

#### DESCRIPTION

<b>Species Reactivity</b>	Human
<b>Specificity</b>	Detects human CD40/TNFRSF5 in direct ELISAs and Western blots. In direct ELISAs, does not cross-react with recombinant human (rh) 4-1BB, rhCD27, rhCD30, recombinant mouse CD40, rhDR3, rhDR6, rhEDAR, rhFas, rhGITR, rhHVEM, rhLTRβ, rhNGF R, rhOPG, rhRANK, rhTAJ, rhTNF RI, or rhTNF RII.
<b>Source</b>	Monoclonal Mouse IgG <sub>2B</sub> Clone # 82111
<b>Purification</b>	Protein A or G purified from hybridoma culture supernatant
<b>Immunogen</b>	Mouse myeloma cell line NS0-derived recombinant human CD40/TNFRSF5 Glu21-Arg193 Accession # P25942
<b>Conjugate</b>	Alexa Fluor 488 Excitation Wavelength: 488 nm Emission Wavelength: 515-545 nm
<b>Formulation</b>	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
<b>Flow Cytometry</b>	0.25-1 µg/10 <sup>6</sup> cells	Human whole blood CD19 <sup>+</sup> B cells

#### PREPARATION AND STORAGE

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

#### BACKGROUND

CD40 is a type I transmembrane glycoprotein belonging to the TNF receptor superfamily. The mature hCD40 consists of a 172 amino acid (aa) extracellular domain, a 22 aa transmembrane region and a 62 aa cytoplasmic domain (1). Human and mouse CD40 share 62% aa identity. CD40 is expressed in 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 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 CD40 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:

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

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