



Gel4Cell[®]-BMP 10 mL

Catalog Number: IR-102

Overview

The Gel4Cell[®]-BMP kit is specifically developed and optimized for bioprinting of 3D structures. The Gel4Cell[®]-BMP kit includes optimally formulated BMP-2 mimetic peptide* conjugated gelatin-based hydrogel complex contained in syringes for easy dispensing. The kit also includes Gel-linkers, which reinforces mechanical stability and functionality. A transparent hydrogel forms when contents are properly mixed and exposed to UV light.

| Contents | Volume | Number |
|-----------------------------|-------------|--------|
| Gel4Cell [®] -BMP | 4 mL | 2 |
| Gel-linker [®] (A) | 2 mL | 1 |
| Gel-linker [®] (B) | Lyophilized | 2 |

The recommended preparation provided in the user instruction below yields mechanically stable 3D structures that can be maintained for days in the culture environment. However, preparation can be modified by users to suit their needs. Although Gel4Cell[®]-BMP was developed primarily as a bioink for 3D printing, the kit can be used for many other studies that require 3D culture and structure formation, including cell biology, biochemistry, pharmacology, physiology, biomaterials sciences, bioengineering, and drug testing and development.

Storage & Handling

Gel4Cell[®]-BMP can be stored at ambient room temperature. However, 2-10°C is recommended for a longer-term storage. Freezing is not recommended. The Gel-linker (A) can be stored at ambient room temperature. The Gel-linker (B) can be stored at 2-10°C and Keep away from humidity. Please note that Gel-linker[®] is photosensitive, and light exposure should be avoided at all times.

Sterility

All Handling should be done in sterile condition to avoid contamination. Gel4Cell[®]-BMP is sterilized by membrane filtration.

Instructions for Use

1. Warm the Gel4Cell[®]-BMP syringe at 37°C for approximately 30 min or until it becomes liquefied.
2. If crystal is present in Gel-linker[®](A), warm and vortex the vial until fully dissolved. Add 1 mL of the Gel-linker[®](A) to the Gel-linker[®](B) and mix gently. Please avoid bubble formation.
3. Dispense the desired volume to be used in a sterile container, i.e., test tube. To form bioink,

add Gel-linker[®](A+B) to the Gel4Cell[®]-BMP in a 1:4 volume ratio (1 mL Gel-linker[®](A+B) to 4 mL Gel4Cell[®]-BMP) and mix well.

4. If cells need to be added, cell pellet should be resuspended in the bioink. Mix well using a pipette to ensure even distribution of cells. Avoid bubble formation.
 5. Transfer the bioink to a suitable syringe or dispensing container for use. **Please maintain at 4°C until the bioink solidifies prior to use.**
 6. When the bioink hardens, start dispensing the bioink for experiments. Please maintain the temperature at room temperature or cooler.
 7. Expose the dispensed bioink to UV light (wavelength 365 nm) until the bioink reaches the desired stiffness. Gelation usually occurs within 1-6 min (distance and exposure time can be adjusted to achieve target gelation).
- ※ **Use of phenol red-free medium is strongly recommended.**
8. Any remaining bioink should be sealed and stored at 2-10°C for future use.

Note

1. Gelation time and gel stiffness can be adjusted by varying the concentration of Gel4Cell[®] complex or Gel-linker[®]. Please contact InnoRegen Technical Support if additional information is needed.
2. Each kit component has been manufactured under aseptic conditions, and tested for bacteria and fungus. Please employ aseptic practices to maintain sterility of Gel4Cell[®]-BMP throughout the preparation and 3D printing operation.

Caution

This product is for research use only. Not approved for use in diagnostic or therapeutic procedures.

References

- 1) He X, et al. *Langmuir*. 2008;24(21):12508-16.
- 2) He X, et al. *Langmuir*. 2012 Mar 27;28(12):5387-97
- 3) Chen Y, et al. *Journal of Biomedical Materials Research Part A*. 2008
- 4) Pan H, et al. *Colloids and surfaces B: Biointerfaces*. 2016;142:1-9
- 5) Zhou X, et al. *Applied Materials&interface*. 2015
- 6) Pan H, et al. *Journal of Biomedical Materials Research Part A*. 2014
- 7) Madl CM, et al. *Biomacromolecules*. 2013
- 8) Moeinzadeh S, et al. *Tissue Engineering: Part A*. 2014
- 9) Mercado AE, et al. *J Tissue Eng Regen Med*. 2014;8(1):15-28.

For support visit www.innoregen.com or E-mail info@innoregen.com