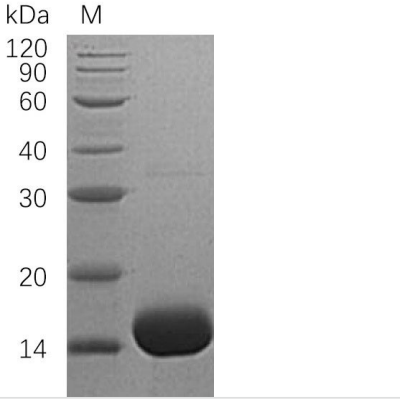
Recombinant Human Interleukin-3 (IL3) (Active)

Product Code	CSB-AP004531HU
Abbreviation	Recombinant Human IL3 protein (Active)
Uniprot No.	P08700
Form	Lyophilized powder
Storage Buffer	Lyophilized from a 0.2 μm filtered 20mMPB,5%Sucrose,0.05%Tween80,pH 6.5.
Product Type	Interleukin
Immunogen Species	Homo sapiens (Human)
Biological Activity	①Loaded Human IL-3RA-Fc on Protein A Biosensor, can bind Human IL-3 with an affinity constant of 3.89uM as determined in BLI assay. ②Loaded Human IL-3RA-Fc-Avi on Protein A Biosensor, can bind Human IL-3 with an affinity constant of 3.74 uM as determined in BLI assay.
Purity	Greater than 95% as determined by SDS-PAGE.
Sequence	APMTQTTPLKTSWVNCSNMIDEIITHLKQPPLPLLDFNNLNGEDQDILMENNLR RPNLEAFNRAVKSLQNASAIESILKNLLPCLPLATAAPTRHPIHIKDGDWNEFRR KLTFYLKTLENAQAQQTTLSLAIF
Research Area	Immunology
Source	E.coli
Target Names	IL3
Expression Region	20-152aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal 6xHis-tagged
Mol. Weight	16.6 kDa
Protein Length	Full Length of Mature Protein

Image



(Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.

Description

Recombinant Human Interleukin-3 (IL3) is produced in E. coli and represents the full length of the mature protein, spanning amino acids 20-152. It features an N-terminal 6xHis-tag for easier purification. The product achieves high purity of over 95% as verified by SDS-PAGE and maintains an endotoxin level of less than 1.0 EU/μg, making it suitable for research applications. The protein shows biological activity and can bind Human IL-3RA-Fc with affinity constants of 3.89 μM and 3.74 μM in BLI assays.

Interleukin-3 (IL3) is a cytokine that appears to play a significant role in hematopoiesis, particularly in the differentiation and proliferation of hematopoietic stem cells. It participates in signaling pathways that may regulate immune cell development and function. IL3's activity seems critical for maintaining the balance of various blood cell types, which is why it has garnered considerable interest in research focused on immunology and hematological 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. IL-3 Receptor Binding Studies and Affinity Characterization

This recombinant IL-3 protein can be used to investigate the binding kinetics and thermodynamics of IL-3 interactions with its receptor subunits, particularly IL-3RA. The demonstrated binding affinity of approximately 3.8-3.9 μM to IL-3RA-Fc provides a baseline for comparative studies with receptor variants or mutants. Researchers might use surface plasmon resonance, biolayer interferometry, or other biophysical techniques to characterize binding parameters under different conditions. The N-terminal His-tag simplifies protein immobilization and purification for these binding assays.

2. Hematopoietic Cell Culture and Proliferation Assays

Given IL-3's established role as a hematopoietic growth factor, this biologically active recombinant protein could support in vitro studies of hematopoietic progenitor cell proliferation and differentiation. The protein may be useful in colony-forming unit assays, bone marrow culture systems, or studies with hematopoietic cell lines to investigate cellular responses to IL-3 stimulation. The low endotoxin level (less than 1.0 EU/μg) makes it suitable for sensitive cell culture applications where bacterial contamination might confound results.

3. Antibody Development and Immunoassay Standardization

High purity (>95%) and the His-tagged format make this protein an excellent antigen for generating anti-IL-3 antibodies or as a standard in immunoassays. Researchers can use it to develop ELISA protocols, validate antibody specificity, or create calibration curves for IL-3 quantification assays. The His-tag allows

easy purification and immobilization on nickel-based surfaces for antibody screening applications.

4. Protein-Protein Interaction Studies

Beyond receptor binding, this IL-3 protein could be used to investigate interactions with other signaling molecules, co-receptors, or regulatory proteins in the IL-3 signaling pathway. Pull-down assays using the His-tag may identify novel binding partners from cell lysates or protein libraries. The confirmed biological activity suggests that the protein maintains its native-like conformation necessary for physiologically relevant protein interactions.

5. Structure-Function Relationship Analysis

This recombinant IL-3 can serve as a reference protein for mutagenesis studies aimed at understanding critical residues for receptor binding and biological activity. Researchers might compare the binding affinity and cellular responses of IL-3 variants to this wild-type protein using the established BLI assay format with IL-3RA-Fc. The mature protein sequence (aa 20-152) represents the functional domain, which appears to make it ideal for systematic structure-activity relationship investigations.

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