

Celectra™ Anti-G4S linker NanoSort Microbeads, Research grade

Cat. No. MBS-S009

● Product Information

Product	Size	Amount
Celectra™ Anti-G4S linker NanoSort Microbeads, Research grade	2 mL	For 10 ⁹ total cells

● Product Description

Anti-G4S Linker NanoSort MicroBeads, Research Grade are dextran-coated superparamagnetic iron oxide nanoparticles conjugated with recombinant monoclonal antibodies specific for the G4S linker (isotype: rabbit IgG). They are designed for the positive selection and enrichment of G4S-containing CAR-expressing cells.

Anti-G4S Linker 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

Celectra™ Anti-G4S Linker NanoSort MicroBeads, Research Grade are designed for the positive selection and enrichment of CAR-modified cells expressing a G4S linker during CAR-T cell manufacturing following gene transduction. Anti-G4S Linker specifically recognizes the G4S (GGGGS) linker, a flexible peptide widely used in CARs and other recombinant proteins. Unlike antigen-specific reagents, it targets the conserved G4S sequence, providing a universal, antigen-independent solution for the detection, enrichment, and isolation of G4S-containing engineered cells. Its compatibility with diverse CAR constructs simplifies reagent development, streamlines workflows, and ensures consistent performance in research and cell manufacturing applications. The MicroBeads are conjugated with monoclonal antibodies specific for the G4S linker, enabling selective labeling and rapid magnetic enrichment of G4S-containing CAR-expressing cells using magnetic separation columns.

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 8 months at 2–8 °C under sterile conditions.

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

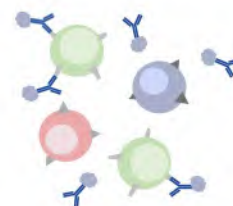
● Important Note

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

Workflow of Separation of Cells using Collectra NanoSort Microbeads

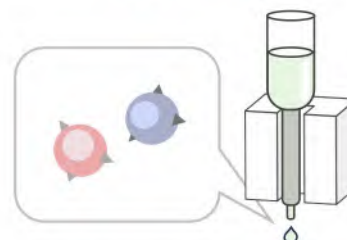
Label the cells

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



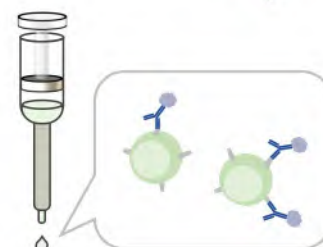
Magnetic Separation

- 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 CAR-T cells at the concentration of 1.25×10^8 cells/mL in Isolation Buffer.

Magnetic labeling

2. Transfer the required volume of CAR-T single-cell suspension (1.25×10^8 cells/mL in Isolation Buffer) into a new tube.
3. Add 20 μ L Microbeads for every 10^7 CAR-T cells suspended in 80 μ L buffer, to a total volume of 100 μ L for incubation.

Note: This protocol is optimized for CAR-T cell samples containing 5%–60% CAR-positive cells.

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

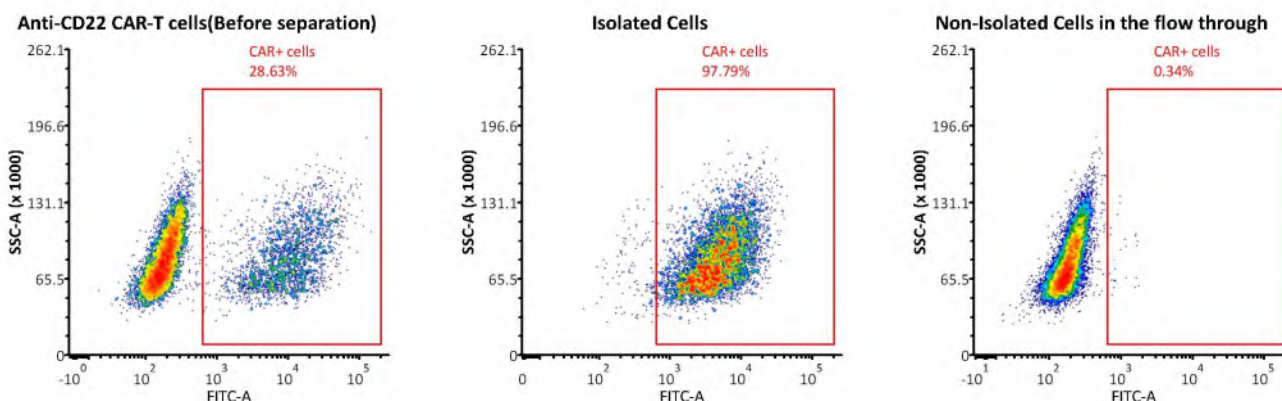
9. Place MS column in the magnetic field of a separator.
10. Prepare the separation column by rinsing it with 500 µL of Isolation Buffer.
11. Apply cell suspension to primed the separation column, and collect the flow-through containing unlabeled cells.
12. Wash the separation column with 500 µL of Isolation Buffer twice and collect unlabeled cells in flow through from **step 11**.
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 CAR-positive 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



Purity of Anti-CD22 CAR-T cells isolated using Collectra™ Anti-G4S Linker NanoSort Microbeads, Research grade (Cat. No. MBS-S009).

Anti-CD22 CAR-T cell samples containing 30% CAR-positive cells (1×10^7 cells) were isolated using 20 µL of Collectra™ Anti-G4S Linker NanoSort Microbeads, Research grade (Cat. No. MBS-S009). The positive and negative fractions were stained with FITC-labeled Human Siglec-2 (CD22) Protein, Fc Tag, together with 7-AAD, and analyzed by flow cytometry. (QC tested).

● Disclaimer

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