Technology that counts

chemometec

NucleoCounter® NC-3000™

The All-in-One Instrument for Instant Cytometry

Cell Analysis made easy

- High-speed cell count and viability
- Plug and play analytical protocols
- User-defined analytical protocols

The **NucleoCounter® NC-3000™**

High-speed cell count and viability, fast cell cycle analysis and flow cytometry-like analysis. As a true all-in-one instrument, the NucleoCounter® NC-3000™ does it all, fast and easy.

The NucleoCounter® NC-3000™ is an automated full-spectrum fluorescence microscope with integrated data collection, analysis and reporting. The automated image cytometry technology from ChemoMetec provides advanced, fast and precise analysis of your cells – without the risk of clogging.

Unlike with many instruments for cell analysis, you will not encounter a time-consuming warm-up period with the NC-3000™, nor will you encounter problems with calibration or clogging, or even an expensive service contract. The NucleoCounter® NC-3000™ allows you to get right to your analysis with instant cytometry.

The NucleoCounter® NC-3000™ offers a wide array of reliable and user-friendly analytical assays in addition to high-speed cell counting. Furthermore, the instrument allows for user-adaptable protocols that define up to five fluorescent channels.

High-speed cell counting and advanced cell analysis
- all in one flexible instrument

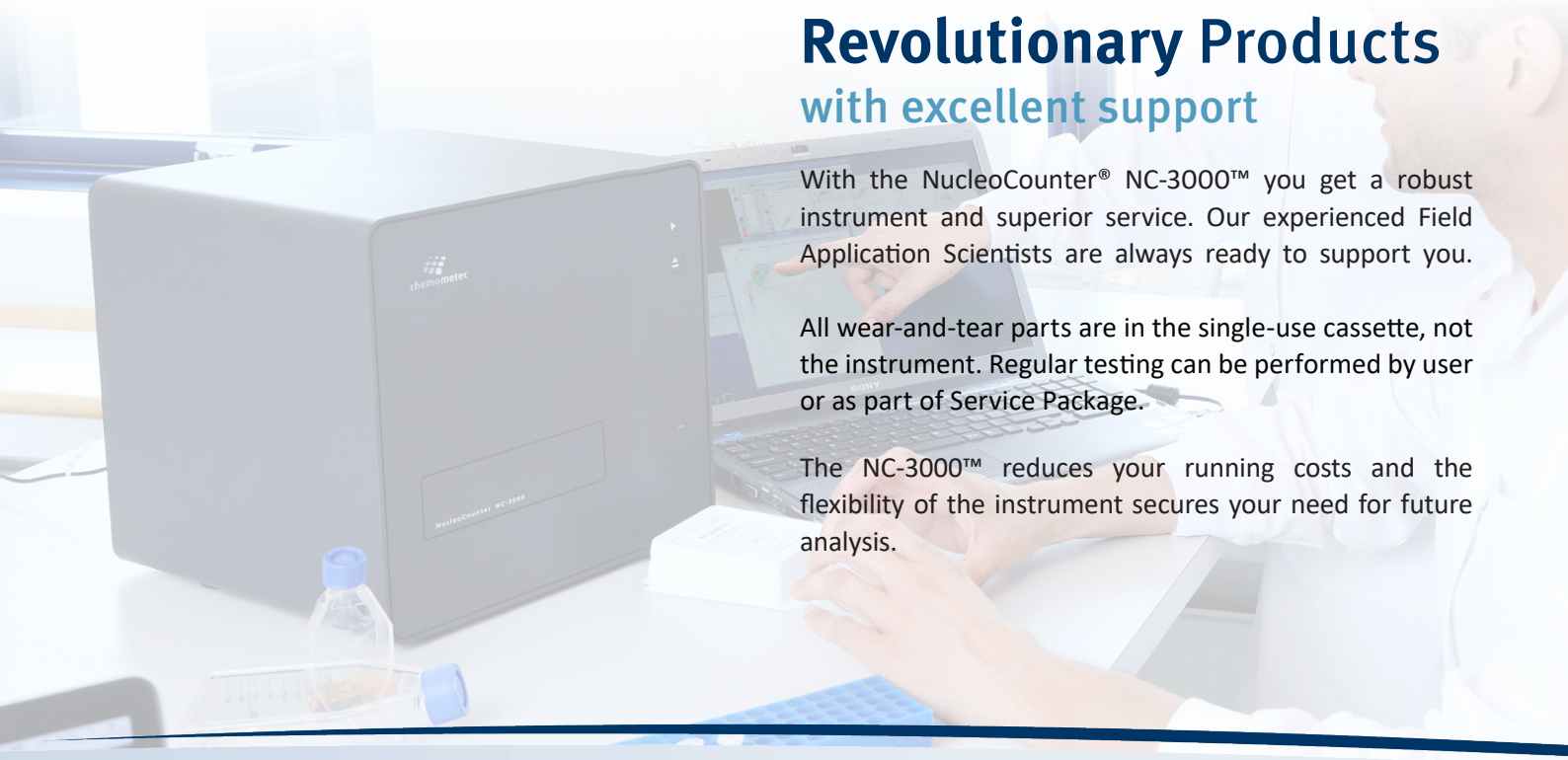
Avoid calibration, rinsing and clogging
- get right to your analysis with instant cytometry

Low maintenance instrument
- reduce your running costs significantly

Get visual inspection of your analyzed cells
- linkage between plot and image

Superior data visualization with the PlotManager
- unlimited number of software licenses included

Unique service from our Science Support Centre
- The best instruments deserve the best support



Revolutionary Products
with excellent support

With the NucleoCounter® NC-3000™ you get a robust instrument and superior service. Our experienced Field Application Scientists are always ready to support you.

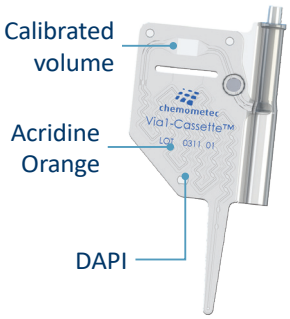
All wear-and-tear parts are in the single-use cassette, not the instrument. Regular testing can be performed by user or as part of Service Package.

The NC-3000™ reduces your running costs and the flexibility of the instrument secures your need for future analysis.

Experience the **Flexibility** of a true all-in-one instrument

Fast and easy cell count and viability analysis

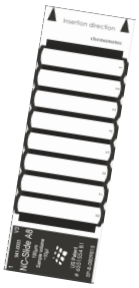
One-step cell count and viability without pre-treatment



In order to determine viability and cell concentration, a sample of the cell suspension is drawn directly into the Via1-Cassette™.

The inside of the Via1-Cassette™ is coated with two different dyes, which stain the entire cell population and any non-viable cells, respectively.

Perform 8 cell counts and viability assays in less than 3 minutes



The multi-chamber NC-Slide A8™ enables high-speed cell counting with accuracy and precision.

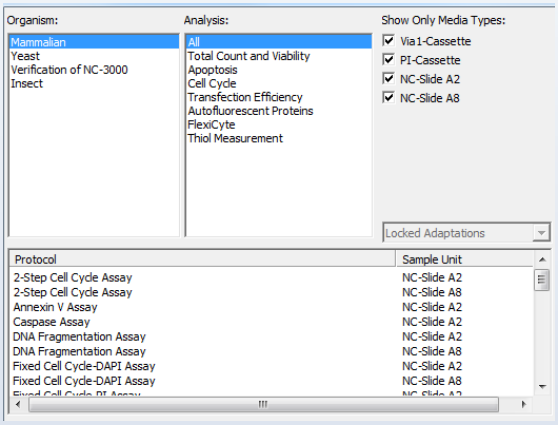
Within 3 minutes, you will have 8 cell counts and viability measurements, and only a small sample volume is needed.

Includes a wide array of plug-and-play analytical protocols

Imagine a complete cell cycle analysis performed in just 5 minutes, or a 1-minute apoptosis assay with no instrument warm-up, calibration or adjustments. The NucleoCounter® NC-3000™ comes with a wide array of analytical assays. Just select a pre-defined protocol and press 'RUN'.

Advanced cell analysis has never been easier to perform!

- Cell Cycle Analysis
- Mitochondrial Potential
- DNA Fragmentation
- Cell Vitality
- GFP Transfection Efficiency
- Annexin V
- Caspase 3/7, 8 & 9



User adaptable protocols for flow cytometry-like analysis — without the flow limitations

The FlexiCyte™ module enables the user to perform advanced cell analyses of a broad range of mammalian cells.

Use the built-in "Protocol Adaptation Wizard" to setup protocols to measure up to four different biomarkers using any combination of the five LEDs listed below. The LEDs cover a range from UV to far red and can be combined with appropriate emission filters to optimize detection of a wide range of fluorescent markers.

In addition to selecting optimal combinations of LED's and emission filters, exposure time can be optimized for specific fluorophores. The advanced algorithms in the software offer the option to include or exclude aggregated cells and to specify the minimum number of cells to be analyzed.

	Darkfield	UV (Counterstain)	UV LED	Violet LED	Blue LED	Green LED	Red LED
Light source	Darkfield / Ex365		Ex365	Ex405	Ex475	Ex530	Ex630
Available emission filters	-	/ Em470/55	Em430/20 Em470/55 Em475/15 Em560/35 Em675/75 Em630LP Em740/60	Em475/15 Em530/15 Em560/35	Em560/35 Em580/25 Em675/7	Em675/75 Em630LP Em740/6	Em740/6

FlexiCyte

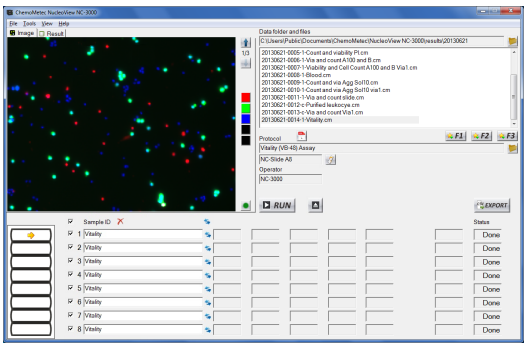
A full list of possible LED/emission filter combinations.
The denotation of emission filter as e.g. Em530/15, indicates a bandpass filter that allows light of wavelength 530nm ± 15nm (515 nm - 545nm) to pass.

Superior **Data Visualization** making cytometry widely accessible

Powerful NucleoView™ NC-3000™ Software included

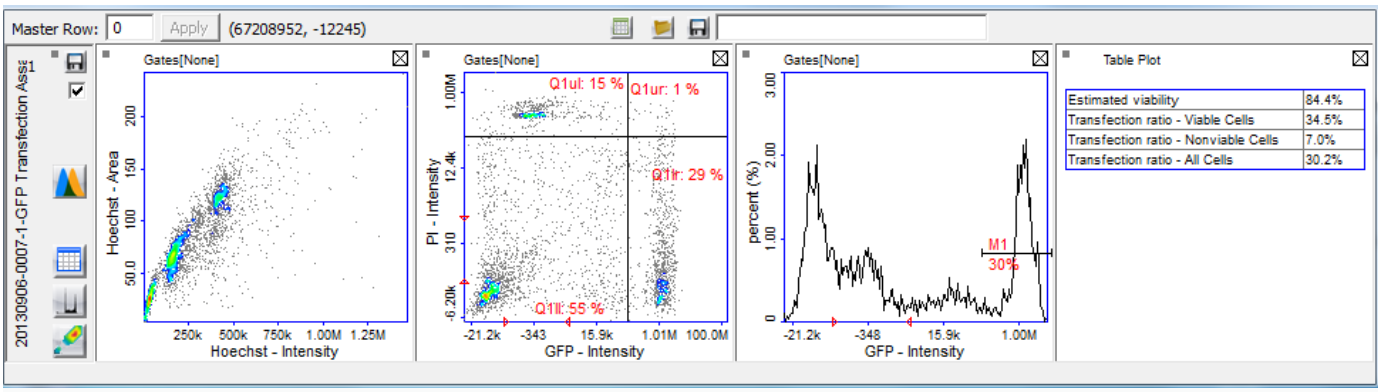
The ease of use of Nucleoview™ NC-3000™ makes cytometry accessible to everyone, eliminating the need for specialized personnel. The data is presented in histograms, scatter plots and result boxes, offering the user a clear overview of the results.

The Nucleoview™ NC-3000™ software displays an image of the loaded cell sample at 2x magnification, offering the user the option to visually inspect and qualify the cell sample. The software includes one-click access to application notes and context-sensitive help.



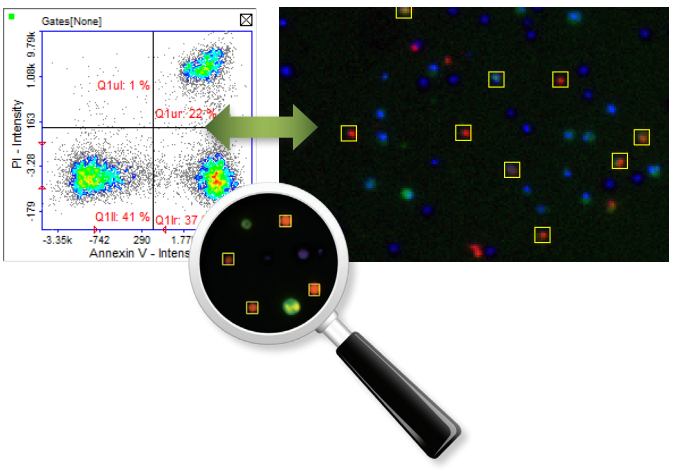
PlotManager

The PlotManager is used for analyzing the events acquired by the NucleoCounter® NC-3000™. Polygons, quadrants and markers can be drawn in the plots and are used for counting and gating subpopulations.



Linkage between plot and image

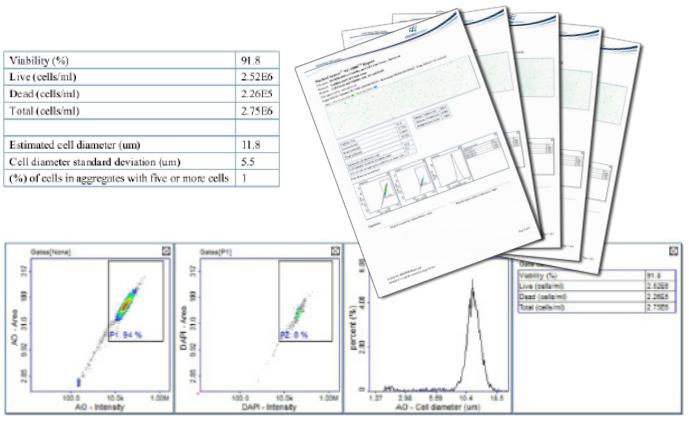
Gated cells can be inspected visually in the image acquired with the NucleoCounter® NC-3000™, as dislayed in this sample of Jurkat cells showing induced apoptosis, which is measured using the Annexin V assay.



Create your own PDF reports

Create PDF reports of your data for use in various applications, such as documentation in GMP facilities. This functionality allows users to display cell images, results and plots in a layout that facilitates approved procedures (e.g. by creating designated areas for signatures).

The reports can be auto-generated and printed directly by your default printer.



Examples of Applications

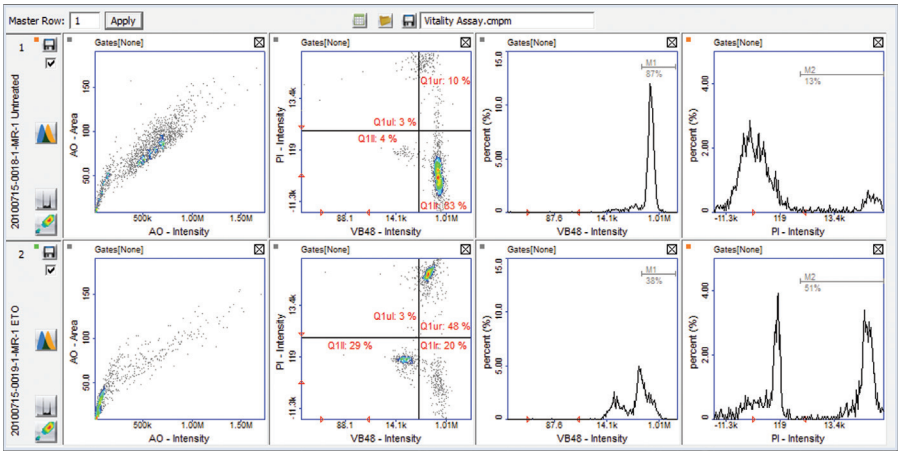
The NC-3000™ Vitality Assay

Evaluation of cellular health in 1 minute

The Vitality Assay is a simple solution for visualizing the distribution of living, dead and stressed/apoptotic cell populations through an array of scatterplots and histograms. Cells which are stressed or apoptotic are readily identified as having low intracellular thiol levels using ChemoMetec's proprietary VB-48™ reagent. The assay requires no washing steps, making it fast and sensitive.

Add VitaBright-48™ → Instant Cytometry

PATENTED By ChemoMetec A/S



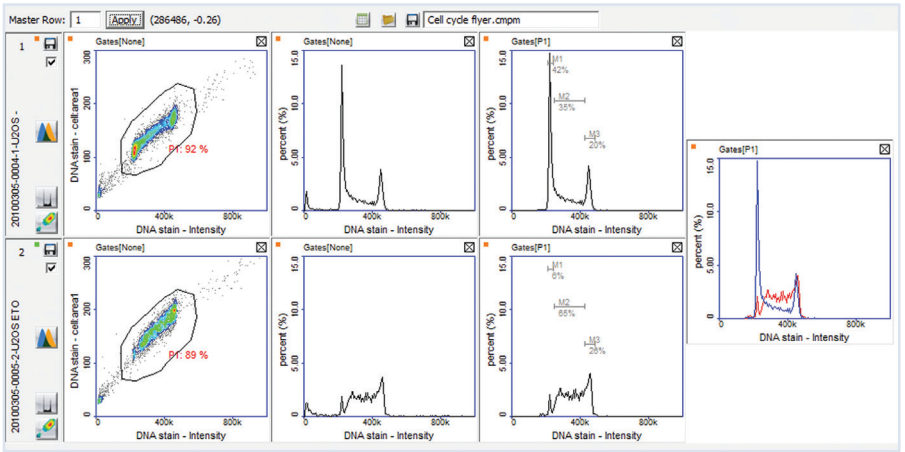
Hybridoma cells were grown in the absence (upper row) or in the presence (lower row) of etoposide. Cells were stained with VB-48™, Acridine Orange (AO) and Propidium Iodide (PI) and analyzed using the Vitality Assay and a NucleoCounter® NC-3000™. Scatter plots and histograms were obtained from the NucleoView™ NC-3000 software. Polygons and markers in the displayed plots were used to demarcate the various cell populations. In this example etoposide causes a decrease in the thiol levels in a subpopulation (cells with low VB-48™ intensity).

The NC-3000™ Two-Step Cell Cycle Assay

Complete cell cycle in just 5 minutes

The Two-Step Cell Cycle Assay facilitates detaching, permeabilization, de-clumping and homogeneous staining of the cell population in two simple steps. Sample preparation also takes only 5 minutes.

Lysis buffer + DAPI → Stabilization buffer → Instant Cytometry



U2OS cells were grown in the absence (upper row) or in the presence (lower row) of etoposide and the DNA content was measured using the Two-Step Cell Cycle Assay and a NucleoCounter® NC-3000™. Scatter plots and histograms were obtained from the NucleoView™ NC-3000 software. Markers in the displayed histograms were used to demarcate cells in the different cells cycle phases. Colored histogram is a merge between untreated (red line) and etoposide treated (blue line) samples.

Technical **Specifications**

Optics	Lens with x2 magnification, 1/2” CCD with 1392 x 1040 pixels
Sample device	NC-3000 cassettes, NC-3000 disposable chamber slides (2 and 8 chambers per slide)
Excitation (nm)	Seven LED light sources with peaks at 365, 405, 475, 530, 630 + 2 white LEDs
Emission (nm)	Nine interchangeable emission filters: Em 430/20, Em 470/55, Em 475/15, Em 530/15, Em 560/35, Em 580/25, Em 675/75, Em 630 LP, Em 740/60 (standard version)
Sample consumption	60 µl (cassettes), 30 µl (A2 slides), 10 µl (A8 slides)
Analyzed volume	3.2 µl sample (cassettes), 0.8-16 µl sample (chamber slides)
Optimal range	5×10^4 - 5×10^6 cells/ml (for counting)
Cell types	Mammalian cells, yeast, insect cells, avian cells
PC Platform	Windows 7, 8 or 10, USB 2.0, HD-format (1920 x 1080) recommended, 2 GB RAM recommended
Data presentation	Images, tables, histograms, scatter plots
Data export	CSV, ACS, FCS, PDF
Dimensions and weight	290 x 290 x 310 mm (H x W x D). 14 kg.
Supply voltage	100-240 V - 50-60 Hz
Power consumption	5/50W (power save mode/peak)

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