

## PPH72      PODS<sup>®</sup> Human G-CSF

### Description

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The product contains the polyhedrin protein co-crystallized with Human G-CSF. Granulocyte-Colony Stimulating Factor (G-CSF) is a cytokine that functions as a potent inducer of neutrophilic granulocyte proliferation, terminal differentiation, and activation. G-CSF synthesis occurs in monocyte, macrophage, epithelial, endothelial, and fibroblast cells after activation by bacterial endotoxins, Tumor Necrosis Factor  $\alpha$  (TNF- $\alpha$ ), Interleukin-1 (IL-1), or Interleukin-17 (IL-17). The functional activity of G-CSF is mediated through the granulocyte colony-stimulating factor receptor (G-CSF-R) to activate JAK/STAT and MAPK signal transduction pathways. G-CSF also promotes neurogenesis and inhibits neuronal apoptosis. Human and mouse G-CSF proteins are cross-reactive.

<b>Length</b>	224 aa
<b>Molecular Weight</b>	24.4 kDa
<b>Source</b>	<i>Spodoptera frugiperda (Sf9) cell culture</i>
<b>Accession Number</b>	NP_757373

### Usage Recommendation

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PODS<sup>®</sup> are pure protein co-crystals consisting of polyhedrin, a structural scaffold protein, and a cargo protein. Under the action of proteases, which degrade the scaffold protein, PODS provide sustained release of the cargo protein. Any cargo growth factor molecule contained within PODS is not available to cells and not bioactive. Once released, growth factors become available to bind cells and are bioactive. The concentration to which a growth factor accumulates in cell culture media (or in-vivo environment) will depend on the amount of cargo (contained in PODS) added, the rate of cargo release, and the subsequent rate of degradation of the released cargo protein. As a rule of thumb, in the presence of 10% serum, peak levels of available growth factors released from PODS are reached within 24-48 hours. Typically, at this point 20% of the growth factor cargo initially contained within the PODS is present in a soluble form and available to bind cells. For example, if PODS containing 100 ng of cargo are added to 10 ml of cell culture media containing 10% serum, it can be expected that 20 ng will be released after 24 hours to give a concentration of available growth factor of 2 ng/ml. The concentration that you need for a particular application will likely be lower than the equivalent conventional growth factor. This is because PODS are better at maintaining minimum growth factor concentrations. Pre-incubating PODS with serum for 24 hours prior to culture will ensure that available growth factor is immediately present. Ultimately, the amount of PODS growth factor that is optimal for a particular experiment should be optimized empirically.

## Specifications

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<b>Alternative Names</b>	Granulocyte Colony Stimulating Factor, granulocyte colony-stimulating factor, CSF-3, CSF3, MGI-1G, GM-CSF $\beta$ , GM-CSF $\beta$ , pluripoiectin, colony stimulating factor 3 (granulocyte), lenograstim, filgrastim, GCSF2, MGC45931, C17orf33, chromosome 17 open reading f
<b>Endotoxin Level</b>	<0.06 EU/ml as measured by gel clot LAL assay
<b>Formulation</b>	PODS <sup>®</sup> were lyophilized from a volatile solution
<b>AA Sequence</b>	MADVAGTSNR DFRGREQRLF NSEQYNNNS KNSRPSTSLY KKAGFTVQEA TPLGPASSLP QSFLLKCLEQ VRKIQGDGAA LQEKLKATYK LCHPEELVLL GHSLGIPWAP LSSCPSQALQ LAGCLSQ LHS GLFLYQGLLQ ALEGISPELG PTLDTLQLDV ADFATTIWQQ MEELGMAPAL QPTQGAMPAF ASAFQRRAGG VLVASHLQSF LEVSYRVLRH LAQP

## Preparation and Storage

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### Reconstitution

Ensure the PODS<sup>®</sup> are resuspended in buffer by pipetting up and down immediately before aliquoting. PODS<sup>®</sup> may be reconstituted at 100 ug/ml in water. 20% glucose has a buoyant density closer to PODS<sup>®</sup> and can [be useful for slowing sedimentation when aliquoting. PODS<sup>®</sup> are highly stable when stored in aqueous solution (pH range 6 - 8).

### Stability and Storage

Upon receipt, store at 4°C. PODS<sup>®</sup> are stable for at least 1 year when dry and 6 months when resuspended.