## DESCRIPTION

**Source**
Chinese Hamster Ovary cell line, CHO-derived human CTLA-4 protein

<table>
<thead>
<tr>
<th>Human CTLA-4 (Ala37-Phe162)</th>
<th>IEGRMD</th>
<th>Human IgG1 (Pro100-Lys330)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accession # P16410</td>
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</tbody>
</table>

**N-terminal Sequence Analysis**
 Ala37 & Met38

**Structure / Form**
Disulfide-linked homodimer

**Predicted Molecular Mass**
40.1 kDa (monomer)

## SPECIFICATIONS

**SDS-PAGE**
53-58 kDa, reducing conditions

**Activity**

The ED₅₀ for this effect is 0.03-0.15 μg/mL when stimulated with 1 μg/mL Recombinant Human B7-1/CD80 Fc Chimera (Catalog # 140-B1).

**Endotoxin Level**
<0.01 EU per 1 μg of the protein by the LAL method.

**Purity**
>95%, by SDS-PAGE under reducing conditions and visualized by silver stain.

**Formulation**
Lyophilized from a 0.2 μm filtered solution in PBS. See Certificate of Analysis for details.

## PREPARATION AND STORAGE

**Reconstitution**
Reconstitute at 100 μg/mL in PBS.

**Shipping**
The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.

**Stability & Storage**
Use a manual defrost freezer and avoid repeated freeze-thaw cycles.

- 12 months from date of receipt, -20 to -70 °C as supplied.
- 1 month, 2 to 8 °C under sterile conditions after reconstitution.
- 3 months, -20 to -70 °C under sterile conditions after reconstitution.

## DATA

![Bioactivity](image)

Recombinant Human CTLA-4 Fc Chimera (Catalog # 7268-CT) inhibits IL-2 secretion by stimulated Jurkat human acute T cell leukemia cells.

The ED₅₀ for this effect is 0.03-0.15 μg/mL when stimulated with 1 μg/mL Recombinant Human B7-1/CD80 Fc Chimera (Catalog # 140-B1).
**BACKGROUND**

CTLA-4 (cytotoxic T-lymphocyte associated protein-4, designated CD152), is a type I transmembrane T cell inhibitory molecule that is a member of the Ig superfamily (1, 2). Human or mouse CTLA-4 cDNA encodes 223 amino acids (aa) including a 35 aa signal sequence, a 126 aa extracellular domain (ECD) with one Ig-like V-type domain, a 21 aa transmembrane (TM) sequence, and a 41 aa cytoplasmic sequence. It is found as a covalent homodimer of 41-43 kDa (2). Within the ECD, human CTLA-4 shares 68%, 71% and 83-86% aa sequence identity with mouse, rat and porcine/bovine/rabbit/feline/canine CTLA-4, respectively. A 174 aa form that lacks TM and cytoplasmic sequences (sCTLA-4) is possibly secreted (3-5). Isoforms of 56-79 aa that mainly contain parts of the cytoplasmic domain are reported. In mouse, an isoform lacking the Ig-like domain has ligand-independent inhibitory activity and is termed iCTLA-4 (6). CD28, which is structurally related to CTLA-4, is constitutively expressed on naïve T cells and promotes T cell activation when engaged by B7-2 on antigen-presenting cells (APC) within the immunological synapse (IS) (1, 7, 8). In contrast, CTLA-4 is recruited from intracellular vesicles to the IS beginning 1-2 days after T cell activation (2, 7, 8). It forms a linear lattice with B7-1 on APC, inducing negative regulatory signals and ending T cell activation (9). Abatacept, a therapeutic human CTLA-4-Ig fusion protein (trade name Orencia), competes with CD28 for B7-1 and B7-2 binding and has been used to antagonize T cell activation in autoimmune conditions and to enhance transplant survival (10).

Mice deleted for CTLA-4 show no abnormalities until after birth, but then develop lethal autoimmune reactions due to continued T cell activation and poor control by regulatory T cells, which constitutively express CTLA-4 in wild-type mice and humans (11-13).

**References:**