IFN-alpha 13/IFNA1 Protein, Human (P.pastoris, His)

Cat. No.:	HY-P73245
Synonyms:	Interferon alpha-1/13; IFN-alpha-1/13; LeIF D; IFNA1; IFNA13
Species:	Human
Source:	P. pastoris
Accession:	P01562 (C24-E189)
Gene ID:	3439/3447
Molecular Weight:	Approximately 20.8 kDa

PROPERTIES

Biological Activity	Measured in antiviral assays using WISH cells infected with vesicular stomatitis virus and the ED_{50} is 40-200 pg/mL.
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 μm filtered solution of PBS, pH 7.4. Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween 80 are added as protectants before lyophilization.
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.
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 13 (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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