

3D Stem Cell culture in 20 minutes

Ready-to-use, xeno-free hydrogel for 3D culture & scale-up of **mesenchymal stem cell (MSC)** and exosome production



Excellent cell quality

Yields high-quality, functional cells to support full downstream differentiation



Easy setup and recovery; No-microcarrier needed

Simple, 30-minute set-up. No microcarrier is required, eliminating long hours of seeding, suspension steps, and recovery.



Easy cell harvesting

Simple and efficient cell harvesting with VitroGel[®] Organoid Recovery solution



High cell expansion rate

Supports fast MSC expansion and long-term cell culture



Supports exosome production

Supports 3D bioprocess for exosome production with high purity and high yield



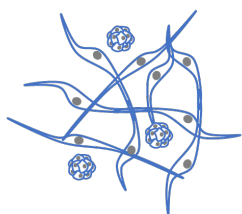
Injectable hydrogel

100% xeno-free hydrogel system and ideal for *in vitro* and *in vivo* applications



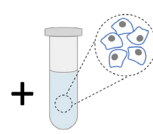
VitroGel[®] MSC is a xeno-free (animal origin-free) hydrogel system developed to support three-dimensional (3D) cultures of mesenchymal stem cells (MSCs) and can be used to make hydrogel cell beads for MSC scale-up. **Microcarriers are not required for MSC scale-up.**

VitroGel[®] MSC is ready-to-use with an optimized formulation that fully supports the rapid expansion of MSCs. Cells directly thawed from liquid nitrogen or passaged from 2D culture vessels can be immediately mixed with the hydrogel solution for 3D culture or hydrogel-cell bead generation. This hydrogel system is compatible with most MSC culture media and tissue culture vessels.

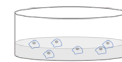


3D Cell Culture MSC

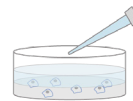
3D Cell Culture of MSC (20 mins) – “Just add cells”



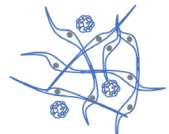
1 Add cells



2 Wait 10-15 min



3 Add top medium and incubate



4 Perform imaging

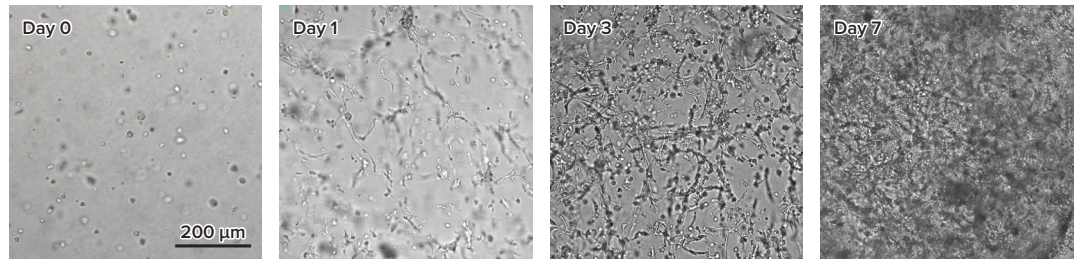
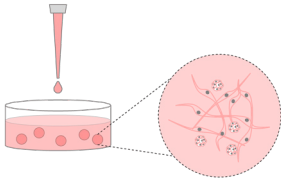


Figure 1. 3D culture of MSC in VitroGel® MSC.

MSC cells were suspended in cell medium at 8×10^5 cells/mL and mixed with VitroGel® MSC for 3D culture (according to the 3D cell culture protocols of VHM03). The images show the growth and expansion of cells inside of 3D hydrogel from day 0 to day 7.



3D Scale-Up MSC Hydrogel Bead Method

3D Scale-Up of MSC (20 mins) – Hydrogel-Cell Bead Formation

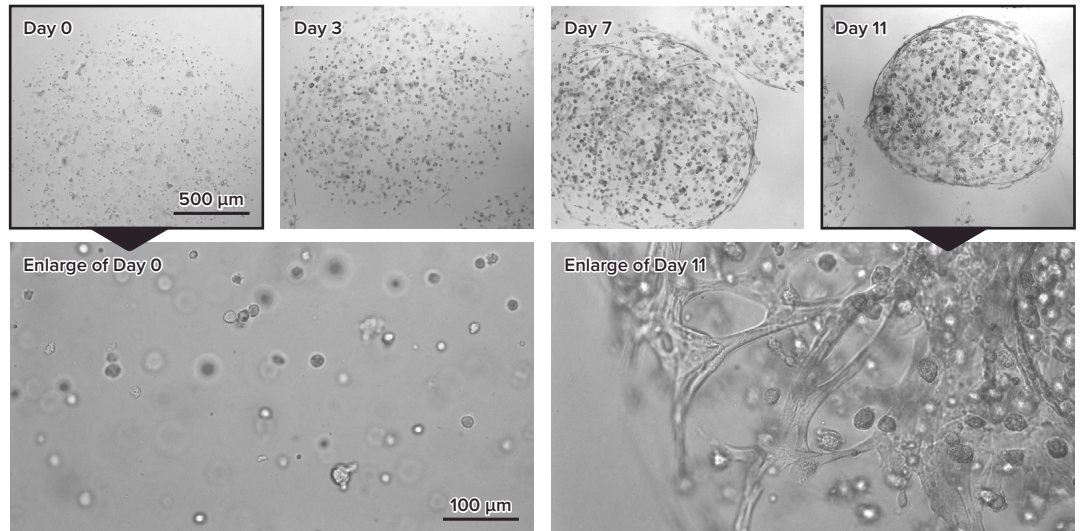
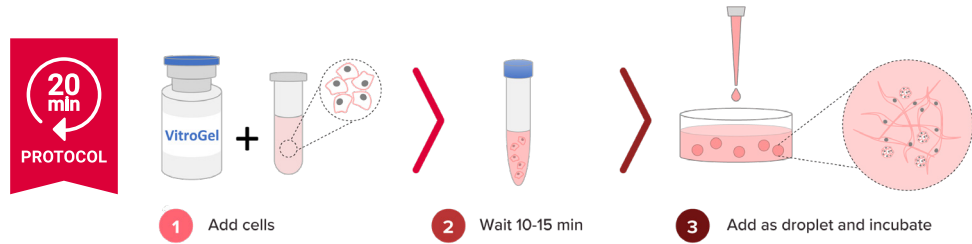


Figure 2. 3D culture of MSC in hydrogel beads.

MSCs were mixed with VitroGel® MSC and added to the cell culture medium as droplets for hydrogel-cell bead formation (according to the hydrogel-cell bead protocols of VHM03). The size of the hydrogel beads can be controlled by the volume of the droplets. MSC cells can grow within the hydrogel beads for long-term culture (>3 weeks). The images show the growth and expansion of cells inside of hydrogel beads from day 0 to day 11. The enlarged images show the cells grew from single cells to cell spheroid and matrix structure from day 0 to day 11.

Complimentary Products



VitroGel® Organoid Recovery Solution recovers intact organoids from either animal-based ECM or VitroGel® hydrogel in 15 minutes while maintaining high cell viability. Enzyme-free formulation with a neutral pH.



Cyto3D® Live-Dead Assay Kit is used to determine the live/dead nucleated cells by using a fast one-step staining procedure for analysis on a dual-fluorescence system.

Product	Cat No.	Size
VitroGel® MSC	VHM03S	2 mL
	VHM03	10 mL
VitroGel® Organoid Recovery Solution	MS04-100	100 mL
	MS04-500	500 mL
Cyto3D® Live-Dead Assay Kit	BM01	1 mL