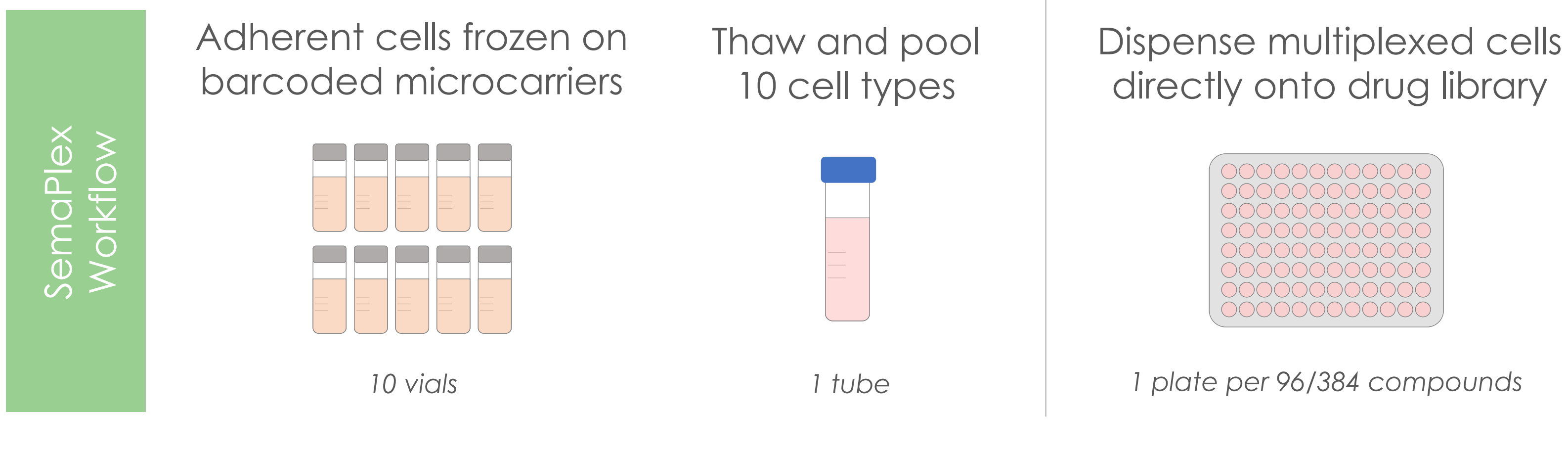


High-Order Cell Multiplexing for Image-Based Assays with the SemaPlex Platform

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Multiplexing has the potential to drastically accelerate the efficiency of cell panel screens. SemaCyte® microcarriers enable the moving and freezing of adherent cells. With the SemaPlex platform, we can now optically barcode these cell microcarriers to enable true high-order cell multiplexing for image-based assays. Here, we present a proof-of-concept 4-plex oncology cell panel screen for p53 stabilisation. Cell multiplexing in this assay allowed for a 4-fold reduction in reagent use and a 60-fold reduction in cell use.

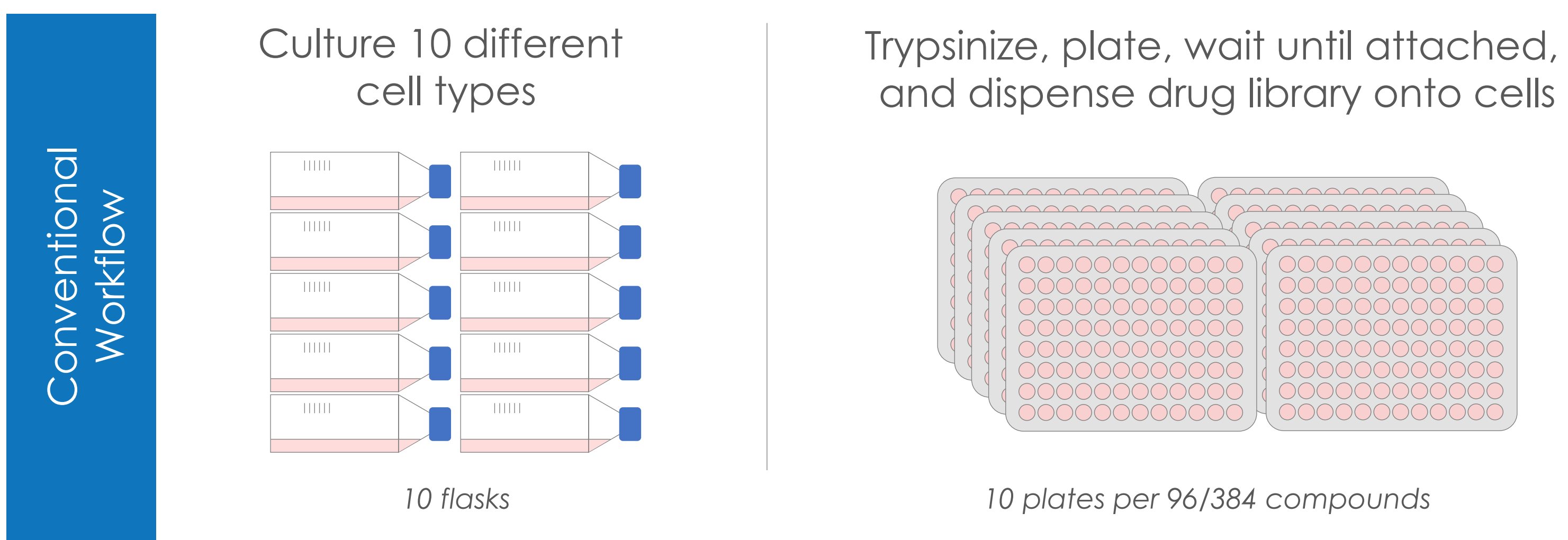
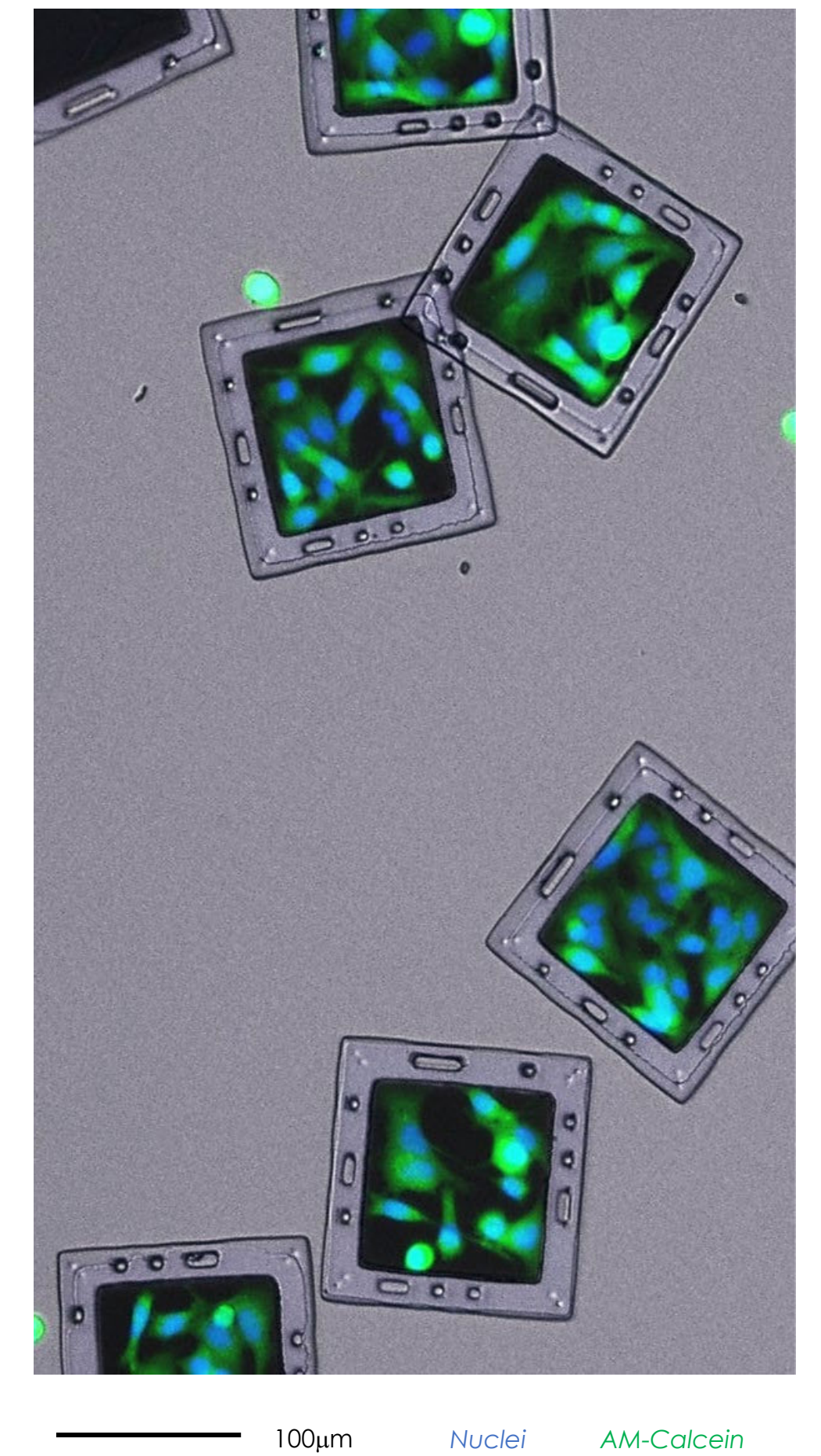
How a 10-Plex Cell Multiplexing Workflow Reduces Reagents & Time



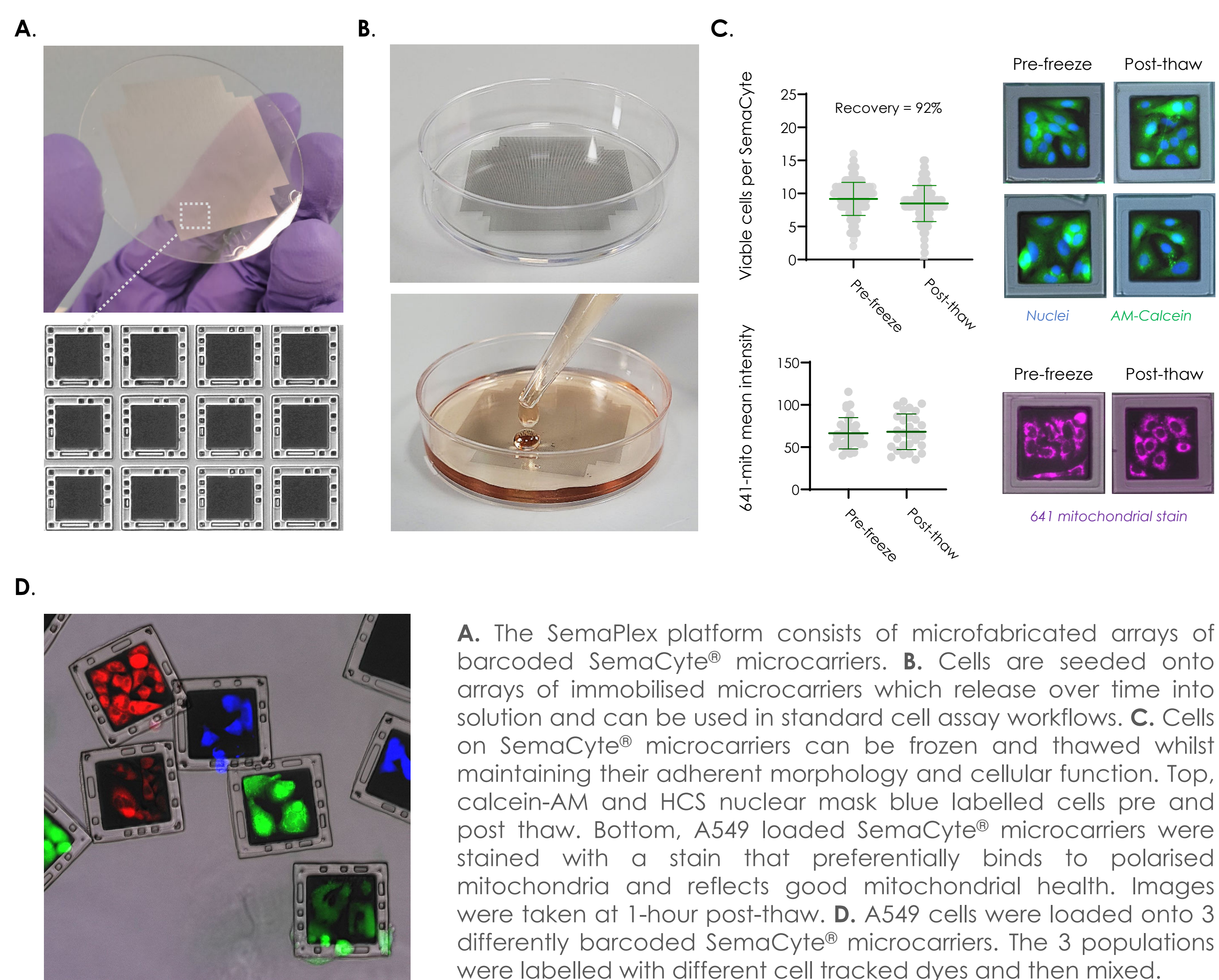
The SemaPlex platform enables the barcoding, freezing, and moving of adherent cells. Cells retain their adherent morphology as they are attached to micro-well shaped microcarriers. Here, they are contained within a 100 x 100 μm^2 growth area. The walls of these carriers contain optically visible barcodes able to generate millions of unique identifiers.

A cell panel screen using 10 adherent cell types typically requires lots of culturing and preparation. For each drug and cell combination, one well is necessary.

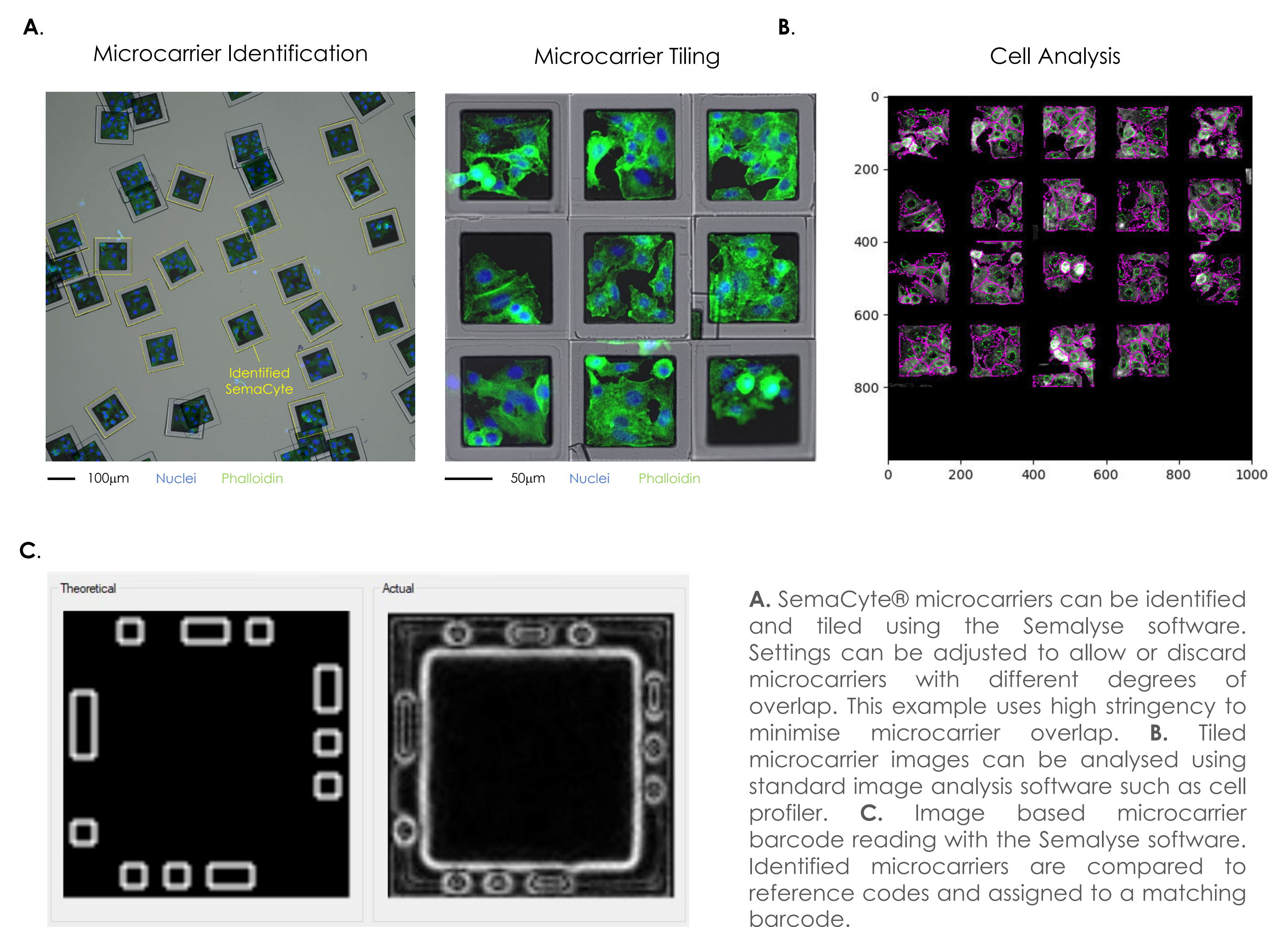
SemaPlex microcarriers with unique barcodes for each cell type can be thawed, pooled, and instantly dispensed onto a drug library. Here, each well would contain 10 cell types. For this 10-Plex setup, there would be a 10-fold reduction in the reagents needed. Depending on the size of the drug library, this approach could drastically shorten project timelines.



Preparation of Barcoded, Frozen, Adherent cells



Integration with Standard Image Analysis Workflows



4-Plex Oncology Cell Panel Screen for p53 Stabilisation

