

## Recombinant Human Interleukin-7

**Alternate names:** IL7

**Catalog No.:** PA1082XC

**Quantity:** 1 mg

**Concentration:** 1 mg/ml

**Background:** IL-7 is a cytokine important for B and T cell development. This cytokine and the hepatocyte growth factor (HGF) form a heterodimer that functions as a pre-pro-B cell growth-stimulating factor. This cytokine is found to be a cofactor for V(D)J rearrangement of the T cell receptor beta (TCRB) during early T cell development. This cytokine can be produced locally by intestinal epithelial and epithelial goblet cells, and may serve as a regulatory factor for intestinal mucosal lymphocytes. Knockout studies in mice suggested that this cytokine plays an essential role in lymphoid cell survival.

**Species:** Human

**Source:** E. coli

**Format:** **State:** Sterile Filtered White lyophilized (freeze-dried) powder.

**Purity:** >98% Greater than 98.0% as determined by:

(a) Analysis by RP-HPLC.

(b) Analysis by SDS-PAGE.

**Buffer System:** Lyophilized from a concentrated solution in water containing no additives.

**Reconstitution:** It is recommended to reconstitute the lyophilized Interleukin -7 in sterile 18MΩ-cm H<sub>2</sub>O not less than 100µg/ml, which can then be further diluted to other aqueous solutions.

**Description:** Interleukin-7 Human Recombinant produced in E.Coli is a single, non-glycosylated polypeptide chain containing 153 amino acids. The IL-7 is purified by proprietary chromatographic techniques.

**AA Sequence:**

The sequence of the first five N-terminal amino acids was determined and was found to be Met-Asp-Cys-Asp-Ile.

**Biological Activity:** The ED<sub>50</sub> as determined by the dose-dependant stimulation of murine IXN/2B cells is less than 0.5ng/ml, corresponding to a Specific Activity of 2,000,000 IU/mg.

**Molecular weight:** 17 kDa 17412 Dalton.

**Add. Information:** Protein quantitation was carried out by two independent methods:

1. UV spectroscopy at 280 nm using the absorbency value of 0.418 as the extinction coefficient for a 0.1% (1mg/ml) solution. This value is calculated by the PC GENE computer analysis program of protein sequences (IntelliGenetics).
2. Analysis by RP-HPLC, using a standard solution of IL-7 as a Reference Standard.

**Storage:** Lyophilized Interleukin-7 although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution IL7 should be stored at 4°C between 2-7 days and for future use below -18°C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please avoid freeze-thaw cycles.

- General Readings:**
1. A three-base-deletion polymorphism in the upstream non-coding region of human interleukin 7 (IL-7) gene could enhance levels of IL-7 expression. *Int J Immunogenet* 2007 Apr;34(2):107-13
  2. Effects of human interleukin 7 on HIV-1 replication in monocyte-derived human macrophages. *AIDS* 2006 Apr 4;20(6):937-9
  3. Disulfide bond assignment in human interleukin-7 by matrix-assisted laser desorption/ionization mass spectroscopy and site-directed cysteine to serine mutational analysis. *J Biol Chem* 1997 Dec 26;272(52):32995-3000
  4. Homology modeling study of the human interleukin-7 receptor complex. *Protein Eng* 1996 Dec;9(12):1135-42
  5. Quantitative and cell-cycle differences in progenitor cells mobilized by recombinant human interleukin-7 and recombinant human granulocyte colony-stimulating factor. *Blood* 1996 Dec 1;88(11):4139-48
  6. Prediction of the three-dimensional structure of human interleukin-7 by homology modeling. *Protein Eng* 1996 Jun;9(6):493-8

**Pictures:** Precursor- Protein structure and amino acid sequen

