Cytokines

Mouse Recombinant IFN beta

Interferon beta

Catalog #100-1337

100 µg

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Scientists Helping Scientists™ | WWW.STEMCELL.COM
TOLL FREE PHONE 1 800 667 0322 • PHONE +1 604 877 0713
INFO@STEMCELL.COM • TECHSUPPORT@STEMCELL.COM
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Product Description

Interferon beta (IFN beta) is a cytokine belonging to the type 1 interferon family. The crystal structure of IFN beta shares characteristics with other type I interferons. It comprises five alpha-helices with four of them forming a helix bundle, and one long and three shorter loops connecting the helices (Karpusas et al.). IFN beta is produced by immune cells including macrophages, and non-immune cells, such as fibroblasts and epithelial cells (Ivashkiv and Donalin). It binds to the IFN alpha/beta receptor (IFNAR) expressed on a variety of cells and activates associated tyrosine kinases which induce phosphorylation of STAT1 and STAT2, with the interferon-induced Jak-STAT signaling pathway modulating many key immune processes (Smieja et al.). In an experimental model involving cardiac fibroblasts isolated from rats, IFN beta was found to induce both pro- and anti-inflammatory cytokines production by activating different STAT proteins (Bolivar et al.). The anti-inflammatory effects of IFN beta have been studied in the context of autoimmune disorders, and there are currently multiple approved IFN beta drugs for treatment of relapsing forms of multiple sclerosis (Filipi and Jack).

Product Information

Alternative Names:	IFB, IFNB
Accession Number:	P01575 (Ile22-Asn182) was expressed with five amino acids (DDDDK) at the C-terminus.
Amino Acid Sequence:	INYKQLQLQE RTNIRKCQEL LEQLNGKINL TYRADFKIPM EMTEKMQKSY TAFAIQEMLQ NVFLVFRNNF SSTGWNETIV VRLLDELHQQ TVFLKTVLEE KQEERLTWEM SSTALHLKSY YWRVQRYLKL MKYNSYAWMV VRAEIFRNFL IIRRLTRNFQ NDDDDK
Predicted Molecular Mass:	20.3 kDa
Species:	Mouse
Formulation:	Lyophilized from sterile PBS, pH 7.4. Trehalose (5%), mannitol (5%), and 0.01% TWEEN® 80 are normally added as protectants before lyophilization.
Source:	HEK293 cells

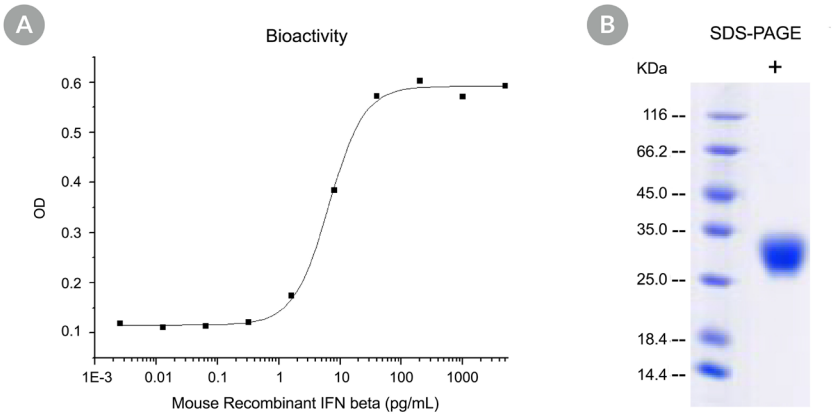
Specifications

Activity:	The EC50 is ≤18 pg/mL as determined by a cell viability assay using L929 cells infected with vesicular stomatitis virus (VSV).
Purity:	≥ 87%
Endotoxin Level:	Measured by kinetic Limulus amebocyte lysate (LAL) analysis and is ≤ 1 EU/µg protein.

Preparation and Storage

Storage:	Store at -20 to -80°C.
Stability:	Stable as supplied for 12 months from date of receipt.
Preparation:	Centrifuge vial before opening. Reconstitute the product in sterile water to at least 0.25 mg/mL by pipetting the solution down the sides of the vial. Do not vortex. As a general guide, do not store at 2 - 8°C for more than 1 month or at -80°C for more than 3 months. Avoid repeated freeze-thaw cycles.

Data



(A) The biological activity of Mouse Recombinant IFN beta was tested by its ability to promote the viability of L929 cells infected with VSV in a cytopathic effect (CPE) assay. Cell viability was measured using a fluorometric assay method. The EC50 is defined as the effective concentration of the cytokine at which cell survival is at 50% of maximum. The EC50 in the above example is ≤18 pg/mL.

(B) Mouse Recombinant IFN beta was resolved with SDS-PAGE under reducing (+) conditions and visualized by Coomassie Blue staining. Mouse Recombinant IFN beta has a predicted molecular mass of 20.3 kDa and an apparent molecular mass of 30 kDa due to glycosylation.

Related Products

For a complete list of cytokines, as well as related products available from STEMCELL Technologies, visit www.stemcell.com/cytokines, or contact us at techsupport@stemcell.com.

References

Bolívar S et al. (2018) IFN-β plays both pro- and anti-inflammatory roles in the rat cardiac fibroblast through differential STAT protein activation. Front Pharmacol 9: 1368.

Filipi M & Jack S. (2020) Interferons in the treatment of multiple sclerosis: a clinical efficacy, safety, and tolerability update. Int J MS Care 22(4): 165–72.

Ivashkiv LB & Donlin LT. (2014) Regulation of type I interferon responses. Nat Rev Immunol 14(1): 36–49.

Karpusas M et al. (1997) The crystal structure of human interferon β at 2.2-Å resolution. Proc Natl Acad Sci U S A 94(22): 11813–8.

Smieja J et al. (2008) Model-based analysis of interferon-β induced signaling pathway. Bioinformatics 24(20): 2363–9.