Cytokines

Human Recombinant IGF-I

Insulin-like growth factor 1

Catalog #	78022.1	100 µg
	78022	500 µg
	78022.2	1000 µg

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Product Description

Insulin-like growth factor 1 (IGF-I) is a polypeptide that belongs to the family of insulin-like growth factors that are similar in molecular structure to proinsulin. IGF-I binds to the IGF-I receptor and is a potent activator of the PI3K/AKT pathway and also activates ERK1/2 signaling. IGF-I is required for embryonic development, and it is produced mainly in the liver in response to a hepatocyte growth hormone. In the absence of insulin, IGF-I is necessary for the maintenance of human pluripotent stem cells (Wang et al.). Together with IL-3, IGF-I stimulates differentiation and proliferation of myeloid cells and has been shown to regulate lymphopoiesis by stimulating proliferation and differentiation of T and B cells in lymphoid organs (Heemskerk et al.).

Product Information

Alternative Names:	IBP1, IGF-IA, IGF-IB, IGF1A, Insulin-like growth factor 1, Mechano growth factor, MGF, Somatomedin C
Accession Number:	P05019
Amino Acid Sequence:	GPETLCGAEL VDALQFVCGD RGFYFNKPTG YGSSSRRAPQ TGIVDECCFR SCDLRRLEMY CAPLKPAKSA
Predicted Molecular Mass:	7.7 kDa
Species:	Human
Cross Reactivity:	Mouse, Rat
Formulation:	Lyophilized after dialysis against phosphate-buffered saline.
Source:	E. coli

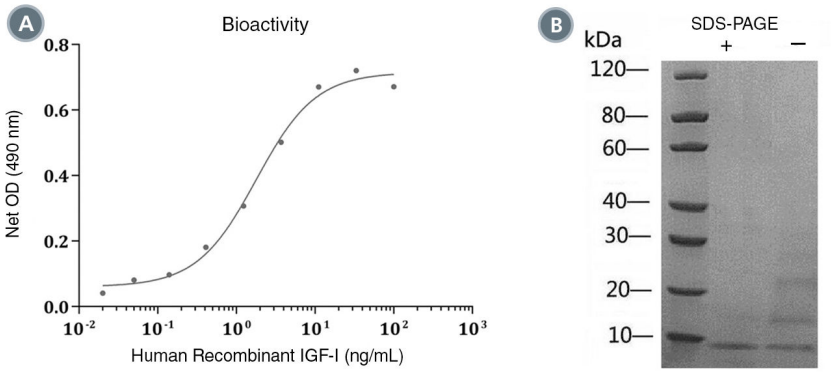
Specifications

Activity:	The specific activity is ≥ 2 x 10^5 units/mg (EC50 ≤ 5 ng/mL) as determined by a cell proliferation assay using FDC-P1 cells.
Purity:	≥ 95%
Endotoxin Level:	Measured by kinetic Limulus amebocyte lysate (LAL) analysis and is ≤ 0.2 EU/µg protein.

Preparation and Storage

Storage:	Store at -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 0.1 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 2 weeks or at -20°C for more than 3 months. Avoid repeated freeze-thaw cycles.

Data



(A) The biological activity of Human Recombinant IGF-I was tested by its ability to promote the proliferation of FDC-P1 cells. Cell proliferation was measured using a fluorometric assay method. 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 5 ng/mL.
(B) 2 µg of Human Recombinant IGF-I was resolved with SDS-PAGE under reducing (+) and non-reducing (-) conditions and visualized by Coomassie Blue staining. Human Recombinant IGF-I has a predicted molecular mass of 7.7 kDa.

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

Heemskerk VH et al. (1999) Insulin-like growth factor-1 (IGF-1) and growth hormone (GH) in immunity and inflammation. Cytokine Growth Factor Rev 10(1): 5–14.
Wang L et al. (2007) Self-renewal of human embryonic stem cells requires insulin-like growth factor-1 receptor and ERBB2 receptor signaling. Blood 110(12): 4111–9.