokines only subsequent to CD40/CD40L-driven DNA synthesis. A downstream mediator of the CD40 signaling pathway, designated CRAF, is a member of an expanding family of proteins that contain a conserved cysteine- and histidine-rich RING finger motif. Other members of the family include TRAF1 and TRAF2. The latter proteins have been shown to regulate TNF-R2 as well as CD40 signaling through activation of the NFκB family of transcription factors.

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. Grandien, A., et al. 1996. Acquisition of CD40 expression during murine B cell differentiation. *Scand. J. Immunol.* 43: 47-55.

CHROMOSOMAL LOCATION

Genetic locus: CD40 (human) mapping to 20q13.12.

SOURCE

CD40 (MAB89) is a mouse monoclonal antibody raised against anti-IgM activated tonsillar B cells of human origin.

PRODUCT

Each vial contains 100 µg IgG₁ in 1.0 ml of PBS with < 0.1% sodium azide, 0.1% gelatin and < 1% stabilizer protein.

APPLICATIONS

CD40 (MAB89) is recommended for detection of CD40 of human origin by flow cytometry (1 µg per 1 x 10⁶ cells).

Suitable for use as control antibody for CD40 siRNA (h): sc-29250, CD40 shRNA Plasmid (h): sc-29250-SH and CD40 shRNA (h) Lentiviral Particles: sc-29250-V.

Molecular Weight of CD40: 43 kDa.

SELECT PRODUCT CITATIONS

1. Delville, M., et al. 2014. A circulating antibody panel for pretransplant prediction of FSGS recurrence after kidney transplantation. *Sci. Transl. Med.* 6: 256ra136.
2. Wei, C., et al. 2015. Circulating CD40 autoantibody and suPAR synergy drives glomerular injury. *Ann. Transl. Med.* 3: 300.
3. Zhang, R., et al. 2021. Ginkgolide C attenuates lipopolysaccharide-induced acute lung injury by inhibiting inflammation via regulating the CD40/NFκB signaling pathway. *Int. J. Mol. Med.* 47: 62.

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.



See **CD40 (H-10): sc-13128** for CD40 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.