ADVANCED BIOMATRIX
A BICO COMPANY

HyStem®- HP 2.5 mL, 7.5 mL and 12.5 mL Kits

THIOL-MODIFIED HYALURONAN, GELATIN AND HEPARIN HYDROGEL KIT

Catalog Number: **#GS314F (2.5 mL) #GS315F (7.5 mL) #GS1006F (12.5 mL)**

OVERVIEW

HyStem®-HP kits are based on cross-linking thiol-modified hyaluronan technology. Hyaluronic acid is a naturally occurring component of the extracellular matrix found in connective, epithelial, and neural tissues. With HyStem®-HP, researchers can create customizable 3D hydrogels for culturing cells whose natural environment is rich in hyaluronic acid. The immobilized heparin in the HyStem®-HP hydrogel mimics the heparin sulfate proteoglycans normally present in the extracellular matrix. The Heparin is utilized for controlled growth factor release. The HyStem®-HP Hydrogel Kit includes:

- Heprasil® (thiol-modified hyaluronic acid and heparin)
- Gelin-S® (thiol-modified gelatin)
- Extralink® (PEGDA, polyethylene glycol diacrylate)
- Reconstitution Buffer (PBS)

Hystem®-HP Kit components form a transparent hydrogel when mixed. Components, except for reconstitution buffer, are packaged as lyophilized solids that are blanketed by nitrogen and under a slight vacuum for long term storage.

Kit Components #GS314F (2.5 mL)	Units Per Kit	Material Amount Per Vial	Reconstitution Volume Per Vial
Heprasil – GS217F	1	10 mg	1.0 mL
Gelin-S – GS231F	1	10 mg	1.0 mL
Extralink – GS3007F	1	5 mg	0.5 mL
Buffer A – GS260F	1	10 mL	-
Buffer B – GS250F	1	10 mL	-

Kit Components #GS315F (7.5 mL)	Units Per Kit	Material Amount Per Vial	Reconstitution Volume Per Vial
Heprasil – GS217F	3	10 mg	1.0 mL
Gelin-S – GS231F	3	10 mg	1.0 mL
Extralink – GS3007F	3	5 mg	0.5 mL
Buffer A – GS260F	1	10 mL	-
Buffer B – GS250F	1	10 mL	-

Kit Components #GS1006F (12.5 mL)	Units Per Kit	Material Amount Per Vial	Reconstitution Volume Per Vial
Heprasil – GS215F	1	50 mg	5.0 mL
Gelin-S – GS230F	1	50 mg	5.0 mL
Extralink – GS3006F	1	37.5 mg	2.5 mL
Buffer A – GS260F	1	10 mL	-
Buffer B – GS250F	1	10 mL	-

CELL ATTACHMENT

The HyStem®-HP hydrogel system provides a viscoelastic matrix of variable rigidity that supports the expansion of stem cells (human embryonic, CD34+, and hepatic progenitors have been tested to date). HyStem®-HP hydrogels support surface cell attachment though a thiol-modified ECM component called Gelin-S. Hystem®-HP allows cells to be either encapsulated within the hydrogel or attached on the surface.

STORAGE

Heprasil / Gelin-S: Store at -20°C for up to one year. Reconstituted solutions must be used same day and cannot be refrozen.

Extralink: Store at -20°C for up to one year. Reconstituted solutions can be stored at -20°C for one month.

Buffer A: Store at 4°C or RT for up to one year.

Buffer B: Store at 4°C or RT for up to one year.

INSTRUCTIONS FOR USE

Heprasil, Gelin-S, and Extralink solutions are prepared by dissolving the lyophilized solids with the reconstitution buffer. When reconstituted, Heprasil, Gelin-S and Extralink will be in 1X phosphate buffered saline (PBS) at a pH of ~7.4. When reconstituted according to instructions, this kit will be able to produce 2.5, 7.5 or 12.5 mL of material to form 3D hydrogels.

1) Allow kit components to come to room temperature for 1 hour.

2) Reconstitute kit components using the reconstitution buffer with a syringe and needle. If vial stopper is removed during reconstitution, minimize exposure to oxygen to avoid potential autocrosslinking. **DO NOT WEIGH OUT COMPONENTS OR USE ANOTHER BUFFER DURING RECONSTITUTION.**

Kit Components	Buffer to Add Per Vial
Heprasil – GS217F	1.0 mL
Heprasil – GS215F	5.0 mL
Gelin-S – GS231F	1.0 mL
Gelin-S – GS230F	5.0 mL
Extralink – GS3007F	0.5 mL
Extralink – GS3006F	2.5 mL

3) Immediately vortex each vial for a few seconds after the addition of the reconstitution buffer. Place vials horizontally on a rocker or shaker. Quickly vortex samples every 15 minutes. It may take > 2 hours for some components to fully dissolve. Warming to 37 °C and gently vortexing will speed dissolution. Components will be clear and slightly viscous.

4) A 3D hydrogel is formed when Extralink is added to Heprasil and Gelin-S in a 1:2:2 volume ratio.

5) Mix by pipette.

6) If encapsulating cells, resuspend cell pellet in Heprasil + Gelin-S mixture *prior* to the addition of Extralink. Pipette back and forth to mix.

7) After mixing all components together, wait for 5 minutes, then mix again by pipette to ensure even distribution of cells

8) Dispense into desired well-plate. Gelation will begin within ~10 minutes and full gelation will occur by ~90 minutes.

Additional Hystem® information, white papers, applications, references, and certificates, can be found by our visiting at www.AdvancedBioMatrix.com