SOLIDEX®-ISOEx Human CD3 Isolation Nanobeads (Column-Based)

Product Instruction Manual

Cat. No.	GM-Tg-hg-T87075-iso-nanoIMB
Product Name	SOLIDEX®-ISOEx Human CD3 Isolation Nanobeads (Column-Based)
Storage Temperature	2-8 °C (Do not freeze)

Technical Parameters

Classification	Description
Cell type	CD3+ Pan-T Cell
Isolation method	Positive selection
Labeling type	Direct
Magnetic nanobeads type	Non-releasable
Format	Column-based

Product Introduction

T cells are a critically important class of immune cells in the human body, accounting for 45% to 70% of peripheral blood mononuclear cells (PBMCs). They play a vital role in anti-infection responses, anti-tumor immunity, and immunomodulation. Depending on the specific application scenario, we support three isolation strategies: positive selection, negative selection, and depletion.

By utilizing SOLIDEX®-ISOEx Human CD3 Isolation Nanobeads (Column-Based), column-based isolation achieves superior cell purity. Through the specific capture facilitated by the magnetic matrix within the column, high-purity target cells can be effectively obtained. This method is highly compatible with automated workflows and facilitates various downstream applications, such as investigating T cell cytotoxicity, activation processes, HIV infectivity, signal transduction mechanisms, and surface marker expression.

Product Components and Specifications

Component	Catalog No.	10 Test (1×10^8 cells)	50 Tests (5×10^8cells)	100 Tests (1×10^9 cells)
SOLIDEX®-ISOEx Human CD3 Isolation Nanobeads (Column-Based)	GM-Tg-hg-T87075-iso-nanoIMB	100 µL	0.5 mL	1.0 mL

Note: This product is for research and development use only.
Shelf Life: Store at 2-8°C, protected from light, and do not freeze. Under these conditions, the product is valid for 6 months.

Reagents and Equipment Required

A. Cell isolation Column
For positive selection or depletion, recommended for use with GeneMedi **SOLIDEX®-ISOEx cell isolation columns**: M Column for standard throughput, Cat. No.: **GMP-ISOEx-Column-M**; L Column for high throughput, Cat. No.: **GMP-ISOEx-Column-L**. Comparable columns from other mainstream brands are also compatible.
B. Magnetic Separator
C. Cell isolation buffer

Phosphate-buffered saline (PBS), pH 7.2, containing 0.5% bovine serum albumin (BSA) and 2 mM EDTA. (user-supplied).

Note:

(1) BSA can be replaced by other proteins such as human serum albumin (HSA), human serum, or fetal bovine serum (FBS).
(2) Degas the Cell isolation buffer before use, as air bubbles may block the Column.
(3) Keep the Cell isolation buffer cold (2-8°C).

Protocol

A. Cell Labeling

a. Count the peripheral blood mononuclear cells (PBMCs). Add 50 µL of cell isolation buffer per 1×10^7 cells and resuspend the cells.
b. Add **10 µL** of SOLIDEX®-ISOEx Human CD3 Isolation Nanobeads per 1×10^7 cells. Mix gently but thoroughly, and incubate at 4°C for 15 minutes.
c. Add 500 µL of cell isolation buffer per 1×10^7 cells. Centrifuge and discard the supernatant. Resuspend the cell pellet in 3 mL of cell isolation buffer. The cells are now ready for the subsequent cell isolation step.

Note:

a. The nanobeads must be thoroughly mixed prior to use by pipetting up and down.
b. The cell isolation buffer must be pre-cooled to 2-8°C or on ice.

B. Cell Isolation

a. Place the LS isolation column on the magnetic separator and rinse with 3 mL of cell isolation buffer.
b. Once the cell isolation buffer has completely drained, apply the 3 mL cell suspension to the column. Place a clean 15 mL centrifuge tube underneath to collect the flow-through.
c. After the liquid has drained from the column, wash the column once by adding 5 mL of cell isolation buffer. Then, remove the isolation column from the magnetic separator and place it into a clean 15 mL centrifuge tube. Add 5 mL of cell isolation buffer and use the plunger to directly flush the liquid out of the column; this collected fraction contains the CD3+ T cells.

Notes

A. Avoid freezing during use and storage of the Nanobeads.
B. It is recommended to use low-binding pipette tips and centrifuge tubes to prevent loss of Nanobeads due to adsorption.
C. Before aspirating the Nanobeads, mix them gently. Avoid bubble formation during mixing.
D. This product is used for research use only.

Validation Data from GeneMedi

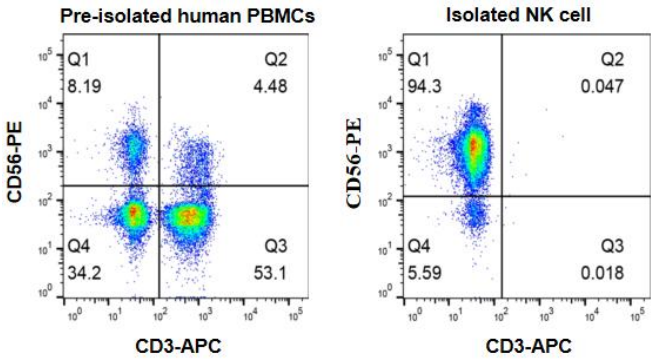

Figure 1. Isolation of high-purity T cells achieved by the SOLIDEX®-ISOEx Human CD3 Isolation Nanobeads (Column-based). To evaluate the purity of the isolated T cells, CD3+ T cells were isolated from human peripheral blood mononuclear cells (PBMCs). Cells pre- and post-isolation were labeled with a CD3-APC antibody and PI (Propidium Iodide) for flow cytometric analysis. The purity of CD3+ T cells pre-isolation and post-isolation was 52.6% and 95.0%, respectively.