

# VitroGel® Hydrogel Matrix

Catalog Numbers:  
VHM01  
VHM01S

**Usage restrictions:** For Research Use Only. Not For Use In Diagnostic Procedures.

## Product Description

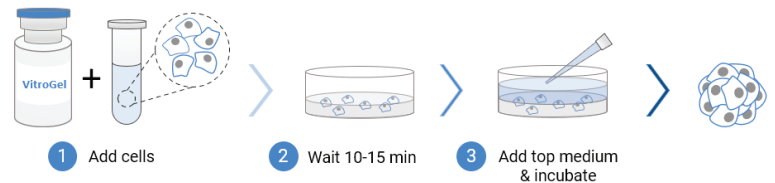
VitroGel® Hydrogel Matrix is a ready-to-use, xeno-free functional hydrogel for 3D cell culture research. VitroGel Hydrogel Matrix is an optimized formulation of multi-functional ligands and concentration to support a wide range of cell types for different applications. The hydrogel is ready to mix with cell suspension directly. There is no additional adjustment needed. This user-friendly functional hydrogel creates an excellent balance of simplicity and versatility.

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. The solution transforms into a hydrogel matrix by simply mixing with the cell culture medium. Cells cultured in this system can be easily harvested out with our VitroGel Cell Recovery Solution.

SPECIFICATIONS	
Formulation	Xeno-free. Polysaccharide based functional hydrogel
Use	3D and 2D cell culture
Operation	Ready-to-use at room temperature
Biocompatibility	Biocompatible, safe for animal studies
Injection	Injectable hydrogel for <i>in vivo</i> studies and laboratory automation
Cell Harvesting	Use VitroGel Cell Recovery Solution (Cat# MS03-100)
pH	Neutral
Storage	Store at 2-8°C. Ships at ambient temperature.
Stability	24 months from date of manufacture.
Sizes	10 mL, 2 mL
Uses	(10 mL) ~300 uses at 50 µL   (2 mL) ~60 uses at 50 µL

## 3D Cell Culture Workflow “Just add cells”

VitroGel® Hydrogel Matrix is a ready-to-use. Just mix with your cells. There is no cross-linking agent or the need to adjust the hydrogel concentration. Simple 20 minute protocol.



If you need more control with tunability of gel strength and the ability to blend functional hydrogels, see our VitroGel High Concentration versions.

## 3D Cell Culture Protocol

Visit [www.thewellbio.com/faq-hydrogel](http://www.thewellbio.com/faq-hydrogel) for frequently asked questions on cell culture preparation and operation

1. Bring VitroGel Hydrogel Matrix to room temperature or warm to 37°C.
2. Prepare the cell suspension in the culture medium.
  - Recommend cell concentration of  $0.5-2 \times 10^6$  cells/mL
  - If cells cultured in medium supplemented with FBS (e.g. 10%) or critical growth factors, prepare cell suspension in 30% FBS with 3X critical growth factors.
3. Add 1 mL VitroGel Hydrogel Matrix to 500 µL cell suspension and gently pipette up and down 5-10 times to mix thoroughly.  
*Keep VitroGel and cell suspension at 2:1 v/v mixing ratio*
4. Transfer the hydrogel mixture to a well plate. Gently tilt/swirl the well plate to ensure there is an even covering on the bottom of each well. The recommended volume of hydrogel for well plates are listed below.

	6 well plate	12 well plate	24 well plate	48 well plate	96 well plate
Volume per well	1200 µL	600 µL	300 µL	150 µL	50 µL

5. Wait 10-15 min at room temperature for a soft gel formation. Note: During the hydrogel forming process, do not disrupt the hydrogel by tilting or shaking the well plate.
6. Carefully cover the hydrogel with additional medium. The recommended volume of cover medium for well plates are listed below.

	6 well plate	12 well plate	24 well plate	48 well plate	96 well plate
Volume per well	1200 µL	600 µL	300 µL	150 µL	50 µL

7. Place the well plate in an incubator and change the cover medium every 48 hours.  
Note: Recommend changing 50-80% of the top medium without disturbing the hydrogel.

## 2D Hydrogel Coating Protocol

1. Bring VitroGel Hydrogel Matrix to room temperature or warm to 37°C.
2. Add 1 mL VitroGel Hydrogel Matrix to 500 µL cell culture medium and gently pipette up and down 5-10 times to mix thoroughly.  
*Keep VitroGel and cell medium at 2:1 v/v mixing ratio. If cells cultured in medium supplemented with FBS (e.g. 10%) or critical growth factors, prepare the cell culture medium with 30% FBS or 3X critical growth factors.*
3. Transfer the hydrogel mixture to a well plate. Gently tilt/swirl the well plate to ensure there is an even covering on the bottom of each well. The recommended volume of hydrogel for well plates are listed below.

	6 well plate	12 well plate	24 well plate	48 well plate	96 well plate
Volume per well	1200 µL	600 µL	300 µL	150 µL	50 µL

4. Wait 10-15 min at room temperature for a soft gel formation. Note: During the hydrogel forming process, do not disrupt the hydrogel by tilting or shaking the well plate.
5. Carefully add medium with cells on top of the hydrogel. (Recommend a cell concentration of 1-5 x 10<sup>5</sup> cells/mL). The recommended volume of cell medium for well plates are listed below.

	6 well plate	12 well plate	24 well plate	48 well plate	96 well plate
Volume per well	1200 µL	600 µL	300 µL	150 µL	50 µL

6. Place the well plate in an incubator and change the cover medium every 48 hours.  
Note: Recommend changing 50-80% of the top medium without disturbing the hydrogel.

## Preparing Hydrogel for Animal Injection

1. Bring VitroGel Hydrogel Matrix to room temperature or warm to 37°C.
2. Prepare the cell/drug suspension in the culture medium or PBS. Adjust the cell/drug concentration to 3X of desired concentration of the final injection.
3. Add 1 mL VitroGel Hydrogel Matrix to 500 µL cell/drug suspension and gently pipette up and down 5-10 times to mix thoroughly.  
*Keep VitroGel and cell suspension at 2:1 v/v mixing ratio*
4. Transferred the mixture to a syringe.
5. Let mixture stabilize at room temperature for 10-20 min. The hydrogel is now ready for animal injection.

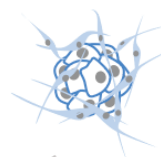
## Discover the wide applications of VitroGel® Hydrogel Matrix



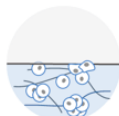
3D cell model



2D hydrogel coating



Co-culture



Invasion assay



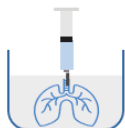
3D migration



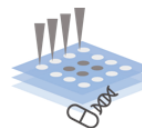
Animal injection



Control release



FRESH bioprinting



High throughput screening

## Related Products

- VitroGel Cell Recovery Solution (MS03-100)
- Other versions of VitroGel - [www.thewellbio.com/hydrogels](http://www.thewellbio.com/hydrogels)

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