

Cytokines

Human Recombinant LIF



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Leukemia inhibitory factor

Catalog #	78055.1	10 µg
	78055	50 µg
	78055.2	1000 µg

Product Description

Leukemia inhibitory factor (LIF) is an interleukin 6 class cytokine that regulates a broad variety of developmental functions. After LIF binds to LIF receptor (LIFR), LIFR associates with gp130 and activates JAK/STAT and MAPK signaling (Auernhammer & Melmed; Suman et al.). LIFR activation of STAT3 is essential for maintaining the mouse embryonic stem cell phenotype (Niwa et al.). Produced by the endometrium, LIF plays an important autocrine and paracrine role in implantation by regulating proliferation, invasion, and differentiation of trophoblasts following blastocyst attachment (Auernhammer & Melmed; Suman et al.). Human LIF can be used for the maintenance of mouse embryonic stem cells; however, mouse LIF cannot bind to the human receptor, thus rendering mouse LIF inactive (Dahéron et al.). LIF is produced by CD4+ and activated regulatory T cells, and promotes Foxp3 expression, while repressing Th17 lineage-specific genes (Metcalf). LIF is also secreted by mesenchymal stromal cells, where it supports hematopoiesis and immune modulation (Nasef et al.).

Product Information

Alternative Names:	CDF, Cholinergic differentiation factor, D Factor, DIA, Differentiation-inducing factor, Differentiation inhibitory activity, Differentiation-stimulating factor, Emfitermin, Hepatocyte-stimulating factor III, HILDA, Leukemia inhibitory factor, MLPLI
Accession Number:	P15018
Amino Acid Sequence:	SPLPITPVNA TCAIRHPCHN NLMNQIRSQL AQLNGSANAL FILYYTAQGE PFPNNLDKLC GPNVTDFFPF HANGTEKAKL VELYRIVVYL GTSLGNITRD QKILNPSALS LHSKLNATAD ILRGLLSNVL CRLCSKYHVG HVDVTYGPDT SGKDVFGKKK LGCQLLGKYK QIIAVLAQAF
Predicted Molecular Mass:	19.7 kDa
Species:	Human
Cross Reactivity:	Mouse
Formulation:	Lyophilized after dialysis against phosphate-buffered saline.
Source:	E. coli

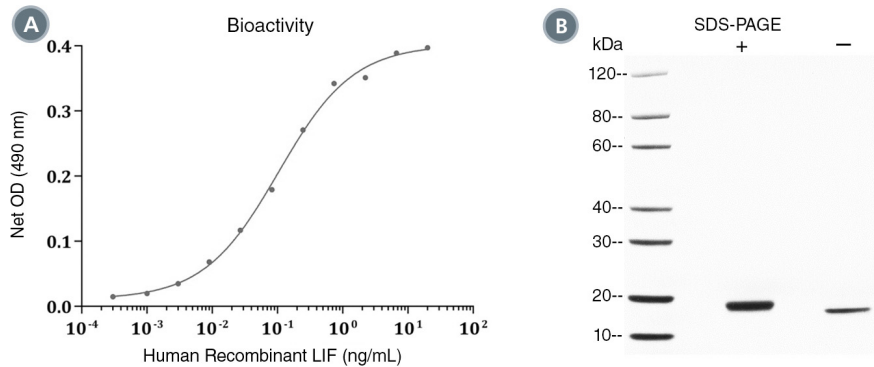
Specifications

Activity:	The specific activity is $\geq 5 \times 10^6$ units/mg ($EC_{50} \leq 0.2$ ng/mL) as determined by a cell differentiation assay using TF-1 cells.
Purity:	$\geq 95\%$
Endotoxin Level:	Measured by kinetic Limulus amoebocyte 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. Store at 2 - 8°C for up to 2 weeks or at -20°C to -80°C for up to 3 months. Avoid repeated freeze-thaw cycles.

Data



(A) The biological activity of Human Recombinant LIF was tested by its ability to promote the proliferation of TF-1 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 for this effect is 0.09 ng/mL.

(B) 2 µg of Human Recombinant LIF was resolved with SDS-PAGE under reducing (+) and non-reducing (-) conditions and visualized by Coomassie Blue staining. Human Recombinant LIF has a predicted molecular mass of 19.7 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

- Auernhammer CJ & Melmed S. (2000) Leukemia-inhibitory factor-neuroimmune modulator of endocrine function. *Endocr Rev* 21(3): 313–45.
- Dahéron L et al. (2004) LIF/STAT3 signaling fails to maintain self-renewal of human embryonic stem cells. *Stem Cells* 22(5): 770–8.
- Metcalfe SM. (2011) LIF in the regulation of T-cell fate and as a potential therapeutic. *Genes Immun* 12(3): 157–68.
- Nasef A et al. (2008) Leukemia inhibitory factor: Role in human mesenchymal stem cells mediated immunosuppression. *Cell Immunol* 253(1-2): 16–22.
- Niwa H et al. (1998) Self-renewal of pluripotent embryonic stem cells is mediated via activation of STAT3. *Genes Dev* 12(13): 2048–60.
- Suman P et al. (2014) LIF-STAT signaling and trophoblast biology. *JAK-STAT* 2(4): e25155.

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