Miltenyi Biotec

Human 4-1BB
research grade

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1. Description

Products	Human 4-1BB, research grade. Recombinant human soluble 4-1BB (CD137).

Content in µg	Order no.
20	130-140-781

Biological activity	Determined by its inhibitory effect of the 4-1BBL mediated stimulation of IL-8 production by human PBMC. About 90% of inhibition was seen using a concentration of 1 µg for both, 4-1BBL and 4-1BB.
Primary structure	Single, non-glycosylated polypeptide chain (167 amino acid residues), containing the cysteine-rich TNFR-like extracellular domain of 4-1BB.
Molecular mass	17.8 kDa.
Source	Produced in *E. coli*.
Product format	Lyophilized from a filtered (0.2 µm) buffer solution.
Stabilizer	None.
Purity	>95% as determined by SDS-PAGE analysis.
Endotoxin level	Low endotoxin (<1.0 EU/µg cytokine) as determined by Limulus Amebocyte Lysate (LAL) assay.
Storage	Lyophilized Human 4-1BB, research grade should be stored at –20 °C. The expiration date is indicated on the vial label. Upon reconstitution aliquots should be stored at –20 °C or below. Avoid repeated freeze-thaw cycles.
Reconstitution	It is recommended to reconstitute lyophilized Human 4-1BB, research grade with deionized sterile-filtered water to a final concentration of 0.1–1.0 mg/mL in a minimal volume of 50 µL. Further dilutions should be prepared with 0.1% bovine serum albumin (BSA) or human serum albumin (HSA) in phosphate-buffered saline.

1.1 Background information

Human 4-1BB (CD137, TNFRSF9) is a co-stimulatory receptor belonging to the tumor necrosis factor receptor (TNFR) superfamily. It is predominantly expressed on activated T lymphocytes, although expression has also been reported on subsets of B cells, NK cells, and monocytes.

Binding of 4-1BB to its ligand, 4-1BBL (CD137L), provides an important co-stimulatory signal for T cells from antigen presenting cells. It enhances T cell activation, proliferation, survival, and cytokine secretion, supporting the development of long-lived memory T cells and sustained cytotoxic T cell responses.

Recombinant soluble Human 4-1BB comprises the extracellular domain of the native receptor and retains the structural features required for ligand binding, making it suitable for ligand interaction studies, functional assays, and immunological research applications.

1.2 Applications

Human 4-1BB may be used for a variety of applications, including:

- Evaluating co-stimulatory effects on T cell activation
- Inhibiting endogenous 4-1BBL in co-culture setups
- Studying immune checkpoint pathways
- Analyzing 4-1BB / 4-1BBL–dependent intracellular signaling in relevant cell models

Optimal concentration for a specific application should be determined by a dose-response experiment.

Refer to **www.miltenyibiotec.com** for all data sheets and protocols. Miltenyi Biotec provides technical support worldwide. Visit www.miltenyibiotec.com for local Miltenyi Biotec Technical Support contact information.

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