TOLL FREE PHONE 1 800 667 0322 • PHONE +1 604 877 0713
INFO@STEMCELL.COM • TECHSUPPORT@STEMCELL.COM
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Human Recombinant IFN-gamma, ACF

Interferon-gamma, animal component-free

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

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, nitric oxide intermediates, and complement (Schroder et al.). IFN-γ enhances the expression of major histocompatibility complex class I and II 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

Product Formulation: Lyophilized from a sterile-filtered aqueous solution containing sodium phosphate and sodium chloride, pH 7.5

Source: E. coli

Purity: ≥ 95%

Specifications

Activity: The specific activity is ≥ 1.3 x 10^6 units/mg (≤ 0.75 ng/mL), as determined by a viral challenge assay using EMC virus on A549 cells.

Endotoxin Level: Measured by kinetic Limulus amebocyte lysate (LAL) analysis and is ≤ 0.1 EU/µg protein.

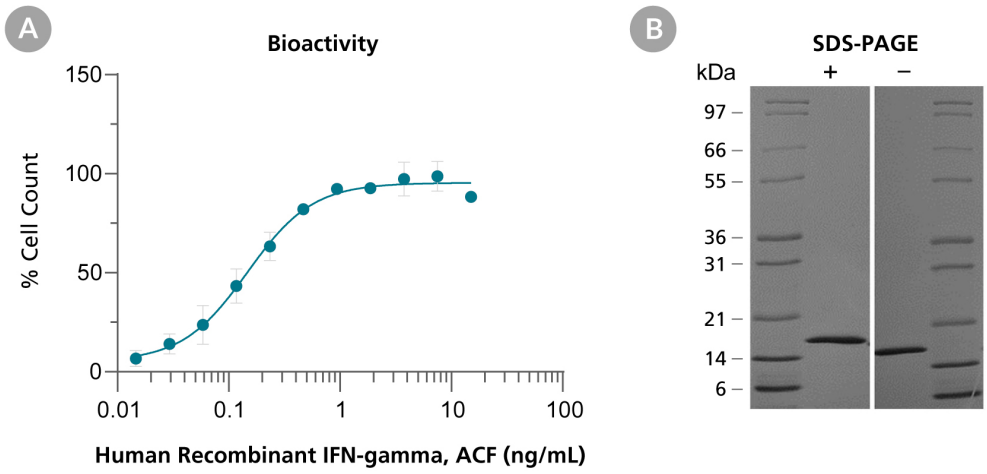
Preparation and Storage

Stability and Storage: Store at -20 to -80°C. 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. 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 measured with A549 cells exposed to the encephalomyocarditis (EMC) virus in a cytopathic effect (CPE) assay. The EC50 is defined as the effective concentration of the cytokine at which cell survival is at 50% of maximum. The EC50 in the example above is ≤ 0.75 ng/mL.

(B) 1 µg 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 or peptide pools, 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.