

DESCRIPTION

Species Reactivity	Mouse
Specificity	Specifically binds mouse CD40/TNFRSF5 expressed on L cells.
Source	Monoclonal Rat IgG _{2A} Clone # 1C10
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	COS-7 African green monkey SV40 transformed kidney fibroblast-like cell line-derived recombinant mouse CD40/TNFRSF5 Extracellular domain
Conjugate	Alexa Fluor 405 Excitation Wavelength: 405 nm Emission Wavelength: 421 nm
Formulation	Supplied 0.2 mg/mL in a saline solution containing BSA and Sodium Azide. See Certificate of Analysis for details. *Contains <0.1% Sodium Azide, which is not hazardous at this concentration according to GHS classifications. Refer to the Safety Data Sheet (SDS) for additional information and handling instructions.

APPLICATIONS

Please Note: Optimal dilutions should be determined by each laboratory for each application. *General Protocols* are available in the *Technical Information* section on our website.

	Recommended Concentration	Sample
Flow Cytometry	0.25-1 µg/10 ⁶ cells	Mouse B220* splenocytes

PREPARATION AND STORAGE

Shipping	The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	Protect from light. Do not freeze. <ul style="list-style-type: none"> 12 months from date of receipt, 2 to 8 °C as supplied.

BACKGROUND

CD40 is a type I transmembrane glycoprotein belonging to the TNF receptor superfamily. The mature mCD40 consists of a 172 amino acid (aa) extracellular domain, a 22 aa transmembrane region and a 90 aa cytoplasmic domain (1). CD40 is expressed on B cells, follicular dendritic cells, dendritic cells, activated monocytes, macrophages, endothelial cells, vascular smooth muscle cells and several tumor cell lines (2). The extracellular domain has the cysteine-rich repeat regions, which are characteristic for many of the receptors of the TNF superfamily. Interaction of CD40 with its ligand, CD40L, leads to the aggregation of CD40 molecules, which in turn interact with cytoplasmic components to initiate signaling pathways. Early studies on the CD40-CD40L system revealed its role in humoral immunity. Interaction between CD40L on T cells and CD40 on B cells stimulated B cell proliferation and provided the signal for immunoglobulin isotype switching (3). Mutations in the CD40L gene, which resulted in a CD40L molecule unable to interact with CD40, are responsible for the hyper-IgM syndrome (4). Cross-linking of CD40 with antibodies or by binding to CD40L produces cell type-specific responses which include costimulation and induction of proliferation, induction of cytokine production, rescue from apoptosis, and upregulation of adhesion molecules (5). Some of the early events of intracellular signaling by the CD40-CD40L system include the association of the CD40 with TRAFs and the activation of various kinases (6-8).

References:

1. Torres, R.M. and E.A. Clark (1992) J. Immunol. **148**:620.
2. Schonbeck, U. *et al.* (1997) J. Biol. Chem. **272**:19569.
3. Armitage, R.J. *et al.* (1993) J. Immunol. **150**:3671.
4. Callard, R.E. *et al.* (1993) Immunol. Today **14**:559.
5. Stout, R.D. and J. Suttles (1996) Immunol. Today **17**:487.
6. Pullen, S.S. *et al.* (1999) Biochemistry **38**:10168.
7. Faris, M. *et al.* (1994) J. Exp. Med. **179**:1923.
8. Hanissian, S.H. and R.S. Geha (1997) Immunity **6**:379.

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