

## IFN-alpha 13/IFNA1 Protein, Human

Cat. No.:	HY-P72796
Synonyms:	Interferon alpha-1/13; IFN-alpha-1/13; LeIF D; IFNA1; IFNA13
Species:	Human
Source:	E. coli
Accession:	P01562 (C24-E189, A137V)
Gene ID:	3439
Molecular Weight:	Approximately 19.5 kDa

### PROPERTIES

AA Sequence	<p>           CDLPETHSLD    NRRTLMLLAQ    MSRISPSSCL    MDRHDFGFPQ            EEFDGNQFQK    APAISVLHEL    IQQIFNLF TT    KDS SAAWDED            LLDKFC TELY    QQLNDLEACV    MQEERVGETP    LMNAD S I LAV            KKYFRRITLY    LTEKKYSPCA    WEVVRAEIMR    SLSLSTNLQE            RLRRKE         </p>
Biological Activity	The specific activity determined by an anti-viral assay is no less than $1.0 \times 10^8$ IU/mg.
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 $\mu$ m filtered solution of PBS, pH 7.4, containing 4% mannitol and 1% HSA.
Endotoxin Level	<1 EU/ $\mu$ g; determined by LAL method.
Reconstitution	It is not recommended to reconstitute to a concentration less than 100 $\mu$ g/mL in ddH <sub>2</sub> O.
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US; may vary elsewhere.

### DESCRIPTION

Background	<p>IFN-alpha 13 (IFNA13; IFN-<math>\alpha</math>13) is produced by the macrophages, belongs to the alpha/beta interferon (IFN) family, a family of cytokines induced by viral infection and are primarily involved in antiviral defense of the cells<sup>[1]</sup>. Interferon (IFN) is originally identified as a substance 'interfering' with viral replication in vitro. IFN-<math>\alpha</math>/<math>\beta</math> and related molecules are classified as type I IFNs, as for the other two types of type II IFN (IFN-<math>\gamma</math>) and type III IFNs (IFN-<math>\lambda</math>), respectively<sup>[2]</sup>.</p> <p>Interferon stimulates the production of two enzymes: a protein kinase and an oligoadenylate synthetase. Interferon alpha (IFNa) shows significant biological activity in various cancers, particularly haematological malignancies such as hairy cell</p>
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leukaemia and chronic myelogenous leukaemia<sup>[3]</sup>.

IFN-alpha13 exhibits acid-stable antiviral activity against Theiler's virus, Mengo virus, and vesicular stomatitis virus. Firstly, it is transcribed constitutively, independent of viral infection and of interferon regulatory factor-7 induction. Secondly, it contains two N-glycosylation sites, in contrast to other murine IFN-alpha subtypes that contain either one or no N-glycosylation site<sup>[4]</sup>. As for a wildy use of IFN in animal model, the sequence of amino acids in IFNA13 protein of human is very different from mouse (64.55%)

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## REFERENCES

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- [1]. Kumagai Y, et al. Alveolar macrophages are the primary interferon-alpha producer in pulmonary infection with RNA viruses. *Immunity*. 2007 Aug;27(2):240-52.
- [2]. Zhang SY, et al. Inborn errors of interferon (IFN)-mediated immunity in humans: insights into the respective roles of IFN-alpha/beta, IFN-gamma, and IFN-lambda in host defense. *Immunol Rev*. 2008 Dec;226:29-40.
- [3]. Raj NB, et al. Identification of a novel virus-responsive sequence in the promoter of murine interferon-alpha genes. *J Biol Chem*. 1991 Jun 15;266(17):11360-5.
- [4]. van Pesch V, et al. Characterization of interferon-alpha 13, a novel constitutive murine interferon-alpha subtype. *J Biol Chem*. 2003 Nov 21;278(47):46321-8.
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**Caution: Product has not been fully validated for medical applications. For research use only.**

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