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## 1. Description

This product is for research use only.

<b>Components</b>	1 MACSiMAG Separation Unit 1 Tube Rack for tubes from 0.5 mL to 5 mL in size
<b>Storage</b>	Store instruments dry and below 50 °C. Do not store MACSiMAG Separation Unit and Tube Rack under a corrosive atmosphere, for example, in a chemical hood.
<b>Maintenance</b>	MACSiMAG Separation Unit and Tube Rack are sensitive to heat and aggressive solvents, such as acetone. Do not autoclave. MACSiMAG Separation Unit and Tube Rack can be cleaned with a soft cleansing tissue and a mild detergent, and disinfected using 70% ethanol. Do not drop. Do not use if damage is visible.

▲ The MACSiMAG Separation Unit is for use with MACSiBead Particles only. It is not suitable for use with MACS® MicroBeads.

## 1.1. Important safety information

### Magnetic field hazards



STRONG MAGNETIC FIELD



**Strong magnetic fields can influence the functioning of pacemakers or electronic medical implants.**



- If wearing pacemakers or electronic medical implants keep a distance of at least 30 cm.



**Magnetizable objects can suddenly move towards the magnet.**

- Keep all magnetizable objects at a distance of at least 30 cm.



**The MACSiMAG Separation Unit has a powerful magnet.**

Strong magnetic fields can damage equipment susceptible for magnetic fields.

- Keep all magnetic storage devices, electronic equipment, and magnetizable objects at a distance of at least 30 cm.

## 1.2 Background information

The MACSiMAG Separator has been designed for the removal of MACSiBead Particles from cell suspensions. Cells which have been activated or expanded by means of antibody-loaded MACSiBead Particles, or cells magnetically labeled with MACSiBead Particles for depletion, are placed in the extremely strong magnetic fields. Within a few minutes, the 3.5 µm sized MACSiBead Particles adhere to the tube wall. The supernatant containing the MACSiBead-depleted cells is subsequently removed.

### 1.3 Applications

Tubes from 0.5 mL to 50 mL in size can be placed in the magnetic field of the MACSiMAG Separation Unit. Larger conical tubes (13–15 mL or 50 mL) are directly inserted into the magnetic field of the MACSiMAG Separator, whereas tubes from 0.5 mL to 5 mL are inserted by means of the Tube Rack (for details, refer to chapter 3). Recommended sample volumes are listed in the table below.

Tube size	Tube Rack or MACSiMAG Separation Unit position (refer to chapter 3)	Max. sample volume
0.5 mL	A	0.3 mL
1.5 mL	B	1 mL
2 mL	B	1.5 mL
5 mL	A or B	2 mL
13–15 mL conical tubes	C	10 mL
50 mL	C	40 mL

**Table 1:** Recommended tube sizes for different sample volumes.

### Examples of applications

- Removal of MACSiBead Particles after activation or expansion of cells, for example, when using the T Cell Activation/Expansion Kit, human (# 130-091-441), non-human primate (# 130-092-919), or mouse (# 130-093-627), or the NK Cell Activation/Expansion Kit, human (# 130-094-483).
- Removal of endotoxins and DNA from purified protein preparations using Endotoxin Removal Beads (# 130-093-657).
- The Tube Rack is used in combination with tubes from 0.5 mL to 5 mL in size. In combination with tubes from 0.5 mL to 2 mL in size, the Tube Rack is also compatible with the MACSmix™ Tube Rotator (# 130-090-753) and can be used for protocol steps which require gentle rotation (e.g. loading of MACSiBead Particles with antibodies or magnetic labeling of cells with MACSiBead Particles for depletion).

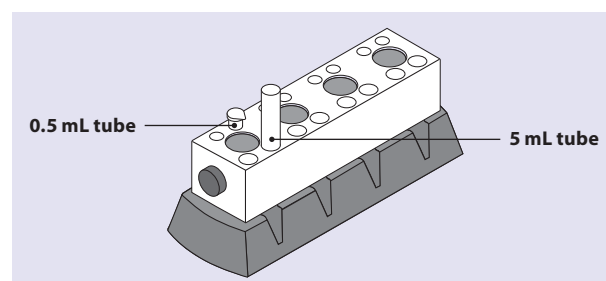
## 2. Technical specifications

- Weight of the MACSiMAG Separation Unit: 1010 g.
- Size of the MACSiMAG Separation Unit: 188×68×65 mm (W×D×H)
- Weight of the Tube Rack: 186 g.

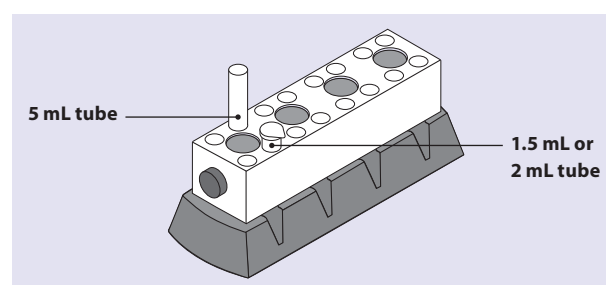
## 3. Instructions for use of the MACSiMAG Separator

The tubes from 0.5 mL to up to 5 mL in size are placed in the acrylic Tube Rack mounted on the MACSiMAG Separator. The Tube Rack can accommodate up to eight tubes of 0.5 mL and 5 mL in size (A). Inverting the Tube Rack, it can accommodate up to eight tubes of 1.5 mL or 2 mL in size and up to eight tubes of 5 mL in size (B). Up to four conical 13–15 mL tubes and up to three 50 mL tubes can be inserted directly into the magnet (C).

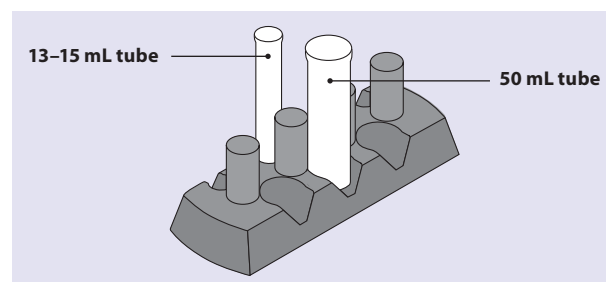
### A) MACSiMAG Separator with Tube Rack positioned for tubes of 5 mL or 0.5 mL in size



### B) MACSiMAG Separator with Tube Rack positioned for tubes of 1.5 mL, 2 mL, or 5 mL in size



### C) MACSiMAG Separator with 13–15 mL tube and 50 mL tube



### 3.1 Removal of MACSiBead Particles after activation or expansion of cells

▲ Removal of MACSiBead Particles used for cell activation or expansion may be required before restimulation with different agents or antigens, or before magnetic separation of cells with MACS MicroBeads.

1. Harvest cells and transfer to a 5 mL, 13–15 mL, or 50 mL tube and wash once with buffer.
2. Resuspend cells in buffer at a density of up to  $2 \times 10^7$  cells per 1 mL and vortex thoroughly.

- Place the tube in the magnetic field of the MACSiMAG Separator.

▲ **Note:** Use the Tube Rack to insert 5 mL tubes into the magnetic field of the separator (for details, refer to figures above).

- Allow the MACSiBead Particles to adhere to the wall of the tube:
 

5 mL tubes:	2 minutes
13–15 mL or 50 mL tubes:	4 minutes
- Retaining the tube in the MACSiMAG Separator, carefully pipette supernatant containing the MACSiBead-depleted cells into a new tube.
- Remove the tube from the separator and add buffer to the same volume as before.
- Vortex sample, place tube back in the MACSiMAG Separator, and repeat steps 4–5.
- Collected cells can now be further processed as required.

### 3.2 Depletion of cells magnetically labeled with MACSiBead Particles

- Place the tube with cells labeled with MACSiBead Particles in the magnetic field of the MACSiMAG Separator. Use the Tube Rack to insert tubes from 0.5 mL to 5 mL in size. For more details, refer to table 1 and figures above.
- Allow the MACSiBead-labeled cells to adhere to the wall of the tube:
 

0.5 mL, 1.5 mL, 2 mL, or 5 mL tubes:	2 minutes
13–15 mL or 50 mL tubes:	4 minutes
- Retaining the tube in the MACSiMAG Separator, carefully pipette supernatant containing the non-labeled target cells into a new tube.
- (Optional) To remove residual MACSiBead Particles, place tube with non-labeled target cells back in the MACSiMAG Separator and repeat steps 2 and 3.

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