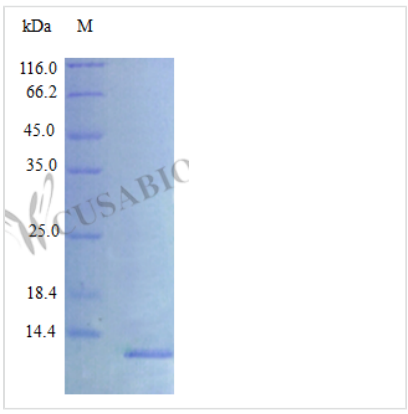
Recombinant Rat C-X-C motif chemokine 10 protein (Cxcl10) (Active)

Product Code	CSB-AP001451RA
Abbreviation	Recombinant Rat Inp10 protein (Active)
Uniprot No.	P48973
Form	Lyophilized powder
Storage Buffer	Lyophilized from a 0.2 μm filtered PBS, pH 7.4
Product Type	Chemokine
Immunogen Species	Rattus norvegicus (Rat)
Biological Activity	Fully biologically active when compared to standard. The biological activity determined by a chemotaxis bioassay using human CXCR3 transfected HEK293 cells is in a concentration range of 10-50 ng/ml.
Purity	>95% as determined by SDS-PAGE.
Sequence	IPLARTVRCT CIDFHEQPLR PRAIGKLEII PASLSCPHVE IIATMKKNNE KRCLNPESEA IKSLLKAVSQ RRSKRAP
Research Area	Immunology
Source	E.coli
Target Names	Cxcl10
Expression Region	22-98aa
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	8.7 kDa
Protein Length	Full Length of Mature Protein
PubMed ID	8798675

Image



Description

Recombinant Rat C-X-C motif chemokine 10 protein (Cxcl10) gets expressed in E. coli and covers the complete mature protein sequence, running from amino acids 22-98. The tag-free protein shows high purity—greater than 95% when analyzed through SDS-PAGE. Biological activity appears to remain intact, as confirmed through chemotaxis bioassays using human CXCR3 transfected HEK293 cells at concentrations between 10-50 ng/ml. Endotoxin levels stay controlled below 1.0 EU/μg using the LAL method.

Cxcl10, which people also call Interferon gamma-induced protein 10 (IP-10), acts as a chemokine in immune responses. Its main job seems to be directing immune cell movement, especially by latching onto the CXCR3 receptor. This influences how T cells, NK cells, and other leukocytes migrate and get activated. Because of this, Cxcl10 likely plays an important part in different inflammatory and immune control pathways, which makes it a key focus for immunology researchers.

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. CXCR3 Receptor Binding and Signaling Studies

This recombinant rat CXCL10 protein works well for examining CXCR3 receptor binding patterns and the signaling pathways that follow in laboratory settings. The confirmed biological activity through CXCR3-transfected HEK293 cell chemotaxis tests at 10-50 ng/ml concentrations gives researchers a proven functional range to work with. Scientists can use this protein to study how receptors and ligands interact, measure binding strength constants, and examine the internal cellular signals that CXCL10-CXCR3 connections trigger. High purity (>95%) and low endotoxin levels make it appropriate for delicate cell-based tests without contamination problems getting in the way.

2. Cell Migration and Chemotaxis Assays

The proven chemotactic activity makes this protein a strong choice for studying how immune cells move in rat-specific research models. Scientists can apply this protein in transwell migration tests, wound healing experiments, and real-time cell tracking studies to figure out how CXCL10 affects cellular movement. That established active concentration range of 10-50 ng/ml offers a good starting point for dose-response studies looking at chemotactic gradients. This application may be particularly useful for investigating inflammatory responses and immune cell recruitment processes in preclinical work.

3. Antibody Development and Validation

This tag-free recombinant rat CXCL10 protein appears ideal as an antigen for

creating and testing anti-CXCL10 antibodies specific to rat models. High purity and biological activity suggest that any antibodies produced will recognize the native, working form of the protein. Researchers can apply this protein for immunization procedures, ELISA development, Western blot validation, and antibody specificity testing. The mature protein sequence (22-98aa) represents what's actually found in living systems, making it suitable for producing antibodies that should effectively detect natural rat CXCL10 in biological samples.

4. Protein-Protein Interaction Studies

This biologically active CXCL10 protein can be put to work in biochemical tests to find and study protein interactions beyond just the main CXCR3 receptor. Researchers might use it in pull-down experiments, surface plasmon resonance studies, and co-immunoprecipitation tests to uncover new binding partners or helper factors. The tag-free design eliminates potential problems from fusion tags that could mess with natural protein interactions. Such studies may reveal additional control mechanisms or alternative signaling routes involving CXCL10 in rat biological systems.

5. Comparative Species Analysis and Cross-Reactivity Studies

This rat-specific CXCL10 protein lets researchers run comparative studies examining species-specific differences in chemokine function and receptor interactions. Scientists can compare how rat CXCL10 behaves and binds compared to human or mouse versions to understand evolutionary conservation and species-specific changes. The validated activity on human CXCR3-transfected cells suggests possible cross-species function, which could make it valuable for studies investigating how well rat models translate to human biology.

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.