

PPH32

PODS[®] Human CXCL1Description

The product contains the polyhedrin protein co-crystalized with Human CXCL1. Also known as GRO-alpha, CXCL1 is a member of the CXC subfamily of chemokines. It is a proinflammatory cytokine and a potent neutrophil attractant, playing a role in neutrophil migration and activation. CXCL1 is both structurally and functionally related to CXCL2 and CXCL3, all of which signal primarily via the IL-8 receptor type B. In vitro, CXCL1 is cleaved into three isoforms, CXCL1(4-73), CXCL1(5-73) and CXCL1(6-73), each of which shows higher chemotactic activity than the full-length protein. CXCL1 is known to be overexpressed constitutively in tumorigenic cells, with elevated levels seen in several tumour types. Human CXCL1 shares 64% and 67% aa sequence identity with mouse and rat CXCL1, respectively.

Length	118 aa
Molecular Weight	13.05 kDa
Source	<i>Spodoptera frugiperda (Sf9) cell culture</i>
Accession Number	P09341

Usage Recommendation

PODS[®] 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

Alternative Names	Growth-regulated alpha protein, GRO-alpha, C-X-C motif chemokine 1, Melanoma growth stimulatory activity (MGSA), Neutrophil-activating protein 3 (NAP-3)
Endotoxin Level	<0.06 EU/ml as measured by gel clot LAL assay
Formulation	PODS [®] were lyophilized from a volatile solution
AA Sequence	MADVAGTSNR DFRGREQLF NSEQYNNNS KNSRPSTSLY KKAGFASVAT ELRCQCLQTL QGIHPKNIQS VNVKSPGPHC AQTEVIATLK NGRKACLNPA SPIVKKIIEK MLNSDKSN

Preparation and Storage

Reconstitution

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

Stability and Storage

Upon receipt, store at 4°C. PODS[®] co-crystals are stable for at least 1 year when dry and 6 months when resuspended.