DATA SHEET

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PPH54 PODS® BMP-3

Description

The product contains the polyhedrin protein co-crystalized with Human BMP-3. BMP-3, also known as Bone Morphogenetic Protein 3 or osteogenin, is a member of the TGF superfamily of proteins. Akin to the other functionally and structurally related bone morphogenic proteins (BMPs), BMP-3 is involved in cartilage and bone formation. However, unlike most other BMPs, BMP3 negatively regulates bone density by antagonizing the ability of osteogenic BMPs, such as BMP-2, to induce osteoprogenitor differentiation and ossification. It has been suggested that this inhibitory effect could be through an Activin signalling pathway rather than direct competition with osteogenic BMPs. The BMP-3 protein is a disulfide-linked homodimer and highly conserved across animal species; for example, the amino acid sequence of human and rat BMP-3 are 98% identical. BMP-3 is frequently expressed in adult and foetal cartilage.

Length	111 aa
Molecular Weight	35.2 kDa
Source	*Spodoptera frugiperda (Sf9) cell culture*
Accession Number	P12645

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	BMP3, BMP3A, BMP-3A, Bone Morphogenetic Protein 3, Bone Morphogenetic Protein 3A, Osteogenin
Endotoxin Level	<0.06 EU/ml as measured by gel clot LAL assay
Formulation	PODS® were lyophilized from a volatile solution
AA Sequence	MADVAGTSNR DFRGREQRLF NSEQYNYNNS KNSRPSTSLY KKAGFQWIEP RNCARRYLKV DFADIGWSEW IISPKSFDAY YCSGACQFPM PKSLKPSNHA TIQSIVRAVG VVPGIPEPCC VPEKMSSLSI LFFDENKNVV LKVYPNMTVE SCACR*

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® are stable for at least 1 year when dry and 6 months when resuspended.

Last updated on 02/08/2024. For further information mail *tech@cellgs.com*.