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1. Description

Products

Human GM-CSF, research grade.

Recombinant human granulocyte macrophage colony-stimulating factor.

Content in µg	Order no.
10	130-093-862
50	130-095-372

Biological activity

The ED₅₀ is ≤0.5 ng/mL corresponding to an activity of ≥2×10⁶ IU/mg.

▲ **Note:** The ED₅₀ is determined by proliferation assay using TF-1 cells according to Kitamura *et al.*¹ The proliferation assay was calibrated with the international standard for human GM-CSF (NIBSC code 88/646) provided by the WHO/National Institute for Biological Standards and Control.

Primary structure

Single, non-glycosylated polypeptide chain (127 amino acid residues).

Molecular mass

14.5 kDa.

Source

Produced in *E. coli*.

Product format

Lyophilized from a filtered (0.2 µm) buffer solution.

Stabilizer

Mannitol and trehalose.

Purity

>97% as determined by SDS-PAGE analysis.

Endotoxin level

Low endotoxin (<1.0 EU/µg cytokine) as determined by Limulus Amebocyte Lysate (LAL) assay.

Storage

Lyophilized Human GM-CSF, research grade should be stored at -20 °C. The expiration date is indicated on the vial label. Upon reconstitution aliquots should be stored at -20 °C or below. Avoid repeated freeze-thaw cycles.

Reconstitution

It is recommended to reconstitute lyophilized Human GM-CSF, research grade with deionized sterile-filtered water to a final concentration of 0.1–1.0 mg/mL in a minimal volume of 100 µL. Further dilutions should be prepared with 0.1% bovine serum albumin (BSA) or human serum albumin (HSA) in phosphate-buffered saline.

1.1 Background information

GM-CSF is a hematopoietic growth factor, which is essential for proliferation and development of granulocyte and monocyte/macrophage progenitors. It also functions as a growth factor for erythroid and megakaryocytic precursor cells in conjunction with erythropoietin. GM-CSF is secreted by various cell types including T cells, macrophages, endothelial cells, and fibroblasts in response to inflammatory stimuli and cytokines. In addition, GM-CSF is a potent chemoattractant for neutrophils and eosinophils and enhances the effector functions of neutrophils and macrophages.

1.2 Applications

Human GM-CSF can be used for a variety of applications including:

- Cultivation of hematopoietic progenitor cells from human bone marrow in semi-solid medium.
- *In vitro* generation of Mo-DCs together with Human IL-4.
- *In vitro* differentiation of CD34⁺ cells towards eosinophils.
- Migration assays for eosinophils.

Optimal concentration for a specific application should be determined by a dose-response experiment.

2. References

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