3D Cell-Based Assays

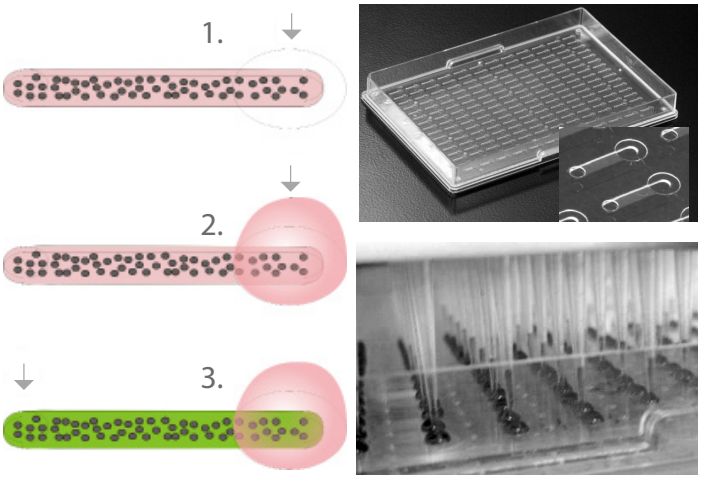
BellBrook Labs

iuvo™ 3D Cell-Based Assay Profiling Service

BellBrook Labs now offers immunocytochemistry assays in 3D extracellular matrix as part of its compound profiling service. This new offering includes a fully validated cell cycle progression assay and an apoptosis assay in development. Utilizing its novel iuvo™ microconduit array platform, BellBrook is able to generate information-rich data on cell function in 3D using automated microscopic imaging.

These iuvo™ 3D Cell-Based Assays yield precise and reproducible inhibitor potencies, and produce screenable quality assay windows. The miniaturization inherent in the iuvo™ platform enables the use of primary cells and customized extracellular matrices.

High Content, 3D Cellular Assays



iuvo™ Overview

iuvo™ Microchannels are filled with cells embedded in 3D collagen (1), test compounds are added to the cell addition port (2), and antibodies and detection reagents are added to the input port (3).

Features & Benefits

3D ECM Microenvironment
provides more biologically-representative conditions for reliable data

Automated Process
enables a quick turn-around of 3 weeks for validated assays

High Content Platform
allows information-rich data using immunocytochemistry and multiplex staining

Miniaturized Assay
enables efficient use of primary cells and other precious reagents

Expert Scientific Staff
utilizes cell biology knowledge and expertise to generate reliable, world-class data

Importance of 3D Extracellular Matrix

The importance of 3D extracellular matrix on cellular function and behavior is clear from studies in differentiation, tissue engineering and even molecular pharmacology.

- When given the proper 3D scaffold, mammary epithelial cells undergo polarization and differentiation resembling *in vivo* structures.
- There are important differences in cell migration on flat plastic compared to 3D environments.
- Certain therapeutic agents show differential responses between 2D substrates and biological 3D matrix.

Think the way your cells think ... in 3D!

For a quote, or more information, contact us at 866-313-7881, info@bellbrooklabs.com, or visit www.bellbrooklabs.com

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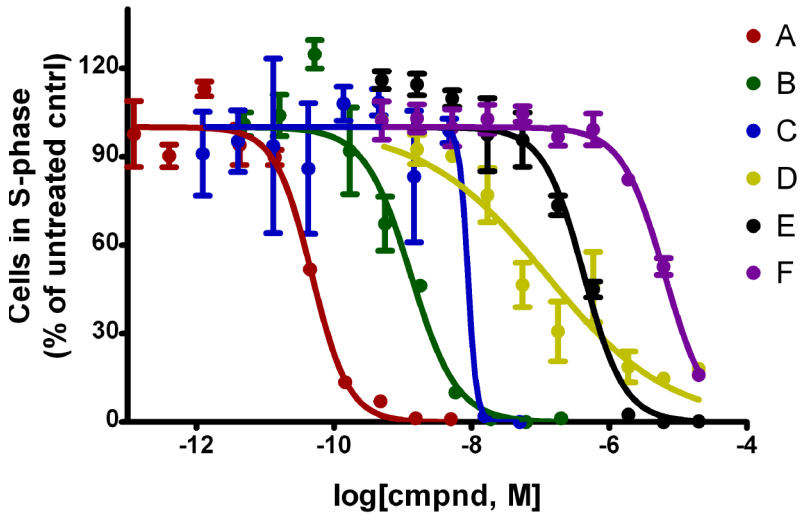
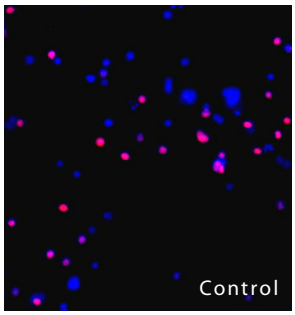
IUVO™ Microconduit Array

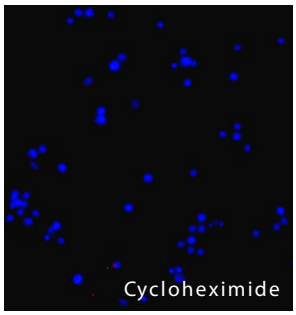
3D Cell Based Assays

Information Rich Data

- Quantitative potency data including IC_{50} and magnitude of effect.
- *In situ* molecular staining allows pathway and mechanism.
- 4-Color assays available including nuclear stain.







Compound	A	B	C	D	E	F
pIC_{50} ± 95% confidence interval	10.3 ±0.1	8.9±0.2	8.1±0.8	6.9±0.3	6.4±0.1	5.2±0.1

Left panel: BxPC3 cells were seeded in IUVO MC5250 straight channel device and incubated overnight with titrated compounds. ClickIT EdU assay was performed 16 hours post compound treatment. The channels were imaged with an automated microscope for both the nuclei (Hoescht 33324), and S-phase (EdU incorporation during DNA synthesis). Images were then analyzed automatically with Metamorph Multi-wavelength Cell Scoring application and the % of cells that were in S-phase was reported. These values were normalized to the untreated controls. **Right panel:** Representative images from 3D collagen experiment, as descirbed in left panel. Overlay of Hoescht (blue) and EdU (red).

Rapid Turnaround

Profiling projects are generally completed within three to four weeks. Reports include raw imaging files, dose response curves, IC_{50} values, and summary of observations for each molecular target.

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