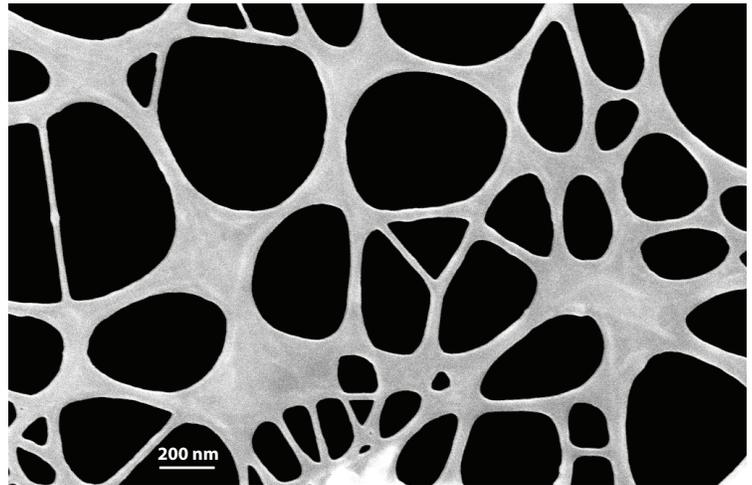


## VitroGel 3D is a ready-to-use tunable hydrogel system for 3D cell culture and beyond

An animal origin-free polysaccharide hydrogel closely mimicking the natural extracellular matrix (ECM) environment, brings many advantages to bridge *in vitro* and *in vivo* studies.

- Perform procedure at room temperature with a simple mixing step.
- Pure synthetic. Better batch to batch consistency.
- Adjustable hydrogel strength.



SEM image of VitroGel 3D hydrogel



**3D cell culture process can be done in 20 min**  
(includes a 10-15 min waiting time for hydrogel stabilization)



### Ready-to-use

Single vial system. Just mix with your cells and you are DONE!



### Without undesired proteins

VitroGel 3D is an animal origin-free polysaccharide hydrogel system.



### Room temperature stable

The hydrogel system is room temperature stable with neutral pH. Get rid of your ice bucket!



### Transparent

The hydrogel system is transparent and compatible to different imaging systems for cell observation.



### Easy Cell harvesting

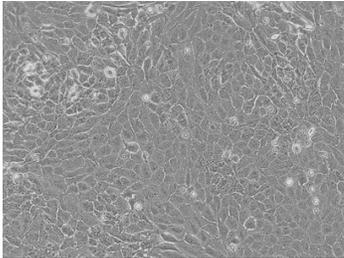
After 3D cell culture, cells can be easily harvested from the hydrogel by using standard centrifuge methods.



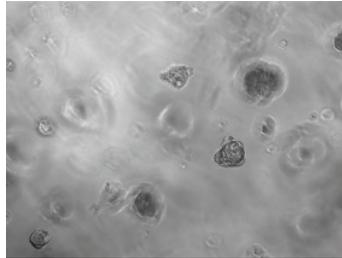
### Injectable

Using the right mixing ration, the hydrogel becomes injectable. Bridge into *in vivo* studies.

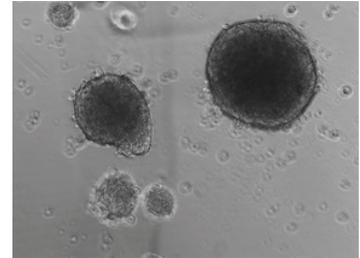
## Example of 3D cell culture: Betalox 5 cells 2D vs 3D



2D cell culture on regular well-plate (control)



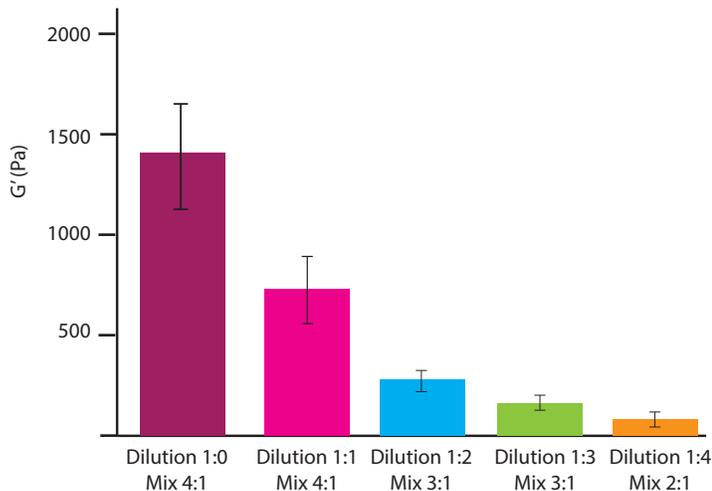
3D cell culture on VitroGel 3D (day 1)



3D cell culture on VitroGel 3D (day 7)

Betalox5 cells: Cells were cultured at a density of 25,000 cells/cm<sup>2</sup>. The medium contained DMEM, low glucose, 10% fetal bovine serum (FBS), 7.5% bovine serum albumin (BSA), 1 M HEPES, 1X nonessential amino acids, and 1X penicillin/streptomycin. 3D culture on VitroGel 3D: dilution 1:3 (v/v), mixing ratio 2:1 (v/v). Cultured in a traditional 2-D well plate, immortal fetal human Betalox 5 cell lines appear flat and stretched out. Grown in 3D culture on VitroGel 3D, these cells form a defined 3D colony that mimics normal human islets found in vivo.

## Hydrogel Strength at Different Dilutions and Mixing Ratios



Hydrogel strength of VitroGel 3D with DMEM medium at different dilutions and mixing ratios (The dilution or mixing ratio is v/v ratio). Different mixing ratios of diluted hydrogel solution and cell culture medium affect the speed of hydrogel formation and the final gel strength. At the same dilution of hydrogel solution, hydrogel formation is faster when mixed with higher volume of cell culture medium (The hydrogel forming speed: 2:1 > 3:1 > 4:1 of mixing ratio).

## Comparison Benefits Chart

	VitroGel	Basement membrane matrix	Polymer matrix	Hanging Drop Plate
Ready-to-use	✓	✗	✓	✓
Mimic Natural ECM	✓	✓	✗	✗
No undesired growth factors	✓	✗	✓	✓
Room temperature operation	✓	✗	✓	✓
Neutral pH	✓	✗	N/A	N/A
Cell harvesting	✓	✗	✗	✓
Transparent	✓	✓	✗	✓
Modifiable for cell adhesion	✓	✓	✓	✗
Control hydrogel stiffness	✓	✓	✗	✗
Injectable	✓	✓	✗	✗

## Product Information

TWG001 VitroGel 3D (10 mL)