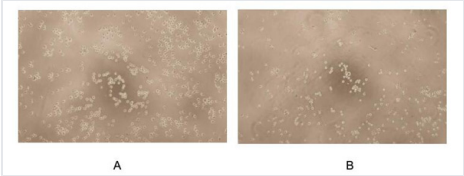
# Leukemia Inhibitory Factor (LIF) Human Active Protein

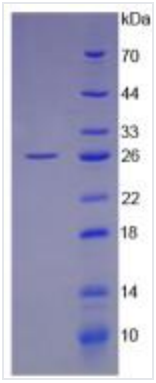
## PRODUCT OVERVIEW

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|---|---|
| **Product Name** | Leukemia Inhibitory Factor (LIF), Active Protein |
| **Full Product Name** | Active Leukemia Inhibitory Factor (LIF) |
| **Product Gene Name** | LIF active protein |
| **Product Synonym Names** | CDF; D-FACTOR; HILDA; MLPLI; Cholinergic Differentiation Factor; Differentiation-Stimulating Factor; Melanoma-Derived LPL Inhibitor; Emfilermin |
| **Host** | E Coli |
| **Species Reactivity** | Human |
| **Form/Format** | Freeze-dried powder |
| **Purity/Purification** | > 95% |
| **Molecular Weight** | Predicted Molecular Weight: 25.4kDa<br>Accurate Molecular Weight: 26kDa |
| **OMIM** | X13967 mRNA |
| **3D Structure** | ModBase 3D Structure for P15018 |
| **Supply Chain Verification** | Manufactured in a lab with traceable raw materials. Bulk orders can typically be prepared to the customer's specifications, please inquire. |
| **Active Protein Note** | Protein activity can be an ambiguous term. Please refer to the data sheet or inquire with Technical Support to determine the definition of activity for this product. |
| **Tag** | N-terminal His Tag |
| **Buffer Formulation** | 20mM Tris, 150mM NaCl, pH8.0, containing 1mM EDTA, 1mM DTT, 0.01% SKL, 5% Trehalose and Proclin300. |
| **Fragment** | Lys2~Ala201 |
| **Isoelectric Point** | 9.5 |
| **Product Categories/Family for LIF active protein** | Cytokine; Tumor immunity; Infection immunity; Neuroscience; Bone metabolism |
| **ISO Certification** | Manufactured in an ISO 9001:2015 and ISO 13485:2016 Certified Laboratory. |
| **Applications Tested/Suitable for LIF active protein** | Cell culture, Activity Assays |
| **Related Product Information for LIF active protein** | MBS2097262 is an active protein targeting LIF. Also known as Active Leukemia Inhibitory Factor (LIF). Reactive in Human. Host: E Coli. |
| **Other Notes** | Small volumes of LIF active protein vial(s) may occasionally become entrapped in the seal of the product vial during shipment and storage. If necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the container`s cap. Certain products may require to ship with dry ice and additional dry ice fee may apply. |

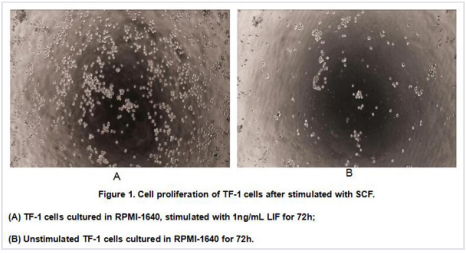



**Activity Data of LIF active protein**

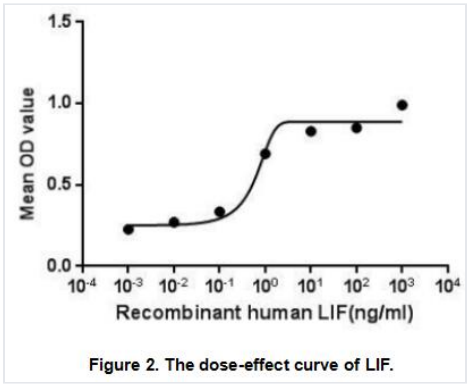
Figure. Cell proliferation of TF-1 cells after stimulated with LIF.Leukemia Inhibitory Factor (LIF), is an interleukin 6 class cytokine that affects cell growth by inhibiting differentiation. Other properties attributed to the cytokine include: the growth promotion and cell differentiation of different types of target cells, influence on bone metabolism, cachexia, neural development, embryogenesis and inflammation. p53 regulated LIF has been shown to facilitate implantation in the mouse model and possibly in humans. To test the effect of LIF on cell proliferation, TF-1 cells were seeded into triplicate wells of 96-well plates at a density of 5,000 cells/well with 1% serum standard 1640 including various concentrations of recombinant human LIF. After incubated for 72h, cells were observed by inverted microscope and cell proliferation was measured by Cell Counting Kit-8 (CCK-8). Briefly, 10uL of CCK-8 solution was added to each well of the plate, then the absorbance at 450nm was measured using a microplate reader after incubating the plate for 1-4 hours at 37 degree C. Proliferation of TF-1 cells after incubation with LIF for 72h observed by inverted microscope was shown in Figure 1. Cell viability was assessed by CCK-8 (Cell Counting Kit-8 ) assay after incubation with recombinant LIF for 72h. The result was shown in Figure 2. It was obvious that LIF significantly increased cell viability of TF-1 cells.(A) TF-1 cells cultured in 1640, stimulated with 0.5ng/mL LIF for 72h; (B) Unstimulated TF-1 cells cultured in 1640 for 72h.



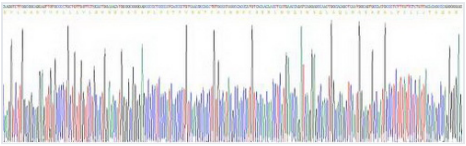

**SDS-Page of LIF active protein**




**Testing Data of LIF active protein**




**Testing Data of LIF active protein**



**Testing Data of LIF active protein**

## ADDITIONAL DETAILS

NCBI/Uniprot data below describe general gene information for LIF. It may not necessarily be applicable to this product.

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|---|---|
| **NCBI GI #** | 380418324 |
| **NCBI GeneID** | 3976 |
| **NCBI Accession #** | NP_001244064.1 |
| **UniProt Primary Accession #** | P15018 |
| **UniProt Secondary Accession #** | Q52LZ2; B2RCW7; B5MC23 |
| **UniProt Related Accession #** | P15018 |
| **GenBank Nucleotide #** | NM_001257135.1 |
| **NCBI Official Full Name** | leukemia inhibitory factor isoform 2 |

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|---|---|
| **NCBI Official Synonym Full Names** | LIF, interleukin 6 family cytokine |
| **NCBI Official Symbol** | LIF |
| **NCBI Official Synonym Symbols** | CDF; DIA; HILDA; MLPLI |
| **UniProt Protein Name** | Leukemia inhibitory factor |
| **UniProt Synonym Protein Names** | Differentiation-stimulating factor; D factor; Melanoma-derived LPL inhibitor; MLPLI; INN: Emfilermin |
| **Protein Family** | Leukemia inhibitory factor |
| **UniProt Gene Name** | LIF |
| **UniProt Synonym Gene Names** | HILDA; LIF; D factor; MLPLI |
| **NCBI Protein Information** | leukemia inhibitory factor |
| **NCBI Summary for LIF** | The protein encoded by this gene is a pleiotropic cytokine with roles in several different systems. It is involved in the induction of hematopoietic differentiation in normal and myeloid leukemia cells, induction of neuronal cell differentiation, regulator of mesenchymal to epithelial conversion during kidney development, and may also have a role in immune tolerance at the maternal-fetal interface. Alternatively spliced transcript variants encoding multiple isoforms have been observed for this gene. [provided by RefSeq, Mar 2012] |
| **UniProt Comments for LIF** | LIF: LIF has the capacity to induce terminal differentiation in leukemic cells. Its activities include the induction of hematopoietic differentiation in normal and myeloid leukemia cells, the induction of neuronal cell differentiation, and the stimulation of acute-phase protein synthesis in hepatocytes. Belongs to the LIF/OSM family.<br><br>Protein type: Secreted; Secreted, signal peptide<br><br>Chromosomal Location of Human Ortholog: 22q12.2<br><br>Cellular Component: cytosol; extracellular region; extracellular space<br><br>Molecular Function: cytokine activity; growth factor activity; leukemia inhibitory factor receptor binding; protein binding; receptor binding<br><br>Biological Process: alveolus development; blood vessel remodeling; decidualization; embryo implantation; immune response; leukemia inhibitory factor signaling pathway; multicellular organism development; muscle morphogenesis; negative regulation of cell proliferation; negative regulation of hormone secretion; negative regulation of meiotic nuclear division; neuron development; positive regulation of astrocyte differentiation; positive regulation of cell proliferation; positive regulation of macrophage differentiation; positive regulation of MAPK cascade; positive regulation of peptidyl-serine phosphorylation; positive regulation of peptidyl-serine phosphorylation of STAT protein; positive regulation of peptidyl-tyrosine phosphorylation; positive regulation of transcription from RNA polymerase II promoter; positive regulation of tyrosine phosphorylation of STAT protein; stem cell differentiation; stem cell maintenance; tyrosine phosphorylation of STAT protein |
| **Research Articles on LIF** | **1.** In summary, this study has shown that LIF is implicated in the HG-mediated inhibition of osteoblast differentiation, via promoting STAT3/SOCS3 signaling. This study may provide insights into the signal pathway of HG-induced bone loss or delayed injured joint healing. |
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