VitroGel® NEURON

TheWell BIOSCIENCE

Ready-to-use, xeno-free hydrogel for 3D and 2D neuron culture

Xeno-free and biofunctional

100% synthetic. Animal & human origin-free hydrogel. No growth factors or proteins in the gel solution.

Supports 3D and 2D neuronal cell culture

Suitable for 3D and 2D culture of immortalized neuronal neuroblasts, iPSC-derived NSCs, neuron, and culturing of NSCs) as single cells or neurospheres.

Stable at room temperature

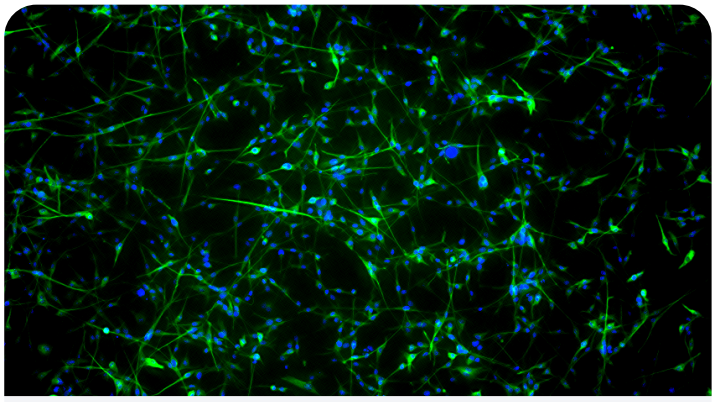
Easy-to-use system with room temperature operation. No ice bucket or chilled pipette tips required.

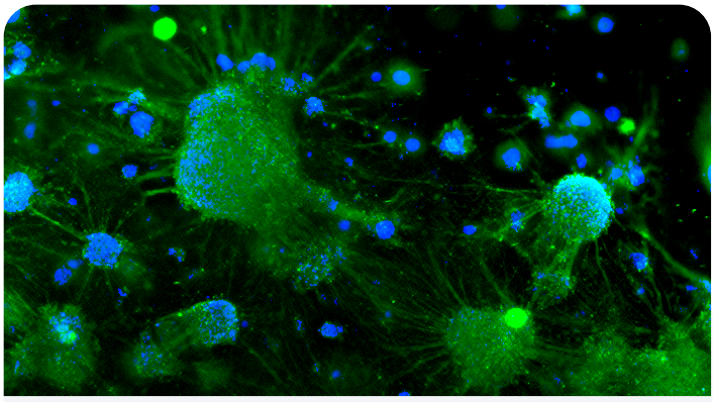
25°C

Injectable hydrogel for cell therapy

Its unique injectable properties make it an effective carrier for neuron-based cell therapy, spinal cord injury repair, and other regenerative medicine applications.

VitroGel® NEURON is the first-of-its-kind synthetic, xeno-free hydrogel specifically engineered to support both 2D and 3D neuronal culture and *in vivo* delivery. This groundbreaking platform eliminates the variability of animal-derived ECMs, such as Matrigel®, and provides a defined, reproducible, and scalable environment for neuronal growth, differentiation, and network formation.





2D Thin-Coating with VitroGel® NEURON Outperforms Animal-Based ECM

1:200

200X Dilution
4X more usage than animal-based ECM.

4+ WEEKS

Long-Term Culture
Over 4 weeks of maintenance and post-differentiation culture.

Easy and Fast Operation
No need to remove the coating solution, just seed cells directly.

3D Neuron Culture Made Easy With VitroGel® NEURON

3D Neuron Differentiation
Supports both single cells and neuron spheroids.

Excellent Cell-Cell Communication
Enhanced cell extension and cell-matrix interactions.

Imaging-Friendly
Transparent and directly staining within the hydrogel for high-quality image data.

Data and References

2D Culture

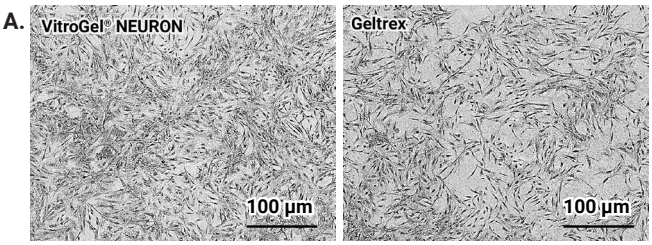


Figure 1. VitroGel® NEURON 2D Thin Coating for Growth of iPSC-Derived NSCs and Confluence Analysis on VitroPrime™ Spread-Attach Plates. (A) iPSC-derived NSCs (CD34-eIPSC-NSC) were plated at 50,000 cells per well on 24-well VitroPrime™ Spread-Attach Plates coated with either VitroGel® NEURON (1:200) or Geltrex®, and cultured for 6 days. Images were captured using the Incucyte® S3 system. **(B)** NSC growth was quantified by percent confluence over time, with images collected every 8 hours and analyzed relative to the initial timepoint (T = 0 + 4 hrs).

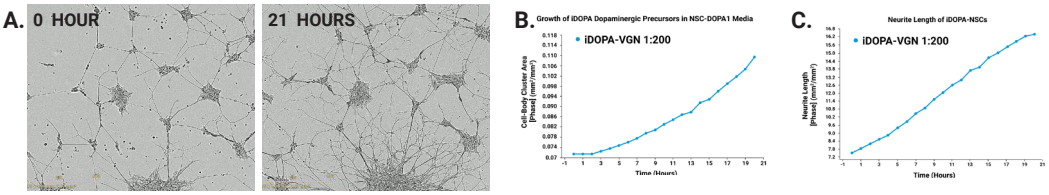


Figure 2. 2D thin coating with VitroGel® NEURON hydrogel supports the development of Dopaminergic Neuron Progenitors (DNPs). (A) Images show robust survival of DNP colonies, and elaboration of neurites after 21 hours; **(B & C)**. IncuCyte Neurotrack analysis software was used to quantitate the expansion of the area of DNP colonies, and their enhanced complexity of neurite elongation.

3D Culture

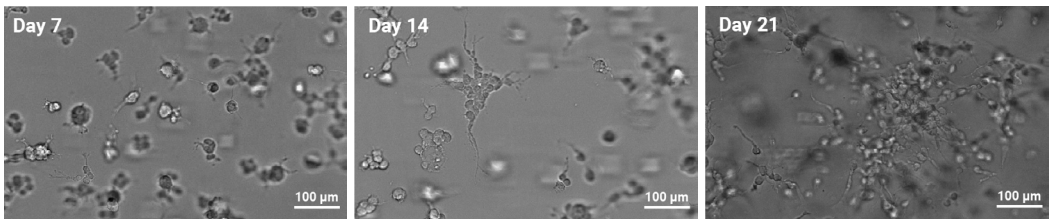


Figure 3. VitroGel® NEURON sustains long-term 3D neuronal differentiation. Bright field microscopy images depicting 3D B35 neuronal neuroblast differentiation in VItroGel® NEURON on days 7, 14, and 21. The images were obtained with the Keyence BZ-X microscope.

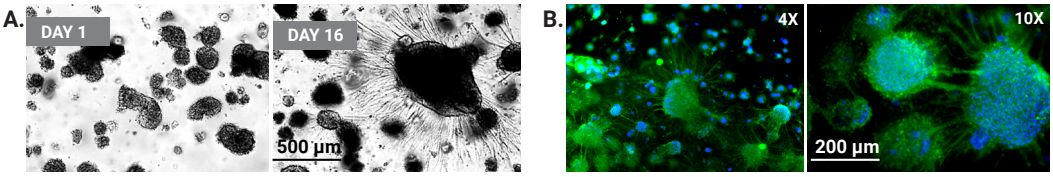


Figure 4. VitroGel® NEURON hydrogel supports the 3D development of dopaminergic neurons. iPSCs were 3D cultured in VitroGel® STEM with RocketCell™ IPSC Xeno-Free Growth Medium (Cat. No. RC02-GM) for 6 passages, and were differentiated into Floor Plate Neuro-Epithelial Spheroids. The spheroids were recovered from the hydrogel using VitroGel® Organoid Recovery Solution and embedded in VitroGel® NEURON.

(A) Brightfield images of spheroid on day 0 **(A, left)** that were differentiated for 16 days **(A, right)**. **(B)** The samples were fixed and stained with beta-III-tubulin antibody and DAPI, depicting that the majority of the spheroids are neurons with the ability to form axonal connections. The cultures were visualized with the Keyence BZ-X microscope at 4X and 10X magnifications.

Learn more about
VitroGel® NEURON
thewellbio.com/VITROGEL-NEURON

Product	Cat No.	Size
VitroGel® NEURON	VHM07	10 mL
	VHM07S	2 mL

Complementary Products

RocketCell™ NSC Xeno-Free Growth Medium

Cell culture media engineered to promote NSC growth and maintenance.

Cat No: RC01-GM

VitroPrime™ Spread-Attach Plate

Supports exceptional 2D and 3D neuron growth. No PDL-coated plates required.

Plates Available: 6-well, 12-well, 24-well, 48-well, 96-well

CytoGrow™ Growth Factors

Premium quality growth factors with research-friendly price for advanced 3D/2D cell culture and beyond.

Scan the QR code to view the complete list of growth factors.

TheWell BIOSCIENCE
3D Cell Culture and Beyond

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