

## Product Information

### Monocyte Chemotactic Protein-1, human recombinant, expressed in *E. coli*

Catalog Number **M6667**  
Storage Temperature  $-20\text{ }^{\circ}\text{C}$

Synonyms: MCP-1, monocyte chemotactic and activating factor, MCAF

#### Product Description

Monocyte chemotactic protein (MCP-1) is the product of the human JE gene.<sup>1</sup> The precursor form of MCP-1 consists of 99 amino acids with a signal peptide sequence consisting of 23 N-terminal amino acids.<sup>2</sup> The mature form of MCP-1 has 4 cysteine residues.<sup>3</sup> The first two cysteine residues are in an adjacent position C-C, which characterizes MCP-1 as a member of the chemokine  $\beta$  subfamily. MCP-1 is a non-glycosylated protein consisting of 76 amino acids with a molecular mass of 8.7 kDa.

MCP-1 mRNA expression can be induced in monocytes/macrophages, B lymphocytes, endothelial cells, and astrocytoma cells by LPS.<sup>2</sup> IL-1 will induce production of MCP-1 in fibroblasts, keratinocytes, hepatoma cells, and Type II pneumocytes.<sup>2</sup> *In vitro*, MCP-1 will act on monocytes to initiate chemotaxis, induce superoxide anion release, induce the release of lysosomal enzymes, and augment cytostatic activity.<sup>2</sup> *In vivo*, MCP-1 will induce macrophage infiltration.<sup>2</sup> The MCP-1 gene contains potential binding sites for several transcription factors, including AP-1, AP-2, NF- $\kappa$ B, and NF-IL6.<sup>2</sup>

This product is lyophilized from 0.2  $\mu\text{m}$  filtered solution of phosphate buffered saline (PBS), pH 7.4, containing 500  $\mu\text{g}$  bovine serum albumin (BSA) as a carrier protein.

Purity:  $\geq 97\%$  (SDS-PAGE and N-terminal analysis)

The biological activity of MCP-1 was tested in culture by measuring its ability to stimulate monocyte chemotactic activity<sup>4</sup> and its ability to chemoattract hCCR2A transfected mouse BAF/3 cells. The ED<sub>50</sub> for these effects are typically 5–20 ng/ml and 5–30 ng/ml, respectively. The ED<sub>50</sub> is defined as the effective concentration of growth factor that elicits a 50% increase in cell growth in a cell based bioassay.

#### Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

#### Preparation Instructions

Reconstitute the product using 0.2  $\mu\text{m}$  filtered PBS containing 0.1% BSA to a concentration  $\geq 1\text{ }\mu\text{g/ml}$ .

#### Storage/Stability

Store the product at  $-20\text{ }^{\circ}\text{C}$ . After reconstitution, this cytokine may be stored at  $2\text{--}8\text{ }^{\circ}\text{C}$  for up to one month. For extended storage, freeze in working aliquots at  $-70\text{ }^{\circ}\text{C}$  or  $-20\text{ }^{\circ}\text{C}$ . Repeated freezing and thawing is not recommended.

#### References

1. Miller, M. et al., Critical Reviews in Immunology, **12(1,2)**, 17 (1992).
2. Furutani, Y. et al., Biochem. Biophys. Res. Commun., **159**, 249 (1989).
3. Mukaida, N. et al., Microbiol. Immunol., **36(8)**, 773 (1992).
4. Matsushima, K. et al., J. Exp. Med., **169**, 1485 (1989).

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