Recombinant Human G-CSF

Catalog Number: 214-CS

DESCRIPTION

Source	*E. coli*-derived human G-CSF protein Thr31-Pro204, with an N-terminal Met Accession # NP_757373
N-terminal Sequence Analysis	Met
Predicted Molecular Mass	18.8 kDa

SPECIFICATIONS

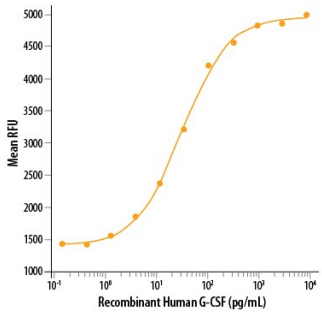
SDS-PAGE	17-19 kDa, reducing conditions
Activity	Measured in a cell proliferation assay using NFS-60 mouse myelogenous leukemia lymphoblast cells. Shirafuji, N.*et al.* (1989) Exp. Hematol. **17**:116. The ED_{50} for this effect is 10-60 pg/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>97%, by SDS-PAGE under reducing conditions and visualized by silver stain.
Formulation	Lyophilized from a 0.2 µm filtered solution in Acetic Acid with BSA as a carrier protein. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 50 µg/mL in sterile PBS containing at least 0.1% human or bovine serum albumin.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** • 12 months from date of receipt, -20 to -70 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 3 months, -20 to -70 °C under sterile conditions after reconstitution.

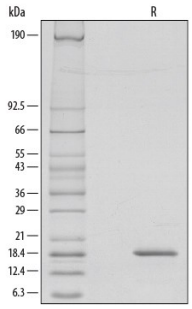
DATA

Bioactivity



Recombinant Human G-CSF (Catalog # 214-CS) stimulates cell proliferation of the NFS-60 mouse myelogenous leukemia lymphoblast cell line. The ED_{50} for this effect is 10-60 pg/mL.

SDS-PAGE



1 µg/lane of Recombinant Human G-CSF was resolved with SDS-PAGE under reducing (R) conditions and visualized by silver staining, showing a single band at 18.5 kDa.

BACKGROUND

G-CSF is a pleiotropic cytokine best known for its specific effects on the proliferation, differentiation, and activation of hematopoietic cells of the neutrophilic granulocyte lineage. It is produced mainly by monocytes and macrophages upon activation by endotoxin, TNF-α and IFN-γ. Other cell types including fibroblasts, endothelial cells, astrocytes and bone marrow stromal cells can also secrete G-CSF after LPS, IL-1 or TNF-α activation. In addition, various carcinoma cell lines and myeloblastic leukemia cells can express G-CSF constitutively.

In humans, two distinct cDNA clones for G-CSF, encoding 207 and 204 amino acid precursor proteins, have been isolated. Both proteins have a 30 amino acid signal peptide and have identical amino acid sequences except for a three amino acid insertion (deletion) at the 35th amino acid residue from the N-terminus of the mature protein. Human G-CSF is 73% identical at the amino acid level to murine G-CSF and the two proteins show species cross-reactivity.

In vitro, G-CSF stimulates growth, differentiation and functions of cells from the neutrophil lineage. It also has blast cell growth factor activity and can synergize with IL-3 to shorten the G_o period of early hematopoietic progenitors. Consistent with its *in vitro* functions, G-CSF has been found to play important roles in defense against infection, in inflammation and repair, and in the maintenance of steady state hematopoiesis.

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