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## Product Data Sheet

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Product Name: 4 1BBL Human, His  
 Cat. No.: GP20963  
 Batch No.: 1

### Product Data

Purity	>98%	Source	Escherichia Coli.
Physical Appearance	solid	Shipping Condition	Shipped with Ice Packs.
Synonyms	CD137L; CD137-L; 4-1BBL; 4-1BB Ligand; TNFSF9; Tumor Necrosis Factor (ligand) Superfamily Member 9.		
Amino Acid Sequence	MRGSHHHHHH GMASMTGGQQ MGRDLYDDDD KDRWGSHMRE GPELSPDDPA GLLDLRQGMF AQLVAQNVLL IDGPLSWYSD PGLAGVSLTGGLSYKEDTKE LVVAKAGVYY VFFQLELRRV VAGEGSGSVS LALHLQPLRS AAGAAALALT VDLPPASSEA RNSAFGFQGR LLHLSAGQRL GVHLHTEARA RHAWQLTQGA TVLGLFRVTP EIPAGLPSPR SE.		
Formulation	Recombinant 4-1BBL solution (1mg/ml) contains 20mM Tris-HCl buffer pH-8, 100mM NaCl and 20% glycerol.		

### Introduction

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. 4-1BBR 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 murin

### Stability

**Caution: Product has not been fully validated for medical applications. For research use only.**

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Address: 10292 Central Ave. #205, Montclair, CA, USA

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Store at 4°C if entire vial will be used within 2-4 weeks. Store, frozen at -20°C for longer periods of time. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Avoid multiple freeze-thaw cycles.

### Background

TNFSF9 Human Recombinant fused to 37 amino acids His tag at N-terminus produced in E.Coli is a single, non-glycosylated polypeptide chain containing 222 amino acids (71-254 a.a.) and having a molecular mass of 23.8 kDa. The TNFSF9 37 aa His tag fusion protein is purified by proprietary chromatographic techniques.

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