



Miltenyi Biotec

Perfectly integrated

Flow cytometry solutions

MACSQuant® Analyzer

Fluorochromes for flow cytometry

Ready-to-use cell analysis kits

MACS® Antibodies



Excite & inspire



Cell analysis and the MACSQuant® Analyzer

The future of flow cytometry is brighter than ever

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Advancing cell analysis

Miltenyi Biotec is a leading provider of comprehensive solutions for flow cytometry. We offer a wide range of kits, antibodies, fluorochromes, and instrumentation that more than meet the demands of cutting-edge cell analysis.

A comprehensive product portfolio

- MACS Control Cocktails for simplified cell validation
- Cell analysis kits for analysis of rare cell populations
- A wide spectrum of fluorochrome-conjugated antibodies
- The MACSQuant Analyzer—a novel benchtop instrument for highly sensitive multicolor flow cytometry

Forging ahead to effective research

We are continually expanding our product portfolio that enables researchers to perform sophisticated clinical and basic research with the highest level of convenience and flexibility.

Our products and services have been used successfully by leading scientists and clinicians worldwide in a variety of fields:

- Immunology
- Oncology
- Neuroscience
- Stem cell research

Read further to discover how our perfectly integrated flow cytometry solutions can advance your cell analysis research.



Paramount performance in phenotyping

With convenience and flexibility in mind, Miltenyi Biotec offers individual antibodies and cell analysis kits for flow cytometry. In addition, the MACSQuant Analyzer brings convenience and power to flow cytometry in the form of an ultra-compact benchtop instrument.

MACS® Antibodies

Fluorochrome-conjugated MACS Antibodies are perfectly suited for identification and enumeration of human, mouse, rat, or non-human primate cells by flow cytometry.

- Comprehensive: broad panel of antibodies
- Versatile: phenotyping of any immune cell type
- Flexible: available with numerous fluorochromes

VioBlue®—brighter options for multiparameter analysis

VioBlue®, a powerful dye for use with a violet laser, further expands your choice of marker combinations for multiparameter cell analysis by flow cytometry.

Stay in control with MACS Control Antibody Cocktails

MACS Control Antibody Cocktails consist of pre-titrated antibodies for reliable identification of specific cell populations.

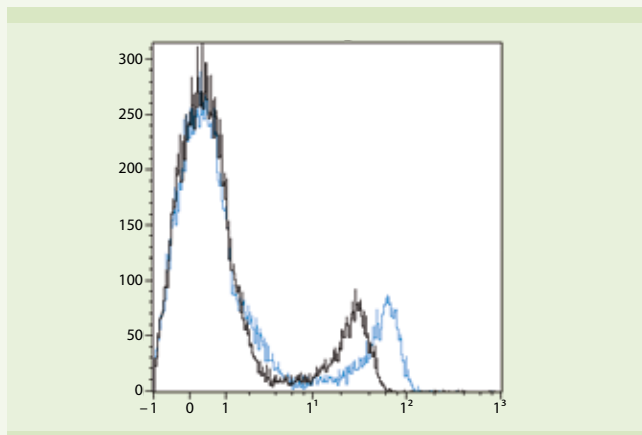
Pre-mixed cocktails provide seamless cell population analysis:

- Labeled PBMC and whole blood samples can be directly analyzed without the need for intervening washing and centrifugation steps
- Minimal pipetting is necessary, saving valuable time
- Use of CD45 antibody conjugated to VioBlue fluorochrome restricts analysis to leukocytes
- Cell labeling, processing and even subsequent 'gating' strategies are fully automated when used with the MACSQuant Analyzer

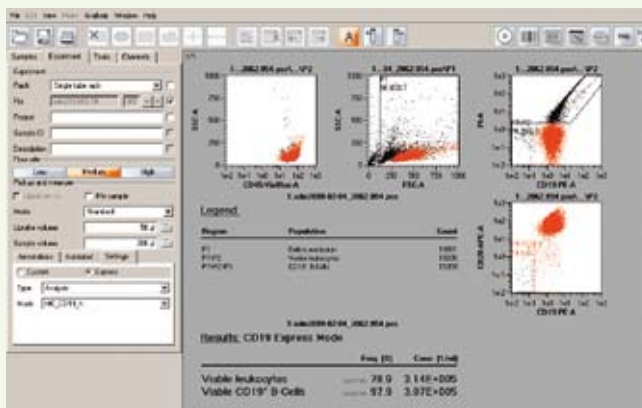
Visit www.miltenyibiotec.com/antibodies for a complete product list of MACS Antibodies and MACS Control Cocktails.



The MACSQuant® Analyzer—a milestone in flow cytometry



Analysis of cells using CD14 antibodies conjugated to either VioBlue® (blue line; stain index: 34.7) or Pacific Blue™ (black line; stain index: 28.43)



Analysis of peripheral blood mononuclear cells using automated analysis with the MACSQuant Analyzer and MACS Control CD19 B Cell Cocktail (human).

The MACSQuant® Analyzer

Bringing full analytical power and convenience together

Even more innovation, still less space

The MACSQuant® Analyzer is an exceptional research tool with many innovative features packed into its compact exterior.

Small in size but big in performance

- Three lasers and nine optical channels
- Absolute volumetric cell counting
- Unique MACSQuant Column allows for sensitive rare cell analysis using prior magnetic separation
- No-compromise optical platform specifically engineered for maximum stability and efficiency
- Fully automated sample analysis powered by MACSQuantify™ Software

Multisample processing is convenient and hands-free

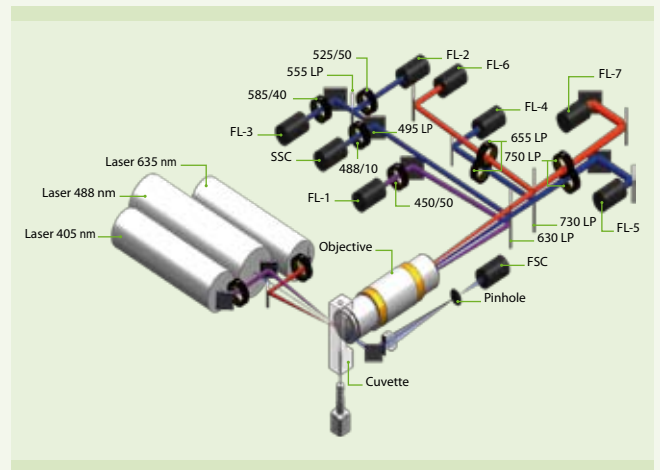
Easily accomplish walk-away cell labeling, sample processing and acquisition with the MACSQuant Analyzer and MACS MiniSampler

- Innovative MACS Chill Racks keep samples cool during processing and analysis
- A variety of Chill Rack sizes are available: Chill 5, Chill 15, Chill 50, Chill 96
- Integrated 2D barcode reader identifies MACS Reagents and associated staining protocols simplifying sample processing

Optical parameters of the MACSQuant® Analyzer

Excitation (nm)	Optical channel	For the detection of:
405 (violet)	Blue	VioBlue®/Hoechst/ Pacific Blue®
488 (blue)	Green	FITC/GFP
	Yellow	PE
	Red	PI/PE-Cy5.5/PerCP
	Infrared	PE-Cy™7
635 (red)	Red	APC
	Infrared	APC-Cy7
488 (blue)	SSC/FSC	Forward and side scatter

A total of nine optical channels allow for sensitive multiparameter cell analysis.



Designed with power, stability and efficiency in mind: three precision engineered lasers (violet, blue and red) are secured to a robust optical bench.



MACS MiniSampler, shown here with a MACS Chill 15 Tube Rack and MACS Reagent Rack 4.



The MACSQuant® Analyzer can be set up in confined laboratory spaces, even in regular laminar flow cabinets.



The MACS Chill 96 Rack is compatible with various 96-well plate formats.

MACSQuantify™ Software

Combining complex data analysis with intuitive instrument control

User-friendly efficiency

The MACSQuantify™ Software is an intuitive flow cytometry analysis program that also acts as a powerful user interface for the MACSQuant® Analyzer.

Fingertip control of the MACSQuant® Analyzer

Routine and complex analyses can be mastered with ease due to the innovative touchscreen menus:

- Design and save experiment templates with ease
- Create customized accounts, cell analysis templates and configure individual user settings
- Perform data analysis 'on-the-fly' while the instrument is acquiring data

Convenient and capable data analysis

MACSQuantify Software offers features for experienced and inexperienced flow cytometrists alike:

- MACSQuant Analyzer data are stored in digital format making offline compensation simple
- Individualized data analysis templates (e.g., gating strategies) can be easily created and saved for future use
- Data can be exported as FCS files for use by other programs
- High-resolution charts can be easily printed or copied for immediate use in presentations or reports

Extra assurance for data management

Be confident that your results are safe and secure with MACSQuantify Software backup.

- Results and settings are automatically archived
- Data sharing can be defined as required
- Data can be saved to DVD, USB stick, or network drive

The MACSQuant Analyzer and MACSQuantify Software advance high-quality cell analysis, offering the researcher more time to pursue other activities.



Operation of the MACSQuant Analyzer is extremely simple through the use of the color touchscreen and easy-to-use MACSQuantify Software.



The MACSQuantify Software can be also used as a stand-alone PC application for the analysis of flow cytometric data. PC users can easily import, analyze and export flow cytometry data in various FCS formats.



Data back-up is easy and reliable with MACSQuantify™ Software.

Rare cell analysis

Integrating the power of MACS® Technology with flow cytometry

The standard in cell separation brought to flow cytometry

The precision of flow cytometric rare cell analysis is highly dependent on the number of events that can be acquired in a single experiment. Often conventional flow cytometry methods cannot easily meet this demand. Pre-enrichment of rare cell populations using MACS® Technology and the novel MACSQuant Column make rare-cell analysis effortless.



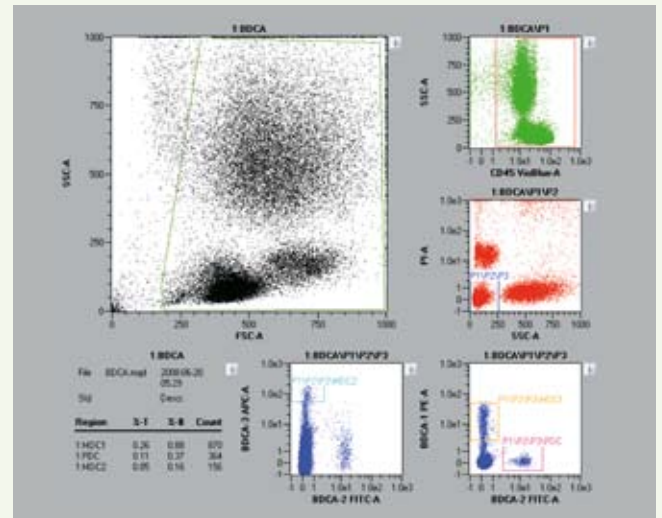
The MACSQuant Column and MACS Cell Enrichment Unit efficiently enrich specific cell populations immediately prior to flow cytometry analysis.

Identification and enumeration of any cell type

Miltenyi Biotec developed numerous kits for the easy identification and enumeration of a number of highly topical cell types and their subsets, including:

- Dendritic cells
- Endothelial progenitor cells
- Mesenchymal stromal cells
- CD4⁺ recent thymic emigrants
- Cancer stem cells
- Cytokine-secreting cells

Moreover, with the One-Step Antibody Biotinylation Kit, you can biotinylate an antibody of your choice for customized cell phenotyping.



Analysis of peripheral blood mononuclear cells using the MACSQuant Analyzer and Blood Dendritic Cell Enumeration Kit (human).

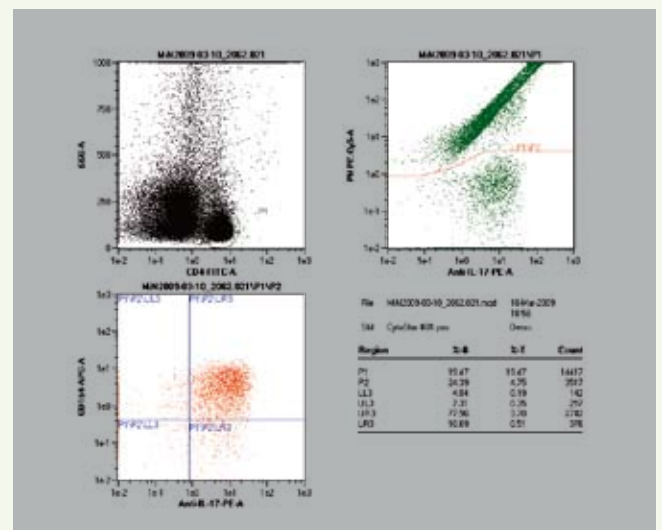
Rare cell analysis in action: taking a closer look at viable IL-17-secreting cells

The Cytokine Secretion Assay is a unique tool for enrichment and analysis of extremely rare TH17 cells. Enriched IL-17-secreting cells can be analyzed by flow cytometry with ease:

- Investigate mouse or human TH17 cells
- Enrich IL-17-secreting cells for subsequent flow analysis
- Option to isolate viable IL-17⁺ cells using MACS® Columns or the autoMACS® Pro Separator for downstream applications

Analysis of IL-17-secreting cells can be even easier with the MACSQuant® Analyzer

- Fully automated cell labeling, enrichment and analysis for truly walk-away cell analysis
- MACSQuantify Software automatically calculates cell numbers



Analysis of IL-17-secreting cells using the MACSQuant Analyzer and IL-17 Secretion Assay - Detection Kit (PE) (human).

Flexibility in experimental design

Cell analysis for beginner and expert flow cytometrists alike

From stem cells to cell cycle analysis

Regardless of experience, all flow cytometrists benefit from the Express and Custom MACSQuantify Software modes:

- The Express mode allows inexperienced users to perform complex gating strategies using pre-defined templates
- The Custom mode provides flow cytometry specialists with freedom to control feature-rich options for software customization

Express analysis in a nutshell

The analysis of hematopoietic stem and progenitor cells is made easy with the MACS Control CD34/CD133 Stem Cell Cocktail and MACSQuantify Software with the Express mode template.

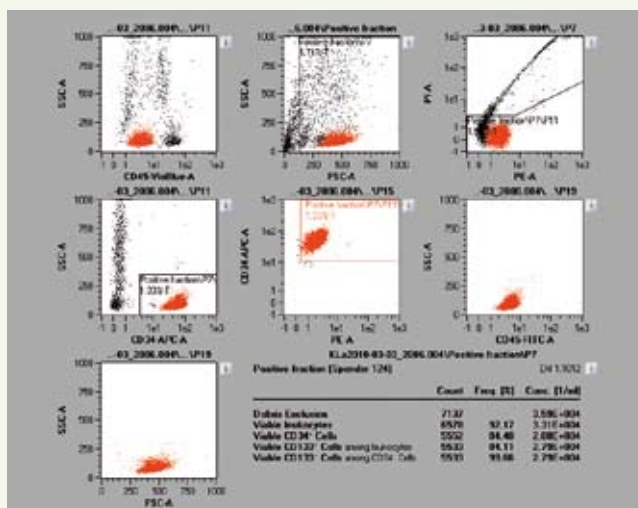
- 1) Place sample in a Chill Rack
- 2) Scan reagents and instruct the instrument to perform analysis with the relevant Stem Cell Cocktail
- 3) Place reagents in the reagent rack and click Start

It's that easy. There's no need to perform manual cell labeling, centrifugation or washing steps. Even cell 'gating' and the concentration of viable CD34⁺ and CD133⁺ cells are automatically determined.

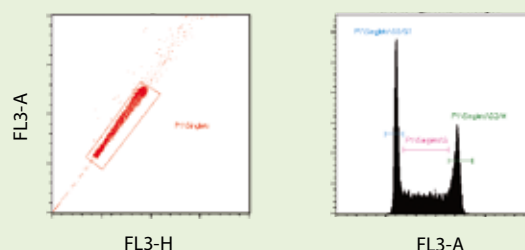
Complete control over your analysis options with the Custom mode

More experienced flow cytometrists can customize cell analysis using the Custom mode, for example, when performing cell cycle analysis.

- Complete control of sample processing, e.g., uptake volumes, cell labeling conditions
- Design complex gating strategies and tables that summarize results—these can be shared with other users
- Easily export data into spreadsheet formats
- Choose between manual or automated compensation



Human early progenitor cells were enriched from PBMCs using the CD133 MicroBead Kit. Aliquots of cells before and after separation were stained with the MACS Control CD34/CD133 Stem Cell Cocktail and analyzed by the MACSQuant Analyzer. This is an example of cells after separation.



Cell cycle analysis of Jurkat cells using MACSQuantify Software in Custom mode. Plots were exported in "print-ready" format as jpeg files.

MACS
Miltenyi Biotec

Excite and inspire

Rare cell analysis
Endothelial progenitor cells

A comprehensive selection of application notes are available for download from www.macsquant.com

The convenient route to flow cytometry

Creating time for you to perform other laboratory tasks

Hassle-free flow cytometry

The MACSQuant Analyzer with its comprehensive range of automated processes has been designed with the busy scientist in mind.

Automated housekeeping

Routine instrument chores are reliably performed and many routine processes have been simplified:

- Trouble-free start-up with complete system checks
- Automated calibration and compensation procedures
- Continual monitoring of buffer, reagent, and waste levels
- Touch control of system status
- Automated cleaning cycles and shutdown

Convenience in calibration and compensation

Accurate instrument calibration and compensation is crucial for effective and reproducible cell analysis. The MACSQuant Analyzer completely automates these procedures, saving time while reducing the chance of user error.

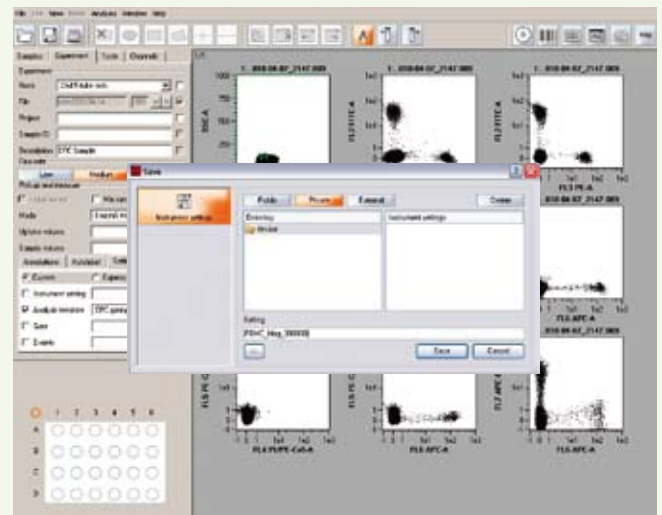
Benefit from dependable automation

- MACSQuant Calibration Beads have been specially developed for the automated optimization of channel voltage settings, thus ensuring consistently high performance
- Single-stained cells or compensation beads can be used for fully automated compensation on up to seven colors via a 7x7 matrix

Walk-away convenience that offers researchers more time to focus on other aspects of the experiment.



Illuminated bottles indicate the instrument status and can be easily monitored, even from across the laboratory.



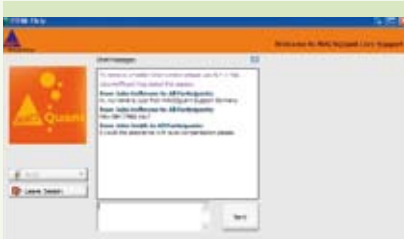
Seven color compensation was successfully completed and will be saved to the MACSQuant Analyzer compensation bank.

Trusted worldwide support

Comprehensive sales, technical, and training expertise



Miltenyi Biotec offers comprehensive training covering a variety of formats: from hands-on instrument training to online webinars.



Simply click the MACSQuantify Software Tools tab to access MACSQuant Live Support.



Any MACSQuant Analyzer user can have real-time access to technical support. If desired, a remote access service allows technical support to interact with you and the instrument to resolve any issues directly.

Help is always at hand. MACSQuant Analyzer users can get in touch with technical support by activating MACSQuant Analyzer Live Support.

Sales support and application specialists

Miltenyi Biotec technical and field application consultants have a background in life sciences and can offer advice on:

- Experimental design
- Troubleshooting experimental protocols
- Choosing the appropriate Miltenyi Biotec product

Technical Support

Worldwide technical support is available through:

- E-mail or telephone: simply ask technical support a question
- An online discussion forum
- A list of frequently asked questions online
- A comprehensive library of datasheets and online protocols
- MACSQuantify Software users benefit from MACSQuant Live Support for reliable technical support in realtime

Learning center

We cater to your individual training needs.

- Hands-on training offered at regional Miltenyi Biotec facilities
- Online multimedia presentations
- Webinars for real-time access to a Miltenyi Biotec expert

Instrument service

Our instrument service team is comprised of highly qualified and certified engineers specialized in providing support for Miltenyi Biotec instrumentation, including the MACSQuant Analyzer.

For more information about our comprehensive range of service and support agreements, visit:

www.miltenyibiotec.com/support

Make headway in your experiments

Products for bioscience research from Miltenyi Biotec—the key to success

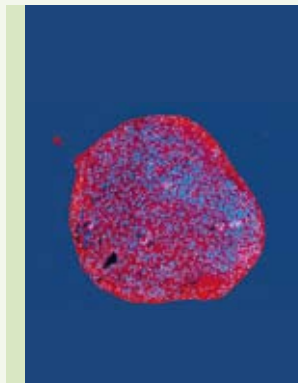
Streamline your experiments

Miltenyi Biotec reagents, instruments, and services are designed to support scientists in achieving outstanding results — from sample preparation, through cell sorting, and culture to performing cell and molecular analyses.



MACS Sample preparation

The quality of an experiment strictly depends on the quality of the sample preparation. Use the innovative gentleMACS™ Dissociator for fast and gentle sample preparation from solid tissues.



MACS Cell Culture

The product portfolio for cell culture includes media as well as recombinant cytokines and growth factors up to GMP grade. In addition, products for effective cell activation and expansion are available.



MACS Cell Separation

A large panel of MACS MicroBeads and MicroBead Kits are available for the isolation of virtually any cell type. The cells can be separated manually using MACS Separators, or automatically with the autoMACS® Pro Separator.



MACSmolecular

For protein isolation and detection, mRNA purification and amplification, cDNA synthesis and labeling, microRNA analysis as well as microarray technologies and instrumentation. Also on offer are genomic services: gene and microRNA expression analyses, array-CGH, and bioinformatics.



MACS Cell Analysis

Providing a large selection of antibodies and kits for fluorescence microscopy and flow cytometry. The innovative MACSQuant® Analyzer is an extremely compact, easy-to-use benchtop flow cytometer. The instrument is fully automated, enabling absolute cell counting, and rare cell analysis.



CliniMACS® Cell Separation System

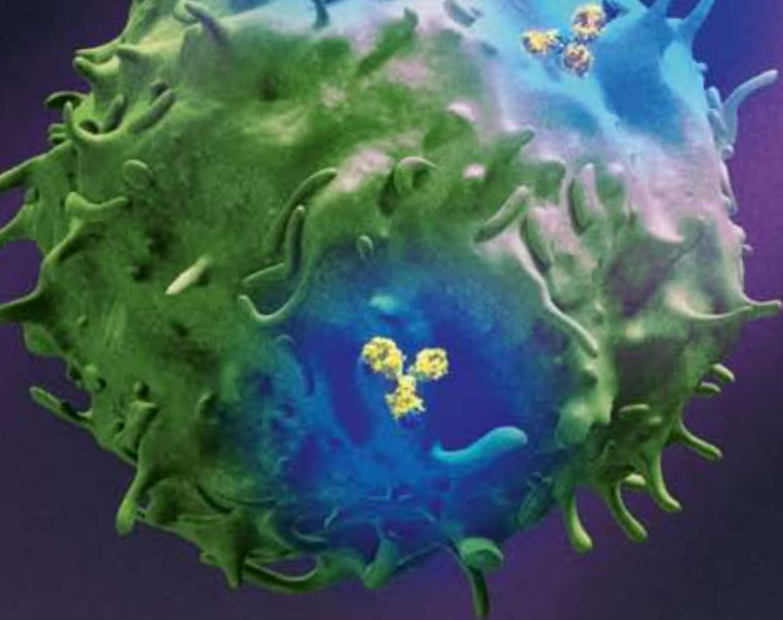
With the CliniMACS® Cell Separation System, Miltenyi Biotec has successfully taken the step from research into the clinic.

Facts and figures

Technical specifications of the MACSQuant® Analyzer

Instrument specifications	
Lasers	3 air-cooled lasers (excitation wavelengths: 405 nm, 488 nm, and 635 nm)
Optical parameters	FSC, SSC, and seven fluorescence channels
Default detection dyes	Violet laser: VioBlue®, Hoechst dyes, Pacific Blue™ Blue laser: FITC, PE, PI/PE-Cy™5.5, PE-Cy7 Red laser: APC, APC-Cy7
Compensation	Automated 7×7 matrix (during or post-acquisition)
Analysis rate	Up to 10,000 events/second
Absolute count performance	Accuracy +/- 5% (reproducibility (CV): <5%)
Fluorescence sensitivity and resolution	MESFs: <200 FITC; <100 PE; <150 APC; CV <5%
Fluorescence performance	5 decade logarithmic scales
Fluorescence resolution	<5% CVs (for FITC/PE/APC)
MACS® Cell Enrichment Unit	For pre-analysis enrichment of rare cell subsets
Sample type	Single tubes, Chill Racks for 5 mL/15 mL/50 mL tubes, 96-well plates
Minimal sampling volume	25 µL
System cleaning	Automated startup, cleaning cycles and shutdown
Sample uptake	Uptake port (for y- and z-movements) with an automated washing station
2D barcode reader	Automated data entry and instrument operation
Operating system	Microsoft® Windows®
Ports	USB-2, Ethernet, VGA port
Monitor	12" touchscreen (internal)
Data file	MACSQuant Data (MQD) or Flow Cytometry Standard (FCS) formats
Writer	DVD writer (internal)
Power consumption	350 W
Size (W × D × H)	600×350×400 mm (23.6×13.8×15.7 inch)
Weight	50 kg
Certification	UL-listed and CE-marked

Laser	Channel	Dyes	Filter ranges
405 nm – violet	FL1	VioBlue, Pacific Blue	425–475
488 nm – blue	FL2	FITC	500–550
488 nm – blue	FL3	PE	565–605
488 nm – blue	FL4	PI, PerCP, PerCP–Cy5.5	655–730
488 nm – blue	FL5	PE-Cy7	> 750
635 nm – red	FL6	APC	655–730
635 nm – red	FL7	APC-Cy7	> 750
488 nm – blue	FSC/SSC		483–493



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