

Recombinant Human IL-2 ACF

Catalog #	Product	Size
95118	Recombinant Human IL-2 ACF	10 µg

Intended Use

This product is for research or further manufacturing use only. Not for injection or diagnostic procedures. The safety and efficacy of this product in diagnostic or other clinical procedures has not been established.

Product Description

Recombinant Human IL-2 ACF is a carrier-free, animal component-free bioactive recombinant cytokine intended for use in cell culture applications. IL-2 is a typical four α -helix cytokine and is produced primarily by activated CD4⁺ T cells following mitogenic or allogeneic activation. IL-2 expression by naive CD8⁺ T cells, dendritic cells, and thymic cells has also been reported. As a T cell growth factor, IL-2 potently induces T cell expansion in vitro. IL-2 has been used clinically to enhance T cell immunity in patients with AIDS or cancer (1).

Synonyms: T cell growth factor, TCGF, Aldesleukin

Accession Number: P60568

Background: IL-2 is a T cell stimulatory cytokine best known for inducing activated T cell proliferation in vitro. IL-2 also stimulates proliferation and differentiation of B cells, natural killer cells, monocytes and macrophages. IL-2 is critical for the development, survival, and function of CD4⁺CD25⁺ regulatory T cells, which promote T cell tolerance by suppressing T cell responses to self-antigens *in vivo*, thus inhibiting immune responses and preventing autoimmune diseases. IL-2 plays an essential role in sensitizing T cells to activation-induced cell death, a process mediated primarily by Fas and TNF signals to limit the magnitude of T cell expansion through programmed death of activated T cells. IL-2 binds to and signals through membrane receptor IL-2R, which is expressed almost exclusively by activated T-cells. IL-2R is a trimeric receptor complex consisting of three distinct subunits designated as IL-2R α (CD25), IL-2R β (CD122), and common γ -chain (γ c, CD132). IL-2R α binds exclusively to IL-2 with low affinity and increases binding affinity of the whole receptor complex, including IL-2R β and γ c subunits. IL-2R β is also used by IL-15. The common γ c is used by other cytokines, including IL-4, IL-7, IL-9, IL-15, and IL-21. Binding of IL-2 initiates signaling cascades involving Jak1, Jak3, Stat5 and the PI3K/Akt pathways (2-5). Recombinant Human IL-2 has a serine substitute for cysteine at position 126. Recombinant Human IL-2 is a non-glycosylated protein, containing 134 amino acids, with a molecular weight of 15.5 kDa.

Specifications

Formulation:	Recombinant Human IL-2 ACF is lyophilized at 1mg/ml in 10mM sodium citrate, pH 3.0.
Protein Purity:	≥ 90% determined by reducing and non-reducing SDS-PAGE analysis
Bioactivity:	ED50 is determined by the dose-dependent proliferation of CD3 ⁺ T cells. The ED50 is typically less than 1 ng/mL. The specific activity of Human IL-2 is approximately 1.8x10 ⁴ IU/μg, which is calibrated against recombinant human IL-2 WHO International Standard (NIBSC code 86/500).
Quality and Grade:	Carrier-free and animal component-free.

Quality Assurance

All quality control test results are reported on a lot specific Certificate of Analysis, which is available at www.irvinesci.com or upon request.

Shipping

This product is shipped at ambient temperature. Immediately upon receipt, store at the recommended temperature below.

Storage Instructions and Stability

Upon receipt, store the lyophilized protein at -10°C in a manual defrost freezer for up to 12 months from the date of receipt. Unopened vials are stable for one year from the date of receipt when stored as recommended. Reconstituted material should be apportioned in working volumes and stored at or below -10°C in manual defrost freezer. Reconstituted material is stable for 4-6 weeks when stored at or below -10°C. Stability can be increased by adding at least 0.1% carrier protein.

Precautions

The safety and efficacy of this product in diagnostic or other clinical uses has not been established. Please refer to the Safety Data Sheet for information regarding hazards and safe handling practices.

Directions for Use

1. Reconstitution

Centrifuge vial before opening. When reconstituting the product, gently pipet and wash down the sides of the vial to ensure full recovery of the protein into solution. It is recommended to reconstitute the lyophilized product with sterile 10mM HCl at a concentration of 0.1 mg/mL, which can be further diluted into other aqueous solutions.

2. Optimum Concentration

The optimum concentration varies depending on cell type and culture conditions. Working concentration should be determined for each specific application.

Related Products

Catalog #	Product	Size
91154	PRIME-XV T Cell CDM	1L
91141	PRIME-XV T Cell Expansion XSFM	1L
91211	PRIME-XV Hematopoietic Cell Basal XSFM	500mL

References

1. Nelson BH (2004). IL-2, Regulatory T Cells, and Tolerance. *J Immunol.* 172(7):3983-3988
2. Malek TR, Pugliese A (2011). Low-dose IL-2 as a therapeutic agent for tolerance induction. *Immunotherapy.* 3(11):1281-1284
3. Green DR, Droin N, Pinkoski M (2003) Activation-induced cell death in T cells. *Immunol Rev.* 193:70-81
4. Gaffen SL, Liu KD (2004). Overview of interleukin-2 function, production and clinical applications. *Cytokine.* 28(3): 109–123
5. Jaleco S, Swainson L, Dardalhon V, Burjanadze M, Kinet S, Taylor N (2003). Homeostasis of naive and memory CD4+ T cells: IL-2 and IL-7 differentially regulate the balance between proliferation and Fas-mediated apoptosis. *J Immunol.* 171(1):61-68

Technical Support

CONTACT US

For more information or assistance contact Customer Service at:

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- Direct line: +1 800 577 6097

WEBSITE RESOURCES

Visit the website at www.irvinesci.com for technical resources and information including:

- Safety Data Sheets (SDS)
- Certificate of Analysis (CoA) (when available)
- FAQs
- Product literature
- Complete list of offices and contact information by country

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