

# Human Recombinant G-CSF (HEK293-expressed)

Granulocyte colony-stimulating factor, Fc tag

Catalog #100-1718 100 µg

Catalog #100-1719 1000 µg

## Product Description

Granulocyte colony-stimulating factor (G-CSF) is a member of the CSF family of glycoproteins that regulate hematopoietic cell proliferation, differentiation, and function. It is a key cytokine involved in the production of neutrophils and the stimulation of granulocyte colony formation from hematopoietic progenitor cells (Metcalf & Nicola). G-CSF causes a range of effects including a transient reduction of SDF-1 expression (Petit et al.), the activation of metalloproteases that cleave VCAM-1 (Levesque et al.), and the release of norepinephrine from the sympathetic nervous system (Katayama et al.), leading to the release or mobilization of hematopoietic stem cells from the bone marrow into the periphery. The G-CSF receptor is expressed on a variety of hematopoietic cells, including myeloid-committed progenitor cells, neutrophils, granulocytes, and monocytes. In addition to hematopoietic cells, G-CSF is also expressed in cardiomyocytes, neuronal cells, mesothelial cells, and endothelial cells. Binding of G-CSF to its receptor leads to activation of the JAK/STAT, MAPK, PI3K, and AKT signal transduction pathways. At the N-terminus, Human Recombinant G-CSF (HEK293-expressed) contains a human IgG1 Fc tag.

## Product Information

Alternative Names:	Colony-stimulating factor 3, CSF-3, MGI-1G, Pluripoietin
Accession Number:	P09919
Amino Acid Sequence:	EPKSSDKTHT CPPCPAPELL GGPSVFLFPP KPKDTLMISR TPEVTCVVVD VSHEDPEVKF NWWYVDGVEVH NAKTKPREEQ YNSTYRVVSV LTVLHQDWLN GKEYKCKVSN KALPAPIEKT ISKAKGQPRE PQVYTLPPSR DELTKNQVSL TCLVKGFYPS DIAVEWESNG QPENNYKTP PVLDSDGSFF LYSKLTVDKS RWQQGNVFSC SVMHEALHNNH YTQKSLSLSP GKDDDDKATP LGPASSLPQS FLLKCLEQVR KIQGDGAALQ EKLCATYKLC HPEELVLLGH SLGIPWAPLS SCPSQALQLA GCLSQLHSG FLYQGLLQAL EGISPELGPT LDTLQLDVAD FATTIWQQME ELGMAPALQP TQGAMPAFAS AFQRRAGGVL VASHLQSFLE VSYRVLRLHLA QP
Predicted Molecular Mass:	45.4 kDa
Species:	Human
Product Formulation:	Lyophilized from sterile phosphate-buffered saline, pH 7.4, 5% Trehalose, 5% Mannitol, 0.01% Tween®-80.
Source:	HEK293
Purity:	≥ 94%

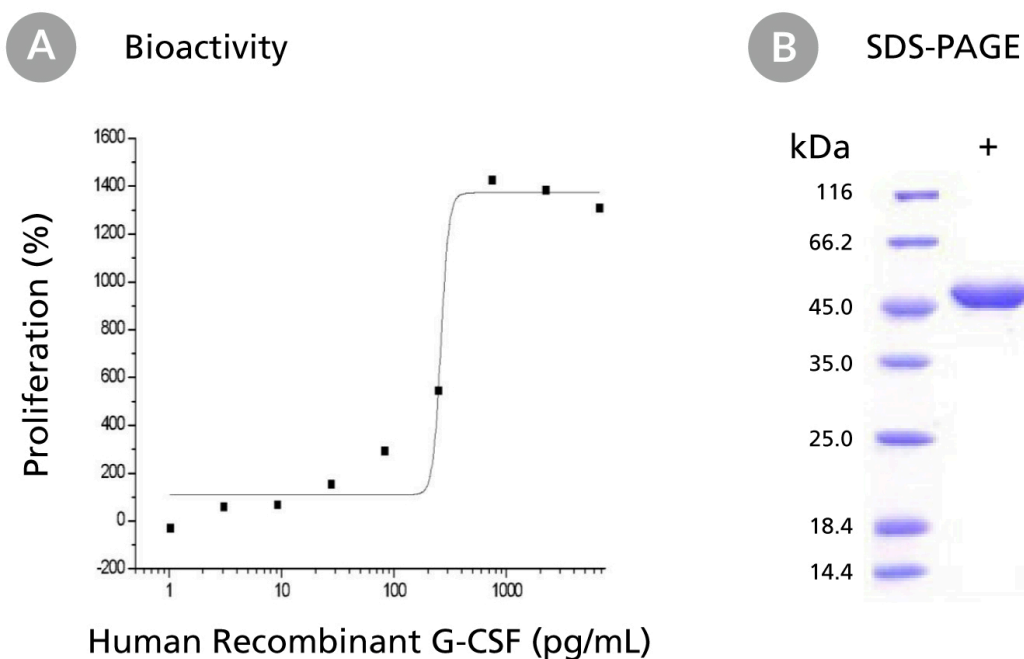
## Specifications

Activity:	The specific activity is $\geq 1 \times 10^6$ units/mg ( $EC_{50} \leq 0.8$ ng/mL), as determined by a cell proliferation assay using mouse NFS-60 cells.
Endotoxin Level:	Measured by kinetic Limulus amoebocyte lysate (LAL) analysis and is $\leq 1$ EU/ $\mu$ g protein.

## Preparation and Storage

Stability and Storage:	Store at -20 to -80°C. Stable as supplied for 12 months from date of receipt.
Preparation:	Centrifuge vial before opening. Reconstitute the product in sterile water to at least 0.25 mg/mL by pipetting the solution down the sides of the vial. Do not vortex. As a general guide, do not store at 2 - 8°C for more than 1 month or at -80°C for more than 3 months. Avoid repeated freeze-thaw cycles.

## Data



**Figure 1. Biological Activity and Molecular Mass of Human Recombinant G-CSF (HEK293-expressed)**

(A) The biological activity of Human Recombinant G-CSF (HEK293-expressed) was tested by its ability to promote the proliferation of NFS-60 cells. The EC50 is defined as the effective concentration of the growth factor at which cell proliferation is at 50% of maximum. The EC50 for this effect is  $\leq 800$  pg/mL. (B) Human Recombinant G-CSF (HEK293-expressed) was resolved with SDS-PAGE under reducing conditions. Human Recombinant G-CSF has a predicted molecular mass of 45.4 kDa and migrates with an apparent molecular mass of 48 kDa.

## Related Products

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## References

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- Lévesque JP et al. (2001) Vascular cell adhesion molecule-1 (CD106) is cleaved by neutrophil proteases in the bone marrow following hematopoietic progenitor cell mobilization by granulocyte colony-stimulating factor. *Blood* 98(5): 1289–97.
- Metcalf D & Nicola NA. (1983) Proliferative effects of purified granulocyte colony-stimulating factor (G-CSF) on normal mouse hemopoietic cells. *J Cell Physiol* 116(2): 198–206.
- Petit I et al. (2002) G-CSF induces stem cell mobilization by decreasing bone marrow SDF-1 and up-regulating CXCR4. *Nat Immunol* 3(7): 687–94.

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