



Recombinant Human IL-7

Catalogue Number: REC107

Specifications and Use

Source

- A DNA sequence encoding mature human IL-7 (Asp26-His177; Accession NM_000880) with N-terminal 6X His-tag was expressed in *E.coli*.

Molecular Mass

- 17 kDa, reducing condition

Purity

- 90%, as determined by SDS-PAGE and visualized by silver stain.

Endotoxin Level

- < 1.0 EU per 1 µg of the protein as determined by LAL method.

Activity

- Measured in a cell proliferation assay using PHA-activated human peripheral blood lymphocytes. Yokota, T. *et al.* (1986) Proc. Natl. Acad. Sci. USA **83**:5894.
- The ED₅₀ for this effect is typically 0.2-0.5 ng/mL.

Formulation

- Supplied as lyophilized powder.
- Reconstitute in PBS
- Centrifuge the vial before opening to prevent loss of the powder.

Storage

- Samples are stable up to 1 year from date of receipt at -20°C.
- Upon thawing, this protein can be stored under sterile conditions at 2-8°C for two weeks or at -70°C in a manual defrost freezer for three months without detectable loss of activity.
- Avoid repeated freeze-thaw cycles. Samples are recommended to be aliquot in small volumes and frozen for multiple uses.

Background

IL-7, previously known as preBcell growth factor and lymphopoietin1, was originally purified on the basis of its ability to promote the proliferation of precursor Bcells. It has now been shown that IL-7 can also stimulate the proliferation of thymocytes, T cell progenitors and mature CD4+ and CD8+ T cells. IL-7 can induce the formation of lymphokine-activated killer (LAK) cells as well as the development of cytotoxic T lymphocytes (CTL). IL-7 was also shown to induce the V(D)J rearrangement of the T cell receptor β gene in mouse fetal thymocytes. Among myeloid lineage cells, IL-7 can upregulate the production of proinflammatory cytokines and stimulate the tumoricidal activity of monocytes/macrophages. IL-7 is expressed by adherent stromal cells from various tissues. Human IL-7 cDNA encodes a precursor protein of 177 amino residues containing a 25 amino acid residue signal peptide. Mouse IL-7 has approximately 65% amino acid sequence identity with human IL-7 and both proteins exhibit cross-species activity. IL-7 bioactivities are mediated by the binding of IL-7 to functional high affinity receptor complexes. The ligand binding subunit (IL-7R) of the IL-7 receptor complex has been cloned from human and mouse sources. In addition to the membrane-anchored form of the IL-7 receptor, a human cDNA clone that encodes a soluble form of the IL-7 R has also been isolated. The γ chain of the IL-2 receptor complex has been shown to be an essential component for IL-7 signal transduction. Both IL-7R and IL-2R γ are members of the hematopoietin receptor superfamily. Cells known to express IL-7 receptors include preB cells, T cells and bone marrow cells.

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