partec

Cell Counter Analyser

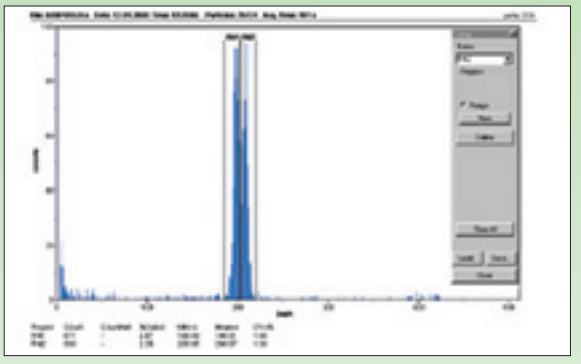
The Benchtop Flow Cytometer for DNA Cell Cycle Analysis and Cell Counting

- Compact
- Fast Results
- Easy Operation
- High Precision
- Low Cost

partec

Does your work require a flow cytometer with highest sensitivity and resolution to detect smallest changes in the DNA content?

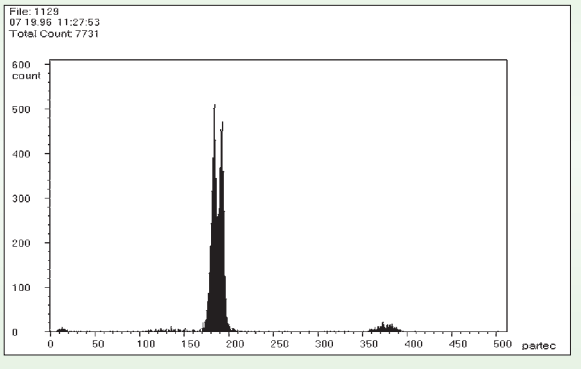
Due to the 100 W mercury arc lamp the Partec CCA in combination with Partec´s reagents (CyStain DNA and CyStain UV) delivers DNA histograms with the lowest CV values. The 100 W mercury arc lamp has proven to be the most efficient light source for excitation of UV dyes like DAPI and Hoechst but also PI employing a green excitation filter. It has two main features: first the high density of light and second the unique „3D illumination“ with high numerical aperture forming a homogeneous excitation spot. Cells are thus illuminated without shadow effects and not depending on individual orientation. The results are high peak resolution in DNA histograms not obtainable with UV lasers.



Human breast cancer biopsy. The CV is 1.6%, the histogram shows two peaks in the G1 region, one peak for the normal and one peak for the aneuploid tumor cells. Data presentation by Partec DPAC software for Windows®.

Do you need to save space in your laboratory?

The small size (48x37x40 cm, 28 kg weight) makes the Partec CCA easy to place even in small laboratories with limited space.



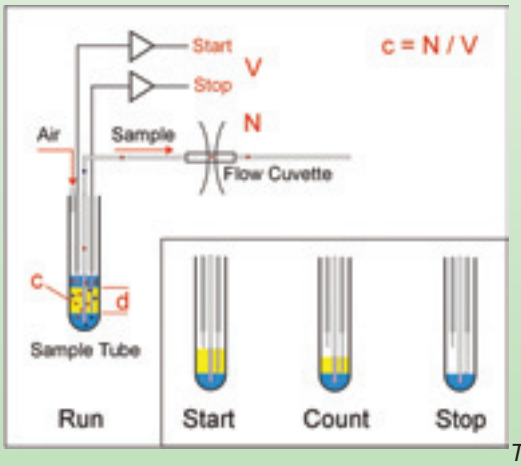
Bull sperm stained with DAPI. The high accuracy of the CCA allows good separation of X and Y sperm cells.

Does your work require to count cells directly during acquisition?

A unique feature of all Partec flow cytometers is the True Volumetric Absolute Counting. Cell concentrations are determined during each sample run. Additional cell counters (like electrical impedance cell counters) are not required for a laboratory which runs a Partec flow cytometer. Absolute counting can be performed during acquisition without the need of reference beads. This means higher precision, no errors due to calibration, less setup time, less analysis time, less expenses.

Would you like to reduce costs by counting without reference beads?

The Partec CCA performs volumetric counting by 1. direct volume measurement (*C=N/V,* concentration *C* = number *N* of cells in a defined volume *V*) or 2. the flow rate counting concept. The core sample delivery is constant (contineously adjustable from 0 to 1200 µl/minute) and computer/software controlled. The count rate is contineously displayed in number of cells per second. Therefore no reference beads are required. This reduces the cost per test significantly.



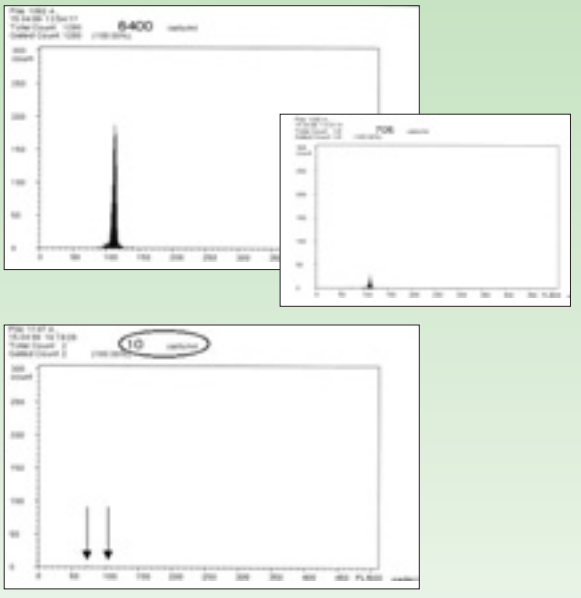
True Volumetric Absolute Counting by the Electrode Principle.

Does your work require to count within a wide range of concentrations?

The Partec CCA like all Partec instruments is specifically designed to minimize counting errors by providing direct connection between computer and electronics, which avoids dead-times involved in traditional FCM designs and instrument interfaces. Partec systems can handle event rates of many thousand events per second. This reduces the counting error for typical event rates below 1%.

Do you need to count rare events, for example leukocytes in unlysed whole blood samples or in leukocyte depletion process control?

Leukocyte depletion process control is one of the most important applications with the necessity to obtain a reliable counting of very few events. The absolute counting principle of the Partec CCA is able to determine concentrations down to 0.01 cells/µl (10 cells/ml).



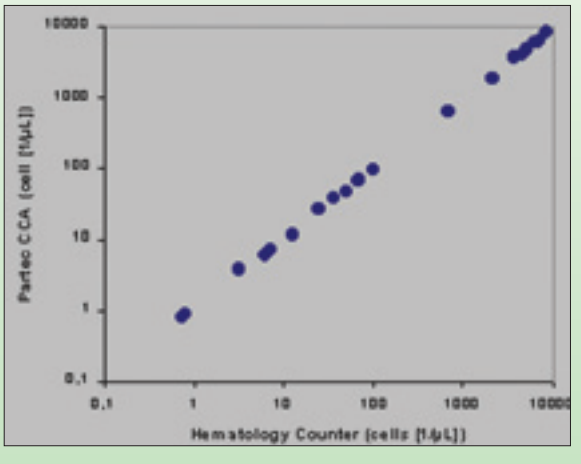
Analysis of leukocyte concentration based on CyStain (DAPI) staining and volumetric absolute counting. Due to the digital nature (high signal to noise ratio) of the bright DAPI staining of the leukocyte nuclei, rare event concentrations down to 0.01 cells/µl (10 cells / ml) can be safely determined.

Does your work require to combine immunological analysis and DNA or cell cycle analysis?

If you already have a laser equipped flow cytometer and you need 1. to analyse the cell concentration independently or 2. to perform an immunological test after a DNA test with PI or vice versa you can have problems of residual dye contamination. Due to the small size and the low price, you may consider to have a Partec CCA next to your larger flow cytometer to perform DNA analysis and cell counting.

Does your work require cell kinetic studies?

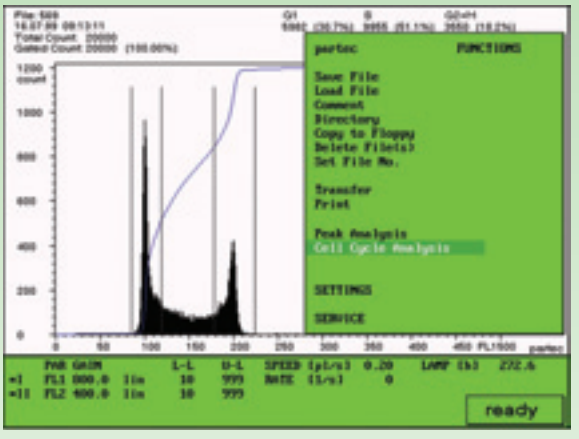
The Partec CCA has an additional time feature. Besides two fluorescence parameters the time parameter can be chosen as a third parameter. This important and unique feature allows to perform kinetic studies.



Determination of residual leukocytes. Comparison of counting data obtained with DAPI staining solution (Partec CyStain DNA 1 step) on CCA and on a hematology counter.

Do you need a user-friendly system and software or instrument control, data acquisition, and analysis?

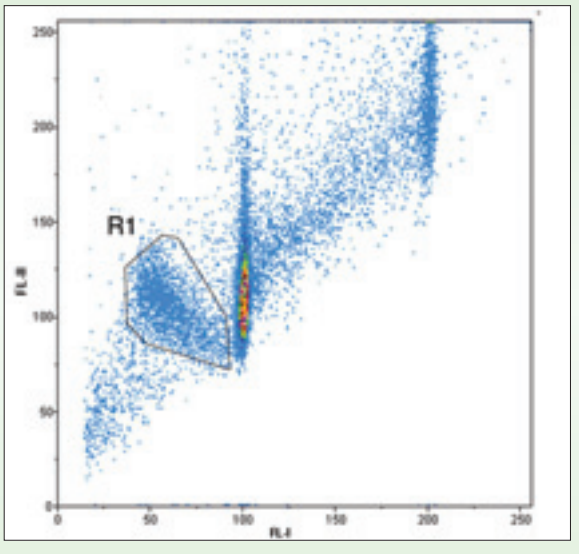
The Partec CCA includes a built-in computer and LCD monitor. It is very user-friendly due to easy push-button operation. All the operations for control, data acquisition, and analysis are directly accessible by pushing the appropriate button of the instrument. Therefore cell cycle analysis, DNA peak analysis, gate definition, and absolute counting has never been so easy to perform. Further offline analysis is possible with Partec DPAC or FloMax for Windows analysis software that enables you to perform advanced peak and gating analysis and statistics, numerical cell cycle analysis and numerical ploidy peak analysis and transfer data to other desktop publishing systems.



Cell cycle analysis of CHO cells using CCA software.

Would you like to increase the value of your DNA analysis?

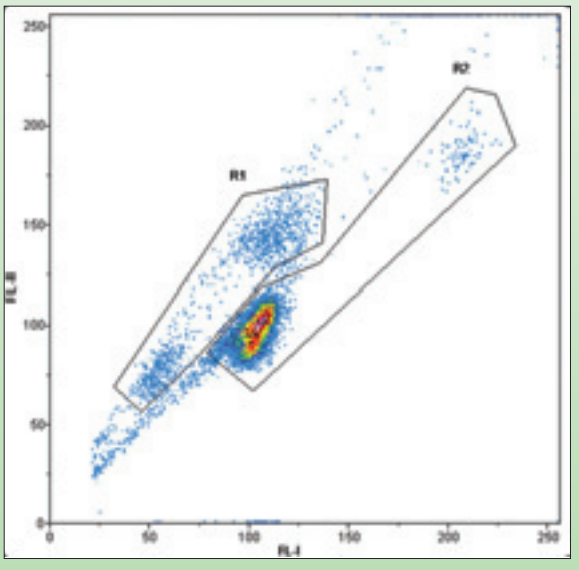
Partec CCA, employing two parameter analysis, allows you to perform evaluation of DNA vs. Protein content. This feature gives you the advantage to perform better results in apoptosis, micronuclei quantification, and cell cycle analysis.



Analysis of apoptotic cells (R1) by DNA/protein staining with CyStain DNA/Protein 2 colours. Stimulated human lymphocytes after irradiation. Data evaluation with Partec DPAC software for Windows .

Does your work require to have different excitation colours?

For the Partec CCA it is a matter of seconds to change filter and mirror sets. Standard filter combinations for UV (DAPI, Hoechst), blue (FITC) and green (PI) excitation are available. Therefore, it fits even with research needs when the use of different dyes is required.



BrdU-Hoechst quenching of stimulated human lymphocytes. Fl-I Hoechst fluorescence, Fl-II propidium iodide fluorescence.

CCA Specifications

General

The **Partec CCA** (Cell Counter Analyser) is a two colour and two optical parameter (FL1 and FL2) plus time parameter bench top analyser that can perform both fluorescence analysis and absolute cell counting without the need of reference beads.

Light Source

The instrument is equipped with a **100 W mercury arc lamp** emitting excitation light in UV, blue or green. Fluorochromes like DAPI, Hoechst, propidium iodide, and fluorescein can be used.

Optics

Modular optical system with 2 optical parameters. Each parameter is equipped with a photomultiplier tube (PMT) and integrated electronic preamplifier. Excitation, emission filters, and mirrors are easily interchangeable. The HBO lamp provides **Köhler illumination** ensuring a homogeneous high numerical illumination of the cells. **Köhler illumination** results in higher precision and narrower DNA peaks (lower coefficient of variation CV).

Flow System

Synthetic quartz flow cuvette (channel dimensions: 250 µm x 250 µm) for laminar sample flow. **True Volumetric Absolute Counting** based on precise sample volume measurement. Contamination-free computer controlled precision syringe pump for sample transport and volumetric absolute counting, pump speed continuously adjustable from 0-20 µl/s, sheath fluid pressure continuously adjustable from 0-300 mbar.

Computer system and Software

Built-in **PC-compatible computer** and 10.4“ Active Matrix **TFT LCD Colour screen** with 640x480 pixels. Real time data acquisition, analysis, and storage with **4096 channels.**

Histogram display with **512 channel resolution** in real time. All data can be stored on **harddisk** or on 1.44 MB floppy disk. Data can be transferred to other computers.

The CCA software provides instrument control, data acquisition, data analysis, and True Volumetric Absolute Counting. Concentration results are updated during acquisition (syringe counting method).

Gates can be defined by cursors. DNA cell cycle based on cumulative histogram method and DNA peak analysis. Optionally available:

- DPAC for Windows, the complete one parameter data evaluation software for numerical ploidy peak analysis, numerical cell cycle analysis, peak and cluster analysis, statistics and data transfer to other desktop publishing systems.
- FloMax for Windows multiparameter analysis software for complete analysis of FCS data in one single Windows package.

Dimensions · Weight · Electrical specifications

480 x 370 x 400 mm - 28 kg - 110/230 V AC, max. 400 VA, 50/60 Hz.

Fields of Applications

Pathology: ploidy and cell cycle analysis, apoptosis.

Cell Biology: cell culture counting, micronuclei, life/dead discrimination, cell cycle analysis.

Trasfusion Medicine: residual white blood cell counting, leukocyte enumeration.

Immunology: independent absolute cell counting as a reference for laser-flow cytometers.

Andrology: sperm cell analysis and counting.

Related products

CyStain DNA

Staining solutions for DNA analysis of mammalian cells

CyStain DNA 1 step	200 tests	05-5004
CyStain DNA 2 steps	200 tests	05-5005
CyStain DNA/Protein 2 colours	200 tests	05-5006

CellTrics

Disposable filters for separation of cells and nuclei

CellTrics 20µm red	100 pcs.	04-0041-2315
	250 pcs.	04-0042-2315
CellTrics 20µm red sterile single packed	50 pcs.	04-004-2325
CellTrics 30µm green	100 pcs.	04-0041-2316
	250 pcs.	04-0042-2316
CellTrics 30µm green sterile single packed	50 pcs.	04-004-2326
CellTrics 50µm yellow	100 pcs.	04-0041-2317
	250 pcs.	04-0042-2317
CellTrics 50µm yellow sterile single packed	50 pcs.	04-004-2327
CellTrics 100µm blue	100 pcs.	04-0041-2318
	250 pcs.	04-0042-2318
CellTrics 100µm blue sterile single packed	50 pcs.	04-004-2328
CellTrics 150µm white	100 pcs.	04-0041-2319
	250 pcs.	04-0042-2319
CellTrics 150µm white sterile single packed	50 pcs.	04-004-2329

Optics

Filter combination for FITC (blue excitation)	03-330-1000
Filter combination for PI (green excitation)	03-340-1000
Objective Partec 40x1.25 quartz, glyc.	03-0206

Calibration Material

Particles for the check of your instrument and absolute counting procedure

CountCheck beads	50 tests each	05-4010
Calibration beads UV	3 ml	04-4020
DNA Control UV	10 ml	05-7302

DNA Reference Material

Ready-to-stain DNA reference

Stabilized Chicken red blood cells	5 ml	05-7304

Instruments, Reagents, and Accessories

Partec offers you a broad range of instruments, protocols, and reagents for microorganism detection, red blood cell lysing, DNA cell cycle and ploidy analysis, disposable CellTrics™ cell separation filters, sample tubes for volumetric absolute counting, UV objectives, and more. Please inquire for any information for your application.

partec

Partec GmbH
Otto-Hahn-Straße 32
D-48161 Münster · Germany
Telefon (xx49) 25 34 8 00 80
Telefax (xx49) 25 34 80 08 90
E-Mail: info@partec.de
Internet: http://www.partec.de