3D Cell Culture by Magnetic Levitation
EASY & FAST & POWERFUL!

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INTEGRATED TOOLS FOR TRANSLATIONAL RESEARCH
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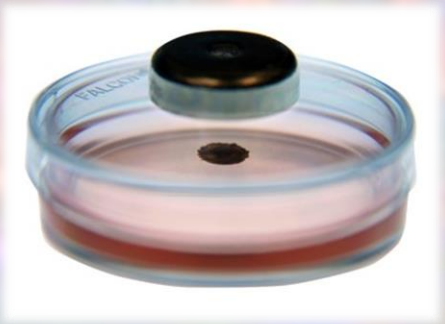
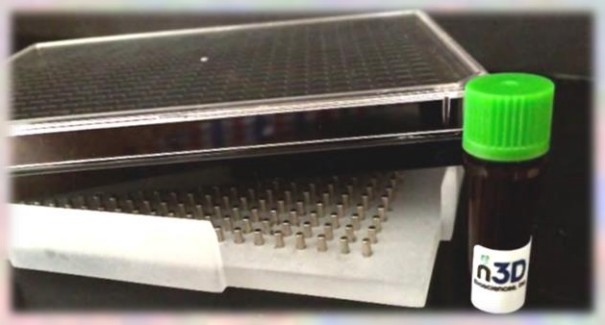
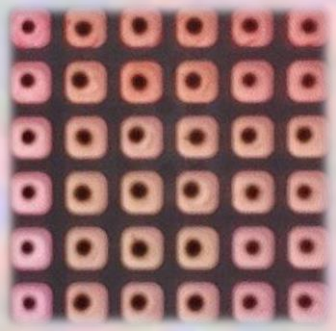
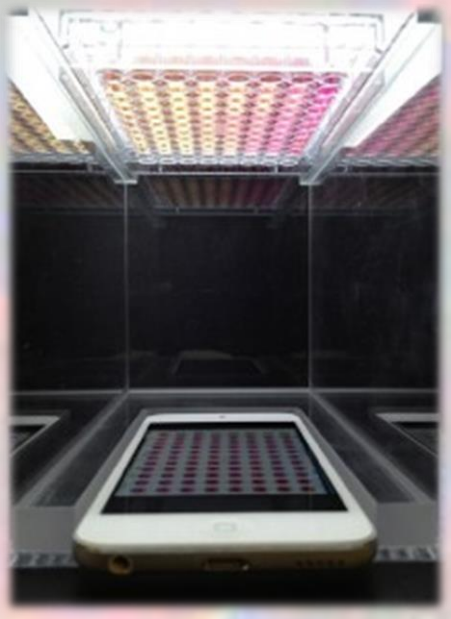
NanoShuttle™-PL

- Rapid 3D bioprint formation for high throughput
- No specialized equipment, media, or artificial substrate
- No effect on viability, proliferation, inflammatory stress
- No interference on fluorescence or other experiments









Check the n3dbio home page for more information

http://www.n3dbio.com/ n3D Search

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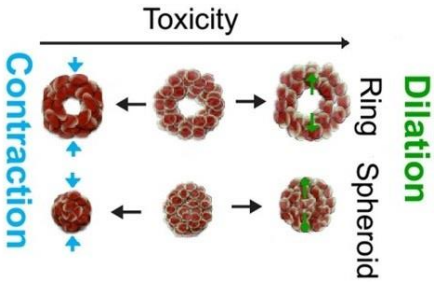
【Applications】

- ✓ **Toxicity**
- ✓ **Co- culture model**
- ✓ ***In vivo* simulation**
- ✓ **3D imaging analysis**



Magnet accessories include both ring and spheroid configurations.

Successful cell types tested

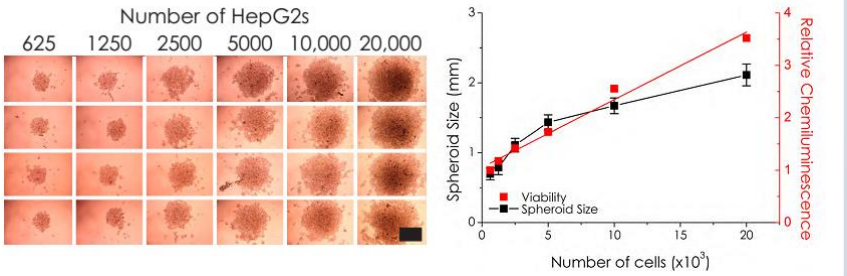
Cell Lines

HEK293 human embryonic kidney
3T3 murine embryonic fibroblasts
A549 human lung epithelial cells
HepG2 human hepatocytes
MDA-231 human mammary epithelial cells
MCF-10A human mammary epithelial cells
Caki-1 human kidney epithelial cells
A10 rat vascular smooth muscle cells

Primary Cells

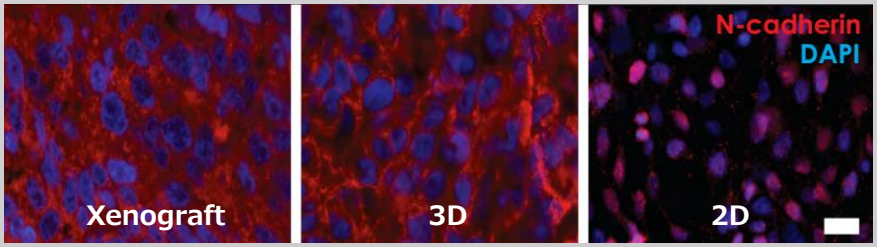
Human pulmonary fibroblasts
Human neonatal dermal fibroblasts
Human tracheal smooth muscle cells
Human vascular smooth muscle cells

High- Throughput Spheroid Printing



Left: Magnetically 3D bioprinted spheroids of HepG2 hepatocytes in a 384-well plate of various cell numbers after 15 min of printing. Right: Spheroid size and viability (CellTiter-Glo, Promega) as a function of cell number. Scale bar = 500 µm.

Magnetic 3D bioprinting rapidly prints spheroids by using **magnetic forces to accelerate spheroid aggregation**. With fixed magnet sizes, spheroid size is reproducible and **scalable for high-throughput testing.** These spheroids are viable and growing, and represent native tumor microenvironments.



Immunohistochemical stains of mouse brain tumor xenografts (left), glioblastoma in magnetically 3D bioprinted spheroids (center), and 2D monolayers (right). Note the similarity between spheroids and the xenograft. Scale bar = 10 µm. Adapted from Souza et al.

【Reference】

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