CloneSelect Single-Cell Printer

KEY FEATURES

• Confidently isolate single cells and provide consistent, high-quality image evidence of monoclonality to the FDA
• Highly efficient single-cell sorting with an average printing efficiency >80%
• Achieve an average of 75% cell viability with gentle handling of cells—comparable to limiting dilution method
• Minimize cross contamination through disposable cell printing cartridges
• Fast turnaround time—prints a 96-well plate within 5-10 minutes

The CloneSelect™ Single-Cell Printer™ (SCP) by Cytena and Molecular Devices is a fully automated system that utilizes proprietary microfluidics-based technology and real-time image analysis to sort and deposit single cells into standard microplates—while simultaneously providing assurance of monoclonality through image documentation.

How it works

The core of the CloneSelect SCP is the patented single-cell printing technology, which enables automated deposition of single cells into standard microplates. The system uses an inkjet-like principle featuring a disposable one-way printing cartridge.

The cell-containing sample is pipetted into the printing cartridge, and an external piezo-driven actuator is used to eject droplets out of the cartridge nozzle. A high magnification and large depth-of-field camera captures a sequence of events during the deposition process to determine the cell number in each droplet. Once a single cell event is observed, a fast shutter mechanism enables droplets containing a single cell to be deposited into microplate, while multi-cell or void cell-containing droplets are siphoned away.
Improved efficiency and viability over traditional methods

Figure 1. Traditional methods of single cell isolation are compared with the CloneSelect SCP. (A) Single cell deposit efficiency of limiting dilution compared with SCP. (B) Viabilities of clones post SCP-deposition for several cell lines. (C) Efficiency and viability of predicted values summarized across different techniques. LD assumes a dilution of 0.5 cell/well.

*Based on predicted values of 0.5 cells/well for LD and 99% efficiency/25% viability for flow cytometry.

Working principles of the CloneSelect SCP

Figure 4. Sequence of images captured on the SCP confirms the presence of a single cell.

Imaged-based evidence of monoclonality

Minimize cross contamination

Figure 2. Disposable printing cartridges come pre-sterilized.

Contact Us

Phone: +1-800-635-5577
Web: www.moleculardevices.com
Email: info@moldev.com

Check our website for a current listing of worldwide distributors.

Specifications

- Printing efficiency: Average single-cell deposit efficiency >80%
- Printing speed: Average 5–10 min for one 96-well plate
- Cell viability: Average cell viability of 75%
- Recommended cell/bead sizes: 5–35 micron beads/cells (40 micron nozzle width)
- Image focus: >99% of images in focus
- Optics: 10X magnification with brightfield imaging

Performance specifications can vary based on cell type, cell density, cell media, and other external factors.

The trademarks used herein are the property of Molecular Devices, LLC or their respective owners. Specifications subject to change without notice. Patents: www.moleculardevices.com/productpatents

FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES.

©2017 Molecular Devices, LLC
10/17 2131A
Printed in USA