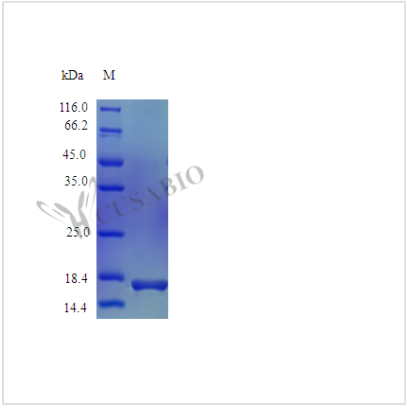
Recombinant Mouse Interleukin-1 beta protein (Il1b)

Product Code	CSB-AP003261MO
Abbreviation	Recombinant Mouse Il1b protein (Active)
Uniprot No.	P10749
Storage Buffer	0.2 ?m filtered solution in PBS, pH 7.4, with 5 % trehalose, 0.02 % Tween-20,lyophilized
Product Type	Interleukins
Immunogen Species	Mus musculus (Mouse)
Biological Activity	Fully biologically active when compared to standard. The ED50 as determined by a cell proliferation assay using murine D10S cells is less than 2 pg/ml, corresponding to a specific activity of >5.0x10^8 IU/mg.
Purity	>96% as determined by SDS-PAGE.
Sequence	VPIRQLHYRL RDEQQKSLVL SDPYELKALH LNGQNINQQV IFSMSFVQGE PSNDKIPVAL GLKGKNLYLS CVMKDGTPTL QLESVDPKQY PKKKMEKRFV FNKIEVKSKV EFESAEFPNW YISTSQAEHK PVFLGNNSGQ DIIDFTMESV SS
Research Area	Immunology
Source	E.Coli
Target Names	Il1b
Expression Region	118-269aa
Tag Info	Tag-Free
Mol. Weight	17.5 kDa
Protein Length	Full Length of Mature Protein
PubMed ID	3491144; 3492706; 15489334; 2967326; 1807351

Image



Description

Recombinant Mouse Interleukin-1 beta protein (Il1b) is produced in E. coli and

covers the complete mature protein sequence from amino acids 118-269. This tag-free product achieves purity levels above 96% when analyzed by SDS-PAGE. Endotoxin levels remain below 1.0 EU/μg, as measured by the LAL method. The protein shows full biological activity with an ED50 under 2 pg/ml in cell proliferation assays using murine D10S cells, which translates to a specific activity exceeding 5.0 × 10^8 IU/mg.

Interleukin-1 beta (Il1b) functions as a pro-inflammatory cytokine and appears to be central in coordinating immune and inflammatory responses. The protein participates in multiple cellular processes - cell proliferation, differentiation, and apoptosis among them. Given its important position in immune system function, Il1b has become a major focus in inflammation and immune regulation research. Understanding its activity may be crucial for unraveling disease mechanisms and creating new therapeutic approaches.

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. Cell Proliferation and Activation Assays

This recombinant mouse IL-1β protein works well for stimulating different immune cell types in laboratory settings to examine cellular responses, proliferation patterns, and activation pathways. With its strong biological activity (ED50 < 2 pg/ml) and high specific activity (> 5.0 × 10^8 IU/mg), it offers researchers a dependable tool for dose-response experiments in primary mouse immune cells or established cell lines. The minimal endotoxin content (<1.0 EU/μg) helps ensure that any cellular responses observed stem from IL-1β activity rather than bacterial contamination. Scientists can apply this protein to explore IL-1β signaling pathways, cytokine production cascades, and inflammatory responses under controlled conditions.

2. Cytokine Network and Inflammatory Response Studies

The protein functions as a useful reagent for examining IL-1β's role in intricate cytokine networks and inflammatory cascades within mouse-based experimental systems. Its exceptional purity (>96%) and biological activity make it well-suited for studying downstream cytokine production - IL-6, TNF-α, and other inflammatory mediators in cell culture models. Scientists can apply this protein to investigate when different cytokines get released, how they work together with other inflammatory triggers, and the molecular mechanisms that drive inflammatory responses in various mouse cell types.

3. Antibody Development and Validation

This biologically active recombinant mouse IL-1β works as an antigen for

creating and testing anti-IL-1β antibodies in research settings. The mature protein sequence (118-269aa) matches the naturally occurring form, which makes it particularly valuable for producing antibodies that will recognize native IL-1β in mouse samples. Because of its high purity and tag-free design, antibodies developed against this protein should show minimal cross-reactivity with bacterial proteins or purification tags. It also serves as a positive control and standard in immunoassays like ELISA, Western blotting, and immunoprecipitation experiments.

4. Receptor Binding and Signaling Studies

Scientists can use this protein in receptor binding assays to study how IL-1β interacts with its primary receptors, especially IL-1R1 and the IL-1 receptor accessory protein. Its proven biological activity suggests proper protein folding and functional receptor binding capability, making it suitable for competitive binding studies, receptor affinity measurements, and signal transduction pathway analysis. Researchers can apply this protein in cell-based assays to investigate what happens downstream - NF-κB activation, MAPK pathway stimulation, and other IL-1β-triggered cellular responses in mouse experimental models.

5. Preclinical Inflammation Model Development

This recombinant protein helps establish and standardize laboratory inflammation models for preclinical research using mouse-derived cells and tissues. The reliable biological activity and minimal endotoxin content make it appropriate for creating reproducible experimental conditions when testing anti-inflammatory compounds, studying disease mechanisms, or validating therapeutic targets. Scientists can use specific concentrations of this IL-1β protein to trigger controlled inflammatory responses in cell culture systems. This approach allows for systematic investigation of inflammatory processes and potential treatments in a controlled laboratory environment.

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.