

## Datasheet: PHP235

<b>Description:</b>	RECOMBINANT HUMAN GM-CSF
<b>Name:</b>	GM-CSF
<b>Other names:</b>	GRANULOCYTE MACROPHAGE COLONY STIMULATING FACTOR
<b>Format:</b>	Rec. Protein
<b>Product Type:</b>	Recombinant Protein
<b>Quantity:</b>	20 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
ELISA	▪			0.2 - 0.4ng/well
Western Blotting	▪			1.5 - 3.0ng/lane
Functional Assays	▪			1.0ng/ml

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>	Reconstitute with 0.2 ml distilled water. 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. For extended storage, the addition of 0.1% bovine serum albumin (BSA) is recommended.
<b>Preparation</b>	Purified recombinant GM-CSF expressed in <i>E. coli</i>
<b>Preservative Stabilisers</b>	10mM Sodium citrate pH3.5
<b>Carrier Free</b>	Yes
<b>Endotoxin Level</b>	< 1.0 EU/ug

<b>Approx. Protein Concentrations</b>	0.1 mg/ml after reconstitution
<b>External Database Links</b>	<p><b>UniProt:</b>  <a href="#">P04141</a>    <a href="#">Related reagents</a></p> <p><b>Entrez Gene:</b>  <a href="#">1437</a>    CSF2    <a href="#">Related reagents</a></p>
<b>Synonyms</b>	GMCSF
<b>Product Information</b>	<p><b>Recombinant Human granulocyte-macrophage colony stimulating factor</b> is a highly purified preparation of <i>E. coli</i> produced human GM-CSF.</p> <p>GM-CSF (granulocyte-macrophage colony-stimulating factor) is a haematopoietic growth factor which exists in both glycosylated and non-glycosylated biologically active forms, and stimulates the development of granulocytes, macrophages, early megakaryocytes and eosinophil progenitor cells. The ability of recombinant GM-CSF to increase haematopoietic cell recovery has become a focus area in the therapeutic treatment of patients following bone marrow transplantation.</p>
<b>Protein Molecular Weight</b>	14.6 kDa (128 amino acid residues)
<b>Activity</b>	The ED <sub>50</sub> as determined by the dose-dependent stimulation of the proliferation of human TF-1 cells is ≤ 0.1 ng/ml, corresponding to a specific activity of ≥ 1 x 10 <sup>7</sup> units/mg.
<b>Purity</b>	>98% by SDS PAGE/HPLC
<b>References</b>	<ol style="list-style-type: none"> <li>1. Radford, D.J. <i>et al.</i> (2010) Dehydroepiandrosterone sulfate directly activates protein kinase C-beta to increase human neutrophil superoxide generation. <a href="#">Mol Endocrinol. 24: 813-21.</a></li> <li>2. Abediankenari, S, &amp; Ghasemi, M. (2009) Generation of immune inhibitory dendritic cells and CD4+T regulatory cells inducing by TGF-beta. <a href="#">Iran J Allergy Asthma Immunol. 8: 25-30</a></li> <li>3. Abediankenari, S. <i>et al.</i> (2011) Human Leukocyte Antigen-G Expression on Dendritic Cells Induced by Transforming Growth Factor-Beta1 and CD4+ T Cells Proliferation. <a href="#">Iran Biomed J. 15: 1-5.</a></li> <li>4. Olivetta, E. <i>et al.</i> (2005) HIV-1 Nef regulates the release of superoxide anions from human macrophages. <a href="#">Biochem J. 390: 591-602.</a></li> <li>5. Manfredi, F. <i>et al.</i> (2016) The CD8<sup>+</sup> T Cell-Mediated Immunity Induced by HPV-E6 Uploaded in Engineered Exosomes Is Improved by ISCOMATRIX™ Adjuvant. <a href="#">Vaccines (Basel). 4 (4): pii: E42.</a></li> <li>6. Anticoli, S. <i>et al.</i> (2016) Engineered exosomes boost the HCV NS3-specific CD8<sup>+</sup> T lymphocyte immunity in humans <a href="#">Trials in Vaccinology. 5: 105-10.</a></li> <li>7. Chiozzini, C. <i>et al.</i> (2017) Trans-dissemination of exosomes from HIV-1-infected cells fosters both HIV-1 trans-infection in resting CD4<sup>+</sup> T lymphocytes and reactivation of the</li> </ol>

HIV-1 reservoir. [Arch Virol. 162 \(9\): 2565-77.](#)

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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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**Health And Safety Information**

Material Safety Datasheet documentation #10268 available at:  
10268: <https://www.bio-rad-antibodies.com/uploads/MSDS/10268.pdf>

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**Regulatory**

For research purposes only

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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://www.bio-rad-antibodies.com/datasheets)

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