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Human Recombinant IFN-beta (HEK293-expressed)

Interferon-beta

Catalog #78113	5 µg
Catalog #78113.1	25 µg

Product Description

Interferon beta (IFN-β), also known as type I interferon, is produced by fibroblasts, and in smaller amounts by plasmocytoid dendritic cells. Macrophages and endothelial cells secrete IFN-β in response to a viral infection (Reder & Feng). IFN-β binds to a receptor complex composed of IFNAR1 and IFNAR2, and initiates signal transduction via the JAK/STAT pathway; this culminates in the transcription and activation of many genes that control dendritic cell activation, T cell survival, NK cell activation, chemokine expression, lymph node retention, and antiproliferative and antiviral effects (Dunn et al.). IFN-β is a first-line treatment for multiple sclerosis. It suppresses Th17 cells by affecting expression of IL-4, IL-10, and IL-27. IFN-β was also shown to expand regulatory T cells and limit T cell trafficking to the central nervous system (Inoue & Shinohara). Out of the two variants of IFN-β (IFN-β1 and IFN-β3), this product is the IFN-β1 form.

Product Information

Alternative Names:	B cell interferon, Fibroblast interferon, IFNB1, Leukocyte interferon, Type I interferon
Accession Number:	P01574
Amino Acid Sequence:	MSYNLLGFLQ RSSNFQCQKL LWQLNGRLEY CLKDRMNFDI PEEIKQLQQF QKEDAALTIY EMLQNIFAIF RQDSSSTGWN ETIVENLLAN VYHQINHLKT VLEEKLEKED FTRGKLMSSL HLKRYYGRIL HYLKAKEYSH CAWTIVRVEI LRNFYFINRL TGYLRN
Predicted Molecular Mass:	20 kDa
Species:	Human
Product Formulation:	Lyophilized after dialysis against phosphate-buffered saline.
Source:	HEK293
Purity:	≥ 95%

Specifications

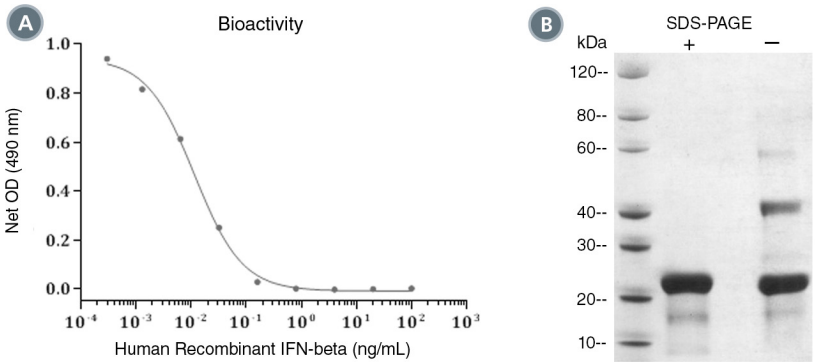
Activity:	The specific activity is ≥ 1.0 x 10^7 units/mg (EC50 ≤ 0.1 ng/mL), as determined by a cell proliferation assay using TF-1 cells.
Endotoxin Level:	Measured by kinetic Limulus amebocyte lysate (LAL) analysis and is ≤ 0.2 EU/µg protein.

Preparation and Storage

Stability and Storage: Store at -80°C. Stable as supplied for 12 months from date of receipt.

Preparation: Centrifuge vial before opening. Reconstitute the product in sterile water to at least 0.1 mg/mL by pipetting the solution down the sides of the vial. Do not vortex.
OPTIONAL: After reconstitution, if product will not be used immediately, dilute with concentrated bovine serum albumin (BSA) to a final BSA concentration of 0.1%. The effect of storage of stock solution on product performance should be tested for each application. As a general guide, do not store at 2 - 8°C for more than 1 week or at -20°C for more than 3 months. Avoid repeated freeze-thaw cycles.

Data



(A) The biological activity of Human Recombinant IFN-beta was tested by its ability to inhibit the proliferation of TF-1 cells. The EC50 is defined as the effective concentration of the growth factor at which cell proliferation is at 50% of maximum. The EC50 in the above example is less than 0.1 ng/mL. (B) 2 µg of Human Recombinant IFN-beta was resolved with SDS-PAGE under reducing (+) and non-reducing (-) conditions and visualized by Coomassie Blue staining. Human Recombinant IFN-beta has a predicted molecular mass of 20 kDa.

Related Products

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

References

Dunn GP et al. (2006) Interferons, immunity and cancer immunoediting. Nat Rev Immunol 6(11): 836–48.

Inoue M & Shinohara ML. (2013) The role of interferon-β in the treatment of multiple sclerosis and experimental autoimmune encephalomyelitis - in the perspective of inflammasomes. Immunology 139(1): 11–8.

Reder AT & Feng X. (2013) Aberrant type I interferon regulation in autoimmunity: opposite directions in MS and SLE, shaped by evolution and body ecology. Front Immunol 4: 281.