

HyStem[®]- HP 2.5 mL Trial Kit

THIOL-MODIFIED HYALURONAN, GELATIN AND HEPARIN HYDROGEL KIT

Catalog Number: **GS314**

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 HyStem[®]-HP Hydrogel Kit includes:

- Heprasil[®] (thiol-modified hyaluronic acid and heparin)
- Gelin-S[®] (thiol-modified gelatin)
- Extralink[®] (PEGDA, polyethylene glycol diacrylate)
- DG Water (degassed, deionized water)

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

| Kit Components | Units Per Kit | Material Amount Per Vial | Reconstitution Volume Per Vial |
|--------------------|---------------|--------------------------|--------------------------------|
| Heprasil – GS217 | 1 | 10 mg | 1.0 mL |
| Gelin-S – GS231 | 1 | 10 mg | 1.0 mL |
| Extralink – GS3007 | 1 | 5 mg | 0.5 mL |
| DG Water – GS240 | 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 through 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.

DG Water: Store at -20°C, 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 DG Water. 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 mL of material to form 3D hydrogels.

- 1) Allow kit components to come to room temperature for 1 hour.
- 2) Reconstitute kit components using DG water with a syringe and needle. If vial stopper is removed during reconstitution, minimize exposure to oxygen to avoid potential autocrosslinking. Follow reconstitution chart below.

| Kit Components | DG Water to Add Per Vial |
|--------------------|--------------------------|
| Heprasil – GS217 | 1.0 mL |
| Gelin-S – GS231 | 1.0 mL |
| Extralink – GS3007 | 0.5 mL |

- 3) Immediately vortex each vial for a few seconds after the addition of DG water. Place vials horizontally on a rocker or shaker. Quickly vortex samples every 15 minutes. It may take ~60 minutes for some components to fully dissolve. Warming to not more than 37 °C and/or 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 (0.25 mL Extralink to 0.5 mL Heprasil to 0.5 mL Gelin-S). Mix Heprasil and Gelin-S together prior to the addition of Extralink. Mix by pipette.
 - a) If encapsulating cells, resuspend cell pellet in Heprasil + Gelin-S mixture *prior* to the addition of Extralink. Pipette back and forth to mix.
 - b) After mixing all components together, wait for 5 minutes, then mix again by pipette to ensure even distribution of cells
- 5) Dispense into desired well-plate. Gelation will begin within ~15 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