Recombinant Human Monocyte Chemotactic Protein-1 (rh MCP-1 / CCL2)

**Synonyms:** Small inducible cytokine A2, Monocyte chemoattractant protein 1, Monocyte chemotactic and activating factor, MCAF, Platelet-derived growth factor-inducible protein JE.

**Introduction:** MCP-1 is a small cytokine belonging to the CC chemokine family that is also known as monocyte chemotactic protein-1 (MCP-1). It is found at the site of tooth eruption and bone degradation. In the bone MCP-1 is expressed by mature osteoclasts and osteoblasts and is under the control of nuclear factor κB (NFκB). MCP-1 recruits immune cells, such as monocytes, to sites of tissue injury and infection. It is produced as a protein precursor containing signal peptide of 23 amino acids and a mature peptide of 76 amino acids. It is a monomeric polypeptide, with a molecular weight of approximately 13kDa. As with many other CC chemokines MCP-1 is located on chromosome 17 in humans. The cell surface receptors that bind MCP-1 are CCR2 and CCR5.

**Description:** Recombinant human MCP-1 produced in *E.Coli* is a non-glycosylated polypeptide chain containing 76 amino acids and having a molecular mass of 8607 Dalton. The rh MCP-1 is purified by proprietary chromatographic techniques.

**Source:** *Escherichia Coli*.

**Physical Appearance:** Sterile filtered white lyophilized (freeze-dried) powder.

**Formulation:** Lyophilized from a 0.22 μm filtered solution in 25 mM sodium phosphate, 400 mM NaCl, pH 7.4. The aliquots/samples of 1μg contain Trehalose 5% (w/vol) for better recovery.

**Solubility:** It is recommended to reconstitute the lyophilized rh MCP-1 in sterile H₂O not less than 100 μg/ml, which can then be further diluted to other aqueous solutions.

**Stability:** Lyophilized rh MCP-1 although stable at room temperature for 3 weeks, should be stored desiccated below −18° C. Upon reconstitution rh MCP-1 should be stored at 4° C between 2-7 days and for future use below −18° C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

**Purity:** Greater than 95.0% as determined by SDS-PAGE.

**Amino acid Sequence:** QPDAINAPVT  CCYNFTNRKI  SVQRLASYRR  ITSSKCPKEA VIFKTIVAKE ICADPKQKWV QDSMDHLDKQ TQTPKT

**Endotoxicity:** The endotoxin level is less than 1 EU / μg determined by LAL method.

**Biological Activity:** rh MCP-1 is fully biologically active when compared to standard. The specific activity as determined by the ability of MCP-1 to chemoattract human monocytes using a concentration of 5-20 ng/ml.

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