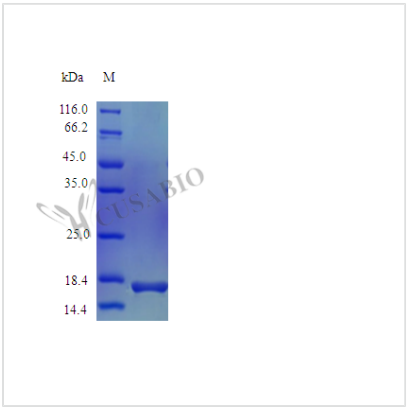
Recombinant Mouse Interleukin-33 protein (Il33) (Active)

Product Code	CSB-AP003411MO
Abbreviation	Recombinant Mouse Il33 protein, partial (Active)
Uniprot No.	Q8BVZ5
Form	Lyophilized powder
Storage Buffer	Lyophilized from a 0.2 μm filtered PBS, and 1 mM EDTA
Product Type	Interleukin
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 0.5 ng/ml, corresponding to a specific activity of >2.0x10^6 IU/mg.
Purity	>98% as determined by SDS-PAGE.
Sequence	SIQGTSLLTQ SPASLSTYND QSVSFVLENG CYVINVDDSG KDQEQDQVLL RYYESPCPAS QSGDGVDGKK LMVNMSPIKD TDIWLHANDK DYSVELQRGD VSPPEQAFFV LHKKSSDFVS FECKNLPGTY IGVKDNQLAL VEEKDESCNN IMFKLSKI
Research Area	Immunology
Source	E.coli
Target Names	Il33
Expression Region	109-266aa
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	17.5 kDa
Protein Length	Full Length of Mature Protein
PubMed ID	16286016; 16141072; 15489334; 19465481; 21734074; 22307629
Image	



Description

Recombinant Mouse Interleukin-33 protein (Il33) is expressed in E. coli and represents a partial segment (109-266 amino acids) of the full protein. This tag-free protein is purified to over 98% as confirmed by SDS-PAGE analysis. It appears to be biologically active, with an ED50 of less than 0.5 ng/ml, demonstrating a specific activity greater than 2.0 × 10^6 IU/mg in a cell proliferation assay using murine D10S cells. The endotoxin level is maintained below 1.0 EU/μg, as verified by the LAL method.

Interleukin-33 (IL-33) is a cytokine belonging to the IL-1 family, recognized for its role in immune response regulation. It acts as an alarmin—released when cells get damaged or stressed—and helps activate immune cells, including T helper type 2 cells and mast cells. This protein may prove crucial for studying inflammatory conditions and immune system modulation, making it particularly relevant in immunological research and therapeutic exploration.

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 biologically active recombinant mouse IL-33 protein can stimulate various immune cell types in vitro, particularly T helper 2 (Th2) cells, mast cells, and basophils that express the IL-33 receptor ST2. The confirmed biological activity with an ED50 of less than 0.5 ng/ml using murine D10S cells demonstrates its potency for dose-response studies. Researchers can apply this protein to investigate IL-33-mediated cellular responses, including cytokine production, cell proliferation, and phenotypic changes in primary immune cells or established cell lines. The high purity (>98%) and low endotoxin levels make it suitable for sensitive cell culture experiments where contamination might confound results.

2. Cytokine Signaling Pathway Studies

The recombinant IL-33 protein appears to be an excellent tool for investigating

the IL-33/ST2 signaling pathway in mouse-derived cells and tissues. Researchers can apply this protein to activate downstream signaling cascades and study the phosphorylation of key signaling molecules such as MyD88, IRAK, and NF-κB pathway components. The biological activity confirmation through D10S cell proliferation assays validates its capacity to engage the IL-33 receptor and trigger appropriate cellular responses. This application seems particularly valuable for understanding the molecular mechanisms underlying IL-33-mediated immune responses in preclinical research models.

3. Antibody Development and Validation

This highly pure, tag-free recombinant mouse IL-33 protein can serve as an immunogen for generating specific antibodies against mouse IL-33 or as a standard for validating existing antibodies. The 109-266aa expression region represents a substantial portion of the mature IL-33 protein, providing multiple epitopes for antibody recognition. Scientists can use this protein in ELISA development, Western blot validation, and immunoassay standardization. The confirmed biological activity suggests that antibodies developed or validated using this protein will likely recognize the functionally relevant form of IL-33.

4. Protein-Protein Interaction Studies

The biologically active recombinant IL-33 can be applied in biochemical assays to study its interactions with the ST2 receptor and other binding partners. Researchers might perform surface plasmon resonance (SPR), bio-layer interferometry, or other binding assays to characterize the kinetics and affinity of IL-33 interactions. The high purity and tag-free nature of the protein minimize potential interference from contaminants or tags that could affect binding studies. These interaction studies appear crucial for understanding the molecular basis of IL-33 function and for identifying potential modulators of IL-33 activity.

5. In Vitro Disease Model Development

This recombinant mouse IL-33 protein can help establish in vitro models of inflammatory and allergic responses for preclinical research. The confirmed biological activity allows researchers to reliably induce IL-33-mediated responses in cell culture systems, potentially mimicking pathological conditions where IL-33 plays a role. The low endotoxin content suggests that observed effects are specifically due to IL-33 activity rather than bacterial contamination. Such models may prove valuable for screening potential therapeutic compounds or understanding disease mechanisms in controlled laboratory settings.

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.