APPLICATION NOTE

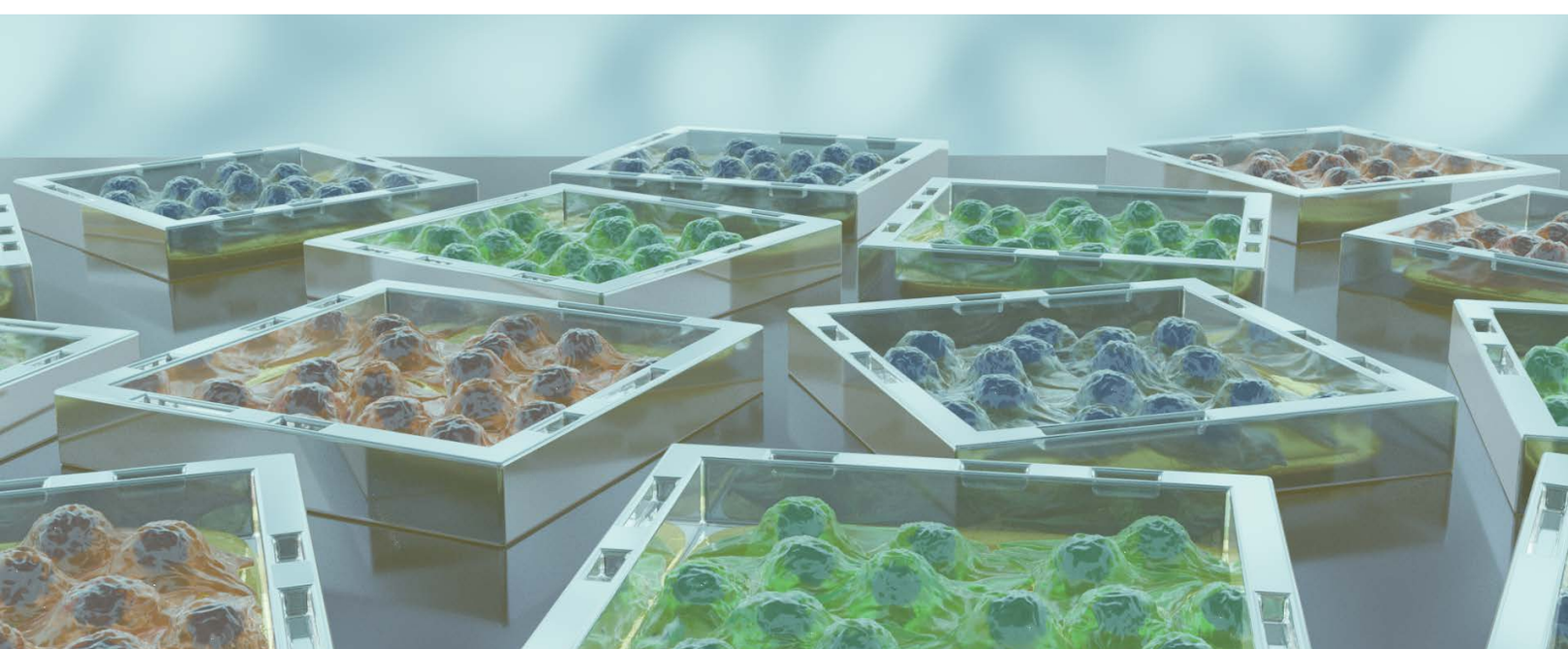
semarion

Supercharge High Content Imaging

SemaCyte® Microcarriers to Optically Barcode and Multiplex Various Cell Models Within Microwells

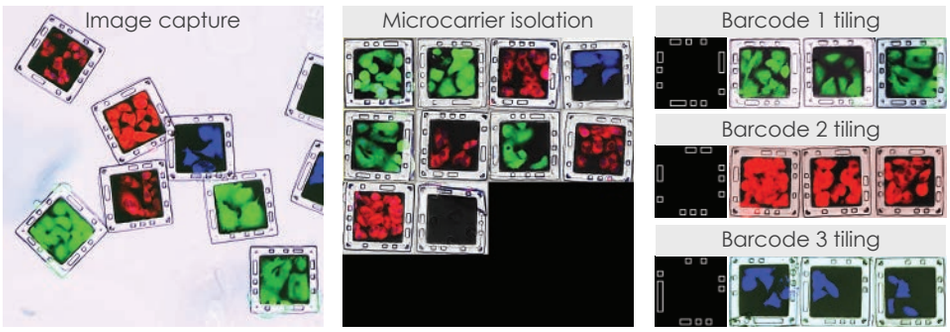
The SemaCyte® Multiplex platform transforms cell panel screening by enabling simultaneous analysis of multiple cell models within a single well. Each SemaCyte® microcarrier is encoded with optical barcodes, facilitating the pooling and identification of distinct cell models during imaging assays. This application note highlights a 4-plex cancer cell screen, demonstrating 4x faster data generation with 4x fewer reagents and plasticware. The results reveal biologically relevant insights into Nutlin-3A's effect on p53 activation, significantly speeding up compound profiling and biomarker identification while reducing assay costs and time.

Throughput: Multiplex 10 cells models to screen 10x faster
Cost Saving: Reduce the cost of cell panel screens by 6-fold
Efficiency: Reduce cell use, reagents, and plasticware



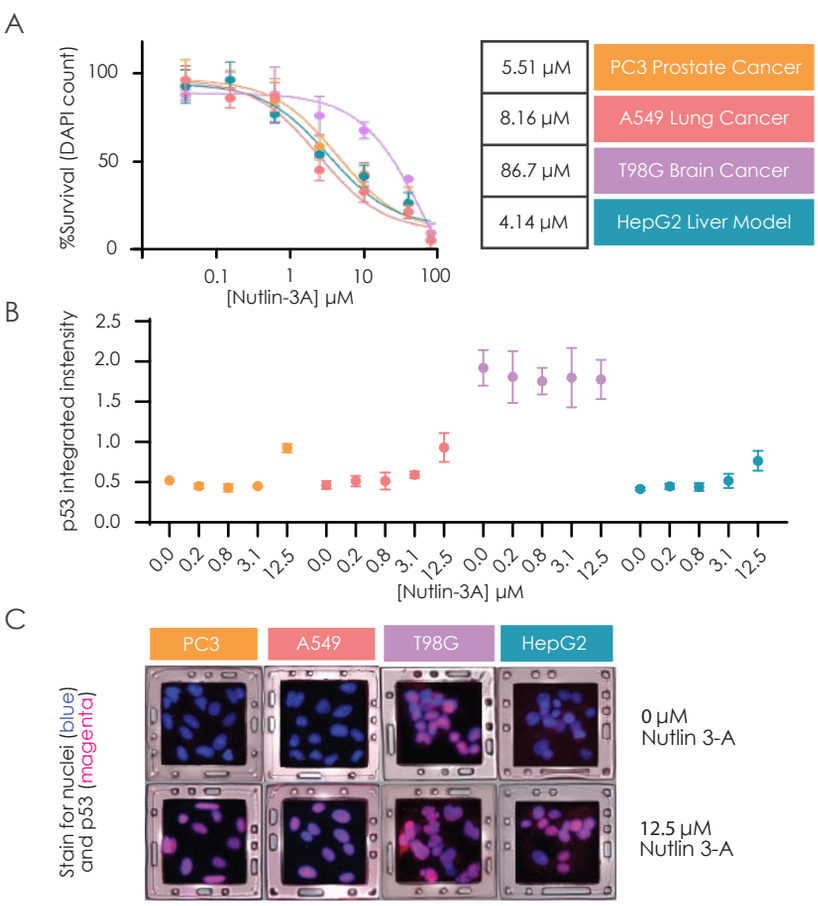
Cell Multiplexing with SemaCyte® Microcarriers

Each cell type is seeded onto a different SemaCyte® Seeding Dish, each containing SemaCyte® microcarriers with a unique optical barcode. Once the cells reach the desired confluency, the microcarriers are released, optionally frozen, and later pooled by mixing. This pooled mixture is dispensed directly onto a microplate containing a compound library for incubated. The optical barcodes, functioning like QR codes visible in the brightfield channel, enable precise identification. After imaging, software deconvolutes the barcodess, generating image sets for each cell type, which can be processed using standard image analysis workflows for further image analysis.



Barcode, store, pool, screen
Transform how you work with adherent cells

4-Plex Oncology Panel: Nutlin-3a Sensitivity Throught p53 Induction



(A) 72-hour proliferation assay results showing cell viability of pooled PC3, A549, T98G, and HepG2 cells after treatment with Nutlin-3A. T98G, a p53 mutant line, exhibited a higher IC50 compared to the other cell models.
(B) 8-hour mechanistic assay results demonstrating p53 activation, with MDM2-mediated p53 stabilization observed in PC3, A549, and HepG2 cells, correlating with their low IC50 values in the proliferation assay.
(C) Representative images of p53 activation at specific Nutlin-3A concentrations, highlighting distinct responses across the four cell lines.

10-20 SemaCyte® microcarriers, were analysed per cell line per condition each containing ~10 cels.

Data reflect mean cell counts per SemaCyte® with triplicate wells and standard deviations.