



## Directions of use –ClaroBGI800-LAP

### Pre-warm the ClaroBGI800-LAP hydrogel

1. Place the syringe containing the hydrogel ClaroBGI800-LAP in water bath at 40°C for 30 min.

### Cell mixing (if printing with cells)

1. Reserve 2 needle-free syringes with luer-lock connection
2. Draw up cell suspension into one the syringes and the pre-warmed ClaroBGI800-LAP solution in the second syringe.
3. Using a *Syringe-to-Syringe Coupler*, attach the syringe containing ClaroBGI800-LAP to the syringe containing the high-density cell suspension.
4. Begin mixing by transferring the cell suspension into the sterile pre-filled syringe containing the ClaroBGI800-LAP solution. Push the combined material gently back and forth 6 times until the consistency is even.
5. Once mixed, the cell composite is ready for 3D printing.

### 3D printing

1. After cell mixing (if printing with cells), allow the ClaroBGI800-LAP solution to build up the viscosity for approximately 25-35 min prior printing (honey-like consistency, slow-moving bubble inside the printing cartridge or syringe) at ambient conditions of temperature.
2. Below are the printing parameters of ClaroBGI800-LAP hydrogel without cells using a commercially available extrusion-based printer.

Nozzle	Print head Temperature (°C)	Ambient Temperature (°C)	Time to achieve extrudable consistency (min)	Pressure (kPa)
27G	24 ± 1	20 ± 2	30 ± 2	40 ± 5

### Crosslinking

1. ClaroBGI800 is crosslinkable under 405 nm light in the presence of a photo initiator (e.g. Lithium phenyl-2,4,6-trimethylbenzoylphosphinate, LAP). Light dosage should be adjusted according to the desired tissue stiffness.