



## Data Sheet

# guava® Flow Cytometry easyCyte™ Systems

## Compact, Intuitive, and Affordable

The guava easyCyte flow cytometry systems are uncomplicated instruments that deliver complex cell analysis—right on your benchtop. The culmination of over a decade of flow cytometry expertise, these instruments use smaller sample, generate less waste, and are easier to use and maintain than traditional flow cytometers—all while providing the power you need in the most compact format available.

Single blue laser (488 nm) or dual blue (488 nm) and red (640 nm) excitation lasers provide up to eight simultaneous detection parameters, including six fluorescent colors plus forward and side scatter for size and complexity determination. The guava easyCyte family also meets your sample throughput needs by offering both single sample and multi-sample processing. The guava easyCyte HT instruments provide high throughput analysis with a robotic sample tray that automatically handles a 96-well microplate and up to 10 sample tubes. While the guava easyCyte systems enable single sample processing and have additional cost savings.

Like all guava systems, the easyCyte family uses patented microcapillary technology that eliminates the need for sheath fluid and enables absolute cell counts without the need for reference beads. Complemented by our intuitive InCyte™ software, the systems provide flexible data collection and analysis with the option to use optimized modules or design your own assays.



### Features

- **Customizable—up to eight detection parameters**  
Choose between one or two laser systems to provide simultaneous detection of up to six fluorescent colors, plus forward and side scatter
- **“Green”, microcapillary fluidics**  
No sheath fluid required, enabling for small samples and low waste
- **Absolute cell counts**  
Determine accurate cell numbers and population percentages without the need for reference beads
- **Flexible, single- or multi-sample (96 well) or single sample processing**  
Choose either walk-away automation for a 96-well plate and up to 10 sample tubes, or single sample processing
- **Intuitive software interface**  
Easy analysis with turnkey assays and customizable options



INSTRUMENT



SOFTWARE



# Anatomy of the guava easyCyte Systems

**Intuitive software** provides real-time data acquisition and analysis, letting you visualize up to eight plots simultaneously, while still accessing operation and data analysis functions—all from the same laptop screen



## SPECIFICATIONS

				
System	easyCyte 5HT	easyCyte 6HT	easyCyte 6HT-2L	easyCyte 8HT
Catalogue #	0500-4005	0500-4005	0500-4007	0500-4008
Option #	N/A	0500-4006	N/A	N/A
Laser	Blue (488 nm)	Blue (488 nm)	Blue (488 nm) and Red (640 nm)	Blue (488 nm) and Red (640 nm)
FSC	✓	✓	✓	✓
SSC	✓	✓	✓	✓
Green	525/30 nm	525/30 nm	525/30 nm	525/30 nm
Yellow	583/26 nm	583/26 nm	583/26 nm	583/26 nm
Red1	680/30 nm	680/30 nm	690/50 nm	690/50 nm
NIR1	N/A	785/70 nm	N/A	785/70 nm
Red2	N/A	N/A	661/19 nm	661/19 nm
NIR2	N/A	N/A	N/A	785/70 nm
Microcapillary Fluidics	✓	✓	✓	✓
Direct, Absolute cell counts	✓	✓	✓	✓
Automation – 96 well and 10 tubes	✓	✓	✓	✓
Mixing	✓	✓	✓	✓
Dell® Latitude® E6500 Laptop with Intel® Core 2 Duo (P8600), 2.40 GHz, 1066 MHz FSB	✓	✓	✓	✓
InCyte Software	✓	✓	✓	✓
guavaSuite software modules	✓	✓	✓	✓
Digital Signal Processing	✓	✓	✓	✓



**Microcapillary flow cell**  
requires no sheath fluid and is  
user-replaceable

**Up to six-color detection**  
made possible by one (blue) or  
two excitation lasers (blue and red)

**Small footprint** saves  
valuable laboratory space  
Width: 17.75 in (45.1 cm)  
Depth: 17.25 in (44.5 cm)  
Height: 8.75 in (22.2 cm)  
(does not include laptop)

**Single sample loader**  
Swivel arm functionality,  
holds two tubes and allows  
instant acquisition

**Waste vial** collects less  
than 80 mL of waste in a  
typical 8-hour workday

**Wash vial** offers a  
high-pressure purge to  
easily clear obstructions  
from the flow cell



## SPECIFICATIONS

				
System	easyCyte 5	easyCyte 6	easyCyte 6-2L	easyCyte 8
Catalogue #	0500-5005	0500-5005	0500-5007	0500-5008
Option #	N/A	0500-5006	N/A	N/A
Laser	Blue (488 nm)	Blue (488 nm)	Blue (488 nm) and Red (640 nm)	Blue (488 nm) and Red (640 nm)
FSC	✓	✓	✓	✓
SSC	✓	✓	✓	✓
Green	525/30 nm	525/30 nm	525/30 nm	525/30 nm
Yellow	583/26 nm	583/26 nm	583/26 nm	583/26 nm
Red1	680/30 nm	680/30 nm	690/50 nm	690/50 nm
NIR1	N/A	785/70 nm	N/A	785/70 nm
Red2	N/A	N/A	661/19 nm	661/19 nm
NIR2	N/A	N/A	N/A	785/70 nm
Microcapillary Fluidics	✓	✓	✓	✓
Direct, Absolute cell counts	✓	✓	✓	✓
Automation – 96 well and 10 tubes	N/A	N/A	N/A	N/A
Mixing	N/A	N/A	N/A	N/A
Dell Latitude E6500 Laptop with Intel Core 2 Duo (P8600), 2.40 GHz, 1066 MHz FSB <sup>®</sup>	✓	✓	✓	✓
InCyte Software	✓	✓	✓	✓
guavaSuite software modules	✓	✓	✓	✓
Digital Signal Processing	✓	✓	✓	✓

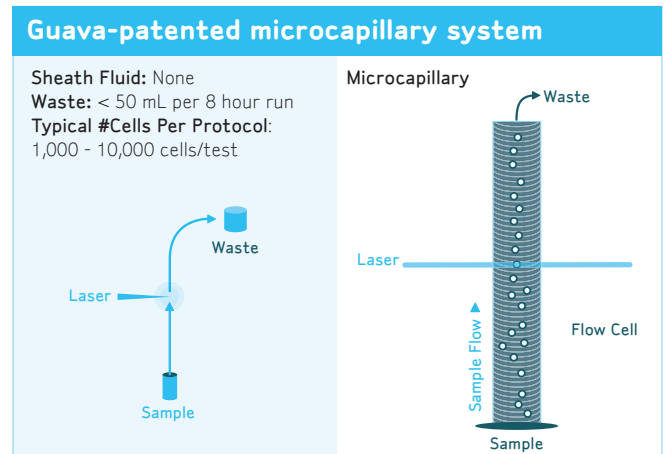
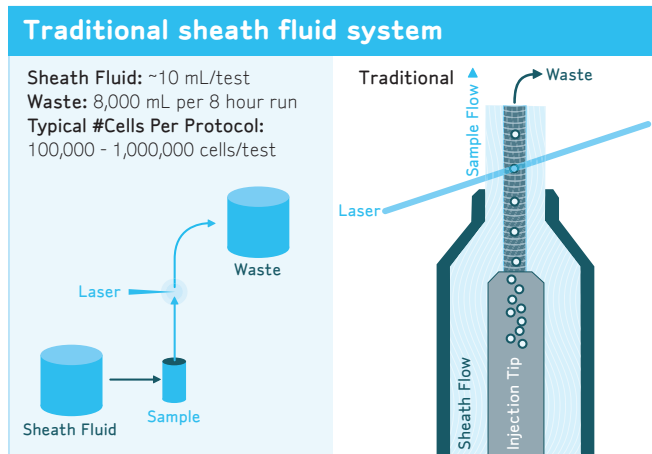


## MICROCAPILLARY FLOW CYTOMETRY

At the heart of every guava system is a patented, microcapillary flow cell that eliminates the need for sheath fluid. This translates into less complexity, smaller samples, and minimal waste, saving you both time and money. Plus, since the flow cell is self-aligning and user-replaceable, you can remove it yourself at any time for cleaning and maintenance—no more expense or downtime for service

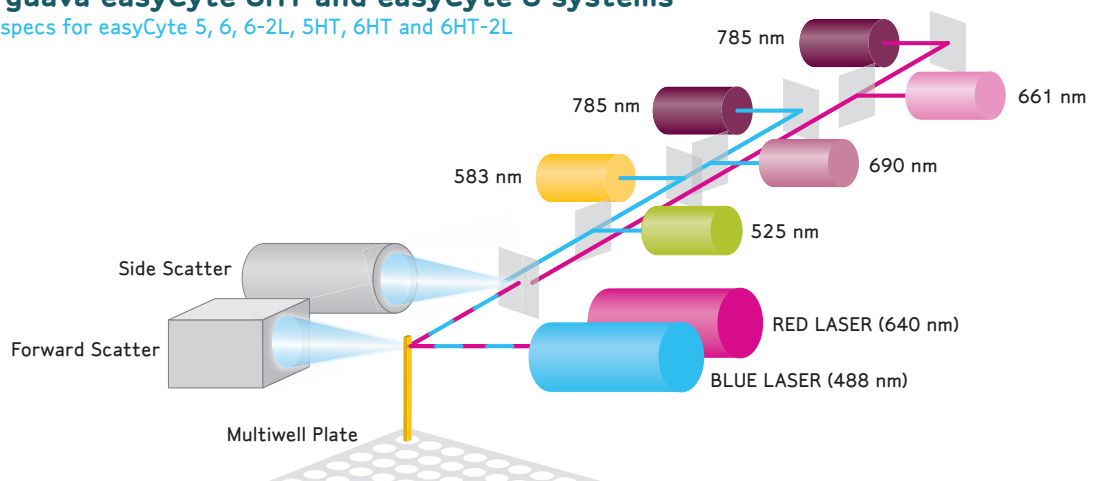
visits. And, by eliminating complicated fluidics, we've created a tiny instrument footprint that fits into the tightest spots, saving valuable laboratory space.

- No laser alignment or sheath fluid required
- Uses smaller sample volume and generates less waste than traditional systems
- Flow cell is user replaceable for minimal downtime
- Aspirates sample directly from tube



## Inside the guava easyCyte 8HT and easyCyte 8 systems

See page 2 for specs for easyCyte 5, 6, 6-2L, 5HT, 6HT and 6HT-2L



## HOW IT WORKS

The guava easyCyte systems use patented, microcapillary, laser-based technology capable of detecting mammalian and microbial cells and beads. A sample of fluorescently labeled cells is aspirated into a uniquely proportioned microcapillary flow cell. A red or blue diode laser excites the cells and each cell emits signals that are individually detected by photomultipliers and a photo diode. Guava software modules show all relevant data and results immediately.

## INTEGRATED AUTOMATION

The guava easyCyte HT systems offer flexibility for sample processing and high throughput needs

- Automated sampling from 96 well microplates for walk away sample processing
- Automated sampling from 1–10 sample tubes for quick sample analysis
- Automated cleaning functions for easy instrument maintenance



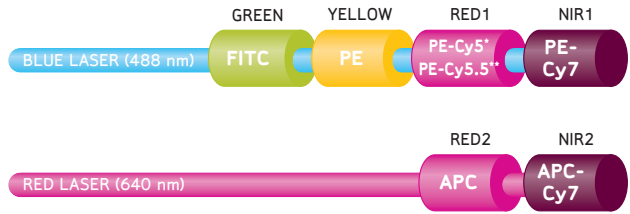


## DUAL LASER EXCITATION

The guava easyCyte family of flow cytometry uses one or two lasers, blue (488 nm) or blue (488 nm) and red (640 nm) to achieve up to six-color detection. In the 2 laser systems, the lasers overlap spatially, and are modulated out of phase with each other at a high frequency so that each particle is sampled many times as it travels through the overlapped beams. Modulation is particularly important for identifying dyes which have overlapping emissions, such as PE-Cy7 (blue laser excitation) and APC-Cy7 (red laser excitation). Unlike spatially separated beams, modulation also eliminates the need for time-delay calibration, simplifying the overall operation of the instrument.

- Up to eight-parameter analysis (six colors, plus forward and side scatter for size and morphology determination)
- Compatible with commonly used fluorophores and dyes
- Eliminates the need for time-delay calibration

### Fluorochromes optimized on the easyCyte systems



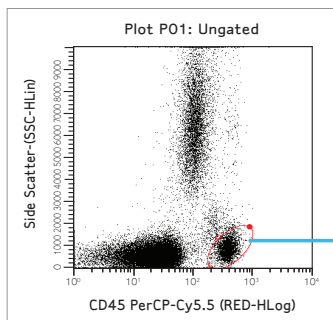
NIR – Near InfraRed FITC – Fluorescein  
PE – Phycoerythrin APC – Allophycocyanin

See [www.millipore.com/flowcytometry](http://www.millipore.com/flowcytometry) for additional fluorochromes with respective laser configuration.

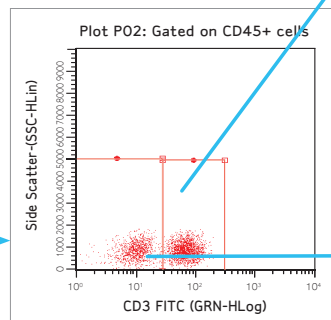
\* Optimized dye for easyCyte 5, 6, 5HT and 6HT  
\*\* Optimized dye for easyCyte 6-2L, 8, 6HT-2L and 8HT

## Immunological Phenotyping-6 Color Assay

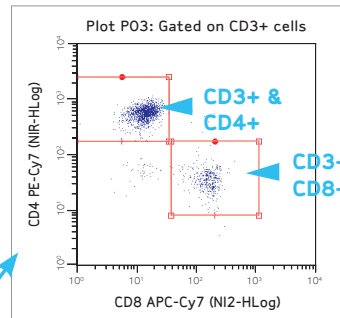
Parameter	Percent (%)	Absolute Count
Lymph Events		2862
CD3+	76.76	2197
CD3+ CD8+	32.41	712
CD3+ CD4+	34.55	759
CD3+ CD4+ CD8+	1.82	40
CD16+ CD56+	7.3	210
CD19+	12.5	357
4/8 Ratio		1.07



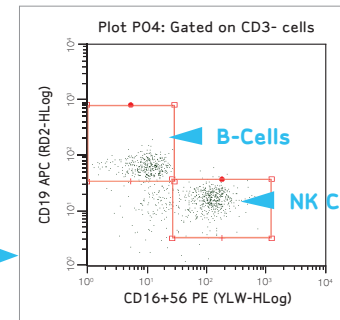
CD45+



CD3+



CD3+ & CD4+  
CD3+ & CD8+



B-Cells  
NK Cells

50  $\mu$ L adult human blood was stained for 15 minutes at room temperature with a cocktail containing CD3-FITC, CD16-PE, CD56-PE, CD45-PerCP-Cy5.5, CD4-PE-Cy7, CD19-APC, and CD8-APC-Cy7. After incubation, cells were lysed and fixed with 900  $\mu$ L guava lysing solution containing 0.2% PFA. Samples were then acquired on the guava easyCyte 8HT system. CD45 positive cells were gated into a SSC vs. CD3 (FITC) plot. Lymphocytes (CD3+ and CD45+) were gated into a plot comparing CD4 and CD8 positive cells. To separate the natural killer (NK) and B cells from the lymphocytes, CD3-negative cells were gated into a plot comparing CD19 (B-cells) and CD16+56 (NK cells). The counts and percentages for each application were calculated. As the figure shows, separation is visible and is comparable to other published data.



# Software

With the guavaSoft™ operating system software, you'll have all the tools you need to acquire and analyze your data. The package includes InCyte acquisition and analysis software and the guavaSuite software modules (assay-specific software modules such as ViaCount®, Nexin®, Caspase, etc).

The friendly and intuitive guavaSoft **software platform** guides you through setup, maintenance, cleaning, and shutdown procedures—as well as data acquisition and analysis.

By adding our **assay-specific software modules**, you'll streamline your experiment and get more out of each assay. Results can be exported to spreadsheets or as industry-standard FCS 2.0 or 3.0 files for further analysis. And all software modules support compliance with 21CFR Part 11 regulations.

## InCyte SOFTWARE: INTUITIVE

InCyte software is the first analysis package designed specifically to give every user the power to draw conclusions about the biological significance of data. It has an intuitive, easy-to-use interface that makes it possible to visualize and compare up to eight data sets at the same time. The software is ideally suited for interrogation of high content data sets derived from multiple functional studies commonly employed during compound screening and target identification. InCyte brings a new level of analytical power to flow cytometry,

enabling users to analyze entire plates of data in less time than it takes to analyze a single sample. In addition, data acquisition is fully incorporated so that it can function as the primary data acquisition and analysis package for the instrument. Most importantly, comparative results are displayed at the experiment level rather than on an individual well/sample basis. This software is especially useful for interpreting the results of siRNA screens, apoptosis/cell cycle compound screening or other high-throughput cell-based assays.

### InCyte Software

The screenshot shows the InCyte software interface with several callout boxes highlighting key features:

- Organize acquired data sets and select individual wells for display**: Points to the 'Data' panel on the left, which lists 'CD80plate 1.EPS.FCS', 'CD80plate 2.EPS.FCS', and 'CD80plate 3.EPS.FCS'.
- Easily create analysis templates**: Points to the 'Analysis Methods' panel, which shows 'CD80MFI'.
- Quickly link to and review previously analyzed data**: Points to the 'Analysed Data' panel, which lists 'AnalysedGroup-1', 'AnalysedGroup-2', and 'AnalysedGroup-3'.
- Heat map shows values across an entire plate**: Points to the 'HeatMap' panel, which displays a 96-well plate grid with blue circles indicating data values.
- Drag-and-drop gating from one plot to another**: Points to the 'Plot P01, Gated' and 'Plot P02, ungated' plots, showing a red gate in the scatter plot and its corresponding histogram.
- View up to 11 plots at once**: Points to the multiple plots displayed in the interface.
- Real-time plot adjustments**: Points to the 'HeatMap' panel, which includes a 'Threshold' slider and a 'Current' value of 298.
- Combine groups of data and analysis templates to construct heat maps or EC<sub>50</sub> curves**: Points to the 'HeatMap' panel, which shows 'AnalysedGroup-3' and 'AnalysedGroup-2' data.
- Slider bars set cut-offs or threshold values for each experimental sector**: Points to the 'Threshold' slider in the 'HeatMap' panel.



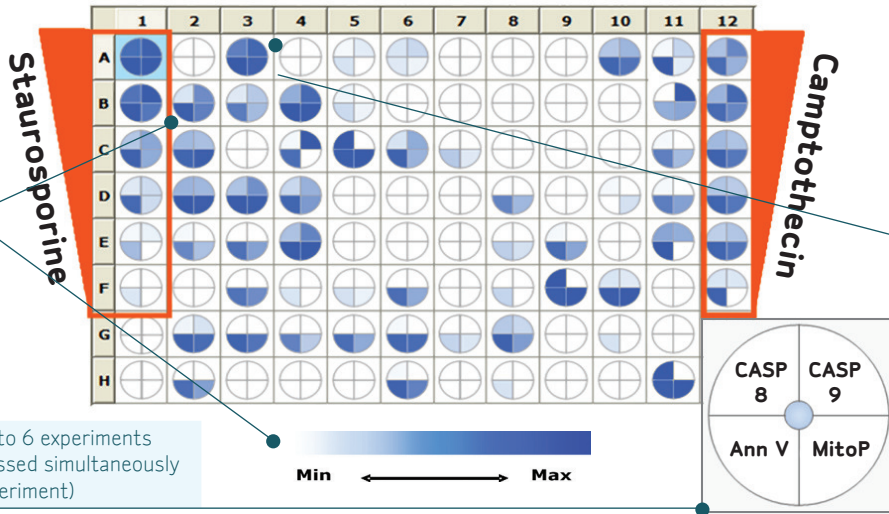


## InCyte Software Heat Map View

Visualize the entire plate of data with the range of results presented as gradations of blue color (see scale inset).

With just a few clicks, InCyte software can perform complex analysis in minutes!

Heat map allows up to 6 experiments (sectors) to be assessed simultaneously (4 viewed in this experiment)



Rapid identification of "hits" or multiparametric trends

## Apoptosis

Annexin V, Caspase-8, -9, and Mitochondrial depolarization (JC-1) were assayed following 4 and 24 hours. The heat map displays comparative findings for all four apoptotic markers (legend inset). No cut-off values were set to show entire range of expression for each parameter. Jurkat cells were far more sensitive than either HeLa or HEK lines. Certain compounds demonstrated caspase-8 (aklavine HCl, quinidine HCl) or caspase-9 (acridavium HCl) specific modes of induction while others invoked cell-specific caspase pathways (2,3-dihydro-5,8-DHNQ and sanguinarine sulfate). Discrimination required early assessment (four hours) as both enzymes are actively involved during later stages of cell death. At 10  $\mu$ M, JC-1 staining provided no additional information.

## guavaSuite ASSAY-SPECIFIC SOFTWARE MODULES: OPTIMIZED

Get to the most meaningful data more quickly. Optimized for each assay, guava assay-specific software modules

display only the plots and statistics you need. Each software module acquires and analyzes data, then exports results to a database without additional user intervention. This integrated, automated process makes your cell analysis both easier and more accurate.

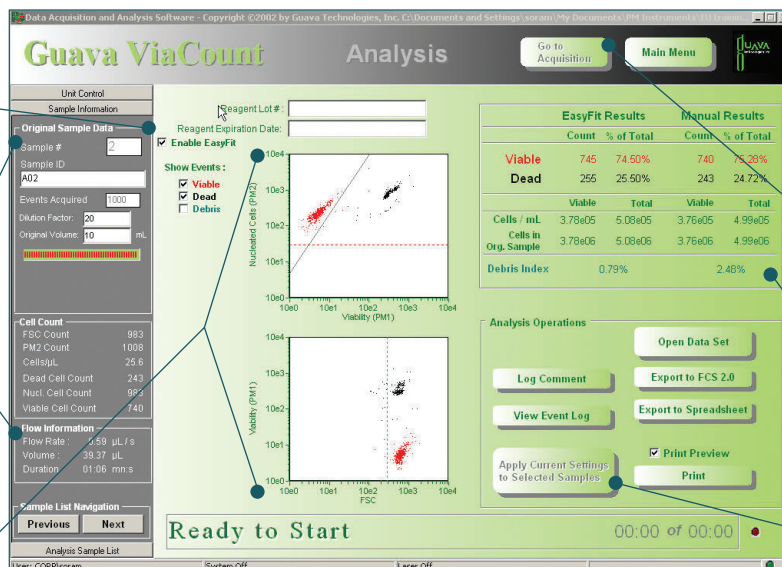
## guavaSuite Software: Guava ViaCount Assay

EasyFit allows for auto gating

Accurate cell counts without reference beads

Sample volume tracking

Preset, kit-specific analysis templates



Pre-set templates: One-click acquisition and analysis

Auto population of statistics

Create settings that apply to subsequent samples

## ORDERING INFORMATION

Description	Catalogue No.
<b>Single Sampling Instruments</b>	
guava easyCyte 5 Base System	0500-5005
guava easyCyte 6 Base System (4th color near infrared (NIR) option, at time of purchase)	0500-5006
guava easyCyte 6-2L Base System	0500-5007
guava easyCyte 8 Base System	0500-5008

Description	Catalogue No.
<b>High Throughput Sampling Instruments</b>	
guava easyCyte 5HT Base System	0500-4005
guava easyCyte 5HT to 6HT (4th color near infrared (NIR) option, at time of purchase)	0500-4006
guava easyCyte 6HT-2L Base System	0500-4007
guava easyCyte 8HT Base System	0500-4008

Description	Catalogue No.
<b>Software Moldules for guava Systems</b>	
guavaSoft Software Package for guava easyCyte HT Systems (includes InCyte, Express Pro, Express Plus and guavaSuite modules)	0500-4115
InCyte Software Module for guava easyCyte HT Systems	0500-4120
guava Express Pro Software Module for guava easyCyte HT Systems	0500-4125
guavaSuite Software Modules	0500-4130
guavaSoft Software Package for the easyCyte Systems	0500-5115
InCyte Software for the easyCyte Systems	0500-5120
Express Pro for the easyCyte Systems	0500-5125
guavaSuite Software Modules for the easyCyte Systems	0500-5130

Description	Catalogue No.		
<b>Service Plans for guava easyCyte HT Systems</b>			
<b>Service Total Plans</b>	<b>1 Year*</b>	<b>1 Year**</b>	<b>2 Year</b>
guava easyCyte 8	0500-5870	0500-5875	0500-5880
guava easyCyte 5 or easyCyte 6	0500-5300	0500-5305	0500-5310
guava easyCyte 6-2L	0500-5330	0500-5335	0500-5340
<b>Service Essential Plans</b>	<b>1 Year*</b>	<b>1 Year**</b>	<b>2 Year</b>
guava easyCyte 8	0500-5270	0500-5275	0500-5280
guava easyCyte 5 or easyCyte 6	0500-5285	0500-5290	0500-5295
guava easyCyte 6-2L	0500-5315	0500-5320	0500-5325

\*At time of instrument purchase

\*\*After instrument purchase

To stay up-to-date on our integrated solutions for flow cytometry and a complete list of kits, please visit [www.millipore.com/flowcytometry](http://www.millipore.com/flowcytometry).



[www.millipore.com/easycyte](http://www.millipore.com/easycyte)

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Research. Development. Production.

Description	Qty/Pk	Catalogue No.
<b>FlowCollect™ Chemokine Kits</b>		
Chemokine Receptor CXCR1 Surface Expression ID Kit	100 tests	FCXR100420
Chemokine Receptor CXCR4 Surface Expression ID Kit	100 tests	FCXR400423

Description	Qty/Pk	Catalogue No.
<b>FlowCollect Stem Cell Kits</b>		
Human ESC Nuclear Marker Characterization Kit	25 tests	FCHEC25102
Rodent NSC Characterization Kit (Neural)	25 tests	FCRNC25112
Rodent NSC Characterization Kit (Astrocyte)	25 tests	FCRNC25114

Description	Qty/Pk	Catalogue No.
<b>FlowCollect Cell Cycle Kits</b>		
guava Cell Cycle Reagent	100 tests	4500-0220
guava ViaCount Reagent	100 tests	4000-0040
Bivariate Cell Cycle Kit for DNA Replication Analysis	25 tests	FCCH025102
Bivariate Cell Cycle Kit for G/2M Analysis	25 tests	FCCH025103

Description	Qty/Pk	Catalogue No.
<b>FlowCollect Signaling Kits</b>		
EGFR/MAPK Pathway Activation Detection Kit	25 tests	FCCS025101
PI3K/MAPK Dual Pathway Activation and Cancer Marker Detection Kit	25 tests	FCCS025100
PI3K-mTOR Pathway Cascade Mapping Kit	25 tests	FCCS025210
Multi-STATs Activation Kit	25 tests	FCCS025550
Multi-Color DNA Damage Response Kit	25 tests	FCCH025104

Description	Qty/Pk	Catalogue No.
<b>Apoptosis Kits</b>		
guava Mitochondrial Depolarization Kit	100 tests	4500-0250
guava MultiCaspase FAM Kit	100 tests	4500-0530
guava MultiCaspase SR Kit	100 tests	4500-0500
guava Nexin Reagent	100 tests	4500-0450

Description	Qty/Pk	Catalogue No.
<b>Other Items</b>		
Flow cell for easyCyte HT systems	1 piece	0500-2260
Flow cell for easyCyte systems	1 piece	0500-5260
EasyCheck™ beads	1 kit	4500-0025

## TO PLACE AN ORDER OR RECEIVE TECHNICAL ASSISTANCE

In the **U.S. and Canada**, call toll-free 1 800-Millipore (1-800-645-5476)

In **Europe**, please call Customer Service:

France: 0825.045.645

Spain: 901.516.645 Option 1

Germany: 01805.045.645

Italy: 848.845.645

United Kingdom: 0870.900.46.45

For other countries across Europe and the world, please visit [www.millipore.com/offices](http://www.millipore.com/offices).

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