

Datasheet: PHP292A

Description:	RECOMBINANT HUMAN G-CSF
Name:	G-CSF
Format:	Rec. Protein
Product Type:	Recombinant Protein
Quantity:	10 µg

Product Details

Applications

This product has been reported to work in the following applications. This information is derived from testing within our laboratories, peer-reviewed publications or personal communications from the originators. Please refer to references indicated for further information. For general protocol recommendations, please visit www.bio-rad-antibodies.com/protocols.

	Yes	No	Not Determined	Suggested Dilution
Functional Assays	■			

Where this product has not been tested for use in a particular technique this does not necessarily exclude its use in such procedures. Suggested working dilutions are given as a guide only. It is recommended that the user titrates the product for use in their own system using appropriate negative/positive controls.

Target Species	Human
Product Form	Purified recombinant protein - lyophilized
Reconstitution	Centrifuge vial prior to reconstitution. Reconstitute to 500 µg/ml by adding 20 µl ddH ₂ O. Care should be taken during reconstitution as the protein may appear as a film at the bottom of the vial. Bio-Rad recommend that the vial is gently mixed after reconstitution. Do not vortex.
Preparation	Recombinant protein expressed in <i>E.coli</i> and purified by ion exchange chromatography
Source	<i>E.coli</i>
Buffer Solution	20 mM Phosphate Buffer, 0.1 M Sodium Chloride
Preservative Stabilisers	1.0% Trehalose
Endotoxin Level	< 1.0 EU/ug
Approx. Protein	500 µg/ml after reconstitution

Concentrations

External Database

Links

UniProt:

[P09919](#)

[Related reagents](#)

Entrez Gene:

[1440](#)

CSF3

[Related reagents](#)

Synonyms

C17orf33, GCSF

Product Information

Recombinant Human G-CSF

Granulocyte colony stimulating factor (G-CSF) is a member of the colony-stimulating factor hematopoietic cytokine family ([Cavalcante *et al.* 2015](#)). Similar to other cytokines, G-CSF plays a critical role in the immune response to infection. G-CSF is expressed by a number of cell types including monocytes, macrophages and fibroblasts ([Panopoulos and Watowich 2008](#)).

Protein levels are low in healthy individuals however increase significantly upon inflammatory stimuli such as interleukin 1 and TNF-alpha ([Christensen *et al.* 2016](#), [Panopoulos and Watowich 2008](#)). G-CSF regulates neutrophilic granulocytes by stimulating neutrophil proliferation, differentiation, survival and also plays a key role in neutrophil mobilization into the bloodstream ([Cavalcante *et al.* 2015](#)).

G-CSF signaling is mediated by binding to the G-CSF receptor (G-CSFR, CD114 in humans), which is expressed by a number of cell types including myeloid leukemic cells, mature neutrophils, platelets, monocytes and cardiomyocytes ([Panopoulos and Watowich 2008](#)). Upon ligand binding, G-CSFR dimerizes, which results in receptor phosphorylation and subsequent activation of a number of cell signaling pathways, including JAK/STAT and Ras-MAPK signaling pathways ([Tamada *et al.* 2005](#), [Avalos 1996](#)).

As a result of chemotherapy, cancer patients commonly develop neutropenia ([Crawford *et al.* 2004](#)). G-CSF is the active ingredient of drugs used to treat chemotherapy associated neutropenia ([Lustberg 2012](#)). G-CSF exacerbates inflammatory conditions such as rheumatoid arthritis; Eyles *et al.* ([2008](#)) suggest modulation of G-CSF as a potential therapy route.

The proliferative effect of G-CSF was demonstrated by performing a cell proliferation assay with NFS-60 mouse myelogenous leukemia lymphoblast cells. The expected ED₅₀ for this effect is 10-70 pg/ml.

Protein Molecular Weight

18.7 kDa

Activity

Confirmed by performing an alamarBlue® based cell proliferation assay using mouse myelogenous leukemia lymphoblast cells. The expected ED₅₀ for this effect is 10-70 pg/ml.

Purity	≥98% determined by silver staining of SDS-PAGE gel
Amino Acid Sequence	ATPLGPASSL PQSFLKCLE QVRKIQGDGA ALQEKLVSEC ATYKLCHPEE LVLLGHSLGI PWAPLSSCPs QALQLAGCLS QLHSGFLFYQ GLLQALEGIS PELGPTLDTL QLDVADFATT IWQQMEELGM APALQPTQGA MPAFASAFQR RAGGVLVASH LQSFLEVSYR VLRHLAQP
Further Reading	<ol style="list-style-type: none"> 1. Avalos, B.R. (1996) Molecular analysis of the granulocyte colony-stimulating factor receptor. Blood. 88 (3): 761-77. 2. Cavalcante, M.B. <i>et al.</i> (2015) Granulocyte colony-stimulating factor and reproductive medicine: A review. Iran J Reprod Med. 13 (4): 195-202. 3. Christensen, A.D. <i>et al.</i> (2016) Granulocyte colony-stimulating factor (G-CSF) plays an important role in immune complex-mediated arthritis. Eur J Immunol. 46 (5): 1235-45. 4. Crawford, J. <i>et al.</i> (2004) Chemotherapy-induced neutropenia: risks, consequences, and new directions for its management. Cancer. 100 (2): 228-37. 5. Eyles, J.L. <i>et al.</i> (2008) A key role for G-CSF-induced neutrophil production and trafficking during inflammatory arthritis. Blood. 112 (13): 5193-201. 6. Lustberg, M.B. (2012) Management of neutropenia in cancer patients. Clin Adv Hematol Oncol. 10 (12): 825-6. 7. Panopoulos, A.D. & Watowich, S.S. (2008) Granulocyte colony-stimulating factor: molecular mechanisms of action during steady state and 'emergency' hematopoiesis. Cytokine. 42 (3): 277-88. 8. Tamada, T. <i>et al.</i> (2006) Homodimeric cross-over structure of the human granulocyte colony-stimulating factor (GCSF) receptor signaling complex. Proc Natl Acad Sci U S A. 103 (9): 3135-40.
Storage	<p>Prior to reconstitution store at -20°C. Following reconstitution store at -20°C.</p> <p>This product should be stored undiluted.</p> <p>Storage in frost-free freezers is not recommended. Avoid repeated freezing and thawing as this may denature the protein. Should this product contain a precipitate we recommend microcentrifugation before use.</p>
Guarantee	Guaranteed for 3 months from the date of reconstitution or until the date of expiry, whichever comes first. Please see label for expiry date.
Acknowledgements	alaranBlue is a trademark of Trek Diagnostic Systems, Inc and is manufactured for Bio-Rad by Trek Diagnostic Systems. U.S. patent 5,501,959
Health And Safety Information	Material Safety Datasheet documentation #20395 available at: https://www.bio-rad-antibodies.com/SDS/PHP292A 20395
Regulatory	For research purposes only

Related Products

Recommended Useful Reagents

[RABBIT ANTI HUMAN G-CSF \(AHP1031\)](#)

[alamarBlue® \(BUF012A\)](#)

[RECOMBINANT HUMAN G-CSF \(PHP082B\)](#)

[RAT ANTI HUMAN G-CSF \(1012801\)](#)

[RAT ANTI HUMAN G-CSF \(1012701\)](#)

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To find a batch/lot specific datasheet for this product, please use our online search tool at: bio-rad-antibodies.com/datasheets

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