

4-1BB/CD137/TNFRSF9 Protein, Human, Recombinant (hFc & Avi), Biotinylated

General Information

Synonyms:	CDw137;CD137;4-1BB;tumor necrosis factor receptor superfamily, member 9;ILA
Protein Construction:	A DNA sequence encoding the human TNFRSF9 (NP_001552.2) (Met1-Gln186) was expressed with a C-terminal Fc region of human IgG1 tag followed by an AVI tag. The expressed protein was biotinylated in vivo by the Biotin-Protein ligase (BirA enzyme) which is co-expressed. Predicted N terminal: Leu 24
Species:	Human
Expression Host:	HEK293 Cells
Accession:	Q07011
Molecular Weight:	45.8 kDa (predicted)

QC Testing

Biological Activity:	Measured by its binding ability in a functional ELISA. Immobilized S4-Fc3L3-TNFSF9 at 10 µg/mL (100 µL/well) can bind TNFRSF9-Fc-Avi, the EC50 of TNFRSF9-Fc-Avi is 15-40 ng/mL.
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:	Reconstituted with sterile deionized water to 0.25 mg/mL. Reconstitution conditions may vary depending on the lot.
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.

Protein Background

CD137 (also known as 4-1BB) is a surface co-stimulatory glycoprotein originally described as present on activated T lymphocytes, which belongs to the tumor necrosis factor (TNF) receptor superfamily. It is expressed mainly on activated CD4+ and CD8+ T cells, and binds to a high-affinity ligand (4-1BBL) expressed on several antigen-

presenting cells such as macrophages and activated B cells. Upon ligand binding, 4-1BB is associated with the tumor necrosis factor receptor-associated factors (TRAFs), the adaptor protein which mediates downstream signaling events including the activation of NF-kappaB and cytokine production. 4-1BB signaling either by binding to 4-1BBL or by antibody ligation delivers signals for T-cell activation and growth, as well as monocyte proliferation and B-cell survival, and plays an important role in the amplification of T cell-mediated immune responses. In addition, CD137 and CD137L are expressed in different human primary tumor tissues, suggesting that they may influence the progression of tumors. Crosslinking of CD137 on activated T cells has shown promise in enhancing anti-tumor immune responses in murine models, and agonistic anti-CD137 antibodies are currently being tested in phase I clinical trials. Soluble forms of CD137 (sCD137) are generated by differential splicing. sCD137 can bind to CD137 ligand to antagonize the costimulatory activities of the membrane-bound CD137 and reduce T cell proliferation and IL-2 secretion. Cancer Immunotherapy Co-stimulatory Immune Checkpoint Targets Immune Checkpoint Detection: Antibodies Immune Checkpoint Detection: ELISA Antibodies Immune Checkpoint Proteins Immune Checkpoint Targets Immunotherapy Targeted Therapy

Reference

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- Melero I, et al. (2008) Multi-layered action mechanisms of CD137 (4-1BB)-targeted immunotherapies. *Trends Pharmacol Sci*. 29(8): 383-90.
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