

CTGrade rh IL-2_{C126S}

Catalog #	Product	Size
500-01	CTGrade rh IL-2 _{C126S}	50µg, 100µg, 1mg lyophilized

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

This product is produced from *E. coli* and is manufactured in a facility that does not use or process beta-lactam containing materials. No animal- or human-derived materials were used during manufacturing or as ingredients. This product is manufactured, tested, and released in an ISO 9001:2015 certified facility and follows cGMP practices. USP chapter <1043> for ancillary materials has been considered in the manufacture of this product. Vial may appear empty but contains protein at the stated quantity.

Synonyms: T cell growth factor, TCGF, Aldesleukin

NIH Accession Number: P60568

Background: Interleukin 2 (IL-2) is a T cell stimulatory cytokine best known for inducing activated T cell proliferation *in vitro* (1). It also stimulates proliferation and differentiation of B cells, natural killer cells, monocytes, and macrophages (2). 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*, inhibiting immune responses and preventing autoimmune diseases (3). IL-2 plays an essential role in sensitizing T cells to activation-induced cell death, a process mediated primarily by Fas and tumor necrosis factor (TNF) signals to limit the magnitude of T cell expansion through programmed death of activated T cells (4). The cytokine 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 interleukins, 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 (5-8). Recombinant human IL-2 has a serine substitute for cysteine at position 126; it is a non-glycosylated protein, containing 134 amino acids, with a molecular weight of 15.5 kDa.

Specifications

Formulation:	CTGrade rh IL-2 _{C126S} lyophilized at 1mg/ml in 0.1% Trifluoroacetic Acid (TFA), 0.2µm filtered.
Protein Purity:	≥97% determined by reducing and non-reducing SDS-PAGE analysis.
Endotoxin:	<0.01 EU/µg using USP <85>/ EP 2.6.14
Bioactivity:	ED50 is determined by the dose-dependent Proliferation of CTLL- 2 cells. The ED50 is typically less than 3 ng/mL. The international units of CTGrade rh IL-2 _{C126S} is approximately 1.8 x 10 ⁴ IU/µg, which is calibrated against recombinant Human Interleukin 2 WHO International Standard (NIBSC code 86/500).
Quality:	Carrier-free and no animal or human-derived materials were used during manufacturing.

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 -20°C in a manual defrost freezer. Unopened vials are stable for 36 months from the date of manufacturer. Reconstituted material should be apportioned in working volumes and stored at or below -20°C in manual defrost freezer.

For short term storage reconstituted material is stable for 4-6 weeks when stored at 2-8°C. Stability can be increased by adding at least 0.1% carrier protein.

Precautions

For *ex vivo* use only. Not for injection or diagnostic procedures. 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

Allow the vial and sterile 10 mM HCl to equilibrate to room temperature. Draw up desired volume of reconstitution buffer. Aseptically puncturing through rubber stopper with sterile needle, inject the buffer to achieve the desired concentration (0.1-0.5 mg/mL). Swirl the vial gently, **do not vortex**. Allow protein to rehydrate for 10-15 minutes at room temperature with occasional gentle mixing.

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
91215	PRIME-XV NK Cell CDM	1L

References

1. Nelson BH. (2004). J Immunol. 172(7):3988. PMID: 15034008
2. Liao W, *et al.* (2013). 38:13. PMID: 23352221
3. Antony PA, Restifo NP. (2005) J Immunother. 28(2):120. PMID: 15725955
4. L Van Parijs, *et al.* (1999). Immunity. Sep;11(3):281. PMID: 10514006
5. Malek TR, Pugliese A. (2011) Immunotherapy. 3(11):1281. PMID: 22053878
6. Green DR, *et al.* (2003). Immunol Rev. 193:70. PMID: 12752672
7. Gaffen SL, Liu KD. (2004). Cytokine. 28(3): 109. PMID: 15473953
8. Jaleco S, *et al.* (2003). J Immunol. 171(1):61. PMID: 12816983

Technical Support

CONTACT US

For more information or assistance contact Customer Service at:

- Email: fisitmrequest@fujifilm.com
- Direct line: +1 800 577 6097

WEBSITE RESOURCES

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

- Safety Data Sheets (SDS)
- Certificate of Analysis (CoA) (when available)
- FAQs
- Product literature

FUJIFILM Irvine Scientific, Inc.

2511 Daimler Street, Santa Ana, California 92705-5588 USA

Telephone: 1 949 261 7800 • 1 800 437 5706

Fax: 1 949 261 6522 • www.irvinesci.com

FUJIFILM Irvine Scientific, its logo, CTGrade, and PRIME-XV are registered trademarks of FUJIFILM Irvine Scientific, Inc. in various jurisdictions. All other trademarks are the property of their respective owners.

© 2023 FUJIFILM Irvine Scientific