Countstar Mira HT

High-throughput Cell Analyzer

Countstar Mira HT High-throughput Cell Analyzer adopts AI learning algorithm, innovates focusing technology, feature identification of cells, and combines with special 24-hole high-throughput counting mode to easily fast, accurate and high-throughput counting requirements. Trypan Blue and AO/PI staining can meet your different needs for cell concentration and viability counting, and support GFP/RFP transfection experiment. It is compatible with a variety of consumables, satisfying diversified detection scenarios; the large visual field area and short measurement time make the experiment process fast and accurate!

Since its establishment, Alit has been committed to providing advanced instruments, equipment, technologies and services for the life sciences and biotechnology industry. Insisting on continuously improving product innovation and customer value, we have built a perfect product system. The independently developed Countstar cell analyzer has become an important instrument and equipment in China's life sciences and biotechnology industry.

COUNTSTAR MIRA HT

Process development and production

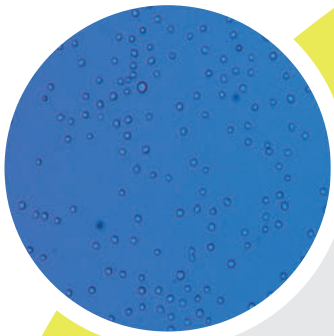
In the modern biomedical industry, it is an important work to explore the culture conditions and improve the culture technology of cells. Countstar Mira HT High-throughput Cell Analyzer is compatible with the functions of bright field, fluorescence counting and transfection efficiency analysis, which can accurately and effectively detect the state of cells, provide reliable data support for improving the cell culture process, and ensure the quality and yield of products.

Cell high-throughput detection

Countstar Mira HT can detect 24 samples in a short time, providing a reliable solution for industries that need to detect a large number of cell samples, such as cell biopharmaceuticals and third-party testing.

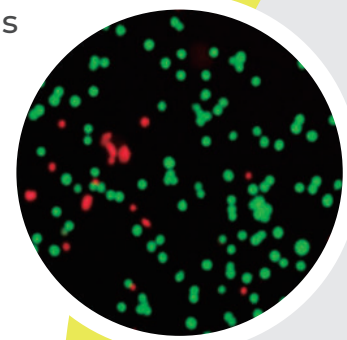
Quality control

Cellular gene therapy is a very promising medical method in the 21st century. In the whole process of cell gene therapy, cell concentration and cell viability must be monitored from isolation, detection and culture to return. Countstar Mira HT can effectively and quickly detect cell status and provide legal and compliant solutions for cell quality control.



Comply with GMP-related regulations

The software conforms to FDA21 CFR Part 11 and supports data backup and connection of the server with printer, to provide a complete 3Q authentication scheme.



CORE FEATURES

SIMPLIFY WORKFLOW AND IMPROVE WORK EFFICIENCY

1 High throughput

Automatically detect 15 or 24 samples with one button.

2 Compatible automation

It integratable with automatic pipetting workstation, automatic manipulator and plate storage station to to allow use of self- automated sampling work stations.

3 Fast detection speed

The image capturing time in Trypan Blue mode is only 10s, and the single sample detection time is less than 30s; photographing time in AO/PI dual fluorescence mode is only 22s, and the detection time of a single sample is less than 60s.

4 Advanced imaging technology

With 8.3 million CMOS and high-performance optical lens, the sampling and analysis area of each sample is twice as large as that of the blood cell counting board, and higher optical resolution and fluorescence sensitivity are obtained; coupled with unique "focusing" technology, better data accuracy and stability are ensured.

5 AI image analysis technology

The analysis results are more accurate when cells with different morphological features are identified and simulated.better data accuracy and stability are ensured.

6 Data analysis and export

Automatically generate growth curves, export PDF reports, pictures, tables.

HIGHER THROUGHPUT COMPATIBLE WITH AUTOMATION AND SHORT DETECTION TIME

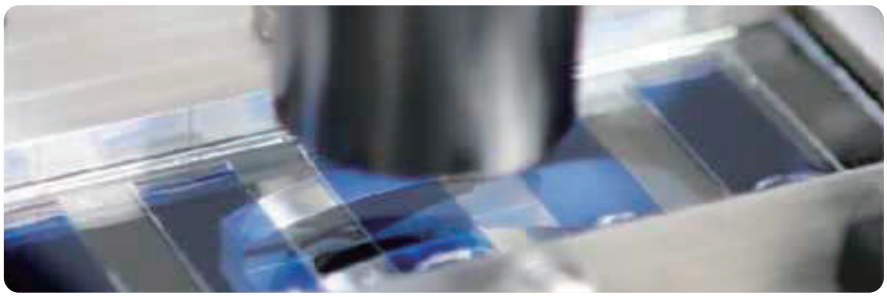
It is compatible with 24-slot high-throughput counting board and Countstar conventional five-slot counting board, with more flexible throughput.

The sample can be added to greatly speed up the experimental process. Photography and analysis can be carried out simultaneously. The desired number of samples are placed on the well plate in the experiemental process. The Mira HT captures the sample's images in a matter of seconds. In the Trypan Blue mode, the measurement time for 96 samples was only 20 minutes.

ADVANCED IMAGING TECHNOLOGY ENSURE THE ACCURACY AND CONSISTENCY OF DATA

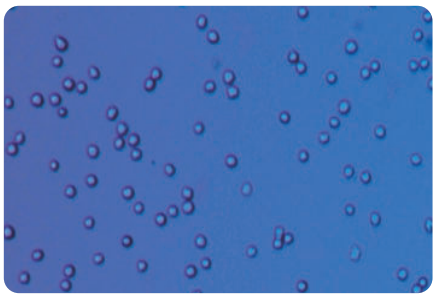
Innovative "focusing" technology

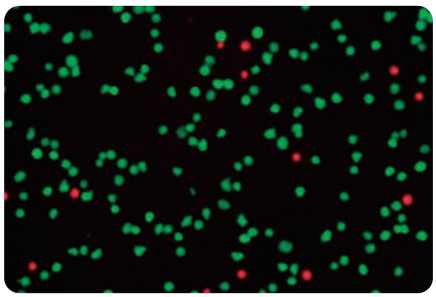
With advanced optical systems and innovative "focusing" technology, the Mira HT is able to avoid common manual counting errors.



High definition image

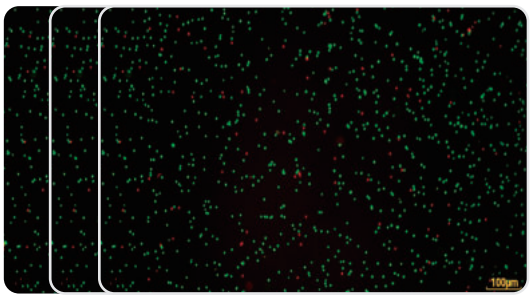
The 8.3 million CMOS camera provides you with higher optical resolution and fluorescence sensitivity with clear results.

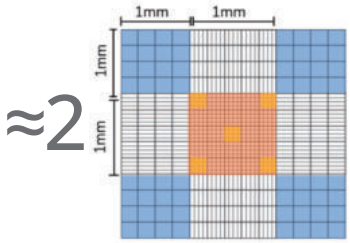




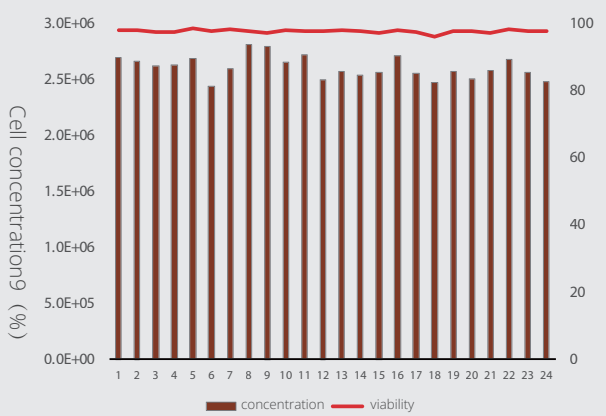
Large visual field area

The visual field area of a single sample is about twice that of the blood cell counting board, and the number of cells detected by a single sample can reach tens of thousands, which effectively reduces the counting error.



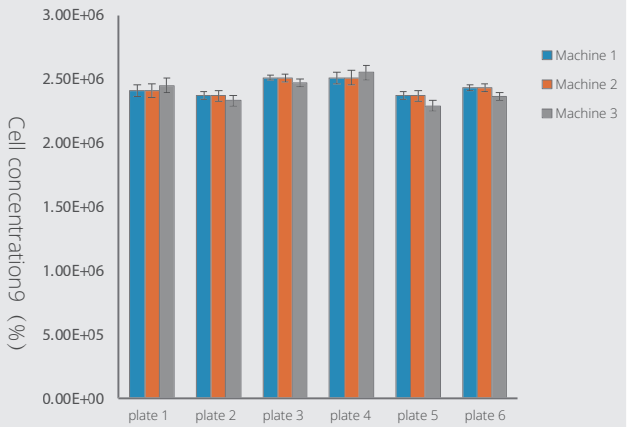


Repeatability of Countstar Mira HT stability



Countstar Mira HT measured 24 repeated samples of CHO cells at one time; the CV value of concentration repeatability is less than 10%; the CV value of activity repeatability is less than 5%.

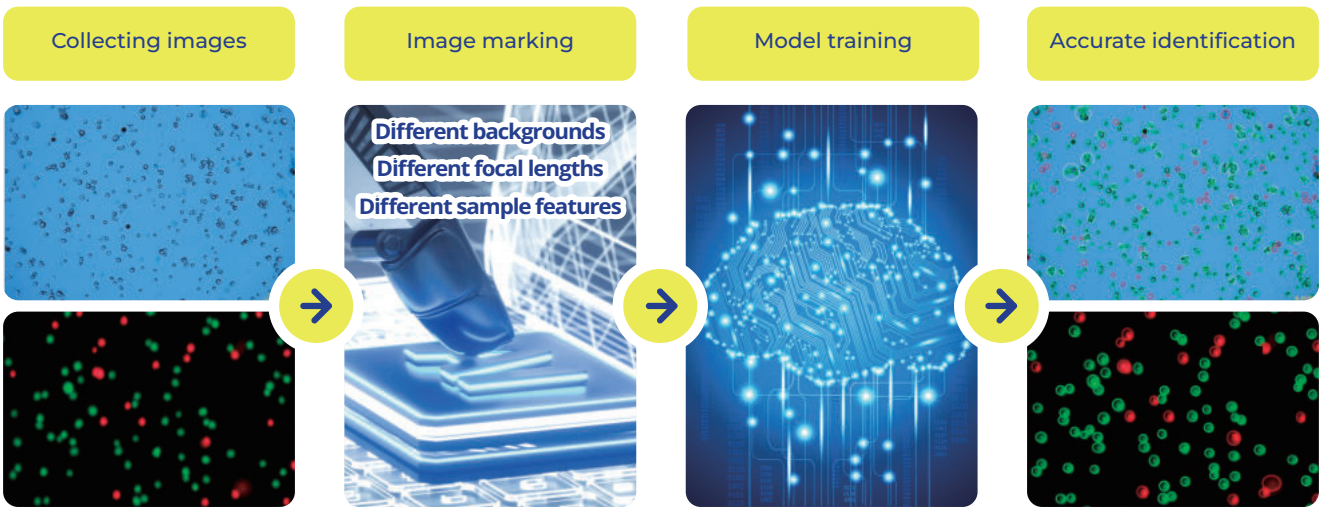
There is little difference between Countstar Mira HT counting boards and instruments



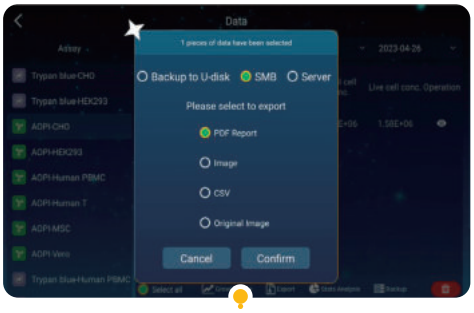
Three Countstar Mira HT, six 24-slot high-throughput counting boards, measuring CHO; the results show that the difference between Mira HT stations and counting boards is between 3% and 10%.

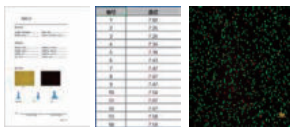
LEADING AI ALGORITHM MORE ACCURATE EXPERIMENTAL RESULTS

The Countstar Mira HT High-throughput Cell Analyzer uses AI self-leaning algorithms to distinguish and extract and identify unique cell features. After integrated analysis, it can analyze various types of cell samples. For example: Accurately identify cells with irregular morphology, easy clustering, and uneven size to meet a wide range of application needs.

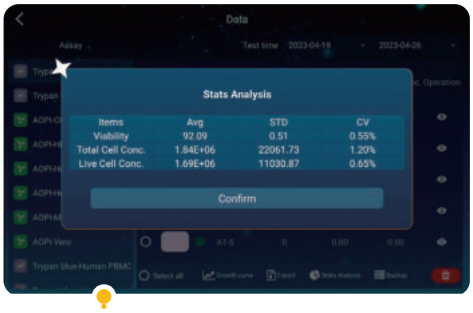


POWERFUL DATA ANALYSIS FUNCTION MULTI-DIMENSIONAL RESULT EVALUATION

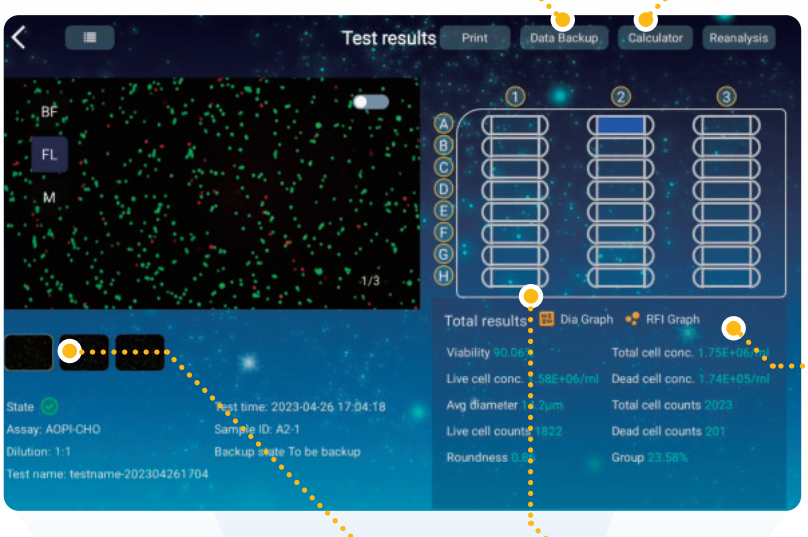


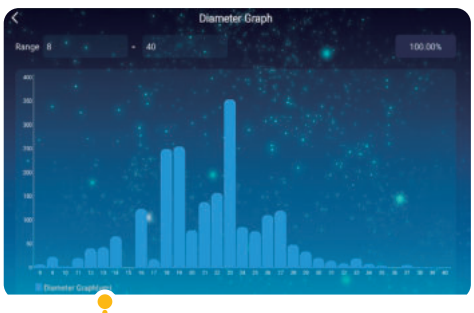


Support export of PDF (customizable report), Excel and JPG pictures and other data formats

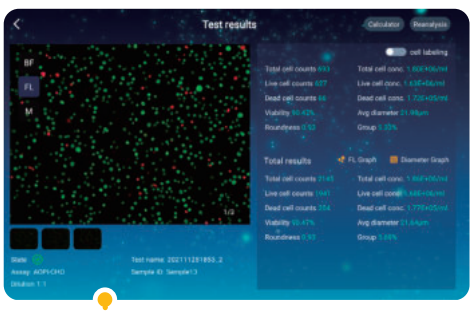


Automatic calculation of multi-sample and multi-index RSD values

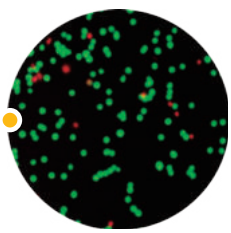


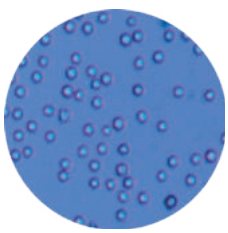


Diameter distribution diagram



Quickly view detailed data results

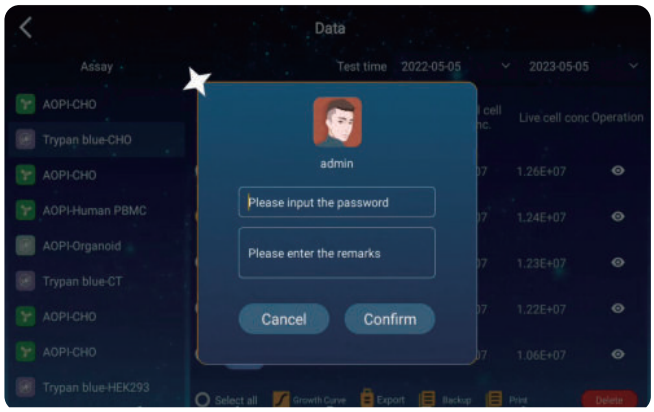




Look at the image, you can easily understand the sample situation.

DATA MANAGEMENT

Intelligent, flexible database management can create a user-friendly experience, and also ensures the reliability and traceability of experimental results.

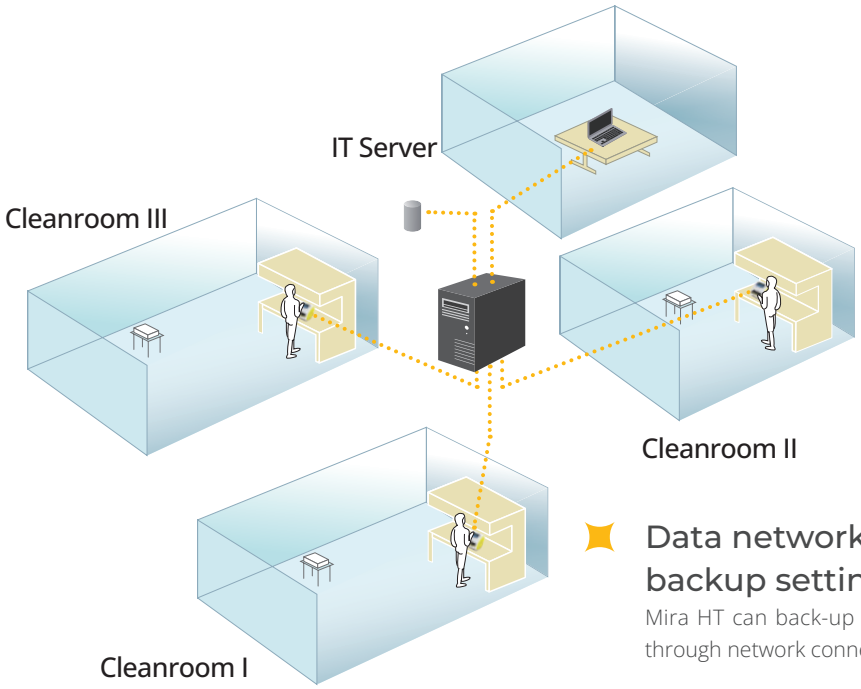


Multi-database management

Each "APP" measuring program is a database, and the display is clearer.

Data and authority management

Deletion and modification of data is secured through electronic signatures and authorized user accounts.



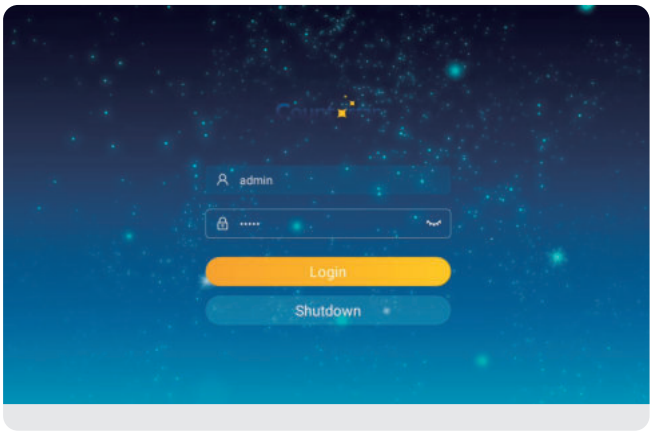
Data network transmission and local backup settings

Mira HT can back-up your test data to the server in real time through network connection.

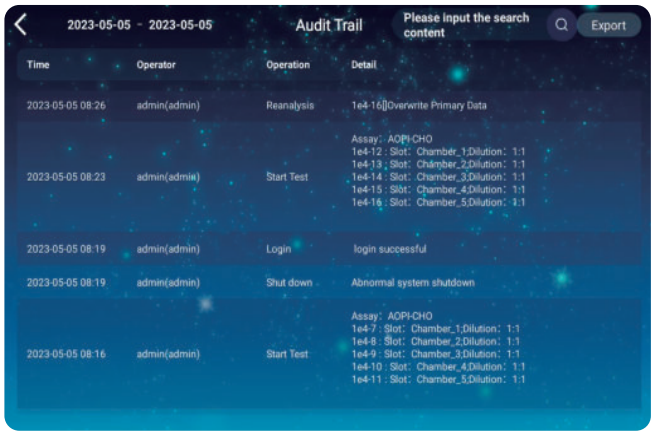
FDA 21 CFR PART11 AND 3Q SERVICES

Compliant software functions and flexible user management

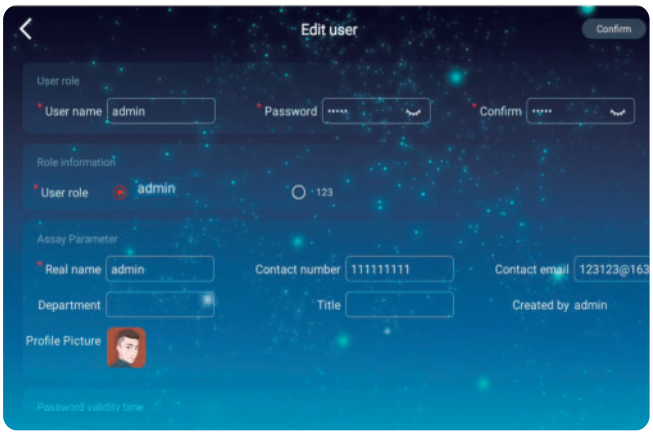
The software functions of Countstar Mira HT fully meet the requirements of FDA21 CFR Part11 regulations.

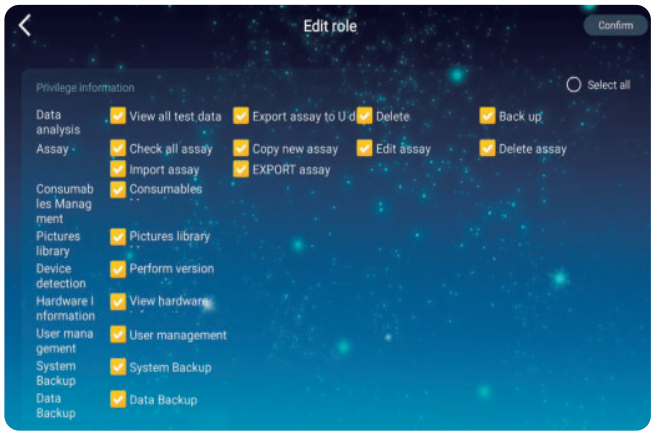


Secure user login system



Electronic signature and audit log





More levels of user management, more detailed authority distribution

Complete 3Q services

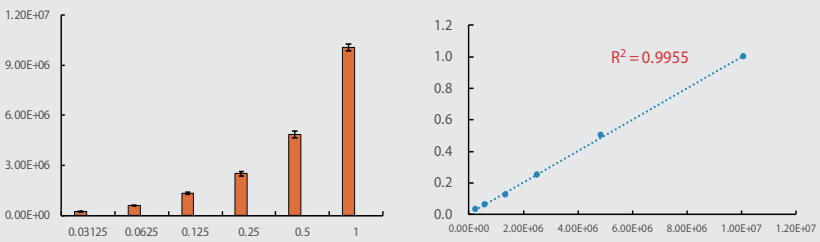
In order to meet the needs of modern pharmacy, we provide a series of consumables and tools; The complete validation scheme meets all the requirements from instrument design to performance validation (IQ\OQ\PQ) .

CLASSICAL TRYPAN BLUE CELL ANALYSIS

Trypan Blue cell analysis

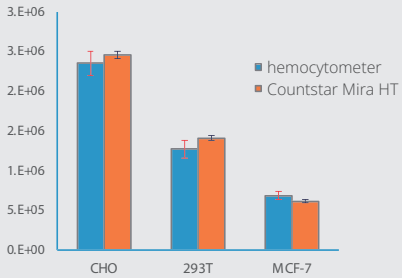
Trypan Blue staining is one of the most commonly used staining methods for identifying dead cells in tissue and cell culture. Normal living cells have intact membrane structure, and can repel being stained. However, the membrane of dead cells is compromised, which can allow Trypan Blue stain the cells blue.

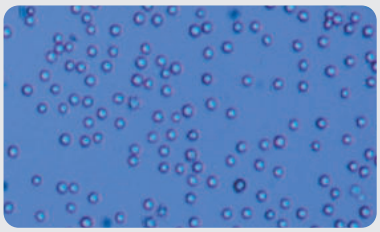
Experimental results of gradient dilution of CHO cells

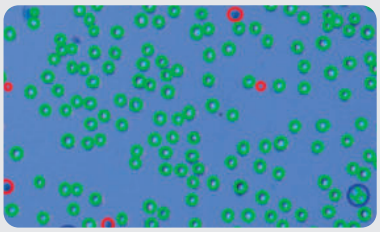


The linear value of CHO cells measured by Countstar Mira HT is over 99%, and the CV value of 5 replications is less than 7%

Countstar Mira HT has undergone rigorous testing and verification to ensure high-precision results. Compared to manual counting with blood ball counting board, Countstar Mira HT produces better repeatability and more accurate data.





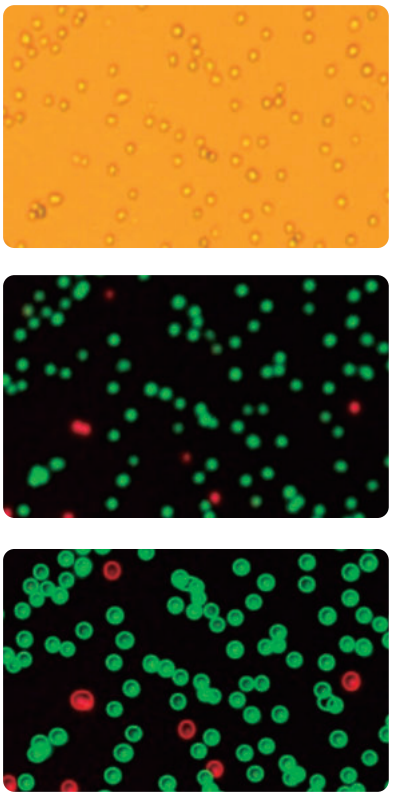


Countstar Mira HT and blood cell counting board were used to measure CHO, 293T and MCF-7 cells for 50 repetitions, respectively. The results showed that the deviation of Mira HT and blood cell counting board in measuring the same sample was within 10%, but Mira HT's sample repeatability was far better than that of blood cell counting board.

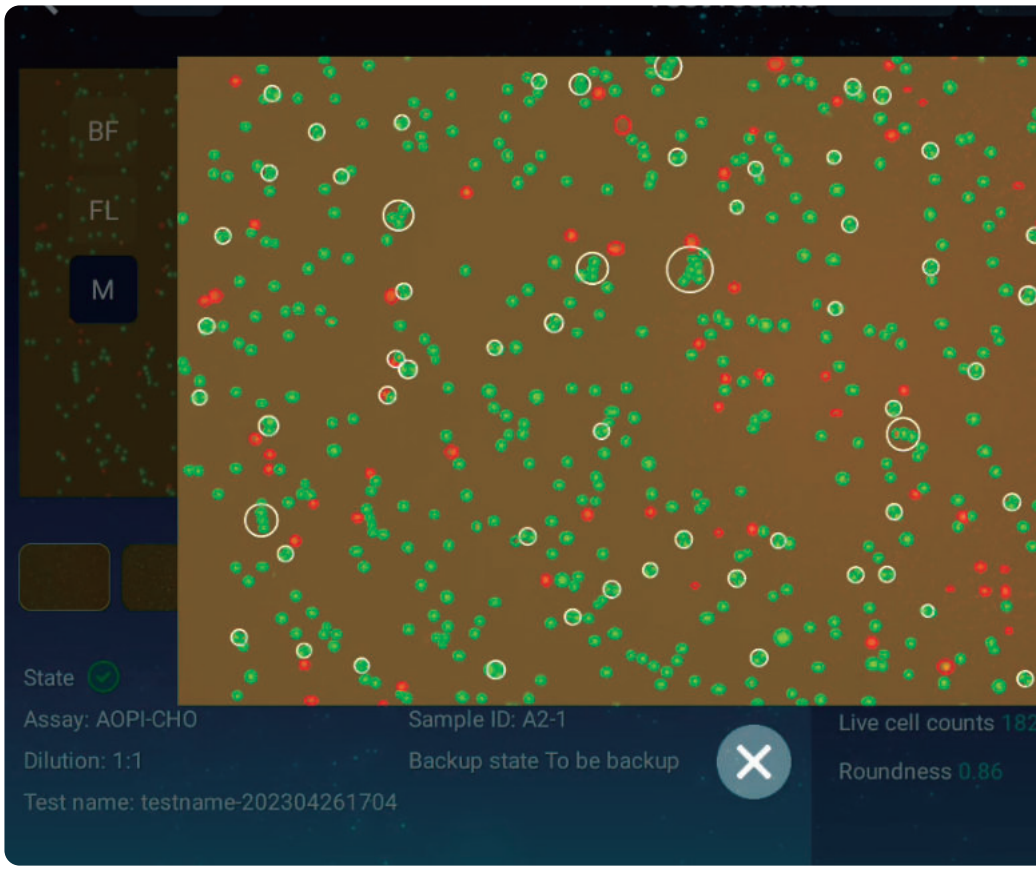
AO/PI DUO FLUORESCENCE COUNTING METHOD

AO/PI Duo fluorescence counting method

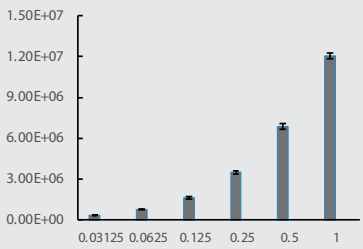
The AO/PI duo fluorescence analysis method is an optimization and substitution of the traditional Trypan Blue and MTT methods, composed of DNA binding dye Acridine Orange (AO) and Propidium iodide (PI). Because AO and PI are DNA binding, they can effectively eliminate the interference of impurity fragments and anucleated cells, and can also accurately count cells less-than-ideal conditions.



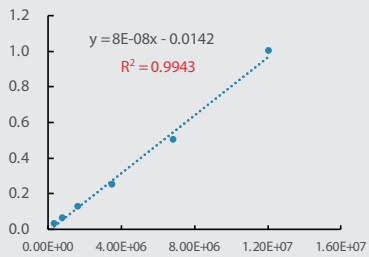
Detection of PBMC cells by Countstar Mira HTAO/PI double fluorescence



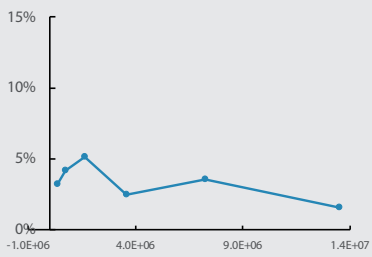
The Countstar Mira HT produces linear results for a PBMC dilution gradient



PBMC concentration gradient histogram



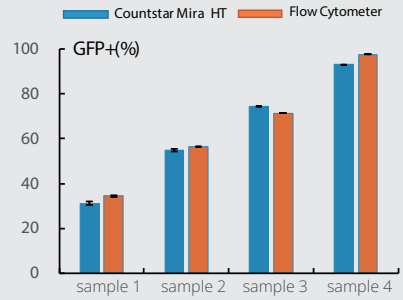
PBMC concentration gradient linear graph



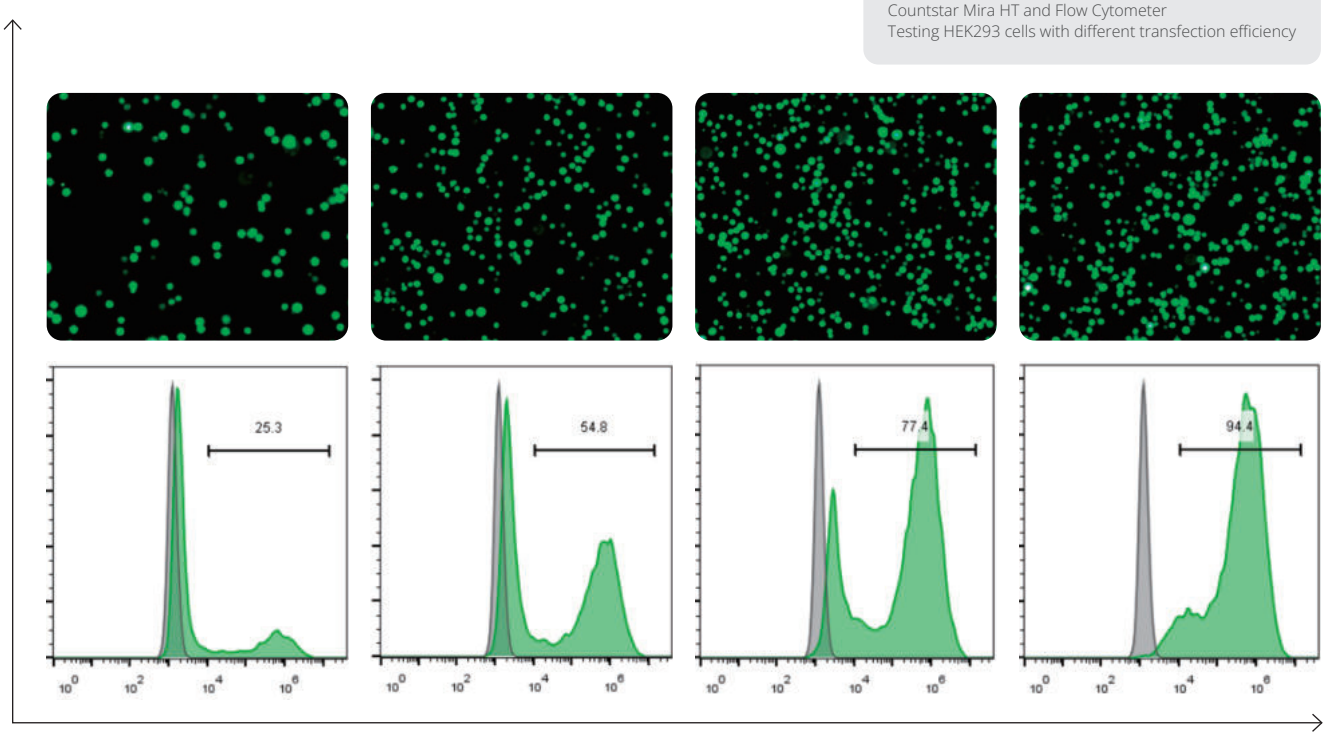
Repeatability CV value of the same sample at different concentrations of PBMC

GFP/RFP TRANSFECTION ANALYSIS

Transfection efficiency, important link in cell line development, screening, virus vector development and large-scale production is one of the key factors restricting drug development. Therefore, efficient quantitative detection and improvement of cell or virus transfection efficiency has become a dilema in the gene therapy industry. The Countstar Mira HT High-throughput Cell Analyzer not only provides accurate quantitative test results comparable to flow cytometry, but also provides image-based cell analysis results.



Countstar Mira HT and Flow Cytometer
Testing HEK293 cells with different transfection efficiency

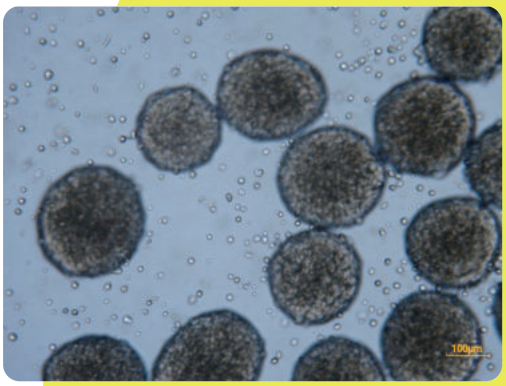


HEK293 transfection efficiency analysis of GFP Mira HT based on different GFP transfection efficiency image analysis results, which are basically consistent with flow cytometry measurement results

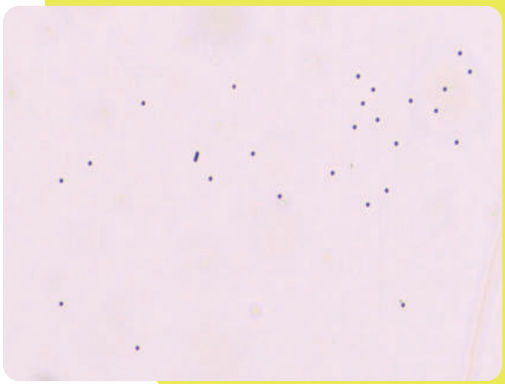
APPLICATION DEVELOPMENT

In addition to the high-throughput counting of 24-slot consumables, Countstar Mira HT is also compatible with all kinds of conventional 6/12/24/96 orifice plates based on the same hardware structure, making it customizable and powerful. For example: Immunomagnetic bead residue count, 3D cell mass count (such as iPSC cell mass count); it is compatible with the cell imaging analysis in the central area (not the whole hole) of 6-96 well plate, and can be used for entry-level rapid and high-throughput cell detection and analysis, such as adherent cell counting, confluence analysis (growth/proliferation, etc.), GFP/RFP cell transfection screening, and organ-like culture quality control detection.

It is compatible with various consumables, and supports a variety of application expansion



IPSC cell cluster count



Immunomagnetic bead residue count

COUNTSTAR MIRA HT PRODUCT PARAMETER

Model/name	Countstar Mira HT
Sample throughput	24/15
Diameter range	1-180μm (recommended)
Concentration range	1×10^4 - 3×10^7 cells/ml
Optimum concentration range	5×10^5 -1×10^7 cells/ml
Optical amplification	5X
Imaging element	8.3 megapixel CMOS
Single-view analysis area	$2.8mm^2$
Image resolution ratio	1920 × 1080
Fluorescence channel	Ex：465-485nm Em：535/40nm、600LP
Usb interface	1 × USB2.0、1 × USB3.0
Storage capacity	256G
Power input	110-230V/AC，50/60Hz
Screen size	8 inches
Product weight	8.6kg
Product weight	308 × 335 × 354mm
Adapter (standard)	Countstar Slides adapter


AOPI-A549
AOPI-CHO
AOPI-HEK293
AOPI-Human PBMC
AOPI-Human T
AOPI-K562
AOPI-MCF7
AOPI-MSC
AOPI-RAW264.7
AOPI-Zebrafish
GFP transfection-HEK293
RFP transfection-HEK293
Trypan blue-A549
Trypan blue-CHO
Trypan blue-HEK293
Data Management
Assay Management
System settings
Countstar
Smart Cell Analysis
OPEN

PRODUCT ORDERING INFORMATION

	Product name	Model	Product number
Product	High-throughput Cell Analyzer	Countstar Mira HT	IN090101
Consumables	24-slot high-throughput counting board (50 pieces/box)		CO040101
	Cell counting board (50 pieces/box)		CO010101
	AO/PI fluorescent staining solution 5ml/25ml		RE010212 / RE010213
	0.2% Trypan Blue 20ml		RE010112

SHANGHAI RUIYU BIOTECH CO.,LTD.

Owned by Alit Biotech (Shanghai) Co..LTD.

Telephone: 400 820 2912
Email: marketing@countstar.cn
Website: www.countstar.com
Address: Buliding A8, No.66, Yunkai Road, Songjiang District, Shanghai, China

Countstar
Smart Cell Analysis