

DESCRIPTION

Source *E. coli*-derived
Gln24-Thr99
Accession # P13500.1

N-terminal Sequence Analysis Gln24

Predicted Molecular Mass 8.7 kDa

SPECIFICATIONS

SDS-PAGE 10 kDa, reducing conditions

Activity Measured by its ability to chemoattract BaF3 mouse pro-B cells transfected with human CCR2A. The ED₅₀ for this effect is typically 5–30 ng/mL.

Measured by its ability to chemoattract 2-day cultured human monocytes. Matsushima, K. *et al.* (1989) *J. Exp. Med.* **169**:1485. The ED₅₀ for this effect is typically 5-20 ng/mL.

Endotoxin Level <0.10 EU per 1 µg of the protein by the LAL method.

Purity >97%, by SDS-PAGE under reducing conditions and visualized by silver stain.

Formulation Lyophilized from a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution Reconstitute at 100 µg/mL in sterile PBS.

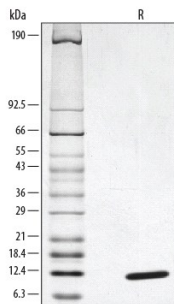
Shipping The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.

Stability & Storage Use a manual defrost freezer and avoid repeated freeze-thaw cycles.

- 12 months from date of receipt, -20 to -70 °C as supplied.
- 1 month, 2 to 8 °C under sterile conditions after reconstitution.
- 3 months, -20 to -70 °C under sterile conditions after reconstitution.

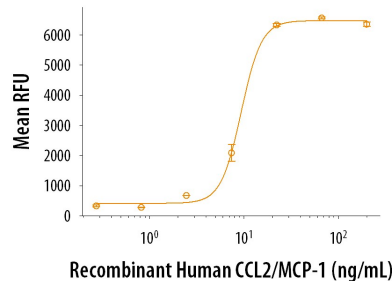
DATA

SDS-PAGE



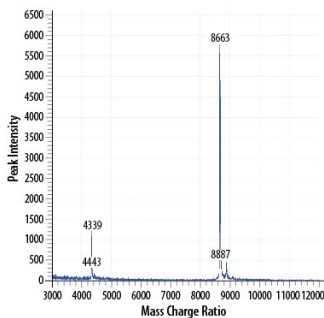
1 µg/lane of Recombinant Human CCL2/MCP-1 was resolved with SDS-PAGE under reducing (R) conditions and visualized by silver staining, showing a single band at 10 kDa.

Bioactivity



Recombinant Human CCL2/MCP-1, (Catalog # 279-MC/CF) chemoattracts the BaF3 mouse pro-B cell line transfected with human CCR2A. The ED₅₀ for this effect is typically 5-30 ng/mL.

Mass Spectrometry



MALDI-TOF analysis of Recombinant Human CCL2/MCP-1. The major peak corresponds to the calculated molecular mass, 8679 Da. The minor peak at 8887 is a matrix-associated artifact of the MALDI-TOF.

BACKGROUND

CCL2, also called monocyte chemoattractant protein-1 (MCP-1) or JE, is a member of the C-C or β chemokine family that is best known as a chemotactic agent for mononuclear cells (1, 2). Human CCL2 cDNA encodes a 99 amino acid (aa) precursor protein with a 23 aa signal peptide and a 76 aa mature protein (2). Removal of the first 5 aa of the mature protein, including the N-terminal pyrrolidone carboxylic acid-modified glutamine, occurs naturally by metalloproteinase cleavage and down-regulates activity but not receptor binding (3). CCL2 may form multiple bands from 8.7-13.5 kDa on SDS-PAGE due to non-covalent dimerization and variable carbohydrate content (3). Mature human CCL2 shares 78-79% aa identity with canine, porcine and equine CCL2, while mouse and rat express a form of CCL2 that is extended by 49 aa and shares only ~56% aa identity within the common region. Human CCL2 can, however, induce a response in murine cells (4). Fibroblasts, glioma cells, smooth muscle cells, endothelial cells, lymphocytes and mononuclear phagocytes can produce CCL2 either constitutively or upon mitogenic stimulation, but monocytes and macrophages appear to be the major source (1, 2). In addition to its chemotactic activity, CCL2 induces enzyme and cytokine release by monocytes, NK cells and lymphocytes, and histamine release by basophils that express its receptor, CCR2 (2). Additionally, it promotes Th2 polarization in CD4⁺ T cells (5). CCL2-mediated recruitment of monocytes to sites of inflammation is proposed to play a role in the pathology of atherosclerosis, multiple sclerosis and allergic asthma (6, 7).

References:

1. Yoshimura, T. *et al.* (1989) FEBS Lett. **244**:487.
2. Deshmane, S.L. *et al.* (2009) J. Interferon Cytokine Res. **29**:313.
3. Proost, P. *et al.* (1998) J. Immunol. **160**:4034.
4. Van Riper, G. *et al.* (1993) J. Exp. Med. **177**:851.
5. Luther, S.A. and J.G. Cyster (2001) Nat. Immunol. **2**:102.
6. Daly, C. *et al.* (2003) Microcirculation **10**:247.
7. Aukrust, P. *et al.* (2008) Arterioscler. Thromb. Vasc. Biol. **28**:1909.