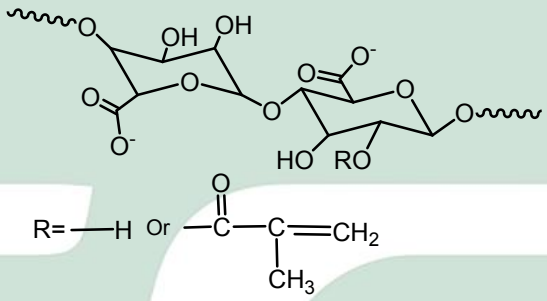
Alginate Methacryloyl (AlgMA)

Product component

Item	character	Package Size	Notes
A: AlgMA	White spongy	0.2 or 0.5 g/bottle	Keep in dark
B: Photoinitiator LAP	White powder	0.025 g/bottle	

This instruction applies to EFL-AlgMA-50K/300K



AlgMA molecular structure

product introduction

Alginate methacryloyl (AlgMA) is a double-bonded modified sodium alginate, which can be cross-linked and cured into the gel through UV and visible light in the presence of the photoinitiator. Compared with traditional divalent ions (calcium ions, etc.) crosslinking, AlgMA photo-crosslinked method is highly portable and has good internal homogeneity in the gel. AlgMA light-curing hydrogels have a three-dimensional (3D) structure suitable for cell growth and differentiation, and both -OH and -COOH in the structural units can be used as active sites for chemical reactions. In addition, AlgMA hydrogel also has good mechanical properties. And the 3D hydrogel micro-scaffolds constructed by it have adjustable mechanical and chemical properties.

Applications

3D cell culture, biological 3D printing, tissue engineering, etc.

Storage

Dry kit: room temperature, 3 months; 4°C, 12 months; -20°C, 18 months. **Sterile solution**: 4° C (in dark), 7 days; -20°C (in dark), 6 months. **Please note that repeated freezing and thawing of the solution will affect the performance of the product, so it is best to prepare it when using it.**

period of validity

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The date of manufacture is shown in the package。

Solution preparation

1. Prepare 0.25% (w/v) standard solution of initiator

(1) Add 10ml PBS into the brown bottle containing initiator LAP (containing 0.025g LAP);

(2) Heat and dissolve the solution in a water bath at 40—50°C for 15 minutes, shaking several times.

The LAP standard solution can be stored for 12 months at 4° C in dark.

Note: If ion crosslinking with AlgMA is required, it is recommended to use deionized water instead of PBS to prepare the initiator standard solution. (PO_4^{3-} ions in PBS precipitate with Ca^{2+} ions to produce $Ca_3(PO_4)_2$, making the gel opaque, and monovalent ions in PBS compete with Alg for Ca^{2+} ions to weaken ion crosslinking or even no ionic crosslinking.)

2. Prepare AlgMA solution (5—10% (w/v) is recommended for AlgMA—50K, 0.5—2% (w/v) is recommended for AlgMA—300K)

(1) Take the required mass of AlgMA into the centrifugal tube;

(2) Take the required volume of initiator standard solution and add it to the above container;

(3) Stir and dissolve at room temperature for 0.5—1 h;

- The viscosity of the AlgMA—300K solution is large. The dissolution time can be extended appropriately. Pay attention to seal to prevent moisture volatilization;
- It is recommended to use centrifugal machines (3000~5000 rpm) to remove bubbles from the system;

(4) Sterilize the AlgMA solution with a 0.22μm sterile needle filter and keep in dark.

Suggestions for 3D cell culture

- Cells are collected and resuspended in pre—warmed AlgMA solution to prepare the cell suspension;
- Add cell suspension into the well plates;

(96—well plate: 50—100 μL/ well, 48—well plate: 100—300 μL/ well, 24—well plate: 300—500 μL/ well)

- Irradiate the wells with 405 nm light for 10—30 seconds to gelate, the gel strength can be adjusted by the time and intensity of the light;
- Add medium to the wells. Place the plate in a 37°C incubator for 5 minutes. And then wash the sample and remove the medium;
- Add fresh medium and incubate for a long time. Change medium, observe, and

photograph according to experimental design. (No special requirements for operation procedures).

Tips：Do not look directly at the light source.

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