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

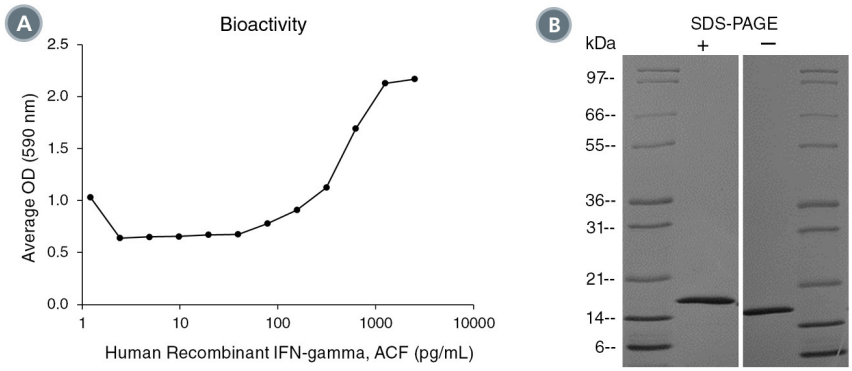
Specifications

Activity:	The specific activity is ≥ 1.0 x 10^7 units/mg as determined by a viral CPE assay using EMC virus on A549 cells.
Purity:	≥ 95%
Endotoxin Level:	Measured by kinetic Limulus amebocyte lysate (LAL) analysis and is ≤ 1 EU/µg 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. Resuspend the product in sterile water containing 0.1% bovine serum albumin (BSA) to at least 0.1 mg/mL by pipetting the solution down the sides of the vial. Do not vortex. Upon reconstitution, a small amount of precipitate can be expected. A 10% overfill has been added to compensate for this loss. Store at 2 - 8°C for up to 1 month or at -20°C to -80°C for up to 3 months. Avoid repeated freeze-thaw cycles. NOTE: If reconstituted product will be used immediately, BSA is not required.

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 x 10^7 units/mg based on the calculated titer when compared to an internal standard.
(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.

Related Products

For a complete list of cytokines, as well as related products available from STEMCELL Technologies, please visit our website at 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.