

## CTLA-4 Protein, Mouse, Recombinant (His & Avi), Biotinylated

### General Information

Synonyms:	cytotoxic T-lymphocyte-associated protein 4;Ctla-4;Ly-56;Cd152
Protein Construction:	A DNA sequence encoding the Mouse CTLA4 (NP_033973.2)(Met1-Phe162) was expressed with a C-terminal polyhistidine 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: Glu 36
Species:	Mouse
Expression Host:	HEK293 Cells
Accession:	NP_033973.2
Molecular Weight:	17.27 kDa (predicted); 30.4 kDa (reducing conditions)

### QC Testing

Biological Activity:	Immobilized Recombinant Mouse CD80 / B7-1 Protein (Fc Tag) at 2 µg/mL (100 µL/well) can bind Recombinant Mouse CTLA-4 Protein (His & AVI Tag), Biotinylated, the EC50 is 7-21 ng/mL.
Purity:	≥ 95 % as determined by SDS-PAGE. ≥ 95 % as determined by SEC-HPLC.
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.

Actual storage temperature shall be subject to the COA.

**Shipping:**

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

### Protein Background

Cytotoxic T-lymphocyte protein 4, also known as CTLA4 and CD152, is a single-pass type I membrane protein and a member of the immunoglobulin superfamily. It is the second member of the CD28 receptor family. The ligands or

counterreceptors for these two proteins are the B7 family members, CD80 (B7-1) and CD86 (B7-2). CTLA4 transmits an inhibitory signal to T cells, whereas CD28 transmits a stimulatory signal. Intracellular CTLA4 is also found in regulatory T cells and may play an important role in their functions. CD152 or cytotoxic T lymphocyte antigen-4 (CTLA-4) is an essential receptor involved in the negative regulation of T cell activation. Because of its profound inhibitory role, CD152 has been considered a sound susceptible candidate in autoimmunity and a persuasive target for cancer immunotherapy. In particular, recent evidence suggests that CD152 is also important in the homeostasis and function of a population of suppressive cells, termed regulatory T cells (Treg).  
Cancer Immunotherapy  
Co-inhibitory Immune Checkpoint Targets  
CTLA4 / CD152 Immune Checkpoint Proteins  
Immune Checkpoint  
Immune Checkpoint Detection: Antibodies  
Immune Checkpoint Detection: ELISA  
Antibodies  
Immune Checkpoint Detection: IP  
Antibodies  
Immune Checkpoint Detection: WB  
Antibodies  
Immune Checkpoint Proteins  
Immune Checkpoint Targets  
Immunotherapy  
Targeted Therapy

### Reference

Slavik JM, et al. (1999) CD28/CTLA-4 and CD80/CD86 families: signaling and function. *Immunol Res.* 19(1): 1-24.  
Holmberg D, et al. (2005) CTLA-4 (CD152) and its involvement in autoimmune disease. *Autoimmunity.* 38(3): 225-33.  
Chin LT, et al. (2008) Immune intervention with monoclonal antibodies targeting CD152 (CTLA-4) for autoimmune and malignant diseases. *Chang Gung Med J.* 31(1): 1-15.

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