GE Healthcare

See more with Optical Z-sectioning

A module for the NEW IN Cell Analyzer 1000

The Optical Z-sectioning Module is a combination of hardware and proprietary software control that removes out-of-focus light above and below the focal plane. Suitable for use in both end-point and kinetic versions of the new IN Cell Analyzer 1000, the Optical Z-sectioning Module allows the generation of high-quality 2D and 3D images of fluorescently labeled cellular and tissue samples for analysis where high background is problematic.

Fig 1. IN Cell Analyzer 1000 is a modular and fast analysis platform for cell-based assays.

Enhanced sample flexibility

Optical Z-sectioning allows publication-quality imaging due to improved signal-to-noise ratio and increased contrast for samples such as fluorescent tissue samples, cell aggregates (e.g. stem cells), and some migration assays. Optical Z-sectioning also eliminates the need for wash steps in some cellular assays: decreasing time to result and increasing productivity.

Subcellular localization and 3D reconstruction

Exportable image formats from an IN Cell Analyzer 1000 enabled with the Optical Z-sectioning Module allow high-quality volume reconstructions to be made. Specific cellular events can also be clearly localized.

User-selectable modes for increased choice

The new IN Cell Analyzer 1000 enabled with optical Z-sectioning can be switched easily between widefield and Z-sectioning acquisition modes during operation to allow the most productive use of the instrument.

Flexible choice of fluors

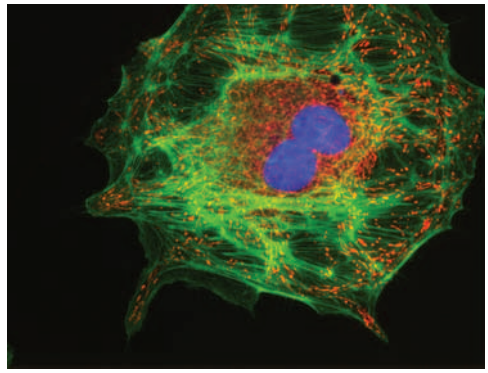
IN Cell Analyzer 1000's lamp-based illumination maximizes the choice of fluors that can be imaged in widefield or Z-sectioning mode. Up to four wavelengths can be acquired sequentially enabling a wide range of assays and multiplexed experiments to be performed.

Build the instrument you need

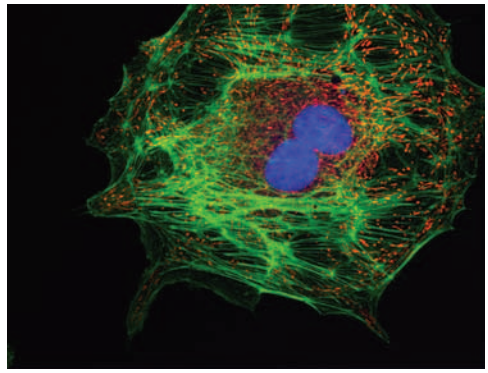
The Optical Z-sectioning Module is an optional upgrade for both endpoint and kinetic versions of the new IN Cell Analyzer 1000. For maximum versatility in live- and fixed-cell assay development, other upgradeable modules are available including Temperature Control, Liquid Handling, Microscope Slide Imaging, and Transmitted Light Imaging.

A wide range of cell imaging applications

Automated multiwavelength image acquisition and analysis can be performed in both widefield and optical Z-sectioning modes in a wide range of assay types including tissue imaging, tissue assays, migration assays, and organelle and protein trafficking studies.

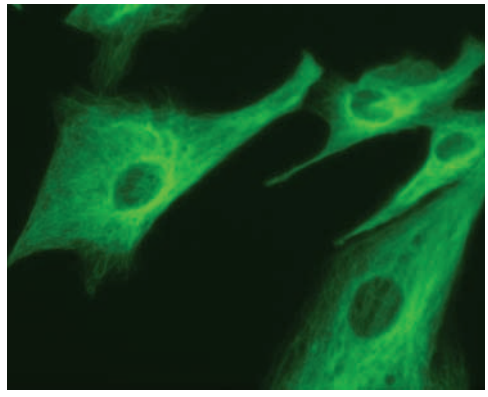


A. Widefield

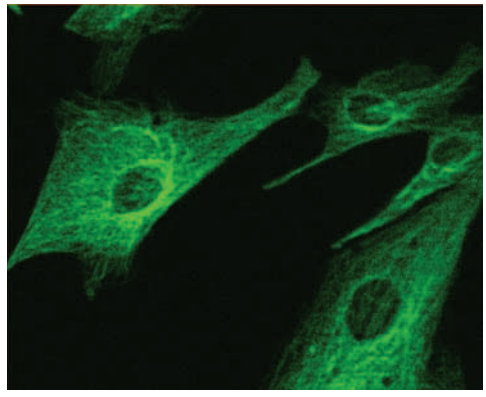


B. Optical Z-section

Fig 2. FluoCells™ prepared slide contains bovine pulmonary artery endothelial cells (BPAEC). The mitochondria are stained with MitoTracker™Red CMXRos, F-actin is labeled with BODIPY™ FL phallacidin, and the nuclei are labeled with DAPI.



A. Widefield



B. Optical Z-section

Fig 3. Bovine pulmonary artery endothelial cells stained with mouse monoclonal anti-tubulin antibody to label microtubules (FITC).

General system specifications		
Camera	Pixel size	6.45 × 6.45 µm
	Field of view at 10×	0.603 mm^2
	Cooling	-30 °C
	Pixel layout	1392 × 1040
Focus	Method	Confocal laser sensor
	Focus time	< 400 ms
	Objective positioner resolution (Piezo objective positiner)	0.2 µm
Illumination	Epifluorescent lamp	100 W xenon
	Transmitted light	LED
Magnifications	4×/0.20 plan apo	
	10×/0.45 plan apo	
	20×/0.45 ELWD plan fluor	
	40×/0.60 ELWD plan fluor	
Plate positioning (XY stage)	Resolution	+/- 5 mm
	Speed (well-to-well speed on a 96-well microplate)	< 800 ms
Filter selection	Exciation filters	6
	Emission filters	6
Plate compatibility	SBS standard footprint microplates including 6-, 12-, 24-, 48-, 96-, and 384-well plates. Glass slides	
Computer	Standard Windows XP Professional (SP2) PC	
Kinetic system specifications		
Reagent dispensing	Configuration	Single needle dispenser
	Plate compatability	Specified 6-, 12-, 24-, 48-, 96-, and 384-well plates
	Addition/transfer volume	10–100 µl
Temperature control	Minimum setting	Ambient + 5 °C
	Maximum setting	42 °C
Miscellaneous specifications		
Electrical	Voltage	110—240 V
	Frequency	50—60 Hz
Instrument physical specifications	Depth	970 mm
	Width	670 mm
	Height	710 mm
	Weight	~70 kg
Service cabinet	Depth	610 mm
	Width	560 mm
	Height	660 mm
	Weight	~ 50 kg
Automation	Robotics ready and compatible with all major commercially available laboratory robotic systems	

Ordering information

Product	*Code number*
Optical Z-sectioning Module for the NEW IN Cell Analyzer 1000*	28-4051-30
IN Cell Analyzer 1000 end-point instrument	28-4051-28
IN Cell Analyzer 1000 kinetic instrument†	28-4051-29
Temperature Control Module	28-4063-95
Liquid Handling Module	28-4066-59
Microscope Slide Imaging Module	25-8098-19
Transmitted Light Module	28-4077-07

Product	*Code number*
IN Cell Investigator Software, single seat license (1 machine license)‡	25-4089-71
IN Cell Investigator Software, 5 seat licenses (5 concurrent licenses)‡	25-4089-72
IN Cell Dual Stand Monitor	28-4051-31

* The Optical Z-sectioning Module is only compatible with the new IN Cell Analyzer 1000 end-point and kinetic instruments.

† Includes Liquid Handling and Temperature Control Modules.

‡ The IN Cell Investigator Software suite provides a comprehensive solution to high-content image and data analysis by combining the latest version of IN Cell Developer Toolbox and IN Cell Analysis Modules with Spotfire™ DecisionSite™ visualization software. More information can be found in the data file *IN Cell Investigator high-content analysis software v1.0*, GE Healthcare, 28-9009-46, Edition AA (2006).

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