VitroGel® Hydrogel Matrix

TheWell BIOSCIENCE

Ready-to-use, xeno-free hydrogel for 3D cell culture research

Xeno-free
100% animal/human origin-free synthetic hydrogel system.

Room Temperature Operation
25°C

Stable at room temperature. Easy handling. 20-min protocol.

Biofunctional/ Biocompatible
Optimized with multi-functional ligands for many cell types.

Suitable for *in vivo* and xenograft models.

Reproducible
Batch-to-batch consistency. Available for GMP process.

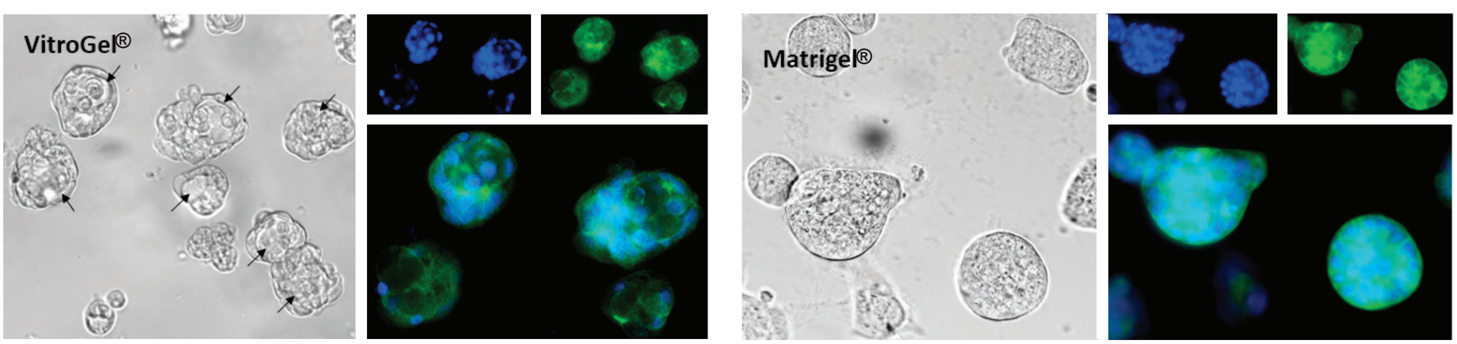
Injectable
Excellent cell retention. Long-term injectability after gelation without needle clogging.

Ethical & Sustainable
(3Rs of Animal Research)

Unlike animal-based ECM, no mice are sacrificed in product manufacturing.

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.

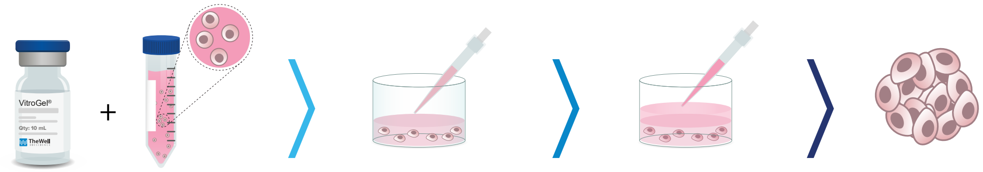


Human mammary breast cancer cells cultured in VitroGel® Hydrogel Matrix and Matrigel®

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).

20 MIN

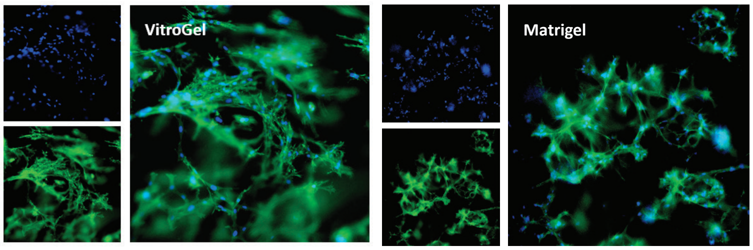
3D Cell Culture Prcedure



1. Mix VitroGel® with cell suspension
2. Transfer & wait 10-15 min
3. Add top medium & incubate

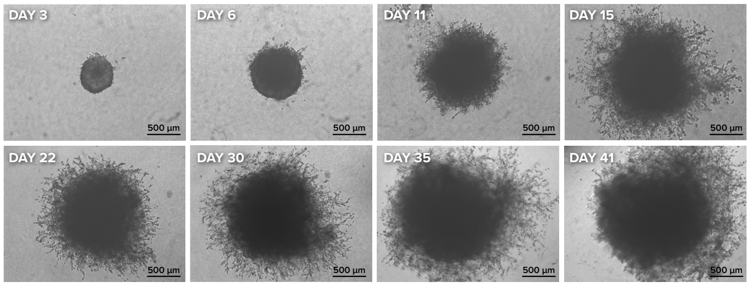
VitroGel® Hydrogel Matrix is ready-to-use. Just mix with your cells for 3D cell culture. There is no cross-linking agent or the need to adjust the hydrogel concentration.

Data and References



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.



Spheroid invasion assay using the VitroPrime™ Ultra-Low Attachment Plate and VitroGel® Hydrogel Matrix.

Figure 3. U87-MG glioblastoma cells were resuspended in basal medium with 10% fetal bovine serum. Twenty microliters (20 µL) of cell suspension were added to the VitroPrime™ Ultra-low Attachment, U-bottom, 96-Well Plate. The cultures were incubated overnight at 37°C to allow spheroid formation. VitroGel® Hydrogel Matrix was combined with serum, and 40 µL of the mixture was added to the spheroid, followed by a 15-minute incubation at room temperature. The images were obtained with the Zeiss Microscope at 2.5X magnification.

Product	Cat No.	Size
VitroGel® Hydrogel Matrix	VHM01S	2 mL
	VHM01	10 mL

Learn more about
VitroGel® Hydrogel Matrix
thewellbio.com/vitrogel-hydrogel-matrix

Compare VitroGel® to other 3D methods

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

Complementary Product

VitroGel® Organoid Recovery Solution

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

SKU: MS04-100

TheWell BIOSCIENCE
3D Cell Culture and Beyond

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