Instructions for use

Scire Chitra GelMA-UVS Bioink

1 Preparation of premix bioink

1.1 Materials

1. Scire Chitra GelMA-UVS Bioink
2. Serum Free Medium (SFM)
3. Photoinitiator: Scirelink-L or Scirelink-I. Other photoinitiators like LAP or Irgacure 2959 can also be added, but the concentration should be optimized for crosslinking without loss of cell viability.

1.2 Description

1. Scire Chitra GelMA-UVS Bioink is supplied in sterile condition. Bioink should be prepared under aseptic conditions.
2. Remove the bottle from the packet and wipe with 70% alcohol.
3. Open the cap and stopper of the bottle while inside the biosafety cabinet.
4. Add SFM prewarmed to 37°C to the bottle. 2.25 mL medium to 250 mg bioink and 5.5 mL medium to 500 mg bioink.
5. Add photo-initiator as given in the table below.
6. Replace stopper and cap of the bottle and shake/stir the content.
7. Incubate the bottle at 37°C with occasional mixing until complete dissolution of the contents.
8. Use the bioink premix immediately after preparing. The premix can be stored at 2-8˚C for 48h.

S. No.	Photo-initiator	250 mg Bioink	500 mg Bioink
1	Scirelink-L	250 uL	500 uL
2	Scirelink-I	250 uL	500 uL
3	LAP	• Prepare a LAP stock solution in PBS and sterilize it using membrane filtration. • Add appropriate volume of LAP solution to obtain a final concentration of 0.25% • ***Note: Increasing concentration of LAP may affect cell viability.*** • ***Do not increase concentration more than prescribed value.***	

2 Preparation of complete bioink with cells

2.1 Materials

1. Cells: Dispersed in culture medium
2. Premix bioink pre-warmed to 37°C
3. 3 mL or 5 mL Luer lock syringe/cartridge

2.2 Description

1. Count number of cells and prepare cell suspension with desired cell concentration.
2. Centrifuge the cell suspension at 1500 rpm for 1 min to pellet the cells.
3. Remove supernatant from the cell pellet and add pre-warmed premix bioink.
4. Thoroughly mix the solution, ensuring that no air bubbles are introduced into the mixture.
5. Transfer the prepared bioink into Luer lock syringes or cartridges for collection.
6. Place the filled syringes or cartridges at a temperature below 10°C for 3-5 minutes to allow the bioink to solidify.

   Note: The bioink should be used immediately for Bioprinting for maximum cell viability.

3 Crosslinking

3.1 Material

1. UV box or UV torch with UV lamp with wavelength 365 to 405 nm.

3.2 Description

1. Expose the 3D bioprinted construct (dimensions 10×10×5 mm) to UV light with a wavelength in the range 365 - 405 nm for at least 60 seconds. The exposure time may vary based on the size of the 3D bioprinted construct.
2. Add sufficient amount of culture medium to the construct and incubate at 37°C.