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Directions for Use

PhotoChitosan®-LAP

CHITOSAN METHACRYLATE WITH LAP FOR PHOTOCROSSLINKABLE HYDROGELS

Catalog Number: **5441-1KIT**

Product Description

Advanced BioMatrix offers PhotoChitosan®, a purified chitosan methacrylate, which provides 3D chitosan gels with unique attributes to be prepared at various concentrations and photocrosslinked to provide various gel stiffness.

The PhotoChitosan® LAP kit consists of Chitosan methacrylate and a visible light photoinitiator.

Item	Catalog No.	Package Size
Methacrylated Chitosan, Lyophilized	5428-100MG	100 mg
Photoinitiator LAP	5269-100MG	100 mg

Chitosan Methacrylate achieves a degree of substitution 5-20% for maximum crosslinking and range of stiffness.

The photoinitiator solution consists of LAP which is formulated with acetic acid allowing for visible light photocrosslinking of the Chitosan at 405 nm.

Storage / Stability

The product ships on frozen gel packs. Upon receipt, store the chitosan methacrylate at -20°C. Store the LAP at 2-8°C.

Preparation Instructions

PhotoChitosan dissolves in 20 mM acetic acid. Follow these steps to prepare a 1% chitosan methacrylate solution (recommended concentration: 0.5–1%). Maintain sterile conditions throughout preparation.

1. Dissolve Chitosan Methacrylate: Add 10 mL of 20 mM acetic acid to the amber vial containing 100 mg of lyophilized chitosan methacrylate.

   Mix gently on a shaker or rotator overnight or until fully dissolved. Avoid vortexing or vigorous shaking to prevent clumps. Mixing can be done at room temperature or up to 65°C.

2. Calculate Photoinitiator Volume: Multiply the volume of dissolved chitosan by 0.02 to determine the amount of photoinitiator (e.g., 200 µL for 10 mL solution).

3. Prepare Photoinitiator (LAP): Dissolve LAP at 50–150 mg/mL in 20 mM acetic acid. Sterilize the LAP solution using a 0.2 µm filter. After mixing with PhotoChitosan, the final LAP concentration will be 0.1–0.3%.

4. Mix LAP with Chitosan Solution: Add the calculated volume of LAP to the chitosan solution. Mix thoroughly until uniform.

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5. Dispense and Use: Transfer the solution to a well plate or petri dish for photocrosslinking or bioprinting using 400–450 nm light.

6. Neutralize for Cell Culture: Crosslink a thin hydrogel, then soak in 0.1 M NaOH for up to 30 minutes to neutralize. Rinse thoroughly with 1X PBS before cell culture.

7. Storage: Refrigerate unused material. Add photoinitiator only to the amount you plan to use immediately.