Stem Cell Research

HyStem™ Cell Culture Scaffolds

The First Customizable Synthetic ECM

Sigma® Life Science is pleased to introduce HyStem, the first customizable synthetic ECM that closely mimics *in vivo* conditions, to enable three-dimensional culture of stem cells.

Customizable

The HyStem platform offers you, the researcher, control over growth factor incorporation, attachment factor incorporation, ECM protein incorporation, rigidity of the hydrogel, and cell incapsulation vs. top plating.

Synthetic

Because HyStem is a synthesized matrix and not a biological extract, researchers are able to closely control the composition of their cells' environment. HyStem's components include chemically synthesized HyStem (thioated Hyaluronic acid), Extralink (thio-reactive crosslinker), degassed water, and biologically purified Gelin-S (denatured collagen).

Biologically Accurate

HyStem kits are optimal for culturing stem cells whose natural environments are rich in hyaluronic acid. The HyStem hydrogel scaffold closely mimics the rich, natural extracellular matrix environment, complete with hyaluronic acid and collagen fibrils, while offering the flexibility to customize with appropriate growth factors, attachment factors, and proteins.

The Hystem Platform Includes Three Unique Members

HyStem

Cell Culture Scaffold Kit: For researchers who require an animal component free system, for researchers who will customize with their own attachment factors and/or ECM proteins/peptides, and for researchers who require a minimal number of cell attachment sites.

HyStem-C

Cell Culture Scaffold Kit: For researchers who require a large number of generalized cell attachment sites for their stem cell culture(s).

HyStem-HP

Cell Culture Scaffold Kit: For researchers planning to incorporate and gradually release growth factors into the stem cell environment.

Ordering Information		
Cat. No.	Product Description	Volume of Hydrogel Produced
HYS010-1KT	HyStem Cell Culture Scaffold Trial Kit	2.5 mL
HYSC010-1KT	HyStem-C Cell Culture Scaffold Trial Kit	2.5 mL
HYSHP010-1KT	HyStem-HP Cell Culture Scaffold Trial Kit	2.5 mL
HYS020-1KT	HyStem Cell Culture Scaffold Kit	7.5 mL
HYSC020-1KT	HyStem-C Cell Culture Scaffold Kit	7.5 mL
HYSHP020-1KT	HyStem-HP Cell Culture Scaffold Kit	7.5 mL
H2666-1EA	HyStem-C 96-well plate	96 wells

To learn more, visit
sigma.com/hystem

HyStem™ closely mimics the natural extracellular environment

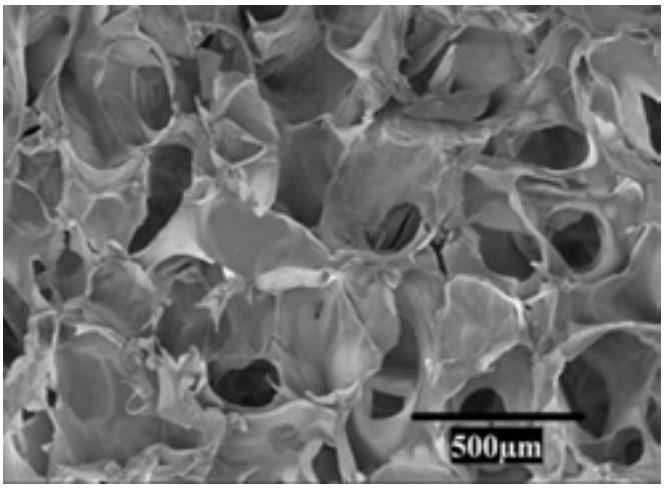


Figure 1: HyStem provides a complex, three-dimensional environment, rich in hyaluronic acid, for culturing stem cells.

Natural Extracellular Environment

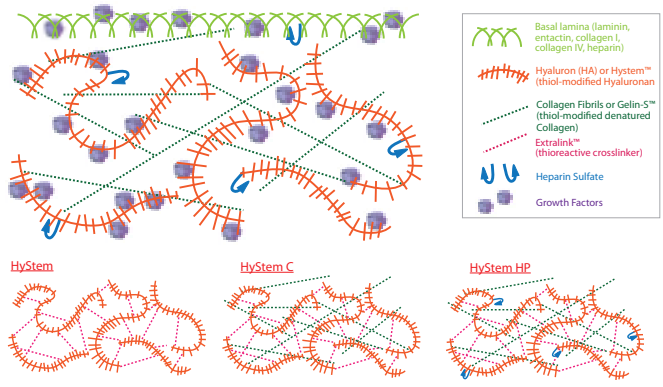
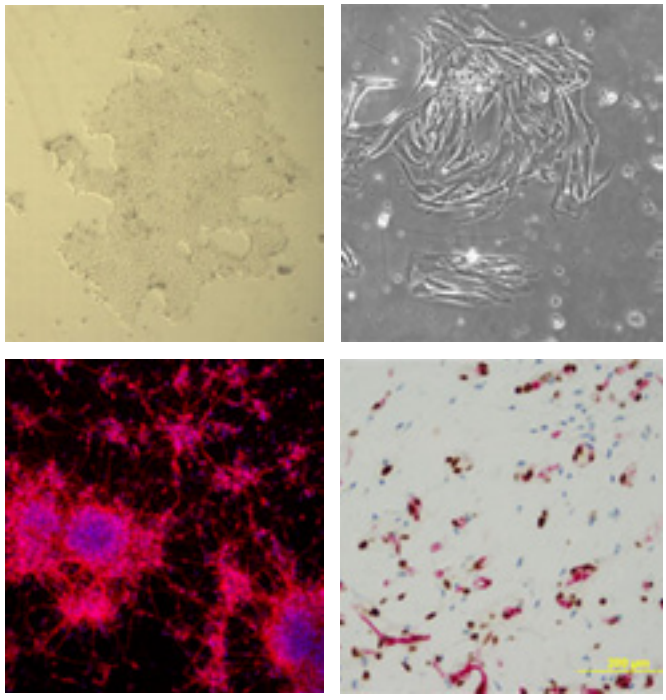


Figure 2: HyStem closely mimics the natural extracellular environment

Application Data



Clockwise from top left:

Figure 3: H9 human embryonic stem cells plated on HyStem hydrogels containing CVFL and grown for 3 days.

Figure 4: Human mesenchymal stem cells grown (5 days) on the surface of a HyStem hydrogel with collagen I non-covalently incorporated.

Figure 5: Endothelial progenitor cells cultivated in HyStem-HP.
Blue = mouse cell nuclei, brown = human cell nuclei, red = CD31 protein
(courtesy of Robert Grove, Endgenitor Technologies, Inc., Indianapolis, IN)

Figure 6: Neurosphere-derived human embryonic stem cells (H9) seeded in HyStem-C and grown for 5 days. Red = Beta III Tubulin. Blue = Draq-5.

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Improve the Quality of Life

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