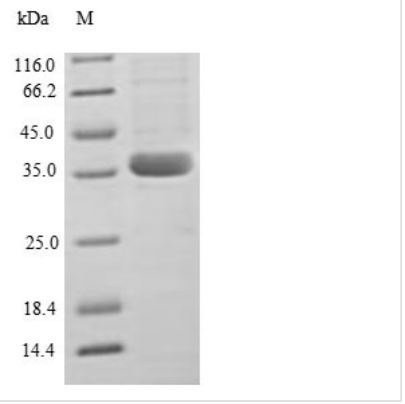
Recombinant Human C-C motif chemokine 2 (CCL2)

Product Code	CSB-EP004783HU
Relevance	Chotactic factor that attracts monocytes and basophils but not neutrophils or eosinophils. Augments monocyte anti-tumor activity. Has been implicated in the pathogenesis of diseases characterized by monocytic infiltrates, like psoriasis, rheumatoid arthritis or atherosclerosis. May be involved in the recruitment of monocytes into the arterial wall during the disease process of atherosclerosis.
Abbreviation	Recombinant Human CCL2 protein
Storage	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.
Uniprot No.	P13500
Alias	HC11Monocyte chemoattractant protein 1Monocyte chemotactic and activating factor ;MCAFMonocyte chemotactic protein 1 ;MCP-1Monocyte secretory protein JESmall-inducible cytokine A2
Product Type	Recombinant Protein
Immunogen Species	Homo sapiens (Human)
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	QPDAINAPVTCCYNFTNRKISVQRLASYRRITSSKCPKEAVIFKTIVAKEICADPK QKWVQDSMDHLDKQTQTPKT
Source	E.coli
Target Names	CCL2
Expression Region	24-99aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal GST-tagged
Mol. Weight	35.7kDa
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 Human C-C motif chemokine 2 (CCL2) is produced in E. coli and contains the complete mature protein sequence, covering amino acids 24 to 99. The protein carries an N-terminal GST tag, which helps with purification and detection processes. SDS-PAGE analysis confirms that the product achieves greater than 90% purity, which appears to deliver reliable results for research work. This reagent is intended for research use only and contains minimal endotoxin contamination.

CCL2, commonly called monocyte chemoattractant protein-1 (MCP-1), serves as an important chemokine that draws monocytes, memory T cells, and dendritic cells toward inflammatory sites. It likely plays a central role in immune response control and has become a frequent subject of study in inflammatory disease research and immune system investigations. This makes it particularly useful for understanding how cells migrate and communicate through signaling networks.

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. In Vitro Chemotaxis Assay Development

This recombinant human CCL2 protein works well as a chemotactic agent in transwell migration assays when studying how monocytes and macrophages move and gather. The mature protein region (24-99aa) may represent the biologically active form that cells would naturally secrete, which makes it appropriate for building concentration-response relationships in migration experiments. The N-terminal GST tag allows straightforward purification and attachment to surfaces for creating gradients. Scientists can examine how different immune cell types migrate and compare their responses under varying experimental conditions.

2. Antibody Development and Validation Studies

The GST-tagged CCL2 protein appears to function as both an effective immunogen and positive control for creating anti-CCL2 antibodies. High purity levels (>90%) help reduce contamination that might interfere with antibody specificity testing. The GST tag makes capture and detection simpler in ELISA-based screening during antibody development processes. This recombinant protein can also serve as a reference standard for testing antibody performance in Western blotting, immunoprecipitation, and related immunoassay techniques.

3. Protein-Protein Interaction Studies

The N-terminal GST tag makes pull-down experiments more manageable for identifying and studying CCL2 binding partners, including its natural receptors and other interacting proteins. Scientists can attach the GST-CCL2 fusion protein to glutathione-sepharose beads and combine them with cell lysates or purified proteins to examine binding relationships. The mature protein sequence suggests that binding studies should reflect interactions that would naturally occur with secreted CCL2.

4. Biochemical Characterization and Structural Studies

This recombinant protein enables thorough biochemical analysis of CCL2 characteristics, including how it responds to temperature changes, pH variations, and oligomerization under different buffer conditions. The specific expression region (24-99aa) may provide consistent protein preparations for repeatable biophysical measurements. Researchers can apply this protein in circular dichroism spectroscopy, dynamic light scattering, and other analytical methods to better understand CCL2's structural features and stability patterns.

5. Cell Culture Supplementation for Immune Cell Studies

The recombinant CCL2 works as a defined supplement in cell culture media for studying monocyte development, macrophage polarization, and other immune cell activities in controlled experimental settings. E. coli expression systems offer a practical source of protein for experiments that require larger amounts. Researchers can build dose-response relationships for CCL2-driven cellular responses and use this protein as a positive control when investigating chemokine signaling networks.

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.