Datasheet

Cat. No. PH2052

Recombinant Human CCL2/MCP-1

Information

Accession #	P13500
Alternate Names	CCL2; GDCF-2; HC11; HSMCR30; MCAF; Mcp1; MCP-1; SCYA2; SMC-CF
Source	Human embryonic kidney cell, HEK293-derived human CCL2/MCP-1 protein
Protein sequence	Gln24-Thr99
M.Wt	8.7 kDa
Appearance	Solution protein
Stability & Storage	Use a manual defrost freezer and avoid repeated freeze-thaw cycles.- 3 years from date of receipt, -20 to -70°C as supplied.
Concentration	0. 2 mg/mL
Formulation	Dissolved in sterile PBS buffer.
Reconstitution	We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. This solution can be diluted into other aqueous buffers.
Biological Activity	The EC50 for this effect is 0.1-1 ng/mL. Measured by its ability to chemoattract BaF3 mouse pro-B cells transfected with human CCR2A. .
Shipping Condition	Shipping with dry ice.
Handling	Centrifuge the vial prior to opening.
Usage	For Research Use Only! Not to be used in humans.

Quality Control

Purity	> 95%, determined by SDS-PAGE.
Endotoxin	<0.010 EU per 1 ug of the protein by the LAL method.

Description

CCL2, also called monocyte chemotactic protein-1 (MCP-1) or JE, is a member of the C-C or beta 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 bybasophils 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].

Reference

[1]. Yoshimura, T. et al. (1989) FEBS Lett. 244:487.

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[4]. Ju Lee, H. et al. (2015) J. Immunol. 194:3634.

[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

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