DATA SHEET

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PP303 PODS® GFP

Description

The product contains polyhedrin protein co-crystalized with Green Fluorescent Protein (GFP). GFP is a uniquely versatile biomarker and, encased into PODS® crystals, offers a simple way to visualize and localize PODS® crystals embedded in biomaterials, such as hydrogels and scaffolds, using fluorescence microscopy. PODS® GFP crystals can be excited at 488 nm and optimally detected at 510 nm, compatible with commonly available filter sets.

Length	284
Molecular Weight	32.1 kDa
Source	*Spodoptera frugiperda (Sf9) cell culture*

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.

PODS® GFP crystals display the same physical properties as other PODS® growth factor products. While PODS® GFP behave in the same way as other PODS® co-crystals, they differ in that they not contain a cargo protein that elicits effects on cells. Instead of this, they have fluorescent proteins (GFP) embedded. PODS® GFP can be used analogous to PODS® Empty as an inert control, but the primary purpose is to enable visualization and localization of PODS® crystals in cell culture, e.g. in 3D scaffolds, hydrogels and other biomaterials, utilizing fluorescence microscopy.

Specifications

Alternative Names	Bombyx mori cypovirus polyhedrin protein, green fluorescent protein
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 KKAGFMVSKG EELFTGVVPI LVELDGDVNG HKFSVSGEGE GDATYGKLTL KFICTTGKLP VPWPTLVTTL TYGVQCFSRY PDHMKQHDFF KSAMPEGYVQ ERTIFFKDDG NYKTRAEVKF EGDTLVNRIE LKGIDFKEDG NILGHKLEYN YNSHNVYIMA DKQKNGIKVN FKIRHNIEDG SVQLADHYQQ NTPIGDGPVL LPDNHYLSTQ SALSKDPNEK RDHMVLLEFV TAAGITLGMD QLYK

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.