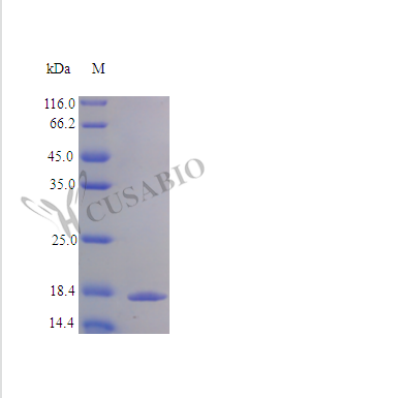
Recombinant Human Interleukin-7 protein (IL7)

Product Code	CSB-AP001751HU
Abbreviation	Recombinant Human IL7 protein (Active)
Uniprot No.	P13232
Storage Buffer	Lyophilized from a 0.2 μm filtered concentrated solution in 20 mM PB, 150 mM NaCl, pH 7.4.
Product Type	Interleukins
Immunogen Species	Homo sapiens (Human)
Biological Activity	Fully biologically active when compared to standard. rHuIL-7 stimulates proliferation of PHA-activated human peripheral blood mononuclear cell (PBMC). The specific activity of Recombinant Human IL-7 is > 1.0 × 10^8 Units/mg,
Purity	>97% as determined by SDS-PAGE.
Sequence	DCDIEGKDGK QYESVLMVSI DQLLDSMKEI GSNCLNNEFN FFKRHICDAN KEGMFLFRAA RKLRQFLKMN STGDFDLHLL KVSEGTTILL NCTGQVKGRK PAALGEAQPT KSLEENKSLK EQKKLNDLCF LKRLLQEIKT CWNKILMGTK EH
Research Area	Immunology
Source	E.Coli
Target Names	IL7
Expression Region	26-177aa
Tag Info	Tag-Free
Mol. Weight	17.4 kDa
Protein Length	Full Length of Mature Protein
PubMed ID	2643102; 2329282; 16421571; 15489334; 9407080; 8862549; 10850801; 19141282

Image



Description

Recombinant Human Interleukin-7 protein (IL7) is expressed in E. coli and

includes the complete mature protein sequence, spanning amino acids 26-177. The protein lacks any tags and shows high purity—greater than 97% when analyzed by SDS-PAGE. Its biological activity appears robust, with specific activity exceeding 1.0 × 10^8 Units/mg, demonstrated through its ability to stimulate proliferation in PHA-activated human peripheral blood mononuclear cells. Endotoxin levels remain well below 1.0 EU/μg, as measured by the LAL method.

Interleukin-7 (IL-7) represents a critical cytokine in T cell and B cell development and survival. The protein plays a central role in immune system function, though its influence on lymphoid cell lineage may be more complex than initially understood. IL-7 affects the maturation and homeostasis of various immune cells, making it an important research tool for immunology studies.

Potential Applications

Note: The applications listed below are based on what we know about this protein's biological functions, published research, and experience from experts in the field. However, we haven't fully tested all of these applications ourselves yet. We'd recommend running some preliminary tests first to make sure they work for your specific research goals.

1. T Cell Development and Differentiation Studies

This recombinant IL-7 protein offers researchers a way to examine T cell development pathways in laboratory settings. Early T cell progenitor survival and differentiation appear particularly responsive to IL-7 signaling. The high biological activity (>1.0 × 10^8 Units/mg) should work well for dose-response experiments investigating IL-7's role in thymocyte development. Scientists might find success using this protein in co-culture systems with thymic stromal cells to explore T cell lineage commitment. The absence of fusion tags could help ensure that experimental outcomes reflect authentic IL-7 signaling patterns.

2. PBMC Proliferation Assays and Immunological Research

Given its proven ability to stimulate PHA-activated human PBMC proliferation, this protein seems well-suited for standardized lymphocyte activation studies. Researchers may find it useful for investigating peripheral T cell homeostasis and memory T cell maintenance in controlled conditions. The high purity (>97%) and minimal endotoxin contamination (<1.0 EU/μg) likely contribute to consistent, reproducible results in primary cell cultures. This application could prove especially valuable when studying age-related changes in T cell responsiveness or comparing IL-7 sensitivity across different patient groups.

3. IL-7 Receptor Signaling Pathway Analysis

This biologically active IL-7 protein provides a useful tool for examining IL-7R signaling cascades. JAK-STAT pathway activation and downstream transcriptional responses appear to be key areas where this protein might prove valuable. Scientists can apply it in biochemical assays to investigate receptor binding kinetics, though signal transduction timing and pathway interactions may

be more complex than current models suggest. The mature protein sequence (26-177aa) represents what occurs physiologically, making it appropriate for structure-function studies. Western blot analysis, phosphorylation assays, and gene expression profiling experiments could all benefit from this protein when mapping IL-7-induced cellular responses.

4. Antibody Development and Validation

The combination of high purity and biological activity makes this IL-7 protein attractive for developing research antibodies against human IL-7. Scientists can apply it for antibody screening and characterization across various immunoassay formats—ELISA, Western blotting, and flow cytometry among them. The tag-free design means that resulting antibodies should recognize native IL-7 epitopes without unwanted cross-reactivity to fusion sequences. This protein also works as a positive control and quantitative standard in antibody-based detection systems, though careful calibration may be necessary for optimal results.

5. Cytokine Network and Immune System Modeling

Researchers can incorporate this recombinant IL-7 into multi-cytokine experimental systems to study immune cell interactions and cytokine network dynamics. When combined with other cytokines, it may help model both normal and disease-related immune responses in laboratory settings. The standardized biological activity allows for precise dosing in complex experimental designs, though the actual effects in multi-cytokine environments might differ from single-cytokine studies. Such investigations could reveal how IL-7 functions within broader cytokine networks during immune responses or immune system recovery, though these interactions likely involve more variables than current research has fully characterized.

Endotoxin	Less than 1.0 EU/μg as determined by LAL method.
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.