

## GMP Recombinant Human IL-34 (carrier-free)

<b>Catalog# / Size</b>	577914 / 25 µg 577916 / 100 µg
<b>Other Names</b>	Interleukin-34
<b>Description</b>	Human IL-34 shares amino acid sequence similarity of 99.6%, 72% and 71% with chimpanzee, rat, and mouse IL-34, respectively. The IL-34 gene is syntenic in the human, chimpanzee, rat, and mouse genomes. IL-34 shows lack of consensus in the structural domain or motif, and does not share any sequence homology with M-CSF but it still binds to the CSFR. These two cytokines are not identical in biological activity and signal activation. IL-34 and CSF show an equivalent ability to support cell growth or survival. However, these cytokines have differing ability to induce the production of chemokines (MCP-1 and eotaxin-2) in primary macrophages, the morphological change in TF-1-fms cells, and the migration of J774A.1 cells. The use of monoclonal antibodies against the CSFR suggests a differential domain binding in the receptor to IL-34 and CSF and, as a result, different bioactivities and signal activation kinetics/strength are produced for these cytokines. High levels of IL-34 has been detected in serum of patients with polycystic ovary syndrome and in patients with acute ischemic stroke.

### Product Details

---

<b>Source</b>	Human IL-34, amino acid (Asn21-Pro242) (Accession: # NM_152456.2), with carboxy terminus 10H tag, was expressed in CHO cells.
<b>Molecular Mass</b>	The 235 amino acid recombinant protein has a predicted molecular mass of 26.7 kD. The DTT-reduced protein migrates at approximately 40 kD, and the non-reduced protein migrates with slightly greater mobility by SDS-PAGE. The predicted N-terminal amino acid is Asn.
<b>Purity</b>	> 95%, as determined by Coomassie stained SDS-PAGE.
<b>Formulation</b>	0.1 µm filtered protein solution is in 10mM Na <sub>2</sub> HPO <sub>4</sub> , 0.5M NaCl, pH 7.4.
<b>Endotoxin Level</b>	Less than 0.1 EU per µg cytokine as determined by the LAL method.
<b>Concentration</b>	25 µg and 100 µg sizes are at 0.5 mg/mL.
<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% endotoxin-free 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 or stored at -20°C or colder for up to 3 months. <b>Avoid repeated freeze/thaw cycles.</b>
<b>Activity</b>	Human IL-34 induces MCP-1 (CCL2) production in human peripheral blood mononuclear cells (PBMC) in a dose-dependent manner. The ED <sub>50</sub> for this effect is 4 - 20 ng/mL.
<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 <a href="mailto:tech@biolegend.com">tech@biolegend.com</a> .
<b>Disclaimer</b>	<b>GMP Recombinant Proteins.</b> BioLegend GMP recombinant proteins are manufactured in a dedicated GMP facility and compliant with ISO 13485:2016. For research or <i>ex vivo</i> cell processing use. Not for use in diagnostic or therapeutic procedures. Our processes include: <ul style="list-style-type: none"><li>• Batch-to-batch consistency</li><li>• Material traceability</li><li>• Documented procedures</li><li>• Documented employee training</li><li>• Equipment maintenance and monitoring records</li><li>• Lot-specific certificates of analysis</li><li>• Quality audits per ISO 13485:2016</li></ul>

- QA review of released products

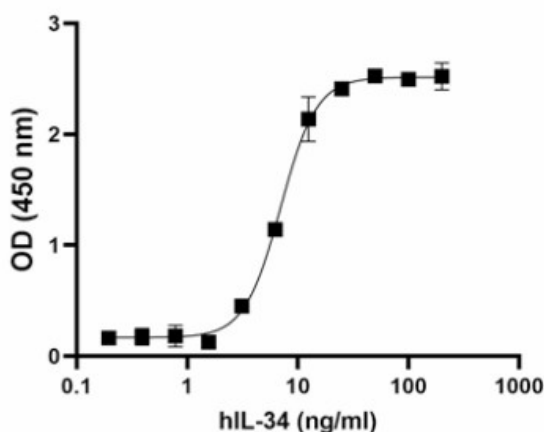
BioLegend GMP recombinant proteins are manufactured and tested in accordance with USP Chapter 1043, Ancillary Materials for Cell, Gene and Tissue-Engineered Products and Ph. Eur. Chapter 5.2.12.

## Antigen Details

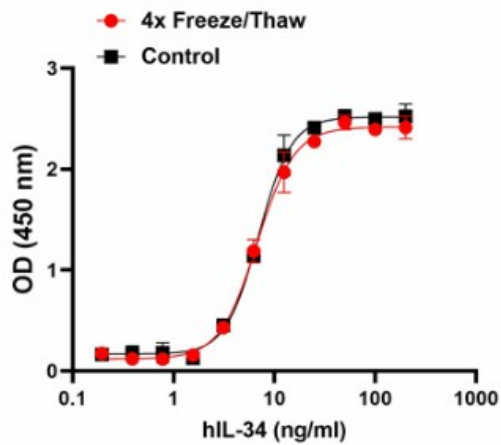
<b>Structure</b>	Homodimer
<b>Distribution</b>	IL-34 mRNA is expressed in different tissues, including spleen, heart, brain, lung, liver, kidney, thymus, testes, ovary, small intestine, prostate, and colon.
<b>Function</b>	IL-34 increases monocyte's viability, induces macrophage proliferation, and synergizes with other cytokines to generate macrophages and osteoclasts from cultured progenitors. IL-34 promotes the formation of the colony-forming unit-macrophage (CFU-M) in human bone marrow culture. IL-34 supports RANKL-induced osteoclastogenesis by promoting the adhesion and proliferation of osteoclast progenitors. Human IL-34 promotes the osteoclast differentiation from peripheral blood mononucleated cells. In addition, systematic administration of IL-34 to mouse increases the number of CD11b+ cells and reduces bone mass. IL-1 $\beta$ and TNF- $\alpha$ induce the expression of interleukin-34 mRNA in osteoblast. IL-34 is induced in macrophages infected with equine infectious anemia virus (EIAV).
<b>Interaction</b>	Macrophages, monocytes, myeloid cells
<b>Ligand/Receptor</b>	CSF-1R
<b>Bioactivity</b>	Induces cytokine production in PBMCs.
<b>Biology Area</b>	Immunology, Innate Immunity, Stem Cells
<b>Molecular Family</b>	Cytokines/Chemokines
<b>Antigen References</b>	<ol style="list-style-type: none"> <li>1. Clanchy F, <i>et al.</i> 2006. <i>J Leukoc Biol.</i> 79:757-66.</li> <li>2. Lin H, <i>et al.</i> 2008. <i>Science.</i> 320:807-11.</li> <li>3. Chihara T, <i>et al.</i> 2010. <i>Cell Death Differ.</i> 17:1917-27.</li> <li>4. Wei S, <i>et al.</i> 2010. <i>J Leukoc Biol.</i> 88:495-505.</li> <li>5. Eda H, <i>et al.</i> 2010. <i>Cytokine.</i> 52:215-20.</li> <li>6. Covalada L, <i>et al.</i> 2010. <i>Virology.</i> 397:217-23.</li> <li>7. Chen Z, <i>et al.</i> 2011. <i>PLoS One.</i> 6:e18689.</li> <li>8. Cai H, <i>et al.</i> 2022. <i>J Obstet Gynecol Res.</i> 48:973.</li> <li>9. Huang X, <i>et al.</i> 2021. <i>J Neuroimmunol.</i> 358:577652.</li> </ol>

Gene ID [146433](#)

## Product Data



GMP recombinant human IL-34 induces MCP-1 (CCL2) production in human peripheral blood mononuclear cells (PBMC) in a dose-dependent manner. The ED<sub>50</sub> for this effect is 4 - 20 ng/mL.



**Stability Testing for GMP Recombinant Human IL-34.** Human IL-34 was aliquoted in 10mM Na<sub>2</sub>HPO<sub>4</sub>, 0.5M NaCl, pH 7.4 at 0.2 mg/mL. One aliquot was frozen and thawed four times (4x Freeze/Thaw) and compared to the control that was kept at 4°C (Control). The samples were tested for their ability to induce MCP-1 (CCL2) production in human peripheral blood mononuclear cells (PBMC) in a dose-dependent manner. The ED<sub>50</sub> for this effect is 4 - 20 ng/mL.

For research and *ex vivo* cell processing use. Not for diagnostic or therapeutic procedures. Not for resale. BioLegend will not be held responsible for patent infringement or other violations that may occur with the use of our products.

\*These products may be covered by one or more Limited Use Label Licenses (see the BioLegend Catalog or our website, [www.biolegend.com/terms](http://www.biolegend.com/terms)). BioLegend products may not be transferred to third parties, resold, modified for resale, or used to reverse engineer functionally similar materials without written approval of BioLegend. By use of these products you accept the terms and conditions of any and all applicable Limited Use Label Licenses. Unless otherwise indicated, these products are for research and *ex vivo* cell processing use only and not intended for human or animal diagnostic or therapeutic use.

8999 BioLegend Way, San Diego, CA 92121 [www.biolegend.com](http://www.biolegend.com)  
 Toll-Free Phone: 1-877-Bio-Legend (246-5343) Phone: (858) 768-5800 Fax: (877) 455-9587