Cellectra™ Human CD19 NanoSort Microbeads, Research grade

Cat. No. MBS-S012

Product Information

Product	Size	Amount
Cellectra™ Human CD19 NanoSort Microbeads, Research grade	2 mL	For 10^9 total cells

Product Description

Cellectra™ Human CD19 NanoSort Microbeads, Research grade are dextran-coated superparamagnetic iron oxide nanoparticles of which the surface is conjugated with recombinant monoclonal antibodies specific to human CD19 (Isotype: Mouse IgG1). They are especially designed for positive selection of $CD19^+$ cells.

Cellectra™ Human CD19 NanoSort Microbeads, Research grade are produced under sterile manufacturing conditions (ISO 5), and no animal- or human-derived components are used throughout the production process. It is produced under our rigorous quality control system that includes a comprehensive set of tests including sterility and endotoxin tests.

Product Applications

Cellectra™ Human CD19 NanoSort Microbeads, Research grade are designed for the positive selection of human $CD19^+$ B cells from fresh or frozen human peripheral blood mononuclear cells (PBMCs). CD19, also known as B4, is a transmembrane glycoprotein expressed on most B-lineage cells, including pro-B cells, pre-B cells, and mature peripheral B cells, and plays a key role in B cell activation and signaling. The magnetic Microbeads are conjugated with monoclonal antibodies targeting human CD19 protein, enabling $CD19^+$ cells to be labeled with the specific antibodies and magnetic particles, and separated using the separation columns and magnets.

The Product performance has been carefully validated and tested for compatibility for cell culture use or any other applications in the early preclinical stage. For use in clinical phases, we also offer a custom GMP production service that tailors to your needs. We will work with you to customize and develop a GMP-grade product in accordance with your requests that also meets the requirements for raw and ancillary materials use in cell manufacturing of cell-based therapies.

Formulation

Supplied in PBS buffer containing EDTA, rHSA and Poloxamer 188.

Storage

For long term storage, the product should be stored in liquid state at -20°C or below

Stability upon receipt:

- Stable for 24 months at -20 °C or below;
- Stable for 6 months at 2–8 °C under sterile conditions.

Please protect from light and avoid repeated freeze-thaw cycles.

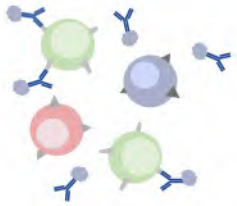
Important Note

This product is for research use only and not intended for therapeutic or diagnostic use.

Workflow of Separation of Cells using Cellectra NanoSort Microbeads

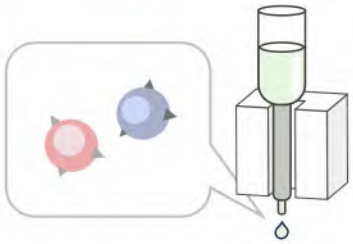
Label the cells

- Prepare cell suspension at **1.25 × 10^8 cells/mL** in Isolation Buffer
- Add 20 µL Microbeads per **1 × 10^7 cells**, incubate 15 min
- Remove excessive Microbeads by centrifugation



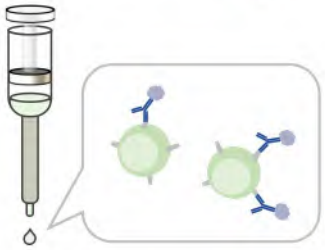
Magnetic Separation

- Place a separation column into a compatible magnet
- Rinse the column with Isolation buffer to rinse away unlabeled cells



Target Cell Collection

- Remove the column from the magnet
- Elute the target cells with a plunger for down-stream applications



General guidelines

Required Materials

- Isolation Buffer: Prepare a solution containing phosphate-buffered saline (PBS), pH 7.2, 0.5% BSA, and 2 mM EDTA and keep it cold (2−8°C).
  Note: BSA can be replaced by other proteins such as human serum albumin, human serum, or fetal bovine serum (FBS). EDTA can be replaced by sodium citrate. PBS containing Ca^{2+} or Mg^{2+} is not recommended.
- Separation Column: MS/LS separation columns or equivalent performance from other suppliers are acceptable as alternatives.
- Magnetic Separators compatible to LS, MS and LD column, or equivalent performance from other suppliers are acceptable as alternatives.

PBMC Preparation

1. Prepare a single-cell suspension of human PBMCs at the concentration of 1.25 x 10^8 cells/mL in Isolation Buffer.
   Note: a. For anticoagulated blood: Isolate PBMCs using Ficoll-Paque™ density gradient centrifugation.
   b. For frozen PBMCs: Thaw and remove dead cells via Ficoll-Paque™ density gradient centrifugation.
   c. Wash all PBMCs with Isolation Buffer (300 ×g, 10 min, 15-25 ℃) before suspension preparation.

Magnetic labeling

2. Transfer the required volume of PBMC single-cell suspension (1.25×10^8 cells/mL in Isolation Buffer) into a new tube.
3. Add 20 µL Microbeads for every 10^7 PBMCs suspended in 80 µL buffer, to a total volume of 100 µL for incubation.
   Note: Scale Microbeads volume proportionally for higher cell counts (e.g., 40 µL Microbeads for 2×10^7 PBMCs in a total incubation volume of 200 µL).

4. Mix the cell-bead mixture by gently pipetting up and down, and incubate for 15 min at 2~8 °C.
5. Add 400 µL of isolation buffer, centrifuge at 300×g for 10 minutes at room temperature, and carefully aspirate the supernatant.
6. Repeat washing ***step 5***.
7. Centrifuge at 300×g for 10 minutes, and then remove the supernatant completely.
8. Resuspend the cells in 500 µL Isolation Buffer per 1×10^7 cells for separation.

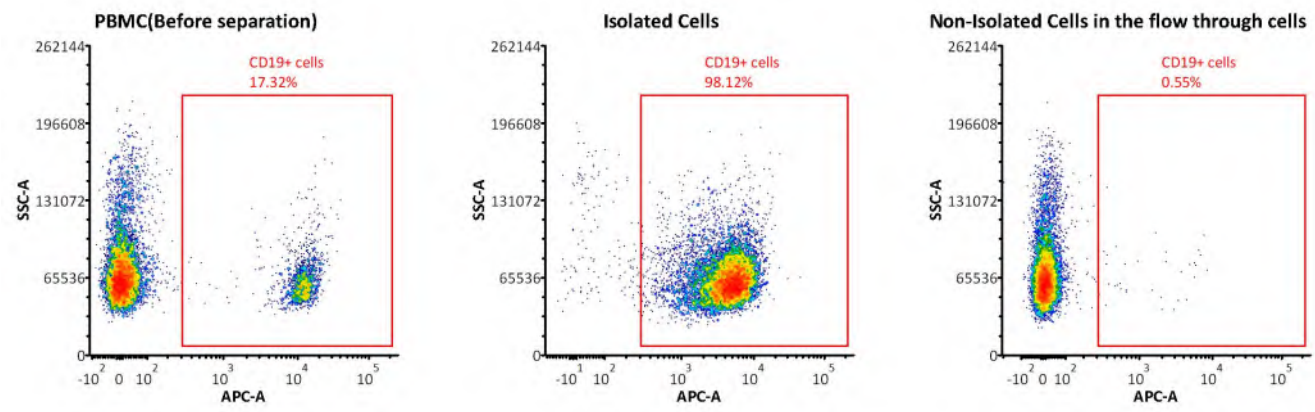
Magnetic separation

9. Place MS column in the magnetic field of a separator.
10. Prepare the separation column by rinsing it with 500 µL of Isolation Buffer.
11. Apply cell suspension to primed the separation column, and collect the flow-through containing unlabeled cells.
12. Wash the separation column with 500 µL of Isolation Buffer twice and collect unlabeled cells in flow through from ***step11***.
13. Remove the separation column from the separator and place it on a suitable collection tube (i.e.15 mL of centrifuge tube).
14. Pipette 1 mL of Isolation Buffer onto the separation column, and immediately flush out the magnetically labeled cells by firmly pushing the plunger into the column.

    Note: To increase the purity of $CD19^+$ cells, the eluted fraction can be enriched over a second MS column. Repeat the magnetic separation procedure as described by using a new column.

    Note: For high cell counts, LS columns or comparable columns can be used. Follow the instruction of the manufacturer.
15. Collect the eluted target cells in separate sterile tube, and analyzed to assess the purity or used in down-stream applications.

● Example of a separation



The purity of $CD19^+$ cells isolated by Cellectra™ Human CD19 NanoSort Microbeads, Research grade (Cat. No. MBS-S012).
Human PBMCs(per 10^7 cells) were isolated by 20 µL Cellectra™ Human CD19 NanoSort Microbeads, Research grade (Cat. No. MBS-S012). Both the isolated cells and non-isolated cells were stained with APC-anti human CD19 Antibody and 7-AAD, and subsequently analyzed by flow cytometry (QC tested).

● Disclaimer

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