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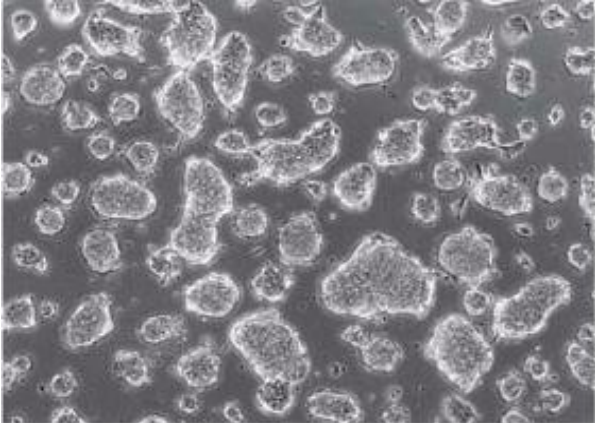
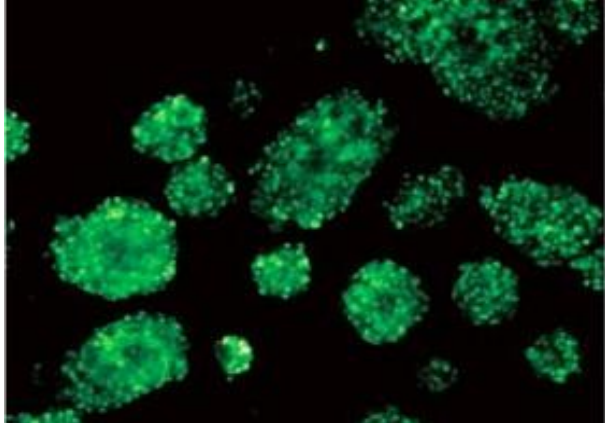
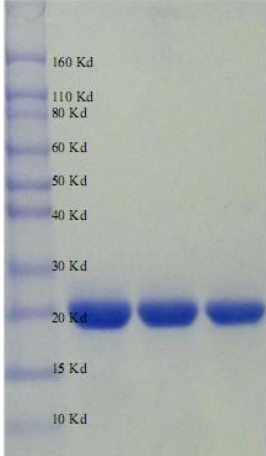
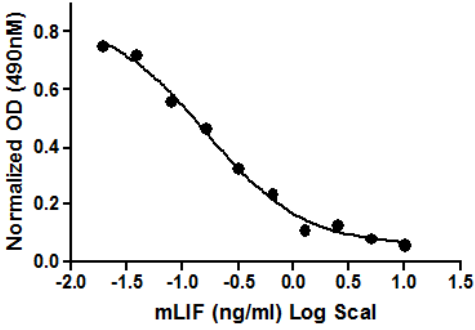


### 1. Product Information

|                          |  |
|--------------------------|--|
| <b>Product Name</b>      | <b>HPure™ Recombinant Mouse LIF</b>  |
| <b>Sizes</b>             | 2 µg, 5 µg, 10 µg, 20 µg, 50 µg, 100 µg, 1.0 mg, 5.0 mg  |
| <b>Synonym(s)</b>        | CDF, HILDA, D-FACTOR, Differentiation- stimulating factor, Melanoma-derived LPL inhibitor, MLPLI, Emflermin, Leukemia inhibitory factor, LIF.  |
| <b>Species</b>           | Mouse  |
| <b>GenBank Accession</b> | M63419 or NM_008501  |
| <b>Introduction</b>      | Leukemia Inhibitory Factor (LIF) is a lymphoid factor that promotes long-term maintenance of pluripotent embryonic stem cells by suppressing spontaneous differentiation. Recombinant Mouse Leukemia inhibitory factor (mLIF) is produced in E. coli. It contains a single non-glycosylated polypeptide chain 181 amino acids and has a molecular mass of 20kDa. mLIF is purified by proprietary techniques using HPLC and FPLC chromatography. The sample purity is better than 98% on SDS page. Its biological activity has been determined. |

|                                  |  |
|----------------------------------|--|
| <b>Amino Acid Sequences</b>      | MSPLPITPVNATCAIRHPCHGNLMNQIKNQLAQLNGSANALFISYYT<br>AQGEPFPNNVEKLCAPNMTDFPSFHGNGTEKTKLVELYRMVAYLS<br>ASLTNITRDQKVLNPTAVSLQVKLNATIDVMRGLLSNVLCRLCNKYR<br>VGHVDVPPVPDHSDKEAFQR KKLGCQLLGTQYKQVISVVQAF   |
| <b>Tags</b>                      | No tag   |
| <b>Expression source</b>         | <i>E. coli</i>   |
| <b>MWs</b>                       | 20 kDa   |
| <b>Purity</b>                    | >98% before adding BSA on SDS PAGE and HPLC analyses.  |
| <b>Bioactivity</b>               | The activity of mouse LIF is analyzed by the ability to induce differentiation of murine M1 myeloid leukemic cells.<br>Specific activity of the sample is approximate 10 <sup>8</sup> units/mg.  |
| <b>Recommended concentration</b> | 10 <sup>7</sup> units Mouse LIF, identical 100 µg of pure protein, are sufficient to treat 10.0 L of ES cell.  |
| <b>Endotoxin Level</b>           | Less than 0.01 ng/µg cytokine as determined by the LAL assay.  |
| <b>Application</b>               | It is best known that mouse LIF promotes long-term maintenance of embryonic stem cells by suppressing spontaneous differentiation. LIF also displays diverse biological activities including cholinergic neuron differentiation, control of stem cell pluripotency, bone and fat metabolism, mitogenesis of certain factor-dependent cell lines and promotion of megakaryocyte production in vivo. LIF can be upregulated by proinflammatory cytokines such as TNF-α and IL-17.<br><br>Human and mouse LIF share 79% sequence homology and exhibit cross-species activity. However, only mouse-specific LIF shows inhibition of stem cell differentiation. |

**2. Experiment data**

| <u>Cell Culture of Mouse ES (CGR8)</u>  | <u>Detection of Undifferentiated Marker</u>   |
|---|---|
|  <p>ES cell colonies well formed in the presence of mouse LIF.</p> |  <p>Nanog (Alexa Fluor®488)</p>   |
| <u>SDS-GAGE of Mouse LIF</u>  | <u>Bioactivity Assay</u>  |
|  <p>12.5% SDS-PAGE analysis with Coomassie Blue.</p>             |  <p>Proliferation assay measuring ability of mouse LIF to induce differentiation of mouse M1 myeloid leukemia cells. The ED50 is &lt;0.5 ng/ml.</p> |

**3. Different Formulations of Mouse LIF**

3-1: Ready-To-Use mouse LIF

| Catalog Number: 12-0001RCF   | Catalog Number: 12-0001RC  | Catalog Number: 12-0001RAF   |
|--|--|--|
| <p><b>Ready-To-Use and Carrier Free:</b></p> <p>0.22 µm filtered sterile liquid, 1x phosphate-buffered saline with 0.02% Tween-20.</p>   | <p><b>Ready-To-Use With BSA Carrier:</b></p> <p>0.22 µm filtered sterile liquid, 1x phosphate-buffered saline with 0.02% Tween-20 and 1.0% (w/v) BSA.</p>  | <p><b>Ready-To-Use and Animal Free:</b></p> <p>0.22 µm filtered sterile liquid, 1x phosphate-buffered saline with 0.02% Tween-20.</p>  |
| <p><b>Shipping:</b></p> <p>The product is shipped at ambient temperature with ice bag. Upon receipt, it should be stored immediately at 4 °C.</p>  | <p><b>Shipping:</b></p> <p>The product is shipped at ambient temperature with ice bag. Upon receipt, it should be stored immediately at 4 °C.</p>  | <p><b>Shipping:</b></p> <p>The product is shipped at ambient temperature with ice bag. Upon receipt, it should be stored immediately at 4 °C.</p>  |
| <p><b>Storage and stability</b></p> <p>Maintain activity at 4 °C for 6-12 months under sterile conditions. Further dilutions should be prepared into buffer or medium containing 0.02% Tween 20.</p> | <p><b>Storage and stability</b></p> <p>Maintain activity at 4 °C for 6-12 months under sterile conditions. Further dilutions should be prepared into buffer or medium containing 1% BSA or 0.02% Tween 20.</p> | <p><b>Storage and stability</b></p> <p>Maintain activity at 4 °C for 6-12 months under sterile conditions. Further dilutions should be prepared into buffer or medium containing 0.02% Tween 20.</p> |

3-2: Lyophilized mouse LIF

| Catalog Number: 12-0001CFL  | Catalog Number: 12-0001CL   | Catalog Number: 12-0001AFL  |
|---|---|---|
| <p><b>Carrier Free:</b><br/>Sterile filtered and lyophilized, 1x phosphate-buffered saline with 0.02% Tween-20.</p>   | <p><b>With BSA Carrier:</b><br/>Sterile filtered and lyophilized, 1x phosphate-buffered saline with 0.02% Tween-20 and 1.0% (w/v) BSA.</p>  | <p><b>Animal Free:</b><br/>Sterile filtered and lyophilized, 1x phosphate-buffered saline with 0.02% Tween-20.</p>  |
| <p><b>Shipping:</b><br/>The product is shipped at ambient temperature with ice bag. Upon receipt, it should be stored immediately at -20 to 80 °C.</p>  | <p><b>Shipping:</b><br/>The product is shipped at ambient temperature with ice bag. Upon receipt, it should be stored immediately at -20 to 80 °C.</p>  | <p><b>Shipping:</b><br/>The product is shipped at ambient temperature with ice bag. Upon receipt, it should be stored immediately at -20 to 80 °C.</p>  |
| <p><b>Reconstitution</b><br/>Reconstitute at 100 µg/ml with 1x sterile PBS buffer.</p>  | <p><b>Reconstitution</b><br/>Reconstitute at 100 µg/ml with 1x sterile PBS buffer.</p>  | <p><b>Reconstitution</b><br/>Reconstitute at 100 µg/ml with 1x sterile PBS buffer.</p>  |
| <p><b>Storage and stability:</b></p> <ul style="list-style-type: none"> <li>• 18 months from date of receipt at -20 to -80 °C.</li> <li>• 12 months at 4 °C under sterile conditions after reconstitution.</li> </ul> | <p><b>Storage and stability:</b></p> <ul style="list-style-type: none"> <li>• 18 months from date of receipt at -20 to -80 °C.</li> <li>• 12 months at 4 °C under sterile conditions after reconstitution.</li> </ul> | <p><b>Storage and stability:</b></p> <ul style="list-style-type: none"> <li>• 18 months from date of receipt at -20 to -80 °C.</li> <li>• 12 months at 4 °C under sterile conditions after reconstitution.</li> </ul> |

### 3-3: Select Right Formulation for Your Trial

Mouse LIF is an extremely purified protein. It maintains activity well in our carrier-free formulation under 2-4 °C for 12 months. It becomes more stable and can reduce binding on vial surface in the presence of BSA as a carrier. We suggest purchasing the ready-to-use mouse LIF with BSA for use in cell, tissue culture and stem cell application. The carrier free protein is recommended for application if BSA could interfere with your experiment. For aboard user, we suggest purchasing the lyophilized forms if shipping takes more than 96 hours, where cool temperature cannot be hold.

### 4. Features of Recombinant Protein From Aurora Biolabs

**High purity**- exempts interference from other biomolecules, flawless data will be obtained.

**High biological activity**-less protein, stronger data from your assay.

**Low endotoxin**- endotoxins significantly interfere with cell function and growth, we prepare cytokine and growth factors with endotoxin level less than 0.1 EU/μg.

**High stability and consistency**- repeatable data in a time range, free worry, save money.

### 5. Quality guaranteed and technical support

Our products are under warranted. Replacement or refund for products that do not perform as stated on the datasheet are valid for 12 months from date of delivery. Our expert will provide response to your inquiry within 24 hours.

Unless otherwise specifically indicated, Aurora Biolabs' products and services are for research use only and not for diagnostic or therapeutic use.

### 6. References

Mullen EM, Gu P, Cooney AJ. Nuclear receptors in regulation of mouse ES pluripotency and differentiation. PPAR Res. 2007; 2007: 61563

Metcalf D. The unsolved enigmas of leukemia inhibitory factor. Stem Cells. 2003; 21(1): 5-14

Gadient RA, Patterson PH. Leukemia inhibitory factor, interleukin 6, and other cytokines using the GP130 transducing receptor: roles in inflammation and injury. Stem Cells. 1999; 17(3): 127-137



Mouse LIF samples will be shipped in a Aurora Biolabs' cryopro storage box.