Cytokines

Mouse Recombinant LIF

Leukemia inhibitory factor

Catalog #	78056.1	10 µg
	78056	50 µg
	78056.2	1000 µg

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Product Description

Leukemia inhibitory factor (LIF) is an interleukin 6 class cytokine that regulates a broad variety of developmental functions. After LIF binds to the 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 (Metcalfe). 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, Emfilermin, Hepatocyte-stimulating factor III, HILDA, Leukemia inhibitory factor, MLPLI
Accession Number:	P09056
Amino Acid Sequence:	SPLPITPVNA TCAIRHPCHG NLMNQIKNQL AQLNGSANAL FISYYTAQGE PFPNNVEKLC APNMTDFPSF HGNGTEKTKL VELYRMVAYL SASLTNITRD QKVLNPTAVS LQVKLNATID VMRGLLSNVL CRLCNKYRVG HVDVPPVPDH SDKEAFQRKK LGCQLLGTYK QVISVVVQAF
Predicted Molecular Mass:	19.9 kDa
Species:	Mouse
Cross Reactivity:	Not determined
Formulation:	Lyophilized after dialysis against Tris buffer containing sodium chloride, pH 8.0.
Source:	E. coli

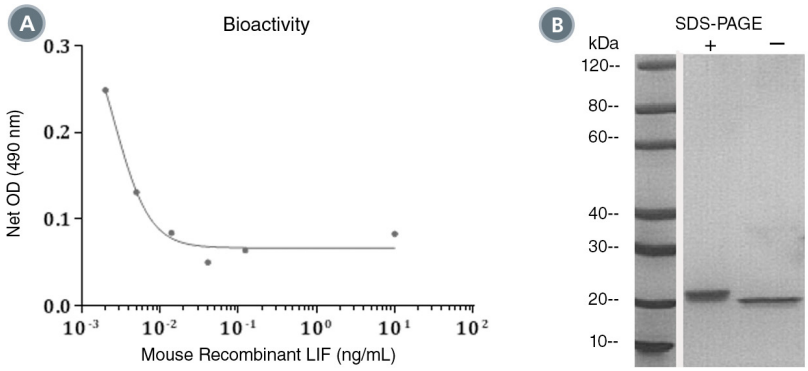
Specifications

Activity:	The specific activity is ≥ 1 x 10^8 units/mg (EC50 ≤ 0.01 ng/mL) as determined by a cell differentiation assay using M1 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 Mouse Recombinant LIF was tested by its ability to promote the proliferation of M1 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 0.0027 ng/ml.
(B) 2 µg of Mouse Recombinant LIF was resolved with SDS-PAGE under reducing (+) and non-reducing (-) conditions and visualized by Coomassie Blue staining. Mouse Recombinant LIF has a predicted molecular mass of 19.9 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.
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