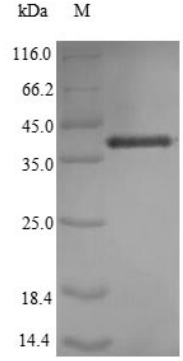
Recombinant Human Interleukin-7 (IL7)

Product Code	CSB-CF011669HU
Relevance	Hematopoietic growth factor capable of stimulating the proliferation of lymphoid progenitors. It is important for proliferation during certain stages of B-cell maturation.
Abbreviation	Recombinant Human IL7 protein
Storage	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.
Uniprot No.	P13232
Product Type	Transmembrane Protein
Immunogen Species	Homo sapiens (Human)
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	DCDIEGKDGKQYESVLMVSIDQLLDSMKEIGSNCLNNEFNFFKRHICDANKEG MFLFRAARKLRQFLKMNSTGDFDLHLLKVSEGTTILLNCTGQVKGRKPAALGE AQPTKSLEENKSLKEQKKLNDLCFLKRLLQEIKTCWNKILMGTKEH
Research Area	Immunology
Source	in vitro E.coli expression system
Target Names	IL7
Expression Region	26-177aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal 6xHis-SUMO-tagged
Mol. Weight	33.4kDa
Protein Length	Full Length of Mature Protein
Image	 (Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.
Description	

The recombinant human interleukin-7 (IL7) is produced through recombinant DNA technology, which involves co-inserting the DNA fragment encoding the 26-177aa of IL7 protein with the N-terminal 6xHis-SUMO-tag gene into an expression vector and culturing the recombinant vector in vitro E.coli expression system for protein expression. The recombinant human IL7 is harvested from the cell culture supernatant and then undergoes affinity chromatography purification. Its purity reaches up to 90% as measured by SDS-PAGE.

Human IL7 is a vital hematopoietic growth factor involved in various immune processes. It is important for the development of thymic T cells, lymphoid homeostasis, and peripheral T cell survival [1]. IL7 is expressed in human intestinal epithelial cells and contributes to the functional differentiation of $CD4^+$ T cells, impacting mucosal immunity [2]. IL7 also impacts the differentiation of human neural progenitor cells, suggesting a role in neuronal tissue development and plasticity [3]. The aberrant expression of IL7 isoforms is found in human cancer tissues, indicating its potential functions as tumor growth and differentiation factors [4].

References:
[1] R. O'Connell, A. Balazs, D. Rao, C. Kivork, L. Yang, & D. Baltimore, Lentiviral vector delivery of human interleukin-7 (hil-7) to human immune system (his) mice expands t lymphocyte populations, Plos One, vol. 5, no. 8, p. e12009, 2010. https://doi.org/10.1371/journal.pone.0012009
[2] K. Katamura, T. Fukui, T. Kiyomasu, K. Ohmura, J. Iio, & H. Ueno, Regulation of cd31 expression and interleukin?4 production by human cord blood cd4+ t cells with interleukin?4 and interleukin?7, Pediatrics International, vol. 42, no. 2, p. 126-133, 2000. https://doi.org/10.1046/j.1442-200x.2000.01194.x
[3] M. Moors, N. Vudattu, J. Abel, U. Krämer, L. Rane, N. Ulfiget al., Interleukin-7 (il-7) and il-7 splice variants affect differentiation of human neural progenitor cells, Genes and Immunity, vol. 11, no. 1, p. 11-20, 2009. https://doi.org/10.1038/gene.2009.77
[4] N. Vudattu, I. Magalhaes, H. Hoehn, D. Pan, & M. Maeurer, Expression analysis and functional activity of interleukin-7 splice variants, Genes and Immunity, vol. 10, no. 2, p. 132-140, 2008. https://doi.org/10.1038/gene.2008.90

Reconstitution

We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Please reconstitute protein in deionized sterile water to a concentration of 0.1-1.0 mg/mL.We recommend to add 5-50% of glycerol (final concentration) and aliquot for long-term storage at -20°C/-80°C. Our default final concentration of glycerol is 50%. Customers could use it as reference.

Shelf Life

The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself.
Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.