DATA SHEET

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PPH57 PODS® BMP-5

Description

The product contains the polyhedrin protein co-crystalized with Human BMP-5. BMP-5, also known as Bone Morphogenetic Protein 5, is a member of the TGF superfamily of proteins. Akin to the other functionally and structurally related bone morphogenic proteins (BMPs), BMP-5 is involved in cartilage and bone formation as BMP-5, along with BMP-6 and BMP-7, shares high sequence homology with BMP-2. Furthermore, BMP-5 is expressed by chondrocytes in proliferating bone growth plates and contributes to limb development by promoting proliferation and differentiation of chondrocytes as well as apoptosis of undifferentiated mesoderm. Outside the context of bone and cartilage, BMP-5 is expressed in the lung and liver as well as the trabecular meshwork and optic nerve head where it may have a role in the development and normal function. Furthermore, in the developing as well as adult nervous system, BMP-5 promotes dendrite outgrowth, morphology and dopaminergic neuronal differentiation. Analogous to other BMPs, BMP-5 is a disulfide-linked homodimer and highly conserved across animal species.

Length	139 aa
Molecular Weight	41.6 kDa
Source	*Spodoptera frugiperda (Sf9) cell culture*
Accession Number	P22003

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	BMP5, Bone Morphogenetic Protein 5
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 KKAGFAANKR KNQNRNKSSS HQDSSRMSSV GDYNTSEQKQ ACKKHELYVS FRDLGWQDWI IAPEGYAAFY CDGECSFPLN AHMNATNHAI VQTLVHLMFP DHVPKPCCAP TKLNAISVLY FDDSSNVILK KYRNMVVRSC GCH*

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*.