

# Cedex HiRes<sup>+</sup>

The new generation of  
cell culture analysis

5 x 10<sup>4</sup>

1 x 10<sup>5</sup>

5 x 10<sup>5</sup>

1 x 10<sup>6</sup>

5 x 10<sup>6</sup>

5 x 10<sup>4</sup>

1 x 10<sup>7</sup>

1 x 10<sup>5</sup>

5 x 10<sup>5</sup>

1 x 10<sup>6</sup>

5 x 10<sup>6</sup>

1 x 10<sup>7</sup>



**INNOVATIS**

QUALITY THAT COUNTS

# Cedex HiRes<sup>+</sup>

**The new generation of  
cell culture analysis**



innovatis AG understands the importance of keeping lab processes operating at the optimum efficiency. We are committed to developing a long-term relationship with international customers by offering the best quality product for an value. More than 600 existing systems in operation worldwide are increasing customer confidence in using technology "made by innovatis AG".

For best service and support, innovatis AG has a partner network that spans the world. With offices located in Europe, USA and Asia, you always will find a member of our team near you – ready to listen, prepared to respond, and eager to show you the benefits of the Cedex HiRes System of innovatis AG.



**INNOVATIS**  
QUALITY THAT COUNTS

Focused on customers' satisfaction, innovatis AG continues to work to support you with user-friendly product solutions. Based on our experience with the first product line of Cedex Systems, the time has come for a new generation – the Cedex HiRes.

## Cedex HiRes

### Features

- **Full Transparency of Your Analysis**
- **Real View of Your Cell Culture**
- **Real-time determination of Specific Growth Rate**
- **Live Operator**
- **Certified Reagent Kit**

Space on a lab workbench is at a premium – thus innovatis AG has engineered the new generation of Cedex with this in mind.

The fresh design stands for a totally new technical concept that saves workbench space and allows for easy access "from the front only" – benefits that count in the daily lab routine.

Additionally, you now have a choice in your computer system! Either select a computer from your preferred supplier or rely on the approved systems delivered by innovatis AG.

The Cedex HiRes will convince you with its new dimension in analysis results, broader range of applications and "easy handling" of reproducible cell analysis.

The revolution in resolution



# The automation of cell analysis

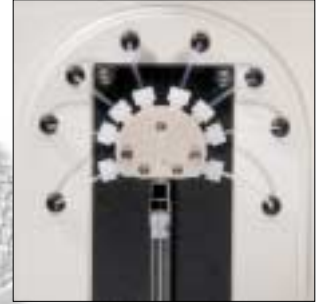
## Sample handling

Instead of manually pipetting the cell suspension into a mixing vessel the sample can be single-handedly and securely attached in a single-use cup to the sample port of the system. The precision pump extracts a fixed quantity of the sample liquid for further processing.



## Staining and mixing

Staining of the suspension cell sample with Trypan blue dye is fully automated. This way, the staining process can be executed with high precision and reproducibility. The automation of the sample preparation process eliminates human errors due to pipette handling.



## Replacing the hemacytometer

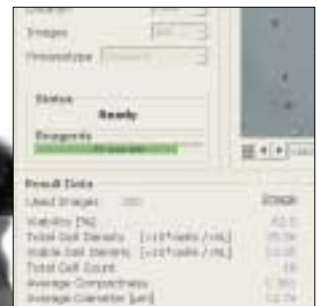
The system channels the stained cell suspension sample through the specially developed and precisely manufactured Cedex HiRes flow cell, which is designed to equal a hemacytometer.



## Image analysis automates the counting and viability determination

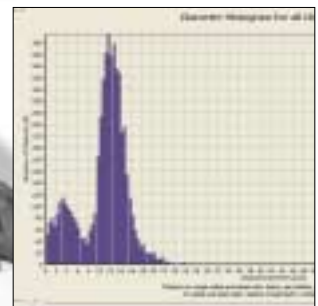
While the manual optical differentiation and counting is user dependent, tedious and time consuming the pattern recognition software in the Cedex HiRes detects and reliably counts all viable and dead cells in the image and differentiates them from debris, protein clumps and other pollutions. Furthermore, the system determines the average viable cell diameter as well as morphological changes of the cells automatically.

Cell aggregates are analysed by powerful, especially designed algorithms to detect all individual cells within cell aggregates.

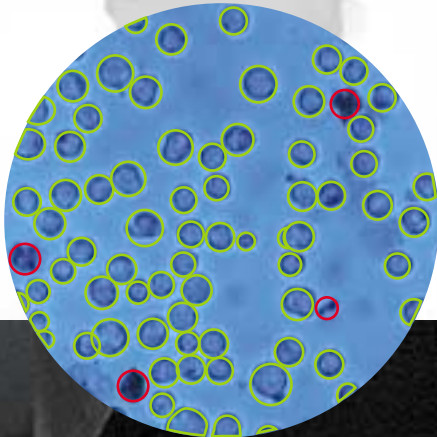
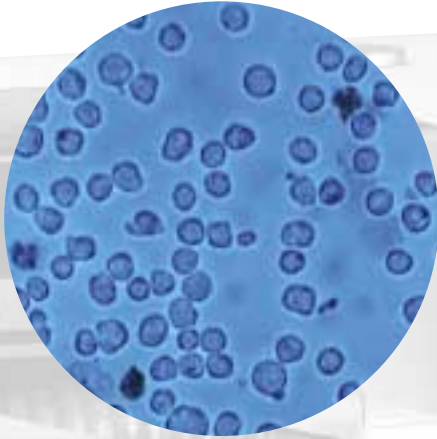


## Fully automated numerical and graphical result representation

The time consuming result calculation and documentation is replaced by extensive and self-explanatory measurement result data, which is graphically displayed in diagrams and numbers; all results, graphics and images can be printed out via local or network printer, stored on hard disk and CD ROM and exported to the user's own computer network.



# The moving microscope



**The measurement cycle:  
Preparation and Injection of the  
Sample - Sedimentation and  
Pre-Scan - Measurement Scan  
and Image Analysis - Cleaning  
Routines**

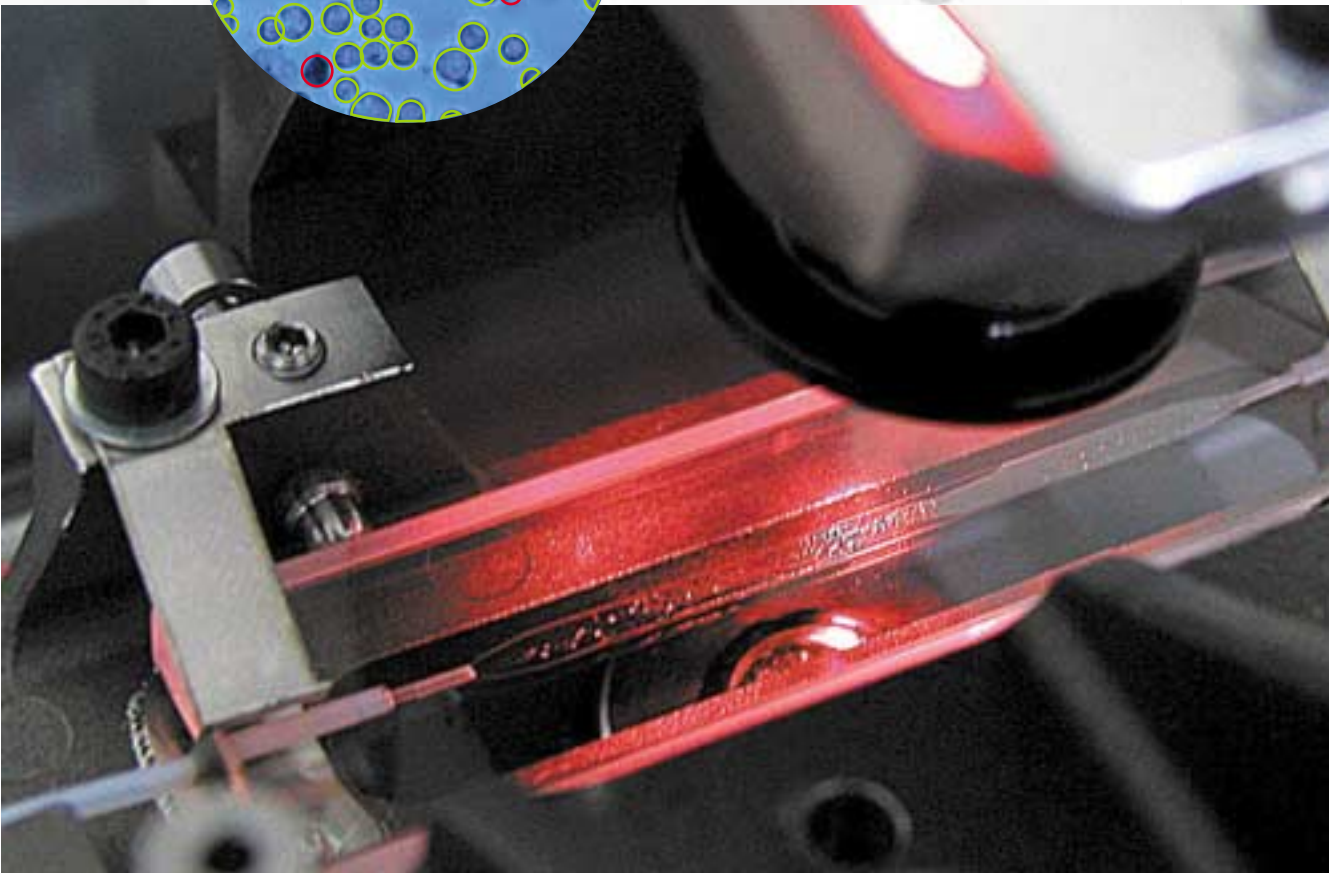
## **Full Transparency of Your Analysis**

For the first time, it's now possible to monitor an integral part of the Cedex HiRes unit - the flow chamber, which is fabricated of high quality optical quartz glass. With the chamber scan, innovatis AG gives you the possibility to make the whole analysis completely transparent.

The scan of the complete chamber monitors the distribution of the cells inside the flow chamber.

The pre-scan gives you an overview of the composition of the cell suspension. Everything is visible at once - including large aggregates, air bubbles, medium fragments or dirt particles.

Up to 300 images can be analyzed from one measurement scan to guarantee high statistical precision and accuracy!





## Certified Reagent Kit

Working with our Cedex HiRes Reagent Kit is both safe and simple:

- Open the transparent protective shield
- Pull out the tray with the used reagent and waste containers
- Place the new Reagent Kit and empty waste container into the tray
- Put the tray back into the Reagent Kit chamber
- Close the shield

The system will then be ready for 100 further measurements, including necessary cleaning cycles and liquid management routines.

It's never been easier to optimise the throughput of analysis and improve the quality of the measurements!

## The Multi Sampler

The new, completely integrated, Multi Sampler is designed to speed up the analysis of samples. The liquid management and reagent control management are also adapted to this need. Additionally, the design of the Multi Sampler is aimed at a future use of multi-well plates and for the use in auto-mated environments. The reagent tray fits 20 samples. Exchangable sample trays are available for easy preparation of additional cell culture samples.



Customers can alternatively select a **single sample port** where a sample cup is manually placed before the analysis of the culture starts.



The functionality of the Reagent Kits includes:

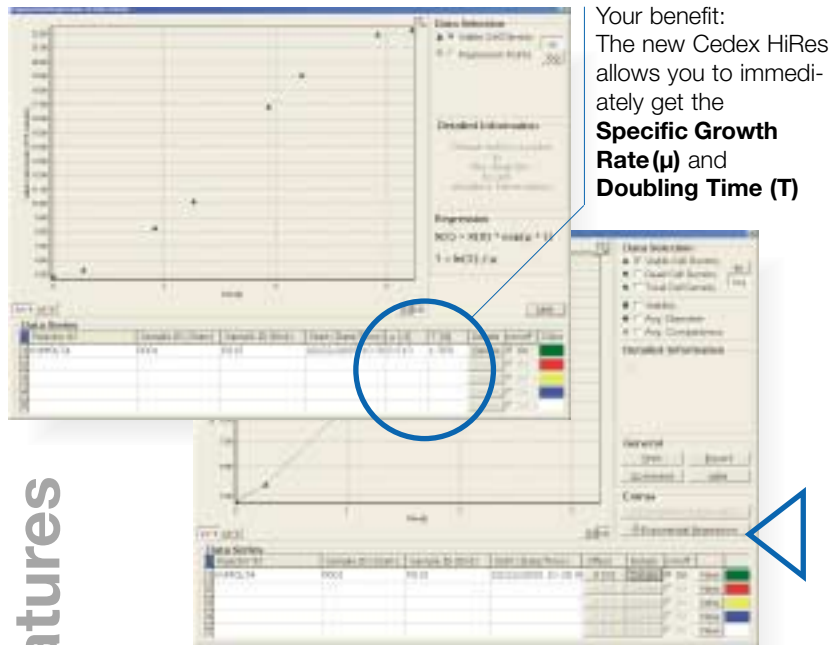
- Retention Samples
- Reagent Certificates
- Reagent Control Bar
- Reserve Indicator
- Optical control of Liquid level

## Real-time Determination of Specific Growth Rate

Results of single measurements can be combined using the "Cultivation Time Chart" (CTC) to create time course diagrams.

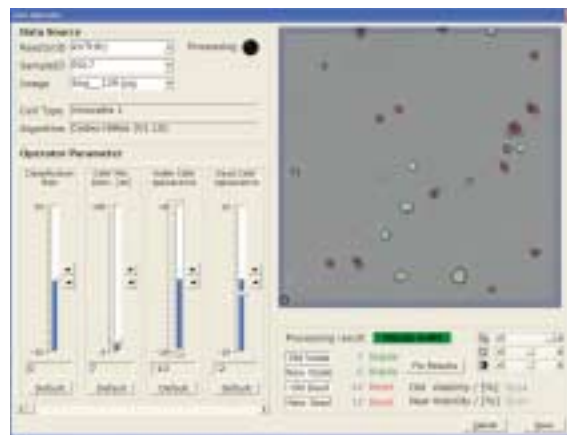
Cell growth curves and additional parameters – like cell diameter – can easily be compared at a glance.

The extensive "Export Functionality" can integrate Cedex HiRes data into standard applications such as Excel, Origin, Sigma Plot and Labview that support the DIF or CSV format.



New software features

## Live Operator



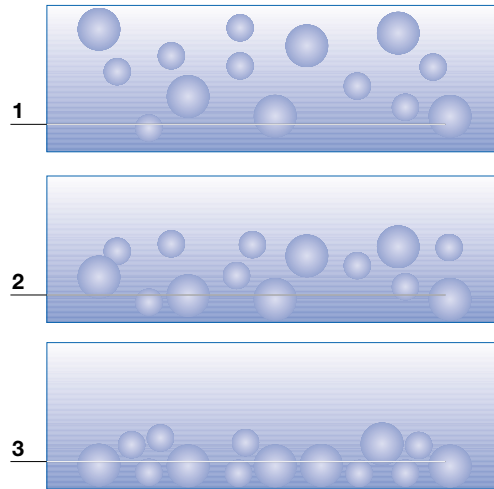
You can optimize the Cell Type Parameters of your operator on a live image.  
The result of the changed settings is immediately shown on the image itself and can be compared to the original settings. Now it is much easier to get quickly the optimum cell type parameter settings!

## Real View of Your Cell Culture

Objects from **1-90 µm** are recognized by the Cedex HiRes. The sedimentation phase allows the cells to settle into one focus layer. A single measurement scan delivers all of the necessary information about your cell culture. The enhanced magnification performance of the Cedex HiRes provides you with more details about your cells.

The smooth liquid handling of the Cedex HiRes helps to protect the structural integrity of the cell suspension. Thus, the system shows the real view of the status of your cell suspension.

**Nearly identical to the manual Trypan Blue exclusion method for cell culture analysis.**



What does **Service & Support** mean at innovatis AG? In biotechnology, pharmaceutical industry and research it is absolutely critical to assist the customer in the best way possible. Therefore, innovatis AG offers a special range of pre- and after sales services including:

- **Service & Support Hotline**
- **Service Contracts**
- **Preventive Maintenance Contracts**
- **Customer Trainings**
- **Certified Spare Parts and Consumables**
- **Special Operator Development**

**Cedex HiRes** and **GMP** regulated production processes: Our **Validation Service** is what especially differentiates innovatis AG from the competition! More cell culture analysis systems are now being integrated in GMP regulated production processes. It is our intention to support our customers and help them to save time and to reach the optimal results. Our in-house experts have many years of experiences in validation processes.

Innovatis AG offers a special service **GMP Package**:

1. The complete and extensive set of documentation
2. Qualified consulting for the lining up process
3. Assistance in all aspects regarding the validation of the Cedex HiRes

Service



## Quality that counts

innovatis AG, headquartered in Bielefeld, Germany, is specialized on integrating lab processes and automating cell culture analysis.

Based on proven technology our specialists offer the best range of product solutions for research, pharmaceutical and biotechnology industry – all over the world. Individual service packages complete the product portfolio dedicated to future customers' needs.

innovatis AG  
Meisenstr. 96  
33607 Bielefeld  
Fon: +49 (0)521 2997-287  
Fax: +49 (0)521 2997-285  
Germany

info@innovatis.com

innovatis Inc.  
301 Lindenwood Drive, Suite 115  
Malvern, PA 19355  
U.S.A.  
Fon: +1-888-283-1564 Toll free  
Fax: +1-888-283-1631 Toll free  
Fon: +1-610-889-7319  
Fax: +1-610-889-7436

innovatis AG  
Level 31  
6 Battery Road  
Singapore 049909  
Fon: +65 6320 8371  
Fax: +65 6320 8383

www.innovatis.com



**INNOVATIS**  
QUALITY THAT COUNTS