Datasheet

GM-CSF

Human Recombinant

Product	Description	Catalogue-No.	Size
GM-CSF	Colony-stimulating factor	CB-2110000 CB-211000M CB-2110010 CB-2110003	2 µg 5 µg 10 µg 1 mg

Product description

Synonyms: CSF-2, MGI-1GM, GM-CSF, Pluripoietin-alpha, MGC131935, MGC138897.

GM-CSF was first characterized as a growth factor that supports the in-vitro colony formation of granulocytes-macrophages progenitor cells. It is a pleiotropic cytokine and a member of a family of endogenous cytokines of the hematopoietic system. GM-CSF is produced as a response to immune or inflammatory stimuli by activated cells of the hematopoietic system such as T cells, B cells, macrophages, mast cells and also fibroblasts and alveolar epithelial cells. It plays an important role in regulating the proliferation, differentiation, survival and activation of hematopoietic cells such as granulocytes and monocytes ,neutrophiles, basophiles and eosonophoiles, erythroid cells, megakaryocytes and T cells.

Human and mouse GM-CSF have about 56% homology and are species specific. Human GM-CSF is not active on mouse cells and vice versa. It is active on canine and feline cells.

Its receptor is heterodimers with a ligand-specific α subunit and a common ß subunit that is shared with the IL-3 and IL-5 receptors. This unusual form of receptor assembly likely applies also to IL-3 and IL-5 receptors. Cross-linking the two receptor subunits is required for receptor activation and signaling.

GM-CSF has been shown to be involved in maturation, mobilization and antigen presentation of myeloid dentritic cells (DCs) in-vivo or ex-vivo. This function promotes Th1 immune responses, cytotoxicity, anti-angiogenesis as well as allergic inflammation, and the development of autoimmunity. Therefore GM-CSF can be used in immunotherapy for the treatment of immune suppressed and immune-compromised patients as well as in veterinary medicine for the same purpose. GM-CSF is also important in regulation of embryo development and pregnancy and specifically in embryo implantation and subsequent development.

GM-CSF human rec. produced in E.Coli is a single, non-glycosylated, polypeptide chain containing 127 amino acids and having a molecular mass of 14477 Dalton. GM-CSF human rec. is purified by proprietary chromatographic techniques.

Solubility and storage conditions

It is recommended to reconstitute the lyophilized GM-CSF in sterile 18MΩ-cm H2O not less than 100µg/ml, which can then be further diluted to other aqueous solutions.

Lyophilized IL-15 although stable at room temperature for 3 weeks, should be stored desiccated below -20°C. Upon reconstitution IL-15 should be stored at 2-8°C between 2-7 days and for future use below -20°C.

For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

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Composition

Lyophilized after extensive dialysis against 2mM sodium phosphate buffer, pH 7.4

Purity: > 98.0% as determined by SDS-PAGE and RP-HPLC

Amino acid sequence: The sequence of the first five N-terminal amino acids was determined and was found to be Ala-Pro-Ala-Arg-Ser.
N-terminal methionine has been completely removed enzymatically.

Biological activity: The ED_{50} as determined by the dose-dependent stimulation of the proliferation of human TF-1 cells (human erythroleukemic indicator cell line) is < 0.1 ng/ml, corresponding to a Specific Activity of 11.1 x 10^6 U per mg.

Protein content: GM-CSF quantitation was carried out by two independent methods:
1. UV spectroscopy at 280 nm using the absorbency value of 0.963 as the extinction coefficient for a 0.1% (1mg/ml) solution. This value is calculated by the PC GEN computer analysis program of protein sequence.
2. Analysis by RP-HPLC, using a standard solution of GM-CSF as a Reference Standard.

Technical support

For technical support, questions or remarks please contact your local PAN-Biotech partner or the technical department of PAN-Biotech via email (info@pan-biotech.com) or phone +49-8543-601630.

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