Miltenyi Biotec

Human G-CSF
research grade

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1. Description

Products

Human G-CSF, research grade.

Recombinant human granulocyte colony-stimulating factor.

Content in µg	Order no.
10	130-096-345
25	130-096-346

Biological activity

The ED_{50} is ≤0.05 ng/mL corresponding to an activity of ≥2×10^7 IU/mg.

▲ **Note:** The ED_{50} is determined by proliferation assay usingmouse M-NFS-60 cells[1]. The proliferation assay was calibrated with the 2nd international standard for human G-CSF (NIBSC code 09/136) provided by the WHO/ National Institute for Biological Standards and Control.

Primary structure

Single, non-glycosylated polypeptide chain (174 amino acid residues) corresponding to filgrastim without N-terminal methionine.

Molecular mass

18.7 kDa.

Source

Produced in *E. coli*.

Product format

Lyophilized from a filtered (0.2 µm) buffer solution.

Stabilizer

Mannitol and trehalose.

Purity

>95% 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 G-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 G-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

Granulocyte colony stimulating factor (G-CSF) is a hematopoietic growth factor that affects proliferation and differentiation especially of progenitors of the neutrophil and granulocyte lineages. It is produced mainly by monocytes and macrophages and a variety of other cells like astrocytes, fibroblasts and endothelial cells in response to specific stimulation, for instance by endotoxin, TNF-α and IFN-γ. Furthermore, G-CSF enhances the survival and influences the immunological functions of mature neutrophils. Thus, in addition to its properties as a hematopoietic growth factor G-CSF also acts as a mediator of host defense against infection and inflammatory response.

1.2 Applications

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

- Growth promotion and differentiation of cells of the neutrophil lineage.
- Induction of colony formation of normal and leukemic bone marrow cells in soft agar cultures.

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

2. References

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7. Laugsch, M. *et al.* (2016) Functional Restoration of gp91phox-Oxidase Activity by BAC Transgenesis and Gene Targeting in X-linked Chronic Granulomatous Disease iPSCs. Mol. Ther. 24 (4): 812–822.
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