IFN-alpha 1/IFNA1 Protein, Human (HEK293, His)

Cat. No.:	HY-P70241
Synonyms:	rHuInterferon alpha-1, His; Interferon alpha-1/13; IFN-alpha-1/13; Interferon alpha-D; LeIF D; IFNA1; IFNA13
Species:	Human
Source:	HEK293
Accession:	P01562 (C24-E189)
Gene ID:	3439
Molecular Weight:	17-20 kDa

PROPERTIES

AA Sequence	C D L P E T H S L D N R R T L M L L A Q M S R I S P S S C L M D R H D F G F P Q E E F D G N Q F Q K A P A I S V L H E L I Q Q I F N L F T T K D S S A A W D E D L L D K F C T E L Y Q Q L N D L E A C V M Q E E R V G E T P L M N A D S I L A V K K Y F R R I T L Y L T E K K Y S P C A W E V V R A E I M R S L S L S T N L Q E R L R R K E
Biological Activity	Measured by its ability to inhibit the proliferation of TF-1 human erythroleukemic cells. The ED_{50} this effect is 0.327 ng/mL, corresponding to a specific activity is 3.058×10^6 units/mg.
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 μm filtered solution of 20 mM PB,150 mM NaCl, pH 7.4.
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconsititution	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH_2O. For long term storage it is recommended to add a carrier protein (0.1% BSA, 5% HSA, 10% FBS or 5% Trehalose).
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	IFN-alpha 1 (IFNA1; IFN-α1), belongs to the alpha/beta interferon family, is produced by macrophages with antiviral activities[1]. Interferon (IFN) is originally identified as a substance 'interfering' with viral replication in vitro. IFN-α/β and related molecules are classified as type I IFNs, as for the other two types of type II IFN (IFN-γ) and type III IFNs (IFN-λ), respectively[2].

IFNs binds to one of three type-specific receptors, which leads to the activation of JAK1 and TYK2[3]. This signal transduction results in phosphorylation of STAT1 and STAT2 and eventually in an association with IFN regulatory factor 9 (IRF9) and formation of the IFN-stimulated gene factor 3 (ISGF3) complex. Thus the ISGF3 complex induces transcription of IFN-stimulated genes (ISGs), with subsequent immunomodulatory effects on both innate and adaptive immune responses[4]. The interactions of type I IFN with the immune system is important for the generation of a durable antitumor response through its effects on dendritic cells (DC)[5]. IFN has been widely used for animal disease model, and the sequence of amino acids in IFNA1 protein of human is very different from mouse (62.96%).

REFERENCES

[1]. Zoon KC, et al. Purification and characterization of multiple components of human lymphoblastoid interferon-alpha. J Biol Chem. 1992 Jul 25;267(21):15210-6.

[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]. Gibbert K, et al. IFN-α subtypes: distinct biological activities in anti-viral therapy. Br J Pharmacol. 2013 Mar;168(5):1048-58.

[4]. De Ceuninck F, et al. IFN-α: A key therapeutic target for multiple autoimmune rheumatic diseases. Drug Discov Today. 2021 Oct;26(10):2465-2473.

[5]. Lapenta C, et al. IFN-Alpha-Mediated Differentiation of Dendritic Cells for Cancer Immunotherapy: Advances and Perspectives. Vaccines (Basel). 2020 Oct 19;8(4):617.

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