

CTGrade GMP rh IFN-gamma

Catalog #	Product	Size
500-28	CTGrade GMP rh IFN-gamma	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 II interferon, T cell interferon, Immune Interferon, MAF

NIH Accession Number: P01579

Background: Interferon-gamma (IFN- γ), also known as type II or immune interferon, is a macrophage-activating cytokine with broad immune-regulatory functions and is considered the prototype pro-inflammatory cytokine [1]. It is primarily produced by T lymphocytes and natural killer (NK) cells in response to antigens, mitogens, and other cytokines [2]. Mature IFN- γ is a glycoprotein homodimer of two 146-amino-acid subunits (~45 kDa), with variable glycosylation giving rise to bands at 25, 20, and ~16.9 kDa on SDS-PAGE [3]. IFN- γ is highly species-specific, showing ~90% identity with rhesus IFN- γ but no cross-reactivity between human and murine IFN- γ [4]. Biological activity is mediated via the IFN- γ receptor complex, composed of two α (IFN- γ RI) and two β (IFN- γ RII) subunits, which activate the JAK-STAT pathway [5]. IFN- γ functions include: Induction of class I and II MHC molecules [6], Activation of macrophages and monocytes [1], Promotion of Th1 differentiation and suppression of Th17 differentiation [7], Enhancement of antigen presentation [6], B-cell immunoglobulin class switching and antibody secretion [8], and Antiviral, anti-proliferative, and tumor-suppressive activity [9]. Recombinant human IFN- γ is approved for the treatment of chronic granulomatous disease (CGD), by enhancing neutrophil microbicidal function [10], and severe malignant osteopetrosis (SMO), where it slows disease progression [11]. It has also shown promise in atopic dermatitis [12] and is being investigated in cancer immunotherapy [13]. Dysregulated IFN- γ expression is implicated in autoimmune and chronic inflammatory diseases, including atherosclerosis [14]. UniProt ID: P01579



Specifications

Formulation:	CTGrade GMP rh IFN-gamma is lyophilized from a 0.2 µm filtered solution containing 20 mM Sodium Phosphate, 2% Trehalose, 4% Mannitol, 0.1 % Tween 80, pH 6.5
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 cytotoxicity of HT-29 cells by rhIFNgamma cells. The ED50 is typically less than 0.3 ng/mL. The international units of CTGrade GMP rh IFN-gamma is approximately 1.0 x 10 ⁴ IU/µg, which is calibrated against recombinant Human IFN-gamma WHO International Standard (NIBSC code 87/586).
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 Biosciences 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 Medium 1640 with L-Glutamine	100mL, 500mL, 1L
91154	PRIME-XV T Cell CDM	1L
91141	PRIME-XV T Cell Expansion XSFM	1L
91215	PRIME-XV NK CDM	1L
91146	PRIME-XV Dendritic Cell Maturation CDM	500 mL
91211	PRIME-XV Hematopoietic Stem Cell Basal XSFM	500 mL
91139	PRIME-XV FreezIS	10mL, 100mL
9309	Water for Injection	1L

References

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Technical Support

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WEBSITE RESOURCES

Visit the website at <https://fujifilmbiosciences.fujifilm.com/> for technical resources and information including:

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

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