MojoSort™ Pan DC Isolation Kit Column Protocol V.1

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Version 1

Mar 12, 2021

1 *Works for me* This protocol is published without a DOI.

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SUBMIT TO PLOS ONE

ABSTRACT

MojoSort™ Pan DC Isolation Kit Column Protocol

EXTERNAL LINK

https://www.biolegend.com/en-us/protocols/mojosort-human-cd56-nanobeads-column-protocol

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PROTOCOL CITATION

Ken Lau 2021. MojoSort™ Pan DC Isolation Kit Column Protocol. **protocols.io** https://protocols.io/view/mojosort-pan-dc-isolation-kit-column-protocol-btapnidn

KEYWORDS

MojoSort, CD56, cell separation, magnetic beads, BioLegend, magnetic columns, nanobeads

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CREATED

Mar 12, 2021

LAST MODIFIED

Mar 12, 2021

PROTOCOL INTEGER ID

48175

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GUIDELINES

Introduction: BioLegend MojoSort™ nanobeads work in commonly used separation columns, based on our internal research as well as validation by external testing by academic labs. This simple protocol consists of following the MojoSort™ protocol to label the cells with **pre-diluted** MojoSort™ reagents and using the columns as indicated by the manufacturer.

Note: Due to the properties of our beads, it may be possible to use far fewer beads that with other commercial suppliers. We recommend a titration to find the best dilution factor. However, as a general rule, dilutions ranging from 1:3 to 1:20 for the Nanobeads can be used. Please contact BioLegend Technical Service (tech@biolegend.com) if further assistance is needed.

Important Note: MojoSort™ magnetic particles can be used with other commercially available magnetic separators, both free standing magnets and column-based systems. Because MojoSort™ protocols are optimized for the MojoSort™ separator, the protocols may need to be adjusted for other systems. Please contact BioLegend Technical Service (tech@biolegend.com) for more information and guidance. We do not recommend using MojoSort™ particles for BD's IMag™ or Life Technologies' DynaMag™.

MATERIALS TEXT

- MojoSort™ Buffer (5X) (Cat. No.480017)
- Human TruStain FcX™ (Cat. No. 422301).
- Adjustable pipettes
- 70 µm filters (one per sample)
- 5 mL (12 x 75mm) or 14 mL (17 x 100 mm) polypropylene tubes
- Reagents for sample preparation
- Reagents and instruments (flow cytometer) to determine yield and purity

Protocol

1 Prepare cells from your tissue of interest or blood without lysing erythrocytes.

2 In the final wash of your sample preparation, resuspend the cells in MojoSort™ Buffer by adding up to 4 mL in a 5 mL (12 x 75 mm) polypropylene tube.
Note: Keep MojoSort™ Buffer on ice throughout the procedure.

3 5m
Filter the cells with a 70 µm cell strainer, centrifuge at 300 x *g* for 5 minutes, and resuspend in a small volume of MojoSort™ Buffer. Count and adjust the cell concentration to 1 x 10^8 cells/mL.

4 10m
Aliquot 100 µL of cell suspension (10^7 cells) into a new tube. Add **10 µL Human TruStain FcX™**. Mix well and incubate at room temperature for 10 minutes. Scale up the volume accordingly if separating more cells. For example, if the volume of Human TruStain FcX™ for 1x10^7cells is 10 µL, add 100 µL for 1 x 10^8 cells. When working with less than 10^7 cells, use indicated volumes for 10^7 cells.

5 15m
To make the pre-diluted biotin, mix 10 µL of the Biotin-Antibody Cocktail with 30 µL of 1X MojoSort™ Buffer. Add **10 µL of this pre-diluted Biotin-Antibody Cocktail**. Mix well and **incubate on ice for 15 minutes**. Scale up the volume if separating more cells. For example, add 100 µL of pre-diluted Antibody Cocktail for separating 1 x 10^8 cells in 1 mL of MojoSort™ Buffer. When working with less than 10^7 cells, use indicated volumes for 10^7cells.

6 15m
Vortex the Streptavidin Nanobeads (to resuspend) at max speed, 5 touches. Prepare the nanobead dilution by mixing 20 µL of Streptavidin Nanobeads with 80 µL of 1X MojoSort™ Buffer. Add **20 µL of pre-diluted Streptavidin Nanobeads**. Mix well **and incubate on ice for 15 minutes**. Scale up the volume accordingly if separating more cells. For example, add 200 µL of pre-diluted Nanobeads for separating 1 x 10^8 cells in 1 mL of MojoSort™ Buffer. When working with less than 10^7 cells, use indicated volumes for 10^7 cells.

7 5m
Wash the cells by adding MojoSort™ Buffer up to 4 mL. Centrifuge the cells at 300 x *g* for 5 minutes.

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8 Discard the supernatant.

9 Resuspend cells in the appropriate amount of MojoSort™ Buffer and proceed to separation. At least 500 µL is needed for column separation. **Note**: There are several types of commercially available columns, depending on your application. Choose the one that fits best your experiment:

	Max. number of labeled cells	Max. number of total cells	Cell suspension volume	Column rinse volume	Cell wash volume	Elution volume
Small Capacity	1 x 10^7	2 x 10^8	500µL for up to 10^8 cells	1ml	1 ml	1 ml
Medium Capacity	1 x 10^8	2 x 10^9	500µL for up to 10^9 cells	3ml	3 ml	5 ml
Large Capacity	1 x 10^9	2 x 10^{10}	500µL for up to 10^{10} cells	20-50ml	30 ml	20 ml

Example of magnetic separation with medium capacity columns:

1. Place the column in a magnetic separator that fits the column.
2. Rinse the column with 3 mL of cell separation buffer.
3. Add the labeled cell suspension in at least 500 µL of buffer to the column through a 30 µm filter and collect the fraction containing the unlabeled cells. These are the cells of interest; do not discard.
4. Wash the cells in the column **2 times** with 3 mL of buffer and collect the fraction containing the untouched cells. Combine with the collected fraction from step 3.
5. If desired, the labeled cells can be collected by taking away the column from the magnet and place it on a tube. Then add 5 mL of buffer and flush out the magnetically labeled fraction with a plunger or supplied device. The labeled cells may be useful as staining controls, to monitor purity/yield, or other purposes.

Data

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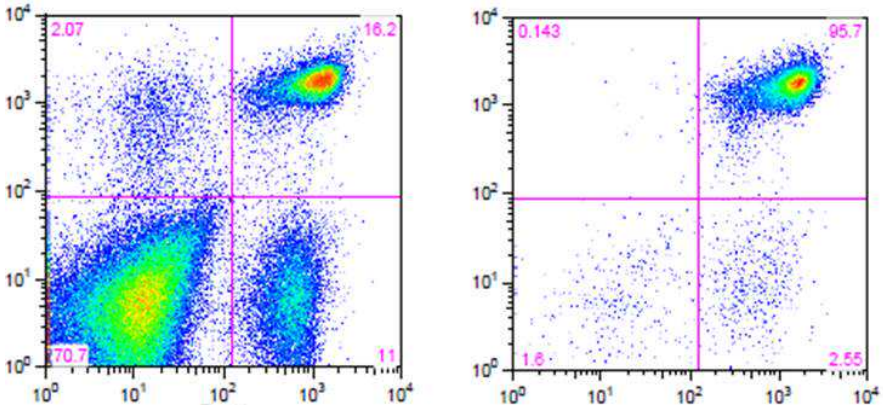
Kit	Purity	Yield
Mouse CD4 T Cell Isolation Kit	95.7%	85%

Flow cytometry. High purity and yield. “After Isolation” plot shows purified population of interest using pre-diluted MojoSort™ reagents in separation columns.



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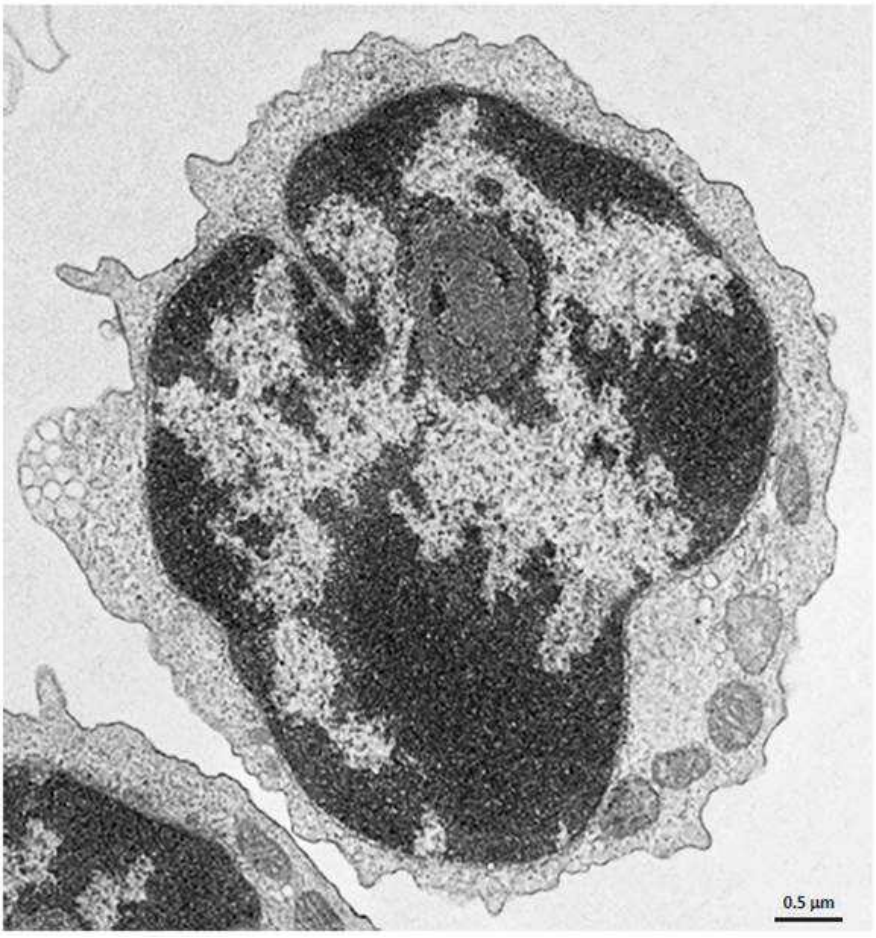

Electron Microscopy. $CD4^+$T cells Isolated with MojoSort™ CD4 T Cell Isolation Kit using columns do not display particles in the cell surface. Image is representative of 36 different cells.

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