

## 4-1BB Ligand/TNFSF9 Protein, Human, Recombinant (His & Flag)

### General Information

Synonyms:	Tumor necrosis factor ligand superfamily member 9;4-1BBL;TNFSF9;4-1BB ligand
Protein Construction:	Arg71-Glu254
Species:	Human
Expression Host:	HEK293 Cells
Accession:	P41273
Molecular Weight:	30 KDa (reducing condition)
AA Sequence:	Arg71-Glu254

### QC Testing

Biological Activity:	Loaded Human 4-1BB-Fc-His on Protein A Biosensor, can bind Human 4-1BBL-His-Flag with an affinity constant of 4.53 pM as determined in BLI assay. (Regularly tested)
Purity:	Greater than 95% as determined by reducing SDS-PAGE. (QC verified)
Endotoxin:	< 0.1 ng/µg (1 EU/µg) as determined by LAL test.
Formulation:	Lyophilized from a solution filtered through a 0.22 µm filter, containing 20 mM Tris-HCl, 500 mM NaCl, 5% Trehalose, 5% Mannitol, 0.01% Tween 80, 1 mM EDTA, pH8.0.

### Preparation and Storage

#### Reconstitution:

Reconstitute the lyophilized protein in distilled water. The product concentration should not be less than 100 µg/ml. Before opening, centrifuge the tube to collect powder at the bottom. After adding the reconstitution buffer, avoid vortexing or pipetting for mixing.

#### Stability & Storage:

Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

#### Shipping:

In general, Lyophilized powders are shipping with blue ice. Solutions are shipping with dry ice.

### Protein Background

Tumor necrosis factor ligand superfamily member 9(4-1BBL) is single-pass type II membrane protein which is a member of the the tumor necrosis factor family. 4-1BBL is a 254 amino acids cytokine that is expressed in brain, placenta, lung, skeletal muscle and kidney. TNFSF9 has been shown to reactivate anergic T lymphocytes in addition to promoting T lymphocyte proliferation. This cytokine may have a role in activation-induced cell death (AICD) and cognate interactions between T-cells and B-cells/macrophages. It has also been shown to be required

for the optimal CD8 responses in CD8 T cells, and is thought to be involved in T cell-tumor cell interaction.

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Tel:781-999-4286 E\_email:info@targetmol.com Address:34 Washington Street,Wellesley Hills,MA 02481