

MONOCLONAL ANTIBODY CD40

Cat. No.	Form	Quantity	Presentation
1374	Purified	0.2 mg	Freeze-dried
1936	Phycoerythrin	100 tests	Liquid 2 ml

**Clone** mAb89

**Isotype** IgG1 (mouse)

**Immunogen** Anti- $\mu$  activated tonsillar human B cells

**Hybridoma** NS1 X Balb/c spleen cells

**Specificity** CD40 is a 49kDa type I integral membrane protein of the NGF receptor family (1).

CD40 is found on normal and neoplastic B cells, strongly expressed by interdigitating cells (IDC), basal epithelial cells, and carcinomas, and also present on macrophages, some endothelial cells, and follicular dendritic cells (1).

It is a pan-B-marker, absent only from terminally differentiated plasma cells.

CD40 is predicted to function in the process of B cell selection in the germinal centre.

Studies demonstrated that CD40 monoclonal antibodies induce strong homotypic adhesions in resting B cells and, together with Interleukin-4 (IL-4) maintain the cell cycle of B blasts and promote the switch to IgE secretion (1,2).

Purified B cells cultured in the CD40 system in the presence of IL-10 differentiate into plasma cells and secrete large amounts of immunoglobulins (3).

The ligand for CD40 is a membrane glycoprotein on activated T cells that induces B cell proliferation and immunoglobulin secretion (4).

mAb89 acts in synergy with IL-4 to induce the increase of B-cell volume and the proliferation of anti IgM antibody-co-stimulated or pre-activated B cells (5).

**Applications** Flow cytometry

Study of B-cell proliferation.

Study of B-cell growth and activation factors.

Functional study of B-cell subpopulations.

December 13, 1995



**Buffer**

Freeze-dried forms: 1 mg/ml bovine serum albumin in phosphate buffered saline.

Liquid forms: 2 mg/ml bovine serum albumin in phosphate buffered saline containing 0.1% sodium azide.

**Reconstitution and Storage**

The freeze-dried form may be stored at 2-8°C until the expiration date. Reconstitute with 1 ml of distilled water. No preservative has been added. The reconstituted form may be stored at -20°C until the expiration date. Aliquotting is suggested to avoid multiple freeze-thaw cycles. The addition of sodium azide at 0.1% (w/v) is recommended for storage of the reconstituted form for up to one month at 2-8°C.

The conjugated forms should not be frozen and should be stored in the dark at 2 - 8°C until the expiration date stated on the vial label.

**Recommended Procedures**

Fluorescent microscopy or flow cytometry:

Liquid form: 20 µl/5x10<sup>5</sup> cells/test or 100 µl whole blood

Freeze-dried form: 2 µg/5x10<sup>5</sup> cells/test

Activation assays

Working concentration: 10 ng/ml

**References**

- 1) Katira, A., Holder, M., Pound, J., Gordon, J. "CD40 workshop panel report", 1995, in *Leucocyte Typing V*, Schlossman, S.F., et al Eds, Oxford University Press, pp 547-550.
- 2) Rousset, F., Garcia E., Banchereau J. " Cytokine-induced proliferation and immunoglobulin production of human B lymphocytes triggered through their CD40 antigen", 1991, *J. Exp. Med.*, **173**, 705-710.
- 3) Rousset F., Garcia E., Defrance T., Peronne C., Vezzio N., Hsu D.H., Kastelein R., Moore K.W. & Banchereau J. "Interleukin 10 is a potent growth and differentiation factor for activated human B lymphocytes", 1992, *Proc. Natl. Acad. Sci. USA*, **89**, 1890-1893.
- 4) Lane, P., Traunecker, A., Hubele, S., Inui, S., Lanzavecchia, A., Gray, D., "Activated human T cells express a ligand for the human B cell-associated antigen CD40 which participates in T cell-dependent activation of B lymphocytes", 1992, *Eur. J. Immunol.*, **22**, 2573-2578.
- 5) Valle, A., Zuber, C E, Defrance, T., Djossou, O., De Rie, M., Banchereau, J., " Activation of human B lymphocytes through CD40 and interleukin 4", 1989, *Eur J Immunol.*, **19**, 1463-1467.