

GMP Recombinant Human IL-7 (carrier-free)

Catalog# / Size 581914 / 25 µg
581916 / 100 µg

Other Names Interleukin 7, Lymphopoietin-1 (LP-1), IL7

Description IL-7 was initially described as a stromal derived factor which is capable of inducing the growth of pre-B cells in vitro. IL-7 acts on a variety of cells through its receptor (IL-7R), a heterodimer consisting of IL-7R α (CD127) and a common γ chain (CD132, γ c) shared by other cytokine (IL-2, IL-4, IL-9, IL-15, and IL-21) receptors. In addition, IL-7R α is shared with TSLP. The generation of IL-7-deficient and IL-7R α -deficient mice and monoclonal antibody blocking experiments confirmed the requirement of IL-7 for B-cell development in mice. Nevertheless, mutations in the α chain of the IL-7 receptor in patients with severe combined immunodeficiency (SCID) confirmed that IL-7 is indispensable for T-cell development in humans. However, the presence of B cells in these individuals suggests important differences between the role of IL-7 in murine and human lymphocyte development. Thus, although human B-cell development does not appear to require IL-7, immature human B cells do proliferate in response to IL-7. Nevertheless, most recent information suggests that IL-7 dependence in human lymphopoiesis increases during the progression of ontogeny in cord blood and bone marrow. IL-7 can be associated to hepatocyte growth factor (HGF β) to form a hybrid cytokine (IL-7/HGF β), which induces greater proliferation of CFU-S, SLPs, and pre-pro-B cells than does native IL-7. The hybrid cytokine signals through both IL-7R (IL-7R α plus γ c) and c-Met. IL-7 has a thymic antiapoptotic effect and induces the expression of antiapoptotic proteins Bcl-2 and Mcl-1 and the inhibition of proapoptotic proteins Bax and Bad. In addition, IL-7 is a key regulator of glucose uptake in T lymphocytes. TGF- β has been shown to down-regulate IL-7 mRNA and protein secretion from human bone marrow stromal cells. In addition, TGF- β inhibits IL-7-induced proliferation of pre-B cells.

Product Details

Source	Human IL-7, amino acids Asp26-His177 (Accession # NP_000871.1) was expressed in 293E cells.
Molecular Mass	The 165 amino acid recombinant protein has a predicted molecular mass of approximately 18.8 kD. The DTT-reduced and non-reduced protein migrate at approximately 20 - 30 kD by SDS-PAGE.
Purity	> 95%, as determined by Coomassie stained SDS-PAGE
Formulation	0.1 µm filtered protein solution is in PBS, pH 7.2.
Concentration	500 µg/mL
Storage & Handling	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. Avoid repeated freeze/thaw cycles.
Activity	ED ₅₀ = 0.2 – 1.2 ng/mL, as determined by a dose-dependent stimulation in a proliferation assay with PHA-activated human peripheral blood lymphocytes (PBL). Deep Blue Cell Viability™ Kit (Cat. No. 424701) is used to measure the proliferation.
Application	Bioassay Cell Culture
Application Notes	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 100% satisfaction guarantee . If you have any concerns, contact us at tech@biolegend.com .

Disclaimer

GMP Recombinant Proteins. BioLegend GMP recombinant proteins are manufactured in a dedicated GMP facility and compliant with ISO 13485:2016. For research or *ex vivo* cell processing use. Not for use in diagnostic or therapeutic procedures. Our processes include:

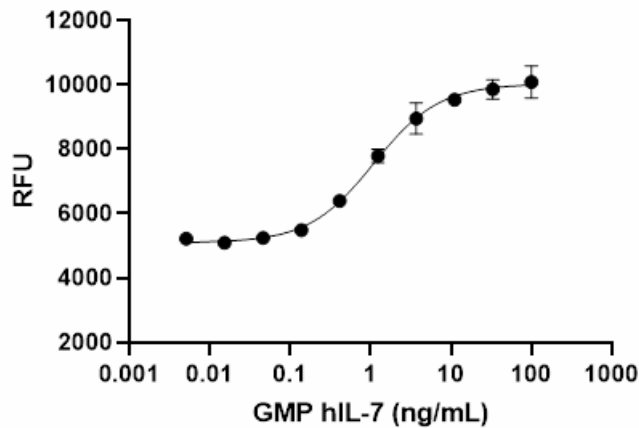
- Batch-to-batch consistency
- Material traceability
- Documented procedures
- Documented employee training
- Equipment maintenance and monitoring records
- Lot-specific certificates of analysis
- Quality audits per ISO 13485:2016
- QA review of released products

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

Distribution	IL-7 is produced by epithelial cells in thymus, bone marrow, and intestine. Additional sites of IL-7 production include epithelial goblet cells, keratinocytes, fetal liver, adult liver, dendritic cells, skeletal muscle cells, fibroblastic reticular cells, and follicular dendritic cells.
Function	IL-7 induces proliferation of human immature B cells, and it is critical for T-cell development and peripheral T-cell homeostasis. Regulates T follicular helper cells.
Interaction	B cells, Hematopoietic stem and progenitors
Ligand/Receptor	IL-7R α (CD127), common gamma chain (γ c or CD132)
Bioactivity	Measured by its ability to induce proliferation of 7TD1 cell
Cell Type	B cells, Dendritic cells, Epithelial cells, Leukemia, Lymphocytes, NK cells, T cells, Tfh, Thymocytes
Biology Area	Cell Biology, Cell Proliferation and Viability, Immuno-Oncology, Immunology, Stem Cells
Molecular Family	Cytokine/Chemokine Receptors, Cytokines/Chemokines
Antigen References	<ol style="list-style-type: none">1. Park LS, et al. 1990. J. Exp. Med. 171:1073.2. Fry TJ and Mackall CL. 2002. Blood 99:3892.3. Lai L, et al. 2006. Blood 107:1776.4. Link A, et al. 2007. Nat. Immunol. 8:1255.5. Wofford J, et al. 2008. Blood 111:2101.6. Parrish YK, et al. 2009. J. Immunol. 182:4255.7. Saini M, et al. 2009. Blood 113:5793.8. Guimond M, et al. 2009. Nat. Immunol. 10:149.
Gene ID	3574

Product Data



GMP recombinant human IL-7 induces proliferation of PHA-activated human peripheral blood lymphocytes (PBL) in a dose-dependent manner with an ED₅₀ range of 0.2 - 1.2 ng/mL.

Symbols Glossary*

Symbol	Meaning	Symbol Title	Symbol No.	Symbol	Meaning	Symbol Title	Symbol No.
	Catalog number	Catalogue number	5.1.6		Indicates the need for the user to consult the instructions for use.	Consult instructions for use	5.4.3
	Indicates the temperature limits to which the medical device can be safely exposed.	Temperature limit	5.3.7		Indicates a medical device that needs protection from light sources.	Keep away from sunlight	5.3.2
	Indicates the upper limit of temperature to which the medical device can be safely exposed.	Upper limit of temperature	5.3.6		Indicates the date after which the medical device is not to be used.	Use-by date	5.1.4
	Indicates the medical device manufacturer.	Manufacturer	5.1.1		Indicates the authorized representative in the European Community.	Authorized representative in the European Community	5.1.2
	Indicates the manufacturer's batch code so that the batch or lot can be identified.	Batch code	5.1.5		Indicates a medical device that is intended to be used as an in vitro diagnostic medical device.	<i>In vitro</i> diagnostic medical device	5.5.1

* Symbol information is from EN ISO 15223-1:2016 Medical devices – Symbols to be used with medical device labels, labelling and information to be supplied – Part 1: General requirements

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