

CTGrade GMP rh IFN-alpha 2A

Catalog #	Product	Size
500-30	CTGrade GMP rh IFN-alpha 2A	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. As such, the risk for BSE/TSE contamination can be considered negligible. 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.

Synonyms: Type I Interferon, Alpha 2

NIH Accession Number: P01563

Background: Interferon-alpha 2 (IFN- α 2), also known as leukocyte interferon, is a type I interferon with potent antiviral and immunomodulatory properties [1, 2]. Type I interferons are a family of highly related proteins (>95% amino acid sequence homology) that signal through the interferon- α receptor (IFNAR), composed of two subunits: IFNAR1 (~125 kDa), which contributes to ligand binding and signal transduction, and IFNAR2 (~100 kDa), the primary ligand-binding chain [3]. Human IFN- α 2 exists in three allelic variants: IFN- α 2a, IFN- α 2b, and IFN- α 2c. Recombinant human IFN- α 2a (rhIFN- α 2a), commonly produced in *E. coli*, is a single non-glycosylated polypeptide of 165 amino acids with a molecular mass of ~19.3 kDa. The IFN- α 2a gene was originally cloned from human leukocytes, and the recombinant protein is purified using proprietary chromatographic techniques [1]. Functionally, IFN- α 2 activates the JAK-STAT signaling pathway, leading to 1. Antiviral defense-inhibition of viral replication and enhancement of cellular resistance to infection [2, 4]. 2. Antiproliferative activity-suppression of tumor cell growth and induction of apoptosis [4, 5]. 3. Immunomodulation-upregulation of class I MHC, activation of NK cells and cytotoxic T lymphocytes, and modulation of B-cell antibody production [2, 6]. 4. Synergy with other cytokines – amplification of immune signaling networks [2]. Recombinant IFN- α 2a is widely used as a therapeutic agent for viral infections (e.g., hepatitis B and C) [7, 8], hematologic malignancies (e.g., hairy cell leukemia, chronic myeloid leukemia) [9], and solid tumors (e.g., malignant melanoma, renal cell carcinoma) [10, 11]. UniProt ID: P01563

Specifications

Formulation:	CTGrade GMP rh IFN-alpha 2A is lyophilized from a 0.2 µm filtered solution containing 10 mM Sodium Phosphate, 140 mM Sodium Chloride, pH 7.4.
Protein Purity:	≥98% 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 induction of cytotoxicity of TF-1 cells by rhIFNa2a cells. The ED50 is typically less than 0.3 ng/mL.
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 <https://fujifilmbiosciences.fujifilm.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 manufacture. 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 water (e.g. FUJIFILM Irvine Scientific, Inc. P/N 9309 Water for Injection) 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
9161	RPMI 1640	500mL, 1L
9052	DMEM	500mL, 1L
91146	PRIME-XV Dendritic Cell Maturation CDM	500 mL
91154	PRIME-XV T Cell CDM	1L
91141	PRIME-XV T Cell Expansion XSFM	1L
91211	PRIME-XV Hematopoietic Stem Cell Basal XSFM	500 mL
91139	PRIME-XV FreezIS	10mL and 100mL
9309	Water for Injection	1L

References

1. Pestka S, Langer JA, Zoon KC, Samuel CE. Interferons and their actions. *Annu Rev Biochem.* 1987; 56:727-777. doi:10.1146/annurev.bi.56.070187.003455
2. Borden EC, Sen GC, Uze G, Silverman RH, Ransohoff RM, Foster GR, Stark GR. Interferons at age 50: past, current and future impact on biomedicine. *Nat Rev Drug Discov.* 2007; 6(12):975-990. doi:10.1038/nrd2422
3. Plataniias LC. Mechanisms of type-I- and type-II-interferon-mediated signalling. *Nat Rev Immunol.* 2005; 5(5):375-386. doi:10.1038/nri1604
4. Bekisz J, Baron S, Balinsky C, Morrow A, Zoon KC. Antiproliferative properties of type I and type II interferon. *Pharmaceuticals.* 2010; 3(4):994-1015. doi:10.3390/ph3040994
5. Thomas E, Ghany MG, Liang TJ. The application and mechanism of action of interferon in hepatitis B and C. *J Viral Hepat.* 2012; 19(1):17-31. doi:10.1111/j.1365-2893.2011.01524.x
6. Ivashkiv LB, Donlin LT. Regulation of type I interferon responses. *Nat Rev Immunol.* 2014; 14(1):36-49. doi:10.1038/nri3581
7. Manns MP, McHutchison JG, Gordon SC, et al. Peginterferon alfa-2b plus ribavirin compared with interferon alfa-2b plus ribavirin for initial treatment of chronic hepatitis C: a randomised trial. *Lancet.* 2001; 358(9286):958-965. doi:10.1016/S0140-6736(01)06102-5
8. Lau JYN, Tam RC, Liang TJ, Hong Z. Mechanism of action of ribavirin in the combination treatment of chronic HCV infection. *Hepatology.* 2002; 35(5):1002-1009. doi:10.1053/jhep.2002.32759
9. Quesada JR, Talpaz M, Rios A, Kurzrock R, Gutterman JU. Clinical toxicity of interferons in cancer patients: a review. *J Clin Oncol.* 1986; 4(2):234-243. doi:10.1200/JCO.1986.4.2.234
10. Kirkwood JM, Strawderman MH, Ernstoff MS, Smith TJ, Borden EC, Blum RH. Interferon alfa-2b adjuvant therapy of high-risk resected cutaneous melanoma: the Eastern Cooperative Oncology Group Trial EST 1684. *J Clin Oncol.* 1996; 14(1):7-17. doi:10.1200/JCO.1996.14.1.7
11. Fyfe G, Fisher RI, Rosenberg SA, Sznol M, Parkinson DR, Louie AC. Results of treatment of 255 patients with metastatic renal cell carcinoma who received high-dose recombinant interleukin-2 therapy. *J Clin Oncol.* 1995; 13(3):688-696. doi:10.1200/JCO.1995.13.3.688.



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

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