

## Recombinant Human IL-7

### Information

Accession #	P13232
Alternate Names	Human IL7; hIL-7; Interleukin-7; interleukin 7; Lymphopoietin-1; PBGF
Source	Human embryonic kidney cell, HEK293-derived human IL-7 protein
Protein sequence	Asp26-His177
M.Wt	17.4 kDa
Appearance	Solution protein.
Stability & Storage	Avoid repeated freeze-thaw cycles. It is recommended that the protein be aliquoted for optimal storage. 3 years from date of receipt, -20 to -70 °C as supplied.
Concentration	0.2 mg/mL
Formulation	Dissolved in sterile PBS buffer.
Reconstitution	We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. This solution can be diluted into other aqueous buffers.
Biological Activity	Measured in a cell proliferation assay using PHA-activated human peripheral blood lymphocytes (PBL). The EC50 for this effect is 0.1-0.5 ng/mL.
Shipping Condition	Shipping with dry ice.
Handling	Centrifuge the vial prior to opening.
Usage	For Research Use Only! Not to be used in humans.

### Quality Control

Purity	> 90%, determined by SDS-PAGE.
Endotoxin	<0.010 EU per 1 ug of the protein by the LAL method.

### Description

Interleukin-7 (IL-7), is a 25 kDa cytokine of the hemopoietin family that plays important roles in lymphocyte differentiation, proliferation, and survival <sup>[1-4]</sup>. Human IL-7 cDNA encodes 177 amino acids (aa) that include a 25 aa signal peptide <sup>[3]</sup>. Human IL-7 shares approximately 60-63% aa sequence identity with mouse, rat, canine and feline IL-7, and 72-76% with equine, bovine, ovine, porcine, feline and canine IL-7. Human and mouse IL-7 exhibit cross-species activity <sup>[2, 3]</sup>. IL-7 protein is produced by a wide variety of cells in primary and secondary lymphoid tissues, including stromal epithelial cells of the thymus, bone marrow, and intestines <sup>[1, 2, 5]</sup>. Circulating IL-7 protein is limiting in healthy animals, but increases during lymphopenia <sup>[1, 6]</sup>. IL-7 signals through a complex of the IL-7 Receptor alpha subunit (IL-7 R alpha, also known as CD127) with the common

gamma chain (gamma c) <sup>[1]</sup>. IL-7 contributes to the maintenance of all naive and memory T cells, mainly by promoting expression of the anti-apoptotic protein Bcl-2 <sup>[7-9]</sup>. It is required for optimal T cell-dendritic cell interaction <sup>[6]</sup>. IL-7 is expressed early in B cell development prior to the appearance of surface IgM <sup>[1, 5, 7]</sup>. In mouse, IL-7 activation of IL-7 R alpha is critical for both T cell and B cell lineage development, while in humans, it is required for T cell but not for B cell development <sup>[4, 7, 10, 11]</sup>. However, IL-7 functions in both mouse and human pro-B cells to suppress premature Ig light chain recombination during proliferative growth <sup>[12, 13]</sup>.

## Reference

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