



MCP-1 (mBA-125): sc-4906

BACKGROUND

The monocyte chemotactic proteins, MCP-1, MCP-2 and MCP-3, form a sub-family of the C-C (or β) chemokines, which are characterized by a set of conserved adjacent cysteines. MCPs are produced by a variety of cells, including T lymphocytes, subsequent to their activation with cytokines such as IL-1, TNF α and IFN- γ . MCP-1 levels are increased during infection and inflammation, which are both characterized by leukocyte infiltration. *In vitro* studies have shown that the MCP isoforms exhibit their chemotactic effects on different subpopulations of lymphocytes. MCP-1 is a potent basophil activator but does not affect eosinophils, whereas MCP-2 stimulates both eosinophils and basophils. MCP-3 has been shown to have the broadest range of influence, activating monocytes, dendritic cells, lymphocytes, natural killer cells, eosinophils, basophils and neutrophils. Two MCP-1 receptors that differ in their carboxy-termini have been identified.

REFERENCES

1. Charo, I.F., et al. 1994. Molecular cloning and functional expression of two monocyte chemoattractant protein 1 receptors reveals alternative splicing of the carboxyl-terminal tails. *Proc. Natl. Acad. Sci. USA* 91: 2752-2756.
2. Taub, D.D., et al. 1995. Monocyte chemotactic protein-1 (MCP-1), -2, and -3 are chemotactic for human T lymphocytes. *J. Clin. Invest.* 95: 1370-1376.
3. Weber, M., et al. 1995. Monocyte chemotactic protein MCP-2 activates human basophil and eosinophil leukocytes similar to MCP-3. *J. Immunol.* 154: 4166-4172.
4. Combadiere, C., et al. 1995. Monocyte chemoattractant protein-3 is a functional ligand for CC chemokine receptors 1 and 2B. *J. Biol. Chem.* 270: 29671-29675.
5. Proost, P., et al. 1996. Human monocyte chemotactic proteins-2 and -3: structural and functional comparison with MCP-1. *J. Leukoc. Biol.* 59: 67-74.
6. Dubois, P.M., et al. 1996. Early signal transduction by the receptor to the chemokine monocyte chemotactic protein-1 in a murine T cell hybrid. *J. Immunol.* 156: 1356-1361.
7. Beall, C.J., et al. 1996. Site-directed mutagenesis of monocyte chemoattractant protein-1 identifies two regions of the polypeptide essential for biological activity. *Biochem. J.* 313: 633-640.
8. Kuna, P., et al. 1996. Chemokines in seasonal allergic rhinitis. *J. Allergy Clin. Immunol.* 97: 104-112.

CHROMOSOMAL LOCATION

Genetic locus: CCL2 (human) mapping to 17q12; Ccl2 (mouse) mapping to 11 B5.

SOURCE

MCP-1 (mBA-125) is produced in *E. coli* as 13.8 kDa biologically active protein corresponding to 125 amino acids of full length mature MCP-1 of mouse origin.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PRODUCT

MCP-1 (mBA-125) is purified from bacterial lysates (> 98%); supplied as 10 μ g purified protein.

BIOLOGICAL ACTIVITY

MCP-1 (mBA-125) is biologically active as determined by its ability to chemoattract Balb/C mouse spleen MNCs using a concentration range of 1-20 ng/ml.

RECONSTITUTION

In order to avoid freeze/thaw damaging of the active protein, dilute protein when first used to desired working concentration. Either a sterile filtered standard buffer (such as 50mM TRIS or 1X PBS) or water can be used for the dilution. Store any thawed aliquot in refrigeration at 2° C to 8° C for up to four weeks, and any frozen aliquot at -20° C to -80° C for up to one year. It is recommended that frozen aliquots be given an amount of standard cryopreservative (such as Ethylene Glycol or Glycerol 5-20% v/v), and refrigerated samples be given an amount of carrier protein (such as heat inactivated FBS or BSA to 0.1% v/v) or non-ionic detergent (such as Triton X-100 or Tween 20 to 0.005% v/v), to aid stability during storage.

SELECT PRODUCT CITATIONS

1. Lopez-Rivera, E., et al. 2014. Inducible nitric oxide synthase drives mTOR pathway activation and proliferation of human melanoma by reversible nitrosylation of TSC2. *Cancer Res.* 74: 1067-1078.
2. Herzog, C., et al. 2016. Proteolytic processing and inactivation of CCL2/MCP-1 by meprins. *Biochem. Biophys. Rep.* 8: 146-150.

STORAGE

Store desiccated at -20° C. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.