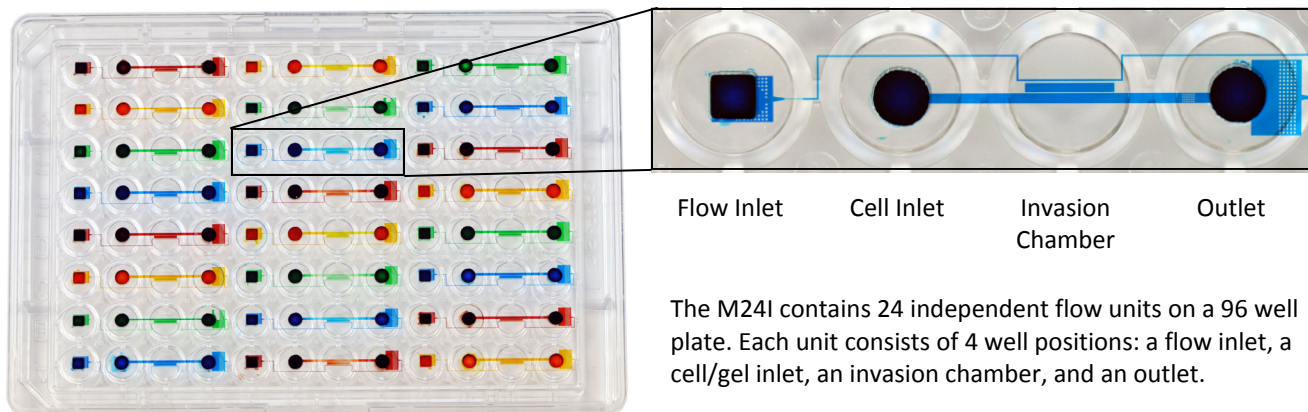


MiCA M24I: Microfluidic 3D Invasion Array

The future of 3D culture. The MiCA-M24I is a breakthrough product enabling 3D invasion assay with perfusion culture in a 96 well format. Track dynamic cell invasion through any gel matrix at a fraction of the time and cost of alternative methods. Experience cell biology in 3D.

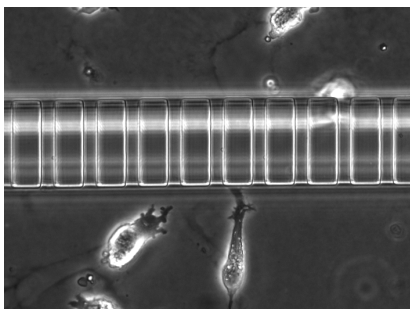


Flow Inlet Cell Inlet Invasion Chamber Outlet

The M24I contains 24 independent flow units on a 96 well plate. Each unit consists of 4 well positions: a flow inlet, a cell/gel inlet, an invasion chamber, and an outlet.

The MiCA Advantage

- Perfusion based 3D invasion assay with dynamic tracking of individual cells
- Standard 96 well format is compatible with existing assays and instrumentation
- Use only 4 microliters of gel per invasion chamber

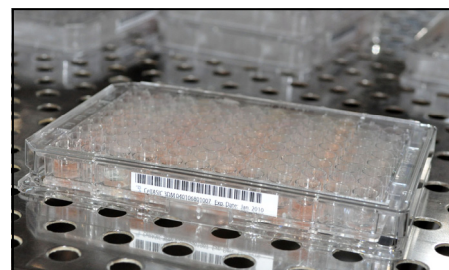


Advanced 3D Invasion Microenvironment

The cell chamber is designed to mimic the cancer invasion environment, with cells embedded in extracellular matrix (ECM) and fed via diffusion from a continuously perfused capillary channel. Microfabricated pores (8x8 micron cross section) filled with ECM provide a distinct barrier to assay cell invasion via microscopy. A 170 μm thick glass slide bottom enables high quality cell imaging.

Stand-Alone Microfluidic Array Plates

The standard layout allows the advanced microfluidic units to be operated just like a typical 96-well plate. The gravity driven perfusion design eliminates the need for pump or tubing connections-- simply fill the inlet well with your exposure solution. Compatible with plate readers, liquid handlers, and inverted microscopes.



Learn more at: www.cellasic.com/invasion

Features and Benefits

Continuous Perfusion Culture: The advanced microfluidic design enables perfusion culture of cells in 3D gel.

Easy to Use: The open-top chambers and gravity fed perfusion method makes the M24I accessible to any lab.

Standard Multiplexed Format: The 96 well plate format allows 24 independent experiments to be performed in parallel.

Maximize Value per Data Point: The 4 μl chambers save gel/cell usage, while the optical glass bottom ensures the highest quality cell images.

Technical Specs

Format: SBS standard 96 well plate
Bottom Surface: #1.5 (170 μm) glass coverslide
Channel Material: Silicone (PDMS)
Units per Plate: 24
Chamber Size: 4.8 x 0.5 x 0.05 mm (LxWxH)
Chamber Volume: 0.12 μl
Invasion Barrier Pores: 8 μm
Perfusion Barrier Pores: 2 μm
Inlet Well Volume: 300 μl
Gravity Perfusion Rate: 50 $\mu\text{l}/\text{day}$
Chamber Refresh Time: 3.5 min

Example Applications

Gels: Matrigel, Geltrex, collagen, fibrin, hydrogels, gelatin, polymer matrices, etc.

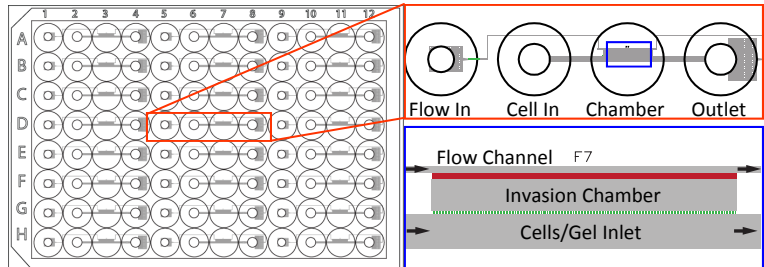
Cells: Cancer cell lines, primary cells, neurons, HUVEC, co-cultures, etc.

Assays: High content analysis, proliferation/toxicity, immunostaining, live cell imaging, etc.

Plate Operation

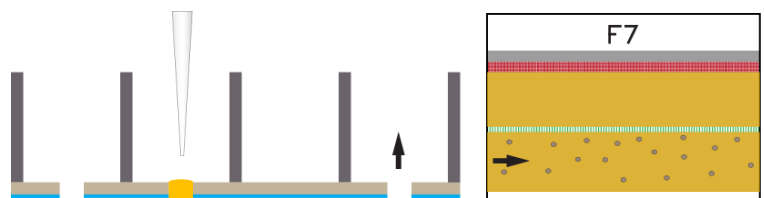
The M24I plate was designed for easy operation and adaptation to current biological methods. All that is required to use the microfluidic plate is a standard pipette.

1. Plate Layout



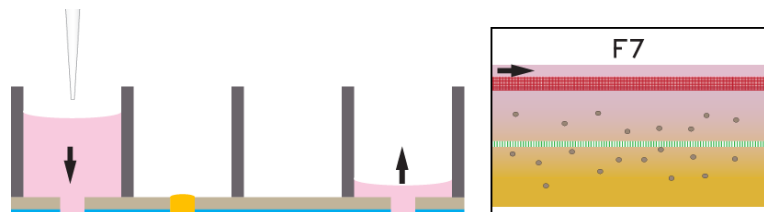
The M24I has 24 units on a 96 well plate. Each unit consists of 4 well positions: a flow inlet, a cell inlet, an invasion chamber, and an outlet. Cells can invade through gel filled 8 micron pores and are fed with perfusion from the flow channel. A 170 μm thick glass slide forms the floor of the chamber for improved cell imaging.

2. Load Cells/Gels



Dispense cells mixed with gel into the cell inlet well. Capillary flow will draw the solution into the chamber. A microfabricated invasion barrier (green) prevents cells from entering the invasion chamber, while gel is stopped by the perfusion barrier (red). The gel polymerizes in the chamber to create the 3D invasion environment.

3. Perfusion Culture for 3D Cell Invasion



Add cell culture medium to the inlet well. The liquid height difference between the inlet and outlet wells drives flow through the chamber. The flow rate of 50 $\mu\text{l}/\text{day}$ provides continuous flow for 3 days before refilling. The medium fills the flow channel, and diffuses into the invasion chamber, simulating physiologic mass transport for cell invasion.