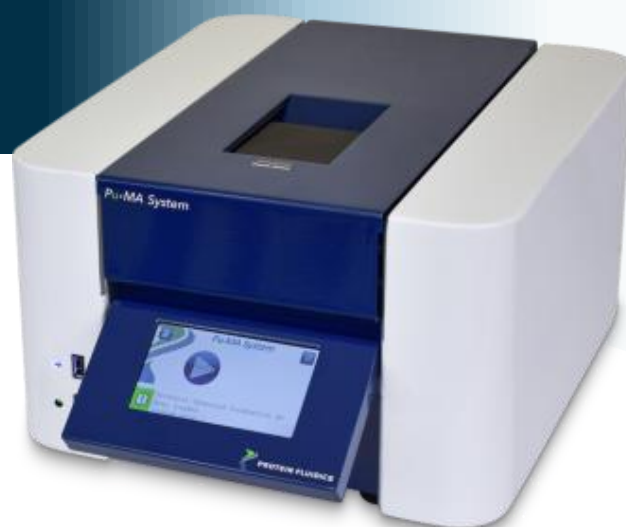


Pu·MA[®] SYSTEM 3D

Automated 3D Cell-Based Assays

The Pu·MA System 3D has been designed to automate assays for your 3D cell models such as organoids or spheroids. The Pu·MA System 3D maintains the cells in our specially designed microfluidic flowchips and enable automated media or reagent exchanges for assays such as immunofluorescence staining, *in situ* supernatant sampling or compound treatment.



Pu·MA System Benefits

Improve your IF Staining!

Spend more time looking at your organoids

- **Zero** organoid perturbation during staining & wash
- Reduce pipetting by **20X** & save **5 hours** of hands-on time
- **10X more precise** organoid location for your microscope

Streamline your assay!

Choose less pipetting & more science

- **20X Reduced** pipetting steps = reduced human error
- **15-minute** flowchip prep time & **5-minute** protocol set up
- Only **1-Touch** to run your assay protocol

Explore new dynamics!

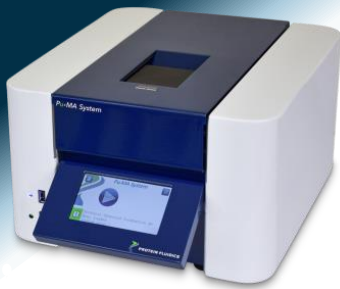
Automate your organoid supernatant sampling

- **5X increased** sensitivity for secreted analytes
- Up to **7 custom timed** *in situ* supernatant samples
- **>95%** fluid exchange between wells

Automated Assay Workflow

The Protein Fluidics' Pu·MA System 3D streamlines your workflow to automate assays with minimal user handling. Transfer organoids to the flowchips, add media and reagents, place the flowchips holder into the system, select the assay protocol and press play. The system is touchscreen driven with an intuitive interface. At the end of the assay the samples are ready for downstream analysis such as high-content imaging or luminescence readouts.





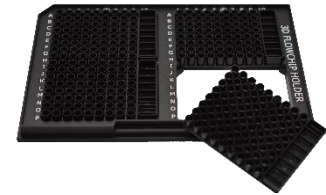
Pu·MA System 3D

- Compact system fits inside tissue culture incubator
- Easy top-loading of flowchips
- Precision pneumatic control



Pu·MA Software

- Touchscreen-driven interface
- Preload assay protocols
- Simple "Select and Play" operations



3D Flowchips

- Open platform for most 3D cell models, spheroids & organoids
- 384-well spacing (SLAS ANSI standard)
- Compatible with high content imaging

How it works

The Pu·MA System and Flowchips use valve-less fluidic switching (VLFS) to precisely control fluid movement in a flowchip. The assay takes place in a protected chamber with microfluidic reagent /media exchanges that eliminates temperature and mechanical perturbations of the 3D cell models (bottom right schematic). Preloaded protocols execute all fluid transfers and incubation steps. Optically clear bottom of flowchips is compatible with high-content imaging

Pu·MA System Specifications

Performance	8–32 Samples per run
	1–5 days processing time
	10–20 µl reagent volume
Size & Weight	12 x 14 x 8 in (30 x 35 x 20 cm) size
	25 lbs (11.4 kg) weight
Environmental	4°C – 40°C temperature
	15–95% (non-condensing) relative humidity
Electrical	12 VDC input voltage
	3.3 A current
	40 W
Connections	Two USB 2.0 ports (Front) One RS-232 9-pin serial port (Rear)

