

Celluid GM (Lyophilized gelatin Methacrylate, GelMA)

Description

GelMA (Gelatin Methacrylate) is widely used in tissue engineering, particularly in the generation of bone, cartilage, skin, and vascular networks. GelMA is a modified gel with photosensitive functional groups introduced into the gelatin side chain, which retains the good biocompatibility and degradation properties of gelatin, forms covalent cross-linked scaffolds with good thermal stability under the action of UV light and photo-initiators, and shows good printing adaptability and biocompatibility in the field of 3D bioprinting. In addition, GelMA scaffolds is beneficial for cell adhesion and remodeling because of its arginine–glycine–aspartate (RGD) peptide sequence and matrix metalloproteinase (MMP) sequence. It should be noted that the porosity of GelMA scaffolds plays an important role in the transport of oxygen and nutrients required for cell growth. Studies have shown that GelMA hydrogel with relatively low concentrations ($\leq 5\%$ w/v) are more conducive to cell growth, but the decrease of concentration will lead to the decrease in the compression modulus, which deteriorates the mechanical properties of GelMA hydrogel. High-concentration gels have good shear-thinning behavior and high mechanical properties, but often smaller pore size and lower swelling rate, which is detrimental to the diffusion of nutrients and oxygen needed for cell survival. Therefore, it is important to find a balance between supporting cell growth and obtaining adequate mechanical properties. The preparation of GelMA-related bioinks with appropriate pore size, biological properties, and mechanical properties that are suitable for various tissue engineering is a difficult challenge, and it seems to be a good option to overcome these problems by adjusting gel concentration or by mixing with other components.

By using Celluid GM, GelMA-based scaffolds can be prepared in the form of sponge, capsule, and hydrogels. In addition, our lyophilized GelMA can be used for tailoring your own bioink formulation.

Specification sheet

Product Number	CBG-101
Synonymous	GelMA, GelMA lyophilizate, Methacrylated gelatin, Gelatin methacrylate, and gelatin methacryloyl
pH	7.4

Degree of methacrylation	> 90%
Cell viability	> 90% viable fibroblast for 1 week
Shelf life	Minimum of 6 months from date of receipt
Storage condition	-20 °C / 4 °C, Light and moisture sensitive
Form	Lyophilized sponge
Gelatin source	Type A, 300 Bloom, Porcine Type B, 225 Bloom, Bovine
Intended use	Biocompatible material for 3D bioprinting, Research grade. For research use ONLY.

Celluid GM Kit (Lyophilized gelatin Methacrylate, GelMA)

Description

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By using Celluid GM, GelMA-based scaffolds can be prepared in the form of sponge, capsule, and hydrogels. In addition, our lyophilized GelMA can be used for tailoring your own bioink formulation.

Specification sheet

Product Number		CBG-102
Celluid GM (1000 mg)	Synonymous	GelMA, GelMA lyophilizate, Methacrylated gelatin, Gelatin methacrylate, and gelatin methacryloyl
	pH	7.4
	Degree of methacrylation	> 90%

	Cell viability	> 90% viable fibroblast for 1 week
	Shelf life	Minimum of 6 months from date of receipt
	Storage condition	-20 °C / 4 °C, Light and moisture sensitive
	Form	Lyophilized sponge
	Gelatin source	Type A, 300 Bloom, Porcine Type B, 225 Bloom, Bovine
	Intended use	Biocompatible material for 3D bioprinting, Research grade. For research use ONLY.
Irgacure 2959 (10 ml) LAP (10 ml)	Shelf life	Stable for >1 year at 4 °C
	Storage condition	RT, Light and moisture sensitive
	Form	Liquid