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Human Recombinant IL-2 (E. coli-expressed)

Interleukin 2

Catalog #78220	10 µg
Catalog #78220.1	100 µg
Catalog #78220.2	500 µg
Catalog #78220.3	1000 µg

Product Description

Interleukin 2 (IL-2) is a monomeric cytokine that was originally identified as a T cell growth factor (Gaffen & Liu). It binds to heterotrimeric receptors consisting of CD25, CD122, and CD132. Upon binding, it activates JAK3-, STAT5-, and AKT-dependent signaling pathways, which results in cellular proliferation and survival (Ma et al.). The majority of IL-2 is secreted by activated CD4+ and CD8+ T cells, although B cells and dendritic cells were found to produce IL-2 in small amounts. IL-2 downregulates immune responses to prevent autoimmunity during thymic development, influences the development of CD4+CD25+ regulatory T cells, and affects development of follicular helper T cells. IL-2 also controls inflammation by inhibiting Th17 differentiation (Banchereau et al.). High IL-2 levels in serum are associated with progression of scleroderma, rheumatoid arthritis, and gastric and non-small cell lung cancer, though no known disease can be directly attributed to the lack or excess of IL-2 (Gaffen & Liu).

Product Information

Alternative Names: Aldesleukin, Interleukin2, T cell growth factor, TCGF

Accession Number: P60568

Amino Acid Sequence: MAPTSSSTKK TQLQLEHLLL DLQMILNGIN NYKNPKLTRM LTFKFYMPKK ATELKHLQCL EEELKPLEEV LNLAQSKNFH LRPRDLISNI NVIVLELKGS ETTFMCEYAD ETATIVEFLN RWITFCQSII STLT

Predicted Molecular Mass: 15.5 kDa

Species: Human

Product Formulation: Lyophilized from a sterile-filtered aqueous solution containing 0.1% trifluoroacetic acid.

Source: E. coli

Purity: ≥ 97%

Specifications

Activity: The EC50 is ≤ 3 ng/mL, as determined by a cell proliferation assay using CTLL-2 cells. The specific activity is approximately 1.8 x 10^4 IU/µg, as calibrated against the human recombinant IL-2 WHO International Standard (NIBSC code: 86/500).

Endotoxin Level: Measured by kinetic Limulus amebocyte lysate (LAL) analysis and is ≤ 0.1 EU/µg protein.

Preparation and Storage

Stability and Storage: Store at -20 to -80°C. Stable as supplied for 12 months from date of receipt.

Preparation: Centrifuge vial before opening. Reconstitute the product in sterile 10 mM hydrochloric acid to at least 0.1 mg/mL by pipetting the solution down the sides of the vial. Do not vortex.

OPTIONAL: After reconstitution, if product will not be used immediately, dilute with concentrated bovine serum albumin (BSA) to a final BSA concentration of 0.1%. The effect of storage of stock solution on product performance should be tested for each application. As a general guide, do not store at 2 - 8°C for more than 1 month or at -20 to -80°C for more than 3 months. Avoid repeated freeze-thaw cycles.

Data

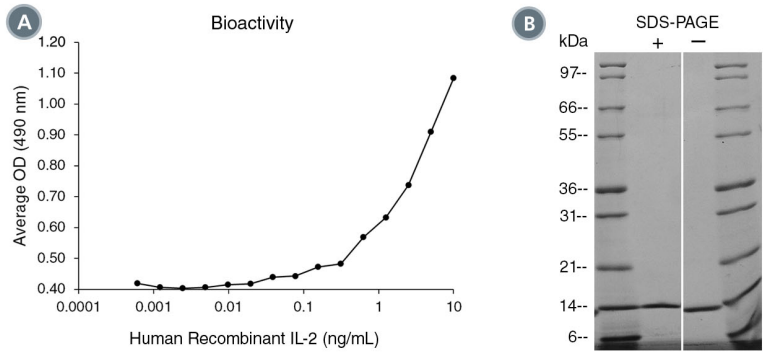

Figure 1. Biological Activity and Molecular Mass of Human Recombinant IL-2

(A) The biological activity of Human Recombinant IL-2 was tested by its ability to promote the proliferation of CTLL-2 cells. Cell proliferation was measured after 72 hours of culture. The EC50 is defined as the effective concentration of the cytokine at which cell proliferation is at 50% of maximum. The EC50 in the above example is 1.99 ng/mL. (B) 1 µg of Human Recombinant IL-2 was resolved with SDS-PAGE under reducing (+) and non-reducing (-) conditions and visualized by Coomassie Blue staining. Human Recombinant IL-2 has a predicted molecular mass of 15.5 kDa.

Related Products

For a complete list of cytokines or peptide pools, as well as related products available from STEMCELL Technologies, visit www.stemcell.com/cytokines or contact us at techsupport@stemcell.com.

References

Banchereau J et al. (2012) From IL-2 to IL-37: the expanding spectrum of anti-inflammatory cytokines. Nat Immunol 13(10): 925–31.

Gaffen SL & Liu KD. (2004) Overview of interleukin-2 function, production and clinical applications. Cytokine 28(3): 109–23.

Ma A et al. (2006) Diverse functions of IL-2, IL-15, and IL-7 in lymphoid homeostasis. Annu Rev Immunol 24: 657–79.