

## PRODUCT DESCRIPTION

Macrophage-colony stimulating factor (M-CSF or CSF-1) can be produced by a number of cells including fibroblasts, activated macrophages, secretory epithelial cells of the endometrium, bone marrow stromal cells, brain astrocytes, osteoblasts, renal mesangial cells, keratinocytes and LPS- or cytokine-activated endothelial cells. M-CSF stimulates the formation of macrophage colonies from bone marrow hematopoietic progenitor cells. It also induces proliferation of isolated macrophages, enhances antibody-dependent cell-mediated cytotoxicity, primes and enhances macrophage killing of tumor cells and microorganisms, regulates the release of cytokines and other inflammatory modulators from macrophages and stimulates pinocytosis and osteoclast differentiation.

M-CSF is synthesized as a membrane-bound propeptide. After proteolytic processing, M-CSF can be secreted in its soluble form or anchored to the membrane. Both forms are biologically active.

Natural M-CSFs are glycosylated, disulfide-linked, homodimeric proteins with molecular weights ranging from 40 - 70 kDa. The carbohydrate moiety is not necessary for biological activity. Several C-terminal variants of the soluble form of M-CSF have been found. The N-terminal of mature M-CSF contains 150 amino acids and is necessary and sufficient for interaction with the M-CSF receptor. The human and mouse forms of the N-terminal are highly conserved (80% homology).

## SOURCE

A DNA sequence encoding the N-terminal 230 amino acid residues of the extracellular domain of the mature mouse M-CSF protein sequence (residues 33 - 262 of the mouse M-CSF precursor)<sup>1</sup> was expressed in *E. coli*.

## PURITY

Purity is greater than 97%, as determined by SDS-PAGE and visualized by silver stain. Endotoxin level is <1.0 EU per 1 µg cytokine, as determined by the LAL method.

## ACTIVITY

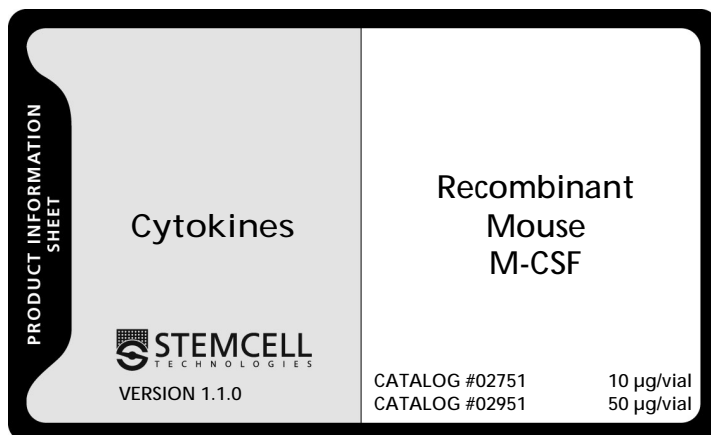
The biological activity of recombinant mouse M-CSF is measured in a cell proliferation assay using an M-CSF-dependent murine monocytic cell line, M-NFS-60.<sup>2</sup> The ED<sub>50</sub> for this effect is typically 0.5 - 1.5 ng/mL.

## FORMULATION

Recombinant mouse M-CSF is lyophilized from a 0.2 µm filtered solution in phosphate buffered saline (PBS) containing 50 µg bovine serum albumin per 1 µg cytokine.

## RECONSTITUTION

Reconstitute mouse M-CSF at a concentration greater than 10 µg/mL with sterile PBS containing at least 0.1% human or bovine serum albumin.



## STABILITY AND STORAGE

Lyophilized mouse M-CSF is stable for up to twelve months from date of receipt at -20°C to -70°C.

Reconstituted mouse M-CSF can be stored under sterile conditions at 2°C - 8°C for one month, or at -20°C to -70°C (in a manual defrost freezer) for three months without detectable loss of activity.

**Avoid repeated freezing and thawing.**

## REFERENCES

1. Ladner MB, Martin GA, Noble JA, Wittman VP, Warren MK, McGrogan M, Stanley ER: cDNA cloning and expression of murine macrophage colony-stimulating factor from L929 cells. *Proc Natl Acad Sci USA* 85: 6706-6710, 1988
2. Halenbeck R, Kawasaki E, Wrin J, Koths K: Renaturation and purification of biologically active recombinant human macrophage colony-stimulating factor expressed in *E. coli*. *Biotechnology* 7: 710-715, 1989

