3D biology with a 2D workflow.

MOSgen is the first benchtop platform built for high-throughput 3D biology. It generates uniform, permeable cell-matrix microdroplets at industrial scale, ready for any standard assay.

SCALE. — STANDARDIZED. — SIMPLE.

MOSgen BENCHTOP INSTRUMENT

70k MOS / lane

Run 1-4 parallel lanes. 15 minutes end-to-end. **~1,750 wells** at 40 MOS/well.

< 3 % CV diameter

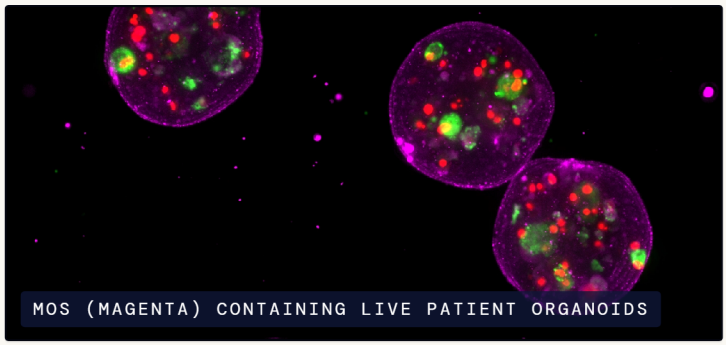
Image-driven PID size control. **Uniform from droplet 1 to 70,000**.

Drop-in workflow

Pipettable like a liquid. Drops into 96/384/1536 plates and **your existing pipelines**.

What are MOS®?

Each MOS is a **7 nL, ~240 µm matrix-integrated microdroplet**. Permeable to stains, antibodies, and T-cells, with a high surface-to-volume ratio that prevents necrotic cores. Generate **rapid 3D cultures** of iPSC/stem-cell-derived organoids, clonal lines, patient organoids, or primary tissue. Starting densities from **1 to 400 cells per MOS.**



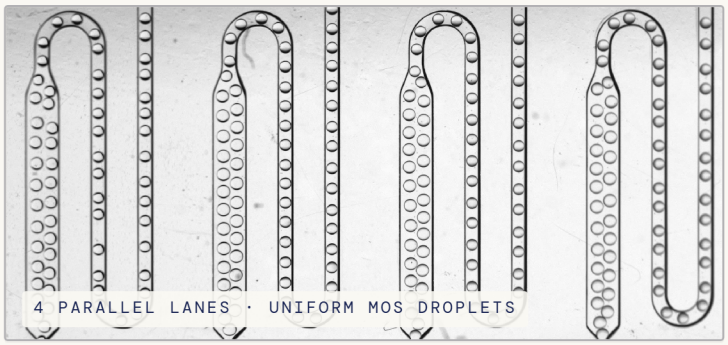
MOS (MAGENTA) CONTAINING LIVE PATIENT ORGANOIDS

Test any modality.

Small molecules, **ADCs, TCEs, TILs**, and other advanced therapeutics. Run functional studies with exogenous cells in co-culture or even **endogenous cells from primary tissue**.

What is MOSgen™?

The **automated benchtop engine** that produces MOS at **industrial scale**. Image-driven PID control holds < 3% CV across 4 parallel lanes, with single-use consumables and zero dead volume. Supporting virtually **any cell type** and **various matrix types** across a large range of sample input volumes. **Under $1 per well** at 40 MOS/well (1.9¢ per MOS).



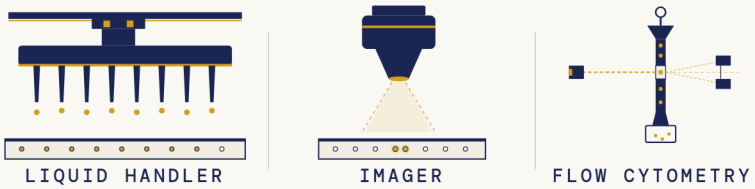
4 PARALLEL LANES · UNIFORM MOS DROPLETS

Now in Early Access.

Paid evaluation units placing now with HTS cores, pharma R&D, and translational research programs. Benchtop instrument + single-use consumable kits.

Plug into the instruments you already own.

MOS handle like a liquid. Standard pipettes, multi-channel heads, and liquid handlers dispense MOS into any plate format. Downstream: high-content imaging, flow cytometry, plate readers, and sequencers — **no new instrumentation required**.



LIQUID HANDLER | IMAGER | FLOW CYTOMETRY

Bring any sample. Patient, iPSC, organoid, clonal line, PDXO. →

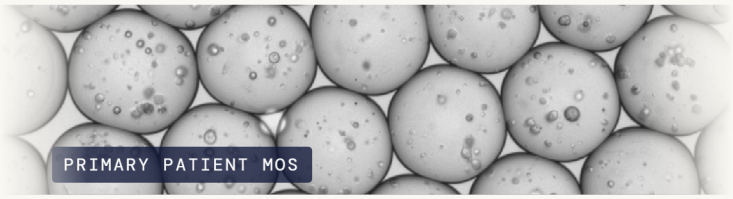
Push-button MOSgen. 280k uniform MOS in 15 min across 4 lanes. →

Drop into your assay. Your modalities, your labware, your reagents. →

Your usual readouts. Imaging, flow, viability — at single-MOS resolution.

Demonstrated across treatment modalities.

Cancer and **normal tissue** (lung, liver, colon) enabling side-by-side tox and efficacy in a single run.



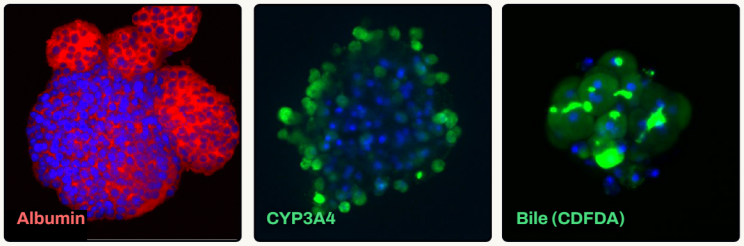
CASE A · LIVER TOXICITY

Functional liver tissue that detects toxicity.

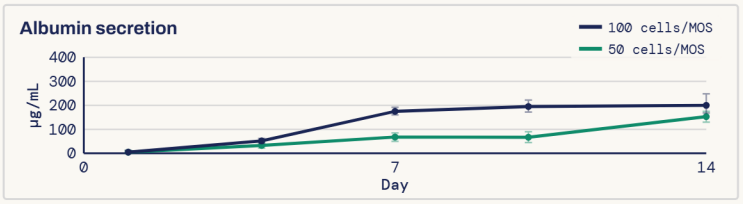
Primary human hepatocytes in MOS (PHH-MOS) preserve hepatic function for weeks **(left)** and detect DILI compounds with greater sensitivity than conventional spheroids **(right)**.

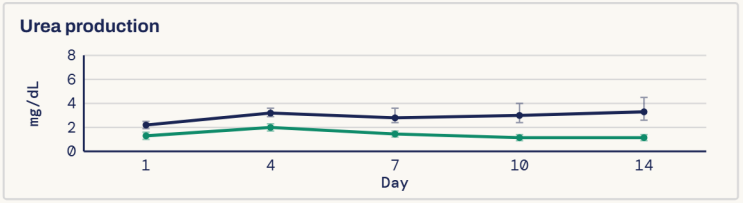
MAINTAINED HEPATOCYTE IDENTITY

BILE CANALICULI FORMATION

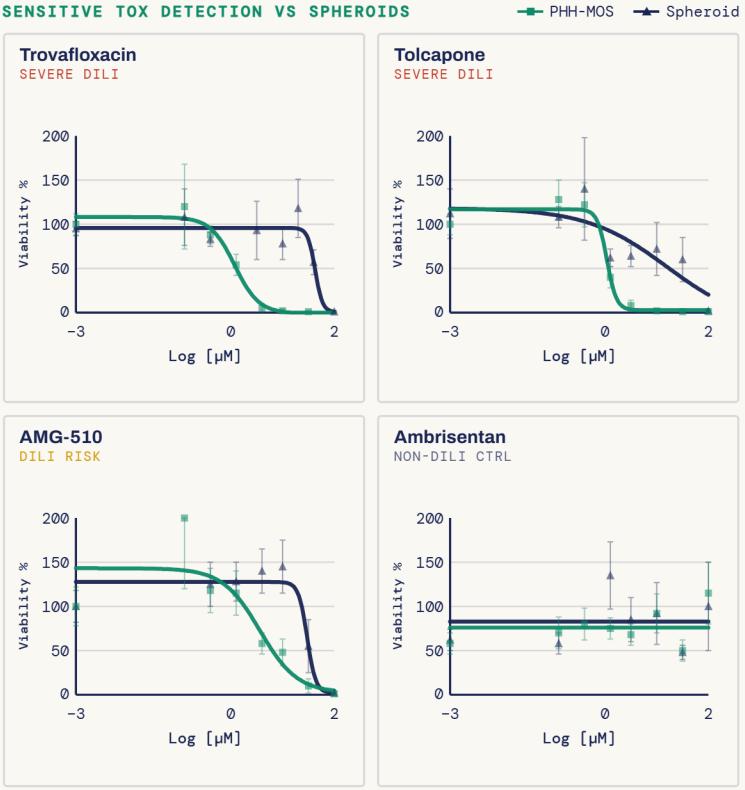


DAPI · nuclei (blue) in all panels





SENSITIVE TOX DETECTION VS SPHEROIDS



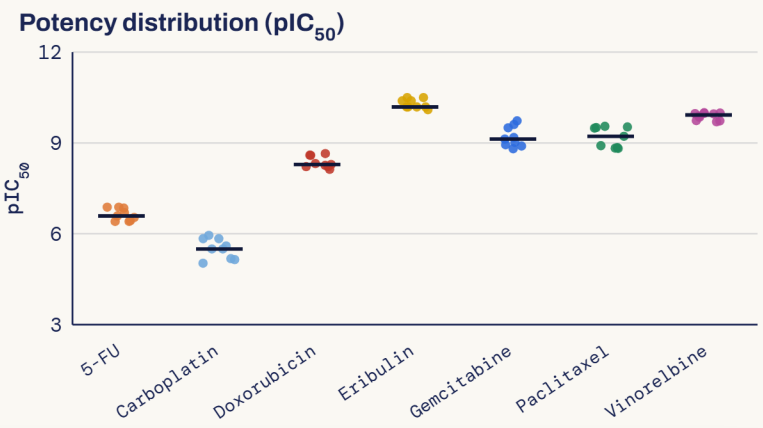
Functional liver tissue at screening scale: detecting DILI compounds earlier with more sensitivity than spheroids (5 µL domes).

CASE B · HIGH-THROUGHPUT SCREENING

7 standard-of-care drugs, one HTS-ready screen.

Patient-derived breast cancer organoids in MOS, screened against **7 standard-of-care chemotherapies** across an 8-point dose range with biological triplicates in 384-well plates. Potency (pIC_{50}) clusters tightly across replicates.

2,790 total wells | < 8% CV | Z′ = 0.56 | SSMD −7.64 | 384-well

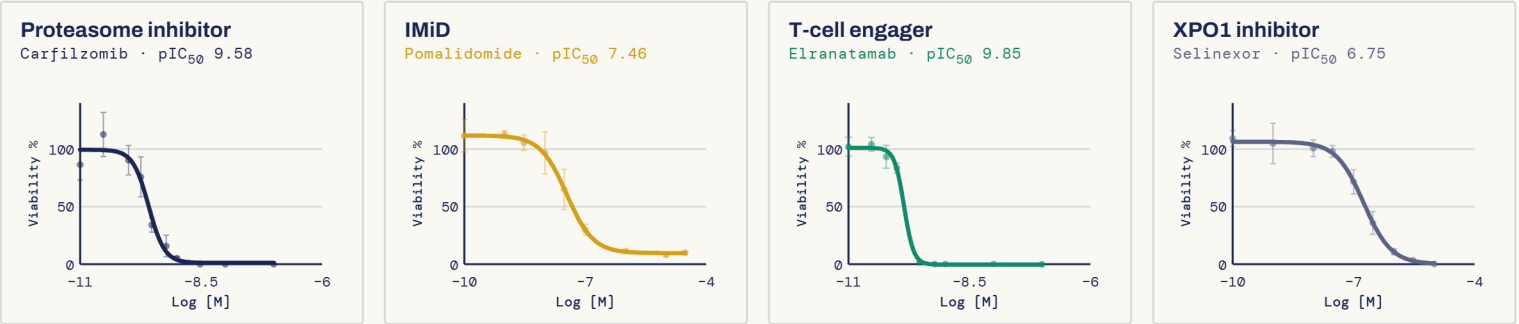


HTS-grade quality (Z′ = 0.56, <8% CV) on patient-derived tumor organoids. Tight, reproducible dose-response across every drug and replicate.

CASE C · THERAPEUTIC MODALITIES

One platform, every major MM mechanism.

Multiple-myeloma patient MOS were dosed against four standard-of-care drug classes — each panel shows a clean, MOS dose-response curve with a well-defined pIC_{50}.

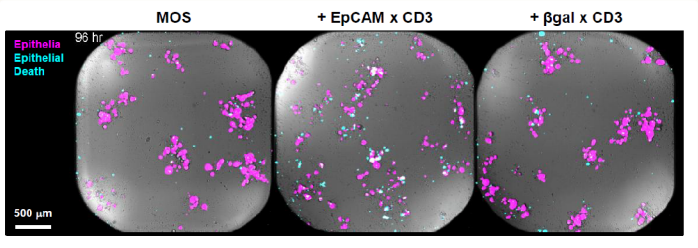


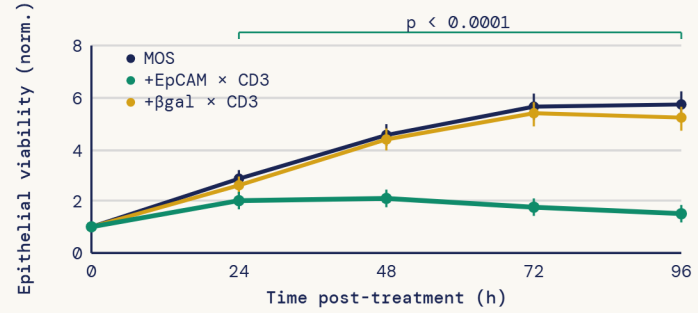
The MM MOS assay responds across proteasome inhibitors, IMiDs, XPO1 inhibitors, and T-cell engagers — covering cell-intrinsic and immuno-modulatory MOAs in a single platform.

CASE D · IMMUNO-ONCOLOGY

Selective BiTE-mediated tumor killing in NSCLC.

MOS preserve functional tumor biology, including the **native immune compartment**. Longitudinal imaging quantified T-cell mediated killing in a **primary patient sample** treated with an **EpCAM × CD3 bispecific** versus control (βgal × CD3), in 384-well plates over 96 hours.



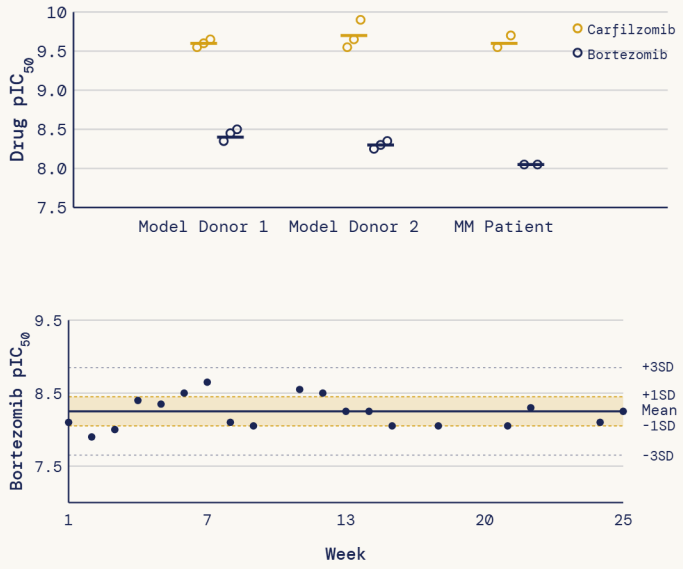


Patient's own T cells respond on-target in NSCLC MOS — tumor biology and functional immune compartment preserved.

CASE E · REPRODUCIBILITY

Validated MOS assay, reliable over months.

MOS deliver **reproducible drug-response profiles over time**. Two MM models and a patient sample reproduce IC_{50}s with **MSR < 2.5** across two standard-of-care drugs (top), and a **25-week** Bortezomib stability study holds **MSR = 4.3** (bottom) — same answer every run, every month.



Pharma-grade reproducibility — consistent IC_{50} every replicate, same takeaway across 25 weeks. HTS-ready assay reliability.

Applications

HTS & drug screening
Primary & secondary screens in 96/384/1536 plates.

Preclinical tox screening
Normal tissue MOS for early safety profiling.

Immuno-oncology
BiTEs, ADCs, TILs, advanced therapeutics, co-cultures.

Functional assays
Single-MOS resolution, replicate power per well.

Translational research
Predict *ex vivo* responses that map to patient outcomes.

Interested in these applications or others?
MOS technology works across oncology, toxicology, immunology, and beyond — wherever 3D biology matters.

CONTACT@UNIFORMBIO.COM