

## DESCRIPTION

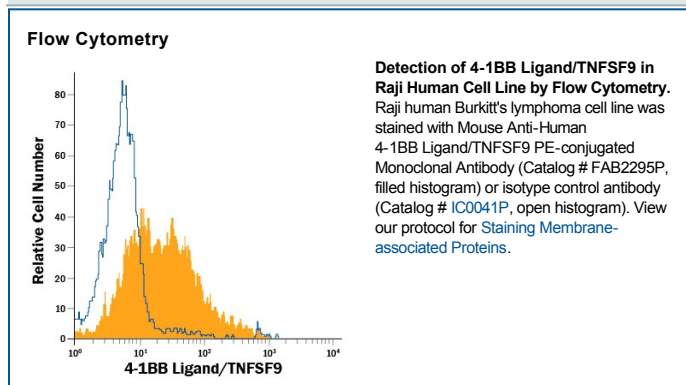
<b>Species Reactivity</b>	Human
<b>Specificity</b>	Detects human 4-1BB Ligand/TNFSF9 in direct ELISAs and Western blots. In Western blots, no cross-reactivity with recombinant mouse (rm) 4-1BB Ligand, recombinant human (rh) APRIL, rhBAFF, rmEDA-A2, rhFas Ligand, rhGITR Ligand, rhLIGHT, rhLymphotoxin α1/β2, rhLymphotoxin α2/β1, rhOX40 Ligand, rhTNF-α, rhTRAIL, rhTRANCE, or rhTWEAK is observed.
<b>Source</b>	Monoclonal Mouse IgG <sub>2B</sub> Clone # 282220
<b>Purification</b>	Protein A or G purified from hybridoma culture supernatant
<b>Immunogen</b>	<i>E. coli</i> -derived recombinant human 4-1BB Ligand/TNFSF9 Arg71-Glu254 Accession # P41273.1
<b>Conjugate</b>	Phycoerythrin Excitation Wavelength: 488 nm Emission Wavelength: 565-605 nm
<b>Formulation</b>	Supplied 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.

	<b>Recommended Concentration</b>	<b>Sample</b>
<b>Flow Cytometry</b>	10 μL/10 <sup>6</sup> cells	See Below

## DATA



## 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

4-1BB Ligand (4-1BBL; also CD137L) is a 32 kDa type II transmembrane protein that belongs to the TNF superfamily (TNFSF) of molecules (1-4). The human 4-1BBL cDNA encodes a 254 amino acid (aa) protein that contains a 25 aa N-terminal cytoplasmic domain, a 23 aa transmembrane segment, and a 206 aa C-terminal extracellular region (5). The extracellular domain (ECD) of 4-1BBL has a jelly-roll,  $\beta$ -sandwich tertiary structure that is similar to other TNFSF members. There is only one cysteine in the human ECD, and no potential N-linked glycosylation sites. The potential exists, however, for O-linked glycosylation. The human 4-1BBL ECD shares 32% and 35% aa identity with mouse and rat ECD, respectively. In the cytoplasmic domain, human 4-1BBL is 55 aa shorter than the equivalent region in rodents. 4-1BBL is expressed by activated B cells, macrophages, dendritic cells, activated T cells, neurons and astrocytes (2, 3, 6). A bioactive 26 kDa soluble form of 4-1BBL, presumably generated by MMP cleavage, occurs in humans (4). Human 4-1BBL signals through both CD137/4-1BB and itself. Its cytoplasmic tail participates in reverse signaling that induces apoptosis in T cells and cytokine secretion (IL-6; TNF- $\alpha$ ) by monocytes (7, 8). 4-1BBL binding to CD137/4-1BB produces a number of effects. It seems to play a key role in the T cell recall response. It maintains T cell numbers at the end of a primary response, and induces CD4<sup>+</sup> and CD8<sup>+</sup> T cells to proliferate and secrete cytokines such as IL-2 and IFN- $\gamma$  in CD4<sup>+</sup> T cells, and IFN- $\gamma$  in CD8<sup>+</sup> T cells (9, 10).

## References:

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