

DESCRIPTION

Species Reactivity	Human
Specificity	Detects human 4-1BB/TNFRSF9/CD137 in direct ELISAs.
Source	Recombinant Monoclonal Rabbit IgG Clone # 2356C
Purification	Protein A or G purified from cell culture supernatant
Immunogen	Chinese Hamster Ovary cell line CHO-derived human 4-1BB/TNFRSF9/CD137 Leu24-His183 Accession # Q07011
Conjugate	Alexa Fluor 488 Excitation Wavelength: 488 nm Emission Wavelength: 515-545 nm
Formulation	Supplied 0.2 mg/mL in a saline solution containing BSA and Sodium Azide.

*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	Human PBMC treated with PHA

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

4-1BB, also known as CD137 and TNFRSF9, is an approximately 30 kDa transmembrane glycoprotein in the TNF receptor superfamily. 4-1BB functions in the development and activation of multiple immune cells (1). Mature human 4-1BB consists of a 163 amino acid (aa) extracellular domain (ECD) with four TNFR cysteine-rich repeats, a 27 aa transmembrane segment, and a 42 aa cytoplasmic domain (2, 3). Within the ECD, human 4-1BB shares 60% aa sequence identity with mouse and rat 4-1BB. 4-1BB is expressed as a disulfide-linked homodimer on various populations of activated T cell including CD4⁺, CD8⁺, memory CD8⁺, NKT, and regulatory T cells (4-7) as well as on myeloid and mast cell progenitors, dendritic cells, mast cells, and bacterially infected osteoblasts (8-11). It binds with high affinity to the transmembrane 4-1BB Ligand/TNFSF9 which is expressed on antigen presenting cells and myeloid progenitor cells (3, 8). This interaction costimulates the proliferation, activation, and/or survival of the 4-1BB expressing cell (3-7). It can also enhance the activation-induced cell death of repetitively stimulated T cells (3). Mice lacking 4-1BB show augmented T cell activation, perhaps due to its absence on regulatory T cells (12). 4-1BB can associate with OX40 on activated T cells, forming a complex that responds to either ligand and inhibits Treg and CD8⁺ T cell proliferation (13). Reverse signaling through 4-1BB Ligand inhibits the development of dendritic cells, B cells, and osteoclasts (8, 11) but supports mature dendritic cell survival and costimulates the proliferation and activation of mast cells (9, 10). 4-1BB activation enhances CD8⁺ T cell and NK cell mediated anti-tumor immunity (14). It also contributes to the development of inflammation in high fat diet-induced metabolic syndrome (15). Soluble forms of 4-1BB and 4-1BB Ligand circulate at elevated levels in the serum of rheumatoid arthritis and hematologic cancer patients, respectively (16, 17).

References:

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Human 4-1BB/TNFRSF9/CD137 Alexa Fluor® 488-conjugated Antibody

Recombinant Monoclonal Rabbit IgG Clone # 2356C

Catalog Number: FAB8382G

100 µg

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