SONY

Expand Benchtop Sorting with the Large Particle Upgrade

MA900 Multi-Application Cell Sorter

SH800 Cell Sorter

Flexible Cell Sorting for a Broad Range of Applications

The benchtop SH800 and MA900 Cell Sorters from Sony Biotechnology bring powerful, reliable cell sorting to a broad range of research needs. Designed with user accessibility and flexibility in mind, these instruments combine advanced optics, automation, and intuitive software to deliver high-performance sorting with minimal setup time. Their design makes them suitable for multi-user laboratories and core facilities sorting a wide range of cell types for many applications.

Navigating Large Particle Sorting

Advances in technology are transforming cell biology, with "lab-on-a-particle" technologies like hydrogels and double emulsion droplets enabling single-cell function and secretion analysis crucial for antibody discovery and biopharmaceutical innovation. Sorting these microcarriers and other large cell types such as spheroids, mesenchymal stem cells, and neurons can be challenging using conventional flow cytometers due to nozzle size constraints and poor recovery rates.

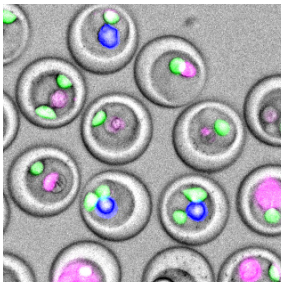
Explore New Frontiers in Flow Cytometry

The SH800 and MA900 Cell Sorter users can now take advantage of the Large Particle Sorting Upgrade that supports highly efficient recovery of large cells and particles. Combined with the 130-µm microfluidic sorting chip, this purpose-built software enables reliable sorting of semi-large (25–35 µm), large (35–50 µm), and very large (>50 µm) particles.

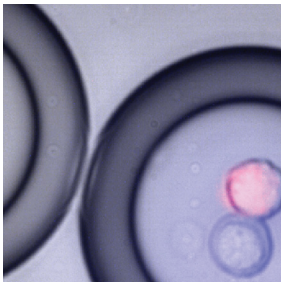
Key benefits of the software upgrade include:

- Automated system calibration for large particle sorting that eliminates manual optimization
- Custom sort settings for maximum purity and recovery
- Enhanced compatibility with microcarrier platforms, irregular cells, and spheroids, making it easy to sort a wide variety of applications and starting materials

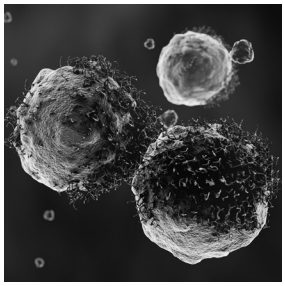
Applications Utilizing Large Particle Sorting



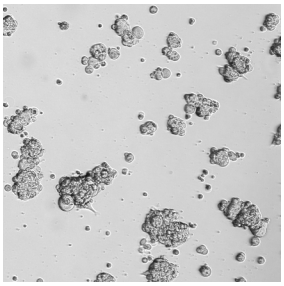
Hydrogel microcarriers



Double emulsions



Large cells



Spheroids

Streamlined Workflow for Large Particle Sorting

STEP 1
Automated Setup

Automated algorithms calibrate the sorter with integrated droplet delay and stable droplets for sorting large (25–35 µm) particles

STEP 2
Select Trigger

Advanced trigger settings ensure accurate detection and gating of complex large particles

STEP 3
Select Sort Mode

Customizable sort modes for large particles allow users to empirically tailor sorts for maximum recovery and purity

STEP 4
Assign Sort Priority

Define target and non-target events to minimize unnecessary aborts, boosting recovery when mixed targets do not compromise experimental outcomes

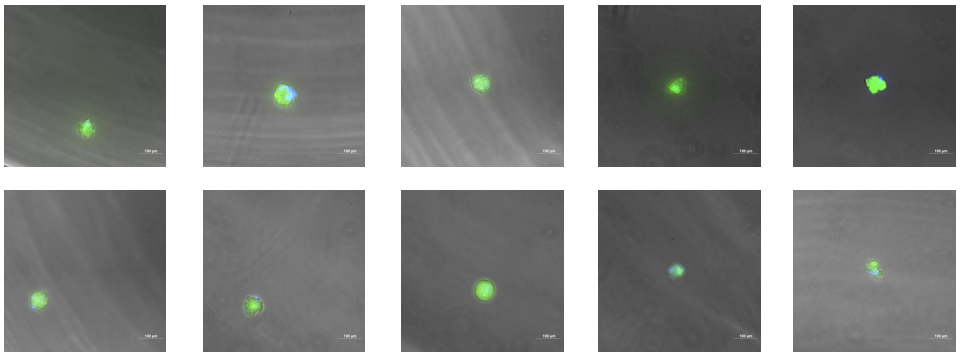
Sorting Large Cells and Spheroids

Oversized or irregularly shaped cells, including spheroids, tumor cells, and megakaryocytes, are central to understanding disease biology. The Large Particle Sorting software enables the SH800 and MA900 Cell Sorters to efficiently sort these challenging particles, making it possible to study their functions and interactions with greater precision than ever before.

Figure 1 – Sorting of Tumor-Derived Spheroids Using the MA900 Cell Sorter

Spheroids up to 60 µm in diameter were sorted into 96-well plates using the MA900 Cell Sorter. Post sorting the spheroids were imaged using fluorescence microscopy. The efficiency of sorting spheroids generated from different tumor cell types (HEPG2, HEK293T, and HeLa) using Recovery Mode and Particle Size Selection (Very Large) is shown as an average of n=7 96-well plates.

Average purity: 94.10%
Average recovery: 94.80%



Efficient Sorting of Hydrogel Microcarriers and Double-Emulsion Droplets

Hydrogel particles and double-emulsion droplets provide powerful platforms for high-throughput single-cell genomics and metabolomics.

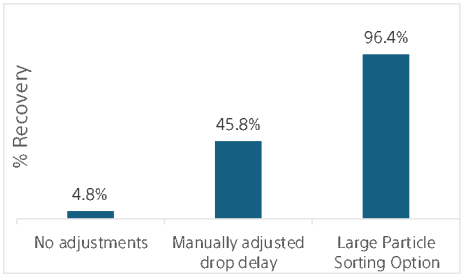


Figure 2 – Sorting of Double Emulsion Nanovial carrier

Fluorescently labeled double-emulsion droplets (60 µm) were sorted on microscope slides under three conditions using the MA900 Cell Sorter: **(1)** no adjustments using standard software, **(2)** manually adjusted drop delay, and **(3)** Recovery Mode with Very Large Particle Size Selection with the Large Particle Sorting Upgrade.

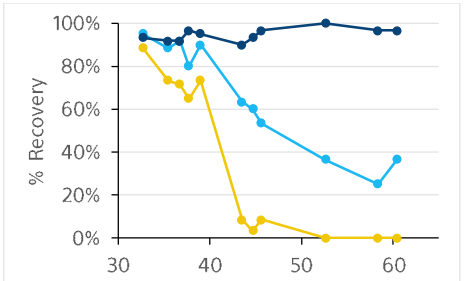


Figure 3 – Sorting of Hydrogel Microcarrier Particles

Nanovials ranging from 30–65 µm were sorted on the MA900 Cell Sorter. Recovery rates were compared across three modes: Recovery Mode with the Large Particle Sorting Upgrade (navy), Single Cell (3-drop) Mode with standard software (light blue), and Single Cell Mode with standard software (yellow).

Specifications	
Particle size	25 to 60 µm
Applications	Large cells, spheroids, double emulsions, hydrogel microcarriers
Sort devices	2 way/96-well plates
Sorting chip	130 µm
Setup	Auto setup
Functions	Auto calibration Particle size selection Recovery Mode Priority option
Part numbers	Large Particle Sorting Option for MA900 (p/n - LE-SWLP1) Large Particle Sorting Option for SH800 (p/n - LE-SWLP2)

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