

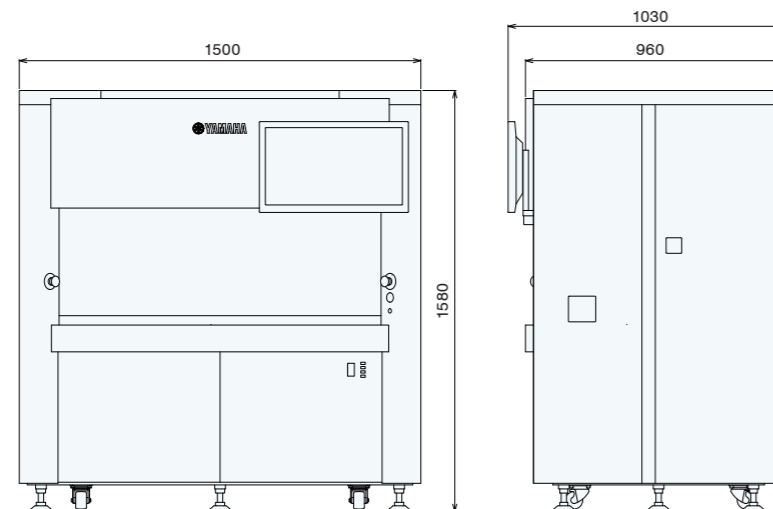
Device Specifications

Standard	Dimension	L 1500 x W 1030 x H 1580 (mm)		
	Weight	Approx. 600 kg		
	Power supply	Power supply	Single-phase AC 100 to 120 V / 200 to 230 V (-10% to +8%)	
		Frequency	50 Hz / 60 Hz	
		Transient overvoltage	Overvoltage category of level II or lower	
		Temporary overvoltage of the main power supply	2.5 kV or lower	
		Power consumption	Average: Approx. 690 W/ Max.: Approx. 990 W	
		Installed capacity	1.2 kVA	
		X, Y, and Z axes	AC servo motor	
	Operation control system	Touch panel display, mouse with optical wheel, mini keyboard		
	Memory device	Built-in 500 GB HDD (approx. 30 GB is already used for initial period at delivery)		
	External interface	Device front:	USB 3.0 x 2	
		Device Side:	USB 2.0 x 2 (for the mouse and mini keyboard)	
	Camera	CMOS 2048 x 1544 pixels		
	Optical lens	Magnification: 4x		
	Light source	LED		
	Sterilization lamp	UV 15 W x 2		
	Air cleaning unit	HEPA filter x 2		
	Environmental conditions	Use site	Inside the building	
Temperature		Guaranteed accuracy: 23 ± 2°C / Guaranteed function: 10 to 35°C		
Relative humidity		Permitted range: 20 to 80% (there must be no dew condensation) / Optimal range: 45 to 60%		
Installation site		<ul style="list-style-type: none"> • There must be no dirt, dust, or corrosive gas. • The instrument must not be exposed to strong indoor lighting or direct sunlight as it may adversely affect the imaging processing. • The instrument must be installed on a rigid and leveled floor. 		
Optional	High magnification system	10x optical lens		
	Fluorescence system	Light source: LED		
		Fluorescence filter (1) EX470 nm/EM525 nm (2) EX560 nm/EM630 nm (3) EX350 nm/EM460 nm		

Cell picking & imaging system CELL HANDLER™



Dimension (Unit: mm)

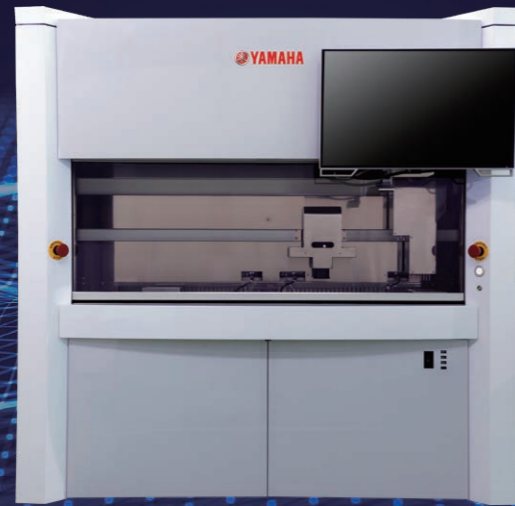


Weight: Approx. 600 kg

* Fluorescence light source is placed outside. L 200 x W 350 x H 250 (mm)



What's the CELL HANDLER™



The CELL HANDLER™ is an automated system for selecting and isolating 3D cells (spheroids/organoids), single cells and 2D adherent cells individually. The integration of sophisticated picking and imaging technology enables precise cell isolation that is unattainable by conventional methods. The system can enhance the efficiency of drug discovery and biomedical research through the expansion of options in cell-based screening, cell quality management and cell line development.

Benefits of CELL HANDLER™



Enabling new possibilities

CELL HANDLER™ can lead to new discoveries by enabling cell isolation of individual cells, which is not feasible by conventional sorter or manual pipetting.



Saving time and effort

Through automation of the process from identification to isolation of target cells, the efficiency and reproducibility of research are improved.



High precision position control

Ensure cell isolation even under a wide range of culture conditions.

- Damage-free.
- Unique head unit applying to various cell conditions.
- Precisely sorting rare cells.

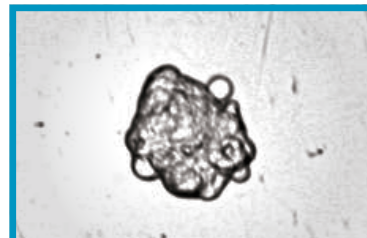
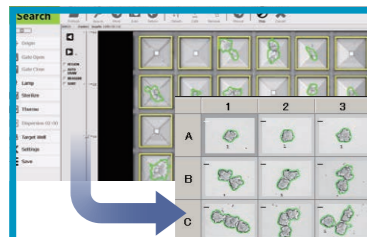


Image based cell selection

Equipped with x4 & x10 lenses for bright field and 3-color fluorescence. Enable to select cells based on morphological traits.

- High-throughput imaging and analysis.
- Acquire accurate cell position (XYZ).
- Apply to a wide range of labware.



User friendly software

Highly flexible cell isolation with the easy-to-use UI.

- Automatic saving of all data (i.e. images, cell features, well positions) and settings in the whole process for confirmation of monoclonality.

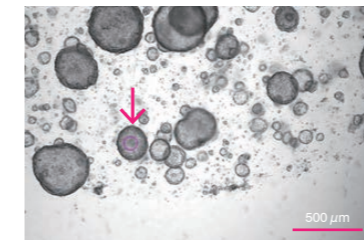


Sophisticated machine design

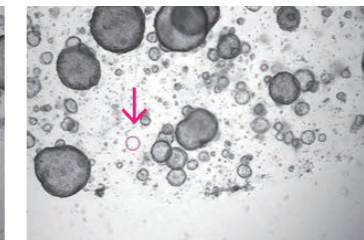
Exclusively designed tip and equipped HEPA filter and UV lamp.

- Applicable to cell size from single cell to up to 400 μm.
*Please contact us for sorting larger cells.
- Cleanroom class equivalent to ISO Class 5

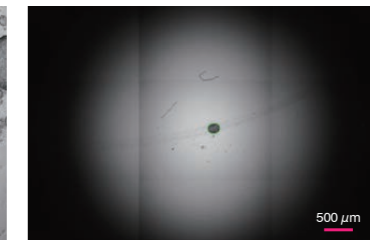
3D spheroid / organoid | Sorting large organoid cultured in gel directly



Before picking

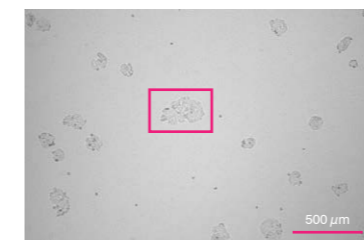


After picking

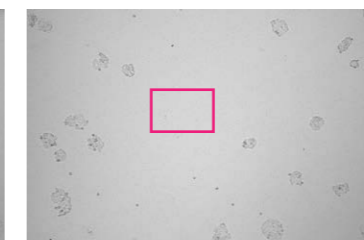


After dispensing into 96-well

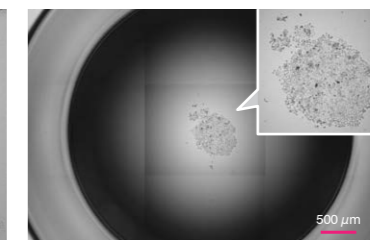
2D adherent cell / colony | Label-free sorting of target cells without enzymatic process



Before picking

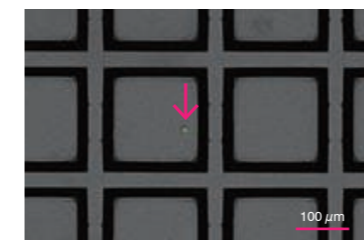


After picking

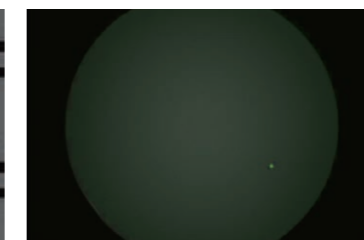


7-day culture after dispensing into 384-well

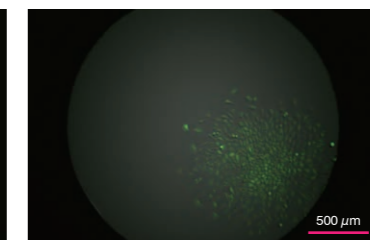
Single cell | Ensuring data traceability and monoclonality



Before picking



After dispensing into 384-well



7-day culture

Cancer research

Stem cell research (iPSC, Organoid)

Drug screening

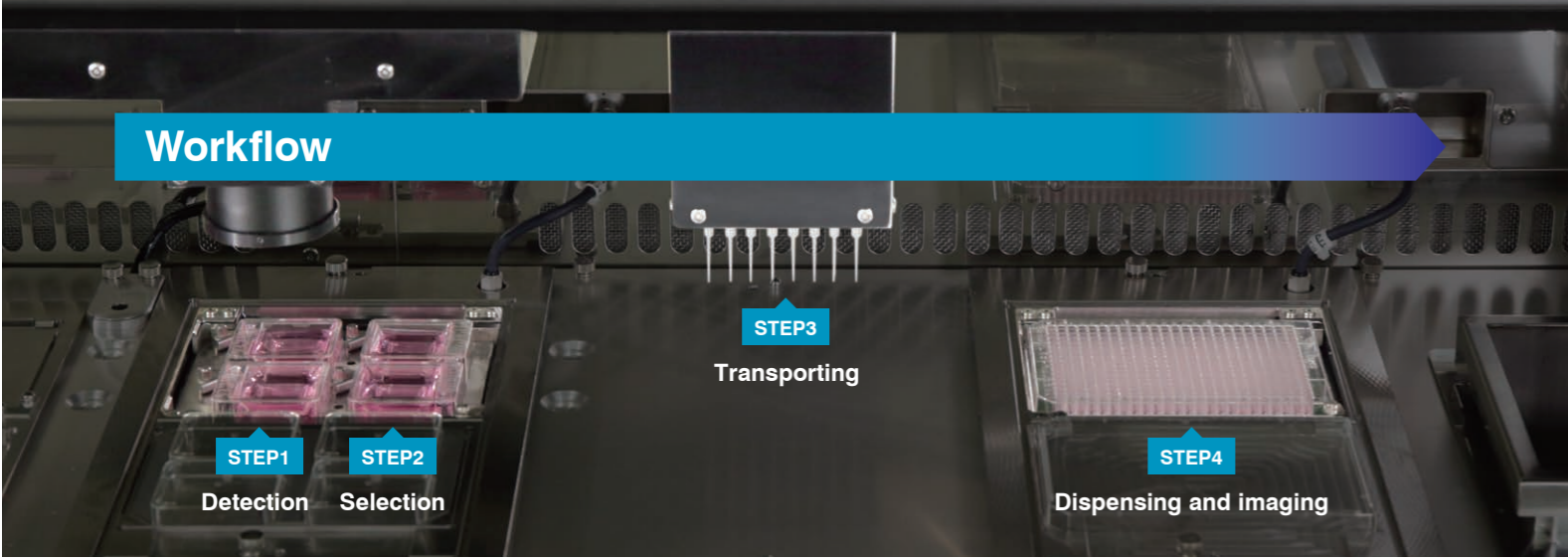
Omics analysis

Cell line development

Antibody-producing cell screening

Genome editing

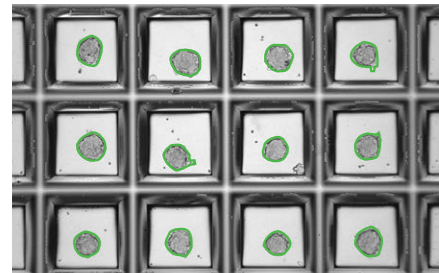
Workflow



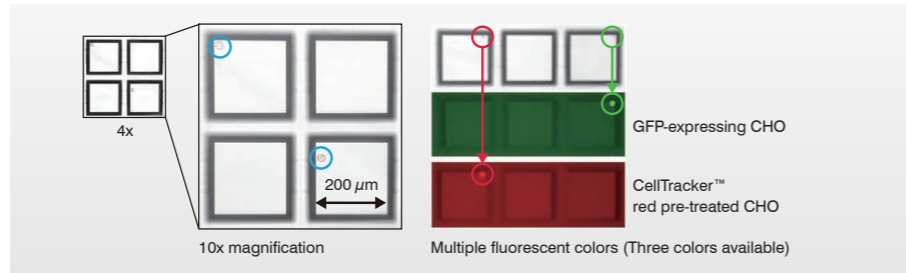
STEP1 Detection

Advanced image processing technology

Morphological & phenotypic features of cells in the source plate are obtained by high-throughput image analysis.



Detection of 3D-cell aggregators



Detection of single cells

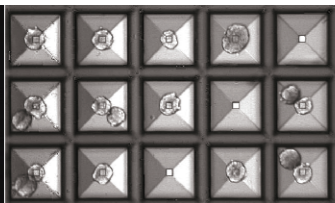
CellTracker is a trade mark of Takara Bio Inc.

Various source plates

In addition to the SBS format plates and Petri dishes, 3D culture plates are also applicable.



Precision Chamber™

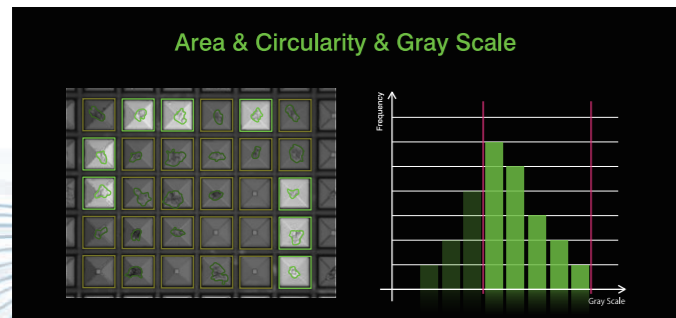


Elplasia® Elplasia is a registered trade mark of Corning Inc..

STEP2 Selection

Automatic selection (Histogram selection)

Cellular features (20 distinct parameters) are instantly visualized in a histogram. By combining multiple features and threshold limits as selection criteria, a target group of cells can be automatically selected.



Histogram selection

Manual selection

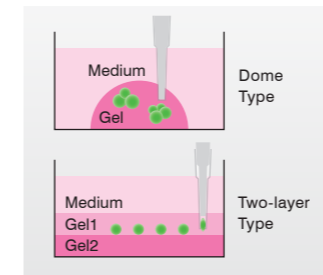
Users can manually select the desired cells. You can achieve reliable cell selection while visually checking each one.



Manual selection

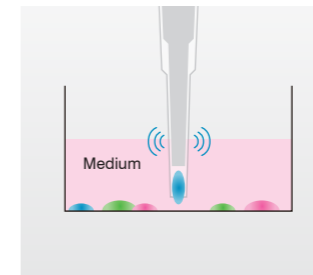
STEP3 Transporting

Flexible size compatibility using unique picking system



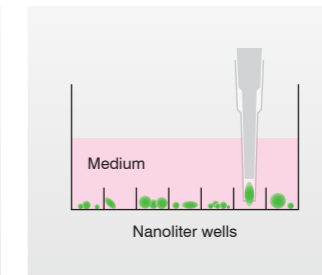
Direct picking from gel medium

By Z-stack imaging, samples with different height position can be accurately detected and isolated.



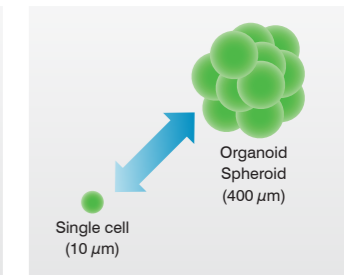
2D colony picking

Unique chip action enables scraping and picking strong adherent samples such as primary cells and iPSC.



Efficient sorting of 3D cell

3D cells or single cells in microcavity plate are sorted and isolated efficiently.



Flexibility to cell size

It supports size from single cell to 3D cells of 400 μm in dia.

*Please contact us for support for larger cells.

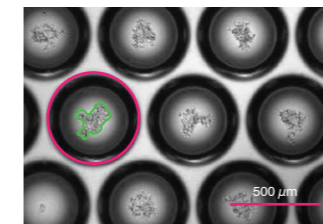
STEP4 Dispensing and imaging

Confirmation of cell isolation by imaging

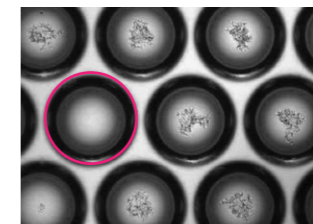
Accurate cell isolation can be confirmed by comparing images from the source plate before and after picking and the destination plate after dispensing. This is an effective way to confirm monoclonality with traceability.

Damage-free handling

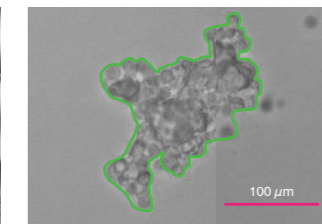
Isolated cells maintain high viability after isolation by gentle pipetting manner.



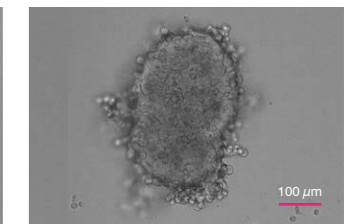
Before picking



After picking



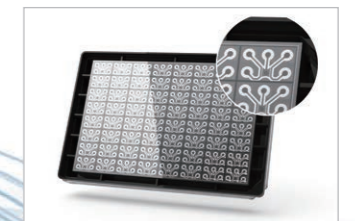
After dispensing



4-day culture

Various destination plates

In addition to the SBS format plates, it is also possible to transfer cells to other designation sources such as PCR tubes and an Organ-on-a-Chip plate.



OrganoPlate® Graft
OrganoPlate is a registered trademark of Mimetas BV.