Recombinant Human NCR3LG1 Protein, His&Avi tagged, Biotin Labeled

Cat. No. NCR3LG1-239H **Lot. No.** (See product label)

SPECIFICATION

Product Overview	Recombinant Human B7-1 (CD80) (Val35-Asn242) with C-terminus His-Avi-tag is expressed in CHO cell. This protein was site-specifically labeled with Biotin by BirA ligase.
Species	Human
Source	CHO
ProteinLength	Biotin
Conjugation/Label	35-242 aa
Description	CD80, also known as B7-1, is a transmembrane glycoprotein that functions as a critical costimulatory molecule in the adaptive immune system. CD80 is primarily expressed on antigen-presenting cells (APCs) such as dendritic cells, macrophages, and activated B cells, where it plays an essential role in T cell activation and immune response regulation. The protein provides the necessary "second signal" for T cell activation by binding to receptors on T cells, complementing the primary signal delivered through the T cell receptor (TCR) recognition of peptide-MHC complexes. CD80 is a member of the B7 family of costimulatory molecules and works in concert with its related molecule CD86 (B7-2) to regulate immune responses, though the two proteins have distinct expression patterns and kinetics. Structurally, CD80 is a type I transmembrane protein of approximately 60 kDa belonging to the immunoglobulin

Tel: 1-631-559-9269 1-516-512-3133
Email: info@creative-biomart.com Fax: 1-631-938-8127
45-1 Ramsey Road, Shirley, NY 11967, USA

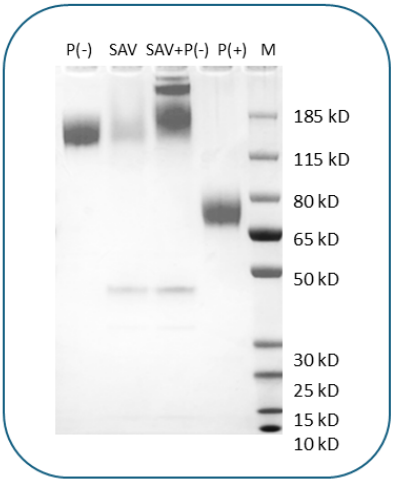
superfamily. The extracellular region contains two immunoglobulin-like domains: an N-terminal IgV-like domain and a membrane-proximal IgC-like domain that mediate receptor binding. The protein also features a single transmembrane domain and a short cytoplasmic tail. The IgV domain is primarily responsible for ligand interactions, while the overall structure allows CD80 to form homodimers on the cell surface, which may enhance its avidity for receptors and strengthen costimulatory signaling. The extracellular domains adopt a characteristic immunoglobulin fold that enables specific recognition by its cognate receptors. CD80 has two primary ligands with opposing functions: CD28 and CTLA-4 (CD152), both expressed on T cells. Binding to CD28, which is constitutively expressed on naive and activated T cells, delivers positive costimulatory signals that enhance T cell proliferation, survival, cytokine production, and effector function development. This CD80-CD28 interaction is essential for productive T cell responses and immunity. Conversely, binding to CTLA-4, an inhibitory receptor upregulated on activated T cells and constitutively expressed on regulatory T cells, delivers negative signals that suppress T cell activation and maintain immune tolerance. CTLA-4 binds CD80 with higher affinity than CD28, allowing it to outcompete CD28 and dampen immune responses. Additionally, CD80 can interact with PD-L1 (CD274), adding another layer of immune regulation. In disease contexts, dysregulation of CD80 expression or function contributes to various pathological conditions. Insufficient CD80-mediated costimulation can lead to T cell anergy and impaired immune responses against infections and tumors. Conversely, excessive or inappropriate CD80 expression contributes to autoimmune diseases and transplant rejection by promoting unwanted T cell activation. In cancer, tumor cells and immunosuppressive cells in the tumor microenvironment may manipulate CD80 expression to evade immune surveillance. Therapeutically, the CD80-CD28-CTLA-4 axis has become a cornerstone of cancer immunotherapy. CTLA-4 blocking antibodies such as ipilimumab prevent CTLA-4 from binding to CD80/CD86, thereby enhancing CD28 costimulation and boosting antitumor T cell responses. This approach has achieved remarkable clinical success in melanoma and other cancers. Additionally, CD80-Ig fusion proteins and other CD80-based therapeutics are being

	explored for modulating immune responses in autoimmune diseases, transplantation, and cancer, establishing CD80 as a pivotal target in immune modulation and therapeutic intervention.
Form	Liquid, 1×PBS buffer, pH7.4, 0.22 μm filtered
Molecular Mass	The protein has a predicted molecular weight of 27.5 kDa. Under DTT-reducing conditions, it migrates at approximately 45 kDa on SDS-PAGE.
Purity	>95% based on SDS-PAGE under reducing condition
Applications	ELISA, BLI
Storage	Briefly centrifuge the vial upon receipt. An unopened vial can be stored at 4 centigrade for up to 2 weeks, or at -20 centigrade or below for up to six months. The protein may be further diluted to 0.1 mg/mL using 0.22 μm-filtered PBS buffer (pH 7.4). For long-term storage, the diluted stock solution should be aliquoted and stored at ≤ –70 centigrade to minimize freeze-thaw cycles. If additional dilution is required, carrier proteins such as FBS or BSA should be added to maintain protein stability.
Concentration	25 μg size is bottled at 0.2 mg/mL concentration. 100 μg size is supplied at a lot-specific concentration.

GENE INFORMATION

Gene Name	NCR3LG1 natural killer cell cytotoxicity receptor 3 ligand 1 [Homo sapiens (human)]
Official Symbol	NCR3LG1
Synonyms	NCR3LG1; natural killer cell cytotoxicity receptor 3 ligand 1; B7H6; B7-H6; DKFZp686O24166; natural cytotoxicity triggering receptor 3 ligand 1; B7 homolog 6;

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	putative Ig-like domain-containing protein DKFZp686O24166/DKFZp686I21167
Gene ID	374383
mRNA Refseq	NM_001202439
Protein Refseq	NP_001189368
MIM	613714
UniProt ID	Q68D85
SDS-PAGE	 Human B7-1 (CD80) Protein (C-His-Avi) was biotinylated in vitro using BirA ligase. SDS-PAGE analysis under reducing (P+) and non-reducing (P-) conditions shows the protein has a purity greater than 95%. Agel shift assay using co-incubation with streptavidin indicates that the biotinylation efficiency of Human B7-1 protein exceeds 90%.

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