

MACSQuant® Columns

Order no. 130-094-458

Contents

- 1. Description
 - 1.1 Background information and principle of preenrichment on the MACSQuant® Analyzer using MACS® MicroBeads and the MACSQuant® Column
 - 1.2 Technical specifications
 - 1.3 Product applications
 - 1.4 Reagent and instrument requirements
- Use of the MACSQuant[®] Columns 2.
 - 2.1 Preparation of cells
 - 2.2 Installation of the MACSQuant® Column on the MACSQuant® Analyzer

1. Description

Components MACSQuant[®] Columns (# 130-094-458):

2 MACSQuant Columns per box, sterile packed. Storage Store columns dry and protected from light. The expiration date is indicated on the box label. Do not use after this date.

1.1 Background information and principle of pre-enrichment on the MACSQuant[®] Analyzer using MACS[®] MicroBeads and the MACSQuant® Column

The MACSQuant[®] Analyzer can also perform pre-enrichment of magnetically labeled cells prior to flow cytometric analysis based on renowned MACS® Technology (MACS MicroBeads and the MACSQuant Column). This pre-enrichment capability is particularly useful prior to flow cytometric analysis of rare target cells. The MACSQuant Analyzer was specially designed with the MACS Enrichment Unit, which houses the MACSQuant Column. The combination of the MACSQuant Column and the MACS Cell Enrichment Unit creates a magnetic field sufficient for magnetic enrichment without disturbing the integrity of the cell. The reduction of cells, which need to be analyzed by the flow cytometer, allows the researcher to investigate a larger number of cells in a shorter period of time. Thus, without generating a large amount of excess data, the characterization of a rare cell population is easier and of greater value. This type of rare cell analysis is particularly useful for the analysis of cells present in low abundance, such as stem cells, dendritic cell subsets, NK cell subsets, tumor cells, or Ag-specific lymphocytes.

Briefly, the target cells are magnetically labeled with the respective MACS MicroBeads and then stained with the appropriate antibody-conjugated fluorochromes. The labeled cells are taken up by the MACSQuant Analyzer and passed over the MACSQuant Column. The magnetically labeled cells are retained, while the negative cells pass thorough the column and go directly into the waste container. The magnetically labeled cells are washed and

eluted in 450 µL and are then passed through the flow cell for flow cytometric analysis.

1.2 Technical specifications

- MACSQuant Column capacity: 5×10⁶ magnetically labeled cells.
 - ▲ Note: Column capacity will diminish when air is introduced into the column.
- Recommended sample size: 0.25-5,000 µL.
- Typical enrichment rate: 10-fold to up to 1,000-fold, depending on strength and specificity of the magnetically labeling.
- MACSQuant Columns are multiuse columns that can be used for 3 months continuously.

1.3 Product applications

The MACSQuant Column was specifically designed as an enrichment tool to allow for the quick analysis of rare cell populations using the MACS Cell Enrichment Unit on the MACSQuant Analyzer.

▲ Do not use the MACSQuant Columns in combination with magnetic particles other than MACS MicroBeads. Magnetic forces in the column are very high and may damage biological material if other beads are used.

▲ To remove clumps and to prevent aggregates in the sample, resuspend material carefully and pass through 30 µm nylon mesh (Pre-Separation Filters, # 130-041-407) prior to enrichment.

▲ Samples with high viscosity might cause reduced column flow or column clogging; therefore, use a maximum cell concentration of 1×10⁸/mL.

1.4 Reagent and instrument requirements

- MACSQuant Analyzer (# 130-092-197).
- MACSQuant Running Buffer (# 130-092-747). ▲ Note: Buffer can be used and stored at room temperature.
- MACS MicroBeads for magnetic labeling of cells.
- MACS Fluorochrome-conjugated antibodies for cell analysis.
- (Optional) autoMACS® Running Buffer (# 130-091-221) for labeling of cells or prepare a solution containing phosphatebuffered saline (PBS), pH 7.2, 0.5% bovine serum albumin (BSA), and 2 mM EDTA by diluting MACS BSA Stock Solution (#130-091-376) 1:20 with autoMACS* Rinsing Solution (#130-091-222) (PEB buffer). Keep buffer cold (2-8 °C). Degas buffer before use, as air bubbles could block the column.

▲ Note: EDTA can be replaced by other supplements such as anticoagulant citrate dextrose formula-A (ACD-A) or citrate phosphate dextrose (CPD). BSA can be replaced by other proteins such as respective serum albumin, respective serum, or fetal bovine serum (FBS). Buffers or media containing Ca²⁺ or Mg²⁺ are not recommended for use.

(Optional) Pre-Separation Filters (# 130-041-407) to remove cell clumps.

3

Miltenvi Biotec B.V. & Co. KG Friedrich-Ebert-Straße 68, 51429 Bergisch Gladbach, Germany

¹⁴⁰⁻⁰⁰²⁻⁹²¹ Phone +49 2204 8306-0, Fax +49 2204 85197 macsde@miltenyi.com

2. Use of the MACSQuant® Columns

2.1 Preparation of cells

▲ For optimal performance it is important to obtain a single-cell suspension before magnetic labeling. Pass cells through 30 μ m nylon mesh (Pre-Separation Filters, # 130-041-407) to remove cell clumps which may clog the column. Moisten filter with buffer before use.

▲ Centrifuge in MACSQuant[®] Running Bufffer is detrimental to cell viability. Use autoMACS Running Buffer or PEB buffer.

2.2 Installation of the MACSQuant[®] Column on the MACSQuant[®] Analyzer

- Please ensure that the MACSQuant[®] Analyzer is switched off or in the data analysis mode. Open the front door and note the position of the tubing and the pre-installed substitute of the MACSQuant Column.
- 2. Using both hands, hold the top and bottom of the column substitute and pull gently but firmly to remove it from its position in the MACS Enrichment Unit.
- 3. Place a paper towel under the column substitute. Hold the column substitute in one hand and gently unscrew the upper column connector counter-clockwise. Tilt the column substitute downwards to empty any fluid. Then, unscrew the bottom column connector.

▲ Note: Store the column substitute for later use for long-term storage of the MACSQuant Analyzer.

4. Insert the bottom end of the new MACSQuant Column into the bottom column connector and gently screw in the column by turning it clockwise until you feel resistance. Point the column towards the top of the instrument and screw in the top column connector.

▲ Note: The column has an appropriate orientation. The top portion of the column has a 3 mm spacer in the end of the column. This end must be in the upward position in order to achieve the best enrichment. Refer to section "Exchanging the MACSQuant Columns" in the MACSQuant Analyzer user manual for more details.

▲ Note: Make sure that the MACSQuant Column is screwed tightly that no MACSQuant Running Buffer drops from the column.

- 5. Align the column so that the top column connector sits on the guide of the magnet cover. Press the column into its position until you feel the guides click. Verify that the column is placed in the center of the magnet cover.
- 6. Turn on the MACSQuant Analyzer and switch the instrument into acquisition mode. The MACSQuant Column will be primed with MACSQuant Running Buffer and is ready to use.
- 7. Close the front door.

▲ For complete instructions on how to perform an enrichment on the MACSQuant Analyzer, please refer to the MACSQuant Analyzer & MACSQuantify[™] Software user manual.

Refer to **www.miltenyibiotec.com** for all data sheets and protocols. Miltenyi Biotec provides technical support worldwide. Visit www.miltenyibiotec.com/local to find your nearest Miltenyi Biotec contact.

Legal notices

Limited product warranty

Miltenyi Biotec B.V. & Co. KG and/or its affiliate(s) warrant this product to be free from material defects in workmanship and materials and to conform substantially with Miltenyi Biotec's published specifications for the product at the time of order, under normal use and conditions in accordance with its applicable documentation, for a period beginning on the date of delivery of the product by Miltenyi Biotec or its authorized distributor and ending on the expiration date of the product's applicable shelf life stated on the product label, packaging or documentation (as applicable) or, in the absence thereof, ONE (1) YEAR from date of delivery ("Product Warranty"). Miltenyi Biotec's Product Warranty is provided subject to the warranty terms as set forth in Miltenvi Biotec's General Terms and Conditions for the Sale of Products and Services available on Miltenvi Biotec's website at www.miltenvibiotec.com, as in effect at the time of order ("Product Warranty"). Additional terms may apply. BY USE OF THIS PRODUCT, THE CUSTOMER AGREES TO BE BOUND BY THESE TERMS. THE CUSTOMER IS SOLELY RESPONSIBLE FOR DETERMINING IF A PRODUCT IS SUITABLE FOR CUSTOMER'S PARTICULAR PURPOSE AND APPLICATION METHODS.

Technical information

The technical information, data, protocols, and other statements provided by Miltenyi Biotec in this document are based on information, tests, or experience which Miltenyi Biotec believes to be reliable, but the accuracy or completeness of such information is not guaranteed. Such technical information and data are intended for persons with knowledge and technical skills sufficient to assess and apply their own informed judgment to the information. Miltenyi Biotec shall not be liable for any technical or editorial errors or omissions contained herein.

All information and specifications are subject to change without prior notice. Please contact Miltenyi Biotec Technical Support or visit www.miltenyibiotec.com for the most up-to-date information on Miltenyi Biotec products.

Licenses

This product and/or its use may be covered by one or more pending or issued patents and/or may have certain limitations. Certain uses may be excluded by separate terms and conditions. Please contact your local Miltenyi Biotec representative or visit Miltenyi Biotec's website at www.miltenyibiotec.com for more information.

The purchase of this product conveys to the customer the non-transferable right to use the purchased amount of the product in research conducted by the customer (whether the customer is an academic or for-profit entity). This product may not be further sold. Additional terms and conditions (including the terms of a Limited Use Label License) may apply.

CUSTOMER'S USE OF THIS PRODUCT MAY REQUIRE ADDITIONAL LICENSES DEPENDING ON THE SPECIFIC APPLICATION. THE CUSTOMER IS SOLELY RESPONSIBLE FOR DETERMINING FOR ITSELF WHETHER IT HAS ALL APPROPRIATE LICENSES IN PLACE. Miltenyi Biotec provides no warranty that customer's use of this product does not and will not infringe intellectual property rights owned by a third party. BY USE OF THIS PRODUCT, THE CUSTOMER AGREES TO BE BOUND BY THESE TERMS.

Trademarks

MACS, MACSQuant, MACSQuantify, and the Miltenyi Biotec logo are registered trademarks or trademarks of Miltenyi Biotec and/or its affiliates in various countries worldwide.

Copyright © 2020 Miltenyi Biotec and/or its affiliates. All rights reserved.