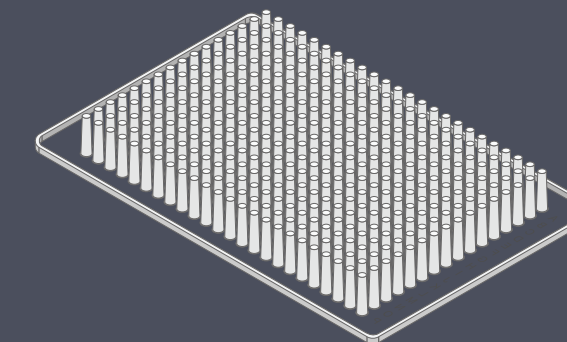
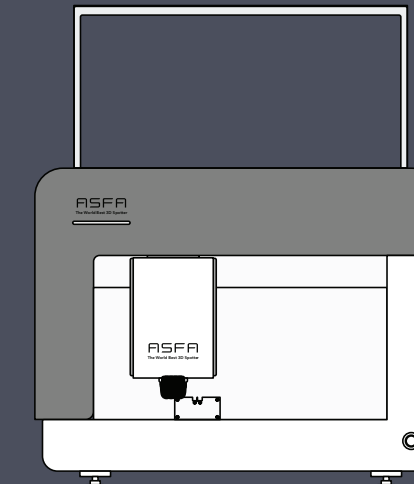
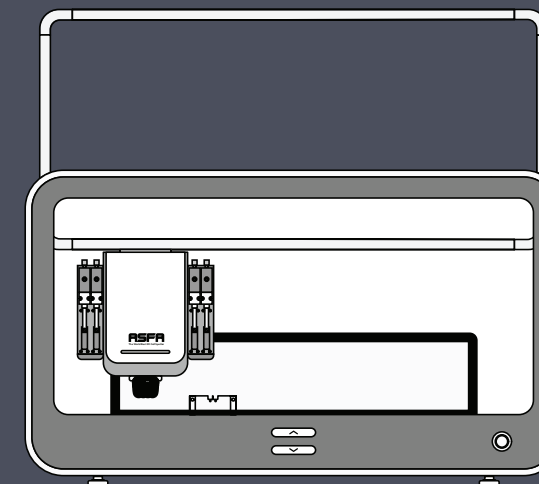
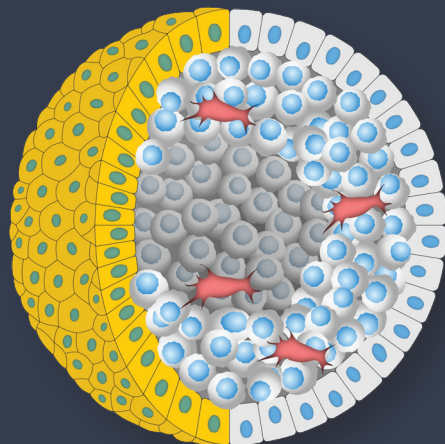


High throughput Liquid handler and 3D plate for organoid and spheroid



MBD

www.mbdbiotech.com

www.oncosensi.com

Tel 031-888-9807

MBD

ASFA® Spotter

Key features

Rapid dispensing up to 20 nL

Dispense at high speed into standardized 96, 384, and 1536 well plates using non-contact dispensing methods.

Fast dispensing time

- 96 well plate: 30 seconds (1 nozzle)
- 384 well plate: 1 minute (1 nozzle)
- 1536 well plate: 2 minutes (4 nozzles)

Capable of dispensing high viscosity samples

- High viscosity Matrigel mixtures and extracellular matrices can also be dispensed using a pressure-pulse method.
- Suitable for dispensing Matrigel mixtures such as organoids and spheroids.

	0.5% Alginate	1% Alginate	2% Alginate	3% Alginate
Viscosity (cP)	12.54	27.42	120.43	324.30
Tip	S090	S090	S200	S200
Nozzle diameter (µm)	90	90	200	200
Minimal dispensing volume (nL)	7	12	120	130

Low dead volume

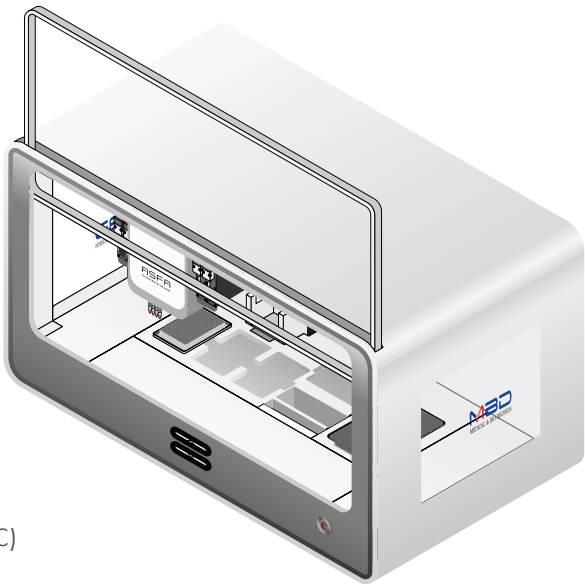
- Minimize dead volume by using disposable tips during busy times. (up to 2 µL)
- Reduce costs of reagents, etc. by using small amounts of sample.

Window

- Blocking fine dust that may cause contamination during experiments by installing the window.
- Blocking external disturbance (external environmental factors) that may affect small volumes.

Cooling unit

- Equipped with a circulating cooling unit to maintain a refrigerated state and prevent gelation when dispensing high viscosity samples. (cooling possible up to 4°C)
- Prevents evaporation of small volumes.



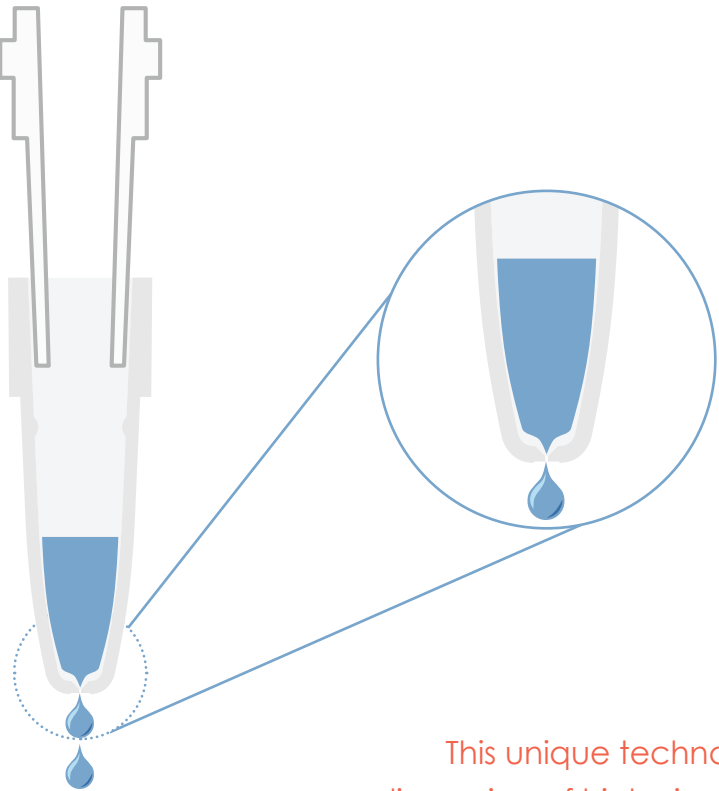
Liquid Handler that can dispense accurately and quickly up to nL units

non-contact transfers
minimal dead volume
no carryover

ASFA® Spotter

How does it work?

Pressure-pulsed droplet ejection technology is a patented method for optimizing non-contact liquid dispensing tasks. The system use four individually positive pressure channels to generate droplet from 20 to 4,000 nanoliters from a small hole at the bottom of each well. Each channel can generate up to 100 droplets per second.



This unique technology enables non-contact dispensing of high viscosity substances and direct dilution of drugs in drug screening assays.

ASFA® Spotter Direct dilution

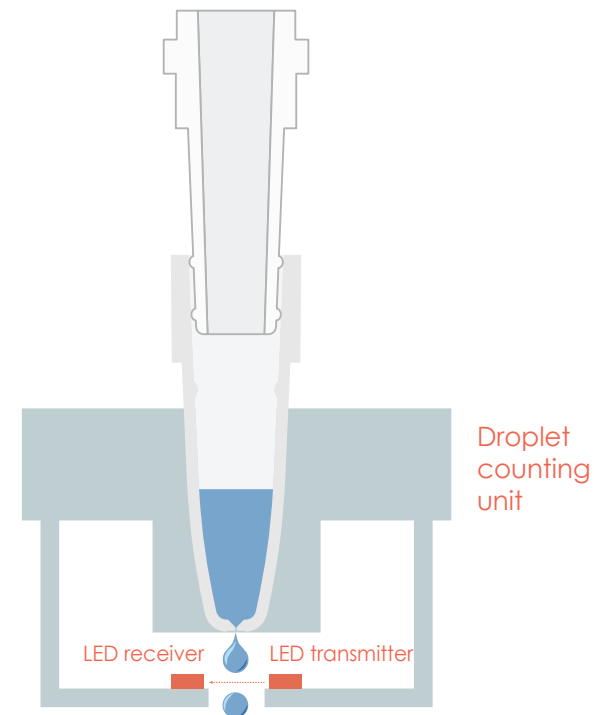
Pressure-pulsed droplet ejection with droplet counting

Optimal for high-throughput drug
screening testing

Direct dilution (When diluting samples such as drugs)



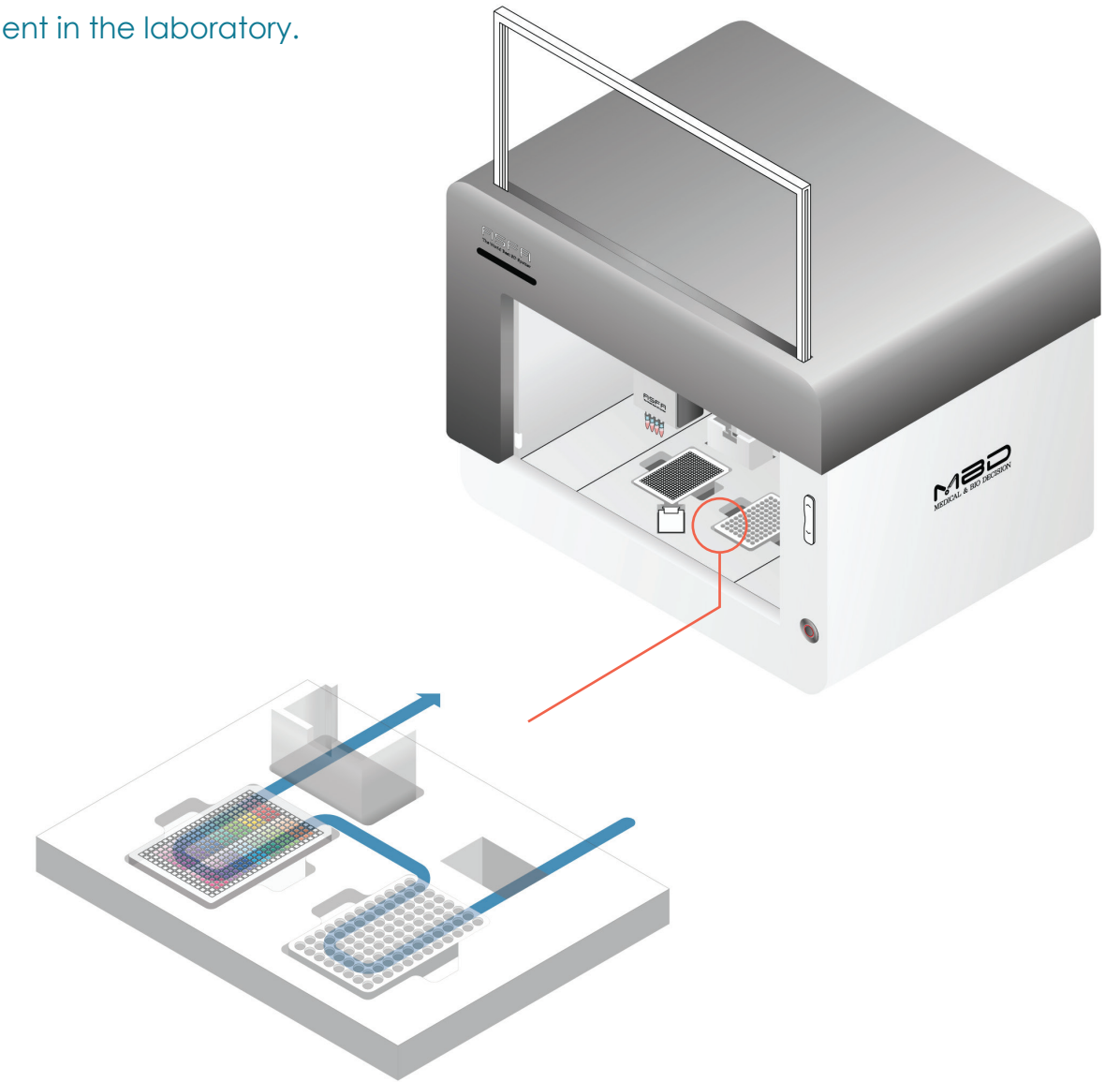
- Unlike serial dilution, the sample is diluted using the direct dilution method using the droplet ejection method
- Non-contact method prevents cross-contamination
- When dispensing 14 drugs serially diluted in 7 concentrations 3 times on a 384 plate using the direct dilution method, it takes 10 minutes
- High precision and reproducibility



The LED receiver counts the number of times the sample is dispensed by the decrease in the amount of reception of infrared by the sample passing through the opening of the drop counter module.

ASFA® Spotter Mini

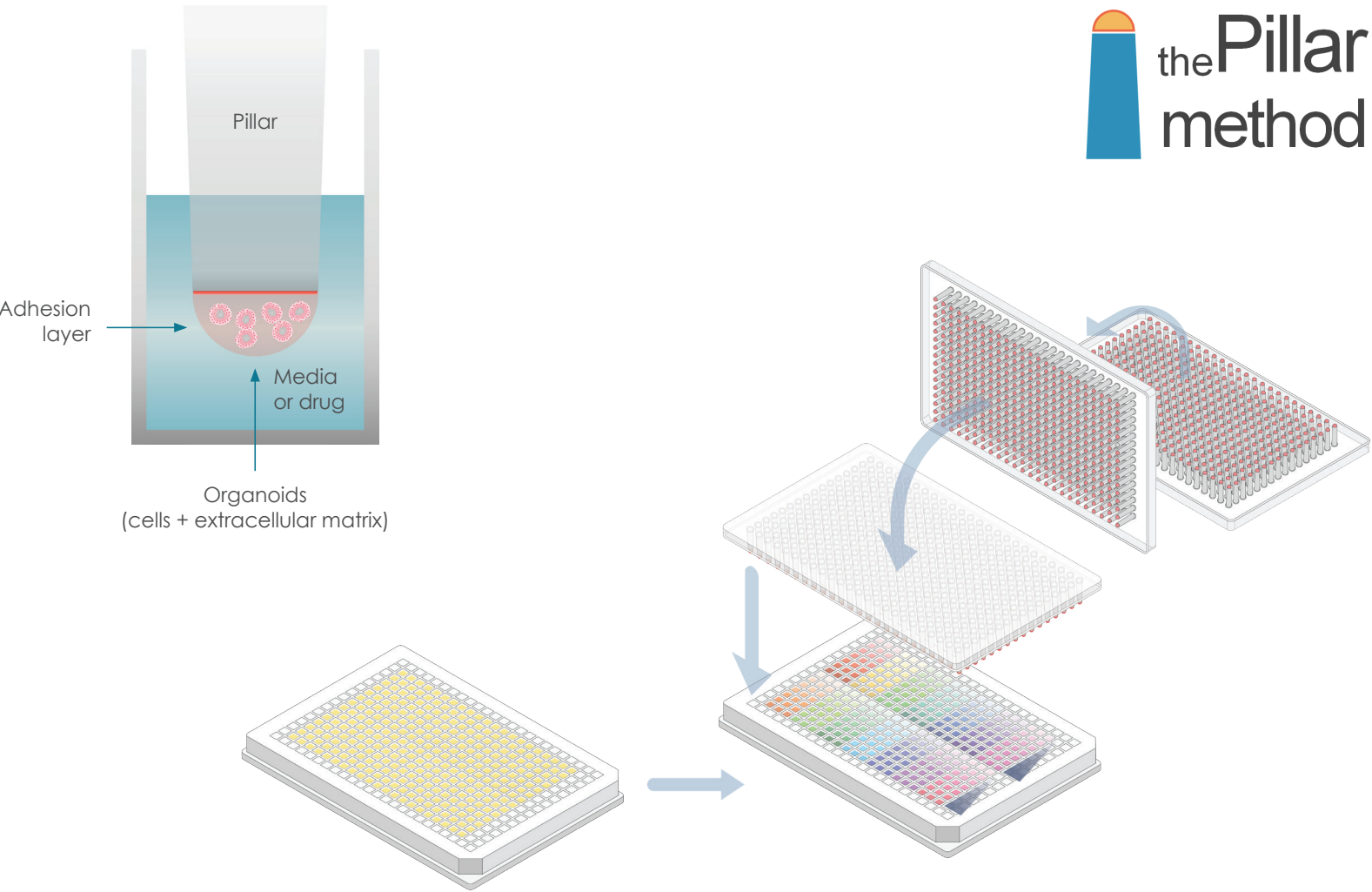
The compact size of the ASFA mini creates a more flexible environment in the laboratory.



Cooling unit

- Equipped with a circulating cooling unit to maintain a refrigerated state and prevent gelation when dispensing high viscosity samples (cooling possible up to 4°C)
- Prevents evaporation of small volumes

Cellvitro® Pillar plate
the Pillar Method



The Pillar Method is a unique method developed by MBD for culturing and testing spheroids. It offers numerous advantages when culturing spheroids or using them for drug screening.

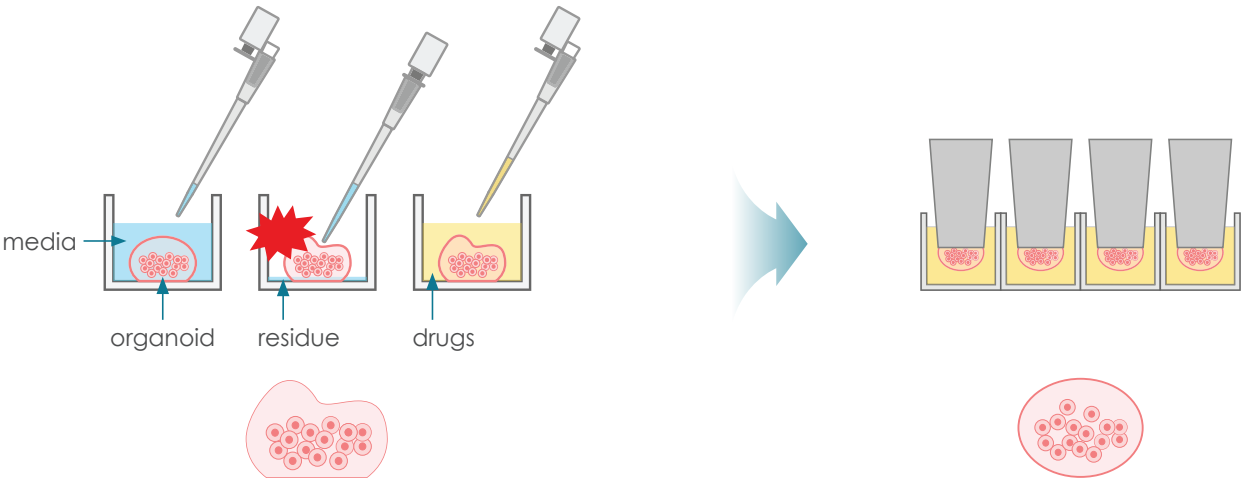
Convenient

- Convenient to use compared to 96-well plates when culturing organoids
- Easy to replace culture medium, wash, and drugs by simply replacing the well plate

Cellvitro® Pillar plate
Key features

- Unlike the method of culturing cell lines in 96-well plates, the specimen is dispensed onto the pillar plate and cultured
- The pillar structure and coating source technology stably maintain the extracellular matrix around the organoid, greatly increasing the efficiency and accuracy of cell culture
- Compared to the existing well plate-based culture technology, it minimizes organoid damage and forms uniform organoids
- Maintains strong adhesion between the extracellular matrix and the pillar surface (up to 1 month in the culture medium) and is convenient for replacing the culture medium

Minimize cell damages

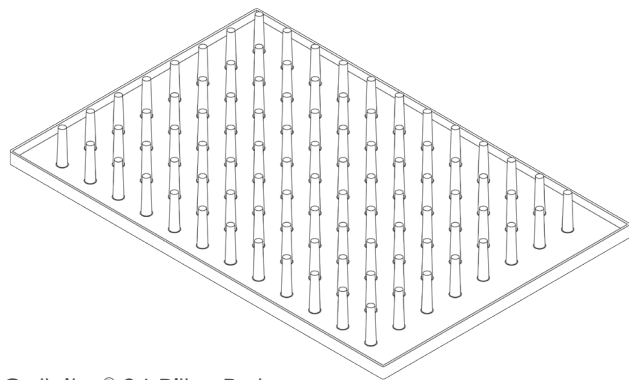


Conventional well plate-based organoid culture:
Cell damage, nonuniform organoids

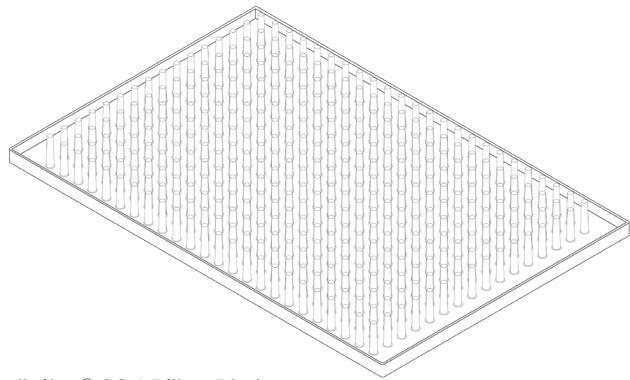
Pillar plate-based organoid culture:
uniform organoids

Cellvitro® Pillar plate

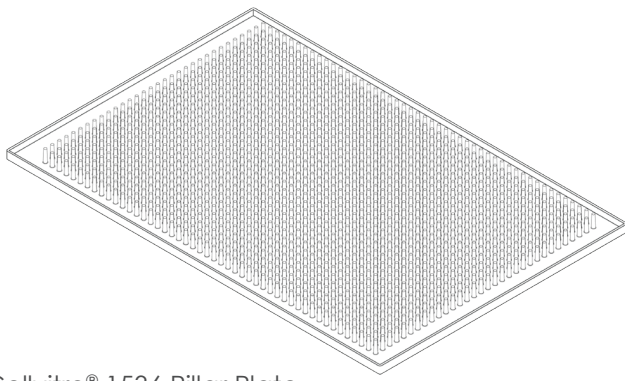
Key features



Cellvitro® 96 Pillar Pate



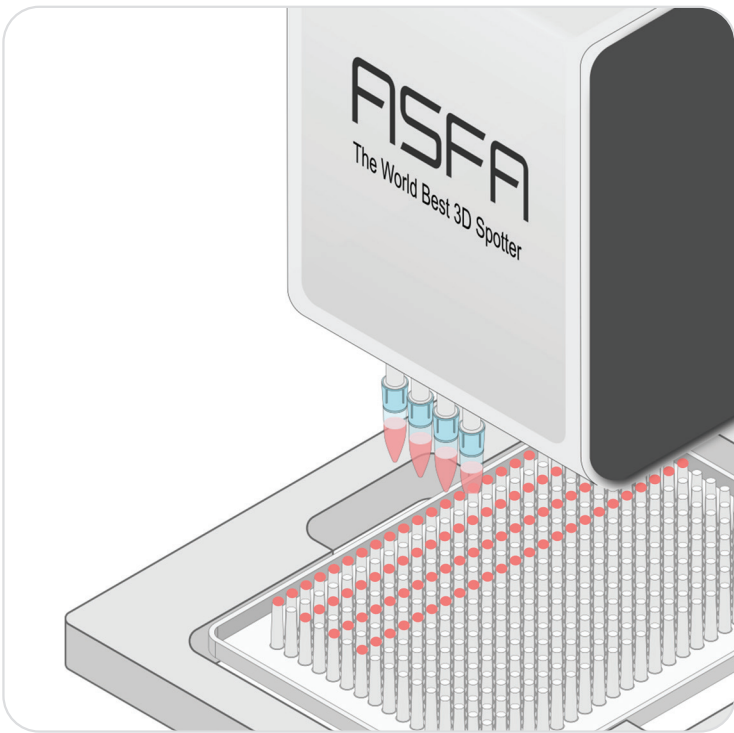
Cellvitro® 384 Pillar Plate



Cellvitro® 1536 Pillar Plate

Automation friendly

- Provides 96, 384, and 1536 pillar plates, providing flexibility to suit the experiment and enabling experiments with a small amount of specimen



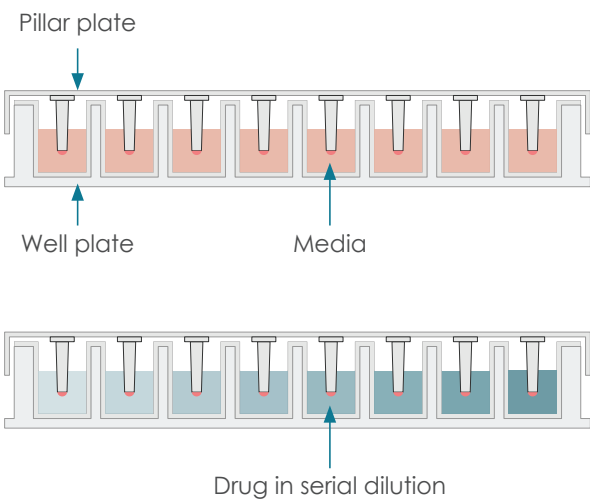
The Pillar Method

Key features

Why use the Pillar Method?

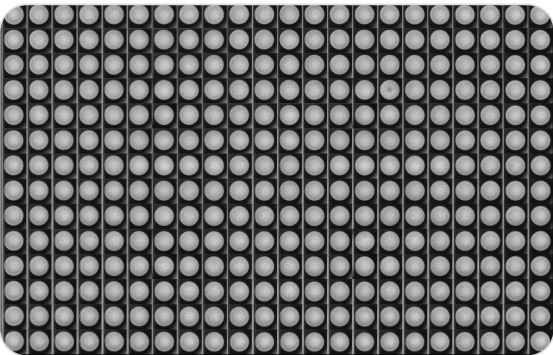
Pillar Method is an optimized method for drug screening using organoids and spheroids developed by MBD. A large number of organoids can be easily produced using pillar plates. Organoids from pillar plates are very uniform and have high reproducibility.

- Dispense within 1 minute based on 384 pillar plates
- Simultaneous screening of 14 drugs at 7 concentrations in 3 repetitions based on 384 pillar plates
- Saving of reagent costs due to small sample volume
- Possible to experiment on combination drugs (e.g., targeted agent + cytotoxic agent)
- High reproducibility & precision

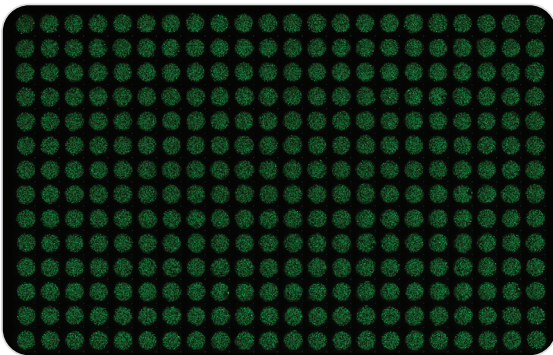


Suitable for High-throughput drug screening testing

Bright field image



Fluorescent image



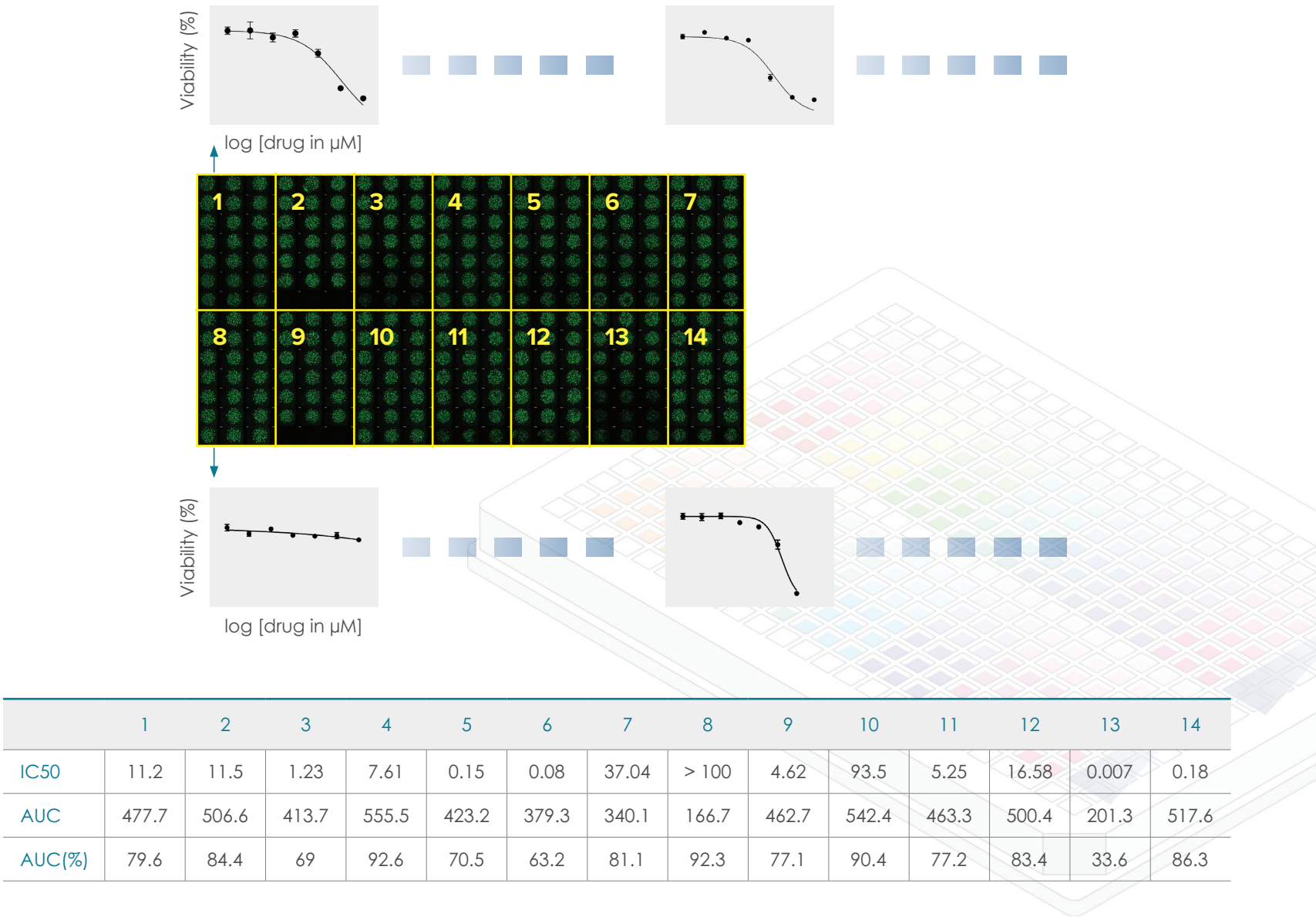
1,500 cells/pillar, 1.5 µl, 5 days incubation (70% Matrigel) (CV 4.09%, cell count)

Suitable for high-throughput drug screening tests using automated dispensers

The Pillar Method

Key features

Suitable for High-content drug screening testing



※ 14 drug screening tests at 7 concentrations in 3 repetitions based on 384 pillar plates

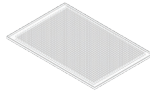
※ Automatically read using a scanner to obtain IC50 and draw AUC curve

Specifications

High-throughput Liquid Handler (ASFA® Spotter & ASFA® Spotter Mini)

- Dispensing volume (nL): 20~4,000
- Dispensed volume CV%, @ 100 nL Spotting): less than 5 %
- Plate cooling feature
 - Chiller specification
 - ✓ Filling Volume: 8L or more
 - ✓ Working Temperature: -20.0°C~+160.0°C
 - ✓ Heat Cap.: 1000 W more
 - ✓ Cooling Capacity W (Bath Fluid : Ethanol) 20°C: 260W or more
 - ✓ Pump Capacity Flow Rate: 9L/min or more, Pressure: 0.35 bar or more
 - Cooling area: Tip Tray, Target Plate
- Dispensing method: Pressure-pulsed droplet ejection (On-the-fly mode)
- Dispensing speed
 - 96 plate: 30 sec (with 1 channel)
 - 384 plate: 1 min (with 1 channel)
 - 1536 plate: 2 min (with 4 channels)
- Dimension: ASFA Spotter - 1045(W) x 600(D) x 620(H)mm, ASFA Spotter Mini - 811 (W) x 610(D) x 647(H)mm
- Weight: 120 kg
- Power supply: 220V, 50/60Hz, 10A
- Includes 4 channel nozzles
- Includes UV Light (365nm)
- One tip tray and one target plate can be installed in the work area

Cellviro® Pillar/well plates L x W: 127 x 84 mm

	Model	Pillar diameter	Pillar spacing	Cells/pillar	volume/pillar
	96 pillar plate	2 mm	9 mm	~10,000 cells / 1.5 μL	200 μL
	384 pillar plate	2 mm or 1 mm	4.5 mm	~10,000 cells / 1.5 μL or ~3,000 cells / 500 nL	40 μL
	1536 pillar plate	1 mm	2.25 mm	~2,000 cells / 500 nL	5 μL