

## LIF Protein, Human, Recombinant (His)

### General Information

Synonyms:	Leukemia Inhibitory Factor;HILDA;DIA;MLPLI;CDF
Protein Construction:	A DNA sequence encoding the human LIF (P15018) (Met1-Phe202) with a C-terminal polyhistidine tag was expressed. Predicted N terminal: Ser 23
Species:	Human
Expression Host:	HEK293 Cells
Accession:	P15018
Molecular Weight:	21.2 kDa (predicted); 35-42 kDa (reducing conditions)

### QC Testing

Biological Activity:	Measured by its ability to inhibit the proliferation of M1 mouse myeloid leukemia cells. The ED50 for this effect is typically 2-15ng/mL.
Purity:	> 95 % as determined by SDS-PAGE
Endotoxin:	< 1.0 EU/μg of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 μm filter, containing PBS, pH 7.4. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

### Preparation and Storage

Reconstitution:	Reconstituted with sterile deionized water to 0.25 mg/mL. Reconstitution conditions may vary depending on the lot.
Stability & Storage:	It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots. <small>Actual storage temperature shall be subject to the COA.</small>

Shipping:	In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.
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### Protein Background

Leukemia inhibitory factor (LIF) is a pleiotropic glycoprotein belonging to the IL-6 family of cytokines. It is involved in growth promotion and cell differentiation of different types of target cells, influence bone metabolism, cachexia, neural development, embryogenesis, and inflammation. LIF has potent proinflammatory properties, being the inducer of the acute phase protein synthesis and affecting cell recruitment into the area of damage or inflammation. LIF is also one of the cytokines that are capable to regulate the differentiation of embryonic stem

cells, hematopoietic, and neuronal cells. LIF binds to the specific LIF receptor (LIFR- $\alpha$ ) which forms a heterodimer with a specific subunit common to all members of that family of receptors, the GP130 signal-transducing subunit. This leads to the activation of the JAK/STAT and MAPK cascades. Due to its polyfunctional activities, LIF is involved in the pathogenic events and development of many diseases of various origins.

### Reference

Salas EM, et al. (2011) LIF, a Novel STAT5-Regulated Gene, Is Aberrantly Expressed in Myeloproliferative Neoplasms. *Genes Cancer*. 2 (5): 593-6.

Chodorowska G, et al. (2004) Leukemia inhibitory factor (LIF) and its biological activity. *Ann Univ Mariae Curie Sklodowska Med*. 59 (2): 189-93.

Garcia-Campana AM, et al. (2007) LIF detection of peptides and proteins in CE. *Electrophoresis*. 28 (1-2): 208-32.

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