

**DESCRIPTION**

**Source** *E. coli*-derived human IL-2 protein  
Ala21-Thr153, with an N-terminal Met  
Accession # P60568  
Produced using non-animal reagents in an animal-free laboratory.

**N-terminal Sequence Analysis** Met

**Predicted Molecular Mass** 15 kDa

**SPECIFICATIONS**

**Activity** Measured in a cell proliferation assay using CTLL-2 mouse cytotoxic T cells. Gearing, A.J.H. and C.B. Bird (1987) in *Lymphokines and Interferons, A Practical Approach*. Clemens, M.J. *et al.* (eds): IRL Press. 295.  
The ED<sub>50</sub> for this effect is 0.05-0.25 ng/mL.  
The specific activity of Recombinant Human IL-2 is approximately 2.1 x 10<sup>4</sup> IU/μg, which is calibrated against recombinant human IL-2 WHO International Standard (NIBSC code: 86/500).

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

**Purity** >97%, by SDS-PAGE under reducing conditions and visualized by silver stain.

**Formulation** Lyophilized from a 0.2 μm filtered solution in Acetonitrile and TFA with Trehalose. See Certificate of Analysis for details.

**PREPARATION AND STORAGE**

**Reconstitution** Reconstitute at 0.2 mg/mL in sterile 100 mM Acetic Acid. Alternatively, reconstitute at 0.1 mg/mL in sterile deionized water and use within 24 hours, store at 2 to 8 °C.

**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.
- 3 months, 2 to 8 °C under sterile conditions after reconstitution.

**BACKGROUND**

Interleukin-2 (IL-2) is a O-glycosylated, four α-helix bundle cytokine that has potent stimulatory activity for antigen-activated T cells. It is expressed by CD4<sup>+</sup> and CD8<sup>+</sup> T cells, γδ T cells, B cells, dendritic cells, and eosinophils (1 - 3). Mature human IL-2 shares 56% and 66% amino acid sequence identity with mouse and rat IL-2, respectively. Human and mouse IL-2 exhibit cross-species activity (4). The receptor for IL-2 consists of three subunits that are present on the cell surface in varying preformed complexes (5 - 7). The 55 kDa IL-2 Rα is specific for IL-2 and binds with low affinity. The 75 kDa IL-2 Rβ, which is also a component of the IL-15 receptor, binds IL-2 with intermediate affinity. The 64 kDa common gamma chain γc/IL-2 Rγ, which is shared with the receptors for IL-4, -7, -9, -15, and -21, does not independently interact with IL-2. Upon ligand binding, signal transduction is performed by both IL-2 Rβ and γc. IL-2 is best known for its autocrine and paracrine activity on T cells. It drives resting T cells to proliferate and induces IL-2 and IL-2 Rα synthesis (1, 2). It contributes to T cell homeostasis by promoting the Fas-induced death of naïve CD4<sup>+</sup> T cells but not activated CD4<sup>+</sup> memory lymphocytes (8). IL-2 plays a central role in the expansion and maintenance of regulatory T cells, although it inhibits the development of Th17 polarized cells (9-11). Thus, IL-2 may be a key cytokine in the natural suppression of autoimmunity (12, 13).

**References:**

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4. Mosmann, T.R. *et al.* (1987) *J. Immunol.* **138**:1813.
5. Liparoto, S.F. *et al.* (2002) *Biochemistry* **41**:2543.
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7. Bodnar, A. *et al.* (2008) *Immunol. Lett.* **116**:117.
8. Jaleco, S. *et al.* (2003) *J. Immunol.* **171**:61.
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11. Kryczek, I. *et al.* (2007) *J. Immunol.* **178**:6730.
12. Afzali, B. *et al.* (2007) *Clin. Exp. Immunol.* **148**:32.
13. Fehervari, Z. *et al.* (2006) *Trends Immunol.* **27**:109.

#### MANUFACTURING SPECIFICATIONS

##### Animal-Free Manufacturing Conditions

Our dedicated controlled-access animal-free laboratories ensure that at no point in production are the products exposed to potential contamination by animal components or byproducts. Every stage of manufacturing is conducted in compliance with R&D Systems' stringent Standard Operating Procedures (SOPs). Production and purification procedures use equipment and media that are confirmed animal-free.

##### Production

- All molecular biology procedures use animal-free media and dedicated labware.
- Dedicated fermentors are utilized in committed animal-free areas.

##### Purification

- Protein purification columns are animal-free.
- Bulk proteins are filtered using animal-free filters.
- Purified proteins are stored in animal-free containers in a dedicated cold storage room.

##### Quality Assurance

- Low Endotoxin Level.
- No impairment of biological activity.
- High quality product obtained under stringent conditions.
- For *ex vivo* research or bioproduction, [additional documentation](#) can be provided.

[Please read our complete Animal-Free Statement](#)