T cell Activation Magnetic Nanoparticles
PRODUCT DATA SHEET

T cell Activation Magnetic Nanoparticles

Description

T cell activation nano magnetic beads are composed of nano-sized magnetic particles covalently coupled with anti-human CD3 and CD28 antibodies, which can effectively simulate the antigen presentation process for the activation and expansion of T cells in enriched human T cell samples or human PBMC. T cell activated nano-magnetic beads have good suspension and can be evenly dispersed around T cells, making the process of T cell activation and expansion more convenient and reproducible. 2 mL T cell-activated nano-magnetic beads can be used to activate and amplify up to 2×10^8 enriched human T cells or 4×10^8 individual peripheral blood mononuclear cells (PBMC).

Abvigen offers high quality T cell activation magnetic nanoparticles. The product has high repeatability between batches, which can meet the needs of various customers for personalized materials such as research and development, testing and production.

For custom sizes, formulations or bulk quantities please contact our customer service department.

Website: www.abvigen.com Phone: +1 929-202-3014 Email: info@abvigenus.com

Characteristics

Type: T cell Activation Magnetic Nanoparticles

Surface group: Anti-CD3, Anti-CD28

Dispersing solvent: Preservative solution

Size: 2 mL

Storage condition: Store at 2-8°C away from light to avoid freezing.

Operation Instruction

1. Prepare before use

1.1 Reagent Preparation

T cell culture complete medium (customers need to determine the medium composition according to the experimental requirements), buffer for flow cell sorting, relevant flow fluorescence antibodies, etc.

1.2 Cell Preparation

Cells were rehung and counted in complete culture medium.

2. T cell activation and expansion

2.1 Cell density and amount of magnetic beads

2.1.1 Purified T cells should be activated at a density of 1×10^6 cells per cm^2 (see Table 1);

2.1.2 PBMC should be activated at a density of 2×10^6 cells per cm^2;

2.1.3 Adding T cells to activate nanobeads according to the volume of beads and the total culture volume 1:100.

Table 1 Optimal surface density when purified T cells are used

Culture plate	Culture area	Maximum culture volume	T cell count	Volume of T cell Activation Magnetic Nanoparticles
96-well plate	0.31 cm^2	0.2 mL	0.3 x 10^6 pieces	2 µL
48-well plate	1 cm^2	1 mL	1 x 10^6 pieces	10 µL
24-well plate	2 cm^2	2 mL	2 x 10^6 pieces	20 µL
12-well plate	4 cm^2	4 mL	4 x 10^6 pieces	40 µL
6-well plate	10 cm^2	5 mL	5 x 10^6 pieces	50 µL

Note: When less than 0.3×10^6 purified T cells are used, the volume corresponding to the minimum number of T cells in Table 1 can be used for each reagent dosage; When higher cell counts are used, the volume of all reagents is enlarged accordingly; Customers can adjust according to the actual situation.

2.2 Activation process of enriched human T cell samples in 96-well plates

2.2.1 0.3×10^6 cells were taken into 96-well plates, 2 µL T cells were added to activate nano-magnetic beads, and T cell culture medium was supplemented to the total volume of 200 µL.

2.2.2 The cells were evenly mixed with T cell activated nanomagnetic beads and cultured in an incubator at 37°C and 5% CO_2 for 2-3 days;

2.2.3 Cell suspension was collected and centrifuged at 300×g for 10 min to remove the supernatant;

Note: The supernatant should be absorbed and discarded as far as possible. If the residual liquid is too much, it can be cleaned again with PBS.

2.2.4 Resuspension cell precipitation was added to 200 µL complete medium, and continued culture in 37°C, 5% CO_2 incubator;

2.2.5 Observe the cell status and rehydrate regularly. Adjust the cell density to 1×10^6 /mL when the cell density exceeds 2×10^6 /mL or the medium turns yellow. Cells can be harvested after about 14 days of culture.

Applications

Activation and expansion of T cells

Storage

Store at 2-8°C away from light to avoid freezing.

Notes

1. All steps in the program must be carried out under aseptic conditions;

2. T cells activate the nano-magnetic beads have good suspension and are not easy to settle. It is recommended to reverse mix several times before use;

3. The co-culture time of T cell activated nanoparticles with T cells should not be less than 2-3 days. Premature removal of activated beads may reduce the proliferation of T cells.

Ordering Information

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