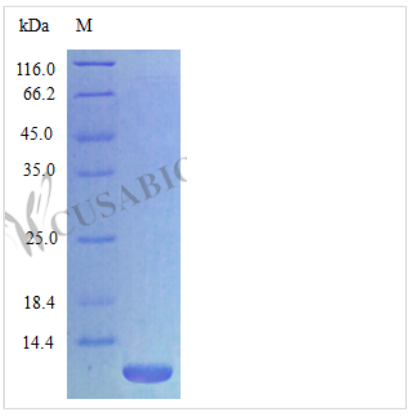
Recombinant Rat C-X-C motif chemokine 3 protein (Cxcl3), partial (Active)

Product Code	CSB-AP001421RA
Abbreviation	Recombinant Rat Cinc2 protein, partial (Active)
Uniprot No.	Q10746
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 CXCR2 transfected murine BaF3 cells is in a concentration range of 5-50 ng/ml.
Purity	>96% as determined by SDS-PAGE.
Sequence	RELRCQCLKT LPRVDFENIQ SLTVTPPGPH CTQTEVIATL KDGQEVCLNP QAPRLQKIIQ KLLKSPSL
Research Area	Immunology
Source	E.coli
Target Names	Cxcl3
Expression Region	33-97aa+PSL
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	7.6 kDa
Protein Length	Partial
PubMed ID	8043001; 9576061; 8471066; 8607872
Image	

Description

The recombinant Rat C-X-C motif chemokine 3 protein (Cxcl3) comes from an E. coli expression system and covers amino acids 33-97, along with an added proline-serine-leucine sequence. This tag-free protein shows purity levels above 96% when checked through SDS-PAGE analysis. Testing confirms the protein remains fully biologically active—chemotaxis bioassays indicate activity between 5-50 ng/ml concentrations. Endotoxin levels stay below 1.0 EU/μg according to LAL method measurements.

Cxcl3 appears to play a key role in immune responses, mainly by recruiting and activating neutrophils. The protein seems to work through specific cell surface receptors like CXCR2 to trigger chemotactic signaling pathways. Because of its involvement in immune cell movement, Cxcl3 has become an important target for researchers studying inflammation and immune system regulation. Understanding how this protein works may help explain the broader mechanisms that control immune responses.

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. Neutrophil Chemotaxis Assays

Researchers can use this recombinant rat CXCL3 protein to examine how neutrophils migrate and respond to chemical signals in laboratory settings. Transwell migration assays or microfluidic devices work well for these studies. The protein's confirmed biological activity within the 5-50 ng/ml range—tested using CXCR2-transfected cells—makes it a dependable research tool for investigating neutrophil recruitment. With purity above 96% and minimal endotoxin contamination, cell-based experiments shouldn't face interference from unwanted inflammatory reactions. This approach proves especially useful when comparing how chemokine signaling differs between rat and human systems.

2. CXCR2 Receptor Binding Studies

Scientists can use this biologically active recombinant protein as a binding partner in receptor studies to better understand CXCR2 interactions and binding behavior. Competition experiments that pit this rat CXCL3 against other chemokines may reveal which receptors prefer specific signals and how different molecules cross-react. The established activity range gives researchers a starting point for finding the right concentrations in their binding experiments. These studies might shed light on how chemokine-receptor pairs actually work together in rat models.

3. Inflammatory Response Modeling in Preclinical Studies

This recombinant rat CXCL3 works well in tissue studies outside the body or in organ culture systems where researchers want to mimic inflammatory responses and neutrophil recruitment. The protein's biological activity allows scientists to explore how different doses affect inflammatory cascades using rat tissues. Since it comes from a bacterial expression system with low endotoxin levels, any effects observed likely come from CXCL3 activity rather than contaminating substances. Studies like these could help explain CXCL3's role during acute inflammatory episodes.

4. Antibody Development and Validation

The highly pure recombinant protein makes an excellent target for creating and testing antibodies that specifically recognize rat CXCL3. Its well-defined sequence spanning amino acids 33-97 gives researchers a consistent target for characterizing antibodies through ELISA, Western blotting, and similar techniques. Confirmed biological activity suggests that functional regions are properly folded and available for antibody binding. These antibodies can later be used to detect naturally occurring rat CXCL3 in various research applications.

5. Chemokine Signaling Pathway Analysis

Scientists can use this biologically active CXCL3 protein to investigate what happens inside cells after CXCR2 gets activated in different cell types. The known activity range allows for controlled experiments that examine intracellular signaling chains, including calcium movement, cAMP changes, and kinase activation. Low endotoxin content means that any signaling events observed probably result from CXCL3-CXCR2 interactions rather than other immune pathways like TLR-mediated responses. This type of research may help clarify the molecular steps involved when chemokines trigger cellular responses.

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.