

**DESCRIPTION**

**Source** *E. coli*-derived  
Gln24-Gln166 with an N-terminal Met  
Accession # CAA31639

**N-terminal Sequence Analysis** Met

**Predicted Molecular Mass** 16.9 kDa

**SPECIFICATIONS**

**SDS-PAGE** 17 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<sub>50</sub> for this effect is 0.15-0.75 ng/mL.  
The specific activity of Recombinant Human IFN- $\gamma$  is approximately 2 x 10<sup>4</sup> IU/ $\mu$ g, which is calibrated against human IFN- $\gamma$  Standard (NIBSC code: 87/586).

**Endotoxin Level** <0.01 EU per 1  $\mu$ g of the protein by the LAL method.

**Purity** >97%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.

**Formulation** Lyophilized from a 0.2  $\mu$ m filtered solution in Sodium Succinate, Mannitol and Tween® 80 with BSA as a carrier protein. See Certificate of Analysis for details.

**PREPARATION AND STORAGE**

**Reconstitution** Reconstitute at 0.2 mg/mL in sterile, deionized water.

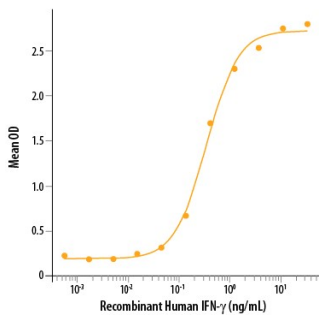
**Shipping** The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.

**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.

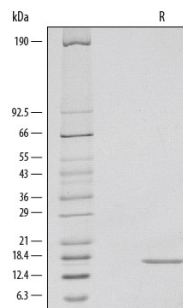
**DATA**

**Bioactivity**



Recombinant Human IFN- $\gamma$  (Catalog # 285-IF) demonstrates anti-viral activity in HeLa human cervical epithelial carcinoma cells infected with encephalomyocarditis (EMC) virus. The ED<sub>50</sub> for this effect is 0.15-0.75 ng/mL.

**SDS-PAGE**



1  $\mu$ g/lane of Recombinant Human IFN- $\gamma$  was resolved with SDS-PAGE under reducing (R) conditions and visualized by silver staining, showing a single band at 17 kDa.

**BACKGROUND**

Interferon- $\gamma$  (IFN- $\gamma$ ), 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- $\gamma$  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- $\gamma$ , 59%-64% with bovine, canine, equine, feline, and porcine IFN- $\gamma$ , and 37%-43% with cotton rat, mouse, and rat IFN- $\gamma$ . IFN- $\gamma$  dimers bind to IFN- $\gamma$  RI ( $\alpha$  subunits) which then interact with IFN- $\gamma$  RII ( $\beta$  subunits) to form the functional receptor complex of two  $\alpha$  and two  $\beta$  subunits. Inclusion of IFN- $\gamma$  RII increases the binding affinity for ligand and the efficiency of signal transduction (4, 5). IFN- $\gamma$  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- $\gamma$  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- $\gamma$  contribute to the development of multiple aspects of atherosclerosis (7).

**References:**

1. Billiau, A. and P. Matthys (2009) *Cytokine Growth Factor Rev.* **20**:97.
2. Pestka, S. *et al.* (2004) *Immunol. Rev.* **202**:8.
3. Gray, P.W. and D.V. Goeddel (1982) *Nature* **298**:859.
4. Marsters, S.A. *et al.* (1995) *Proc. Natl. Acad. Sci.* **92**:5401.
5. Krause, C.D. *et al.* (2000) *J. Biol. Chem.* **275**:22995.
6. Schroder, K. *et al.* (2004) *J. Leukoc. Biol.* **75**:163.
7. McLaren, J.E. and D.P. Ramji (2009) *Cytokine Growth Factor Rev.* **20**:125.
8. Muhl, H. and J. Pfeilschifter (2003) *Int. Immunopharmacol.* **3**:1247.
9. Kelchtermans, H. *et al.* (2008) *Trends Immunol.* **29**:479.