

**Human Interferon- $\alpha$ 1 (hIFN- $\alpha$ 1)**

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**For Research Use Only. Not for Use in Diagnostic Procedures.**

**MW (kDa):**  
18

**UniProt ID:**  
#P01562

**Entrez-Gene Id:**  
3439

**Background**

Interferon- $\alpha$ 1 is a member of the Type I IFN (1) family best known for their antiviral activity. Most nucleated cells produce one or more Type I IFNs in response to viral infection (2). Secreted Type I IFN then induces viral protective responses in neighboring non-infected cells. Type I IFNs also enhance virus-induced apoptosis (3). Other IFN- $\alpha$ 1 activities include enhancement of dendritic cell maturation and cytotoxic T cell activity (4). IFN- $\alpha$ 1 binds to the IFN- $\alpha$ R1 and IFN- $\alpha$ R2 heterodimer (1). Intracellular signaling through the Jak/Stat pathway is best characterized (3). However, the PI3K, ERK, and p38 kinase pathways are also involved (5). The antiviral activities of the IFNs have led to their use in treating viral infections (4). Type I IFNs also appear to have an integral role in several autoimmune diseases (6).

**Endotoxin**

Less than 0.01 ng endotoxin/1  $\mu$ g hIFN- $\alpha$ 1.

**Purity**

>98% as determined by SDS-PAGE of 6  $\mu$ g reduced (+) and non-reduced (-) recombinant hIFN- $\alpha$ 1. All lots are greater than 98% pure.

**Source / Purification**

Recombinant human IFN- $\alpha$ 1 (hIFN- $\alpha$ 1) Cys24 - Asp189 (Accession # NP\_076918) was produced in *E. coli* at Cell Signaling Technology.

**Bioactivity**

The bioactivity of hIFN- $\alpha$ 1 was determined in a virus protection assay. The ED<sub>50</sub> of each lot is between 0.01-1.0 ng/ml.

**Background References**

1. Nagai, T. et al. (2003) *J Immunol* 171, 5233-43.
2. Stetson, D.B. and Medzhitov, R. (2006) *Immunity* 25, 373-81.
3. Vilcek, J. (2006) *Immunity* 25, 343-8.
4. Luft, T. et al. (2002) *Int Immunol* 14, 367-80.
5. van Boxel-Dezaire, A.H. et al. (2006) *Immunity* 25, 361-72.
6. Banchereau, J. and Pascual, V. (2006) *Immunity* 25, 383-92.

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