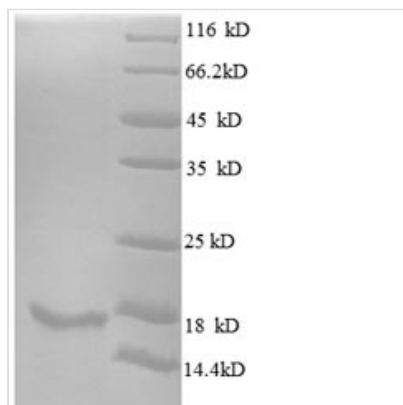




# Recombinant Human Interleukin-15 (IL15)

<b>Product Code</b>	CSB-EP011593HU
<b>Relevance</b>	Cytokine that stimulates the proliferation of T-lymphocytes. Stimulation by IL-15 requires interaction of IL-15 with components of IL-2R, including IL-2R beta and probably IL-2R gamma but not IL-2R alpha.
<b>Storage</b>	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.
<b>Uniprot No.</b>	P40933
<b>Product Type</b>	Recombinant Protein
<b>Immunogen Species</b>	Homo sapiens (Human)
<b>Purity</b>	Greater than 90% as determined by SDS-PAGE.
<b>Sequence</b>	NWVNVISDLKKIEDLIQSMHIDATLYTESDVHPSCKVTAMKCFLLLELQVISLESG DASIHDTVENLILANNSLSSNGNVTESGCKECEEELEEKNIKEFLQSFVHIVQMF NTS
<b>Research Area</b>	Metabolism
<b>Source</b>	E.coli
<b>Target Names</b>	IL15
<b>Expression Region</b>	49-162aa
<b>Notes</b>	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
<b>Tag Info</b>	N-terminal 6xHis-tagged
<b>Mol. Weight</b>	16.8kDa
<b>Protein Length</b>	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 IL15 protein labeled with a 6xHis tag at the N-terminus



is produced in an E. coli expression system. The IL15 gene fragment (49-162aa) is first co-cloned into a high-efficiency vector with the 6xHis tag gene, followed by transformation into E. coli. Protein expression is induced with IPTG, and the recombinant IL15 protein is subsequently harvested through bacterial cell lysis. Ni-NTA affinity chromatography is employed to purify the IL15 protein by taking advantage of the 6xHis tag's affinity for nickel ions. SDS-PAGE analysis is performed to verify the purity of the protein, revealing a purity level greater than 90%.

Human IL15 is a crucial cytokine that plays a significant role in the immune system, particularly in the development and maintenance of T cells and NK cells. It is primarily secreted by macrophages and other immune cells, and it is essential for the survival and proliferation of memory T cells, which are vital for long-term immunity [1][2]. IL15 operates through a complex receptor system, primarily involving the IL15R $\alpha$ , which enhances the stability and bioactivity of IL15 [3][4]. This receptor is critical for the trans-presentation of IL15 to other immune cells, facilitating their activation and proliferation [5].

IL15 is chemotactic for NK cells, promoting their migration and recruitment to sites of infection or inflammation [6][7]. IL15 is involved in the recruitment of CD16<sup>+</sup> NK cells into the endometrium, highlighting its role in reproductive immunology [7]. Additionally, IL15 has been implicated in various pathological conditions, including autoimmune diseases and cancer, where it can enhance the cytotoxic activity of T cells against tumors [8][9][10]. Dysregulation of IL15 has been associated with several conditions, including obesity and coronary artery disease, where altered levels of IL15 and its receptor have been observed [3][11].

#### References:

- [1] L. Ludwig, Rna silencing and hiv: a hypothesis for the etiology of the severe combined immunodeficiency induced by the virus, *Retrovirology*, vol. 5, no. 1, p. 79, 2008. <https://doi.org/10.1186/1742-4690-5-79>
- [2] A. Drake, M. Kaur, B. Iliopoulou, R. Phennicie, A. Hanson, & J. Chen, Interleukins 7 and 15 maintain human t cell proliferative capacity through stat5 signaling, *Plos One*, vol. 11, no. 11, p. e0166280, 2016. <https://doi.org/10.1371/journal.pone.0166280>
- [3] A. Pérez-López, D. Valadés, C. Martínez, A. Blanco, J. Buján, & N. García-Honduvilla, Serum il $\gamma$ 15 and il $\gamma$ 15r $\alpha$  levels are decreased in lean and obese physically active humans, *Scandinavian Journal of Medicine and Science in Sports*, vol. 28, no. 3, p. 1113-1120, 2017. <https://doi.org/10.1111/sms.12983>
- [4] E. Chertova, C. Bergamaschi, O. Chertov, R. Sowder, J. Bear, J. Roser, et al. Characterization and favorable in vivo properties of heterodimeric soluble il-15-il-15r $\alpha$  cytokine compared to il-15 monomer\*, *Journal of Biological Chemistry*, vol. 288, no. 25, p. 18093-18103, 2013. <https://doi.org/10.1074/jbc.m113.461756>
- [5] P. Burkett, R. Koka, M. Chien, S. Chai, D. Boone, & A. Ma, Coordinate expression and trans presentation of interleukin (il)-15r $\alpha$  and il-15 supports natural killer cell and memory cd8<sup>+</sup> t cell homeostasis, *The Journal of Experimental Medicine*, vol. 200, no. 7, p. 825-834, 2004. <https://doi.org/10.1084/jem.20041389>



- [6] K. Verbist, D. Rose, C. Cole, M. Field, & K. Klonowski, Il-15 participates in the respiratory innate immune response to influenza virus infection, *Plos One*, vol. 7, no. 5, p. e37539, 2012. <https://doi.org/10.1371/journal.pone.0037539>
- [7] K. Kitaya, J. Yasuda, I. Yagi, Y. Tada, S. Fushiki, & H. Honjo, Il-15 expression at human endometrium and decidua, *Biology of Reproduction*, vol. 63, no. 3, p. 683-687, 2000. <https://doi.org/10.1095/biolreprod63.3.683>
- [8] T. Miyazaki, M. Maiti, M. Hennessy, T. Chang, P. Kuo, M. Addepalli, et al. Nktr-255, a novel polymer-conjugated rhil-15 with potent antitumor efficacy, *Journal for Immunotherapy of Cancer*, vol. 9, no. 5, p. e002024, 2021. <https://doi.org/10.1136/jitc-2020-002024>
- [9] C. Klebanoff, S. Finkelstein, D. Surman, M. Lichtman, L. Gattinoni, M. Theoret, et al. Il-15 enhances the in vivo antitumor activity of tumor-reactive cd8+ t cells, *Proceedings of the National Academy of Sciences*, vol. 101, no. 7, p. 1969-1974, 2004. <https://doi.org/10.1073/pnas.0307298101>
- [10] Y. Chen, B. Chen, T. Yang, W. Xiao, Q. Li, Y. Ding, et al. Human fused nkg2d-il-15 protein controls xenografted human gastric cancer through the recruitment and activation of nk cells, *Cellular and Molecular Immunology*, vol. 14, no. 3, p. 293-307, 2015. <https://doi.org/10.1038/cmi.2015.81>
- [11] E. Dozio, A. Malavazos, E. Vianello, S. Briganti, G. Dogliotti, F. Bandera, et al. Interleukin-15 and soluble interleukin-15 receptor  $\alpha$  in coronary artery disease patients: association with epicardial fat and indices of adipose tissue distribution, *Plos One*, vol. 9, no. 3, p. e90960, 2014. <https://doi.org/10.1371/journal.pone.0090960>

---

**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.