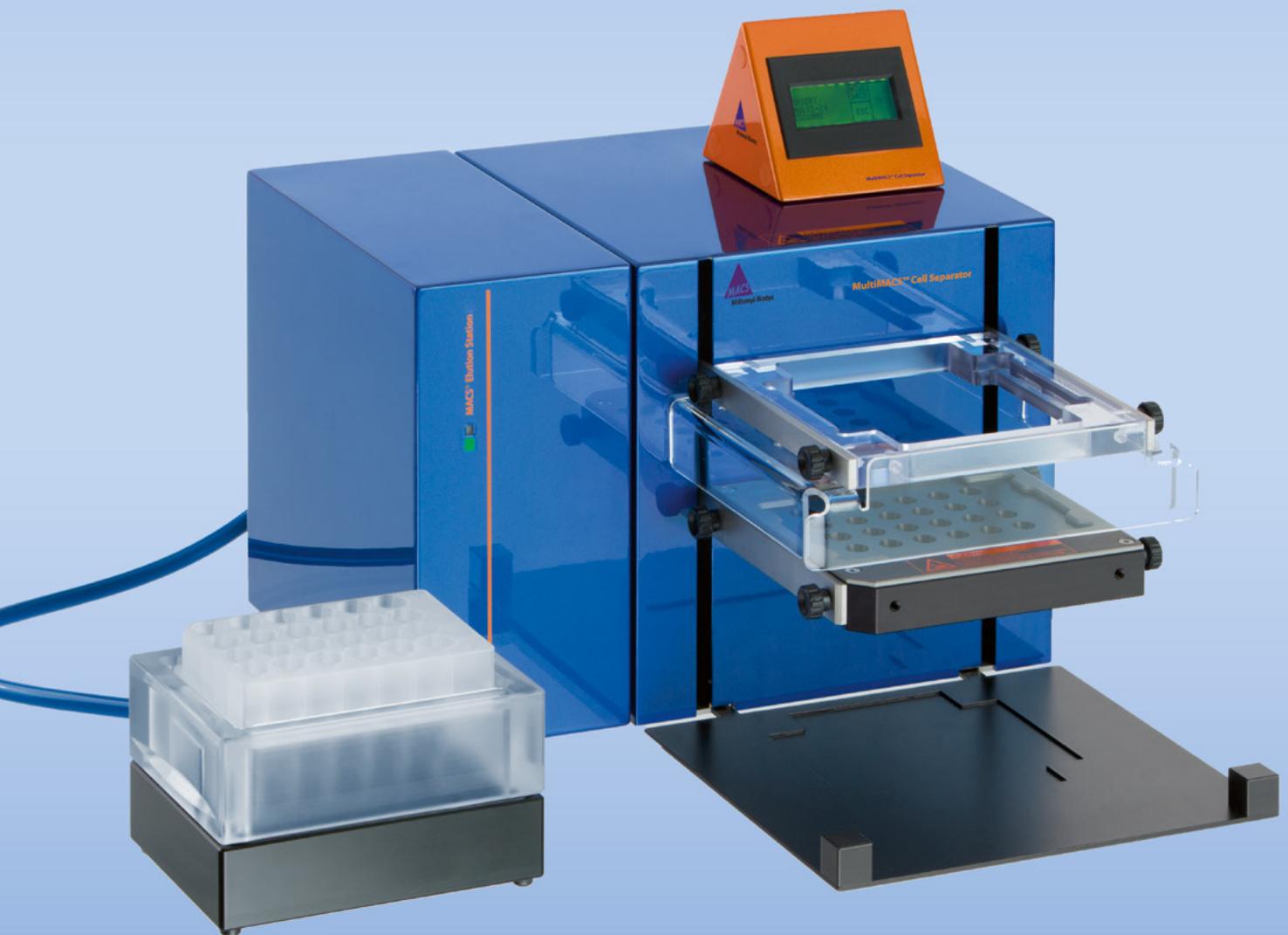




Miltenyi Biotec

MultiMACS™ Cell Separator Family

Automation meets parallel cell separation



Standardization & performance

Technology that inspires

Solutions for pioneering research

Miltenyi Biotec offers a complete portfolio of research tools that enables a seamless workflow, from reproducible sample preparation to a variety of downstream applications.



MACS® Sample Preparation

The quality of your results depends on the sample preparation. Miltenyi Biotec offers innovative instruments and reagents for fast and gentle tissue dissociation and homogenization.

SAMPLE PREPARATION



MACS Cell Separation

A large panel of MACS® MicroBeads and Cell Isolation Kits is available for the isolation of any cell type. Cells can be separated manually or in an automated fashion. The MultiMACS™ Instruments have been designed for parallel cell isolation from multiple samples or large sample volumes.

CELL SEPARATION



MACS Cell Culture

The product portfolio for cell culture includes specially developed media, reagents for cell activation, and a multitude of cytokines and growth factors for many research applications.

CELL CULTURE



MACS Flow Cytometry

Miltenyi Biotec provides a large panel of antibodies for a wide range of research. The innovative MACSQuant® Instruments are extremely compact, easy-to-use, multicolor benchtop flow cytometers. The instruments are fully automated and enable absolute cell count.

FLOW CYTOMETRY

Introducing the MultiMACS™ Cell24 Separator Plus

Fast processing of multiple samples in parallel

Efficient parallel cell separation

Whether you are following a positive selection or an untouched strategy, the MultiMACS™ Cell24 Separator Plus enables handling of up to 24 columns in parallel. Parallel separation is fast and ensures identical treatment of all samples for highly reproducible results.

The instrument is designed for the isolation of virtually any cell type from any source and is compatible with many downstream applications such as molecular and functional assays, chimerism analysis, and flow cytometry.



Figure 1: The MultiMACS Cell24 Separator Plus accessories enable higher flexibility to plan your separation.

Standardized elution

The vacuum-driven elution station ensures gentle elution of positively selected cells for excellent purity and maximal cell viability. A vacuum pulse guarantees simultaneous elution with identical parameters for every sample. Deep Well Plates or 5 mL tubes in the Tube Rack can be used to collect the positive and negative fractions.



Figure 2: MACS® Elution Station and Elution Chamber enable positive and negative isolation.

Easy-to-use touchscreen interface

The intuitive touchscreen interface guides you through the separation process every step of the way, thus minimizing inter-operator variability and helping you obtain consistent results.



Figure 3: The touchscreen interface is intuitive and easy to use.

Scalable to your needs

A versatile separator that adapts to your experimental requirements

From variable sample numbers to large sample volumes

The MultiMACS™ Cell24 Separator Plus enables convenient processing of various samples in parallel or large-volume samples. Using the Multi-24 Column Block or the Single-Column Adapter, you can easily vary the number of samples to process in one run. The Multi-24 Column Block enables convenient handling of up to 24 samples. For cost-effective cell separations with smaller sample numbers, the Single-Column Adapter allows you to use between one and 12 single columns. Large-volume samples such as Leukopaks® are divided evenly between the columns and combined at the end of the run to ensure high-quality separations from every sample, regardless of the volume.



Figure 4: The Multi-24 Column Block simplifies handling of large numbers of columns.

Variable separation strategies using different columns

The different column options enable you to adapt to sample size, type, and separation strategy. The Multi-24 Column Block supports both positive selection and depletion. The Single-Column Adapter is compatible with LS, LD or Whole Blood Columns.

LS Columns are optimized for positive selection and depletion of strongly magnetically labeled cells. LD Columns are optimized for depletion and Whole Blood Columns are optimized for cell isolation directly from whole blood, bone marrow, and buffy coat.

Column	Max. number of labeled cells	Max. number of total cells
Multi-24 Column Block (per column)	1×10^8	1×10^9
LS	1×10^8	1×10^9
LD	1×10^8	5×10^8
Whole Blood Column	up to 10 mL of whole blood	up to 10 mL of whole blood



Figure 5: The Single-Column Adapter enables the use of single LS, LD or Whole Blood Columns with the MultiMACS Cell24 Separator Plus.

Automation meets cell separation – MultiMACS™ X

For demanding high-throughput cell processing laboratories

Walk-away automation

The MultiMACS™ X is a benchtop platform that combines the benefits of the MultiMACS Cell24 Separator Plus and an integrated liquid handling robot. Full automation eliminates hands-on steps otherwise performed by the operator, such as sample transfer onto the column, washing steps, and buffer pipetting. Magnetic labeling is performed automatically and samples are incubated on the worktable, allowing the user to focus on other tasks without manual interaction with the instrument.



Figure 6: Samples are labeled and incubated on the deck, allowing full walk-away automation.

Efficient and precise robotics

The 4-tip liquid handling system of the MultiMACS X combines reliability with high pipetting precision. The liquid detection system controls the handling of e.g. blood and tissue samples, ensuring highly reproducible results. Automated pipetting reduces inter-operator variability, saves time, and improves operator safety.

Further workflow efficiency and additional time savings are achieved by the robotic manipulator arm that works in concert with the liquid handling arm, transferring the columns and consumables, as well as ensuring that the pipette tip containers and fraction containers are exchanged when needed.

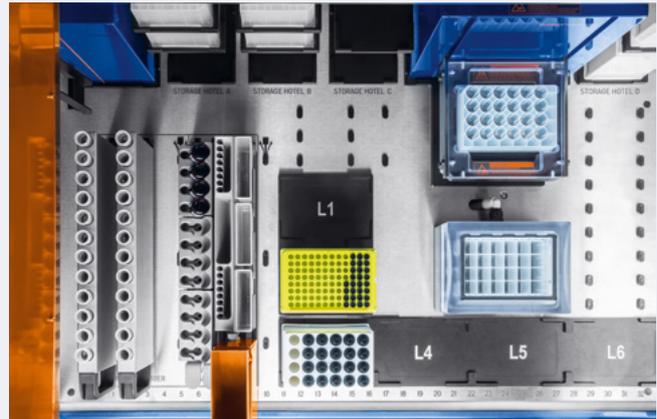


Figure 7: The MultiMACS X workdeck is designed to make loading of the instrument fast and simple.

Passive cooling of liquids

The MultiMACS X Chill Racks allow you to keep your samples and reagents at 2–8 °C. By eliminating temperature variations, you achieve higher cell viability rates and reduce alterations in gene expression.



Figure 8: Cooled Chill Racks keep the samples and reagents at 2–8 °C.

Customized excellence

Validated protocols optimized for your workflow

Intuitive software including tracking and documentation

The touchscreen interface is easy to use for any lab professional and guides users through the automated cell separation process. Access and operation can be restricted to authorized users. During the process, specific sample IDs and reagent information can be recorded by scanning the appropriate barcodes, thus enabling detailed tracking of each sample and a thorough documentation of the separation process. This documentation can subsequently be made available to laboratory information management systems (LIMS).



Figure 9: The intuitive user interface guides the user through the loading steps.

Customized applications for the perfect fit

Every application on the MultiMACS™ X is specifically tailored for each customer, ensuring the perfect match for your workflow. This approach enables integration of additional steps such as sample aliquoting or labeling for flow cytometry.

With its underlying open architecture, the MultiMACS X offers great flexibility and can be easily integrated as a fully automated cell separation module into any automated cell processing workflow. This minimizes risk, costs, delays, and implementation time.

The MultiMACS X can also be installed into third party laminar flow cabinets to ensure a sterile experiment environment.



Figure 10: The MultiMACS X is equipped with a gripper arm and a 4-tip liquid handling arm for maximal flexibility and reliability with different applications.

A catalyst for success

Key applications – highlights of proven performance

Separation of immune cells from blood products

Separation of leukocytes directly from blood products with a MultiMACS™ Instrument in combination with StraightFrom® MicroBeads is easy and cost effective. It provides you with large amounts of highly pure and viable cells, ready for downstream experiments. For individual samples up to 10 mL simply use the Whole Blood columns. Larger volumes can be split and applied to many columns in parallel, resulting in a quick, easy, and budget-friendly separation.

Hematological malignancies

Assay sensitivity is improved by pre-enrichment of rare cells for Multiple Myeloma, Chronic Lymphocytic Leukemia, and Minimal Residual Disease research.

Chimerism testing

Pure cells are a prerequisite for sensitive lineage-specific chimerism analysis. Isolate several samples directly from blood products with a MultiMACS Instrument in combination with the MACSprep™ Chimerism MicroBeads.

Microglia isolation

Why waste two weeks using the shake-off method, when MACS® Myelin Removal Beads can isolate microglia in just one hour? Eliminate the unnecessary labor and decrease the risk of cell modifications and culture contamination. Get a higher yield of viable cells and separate “trash from treasure” using a MultiMACS Instrument.

Tumor samples

Whether you are isolating tumor-infiltrating lymphocytes (TILs) or depleting mouse cells from xenograft tumors, a MultiMACS Instrument together with the Multi-24 Column Block is a useful tool for handling many samples in parallel. Both positive and negative isolations are possible, and the MACS Columns are compatible with virtually any sample or tissue type.



Protecting your investment

Support and service contracts

Miltenyi Biotec provides premium technical support to meet the demands of even the busiest laboratories.

Our technical support team is composed of experienced scientists and highly trained service engineers. They can assist you in a wide range of situations: from providing advice on experimental design and sample preparation, to answering specific questions about instrument operation and service options.

Visit www.miltenyibiotec.com/support to experience expert technical assistance:

- Online forum for technical and product discussions
- Comprehensive list of frequently asked questions
- Library of data sheets and special protocols

A service contract to fit your needs

- Reduce costs by avoiding instrument downtime or sample loss
- Ensure you produce highly reproducible results
- Assure that experienced technical support is only a phone call away

Full Service Premium

Maintenance

Planned maintenance	●
Replacement of worn parts	●
Software updates	●
Labor, shipment, and product maintenance logistics	●
Maintenance intervals (per year)	1

Repairs service

Repair and replacement	●
Labor and travel expenses	●
Replacement parts	●
Loaner equipment	●

Ordering information

Product	Order no.
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MultiMACS™ Cell24 Separator Plus

<ul style="list-style-type: none"> MultiMACS™ Cell24 Separator MACS® Elution Station Elution Chamber Base Elution Chamber Lid I Elution Chamber Lid II Multi-24 Column Block (130-095-692) 2x24-well Deep Well Plate, sterile packed Single-Column Adapter MultiMACS 5 mL Tube Rack (130-095-331) Column Blank Holder and 9 Column Blanks Tubing 	130-098-637
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MultiMACS X

<ul style="list-style-type: none"> MultiMACS X Separator Base unit MACS Elution Station X MultiMACS X Barcode Reader MultiMACS X System Liquid Container MultiMACS X Waste Container Reagent Chill Rack X Single-Column Adapter LHS 15 mL Sample Chill Rack X 50 mL Sample Chill Rack X 	130-118-515
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Consumables	Order no.
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Multi-24 Column Block

<ul style="list-style-type: none"> Multi-24 Column Block 24-well Deep Well Plate, sterile packed 	130-095-692
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Multi-24 Column Blocks

<ul style="list-style-type: none"> 8x Multi-24 Column Block 8x 24-well Deep Well Plate, sterile packed 	130-095-691
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Columns

LS Columns	130-042-401
LD Columns	130-042-901
Whole blood Column Kit	130-093-545

24-well Deep Well Plates

<ul style="list-style-type: none"> 2x2 24-well Deep Well Plates 	130-110-500
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Single-well Deep Well Plates

<ul style="list-style-type: none"> 4x Single-well Deep Well Plates 	130-114-966
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Technical data

MultiMACS Cell24 Separator Plus	
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Footprint	23x43 cm
Height	23 cm
Weight	11 kg
Input voltage	100–240 VAC, 50–60 Hz
Power consumption	200 W

MultiMACS X	
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Footprint	107x99 cm
Height	102 cm (from benchtop)
Weight	188 kg
Input voltage	100–240 VAC, 50–60 Hz
Power consumption	600 W



Miltenyi Biotec

**Germany/Austria/
Switzerland**

Miltenyi Biotec GmbH
Friedrich-Ebert-Straße 68
51429 Bergisch Gladbach
Germany
Phone +49 2204 8306-0
Fax +49 2204 85197
macs@miltenyibiotec.de

USA/Canada

Miltenyi Biotec Inc.
2303 Lindbergh Street
Auburn, CA 95602, USA
Phone 800 FOR MACS
Phone +1 530 888 8871
Fax +1 877 591 1060
macs@miltenyibiotec.com

Australia

Miltenyi Biotec
Australia Pty. Ltd.
Unit 16A, 2 Eden Park Drive
Macquarie Park NSW 2113
Australia
Phone +61 2 8877 7400
Fax +61 2 9889 5044
macs@miltenyibiotec.com.au

Benelux

Miltenyi Biotec B.V.
Schipholweg 68 H
2316 XE Leiden
The Netherlands
macs@miltenyibiotec.nl

**Customer service
The Netherlands**

Phone 0800 4020120
Fax 0800 4020100

Customer service Belgium

Phone 0800 94016
Fax 0800 99626

Customer service Luxembourg

Phone 800 24971
Fax 800 24984

China

Miltenyi Biotec Technology &
Trading (Shanghai) Co., Ltd.
Rooms 2303 and 2309
No. 319, Xianxia Road
Changning District
200051 Shanghai, P.R. China
Phone +86 21 62351005
Fax +86 21 62350953
macs@miltenyibiotec.com.cn

France

Miltenyi Biotec SAS
10 rue Mercoeur
75011 Paris, France
Phone +33 1 56 98 16 16
Fax +33 1 56 98 16 17
macs@miltenyibiotec.fr

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
macs@miltenyibiotec.it

Japan

Miltenyi Biotec K.K.
Nittsu-Eitai Building 5F
16-10 Fuyuki, Koto-ku,
Tokyo 135-0041, Japan
Phone +81 3 5646 8910
Fax +81 3 5646 8911
macs@miltenyibiotec.jp

Nordics and Baltics

Miltenyi Biotec Norden AB
Scheelevägen 17
223 70 Lund
Sweden

macs@miltenyibiotec.se

Customer service Sweden

Phone 0200-111 800
Fax 046-280 72 99

Customer service Denmark

Phone 80 20 30 10
Fax +46 46 280 72 99

**Customer service
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.
100 Beach Road
#28-06 to 28-08 Shaw Tower
Singapore 189702
Phone +65 6238 8183
Fax +65 6238 0302
macs@miltenyibiotec.com.sg

South Korea

Miltenyi Biotec Korea Co., Ltd
Arigi Bldg. 8F
562 Nonhyeon-ro
Gangnam-gu
Seoul 06136, South Korea

Phone +82 2 555 1988

Fax +82 2 555 8890

macs@miltenyibiotec.co.kr

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

macs@miltenyibiotec.es

United Kingdom

Miltenyi Biotec Ltd.
Almac House, Church Lane
Bisley, Surrey GU24 9DR, UK
Phone +44 1483 799 800
Fax +44 1483 799 811
macs@miltenyibiotec.co.uk

www.miltenyibiotec.com

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