

## Datasheet: PHP292

<b>Description:</b>	RECOMBINANT HUMAN G-CSF
<b>Name:</b>	G-CSF
<b>Format:</b>	Rec. Protein
<b>Product Type:</b>	Recombinant Protein
<b>Quantity:</b>	100 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](http://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.

<b>Target Species</b>	Human
<b>Product Form</b>	Purified recombinant protein - lyophilized
<b>Reconstitution</b>	Centrifuge vial prior to reconstitution. Reconstitute to 500 µg/ml by adding 200 µl ddH <sub>2</sub> 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.
<b>Preparation</b>	Recombinant protein expressed in <i>E.coli</i> and purified by ion exchange chromatography
<b>Buffer Solution</b>	20 mM Phosphate Buffer, 0.1 M Sodium Chloride
<b>Preservative Stabilisers</b>	1.0% Trehalose
<b>Endotoxin Level</b>	< 1.0 EU/ug
<b>Approx. Protein Concentrations</b>	500 µg/ml after reconstitution

**External Database  
Links**

**UniProt:**

[P09919](#)   [Related reagents](#)

**Entrez Gene:**

[1440](#)   CSF3   [Related reagents](#)

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**Synonyms**   C17orf33, GCSF

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**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 ED<sub>50</sub> for this effect is 10-70 pg/ml.

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**Protein Molecular Weight**   18.7 kDa

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**Activity**   Confirmed by performing an alamarBlue® based cell proliferation assay using mouse myelogenous leukemia lymphoblast cells. The expected ED<sub>50</sub> for this effect is 10-70 pg/ml.

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**Purity**   ≥98% determined by silver staining of SDS-PAGE gel

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**Amino Acid Sequence** ATPLGPASSL PQSFLLKCLE QVRKIQGDGA ALQEKLVSSEC ATYKLCHPPEE  
LVLLGHSLSGI PWAPLSSCPS QALQLAGCLS QLHSGFLFYQ GLLQALEGIS  
PELGPTLDTL QLDVADFATT IWQQMEELGM APALQPTQGA MPAFASAFQR  
RAGGVLVASH LQSFLVSYR VLRHLAQP

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- Further Reading**
1. Avalos, B.R. (1996) Molecular analysis of the granulocyte colony-stimulating factor receptor. [Blood. 88 \(3\): 761-77.](#)
  2. Cavalcante, M.B. *et al.* (2015) Granulocyte colony-stimulating factor and reproductive medicine: A review. [Iran J Reprod Med. 13 \(4\): 195-202.](#)
  3. Christensen, A.D. *et al.* (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. *et al.* (2004) Chemotherapy-induced neutropenia: risks, consequences, and new directions for its management. [Cancer. 100 \(2\): 228-37.](#)
  5. Eyles, J.L. *et al.* (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. *et al.* (2006) Homodimeric cross-over structure of the human granulocyte colony-stimulating factor (G-CSF) receptor signaling complex. [Proc Natl Acad Sci U S A. 103 \(9\): 3135-40.](#)
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**Storage** Prior to reconstitution store at -20°C. Following reconstitution store at -20°C.

This product should be stored undiluted.

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.

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**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.

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**Acknowledgements** alamarBlue is a trademark of Trek Diagnostic Systems, Inc and is manufactured for Bio-Rad by Trek Diagnostic Systems. U.S. patent 5,501,959

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**Health And Safety Information** Material Safety Datasheet documentation #20395 available at: 20395: <https://www.bio-rad-antibodies.com/uploads/MSDS/20395.pdf>

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**Regulatory** For research purposes only

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## 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](https://bio-rad-antibodies.com/datasheets)

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