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## Interleukin-2 (IL-2)

100 µl

**For Research Use Only. Not for Use in Diagnostic Procedures.**

**MW (kDa):**  
16

**UniProt ID:**  
#P60568

**Entrez-Gene Id:**  
3558

### Background

Interleukin-2 (IL-2) is a T cell stimulatory cytokine best known for inducing T cell proliferation and NK cell proliferation and activation (1,2). IL-2 also promotes peripheral development of regulatory T cells (Tregs) (3,4). Conversely, IL-2 is involved in the activation-induced cell death (AICD) that is observed post T cell expansion by increasing levels of Fas on CD4<sup>+</sup> T cells (5). The effects of IL-2 are mediated through a trimeric receptor complex consisting of IL-2R $\alpha$ , IL-2R $\beta$ , and the common gamma chain,  $\gamma$ c (1,2). IL-2R $\alpha$  binds exclusively to IL-2 with low affinity and increases the binding affinity of the whole receptor complex including IL-2R $\beta$  and  $\gamma$ c subunits. IL-15 also binds to IL-2R $\beta$  (1,2).  $\gamma$ c is used by other cytokines, including IL-4, IL-7, IL-9, IL-15, and IL-21 (1,2). Binding of IL-2 initiates signaling cascades involving Jak1, Jak3, Stat5, and the PI3K/Akt pathways (1,2).

Interleukin-2 (IL-2) is a type of lymphokine which Morgan et al. found in 1976 to be a specific growth factor of T lymphocytes. Interleukin 2 (IL-2) is predominantly produced by T-helper cells (TH1) having the phenotype CD4<sup>+</sup>, and by subpopulations of thymocytes after antigenic or mitogenic stimulation (1). IL-2 causes proliferation of T-cells, and its function depends on binding to IL-2 receptors (IL-2R alpha and IL-2R beta) which mediate downstream signaling including the activation of p70 S6 kinase (2). Thus, the immune response of T cells is controlled through the expression of IL-2 receptors and IL-2 binding. IL-2 receptors are expressed not only by T-cells but also by B-cells, NK cells, monocytes, thymocytes, thymic stroma cells, oligodendrocytes and endothelial cells (3). This explains the various functions of IL-2, such as immunoglobulin production, growth of certain B-cell subpopulations, macrophage-dependent cytotoxicity, growth and differentiation of oligodendrocytes and proliferation of lymphokine activated killer (LAK) cells. Abnormal production of IL-2 may lead to autoimmune diseases, immunodeficiencies and, under certain circumstances, to T-cell leukemia (4). IL-2 also shares many of these functions with other cytokines such as IL-15 (1).

### Purity

>95%

### Source / Purification

Human Recombinant Protein

### Bioactivity

1 x 10<sup>7</sup> IU/mg

### Background References

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