

## 4-1BB Ligand/TNFSF9 Protein, Cynomolgus, Recombinant (hFc), Biotinylated

### General Information

Synonyms:	tumor necrosis factor (ligand) superfamily, member 9
Protein Construction:	A DNA sequence encoding the cynomolgus TNFSF9 (XP_015296398.1) (Arg68-Glu251) was expressed with the Fc region of human IgG1 at the N-terminus. The purified protein was biotinylated in vitro. Predicted N terminal: Glu
Species:	Cynomolgus
Expression Host:	HEK293 Cells
Accession:	XP_015296398.1
Molecular Weight:	47.8 kDa (predicted)

### QC Testing

Biological Activity:	Activity testing is in progress. It is theoretically active, but we cannot guarantee it. If you require protein activity, we recommend choosing the eukaryotic expression version first.
Purity:	> 95 % as determined by SDS-PAGE.
Endotoxin:	< 1.0 EU/μg of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 μm filter, containing PBS, pH 7.4. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

### Preparation and Storage

Reconstitution:	A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.
Stability & Storage:	It is recommended to store recombinant proteins at -20°C to -80°C for future use. 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. <small>Actual storage temperature shall be subject to the COA.</small>

Shipping:	In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.
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### Protein Background

4-1BB ligand is the high affinity ligand of 4-1BB, also known as CD137L or TNFSF9. It is shown to be a type II surface glycoprotein belonging to the TNF superfamily. Expression of 4-1BBL is restricted to APCs, such as dendritic cells, macrophages, and activated B cells. Members of the TNF-TNF receptor superfamily have been shown to play critical roles in regulating cellular activation, differentiation and apoptosis. Several studies have reported that 4-

1BBL/4-1BB interaction provided a co-stimulatory signal to T cells, and increased T cell proliferation and cytokines production. In addition, 4-1BBL is involved in cancers, infectious diseases and autoimmune diseases. Cancer Immunotherapy Co-stimulatory Immune Checkpoint Targets Immune Checkpoint Immune Checkpoint Detection: Antibodies Immune Checkpoint Detection: ELISA Antibodies Immune Checkpoint Detection: FCM Antibodies Immune Checkpoint Detection: ICC Antibodies Immune Checkpoint Targets Immunotherapy Targeted Therapy

### Reference

- Cheung CT, (2007) Neutralizing anti-4-1BBL treatment improves cardiac function in viral myocarditis. Lab Invest. 87 (7): 651-61.
- Wang C, et al. (2009) Immune regulation by 4-1BB and 4-1BBL: complexities and challenges. Immunol Rev. 229(1): 192-215.
- HAbib-Agahi M, et al. (2009) 4-1BBL costimulation retrieves CD28 expression in activated T cells. Cell Immunol. 256 (1-2): 39-46.

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