MCP-1/CCL2 Protein, Human (Biotinylated, HEK293, His-Avi)

Cat. No.:	HY-P78173
Synonyms:	C-C motif chemokine 2; CCL2; HC11; MCAF; MCP-1; HSMCR30; MCP1; SCYA2; SMC-CF; GDCF-2
Species:	Human
Source:	HEK293
Accession:	P13500 (Q24-T99)
Gene ID:	6347
Molecular Weight:	13-20 kDa

PROPERTIES

Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.22 μm filtered solution of PBS, pH 7.4. Normally 8% trehalose is added as protectant before
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconsititution	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH_2O.
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US; may vary elsewhere.

DESCRIPTION

Background

CCL2, also known as monocyte chemotactic protein 1 (MCP1), is a small cell factor belonging to the CC chemokine family. The CCL2 gene, located in the q11.2-q12 region of human chromosome 17, encodes a monomeric polypeptide with a molecular weight of 9-15 kDa, depending on the level of glycosylation. CCL2 is mainly secreted by monocytes, macrophages and dendritic cells. It is secreted by monocytes, macrophages and dendritic cells, and platelet-derived growth factor is the main inducer of the CCL2 gene. Astrocytes and microglia are also thought to be the source of CCL2[1]. CCL2 signals through binding to and activation of CCR2 and induces a strong chemotactic response and intracellular mobilization of calcium ions. Among other things, CCL2/CCR2 can regulate cell adhesion and chemotaxis of macrophages by activating the β1 integrin and p38-MAPK signaling pathways. In addition to acting as a chemoattractant, CCL2 can also regulate brain endothelial permeability in vitro by altering tight junction (TJ) proteins and regulating the expression of endothelial adhesion molecules and leukocyte integrins as well as cytokine production. In addition, the CCL2-CCR2 signaling axis has been implicated in many inflammatory and neurodegenerative diseases, acting to recruit inflammatory cells into the CNS[2]. Originally described as a "tumor-derived chemokine", CCL2 has been shown to be a potent chemokine for many types of immune cells and a potential target for the treatment of many diseases, such as atherosclerosis, multiple sclerosis, asthma, neuropathic pain, diabetic nephropathy, and cancer[3].

REFERENCES

[1]. Qiongyu Hao, et al. CCL2/CCR2 signaling in cancer pathogenesis. Cell Commun Signal. 2020 May 29;18(1):82.

[2]. Svetlana M Stamatovic, et al. Monocyte chemoattractant protein-1 regulation of blood-brain barrier permeability. J Cereb Blood Flow Metab. 2005 May;25(5):593-606.

[3]. Rachel N Gomes, et al. Bacterial clearance in septic mice is modulated by MCP-1/CCL2 and nitric oxide. Shock. 2013 Jan;39(1):63-9.

[4]. Seungeun Lee, et al. Tumor-associated macrophages secrete CCL2 and induce the invasive phenotype of human breast epithelial cells through upregulation of ERO1-α and MMP-9. Cancer Lett. 2018 Nov 28;437:25-34.

[5]. Robert D Loberg, et al. CCL2 is a potent regulator of prostate cancer cell migration and proliferation. Neoplasia. 2006 Jul;8(7):578-86.

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