



## PPH53      PODS<sup>®</sup> BMP-2

### Description

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The product contains the polyhedrin protein co-crystallized with Human BMP-2. Bone Morphogenetic Protein 2 (BMP-2) is a member of the Bone Morphogenetic Protein (BMP) family. These proteins are synthesized as large precursor molecules which are cleaved by proteolytic enzymes. BMP-2 functions as a potent inducer of bone and cartilage development. Active BMP-2 consists of forming a homodimer or a heterodimer with a related BMP, such as BMP-7. BMP-2 signals through type I and type II receptor tyrosine kinases in conjunction with SMAD proteins to directly promote osteoblast differentiation. BMP-2 is also important during cardiac development and supports epicardial cell migration.

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|-------------------------|-------------------------------------------------|
| <b>Length</b>           | 397 aa                                          |
| <b>Molecular Weight</b> | 99.8 kDa                                        |
| <b>Source</b>           | <i>Spodoptera frugiperda (Sf9) cell culture</i> |
| <b>Accession Number</b> | P12643                                          |

### 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> | Bone morphogenetic protein 2, bone morphogenetic protein 2A, BMP-2A, BMP2, BMP2A                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Endotoxin Level</b>   | <0.06 EU/ml as measured by gel clot LAL assay                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Formulation</b>       | PODS® were lyophilized from a volatile solution                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>AA Sequence</b>       | MADVAGTSNR DFRGREQRLF NSEQYNYNNS KNSRPSTSLY KKAGFMVAGT RCLLALLLPQ<br>VLLGGAAGLV PELGRRKFAA ASSGRPSSQP SDEVLSEFEL RLLSMFGLKQ RPTPSRDAVV<br>PPYMLDLYRR HSGQPGSPAP DHRLERAASR ANTVRSFHHE ESLEELPETS GKTTRRFFFN<br>LSSIPTEEFI TSAELQVFRE QMQDALGNNNS SFHHRINIYE IIKPATANSK FVTRLLDTR<br>LVNQNASRWE SFDVTPAVMR WTAQGHANHG FVVEVAHLEE KQGVSKRHVR ISRSLHQDEH<br>SWSQIRPLLV TFGHDGKQHP LHKREKRQAK HKQRKRLKSS CKRHPLYVDF SDVGWNDWIV<br>APPGYHAFYC HGECPFPLAD HLNSTNHAIV QTLVNSVNSK IPKACCVPTL LSAISMPLYLD<br>ENEKVVLKQY QDMVVEGCGC R* |

## Preparation and Storage

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### 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.

Last updated on 02/08/2024. For further information mail [tech@cellgs.com](mailto:tech@cellgs.com).