

## IL-2 Protein, Human (HEK293, His)

<b>Cat. No.:</b>	HY-P70758
<b>Synonyms:</b>	Interleukin-2; IL-2; T-Cell Growth Factor; TCGF; Aldesleukin; IL2
<b>Species:</b>	Human
<b>Source:</b>	HEK293
<b>Accession:</b>	P60568 (A21-T153)
<b>Gene ID:</b>	3558
<b>Molecular Weight:</b>	Approximately 14-18 kDa due to the glycosylation.

### PROPERTIES

<b>AA Sequence</b>	<pre> A P T S S S T K K T   Q L Q L E H L L L D   L Q M I L N G I N N   Y K N P K L T R M L T F K F Y M P K K A   T E L K H L Q C L E   E E L K P L E E V L   N L A Q S K N F H L R P R D L I S N I N   V I V L E L K G S E   T T F M C E Y A D E   T A T I V E F L N R W I T F C Q S I I S   T L T           </pre>
<b>Biological Activity</b>	The cell proliferation assay using CTLL-2 mouse cytotoxic T cells has a specific activity of $\geq 4.5 \times 10^6$ IU/mg.
<b>Appearance</b>	Lyophilized powder.
<b>Formulation</b>	Lyophilized from a 0.2 $\mu$ m filtered solution of 20 mM PB, 150 mM NaCl, pH 7.4 or 10mM Sodium Citrate, pH 4.0, 5% trehalose, 5% mannitol and 0.01% Tween80.
<b>Endotoxin Level</b>	<1 EU/ $\mu$ g, determined by LAL method.
<b>Reconstitution</b>	It is not recommended to reconstitute to a concentration less than 100 $\mu$ g/mL in ddH <sub>2</sub> O. For long term storage it is recommended to add a carrier protein (0.1% BSA, 5% HSA, 10% FBS or 5% Trehalose).
<b>Storage &amp; Stability</b>	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.
<b>Shipping</b>	Room temperature in continental US; may vary elsewhere.

### DESCRIPTION

<b>Background</b>	The cytokine interleukin-2 (IL-2), produced primarily by activated CD4-positive helper T-cells and, to a lesser extent, by activated CD8-positive T-cells and natural killer (NK) cells, plays pivotal roles in the immune response and tolerance. IL-2 binds to a receptor complex composed of either the high-affinity trimeric IL-2R (IL2RA/CD25, IL2RB/CD122, and IL2RG/CD132) or the low-affinity dimeric IL-2R (IL2RB and IL2RG). This interaction induces oligomerization and conformational changes in the IL-2R subunits, initiating downstream signaling with the phosphorylation of JAK1 and JAK3.
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Subsequently, JAK1 and JAK3 phosphorylate the receptor, creating a docking site for the phosphorylation of various substrates, including STAT5. This process activates multiple pathways, including STAT, phosphoinositide-3-kinase/PI3K, and mitogen-activated protein kinase/MAPK pathways. IL-2 functions as a T-cell growth factor, enhances NK-cell cytolytic activity, and promotes robust proliferation of activated B-cells, leading to increased immunoglobulin production. Furthermore, IL-2 plays a crucial role in regulating the adaptive immune system by controlling the survival and proliferation of regulatory T-cells, essential for maintaining immune tolerance. Additionally, IL-2 participates in the differentiation and homeostasis of various effector T-cell subsets, including Th1, Th2, Th17, as well as memory CD8-positive T-cells.

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**Caution: Product has not been fully validated for medical applications. For research use only.**

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