Datasheet: PHP292

BATCH NUMBER 157144

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

	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 200 µl ddH_2O. 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 *E.coli* and purified by ion exchange chromatography
Buffer Solution	20 mM Phosphate Buffer, 0.1 M Sodium Chloride
Preservative Stabilisers	1.0% Trehalose
Endotoxin Level	< 1.0 EU/ug
Approx. Protein Concentrations	500 µg/ml after reconstitution

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 ED_{50} 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 ED_{50} for this effect is 10-70 pg/ml.
Purity	≥98% determined by silver staining of SDS-PAGE gel

Amino Acid Sequence	ATPLGPASSL PQSFLLKCLE QVRKIQGDGA ALQEKLVSEC ATYKLCHPEE LVLLGHSLGI PWAPLSSCPS QALQLAGCLS QLHSGLFLYQ GLLQALEGIS PELGPTLDTL QLDVADFATT IWQQMEELGM APALQPTQGA MPAFASAFQR RAGGVLVASH LQSFLEVSYR VLRHLAQP
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 (GCSF) receptor signaling complex. Proc Natl Acad Sci U S A. 103 (9): 3135-40.
Storage	Prior to reconstitution store at -20ºC. Following reconstitution store at -20ºC. 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.
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	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
Health And Safety Information	Material Safety Datasheet documentation #20395 available at: https://www.bio-rad-antibodies.com/SDS/PHP292 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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