Thomas Scientific

JUST ADD CELLS

3D cell culture in 20 minutes

VitroGel® Hydrogel Matrix

A revolutionary functional hydrogel perfectly balancing simplicity and versatility for 3D cell culture research.

Xeno-free
100% animal origin-free hydrogel system.

Biofunctional
Optimized formulation of multi-functional ligands for many cell types.

Ready-to-use
Just add cells. No activation agent/adjustment required. 20 min protocol.

Reproducible
Batch-to-batch consistency.

Easy cell harvesting
Recover cells in 20 min with our enzyme-free solution.

Injectable
Injectable for cell therapy and drug delivery applications & automation.

SIMPLE
VERSATILE
POWERFUL

VitroGel® Hydrogel Matrix is a ready-to-use, xeno-free functional hydrogel for 3D cell culture research. VitroGel Hydrogel Matrix is an optimized formulation of multi-functional ligands and concentration to support a wide range of cell types for different applications.

VitroGel Hydrogel Matrix closely mimics the natural extracellular matrix (ECM) environment to make cells feel more like at home. The hydrogel is room temperature stable, has a neutral pH, transparent, permeable and compatible with different imaging systems.

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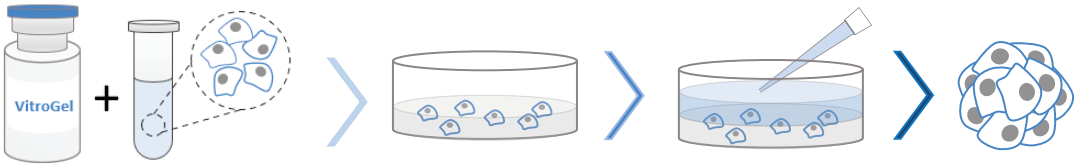
20 MIN

3D Cell Culture Procedure

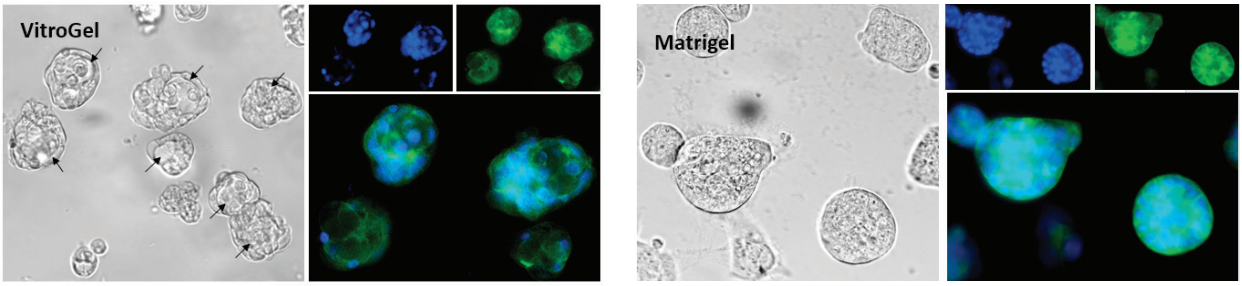


1 Add cells

2 Wait 10-15 min (gelation)

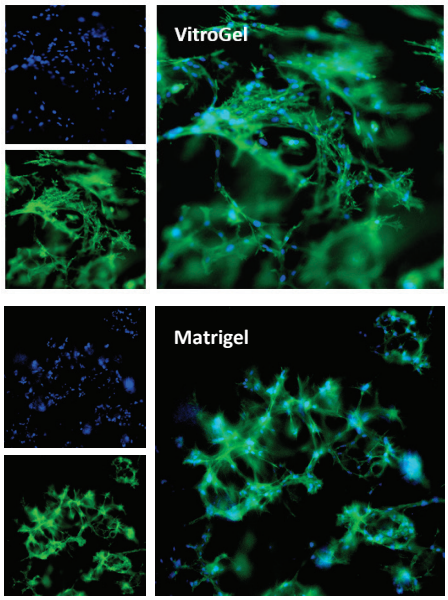
3 Add top medium & incubate

VitroGel Hydrogel Matrix is ready-to-use. Just mix with your cells for 3D cell culture. There is no cross-linking agent or the need to adjust the hydrogel concentration.



Human mammary breast cancer cells cultured in VitroGel® Hydrogel Matrix and Matrigel®

Figure 1. VitroGel Hydrogel Matrix can support growth of various cell types. The images above are 3D cell culture of human mammary breast cancer cells (MCF-7) at day 7 in VitroGel Hydrogel Matrix and Matrigel, a natural ECM-based hydrogel from Engelbreth-Holm-Swarm murine sarcoma. The cells were prepared as single cells suspension and encapsulated within both hydrogels. The grape-shaped like cell colonies appears on day 1 for both hydrogels. However, cells displayed 3D luminal structures (see arrows) only with VitroGel Hydrogel Matrix. The cells cultured in Matrigel can only perform the spheroid structure. (Z-stack imaging system with 2D image projection was used. blue: DAPI; green: actin).



Bone marrow cells 3D cultured in VitroGel Hydrogel Matrix and Matrigel

Figure 2. The fibroblast-like mouse bone marrow stromal cells (OP9-GFP) were 3D cultured in VitroGel Hydrogel Matrix and Matrigel, a natural ECM-based hydrogel from Engelbreth-Holm-Swarm murine sarcoma. Single cells were homogenously suspended within each hydrogel and both start to form stretched fibroblast-like structure on day 1. The images above shows a clear 3D cellular networking structure formed in both hydrogels on day 7. Compared to Matrigel, the multiple functional ligands in the VitroGel Hydrogel Matrix promote a stronger cell-matrix interaction, which helps accelerate the cell proliferation and cell-cell communications during the 3D cell culture.

Compare VitroGel to other 3D methods

	VitroGel	Basement Membrane Matrix	Polymer Matrix	Hanging Drop Plate
Xeno-free	●		●	●
Tunable	●			
Easy-to-use	●		●	●
Multi-funtional ligands	●	●		
Mimic natural ECM	●	●		
Batch-to-batch consistency	●		●	●
Room temperature stable	●		●	●
Neutral pH	●		N/A	N/A
Easy cell harvesting	●			●
Transparent	●	●	◒	●
Injectable	●	●		
Automation friendly	●		●	●

Support Medium

VitroGel ORganoid Recovery Solution

Recover cells/organoids from hydrogel in 15 minutes while maintaining high cell viability. Enzyme-free formulation with a neutral pH.

Thomas No.	Mfr. No.	Product	Size
CHM11N982	VHM01	VitroGel ® Hydrogel Matrix	10 mL
CHM11N983	VHM01S	VitroGel® Hydrogel Matrix	2 mL
CHM11P002	MS04-100	VitroGel® Organoid Recovery Solution	100 mL

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