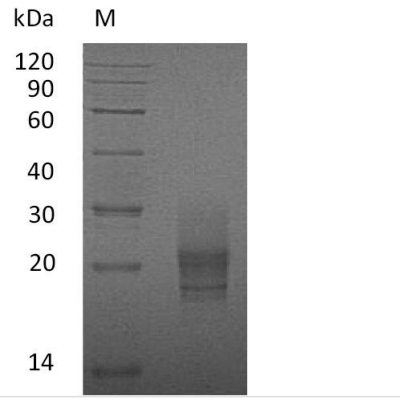
Recombinant Mouse Granulocyte-macrophage colony-stimulating factor (Csf2) (Active)

Product Code	CSB-AP003651MO
Abbreviation	Recombinant Mouse Csf2 protein (Active)
Uniprot No.	P01587
Form	Lyophilized powder
Storage Buffer	Lyophilized from a 0.2 μm filtered 1xPBS, pH 7.4.
Product Type	Colony Stimulating Factor
Immunogen Species	Mus musculus (Mouse)
Biological Activity	The ED50 as determined in a cell proliferation assay using PDC-P1 cells is 40-170 pg/ml.
Purity	Greater than 95% as determined by SDS-PAGE.
Sequence	APTRSPITVTRPWKHVEAIKEALNLLDDMPVTLNEEVEVVSNEFSFKKLTCVQTRLKIFEQGLRGNFTKLKGALNMTASYYQTYCPPTPETDCETQVTTYADFIDSLKTFLTDIPFECKKPGQK
Research Area	Immunology
Source	Mammalian cell
Target Names	Csf2
Expression Region	18-141aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	C-terminal 6xHis-tagged
Mol. Weight	15.1 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 Mouse Granulocyte-macrophage colony-stimulating factor (Csf2) is produced in a mammalian cell expression system, which appears to ensure proper protein folding and post-translational modifications. The protein comprises the full length of the mature form, spanning amino acids 18 to 141, and is tagged with a C-terminal 6xHis-tag for ease of purification. With a purity greater than 95% as determined by SDS-PAGE, this product exhibits biological activity, evidenced by an ED50 of 40-170 pg/ml in a cell proliferation assay using PDC-P1 cells. Endotoxin levels are maintained below 1.0 EU/μg as determined by the LAL method.

Granulocyte-macrophage colony-stimulating factor (GM-CSF) represents a crucial cytokine involved in hematopoiesis. It's particularly important in the differentiation and proliferation of granulocyte and macrophage progenitor cells. GM-CSF also plays a significant role in immune responses and inflammation by modulating leukocyte functions. Given these properties, GM-CSF has become a protein of considerable interest in research exploring immune system regulation, inflammatory diseases, and potential therapeutic applications.

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 Viability Assays for Hematopoietic Research

This recombinant mouse GM-CSF can be used to stimulate proliferation of granulocyte and macrophage progenitor cells in controlled in vitro experiments. The established ED50 range of 40-170 pg/ml using PDC-P1 cells provides what appears to be a validated starting point for dose-response studies. Researchers might apply this protein to investigate hematopoietic cell differentiation pathways, optimize culture conditions for primary bone marrow cells, or study the molecular mechanisms underlying GM-CSF-mediated cell survival and proliferation.

2. Cytokine Receptor Binding and Signaling Studies

The biologically active recombinant protein may serve as an ideal tool for investigating GM-CSF receptor interactions and downstream signaling cascades. Scientists can perform receptor binding assays, competition studies, and signal transduction pathway analysis using this standardized protein preparation. The high purity (>95%) and low endotoxin levels should ensure reliable results in sensitive biochemical assays examining JAK-STAT pathway activation or other GM-CSF-induced cellular responses.

3. Antibody Development and Validation

The C-terminal 6xHis tag appears to simplify purification and immobilization of this GM-CSF protein for antibody screening and characterization applications.

Researchers can use this protein as an antigen for developing mouse GM-CSF-specific antibodies or as a positive control in immunoassays. The mammalian expression system likely ensures proper protein folding and post-translational modifications, making it suitable for generating antibodies that recognize native GM-CSF conformations.

4. Comparative Species-Specific Cytokine Studies

This mouse-specific GM-CSF enables researchers to conduct comparative studies examining species differences in cytokine function and receptor specificity. The protein can be used alongside human or other species variants to investigate evolutionary conservation of GM-CSF signaling pathways. Such studies may be particularly valuable for validating mouse models in preclinical research and understanding species-specific responses to cytokine stimulation.

5. Protein-Protein Interaction and Pull-Down Assays

The 6xHis tag enables efficient capture of this GM-CSF protein using nickel-based affinity matrices for pull-down experiments. Researchers can investigate direct protein interactions between GM-CSF and its receptors or other binding partners using this tagged protein. The high purity and biological activity suggest that observed interactions should reflect genuine molecular associations rather than artifacts from protein aggregation or misfolding.

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.