

## Recombinant Mouse IL-7 (carrier-free)

<b>Catalog# / Size</b>	577806 / 100 µg 577808 / 500 µg 577802 / 10 µg 577804 / 25 µg
<b>Regulatory Status</b>	RUO
<b>Other Names</b>	Interleukin-7, Lymphopoietin-1 (LP-1), Pre-B cell growth factor, Thymocyte growth factor
<b>Description</b>	<p>Mouse IL-7 was initially described as a pre B-cell grow factor expressed in bone marrow stromal cells. IL-7 is essential for normal murine B cell development, and plays a key role in regulating the homeostasis and function of the T-cells. The binding of IL-7 to its receptor induces dimerization of IL-7Ra and the common gamma chain (gc) which leads to activation of receptor associated tyrosine Janus kinases JAK1 (IL-7R) and JAK3 (γc). The activated JAK proteins in turn phosphorylate specific residues on the IL-7R creating docking sites for signaling molecules such as STAT5 and to a lesser extent STAT1 and STAT3. In adult mice, IL-7/IL-7R signaling up regulates expression of early B cell factor (EBF), and EBF in turn regulates expression of B cell-specific genes required for the transition from lymphoid progenitor to pro-B cells. Besides, IL-7 plays a role in the development of secondary lymphoid tissues. IL-7 is necessary to specify CD8 lineage differentiation during CD4/CD8 cell fate choice in the thymus by inducing expression of the transcription factor Runx3. IL-7 induces anti-apoptotic factors Bcl2 and Bcl-xL and inhibiting pro-apoptotic factors such as Bad and Bax. In this fashion, IL-7 induces cell activation, survival, and proliferation of T lymphocytes. In addition, IL-7 controls T-cell size and metabolism through the activation of PI3 kinase-dependent pathways and regulation of glucose metabolism. IL-7 also controls T cell-dendritic cell interactions that are essential for both T-cell homeostasis and activation <i>in vivo</i>. CD4 T cell lymphopenia increases the expression of circulating IL-7, and TGFβ induces IL-7 downregulation.</p>

### Product Details

<b>Source</b>	Mouse IL-7, amino acids Glu26 -Ile154 (Accession# NM_008371.4) was expressed in insect cells.
<b>Molecular Mass</b>	The 148 amino acid recombinant protein (with ADL-His9-SSGIEGR at N-terminus) has a predicted molecular mass of approximately 17 kD. The DTT-reduced and non-reduced protein migrates at approximately 20 kD by SDS-PAGE.
<b>Purity</b>	>95%, as determined by Coomassie stained SDS-PAGE.
<b>Formulation</b>	The protein was 0.22 µm filtered in 10 mM NaH <sub>2</sub> PO <sub>4</sub> , 150 mM NaCl, pH 7.2.
<b>Endotoxin Level</b>	Less than 0.01 ng per µg cytokine as determined by the LAL method.
<b>Concentration</b>	10 and 25 µg sizes are bottled at 100 µg/mL. 100 µg and larger sizes are lot-specific and bottled at the concentration indicated on the vial. To obtain lot-specific concentration, please enter the lot number in our <a href="#">Concentration and Expiration Lookup</a> or <a href="#">Certificate of Analysis</a> online tools.
<b>Storage &amp; Handling</b>	Unopened vial can be stored between 2°C and 8°C for up to 2 weeks, at -20°C for up to six months, or at -70°C or colder until the expiration date. For maximum results, quick spin vial prior to opening. The protein can be aliquoted and stored at -20°C or colder. Stock solutions can also be prepared at 50 - 100 µg/mL in appropriate sterile buffer, carrier protein such as 0.2 - 1% BSA or HSA can be added when preparing the stock solution. Aliquots can be stored between 2°C and 8°C for up to one week and stored at -20°C or colder for up to 3 months. <b>Avoid repeated freeze/thaw cycles.</b>
<b>Activity</b>	ED <sub>50</sub> = 1.0 - 5 ng/ml, corresponding to a specific activity of 0.2 - 1 x 10 <sup>6</sup> units/mg, as determined by PHA activated PBL proliferation induced by IL-7 in a dose dependent manner. Under this condition the bioactivity is equivalent
<b>Application</b>	<a href="#">Bioassay</a>
<b>Application Notes</b>	BioLegend carrier-free recombinant proteins provided in liquid format are shipped on blue-ice. Our comparison testing data indicates that when handled and stored as recommended, the liquid format has equal or better stability and shelf-life compared to commercially available lyophilized proteins after reconstitution. Our liquid proteins are verified in-house to maintain activity after shipping on blue ice and are backed by our <a href="#">100% satisfaction guarantee</a> . If you have any

concerns, contact us at [tech@biolegend.com](mailto:tech@biolegend.com).

## Product Citations

1. Viny AD, *et al.* 2019. *Cell Stem Cell*. 25:682. [PubMed](#)
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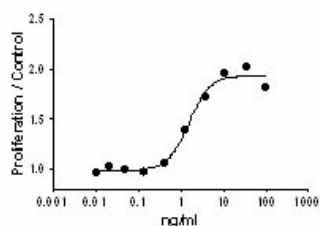
## Antigen Details

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<b>Structure</b>	Cytokine
<b>Distribution</b>	Thymic and bone marrow stromal cells, keratinocytes, dendritic cells, endothelial cells, intestinal epithelial, and epithelial goblet cells.
<b>Function</b>	IL-7 is essential for B cell production.
<b>Interaction</b>	Progenitor B and T cells, CD4 <sup>+</sup> CD8 <sup>-</sup> thymocytes, naïve and memory CD4 and CD8 T cells, and megakaryocytes.
<b>Ligand/Receptor</b>	Heterodimer IL-7R $\alpha$ (CD127); $\gamma$ -subunit (CD132) which shares component with IL-2, IL-4, IL-13, IL-15, and IL-21 receptors.
<b>Cell Type</b>	B cells, Hematopoietic stem and progenitors
<b>Biology Area</b>	Immunology, Stem Cells
<b>Molecular Family</b>	Cytokines/Chemokines
<b>Antigen References</b>	<ol style="list-style-type: none"><li>1. Yokota T, <i>et al.</i> 1986. <i>P. Natl. Acad. Sci. USA</i> 83:5894.</li><li>2. Meier D, <i>et al.</i> 2007. <i>Immunity</i> 26:643.</li><li>3. Parish JK, <i>et al.</i> 2009. <i>J. Immunol</i>. 182:4255.</li><li>4. Saini M, <i>et al.</i> 2009. <i>Blood</i> 113:5793.</li><li>5. Park JH, <i>et al.</i> 2010. <i>Nat. Immunol</i>. 11:257.</li><li>6. Li WQ, <i>et al.</i> 2010. <i>Mol. Cell. Biol</i>. 30:590.</li></ol>
<b>Gene ID</b>	<a href="#">16196</a>

## Product Data

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PHA activated PBL proliferation induced by mouse IL-7.

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