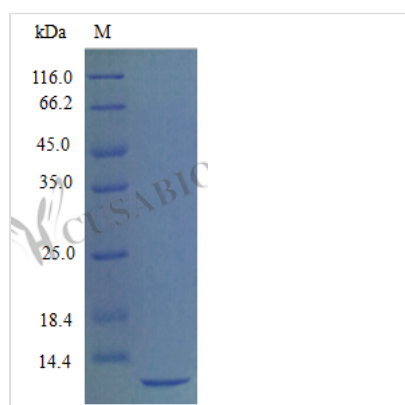




Recombinant Mouse Stromal cell-derived factor 1 protein (Cxcl12), partial (Active)

Product Code	CSB-AP001161MO
Abbreviation	Recombinant Mouse Cxcl12 protein, partial (Active)
Uniprot No.	P40224
Form	Lyophilized powder
Storage Buffer	Lyophilized from a 0.2 µm filtered PBS, pH 7.4
Product Type	Chemokine
Immunogen Species	Mus musculus (Mouse)
Biological Activity	Fully biologically active when compared to standard. The biological activity determined by a chemotaxis bioassay using human peripheral blood monocytes is in a concentration range of 50-100 ng/ml.
Purity	>97% as determined by SDS-PAGE.
Sequence	KPVLSYRCP CRFFESHIAR ANVKHLKILN TPNCALQIVA RLKNNNRQVC IDPKLKWIQE YLEKALNK
Research Area	Immunology
Source	E.coli
Target Names	Cxcl12
Expression Region	22-89aa
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	8.0 kDa
Protein Length	Partial
PubMed ID	8342023; 7982471; 8134392; 16141072; 15489334; 8757135

Image





Description

Recombinant Mouse Stromal cell-derived factor 1 protein (Cxcl12) is produced in *E. coli* and spans amino acid region 22-89, creating a partial protein without any tags. The protein achieves high purity, with levels exceeding 97% as determined by SDS-PAGE. Testing confirms it remains fully biologically active and shows chemotactic activity in bioassays with human peripheral blood monocytes at concentrations ranging from 50-100 ng/ml. Endotoxin levels stay below 1.0 EU/μg, ensuring minimal contamination.

Stromal cell-derived factor 1 (Cxcl12) functions as a chemokine central to cellular signaling. It plays a key role in chemotaxis, guiding the migration of various cell types throughout the body. This protein participates in multiple biological processes, including hematopoiesis and immune response regulation. Cxcl12 has become widely studied for its involvement in developmental and physiological pathways, making it an important focus for research into cellular communication and migration.

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. Chemotaxis Assay Development and Optimization

This recombinant mouse CXCL12 protein appears well-suited as a positive control and standard reference in chemotaxis assays for studying cell migration responses. Since it demonstrates biological activity in human peripheral blood monocyte chemotaxis at 50-100 ng/ml concentrations, it may provide a reliable tool for establishing dose-response curves and validating experimental conditions. The high purity (>97%) and low endotoxin levels suggest it's appropriate for sensitive cell-based assays where contamination could skew migration results. Researchers might compare chemotactic responses across different cell types and experimental conditions using this protein.

2. CXCR4 Receptor Binding Studies

The biologically active CXCL12 protein can be applied in receptor binding assays to investigate CXCR4 receptor interactions and binding kinetics. Competition binding experiments could be performed using this protein as a competitor against labeled ligands to determine binding affinities and receptor occupancy. The defined expression region (22-89aa) represents the mature, secreted form of the protein, which likely makes it suitable for studying physiologically relevant receptor-ligand interactions. These studies may support research into CXCL12-CXCR4 signaling pathways and receptor pharmacology.

3. Cell Culture Supplementation for Migration Studies

This recombinant protein could be added to cell culture media to create



chemokine gradients for studying directional cell migration in vitro. The confirmed biological activity and established concentration range (50-100 ng/ml) offer guidance for creating effective gradients in transwell migration assays or microfluidic devices. The E. coli expression system and tag-free nature mean the protein lacks mammalian post-translational modifications that might interfere with controlled experimental conditions. Researchers can explore how different cell types respond to CXCL12 gradients under various experimental setups.

4. Antibody Development and Validation

The high-purity, tag-free recombinant mouse CXCL12 protein may serve as an effective antigen for developing and characterizing anti-CXCL12 antibodies. The defined amino acid sequence (22-89aa) allows for precise epitope mapping studies and specificity testing of newly developed antibodies. The biological activity confirmation suggests that antibodies developed against this protein target the functionally relevant form of CXCL12. This protein could prove useful in ELISA development, Western blot validation, and immunoassay standardization for CXCL12 detection and quantification.

5. Protein-Protein Interaction Studies

This biologically active CXCL12 protein can be applied in biochemical assays to study its interactions with binding partners beyond CXCR4, such as glycosaminoglycans or other potential regulatory proteins. The tag-free nature eliminates potential interference from fusion tags in binding studies, while the high purity appears to ensure reliable results in pull-down assays or surface plasmon resonance experiments. The low endotoxin content makes it suitable for sensitive biochemical assays where bacterial contaminants might affect protein interactions. These studies could help clarify the molecular mechanisms underlying CXCL12 function and regulation.

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.