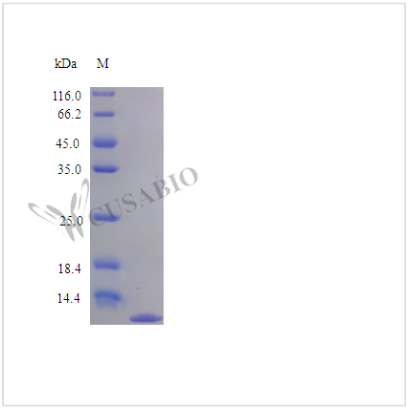
Recombinant Rat C-C motif chemokine 4 protein (Ccl4) (Active)

Product Code	CSB-AP001531RA
Abbreviation	Recombinant Rat Mip1b protein (Active)
Uniprot No.	P50230
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 peripheral blood monocytes is in a concentration range of 10-1000 ng/ml.
Purity	>95% as determined by SDS-PAGE.
Sequence	APIGSDPPTS CCFSYTSRKI HRNFVMDYYE TSSLCSQPAV VFLTKKGRQI CADPSEPWVN EYVNDLELN
Research Area	Immunology
Source	E.coli
Target Names	Ccl4
Expression Region	24-92aa
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	7.8 kDa
Protein Length	Full Length of Mature Protein
PubMed ID	17218081
Image	



Description

This recombinant rat C-C motif chemokine 4 protein (Ccl4) is expressed in E. coli and spans the complete length of the mature protein, from amino acids 24 to 92. The protein comes without any tags and shows purity levels greater than 95%, as confirmed by SDS-PAGE analysis. Full biological activity has been validated through chemotaxis bioassays using human peripheral blood monocytes at concentrations ranging from 10-1000 ng/ml. Endotoxin levels remain below 1.0 EU/μg, as measured by the LAL method.

C-C motif chemokine 4 belongs to the chemokine family and appears to play an important role in immune system function. The protein is involved in recruiting and activating immune cells, particularly monocytes, and seems critical for inflammatory responses. Researchers studying immune cell signaling and inflammation mechanisms may find this protein valuable for gaining insights into various immunological and inflammatory processes.

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. Monocyte Chemotaxis Assays

Researchers can apply this recombinant rat CCL4 protein as a positive control or standard in chemotaxis assays when studying how monocytes migrate. Since its biological activity has been confirmed in human peripheral blood monocyte chemotaxis at 10-1000 ng/ml concentrations, it offers a dependable tool for validating experimental conditions and comparing chemotactic responses. Scientists might use the protein in Boyden chamber assays, transwell migration studies, or microfluidic chemotaxis devices to examine factors that influence monocyte recruitment. The high purity (>95%) and low endotoxin levels make it well-suited for sensitive cell-based migration experiments.

2. Receptor Binding and Interaction Studies

The biologically active CCL4 protein can function as a ligand in receptor binding assays to examine interactions with CCR5 and other relevant chemokine receptors. Scientists could use this protein in competitive binding experiments, surface plasmon resonance studies, or fluorescence polarization assays to characterize receptor-ligand kinetics and affinities. The absence of fusion tags eliminates potential interference that might occur in binding studies. These applications appear valuable for understanding chemokine receptor pharmacology and screening potential receptor modulators.

3. Antibody Development and Validation

This recombinant rat CCL4 may serve as an immunogen or coating antigen for developing and characterizing anti-CCL4 antibodies. The high purity and

biological activity suggest that generated antibodies will recognize the native, functional form of the protein. It can work as a positive control in ELISA development, Western blot validation, and immunoassay standardization. The protein also appears suitable for antibody specificity testing and cross-reactivity studies in chemokine research.

4. Protein-Protein Interaction Analysis

Scientists can use the recombinant CCL4 protein in pull-down assays and co-immunoprecipitation experiments to identify and characterize protein interactions within chemokine signaling networks. Its biological activity suggests proper folding, which likely makes it suitable for studying interactions with glycosaminoglycans, receptor complexes, or other binding partners. The protein can be immobilized on various matrices for affinity purification of interacting proteins from cell lysates or tissue extracts.

5. Biochemical and Structural Characterization Studies

This biologically active CCL4 protein may serve as an excellent substrate for biochemical analyses, including mass spectrometry, circular dichroism spectroscopy, and protein stability studies. Scientists can investigate the protein's structural properties, thermal stability, and how it responds to various buffer conditions or chemical treatments. The high purity and confirmed activity make it suitable for enzymatic assays studying CCL4 processing or modification by proteases and other enzymes.

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.