9051 Mira Mesa Blvd, #910094
San Diego, CA 92191
Tel: 760-390-3989

IFN a 2b Human

IFN-Alpha 2b Human Recombinant
CYK0188

Product Overview

Name	IFN a 2b Human
Description	
IFN-Alpha 2b Human Recombinant	
Accession (Primary)	Q86UP4
Synonyms	
IFN alpha 2b, IFNA, INFA2, MGC125764, MGC125765.	
Introduction	
IFN-alpha is produced by macrophages and has antiviral activities. IFN stimulates the production of two enzymes: protein kinase and an oligoadenylate synthetase.	
Source	
Escherichia Coli.	
Physical Appearance	
Sterile Filtered White lyophilized (freeze-dried) powder.	
Formulation	
Lyophilized from a (1 mg/ml) solution in containing 2.3 mg Sodium phosphate dibasic and 0.55 mg sodium phosphate monobasic buffer.	
Stability	
Lyophilized IFN although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution IFN alpha 2b should be stored at 4°C between 2-7 days and for future use below -18°C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.	
Purity	
Greater than 98.0% as determined by(a) Analysis by RP-HPLC. (b) Analysis by SDS-PAGE.	
Amino acid sequence	
MCDLPQTHSL GSRRTLMLLA QMR R ISLFSC LKDRHDFGFP QEEFGNQFQK AETIPVLHEM IQQIFNLFST KDSSAAWDET LLDKFYTELY QQLNDLEACV IQGVGVTETP LMKEDSILAV RKYFQRITLY LKEKKYSPCA WEVVRAEIMR SFSLSTNLQE SLRSKE	
Biological Activity	
The specific activity as determined in a viral resistance assay using bovine kidney MDBK cells was found to be	

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260,000,000 IU/ mg.

Solubility

It is recommended to reconstitute the lyophilized IFN-alpha 2b in sterile 18MΩ-cm H2O not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Background

IFN-alpha forms are produced by monocytes/macrophages, lymphoblastoid cells, fibroblasts, and a number of different cell types following induction by viruses, nucleic acids, glucocorticoid hormones, and low-molecular weight substances (n-butyrate, 5-bromodeoxy uridine). At least 23 different variants of IFN-alpha are known. The individual proteins have molecular masses between 19-26 kDa and consist of proteins with lengths of 156-166 and 172 amino acids. All IFN-alpha subtypes possess a common conserved sequence region between amino acid positions 115-151 while the amino-terminal ends are variable. Many IFN-alpha subtypes differ in their sequences at only one or two positions. Naturally occurring variants also include proteins truncated by 10 amino acids at the carboxy-terminal end. Disulfide bonds are formed between cysteines at positions 1/98 and 29/138. The disulfide bond 29/138 is essential for biological activity while the 1/98 bond can be reduces without affecting biological activity. All IFN-alpha forms contain a potential glycosylation site but most subtypes are not glycosylated. In contrast to IFN-gamma IFN-alpha proteins are stable at pH2. There are at least 23 different IFN-alpha genes. They have a length of 1-2 kb and are clustered on human chromosome 9p22. It is not known whether all these genes are expressed following stimulation of the cells. In some cell systems expression of some subtypes (IFN-alpha-1, IFN-alpha-2, IFN-alpha-4) is stronger than those of others. IFN-alpha genes do not contain intron sequences found in many other eukaryotic genes (see also: gene expression). Based upon the structures two types of IFN-alpha genes, designated class 1 and II, are distinguished. They encode proteins of 156-166 and172 amino acids, respectively. Deletions covering 9p22 are observed frequently in cells of lymphoblastoid leukemias. It is not known to date whether this is of significance with respect to IFN expression. The gene encoding the IFN-alpha receptor maps to human chromosome 21q22.1. IFN-alpha and IFN-beta are thought to bind to the same IFN binding subunit which is expressed in 100-5000 copies in IFN-alpha sensitive and -resistant cells and is associated with other as yet unidentified proteins. The IFN-omega (Omega IFN) also binds to the IFN-alpha/IFN-beta receptor. Another receptor expressed on B-lymphocytes is identical with CD21. This receptor also binds Epstein-Barr virus through its gp350/220 coat protein.Signal transduction mechanisms elicited after binding of IFN-alpha to its receptors involves tyrosine phosphorylation (see also: PTK; protein tyrosine kinase) of various non-receptor tyrosine kinases belonging to the Janus kinases. Soluble forms of the IFN-alpha receptor, corresponding to truncated forms of the extracellular domain of the cell surface IFN-alpha receptor, have been found in human serum and in normal human urine. All known subtypes of IFN-alpha show the same antiviral antiparasitic, antiproliferative activities in suitable bioassays although they may differ in relative activities. Human IFN-alpha is also a potent antiviral substance in murine, porcine, and bovine cell systems. Human IFN-alpha is less active in rodent cells. Site-directed mutagenesis techniques have been used to create some variants of certain subtypes (IFN-alpha-2) that display approximately 100-fold enhanced antiviral activities in mouse cells.

References

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Protein content

Protein quantitation was carried out by two independent methods 1. UV spectroscopy at 280 nm using the absorbency value of 0.924 as the extinction coefficient for a 0.1% (1mg/ml) solution. This value is calculated by the PC GENE computer analysis program of protein sequences (IntelliGenetics). 2. Analysis by RP-HPLC, using a calibrated solution of IFN alpha 2b as a Reference Standard.

Precautions

IFN a 2b Human is for research use only and not for use in diagnostic or therapeutic procedures.

Target Information: (Q86UP4)

Background

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References for protein:

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