



## 4-1BB Ligand, human recombinant

**Catalog No:** 97391  
**Lot No:** XXXXX  
**Source:** *E. coli*  
**Synonyms:** CD137L, CD137-L, 4-1BBL, 4-1BB Ligand, TNFSF9, Tumor Necrosis Factor (ligand) Superfamily Member 9

### Background

4-1BBL is a transmembrane cytokine that is part of the tumor necrosis factor (TNF) ligand family. 4-1BBL is a bidirectional signal transducer that performs as a ligand for TNFRSF9, which is a costimulatory receptor molecule in T lymphocytes. TNFSF9 and its TNFRSF9 take part in the antigen presentation development and in the generation of cytotoxic T cells. 4-1BBL is absent from resting T lymphocytes but rapidly expressed upon antigenic stimulation. TNFSF9 reactivates anergic T lymphocytes as well as promoting T lymphocyte proliferation. 4-1BB Ligand is needed for the optimal CD8 responses in CD8 T cells. 4-1BBL is expressed in carcinoma cell lines, and is thought to be involved in T cell-tumor cell interaction. 4-1BBL is expressed by activated B cells, macrophages, dendritic cells, activated T cells, neurons and astrocytes. The interaction of 4-1BB with TNFRSF9 strongly regulates immunity and has been proposed to preferentially control T cell responses based on studies in various murine models of cancer, infectious disease and autoimmune disease.

### Description

4-1BBL human recombinant produced in *E. coli* is a single, non-glycosylated, polypeptide chain containing 184 amino acids and having a molecular mass of 19.5 kDa. 4-1BBL is purified by proprietary chromatographic techniques.

### Physical Appearance

Sterile filtered white lyophilized (freeze-dried) powder.

### Formulation

Lyophilized from a 0.2 µm filtered concentrated solution in PBS, pH 7.4.

### Solubility

It is recommended to reconstitute the lyophilized 4-1BBL in sterile 18 MΩ-cm H<sub>2</sub>O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

### Stability

Lyophilized 4-1BBL, although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution 4-1BBL should be stored at 4°C between 2-7 days and for future use below -18°C. Please prevent freeze-thaw cycles.

### Purity

Greater than 95.0% as determined by SDS-PAGE.

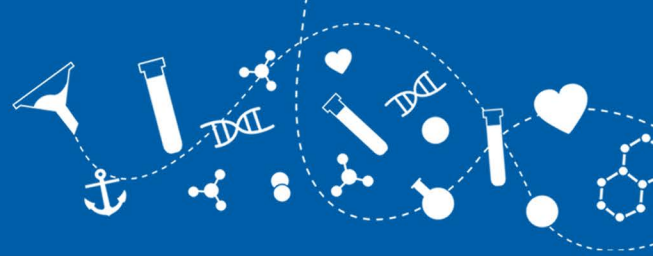
### Amino Acid Sequence

REGPELSPDD PAGLLDLRQG MFAQLVAQNV LLIDGPLSWY SDPGLAGVSL TGGLSYKEDT KELVVAKAGV YYVFFQLELR  
RVVAGEGSGS VSLALHLQPL RSAAGAAALA LTVDLPPASS EARNSAFGFQ GRLLHLSAGQ RLGVLHLTEA RARHAWQLTQ  
GATVLGLFRV TPEIPAGLPS PRSE

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**Activity**

Fully biologically active when compared to standard. Determined by the dose-dependent stimulation of IL-8 production by human PBMC. The ED50 for this effect is 5 - 10 ng/ml corresponding to a specific activity of 100,000 - 200,000 IU/mg.

**Usage**

**This product is offered by Biomol for research purposes only. Not for diagnostic purposes or human use. It may not be resold or used to manufacture commercial products without written approval of Biomol GmbH.**