

Cytokines

Human Recombinant G-CSF

Granulocyte colony-stimulating factor



Scientists Helping Scientists™ | WWW.STEMCELL.COM

TOLL FREE PHONE 1 800 667 0322 • PHONE +1 604 877 0713

INFO@STEMCELL.COM • TECHSUPPORT@STEMCELL.COM

FOR GLOBAL CONTACT DETAILS VISIT OUR WEBSITE

Catalog #	78012.1	10 µg
	78012	100 µg
	78012.2	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.

Product Information

Alternative Names:	Colony-stimulating factor 3, CSF-3, MGI-1G, Pluripoietin
Accession Number:	P09919
Amino Acid Sequence:	MTPLGPASSL PQSFLKCLE QVRKIQGDGA ALQEKLCATY KLCHPEELVL LGHSLGIPWA PLSSCPSQAL QLAGCLSQLH SGLFLYQGLL QALEGISPEL GPTLDTLQLD VADFATTIWQ QMEELGMAPA LQPTQGAMPA FASAFQRRAG GVLVASHLQS FLEVSRYRLR HLAQP
Predicted Molecular Mass:	18.8 kDa
Species:	Human
Cross Reactivity:	Mouse
Formulation:	Lyophilized from a sterile filtered solution containing 0.1% trifluoroacetic acid.
Source:	E. coli

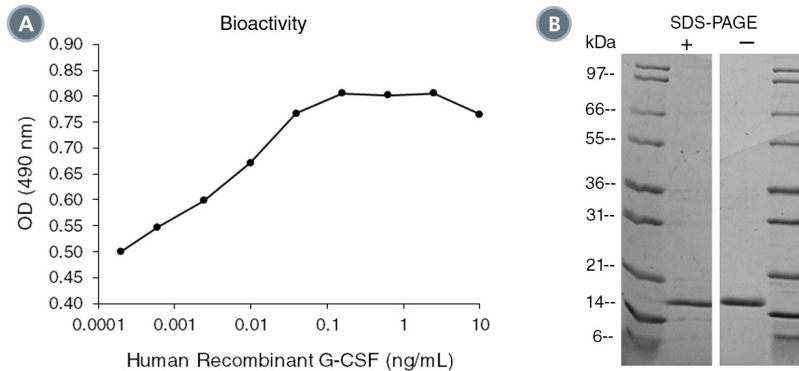
Specifications

Activity:	The specific activity is $\geq 2 \times 10^7$ units/mg ($EC_{50} \leq 0.05$ ng/mL) as determined by a cell proliferation assay using NFS-60 cells.
Purity:	$\geq 95\%$
Endotoxin Level:	Measured by kinetic limulus amoebocyte lysate (LAL) analysis and is ≤ 1 EU/µg protein.

Preparation and Storage

Storage:	Store at -20°C to -80°C.
Stability:	Stable as supplied for 12 months from date of receipt.
Reconstitution:	Centrifuge vial before opening. Resuspend the product in sterile water containing 0.1% bovine serum albumin (BSA) to at least 0.1 mg/mL by pipetting the solution down the sides of the vial. Do not vortex. Store at 2 - 8°C for up to 1 month or at -20°C to -80°C for up to 3 months. Avoid repeated freeze-thaw cycles. NOTE: If reconstituted product will be used immediately BSA is not required.

Data



(A) The biological activity of Human Recombinant G-CSF was tested by its ability to promote the proliferation of NFS-60 cells. Cell proliferation was measured after 62 hours of culture using a fluorometric assay method. The EC₅₀ is defined as the effective concentration of the growth factor at which cell proliferation is at 50% of maximum. The EC₅₀ in the above example is 0.01 ng/mL.

(B) 1 µg of Human Recombinant G-CSF was resolved with SDS-PAGE under reducing (+) and non-reducing (-) conditions and visualized by Coomassie Blue staining. Human Recombinant G-CSF has a predicted molecular mass of 18.8 kDa.

Related Products

For a complete list of cytokines, as well as related products available from STEMCELL Technologies, please visit our website at www.stemcell.com/cytokines or contact us at techsupport@stemcell.com.

References

- Katayama Y et al. (2006) Signals from the sympathetic nervous system regulate hematopoietic stem cell egress from bone marrow. *Cell* 124(2): 407–21.
- 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.

STEMCELL TECHNOLOGIES INC.'S QUALITY MANAGEMENT SYSTEM IS CERTIFIED TO ISO 13485. PRODUCTS ARE FOR RESEARCH USE ONLY AND NOT INTENDED FOR HUMAN OR ANIMAL DIAGNOSTIC OR THERAPEUTIC USES UNLESS OTHERWISE STATED.

Copyright © 2016 by STEMCELL Technologies Inc. All rights reserved including graphics and images. STEMCELL Technologies & Design, STEMCELL Shield Design, and Scientists Helping Scientists are trademarks of STEMCELL Technologies Inc. All other trademarks are the property of their respective holders. While STEMCELL has made all reasonable efforts to ensure that the information provided by STEMCELL and its suppliers is correct, it makes no warranties or representations as to the accuracy or completeness of such information.