Miltenyi Biotec

The MACSQuant® Analyzer 16

Colorful new possibilities in automated flow cytometry

JOIN THE FLOW REVOLUTION

More colors, more applications

The MACSQuant® Analyzer 16 is engineered to expand the revolutionary automation of the MACSQuant Analyzer line of flow cytometers. It facilitates fully automated data acquisition in a 24-tube or 96-well plate format. The instrument's compact design is suited for basic research as well as advanced immune monitoring applications. The MACSQuant Analyzer 16 provides users with the flexibility and robustness that are required for the increasing demands of modern laboratories.

Automation

Load your samples, import your experiment settings, and leave the staining, data acquisition, and analysis to the MACSQuant Analyzer 16.

Expanded fluorescent channels

Amplify your data with a selection from 14 fluorescence channels and an average of 40% less sample volume required.

Simplicity

Minimize the learning curve with straightforward experiment setup and operation.

Multi-instrument alignment

Using our Smart Gain software technology, users can harmonize data with collaborating labs to ensure reproducibility.

High quality

The MACSQuant Analyzer 16 was designed and developed within the established Quality Management System according to ISO 13485, providing you with an instrument of clinical quality.


MACS
Quant 16

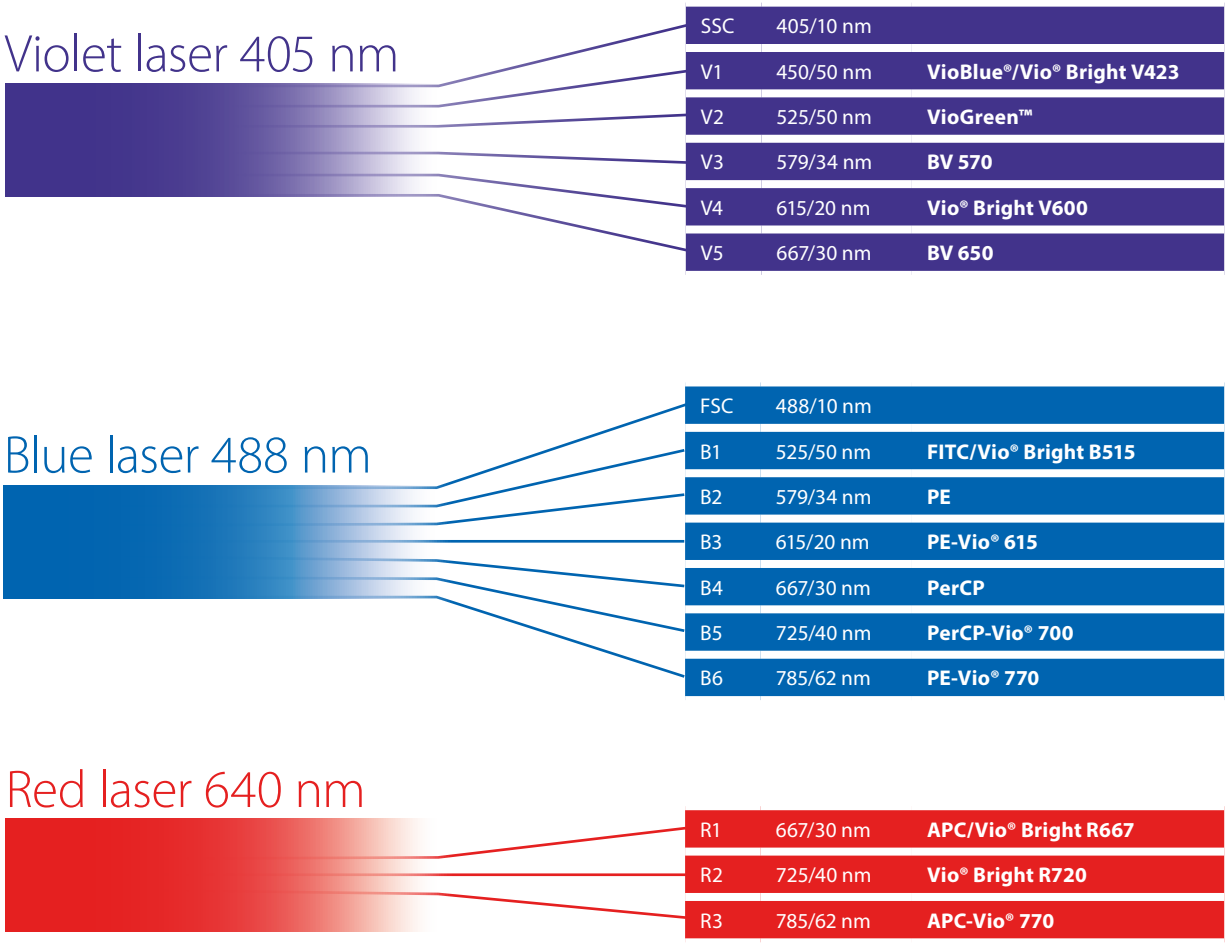
Simple

Automated

Colorful

Familiar small footprint with expanded fluorescence capabilities

As research questions become more complex, let the MACSQuant Analyzer 16 simplify your data acquisition. With expanded fluorescence capabilities, you can now maximize the number of parameters you can measure for each sample. Fluorescent channels are available with 405, 488, and 640 nm excitation lasers to cover a broad range of dyes and fluorescent proteins, enabling you to tell your story with more color. With the MACSQuant Analyzer 16, you can expand your immunophenotyping and functional applications to span a broad range of cell types, such as T cells, B cells, NK cells, dendritic cells, as well as tissue-specific, neural, and stem cell populations, and microorganisms. What would these new possibilities mean for your research?



The features that make the difference

Large monitor

Integrated 15.6" monitor for simple touchscreen operation

Robotic needle arm

At the heart of automated sample mixing, processing, and autolabeling

Integrated MACS® Magnetic Cell Enrichment

Focus on your cells of interest and fortify your data

Precision volume uptake syringe

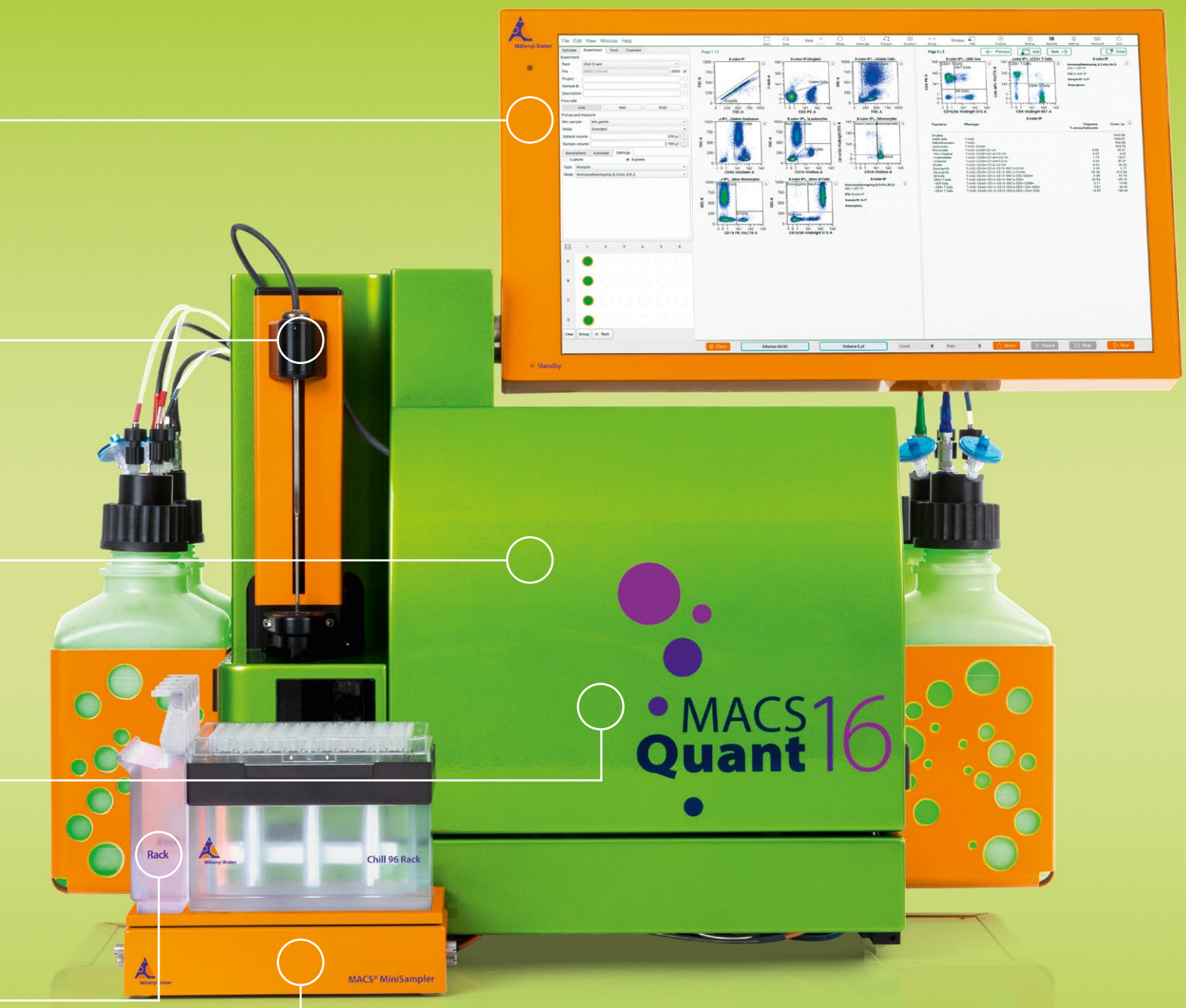
True volumetric cell counting without counting beads

Universal Reagent Rack

Flexible autolabeling options from glass or plastic vials

MACS MiniSampler Plus

Seamless sampling from single tubes, multiple tubes, or 96-well plates


MACS Quant 16
Rack
Chill 96 Rack
MACS® MiniSampler


1
2
3
4
5
6

Automated flow cytometry

The MACSQuant Analyzer 16 offers a plethora of built-in automation features to reduce hands-on time and operator variability.

Hassle-free housekeeping

Automated start-up, calibration, cleaning, and shutdown ensure instrument robustness and high-quality data without cumbersome preparation.

Autolabeling

The missing step in a fully automated flow cytometry assay. Reduce the risk of pipetting error with the reliability of robotics using the automated pipetting arm, the MACS MiniSampler Plus, and our newly designed Universal Reagent Rack.

Integrated magnetic cell isolation

Using the integrated MACS Enrichment Column, you can magnetically enrich your target population to perform a deeper analysis of rare cell subsets. Removing the non-relevant events before your flow analysis makes your assay even more robust.

Automated compensation

Get rid of time-consuming manual compensation and let the MACSQuant Analyzer 16 do it for you.

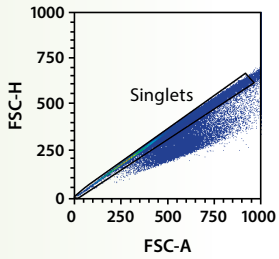
Automated analysis

Use our Express Modes, unique add-ons for the MACSQuantify™ Software, to automate measurement and analysis of your flow experiments ensuring simplicity and reproducible data analysis.

Get more with the MACSQuant Analyzer 16

More channels. More data. More subsets.

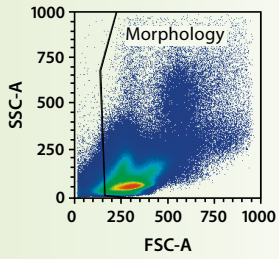
Dive



Multiparameter analysis of immune cell subpopulations using the MACSQuant Analyzer 16

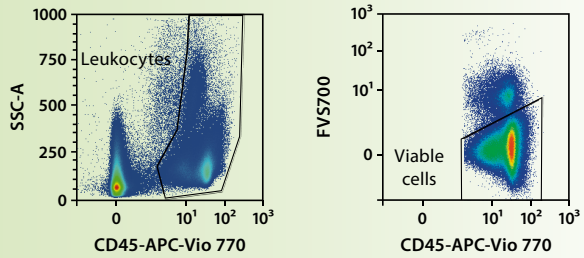
Amplifying your data has never been so easy. An example is shown here with a gating strategy for a 14-color panel designed to analyze monocytes, T cells, B cells, NK cells, NKT cells, and different dendritic cell subsets from one sample of murine splenocytes.

Deeper

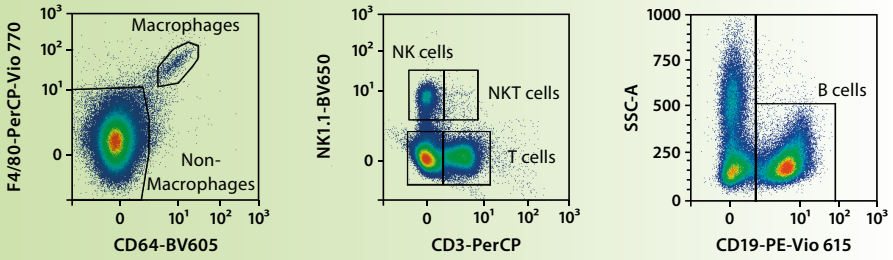


- **Conserve sample – up to 40% less material**
- **Conserve reagents – up to 40% less reagent**
- **Conserve your time – 24-tube and 96-well plate automated acquisition**

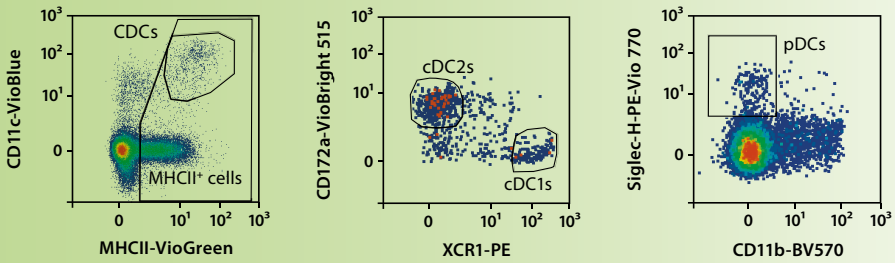
Into



Your



Subsets



Harmonizing the world of flow cytometry is just an instrument setting away

Experience consistently reproducible results from day to day, instrument to instrument, and operator to operator. With the Smart Gain technology of the MACSQuantify Software, you can transfer your assay from one instrument to another, while passing on all necessary information to ensure an identical setup.


MACSQuant 16

Your partner in a regulated environment

Further characterize and enumerate your cells in your cell manufacturing applications. The MACSQuant Analyzer 16 hardware and software are configured to support small- to large-scale manufacturing requirements and offer tools and support for GMP-compliant processes.

Compliance with 21 CFR Part 11

You can be sure that your data is suitable for submission to regulatory agencies with the optional 21 CFR Part 11 feature, which includes:

- **Audit trail**
- **Analysis reports with e-signature**
- **User management system according to 21 CFR Part 11**

Quality Management System according to ISO 13485

The MACSQuant Analyzer 16 was designed and developed within the established Quality Management System according to ISO 13485, providing you with an instrument of clinical quality.

Complete your automation loop with reliable reagents

In order to achieve reproducible and high-quality results, Miltenyi Biotec offers a complete flow cytometry solution including a dedicated range of reagents. We help you make sure that variations in your experiment are due to your sample and not due to unreliable antibodies or instruments.

REAfinity™ Recombinant Antibodies – flow cytometry is in their genes

Miltenyi Biotec has introduced a portfolio of REAfinity Recombinant Antibodies that provide superior lot-to-lot consistency and purity compared to mouse or rat monoclonal and polyclonal antibodies. They diminish the need for FcR blocking and allow for analyses with only one single isotype control. They help you to generate high-quality data with no more background signal while saving efforts when setting up experiments.

Advantages of REAfinity Recombinant Antibodies:

- **High lot-to-lot consistency**
- **One universal isotype**
- **No more background signal**

REAfinity Recombinant Antibodies

ViO Dyes

Vio Dyes – brighter dyes for flow cytometry

When used in combination with our proprietary Vio and Vio Bright Dyes, REAfinity Antibodies provide superior mean fluorescence intensity and high stain indices. With the brightest dyes on the market, setting up complex multicolor experiments has never been so simple.

Ready-to-use kits

Use Miltenyi Biotec's range of ready-to-use, pre-titrated kits and save valuable experiment set-up time and assay costs. Our kits have been validated to be used with the automatic labeling function of the MACSQuant Analyzer 16, which in combination with our Express Modes, give you true walk-away capacities. All you have to do is set up the experiment and come back to look at completely analyzed data.

Miltenyi Biotec Tested Panels (MBTPs)

Miltenyi Biotec also provides a list of pre-tested and validated antibody panels complete with gating strategy, staining protocols, and reagent list for easy and accurate flow cytometric analysis.

Customized solutions

Miltenyi Biotec's Custom Antibody Design Service enables researchers to benefit from personalized flow cytometry solutions. This service includes purified, functional-grade antibodies, single- and multicolor antibody conjugates, as well as multicolor antibody cocktails.

VISIT

For more information about our products, visit:

- **miltenyibiotec.com/reafinity**
- **miltenyibiotec.com/vio**
- **miltenyibiotec.com/MBTPs**
- **miltenyibiotec.com/customab**


MACS
Quant 16
Universal Magnet
Rack
Chill 96 Rack
MACS® MiniSampler

MACSQuant Analyzer 16 specifications

Optics

Laser excitation	Spatially separated: 405 nm, 65 mW 488 nm, 50 mW 640 nm, 72 mW			
Emission detectors	FSC: 488/10 nm SSC: 405/10 nm	V1: 450/50 nm V2: 525/50 nm V3: 579/34 nm V4: 615/20 nm V5: 667/30 nm	B1: 525/50 nm B2: 579/34 nm B3: 615/20 nm B4: 667/30 nm B5: 725/40 nm B6: 785/62 nm	R1: 667/30 nm R2: 725/40 nm R3: 785/62 nm
Fluorescence sensitivity and resolution	MESFs (CV <5%): FITC <110 PE <75 APC <100			
Scatter resolution	Scatter performance is optimized for resolving human peripheral blood lymphocytes, monocytes, and granulocytes			
Flow cell dimensions	200 × 250 µm			
Minimal guaranteed particle size	500 nm			
Fluorescence detectors	Optimized with spectrally matched PMTs for all channels			
Laser spot size	15 × 45 µm			

Fluidics

Minimal uptake volume[1]	1 µL (25 µl recommended for volumetric counting applications)
Sample flow rate	25, 50, or 100 µL/min or automate flow rate to maintain 500, 1,000, or 2,000 events/second
Measurement speed[2,3]	<25 minutes per 96-well plate (5 µL measurement volume per well)
Sample uptake	1–450 µL
Maximal event rate	Up to 15,000 events/second
System maintenance	Automated startup, PMT calibration, cleaning cycles, and shutdown
Sample mixing	Aspiration

Performance

Absolute counts performance[2,4]	CV <7%
Sample carryover[2,5]	0.01%
Sample tube/plate	1.5 mL, 2 mL and 5 mL single tubes, up to 24 × 5 mL single tubes, up to 96-well plate (U, V, flat bottom; deep-well)
MACS Cell Enrichment Unit	For pre-analysis enrichment of rare cells

[1] At every uptake, an additional excess volume is aspirated by the instrument. The excess volumes are calibration- and process-dependent and do not exceed 10 µL for Fast, Standard, and Extended modes, and 20 µL for Screen mode.
[2] Referred value indicates the average of multiple experiments and can differ for individual sample materials.
[3] The measurement speed is determined by measuring the time between the movement of the robotic needle arm into the first measured well, and its movement out of the last measured well. The measurements were carried out at High flow rate in Screen mode.
[4] For counting performance, full 96-well plates were loaded with 200 µL/well of peripheral blood mononuclear cell (PBMC) suspension at a nominal concentration of 5,000 cells/µL. The uptake volume was set to 50 µL at Medium flow rate.
[5] For carryover, full 96-well plates were loaded with 200 µL/well of PBMC suspension at a nominal concentration of 10,000 cells/µL in every other well ("SRC-wells"). Alternating wells were loaded with an equal volume of MACSQuant Running Buffer ("CO-wells"). The uptake volume was set to 100 µL and measured at Medium flow rate in Standard mode. The carryover is defined by sum (CO-singlet count)/sum(SRC-singlet count) × 100%.

Support at your fingertips

MACSQuant Live Support

- Live support at your fingertips via MACSQuant Support portal
- Have your questions answered in real time by one of our experts

For more information, please visit:

- **miltenyi.com/support**
- **miltenyi.com/custom-application-service**
- **miltenyi.com/training**

Application and instrument support

- Technical and field application support for assay design and product advice
- Custom automation and express mode development

Instrument training

- Training at regional Miltenyi Innovation and Training Centers (MITC)
- Onsite training and assay development
- Online application resources

Service

- Comprehensive service options
- Globally distributed field service teams

Miltenyi Biotec – a company supporting your complete workflow

Miltenyi Biotec offers a complete portfolio of research tools that enables a stream-lined workflow, from reproducible sample preparation to a variety of downstream applications. MACS Solutions are the perfect companion for every step of your inspired research.

MACS Sample Preparation

The secret to the success of any experiment depends on the quality of the starting material. Our sample preparation portfolio has the tools you need to start smart. Our innovative instruments and reagents help you standardize your tissue preparations and get reproducible data.

MACS Cell Separation

Whether isolating cells in small-scale experiments or in high-throughput industrial settings – we offer manual, semi-automated, automated, and robotic integration solutions to meet your specific research demands.

MACS Antibodies

Miltenyi Biotec offers a huge range of fully validated antibodies suitable for multiple applications, such as flow cytometry, microscopy, and functional assays. The MACS Antibody Portfolio guarantees high performance consistency with innovative and proprietary recombinant antibody technology.

MACS Flow Cytometry

MACS Flow Cytometry provides best-in-class solutions for all your research needs. Instruments, reagents, kits, and software constitute a comprehensive portfolio to keep your finger on the pulse of advanced flow cytometry, cell sorting, and cell analysis.

MACS Imaging and Microscopy

Our growing MACS Imaging and Microscopy portfolio offers versatile, high-quality imaging solutions to study complex biological systems.

MACS Cell Culture and Stimulation

Our MACS Cell Culture and Stimulation portfolio comprises a specialized and versatile range of cell culture media and reagents for cell stimulation, expansion, and/or differentiation.

MACS Molecular Analysis

MACS Technology has been perfectly adapted for molecular applications for fast and sensitive analysis of cells at any subcellular level. Explore our products for high-yield mRNA, protein, and organelle isolation, cDNA synthesis, and stable cellular transfection.

▶ **miltenyibiotec.com/mq16**

Miltenyi Biotec

Germany/Austria
Miltenyi Biotec B.V. & Co. KG
Friedrich-Ebert-Straße 68
51429 Bergisch Gladbach
Germany
Phone +49 2204 8306-0
Fax +49 2204 85197
macsde@miltenyi.com

USA/Canada
Miltenyi Biotec, Inc.
2303 Lindbergh Street
Auburn, CA 95602, USA
Phone 800 FOR MACS
Phone +1 866 811 4466
Fax +1 877 591 1060
macsus@miltenyi.com

Australia
Miltenyi Biotec
Australia Pty. Ltd.
Unit 11, 2 Eden Park Drive
Macquarie Park, NSW 2113
Australia
Phone +61 2 8877 7400
Fax +61 2 9889 5044
macsau@miltenyi.com

Benelux
Miltenyi Biotec B.V.
Dellaertweg 9C
2316 WZ Leiden
The Netherlands
macsnl@miltenyi.com
Customer service for:
The Netherlands
Phone 0800 4020120
Fax 0800 4020100
Belgium
Phone 0800 94016
Fax 0800 99626
Luxembourg
Phone 800 24971
Fax 800 24984

China
Miltenyi Biotec Technology &
Trading (Shanghai) Co., Ltd.
Room A401, 4/F
No. 1077, Zhangheng Road
Pudong New Area
201203 Shanghai, P.R. China
Phone +86 21 6235 1005-0
Fax +86 21 6235 0953
macscn@miltenyi.com.cn

France
Miltenyi Biotec SAS
10 rue Mercoeur
75011 Paris, France
Phone +33 1 56 98 16 16
macsfr@miltenyi.com

Hong Kong
Miltenyi Biotec Hong Kong Ltd.
Unit 301, Lakeside 1
No. 8 Science Park West Avenue
Hong Kong Science Park
Pak Shek Kok, New Territories
Hong Kong
Phone +852 3751 6698
Fax +852 3619 5772
macshk@miltenyi.com.hk

Italy
Miltenyi Biotec S.r.l.
Via Paolo Nanni Costa, 30
40133 Bologna
Italy
Phone +39 051 6 460 411
Fax +39 051 6 460 499
macsit@miltenyi.com

Japan
Miltenyi Biotec K.K.
NEX-Eitai Building 5F
16-10 Fuyuki, Koto-ku
Tokyo 135-0041, Japan
Phone +81 3 5646 8910
Fax +81 3 5646 8911
macsjp@miltenyi.com

Nordics and Baltics
Miltenyi Biotec Norden AB
Medicon Village
Scheeletorget 1
223 81 Lund
Sweden
macsse@miltenyi.com
Customer service for:
Sweden
Phone 0200 111 800
Fax +46 280 72 99
Denmark
Phone 80 20 30 10
Fax +46 46 280 72 99
Norway, Finland, Iceland,
and Baltic countries
Phone +46 46 280 72 80
Fax +46 46 280 72 99

Singapore
Miltenyi Biotec Asia Pacific Pte Ltd.
438B Alexandra Road, Block B
Alexandra Technopark
#06-01
Singapore 119968
Phone +65 6238 8183
Fax +65 6238 0302
macssg@miltenyi.com

South Korea
Miltenyi Biotec Korea Co., Ltd.
Donggeuk 7F,
562 Nonhyeon-ro
Gangnam-gu
Seoul 06136, South Korea
Phone +82 2 555 1988
Fax +82 2 555 8890
macskr@miltenyi.com

Spain
Miltenyi Biotec S.L.
C/Luis Buñuel 2
Ciudad de la Imagen
28223 Pozuelo de Alarcón (Madrid)
Spain
Phone +34 91 512 12 90
Fax +34 91 512 12 91
macses@miltenyi.com

Switzerland
Miltenyi Biotec Swiss AG
Gibelinstrasse 27
4500 Solothurn
Switzerland
Phone +41 32 623 08 47
Fax +49 2204 85197
macsch@miltenyi.com

United Kingdom
Miltenyi Biotec Ltd.
Almac House, Church Lane
Bisley, Surrey GU24 9DR, UK
Phone +44 1483 799 800
Fax +44 1483 799 811
macsuk@miltenyi.com

www.miltenyibiotec.com

Miltenyi Biotec provides products and services worldwide. Visit **www.miltenyibiotec.com/local** to find your nearest Miltenyi Biotec contact.

130-118-919.03