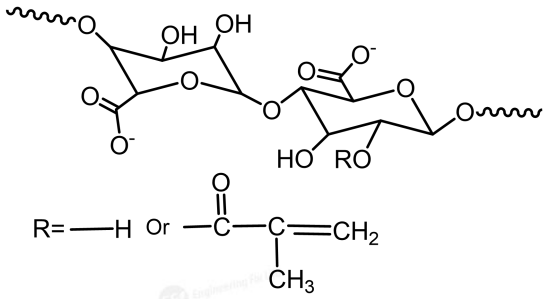
Alginate Methacryloyl（AlgMA）

Product component

Item	Character	Package Size	Notes
A: AlgMA	White spongy	0.2 or 0.5g/bottle	Keep in dark
B: Photoinitiator LAP	White powder	0.025g/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℃, 12 months; -20℃, 18 months. **Sterile solution**: 4°C (in dark), 7 days; -20℃ (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

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℃ for 15 minutes, shaking several times.

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

2. Prepare AlgMA solution (5-10% (w/v) is recommended for AlgMA-50K, 1-2% (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 in the dark for 0.5-1h;

- 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 to remove bubbles from the system (3000~5000rpm,2-3min);

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

Suggestions for 2D cell culture

- Inject AlgMA solution into the well plate;
  (96-well plate: 50-100 μ L/ well, 48-well plate: 100-300 μ L/ well, 24-well plate:300-500μL/ well);
- Irradiate the wells with 405nm 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℃ incubator for 5 minutes. And then wash the sample and remove the medium;
- Add the cell suspension to the well plate. Change medium, observe, and photograph according to experimental design. (No special requirements for operation procedures).

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: 50-100μL/ well, 48-well plate: 100-300μL/ well, 24-well plate: 300-500μL/ well)
- Irradiate the wells with 405nm 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℃ 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.