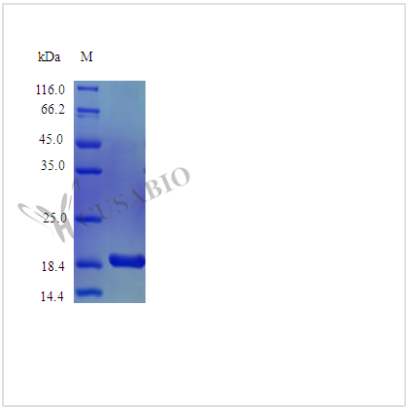
Recombinant Macaca mulatta Interleukin-1 alpha (IL1A) (Active)

Product Code	CSB-AP003071MOW
Abbreviation	Recombinant Rhesus macaque IL1A protein (Active)
Uniprot No.	P48089
Form	Lyophilized powder
Storage Buffer	Lyophilized from a 0.2 μm filtered PBS, pH 7.4
Product Type	Interleukin
Immunogen Species	Macaca mulatta (Rhesus macaque)
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 10 pg/ml, corresponding to a specific activity of >1.0x10^8 IU/mg.
Purity	>97% as determined by SDS-PAGE.
Sequence	SAPFSFLSNM TYHFIRIIKH EFILNDTLNQ TIIRANDQHL TAAAIHNLDE AVKFDMGAYT SSKDDTKVPV ILRISKTQLY VSAQDEDQPV LLKEMPEINK TITGSETNFL FFWETHGTKN YFISVAHPNL FIATKHDNWV CLAKGLPSIT DFQILENQA
Research Area	Immunology
Source	E.coli
Target Names	IL1A
Expression Region	113-271aa
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	18.1 kDa
Protein Length	Full Length of Mature Protein
PubMed ID	7561102
Image	



Description

Recombinant Macaca mulatta Interleukin-1 alpha (IL1A) is expressed in E. coli and represents the full length of the mature protein, spanning amino acids 113-271. This tag-free protein achieves high purity—exceeding 97% as confirmed by SDS-PAGE—and demonstrates biological activity. Endotoxin levels remain below 1.0 EU/μg, as measured by the LAL method. The protein shows robust activity, with an ED50 of less than 10 pg/ml in cell proliferation assays using murine D10S cells.

Interleukin-1 alpha (IL1A) appears to be a key pro-inflammatory cytokine involved in various cellular activities, including cell proliferation, differentiation, and apoptosis. It likely plays a critical role in immune responses and serves as an important mediator in inflammation and autoimmunity. IL1A has been extensively studied for its involvement in signaling pathways that may regulate the body's defense mechanisms, making it a significant focus in research on immune system function and inflammatory diseases.

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 in Primate Research Models

This recombinant rhesus macaque IL-1α can stimulate immune cells derived from non-human primate models in controlled in vitro experiments. With demonstrated biological activity showing an ED50 of less than 10 pg/ml, it appears suitable for dose-response studies examining cellular activation, proliferation, and cytokine production in primate-derived cell cultures. Researchers might apply this protein to investigate species-specific immune responses and validate findings from human IL-1α studies in phylogenetically relevant primate models. The high purity (>97%) and low endotoxin levels suggest reliable experimental results without confounding inflammatory signals.

2. Comparative Cytokine Function Studies Across Species

The species-specific nature of this rhesus macaque IL-1α enables comparative immunology research examining functional differences between primate and human interleukin-1 alpha. Side-by-side experiments using both human and macaque IL-1α may help identify species-specific receptor binding affinities, downstream signaling pathways, and cellular responses. This application seems particularly valuable for understanding evolutionary conservation of cytokine function and for validating the translational relevance of non-human primate disease models. The tag-free format helps ensure that comparative studies reflect native protein interactions without artificial modifications.

3. Antibody Development and Validation for Primate Studies

This recombinant protein serves as an ideal antigen for developing and validating antibodies specific to rhesus macaque IL-1α. Researchers can apply it for immunizing animals to generate polyclonal or monoclonal antibodies, as well as for screening and characterizing antibody specificity and affinity. The high purity and biological activity appear to confirm proper protein folding, making it suitable for generating antibodies that recognize native epitopes. Such antibodies are essential for immunohistochemistry, flow cytometry, and ELISA applications in non-human primate research studies.

4. Inflammatory Pathway Mechanistic Studies

The biologically active recombinant protein can be applied to dissect IL-1α-mediated inflammatory signaling pathways in primate cell systems. Researchers might use it to investigate downstream effects on NF-κB activation, MAP kinase signaling, and inflammatory gene expression in macaque-derived cells. The defined specific activity (>1.0 × 10? IU/mg) allows for precise dosing in mechanistic studies examining temporal kinetics of pathway activation and identification of key regulatory nodes. This application appears particularly valuable for understanding primate-specific aspects of inflammatory responses that may differ from rodent models.

5. Preclinical Safety and Efficacy Studies for IL-1α Antagonists

This recombinant macaque IL-1α can serve as a positive control and challenge agent in preclinical studies evaluating IL-1α inhibitors or antagonists intended for primate testing. Researchers might apply it to validate the efficacy of therapeutic candidates by demonstrating their ability to block IL-1α-induced cellular responses in relevant primate cell culture systems. The low endotoxin content and high biological activity suggest that observed effects are specifically attributable to IL-1α activity rather than contaminating factors. Such studies appear crucial for establishing proof-of-concept before advancing to in vivo non-human primate studies.

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.