Sphere Fluidics

Research Instruments

For single cell encapsulation, analysis and isolation

Find highly valuable and rare biological variants among large cell populations

www.spherefluidics.com

Research Instruments

Picodroplet Single Cell Encapsulation System and Picodroplet Single Cell Assay and Isolation System

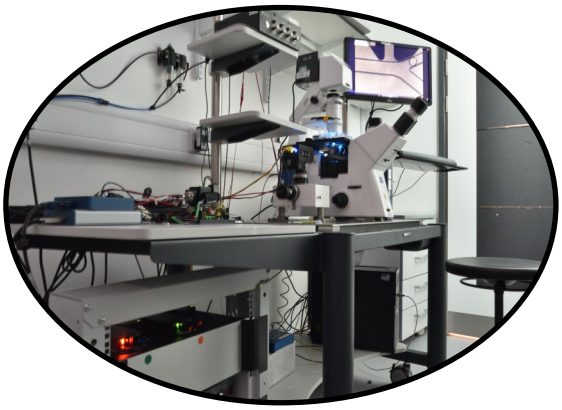
Our research instruments are designed to assist you in finding highly valuable and rare biological variants among vast cell populations. By increasing speed and reducing cost, our picodroplet technology can help you save resources whilst boosting your chances of success.

Unlike our industrial instruments, our research instruments are semi-automated rather than fully-automated. While this means they require slightly more user input, it also means that they are more flexible in terms of cell and assay types, and can be easily adapted to fit your experimental needs.

We currently have two research instruments that enable you to generate, sort, and retrieve picodroplets for a range of applications. These are the **Picodroplet Single Cell Encapsulation System** and the **Picodroplet Single Cell Assay and Isolation System**. Both are compatible with our range of microfluidic specialist chemicals and biochips, as well as other standard and custom biochips from other sources.

Key Benefits

- **Dramatic cost and time reduction**
- **Semi-automated, flexible system**
- **High-speed picodroplet production (up to 70,000/sec) and sorting (up to 18,000/min)**
- **Gentle cell processing**
- **User-defined microfluidic flow rates**
- **Wide range of picodroplet sizes and volumes**
- **Optical imaging of picodroplets**
- **Compatible with standard or custom biochips***



Picodroplet Single Cell Assay and Isolation System

Applications

Microfluidic approaches can enable workflows to become faster and miniaturised, but are gentle on cells, leading to significant time and cost-savings when finding your rare cells of interest. These platforms are very flexible and are suitable for a number of applications. Research areas that may particularly benefit from this technology include:

- **Biopharmaceutical discovery**
- **Cell line development**
- **Diagnostics**
- **Drug-resistance studies**
- **Enzyme evolution**
- **Synthetic biology**

***We are able to provide custom biochips to suit your specifications. Please enquire at Sales@sphere fluidics.com**

Specifications

SPECIFICATIONS	Picodroplet Single Cell Encapsulation System	Picodroplet Single Cell Assay and Isolation System
Sample input format	Syringe	Syringe
Sample input volume	~ 50 µl – 1 mL	~ 50 µl – 1 mL
Workflows	Picodroplet production and retrieval	Picodroplet production, assay, sorting and retrieval
Detection system	n/a	Laser-induced fluorescence
Picodroplet volume	30 pL – 1 nL	400 – 700 pL
Throughput	Generation rate: 100 – 5,000 per second	Generation rate: 100 – 5,000 per second Sorting speed: up to 300 picodroplets per second
SYSTEM SPECIFICATIONS		
Biochip compatibility	Pico-Gen™ picodroplet biochips	Pico-Gen™ and Pico-Sort™ biochips
Weight (approx.)	50 kg (110 lbs)	150 kg (330 lbs)
Dimensions (approx.)	130 cm x 60 cm x 60 cm (width x height x depth)	230 cm x 170 cm x 80 cm (width x height x depth)
Voltage [frequency]	100 V (min) to 240 V (max) [@ 50 / 60 Hz]	100 V (min) to 240 V (max) [@ 50 Hz / 60 Hz]
Consumption	300 W (max)	500 W (max)
OPTICS		
Optical source	Halogen lamp (white light)	Laser excitation wavelength (individual laser): 491 nm or 635 nm (Note: different lasers and/or dual laser systems also available, please enquire for options and pricing)
Detection Filters	n/a	One appropriate filter set, *e.g.* FITC, Cy3, Cy5 (additional filter sets available, please enquire)
Detection Wavelengths	n/a	Filter-dependent
PMT Spectral Sensitivity	n/a	230 nm – 920 nm
Camera	High-speed CMOS (1,696 pixels x 1,710 pixels), (500 fps at full resolution, up to 200,000 fps at reduced resolution)	High-speed CMOS (800 frames-per-second (fps) at full 1280x1084 resolution. Higher speeds possible up to 29,840 fps
Computer	Dell Optiplex 3020 (4 GB RAM; 500 GB hard drive) or equivalent	Dell Optiplex 7040 (8 GB RAM; 500 GB hard drive) or equivalent
PC Operating System	Microsoft Windows 7 Professional SP1 or newer version	Microsoft Windows 7 Professional SP1 or newer version
Monitor	Colour LCD (21”)	Colour LCD (21”)
External connections	2 USB, 1 Ethernet	4 USB; 1 Ethernet
System Control Software	neMESYS Syringe Pump software, camera software	Picodroplet Single Cell Assay System Control Software (LabVIEW™), neMESYS pump software, Phantom Camera Control (PCC) software
Data Format	n/a	.txt (ASCII text file)
WORK ENVIRONMENT		
Clearance	30 cm	30 cm
Operating Temperature	21°C ± 5°C	21°C ± 5°C
Site preparation	n/a	See our Picodroplet SCA and Isolation System Site Requirements Guide

Custom filter configurations are available; please note these must be specified at the point of purchase.
Contact us at ***Sales@spherefluidics.com*** for further information.

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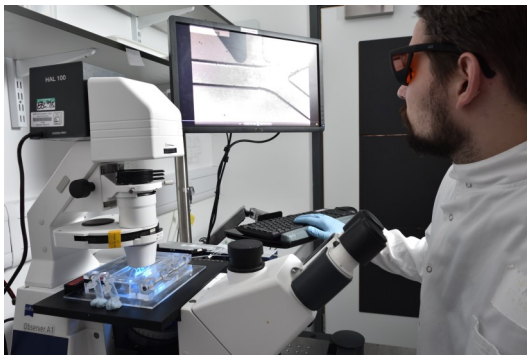
Picodroplet Single Cell Encapsulation System and Picodroplet Single Cell Assay and Isolation System

Code	Product Ordering Information
S001	Picodroplet Single Cell Encapsulation System
S002	Picodroplet Single Cell Assay and Isolation System



Our Research Instruments are fully compatible with our Specialist Research Chemicals (Pico-Surf™, Pico-Break™, Pico-Glide™, Pico-Wave™) and Microfluidic Biochips (Pico-Gen™, Pico-Sort™). We are also able to provide custom biochips to suit your requirements. Please see the Microfluidic Consumables and Accessory Products flyer for further details or contact us at Sales@spherefluidics.com

Notes:

Sphere Fluidics Ltd is an ISO 9001:2015 accredited company.

All Sphere Fluidics' supplied chemicals and bioreagents are Animal Origin Free and GLP-compliant.

For research and development purposes only.

Product specifications subject to change without notice.

ISO 9001
Certificate No. GB2004755

Contact us
Email: Sales@spherefluidics.com
Web: www.spherefluidics.com

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www.spherefluidics.com/contact-us/distributors/