

GM-CSF (hBA-127): sc-4585

BACKGROUND

Colony stimulating factors (CSFs) were initially characterized by their ability to stimulate *in vitro* colony formation by hematopoietic progenitor cells in semi-solid media. Several of these CSFs have been assigned an interleukin number, while three (GM-CSF, G-CSF and M-CSF) have retained their CSF designations. The human granulocyte-macrophage colony stimulating factor (GM-CSF) is a pleiotropic cytokine with a 17 amino acid signal peptide that is cleaved to produce the mature form of 127 amino acids. The mature murine GM-CSF protein is 124 amino acids and shares 60 percent homology with the human GM-CSF protein. GM-CSF is a glycoprotein that can stimulate the proliferation of hematopoietic cells including granulocytes and macrophages. It has been shown to promote the phosphorylation of cPLA2 in human neutrophils. The phosphorylation of cPLA2 was accompanied by an increase in the enzyme activity.

REFERENCES

1. Wong, G.G., et al. 1985. Human GM-CSF: molecular cloning of the complementary DNA and purification of the natural and recombinant proteins. *Science* 228: 810-815.
2. Lee, F., et al. 1985. Isolation of cDNA for a human granulocyte-macrophage colony-stimulating factor by functional expression in mammalian cells. *Proc. Natl. Acad. Sci. USA* 82: 4360-4364.
3. Cantrell, M.A., et al. 1985. Cloning, sequence, and expression of a human granulocyte-macrophage colony-stimulating factor. *Proc. Natl. Acad. Sci. USA* 82: 6250-6254.
4. Kaushansky, K., et al. 1986. Genomic cloning, characterization, and multi-lineage growth-promoting activity of human granulocyte-macrophage colony-stimulating factor. *Proc. Natl. Acad. Sci. USA* 83: 3101-3105.
5. Moore, M.A. 1991. The clinical use of colony stimulating factors. *Annu. Rev. Immunol.* 9: 159-191.
6. Freund, M., et al. 1992. The role of GM-CSF in infection. *Infection* 2: 84-92.
7. Costello, R.T. 1993. Therapeutic use of granulocyte-macrophage colony-stimulating factor (GM-CSF). A review of recent experience. *Acta Oncol.* 32: 403-408.
8. Nahas, N., et al. 1996. Granulocyte-macrophage colony-stimulating factor (GM-CSF) promotes phosphorylation and an increase in the activity of cytosolic phospholipase A2 in human neutrophils. *Biochem. J.* 313: 503-508.

SOURCE

GM-CSF (hBA-127) is produced in *E. coli* as 41 kDa biologically active, GST-tagged fusion protein corresponding to 127 amino acids of GM-CSF of human origin.

PRODUCT

GM-CSF (hBA-127) is purified from bacterial lysates (>98%); supplied as 50 µg purified protein.

RESEARCH USE

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

BIOLOGICAL ACTIVITY

GM-CSF (hBA-127) is biologically active as determined by the dose-dependent stimulation of the proliferation of human TF-1 cells.

Expected ED₅₀: <0.1 ng/ml.

Specific Activity: Greater than 1 x 10⁷ units/mg.

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 cryo-preserved (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.

STORAGE

Store desiccated at -20° C; stable for one year from the date of shipment.

PROTOCOLS

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