



PELOBiotech *Competence^t Cells*

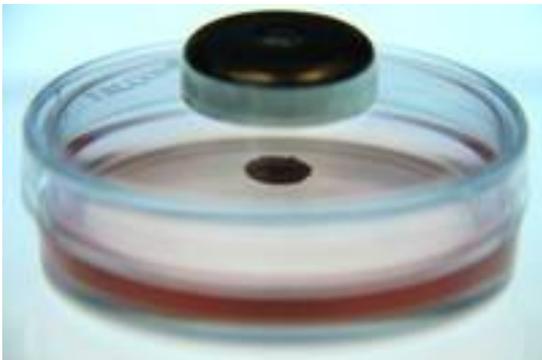
Magnetic 3D Bioprinting

Cells

Media

Reagents

Tools



A novel high-throughput and high content assay for toxicity

Rapid printing of tissue-like structures in 15 - 60 min

n3D Biosciences

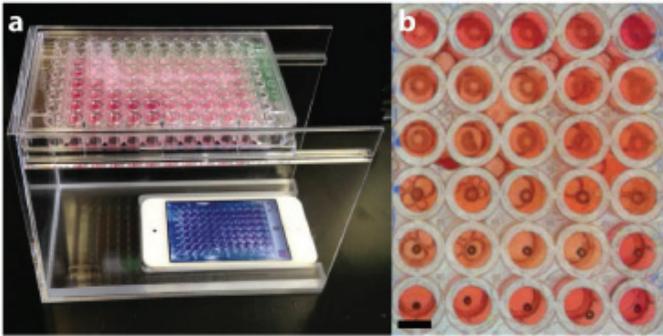
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SHOP**

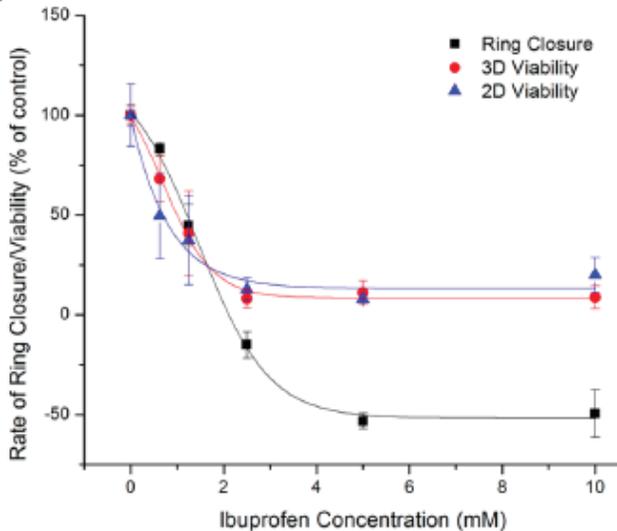
BiO Assay: Magnetic 3D Bioprinting for High-Throughput Screening

- ✓ Rapid printing of tissue-like structures
- ✓ Dose-dependent shrinkage related to toxicity, viability
- ✓ Label-free, quantitative metrics
- ✓ iPod-based imaging - set it and go
- ✓ Automated data analysis

- ✓ No specialized media, large equipment
- ✓ Compact, fits in standard incubator
- ✓ High-throughput screen (96-well)
- ✓ High-content screen - genomics, proteomics post-assay
- ✓ Ideal as organ-specific phenotypic screen



BiO Assay: iPod imaging setup (a) and the resulting rings of HEK293s exposed to ibuprofen captured with the iPod. With higher drug concentrations, the rings are unable to close as fast. The BiO Assay setup is compact, and can fit within most standard incubators. Researchers can program the iPod, which has sufficient camera resolution, to image whole plates at specific times, forgoing the need to go under the microscope at regular intervals. Note the resolution and contrast of the rings in the image taken by the iPod. Scale bar = 5 mm.

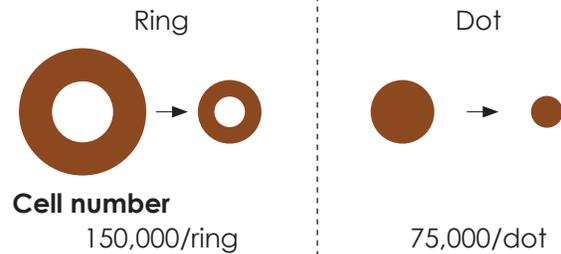


Dose Response: Dose response curves of the BiO Assay versus the CellTiter-Blue assay performed on 2D and 3D cultures of HEK293 exposed to ibuprofen. All rates were normalized to control, and error bars represent standard deviation.

BiO Assay

- Rapid printing (15 min - 1 h)
- Closure/shrinkage in <24 h
- Co-culture ability (mixed or layered)
- Biocompatible

Shapes



Applications

- Wound healing
- Vasoconstriction/vasodilation
- Smooth muscle contraction
- Would replace 2D scratch assay
- Spheroids
- Viability

Cell Types

- Fibroblasts
- Smooth muscle cells
- Migratory cells
- Cancer cells
- Stem cells

Timm, D. M. et al. A high-throughput three-dimensional cell migration assay for toxicity screening with mobile device-based macroscopic image analysis. *Sci. Rep.* 3, 3000 (2013).

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