

Cytokines

Human Recombinant IFN-gamma, ACF

Interferon-gamma, animal component-free

Catalog #	78141	20 µg
	78141.1	100 µg
	78141.2	500 µg
	78141.3	1000 µg



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Product Description

Interferon-gamma (IFN- γ), also known as type II interferon, is produced by T and NK cells, and in smaller amounts by dendritic cells and macrophages. IFN- γ is controlled by cytokines such as IL-12 and IL-18 secreted in response to infection (Schroder et al.). IFN- γ binds to a receptor complex and initiates signal transduction via the JAK/STAT pathway; this culminates in the transcription and activation of many genes that control a diverse array of immunological functions (de Weerd and Nguyen; Krause et al.). IFN- γ stimulates the antimicrobial and anti-tumor activity of macrophages, NK cells, and neutrophils (Billiau & Matthys) by promoting the activation of microbial effector functions such as production of reactive oxygen species, NO intermediates, and complement (Schroder et al.). IFN- γ enhances MHC class I and II expression in dendritic cells and mononuclear phagocytes, as well as the production of IL-12 by dendritic cells. In B cells, IFN- γ stimulates survival and growth in both mouse and human cells, and redirects B cells from proliferation towards differentiation. IFN- γ favors the development of Th1 vs Th2 cells and stimulates monocyte differentiation and function (Schroder et al.). This product is animal component-free.

Product Information

Alternative Names:	Interferon gamma, Type II interferon
Accession Number:	P01579
Amino Acid Sequence:	MQDPYVKEAE NLKKYFNAGH SDVADNGTLF LGILKNWKEE SDRKIMQSQI VSFYFKLFKN FKDDQSIQKS VETIKEDMNV KFFNSNKKKR DDFEKLTNYS VTDLNVQRKA IHELIQVMAE LSPAAKTGKR KRSQMLFQGR RASQ
Predicted Molecular Mass:	16.9 kDa
Species:	Human
Cross Reactivity:	Mouse, Monkey
Formulation:	Lyophilized from a sterile-filtered aqueous solution containing sodium phosphate and sodium chloride, pH 7.5
Source:	E. coli

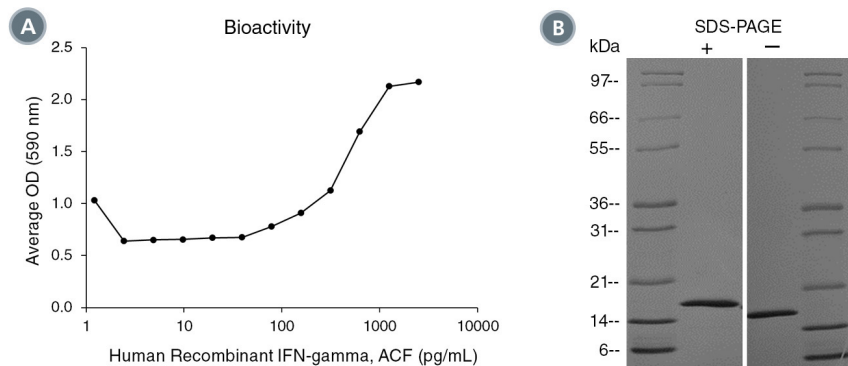
Specifications

Activity:	The specific activity is $\geq 1.0 \times 10^7$ units/mg as determined by a cytopathic effect (CPE) assay using encephalomyocarditis (EMC) virus on A549 cells.
Purity:	$\geq 95\%$
Endotoxin Level:	Measured by kinetic Limulus amoebocyte lysate (LAL) analysis and is ≤ 1 EU/ μ g protein.

Preparation and Storage

Storage:	Store at -20°C to -80°C.
Stability:	Stable as supplied for 12 months from date of receipt.
Preparation:	Centrifuge vial before opening. Bring vial and sterile water to room temperature (15 - 25°C). Reconstitute the product in sterile water to at least 0.1 mg/mL by pipetting the solution down the sides of the vial. Do not vortex. Let solution sit for 1 minute at room temperature (15 - 25°C). If precipitate is observed, centrifuge at 16,000 x g for 1 minute. Remove supernatant and transfer to a new tube, taking care not to disturb the pellet. Discard the pellet. A 10% overfill has been added to compensate for any loss of protein in the precipitate. 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 -80°C for more than 3 months. Avoid repeated freeze-thaw cycles.

Data



(A) The biological activity of Human Recombinant IFN-gamma, ACF was tested by measuring the survival of A549 cells infected with EMC virus. The EC50 is defined as the effective concentration of the cytokine at which cell proliferation is at 50% of maximum. The EC50 in the example above is 560 pg/mL, determined after normalization to the internal standard and calculated independently from the specific activity value. Human Recombinant IFN-gamma, ACF has a specific activity of 1.4×10^7 units/mg based on the calculated titer when compared to an internal standard.

(B) 1 μ g of Human Recombinant IFN-gamma, ACF was resolved with SDS-PAGE under reducing (+) and non-reducing (-) conditions and visualized by Coomassie Blue staining. Human Recombinant IFN-gamma, ACF has a predicted molecular mass of 16.9 kDa.

Related Products

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

References

- Billiau A & Matthys P. (2009) Interferon-gamma: a historical perspective. *Cytokine Growth Factor Rev* 20(2): 97–113.
- de Weerd NA & Nguyen T. (2012) The interferons and their receptors--distribution and regulation. *Immunol Cell Biol* 90(5): 483–91.
- Krause CD et al. (2000) Signaling by covalent heterodimers of interferon-gamma. Evidence for one-sided signaling in the active tetrameric receptor complex. *J Biol Chem* 275(30): 22995–3004.
- Schroder K et al. (2004) Interferon-gamma: an overview of signals, mechanisms and functions. *J Leukoc Biol* 75(2): 163–89.

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