

Minimum Specifications for Imaging Cells in Fluidigm Integrated Fluidic Circuits

A moderate- or high-resolution microscope system allows imaging of cells in Fluidigm integrated fluidic circuits (IFCs). A microscope is recommended for confirming capture, viability, and morphology of cells in all cell-based IFCs. The following is a list of recommended specifications for appropriate IFC imaging systems. To perform imaging of cells in IFCs, confirm that a microscope in your lab meets these specifications.

Minimum Specifications for Imaging

Need	Recommended Microscope Setup
Highest-confidence sensing with automated scanning	Inverted compound microscope with phase contrast, fluorescence capabilities, and motion-control including: <ul style="list-style-type: none"> • 10X phase contrast objective and matching transmitted light condenser phase ring • 10X plan apochromat objective • 20X plan apochromat objective (for sub-cellular resolution staining) <p>NOTE Any magnification >20X requires long working distance objectives.</p> <ul style="list-style-type: none"> • Automated motorized stage (XYZ) with positional accuracy better than 1.0 μm and an adapter for standard cell culture plates • Auto-focus function that stabilizes images along the Z-axis • All associated fluorescence imaging hardware: <ul style="list-style-type: none"> • Filter cubes—GFP and Texas Red[®] minimally recommended • High-intensity fluorescence source • 1M pixel or greater camera with 5e-dark noise or better and capable of full-frame capture at 10 Hz. • Workstation computer with dedicated graphics card • (Preferred) 1,920 x 1,200-capable monitor or better • Image processing software capable of stitching ~200 high resolution images
Highest-confidence sensing with manual scanning	Inverted compound microscope with phase contrast and fluorescence capabilities including: <ul style="list-style-type: none"> • 10X phase contrast objective and matching transmitted light condenser phase ring • 10X plan apochromat objective <ul style="list-style-type: none"> • All associated fluorescence imaging hardware: <ul style="list-style-type: none"> • Filter cubes—GFP and Texas Red minimally recommended • High-intensity fluorescence source • (Preferred) 1M pixel or greater camera with 5e-dark noise or better and capable of full-frame capture at 10 Hz • (Preferred) Workstation computer with dedicated graphics, 1,920 x 1,200-capable monitor or better, and image processing software
Moderate-confidence sensing with manual scanning	In order from highest to lowest confidence: <ul style="list-style-type: none"> • Inverted compound microscope with phase contrast capability with 10X phase contrast objective and matching transmitted light condenser phase ring • Upright compound microscope with DIC and 10X objective

Suggested Fluorescence Microscopes

The table is a list of suggest microscopes that have been tested by the Fluidigm R&D team.

Product Name	Company	Part Number
Automated Inverted Microscope	Leica [®]	DMi8
Axio Observer Z1*	ZEISS	491912-0003-000

*The optional Perfect Focus module for image stabilization along the Z-axis is recommended for faster imaging.

Fluidigm Solutions for Single-Cell and Cell Biology Applications

Product	Description
C1™ Single-Cell Open App™ IFCs	IFCs for single-cell capture, lysis, and processing on the C1 system
C1 Single-Cell Preamp IFCs	IFCs for single-cell capture and cDNA preamplification on the C1 system
C1 Single-Cell DNA Seq IFCs	IFCs for single-cell capture and amplification of genomic DNA on the C1 system
C1 Single-Cell mRNA Seq IFCs	IFCs for single-cell capture and generation of cDNA libraries on the C1 system
C1 Single-Cell mRNA Seq HT IFCs	High-throughput (HT) IFCs for single-cell capture and generation of cDNA libraries on the C1 system
Callisto™ Adherent Cell Culture IFC	IFC for adherent cell culture on the Callisto system
Polaris™ Single-Cell Dosing mRNA Seq IFC	IFC for single-cell functional genomic studies on the Polaris system, including cell selection, dosing and mRNA sequencing

For technical support visit fluidigm.com/support

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