

DESCRIPTION

Species Reactivity	Human
Specificity	Detects human 4-1BB/TNFRSF9/CD137 in ELISAs and Western blots. In sandwich ELISAs, less than 0.1% cross-reactivity with recombinant mouse 4-1BB, recombinant human (rh) NGF R, rhTNF RI and rhTNF RII is observed.
Source	Polyclonal Goat IgG
Purification	Antigen Affinity-purified
Immunogen	Mouse myeloma cell line NS0-derived recombinant human 4-1BB Leu24-Gln186 Accession # Q07011
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with BSA as a carrier protein. See Certificate of Analysis for details.

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
Western Blot	0.1 µg/mL	Recombinant Human 4-1BB/TNFRSF9/CD137 Fc Chimera (Catalog # 838-4B)
Flow Cytometry	2.5 µg/10 ⁶ cells	See Below
Immunocytochemistry	5-15 µg/mL	See Below
Human 4-1BB/TNFRSF9/CD137 Sandwich Immunoassay		Reagent
ELISA Capture	0.2-0.8 µg/mL	Human 4-1BB/TNFRSF9/CD137 Antibody (Catalog # AF838)
ELISA Detection	0.1-0.4 µg/mL	Human 4-1BB/TNFRSF9/CD137 Biotinylated Antibody (Catalog # BAF838)
Standard		Recombinant Human 4-1BB/TNFRSF9/CD137 Fc Chimera (Catalog # 838-4B)

DATA

<p>Flow Cytometry</p> <p>Detection of 4-1BB/TNFRSF9/CD137 in PHA-treated Human T Cells by Flow Cytometry. Human T cells were treated for 48 hours with 5 µg/mL PHA then stained with Human 4-1BB/TNFRSF9/CD137 Biotinylated Antigen Affinity-purified Polyclonal Antibody (Catalog # BAF838, filled histogram) or control antibody (Catalog # BAF108, open histogram), followed by Streptavidin-Allophycocyanin (Catalog # F0050).</p>	<p>Immunocytochemistry</p> <p>4-1BB/TNFRSF9/CD137 in Human PBMCs. 4-1BB/TNFRSF9/CD137 was detected in immersion fixed human peripheral blood mononuclear cells (PBMCs) using Goat Anti-Human 4-1BB/TNFRSF9/CD137 Biotinylated Antigen Affinity-purified Polyclonal Antibody (Catalog # BAF838) at 15 µg/mL for 3 hours at room temperature. Cells were stained using the NorthernLights™ 557-conjugated Streptavidin (red; Catalog # NL999) and counterstained with DAPI (blue). Specific staining was localized to plasma membrane and cytoplasm. View our protocol for Fluorescent ICC Staining of Cells on Coverslips.</p>
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PREPARATION AND STORAGE

Reconstitution	Reconstitute at 0.2 mg/mL in sterile PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	<p>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</p> <ul style="list-style-type: none"> • 12 months from date of receipt, -20 to -70 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 6 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND

4-1BB is an inducible T cell surface protein belonging to the TNF receptor superfamily. It is alternatively known as TNFRSF9, CD137, and ILA. The 255 amino acid human 4-1BB is a type I transmembrane protein having in its extracellular domain four of the cysteine-rich motifs that are characteristic of the TNF receptor superfamily. The 30 KD glycoprotein exists both as a monomer and as a dimer on T cells. The human and mouse proteins share 60% amino acid identity. 4-1BB is absent from naive T cells, but it is upregulated and continually expressed following T cell activation. The natural ligand, 4-1BBL, is a member of the TNF superfamily and is expressed on activated antigen presenting cells including dendritic cells, macrophages, and B cells. Cross-linking of 4-1BB by 4-1BBL or by agonistic antibodies transmits a potent co-stimulatory signal that enhances the effect of other activating signals such as PHA or anti-CD3 antibodies. 4-1BB signals through the TFAF2-NIK pathway resulting in activation of NF-κB and ultimately promoting proliferation and survival of T cells.

References:

1. Vinay, D. and B. Kwon (1998) *Semin. Immunol.* **10**:481.
2. Sica, G. and L. Chen (2000) *Adv. Exp. Med. Biol.* **465**:355.