EasySort™ Human CD3+ T Cell Isolation Kit

Cat. No: MIH001N **Size: 10/100/200 Assays**

Component	Component Name	10 Assays	100 Assays	200 Assays	Storage
MIH001NA	EasySort™ Human CD3+T Beads Streptavidin 1.0-N	160 μL	800 μL×2	800 μL×4	2-8°C
MIH001NB	EasySort™ Human CD3+T Cell Isolation Cocktail	120 μL	1.2 mL	1.2 mL×2	2-8°C
	Manual	1 copy			

Storage

Store at 2-8°C with shading light for 1 year. Avoid freezing and thawing.

Description

Human CD3+T cell isolation kit utilizes a negative selection strategy to isolate CD3+T cells from fresh or frozen human PBMC sample. The principle of this kit is to use different biotinylated monoclonal antibodies labeling non-CD3+T cells, followed by streptavidin conjugated magnetic beads incubation. Unwanted labeled cells are efficiently removed by magnetic isolation, and high purity CD3+T cells are isolated.

EasySort™ Human CD3+T Cell Isolation Kit can help researcher isolate high purity human CD3+T cells with simple experimental procedure. The kit is suitable for isolation of CD3+T cells from fresh human PBMC or frozen PBMC, and the isolated CD3+T cells can be directly used for downstream applications. The CD3+T cells isolated from normal PBMC using this kit is typically 95.98 ± 1.37%.

Reagents and Materials Not Supplied

1. **Reagents:**

   PBS, fetal bovine serum (FBS), EDTA, Human peripheral blood mononuclear cells separation solution

2. **Materials:**

   70 μm mesh nylon strainer, 1.5 mL/2 mL EP tube, 15 mL/50 mL centrifuge tube, flow tube

3. **Instrument:**

   Optical microscope, centrifuge, 5 mL magnetic rack

Experimental Operation

NOTE: The following operations must be performed under sterile conditions

- **Isolation buffer preparation**

  Add fetal bovine serum (final concentration of 2%) and EDTA (final concentration of 2 mM) to PBS buffer and filter the prepared buffer with 0.22 μm filter.

  NOTE: Sealed store the prepared buffer at 4°C and use within 1 week. In addition, 2% fetal bovine serum

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can be replaced by 0.5% BSA.

➢ Sample Preparation and Processing

1. Fresh human PBMC: PBMC sample is obtained from fresh human whole blood by density gradient centrifugation. Wash PBMC twice with isolation buffer, centrifuge at 300 g for 5 min, filter the PBMC through a 70 μm mesh nylon strainerand and adjust the cell density to 1×10^8 cells/mL for cell isolation.
   Note: The best separation effect can be achieved when the freshly collected human blood is separated within 1 hour. Approximately 1×10^7 PBMC can be obtained from 10 mL of human blood.
2. Frozen PBMC: incubate the frozen PBMC should be incubated with DNase I solution (PBS) at a concentration of 100 μg/mL for 15 min at room temperature before cell isolation. Wash sample twice with isolation buffer, centrifuged at 300 g for 5 min. Filter aggregated suspensions through a 70 μm mesh nylon strainer and adjust cell density at 1×10^8 cells/mL.

➢ Cell Isolation

a) Prepare 100 μL of cell suspension (about 1×10^7 cells), add 12 μL Human $CD3^+$T Cell Isolation Cocktail, mix fully and incubate for 5 min at room temperature.
   Note: Please make sure the cells are single-cell suspension.

b) Add isolation buffer to a final volume of 2 mL, centrifuge at 300 g for 5 min. Discard the supernatant, and then resuspend the cells with 100 μL isolation buffer.

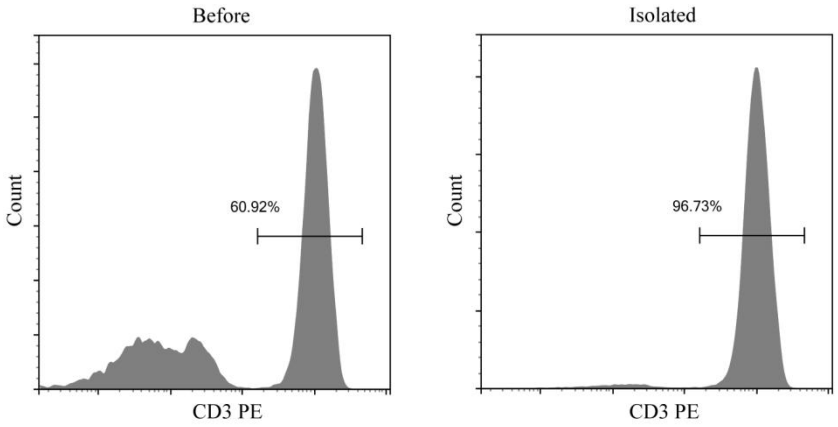
c) Wash Beads Streptavidin 1.0-N: Vortex beads for 20 seconds, add 16 μL Beads in 1.5 mL EP tube. Put the tube on a 5 mL magnetic rack (self-provided) and stand for 30 seconds. Remove the supernatant, then resuspend beads with 1 mL isolation buffer, and stand for 5 minutes at room temperature. Remove the supernatant, then resuspend beads with 16 μL isolation buffer.

d) Transfer the cells to the bottom of the flow tube (Note: Avoid adding along tube walls), add 16 μL washed Human $CD3^+$T Beads Streptavidin 1.0-N, mix gently and incubate at room temperature for 5 min.
   Note:
   - ✧ If more than 1×10^7 cells are to be isolated, increase the amount of Human $CD3^+$T Cell Isolation Cocktail and Human $CD3^+$T Beads Streptavidin 1.0-N proportionally while ensuring the cell density remains 1×10^8 cells/mL. If fewer than 1×10^7 cells are to be isolated, resuspend the cells with 100 μL isolation buffer, add 12 μL Human $CD3^+$T Cell Isolation Cocktail and 16 μL washed Human $CD3^+$T Beads Streptavidin 1.0-N.
   - ✧ The 5 mL flow tube is suitable for less than 1×10^8 cells.

e) Add isolation buffer to a final volume of 2.5 mL, mix gently with a pipette by blowing up and down for 7-8 times until no particles of magnetic beads are visible. Put the tube on a 5 mL magnetic rack (self-provided) and stand for 5 min.
   Note: Please mix the liquid thoroughly to avoid the magnetic beads clumping and affecting the isolation efficiency.

f) Transfer the cell suspension to a clean centrifuge tube, centrifuge at 300 g for 5 min. Discard the supernatant, resuspend the cells with buffer required for the subsequent experiments.

Typical data



The CD3$^+$T cells isolated from normal PBMC were stained with PE Anti-Human CD3 Antibody [OKT3] (E-AB-F1001D). The purities of the start and final isolated fractions were 60.92% and 96.73%, respectively.

Cautions

1. This kit is for research use only.
2. Please take safety precautions and follow the procedures of laboratory reagent operation.
3. Avoid freezing and thawing during the use and storage of the beads.
4. Sample differences, sample preparation and experimental operation have an important impact on the final isolated cell purity.
5. The quality of pre-isolated PBMC sample is critically impacts the separation efficiency of this product. It is recommended to test whether the percentage of CD3$^+$T cells is in the normal physiological range (45%-70%) after the preparation of PBMC sample. It is recommended to re-prepare the PBMC sample when percentage of target cell population is lower than it's normal distribution.
6. The cell clusters in the cell suspension will affect the purity of cell isolation. Therefore, cell suspension should be filtered with a 70 μm mesh nylon sieve before formal isolation.
7. Cell suspension should be isolated immediately after preparation, the longer the storage time, thegreaterthe impact on cell activity.
8. The cell suspension and reagents should be added directly to the bottom of flow tube to avoid sticking to the wall, resulting in insufficient reaction and affecting the isolation efficiency.
9. In order to ensure the activity of the cells, the whole process of the experiment should be completed on ice as much as possible, except for the incubation at room temperature.
10. It is recommended to use low adsorption pipette tips and centrifuge tubes to avoid the loss of magnetic beads and antibodies due to adsorption.
11. The kit should be used in combination with a magnetic rack.

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