

C1 System

The first commercially available, automated single-cell isolation and preparation system

- **Comprehensive**—supports a wide variety of single-cell genomics applications, including qPCR, mRNA and DNA sequencing, and epigenetic analysis
- **Sensitive**—allows you to reliably measure differences in gene expression profiles between individual cells using a simple automated workflow
- **Fast**—cell input to qPCR data in hours instead of days
- **Proven**—Referenced by over 100 peer reviewed publications from around the world

Defy the Law of Averages

Individual cells are unique—they differ by size, protein levels, and expressed mRNA transcripts, even within nominally homogeneous cell populations. The tacit assumption that every cell in a sample behaves exactly the same is a dangerous gamble. Taking averages of pooled cells can mask the dramatic variations in gene expression from cell to cell. Tracking the effects of these variations becomes essential for dynamic gene expression studies, especially in biomarker identification or expression profiling.

Breakthrough bench top automation for the isolation, lysis, and preparation of nucleic acid from single cells

Intuitive touchscreen to facilitate easy setup and monitoring of cell processing

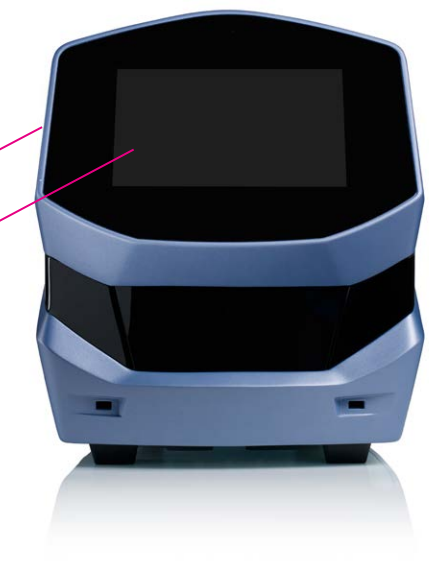
Traditional Methods are Too Variable

Technical variability during sampling, storage, nucleic acid stabilization, extraction, reverse transcription, preamplification, and quantitative PCR can obscure true biological variability. And traditional methods are often limited to analysis of bulk samples.

Single-Cell Resolution with a Single Technology

C1[™] is an entirely new approach, based on Fluidigm microfluidic technology that enables geneticists and disease researchers to rapidly and reliably isolate, process, and profile individual cells across multiple genomic parameters. For the first time, you can extract, reverse-transcribe, amplify, and ultimately detect and analyze cell activity using just one technology, reducing the variability caused by multiplatform technical errors.

C1 System Design Advances



Specification for C1 96 IFCs (integrated fluidic circuits)

Supported applications	Targeted gene expression miRNA analysis mRNA sequencing (see C1 mRNA Sequencing Data Sheet, PN 101-3386) DNA sequencing (see DNA Sequencing Data Sheet, PN 100-7426)
Sample sources	Primary and cultured cells
Small-cell (5–10 µm) IFC cell capture efficiency	≥80% of capture sites will contain cells with 1,000 HL-60 cells input*
Medium-cell (10–17 µm) IFC cell capture efficiency	≥90% of capture sites will contain cells with 1,000 K562 cells input*
Large-cell (17–25 µm) IFC cell capture efficiency	≥90% of capture sites will contain cells with 1,000 BJ fibroblast cells input*
Sample input	200–1,000 cells

* Across a variety of cell types between 5 and 25 µm, with cells run in the correct-size IFC, we observe that on average >90% of occupied capture sites contain single cells.

Specification for C1 HT IFCs

Supported applications	mRNA sequencing (see C1 mRNA Sequencing Data Sheet , PN 101-3386)
Sample sources	Primary and cultured cells
Medium-cell (10–17 µm) IFC cell capture efficiency	≥90% of capture sites will contain cells with 5,000 K562 cells input*
Sample input	2,000–5,000 cells

* Across a variety of cell types between 10 and 17 µm, with cells run in the correct size IFC, we observe that on average >90% of occupied capture sites contain single cells.

Targeted Gene Expression (specific target amplification)

Workflow	Capture, stain, image, lyse, reverse-transcribe, preamplify, harvest, and perform real-time PCR analysis on the Biomark™ HD system
Supported assays	Delta Gene™ assays TaqMan® Gene Expression Assays (probe-based)
Assay format	Two-step reverse transcription and amplification
Throughput	9,216 datapoints per run
Time to results	Cells to preamplified target: 8 hours (overnight) Real-time PCR: 4 hours Total assay time: 12 hours
Hands-on time	70 minutes
Chip-to-chip R ² correlation	0.99

C1 System Specifications

Thermal control	Peltier-based, ranging from 4 to 99 °C Maximum heating rate: >4 °C/sec Maximum cooling rate: >3 °C/sec	
IFC compatibility	C1 IFC	
Weight	Crated for shipment: 72 kg (159 lb)	Uncrated: 46.7 kg (103 lb)
Dimensions (approx.)	Crated: W 69 cm x D 97 cm x H 76 cm (28 in x 39 in x 30 in)	Unpacked: W 41 cm x D 66 cm x H 48 cm (16 in x 26 in x 19 in)
Current	9 A (maximum)	
Voltage	100–240 V	
Frequency	50/60 Hz	
Connections	4x USB 2.0	

Work Environment (Indoor Use Only)

Clearance	15 cm (6 in) from the rear
Temperature	15–35 °C (59–95 °F) stable
Altitude	<2,500 m (8,202 ft)
Main supply fluctuation	Not to exceed ±10% of the nominal supply voltage
Site preparation	Refer to the C1 System Site Requirements (PN 100-5201) for more information on operating requirements.

Learn more

For more information about Fluidigm applications for single-cell genomics and C1, visit fluidigm.com.

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