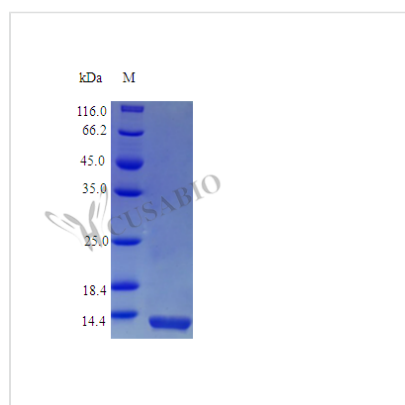




Recombinant Mouse Interleukin-4 protein (Il4) (Active)

Product Code	CSB-AP003301MO
Abbreviation	Recombinant Mouse Il4 protein (Active)
Uniprot No.	P07750
Form	Lyophilized powder
Storage Buffer	Lyophilized from a 0.2 µm filtered , PBS, pH 7.4
Product Type	Interleukin
Immunogen Species	Mus musculus (Mouse)
Biological Activity	Fully biologically active when compared to standard. The ED50 as determined by the dose-dependant proliferation of Murine HT-2 cells is less then 2 ng/ml, corresponding to a Specific Activity of >5x10 ⁵ IU/mg.
Purity	>97% as determined by SDS-PAGE.
Sequence	M+HIHGCDKNH LREIIGILNE VTGEGTPCTE MDVPNVLTAT KNTTESELVC RASKVLRIFY LKHGKTPCLK KNSSVLMELQ RLFRAFRCLD SSISCTMNES KSTSLKDFLE SLKSIMQMDY S
Research Area	Immunology
Source	E.coli
Target Names	Il4
Expression Region	21-140aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	Tag-Free
Mol. Weight	13.5 kDa
Protein Length	Full Length of Mature Protein
PubMed ID	3005865; 3029676; 3083412; 3498301; 15489334; 1993171

Image





Description

Recombinant Mouse Interleukin-4 protein (IL4) comes from E. coli expression and spans the complete mature protein sequence from amino acids 21-140. The product lacks tags and achieves purity levels exceeding 97%, confirmed through SDS-PAGE analysis. Biological activity remains fully intact, showing an ED50 below 2 ng/ml for murine HT-2 cell proliferation. This translates to specific activity surpassing 5×10^5 IU/mg. Endotoxin levels stay controlled under 1.0 EU/μg, which appears to provide adequate reliability for research work.

Interleukin-4 (IL-4) functions as a key cytokine in immune responses. Its primary role involves directing naive helper T cells toward Th2 cell differentiation. The protein appears central to regulating both humoral and adaptive immunity through B cell proliferation and differentiation promotion. Research interest in IL-4 stems largely from its connections to allergic responses and broader immune system regulation.

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 Helper Cell Differentiation Studies

This recombinant mouse IL-4 protein may prove useful for investigating Th2 cell differentiation pathways in vitro. Primary mouse T cells or established cell lines could serve as experimental models. The confirmed biological activity at ED50 values below 2 ng/ml suggests reliable performance in dose-response studies aimed at optimizing culture conditions. Scientists might examine molecular mechanisms behind IL-4-induced transcription factor expression, cytokine production patterns, and epigenetic changes during Th2 polarization. High purity levels (>97%) combined with low endotoxin content make this protein suitable for sensitive immunological assays where contamination could muddle results.

2. Cytokine Signaling Pathway Analysis

The biologically active IL-4 protein allows for detailed examination of JAK-STAT6 signaling cascades in mouse cell systems. Time-course experiments tracking STAT6 phosphorylation, nuclear movement, and downstream gene expression changes become feasible using Western blotting, immunofluorescence, and qRT-PCR. The defined specific activity ($>5 \times 10^5$ IU/mg) enables precise dosing in signal transduction work. This application seems particularly valuable for studying IL-4 receptor binding kinetics. It might also help identify novel signaling intermediates or regulatory mechanisms that weren't previously recognized.

3. Cell Proliferation and Viability Assays



Since activity testing relied on murine HT-2 cell proliferation assays, this protein likely works well for similar proliferation studies across various mouse cell types. The established ED50 value offers a starting reference for designing concentration gradients in MTT, BrdU incorporation, or other proliferation assays. Scientists can explore IL-4's growth-promoting effects on different cell populations - B cells, T cells, and other immune cell subsets included. The tag-free design eliminates potential interference from fusion proteins in cell-based functional testing.

4. Antibody Development and Validation

This high-purity recombinant mouse IL-4 may serve as an effective antigen for generating and validating anti-IL-4 antibodies in research settings. The protein works in immunization protocols for both monoclonal and polyclonal antibody production, plus screening hybridoma clones. It also functions as a positive control and standard in ELISA development, Western blot validation, and other immunoassays. The confirmed biological activity suggests that neutralizing antibody assays will accurately reflect functional inhibition rather than simple binding interactions.

5. Comparative Species and Isoform Studies

The defined expression region (amino acids 21-140) representing full-length mature protein makes this reagent potentially valuable for comparative studies. IL-4 proteins from other species or different expression systems could be examined alongside this version. Cross-reactivity studies, binding affinity comparisons, and functional activity assessments across different experimental models become possible. The E. coli expression system provides a prokaryotic-derived protein that researchers can compare with eukaryotic expression systems. This comparison might reveal how post-translational modifications impact IL-4 function - though such effects may vary depending on the specific experimental context.

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.