Animal-Free™ Recombinant Human IFN-γ

Catalog Number: AFL285

DESCRIPTION

Source	*E. coli*-derived Gln24-Gln166, with an N-terminal Met Accession # CAA31639 Based on MALDI-TOF mass spectrometric analysis, truncation of four amino acid residues from the C-terminus may be observed in the recombinant protein preparation. Produced using non-animal reagents in an animal-free laboratory.
N-terminal Sequence Analysis	Met
Predicted Molecular Mass	16.9 kDa

SPECIFICATIONS

SDS-PAGE	17 and 16 kDa, reducing conditions
Activity	Measured in anti-viral assays using HeLa human cervical epithelial carcinoma cells infected with encephalomyocarditis (EMC) virus. Meager, A. (1987) in Lymphokines and Interferons, a Practical Approach. Clemens, M.J. *et al.* (eds): IRL Press. 129. The ED_{50} for this effect is 0.15-0.75 ng/mL. The specific activity of Recombinant Human IFN-γ is approximately 2 x 10^4 IU/µg, which is calibrated against human IFN-γ Standard (NIBSC code: 87/586).
Endotoxin Level	<0.01 EU per 1 µg of the protein by the LAL method.
Purity	>97%, by SDS-PAGE under reducing conditions and visualized by silver stain.
Formulation	Lyophilized from a 0.2 µm filtered solution in Sodium Succinate, Mannitol and Tween® 80. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 0.2 mg/mL in sterile, deionized water.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** ● 12 months from date of receipt, -20 to -70 °C as supplied. ● 1 month, 2 to 8 °C under sterile conditions after reconstitution. ● 3 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND

Interferon-γ (IFN-γ), also known as type II or immune interferon, exerts a wide range of immunoregulatory activities and is considered to be the prototype proinflammatory cytokine (1, 2). Mature human IFN-γ exists as a non-covalently linked homodimer of 20-25 kDa variably glycosylated subunits (3). It shares 90% amino acid (aa) sequence identity with rhesus IFN-γ, 59%-64% with bovine, canine, equine, feline, and porcine IFN-γ, and 37%-43% with cotton rat, mouse, and rat IFN-γ. IFN-γ dimers bind to IFN-γ RI (α subunits) which then interact with IFN-γ RII (β subunits) to form the functional receptor complex of two α and two β subunits. Inclusion of IFN-γ RII increases the binding affinity for ligand and the efficiency of signal transduction (4, 5). IFN-γ is produced by a variety of immune cells under inflammatory conditions, notably by T cells and NK cells (6). It plays a key role in host defense by promoting the development and activation of Th1 cells, chemoattraction and activation of monocytes and macrophages, up-regulation of antigen presentation molecules, and immunoglobulin class switching in B cells. It also exhibits antiviral, antiproliferative, and apoptotic effects (6, 7). In addition, IFN-γ functions as an anti-inflammatory mediator by promoting the development of regulatory T cells and inhibiting Th17 cell differentiation (8, 9). The pleiotropic effects of IFN-γ contribute to the development of multiple aspects of atherosclerosis (7).

References:

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7. McLaren, J.E. and D.P. Ramji (2009) Cytokine Growth Factor Rev. **20**:125.
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MANUFACTURING SPECIFICATIONS

Animal-Free Manufacturing Conditions

Our dedicated controlled-access animal-free laboratories ensure that at no point in production are the products exposed to potential contamination by animal components or byproducts. Every stage of manufacturing is conducted in compliance with R&D Systems' stringent Standard Operating Procedures (SOPs). Production and purification procedures use equipment and media that are confirmed animal-free.

Production

- All molecular biology procedures use animal-free media and dedicated labware.
- Dedicated fermentors are utilized in committed animal-free areas.

Purification

- Protein purification columns are animal-free.
- Bulk proteins are filtered using animal-free filters.
- Purified proteins are stored in animal-free containers in a dedicated cold storage room.

Quality Assurance

- Low Endotoxin Level.
- No impairment of biological activity.
- High quality product obtained under stringent conditions.
- For *ex vivo* research or bioproduction, **additional documentation** can be provided.

Please read our complete Animal-Free Statement

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