4-1BB/TNFRSF9 Protein, Mouse (isoform 2, HEK293, Fc)

Cat. No.:	HY-P74335
Synonyms:	CD137; ILA; TNFRSF9; 4-1BB ligand receptor; CDw137
Species:	Mouse
Source:	HEK293
Accession:	NP_001070976 (V24-L211)
Gene ID:	21942
Molecular Weight:	Approximately 46.1 kDa

PROPERTIES

Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 μm filtered solution of 50 mM Tris, 100 mM NaCl, pH 8.0. Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween 80 are added as protectants before lyophilization.
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_2O.
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	4-1BB, is encoded by TNFRSF9 (CD137, ILA), belongs to tumor necrosis factor (TNF) receptor superfamily. 4-1BB is a surface glycoprotein, expressed in a variety of cells, for example, T cells, B cells, natural killer (NK) cells, dendritic (DCs), eosinophils, and mast cells; even a variety of tumor cells such as human leukemia cells. It is widely spread in vascular smooth muscles, tumor vessel walls, and liver tissue of hepatocellular carcinoma. 4-1BB has a preference on CD8+ cells rather than CD4+ cells. It provides co-stimulatory signals and activates cytotoxic effects of CD8+ T cells and helps to form memory T cells. Finally, it promotes the immune system fighting against tumors. Moreover, CD137 binds CD137L to signal monocytes, increase their survival, proliferation and stimulate their migration and extravasation. In addition, it induces the release of various proinflammatory factors, leads to the influx of inflammatory monocytes into tissues and form an inflammatory environment[1]. Specifically, CD137 promotes the migration of monocytes/macrophages to tumor microenvironment by upregulating the expression of Fra1. It also promoted the differentiation of monocytes/macrophages into osteoclasts at the same time, thus providing a favorable microenvironment for the colonization and growth of breast cancer cells in bone. It provides a promising therapeutic strategy for metastasis of breast cancer[2]. Furthermore, CD137 signaling promotes endothelial cells (ECs) apoptosis through prooxidative and proinflammatory mechanisms, mediated by Nrf2 and NF-κB pathways, respectively[3]. The homology of 4-1BB protein in human and mouse was low, and the sequence similarity was 56.75%.

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-κB Pathway. Mediators Inflamm. 2020 Jun 6;2020:4321912.

[4]. Pauly S, et al. CD137 is expressed by follicular dendritic cells and costimulates B lymphocyte activation in germinal centers. J Leukoc Biol. 2002 Jul;72(1):35-42.

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