

## Product Data Sheet

### 4-1BB/TNFRSF9 Protein, Human (163a.a, HEK293, Fc)

Cat. No.:	HY-P70681
Synonyms:	CD137; ILA; TNFRSF9; 4-1BB ligand receptor; CDw137; T-cell antigen 4-1BB homolog; T-cell antigen ILA
Species:	Human
Source:	HEK293
Accession:	Q07011 (L24-Q186)
Gene ID:	3604
Molecular Weight:	Approximately 58.0 kDa

DDODEDTIES	
PROPERTIES	
AA Sequence	LQDPCSNCPA GTFCDNNRNQ ICSPCPPNSF SSAGGQRTCD ICRQCKGVFR TRKECSSTSN AECDCTPGFH CLGAGCSMCE QDCKQGQELT KKGCKDCCFG TFNDQKRGIC RPWTNCSLDG KSVLVNGTKE RDVVCGPSPA DLSPGASSVT PPAPAREPGH SPQ
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 μm filtered solution of PBS, pH 7.4.
Endotoxin Level	<1 EU/µg, determined by LAL method.
Reconsititution	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH <sub>2</sub> O. For long term storage it is recommended to add a carrier protein (0.1% BSA, 5% HSA, 10% FBS or 5% Trehalose).
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US;may vary elsewhere.

#### DESCRIPTION

# Background Recombinant Human 4-1BB/TNFRSF9 (CD137) is an inducible T cell molecule belonging to the TNF receptor superfamily. It has been shown that signaling through CD137 by either its natural ligand, 4-1BBL, or by agonistic Ab's costimulates activation of CD4<sup>+</sup> and CD8<sup>+</sup> T cells in a CD28-independent fashion, leading to activation of the NF-κB, c-Jun NH2-terminal kinase/stress-activated protein kinase (JNK/SAPK), and p38 signaling pathways. In addition to its role in promoting the expansion of antigen-specific T cells, CD137 signaling may also prevent activation-induced death of CD8<sup>+</sup> T cells<sup>[1]</sup>.

#### REFERENCES

[1]. Ye L, et al. CD137, an attractive candidate for the immunotherapy of lung cancer. Cancer Sci. 2020 May;111(5):1461-1467.

[2]. Jiang P, et al. CD137 promotes bone metastasis of breast cancer by enhancing the migration and osteoclast differentiation of monocytes/macrophages. Theranostics. 2019 May 9;9(10):2950-2966.

[3]. Geng T, et al. CD137 Signaling Promotes Endothelial Apoptosis by Inhibiting Nrf2 Pathway, and Upregulating NF-kB Pathway. Mediators Inflamm. 2020 Jun 6;2020:4321912.

[4]. Langstein J, et al. Comparative analysis of CD137 and LPS effects on monocyte activation, survival, and proliferation. Biochem Biophys Res Commun. 2000 Jun 24;273(1):117-22.

[5]. Langstein J, et al. Identification of CD137 as a potent monocyte survival factor. J Leukoc Biol. 1999 Jun;65(6):829-33.

[6]. Jiang D, et al. CD137 induces proliferation of murine hematopoietic progenitor cells and differentiation to macrophages. J Immunol. 2008 Sep 15;181(6):3923-32.

[7]. Wilcox RA, et al. Provision of antigen and CD137 signaling breaks immunological ignorance, promoting regression of poorly immunogenic tumors. J Clin Invest. 2002 Mar;109(5):651-9.

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

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