

High Throughput Cell Microarray Scanning with the InnoScan 1100 AL

The InnoScan 1100 AL (Figure 1) is a high resolution fluorescence imager developed for Cell Microarrays and tissue sample imaging. It is capable of scanning at resolutions of up to 0.5µm/pixel with excitation wavelengths of 488nm, 532nm, and 635nm. The InnoScan 1100 AL, provided with a user-friendly image acquisition software and autoloader, is capable of scanning up to 24 slides at a time quickly and automatically. Combining a real time autofocus system with simultaneous confocal PMT detection, it is capable of producing high quality whole slide images which allow sub-cellular level of analysis.



Figure 1: MicroMatrix 36 ECM Array (left) and InnoScan 1100 AL (right)

Researchers at MicroStem of San Diego, CA have already started testing their MicroMatrix 36 ECM Array (Figure 1) using the InnoScan 1100 AL to examine the effect of extracellular matrix proteins (ECM) on cancer metastasis (Epithelial Mesenchymal Transition, EMT) of breast cancer cells. Briefly, MCF7 breast cancer cells were grown on 36 different ECMs individually and in combination. Vimentin, a mesenchymal marker, was stained with Alexa 543. The nuclei were stained using DraQ5. Slides were scanned using the InnoScan 1100 AL at wavelengths of 532nm and 635nm with a resolution of 0.5µm/pixel. In Figure 2 and 3, images clearly show individual cells as well as subcellular compartments: cytoplasmic staining of vimentin (green) and nuclear staining by DraQ5 (red). These images are comparable to those obtained using a 20X objective on an optical system.

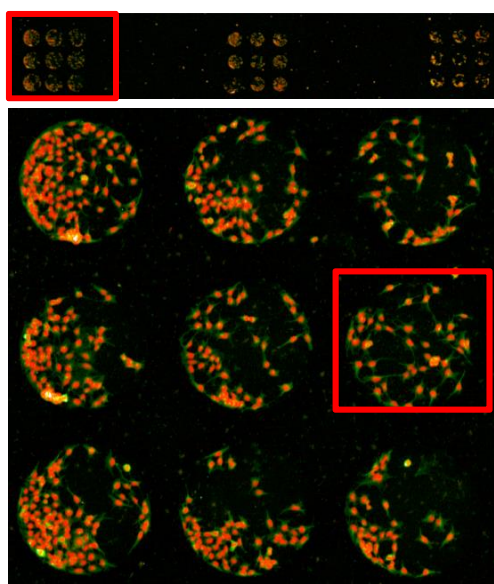


Figure 2: Close up on a 3x3 matrix of the MicroMatrix 36 ECM Array. Vimentin appears in green. Nucleus is shown in red. One spot has a 300µm diameter.

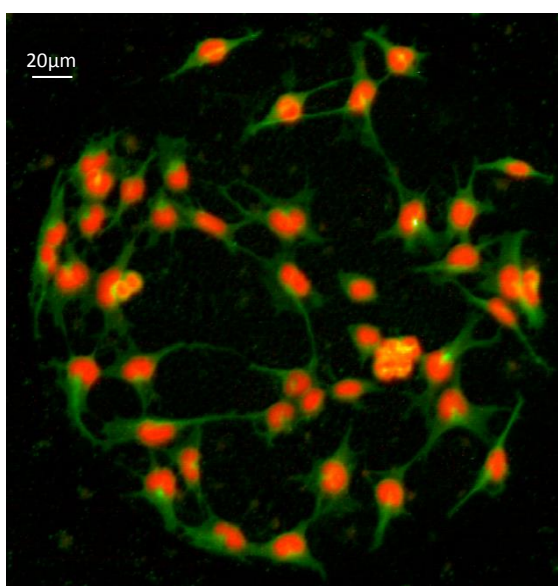


Figure 3: Close up on a spot. MCF7 cells were grown on Collagen IV + Collagen VI. Nucleus appears in Red and Vimentin in green.