

Human T Cell Isolation Kit

with Akadeum BACS™ Microbubbles



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Components of Human T Cell Isolation Kit (Full Kit #13210-120) (Trial Kit #23210-120):

IN THE BOX:

1. BACS™ Streptavidin Microbubbles
2. Human T Cell Antibody Cocktail

PACKAGED SEPERATELY:

1. Separation Buffer Ca²⁺ and Mg²⁺ free PBS containing 2 mM EDTA, 0.5% biotin-free BSA, and 0.09% sodium azide
2. 5 mL Eppendorf Tubes

Additional Recommended Supplies:

1. Low retention 1 mL pipet tips VWR Part #89174-530
2. Centrifuge with swinging bucket rotor
3. Vacuum aspirator

PRODUCT OVERVIEW

- > Akadeum's Human T Cell Isolation Kit uses streptavidin-conjugated BACS™ microbubbles to negatively select T cells from peripheral blood mononuclear cells (PBMCs).
- > Non-T cells (unwanted cells) are labelled with biotinylated antibodies targeting CD14, CD16, CD19, CD36, CD56, CD123, and CD235a, and subsequently mixed with microbubbles.
- > Once bound to unwanted cells, microbubbles enable rapid cell removal without a column or magnet.
- > High purity human T cells are left untouched and ready for downstream applications.

Storage: Store microbubbles, antibody cocktail, and Separation Buffer at 4°C

Cell Type: T Cells

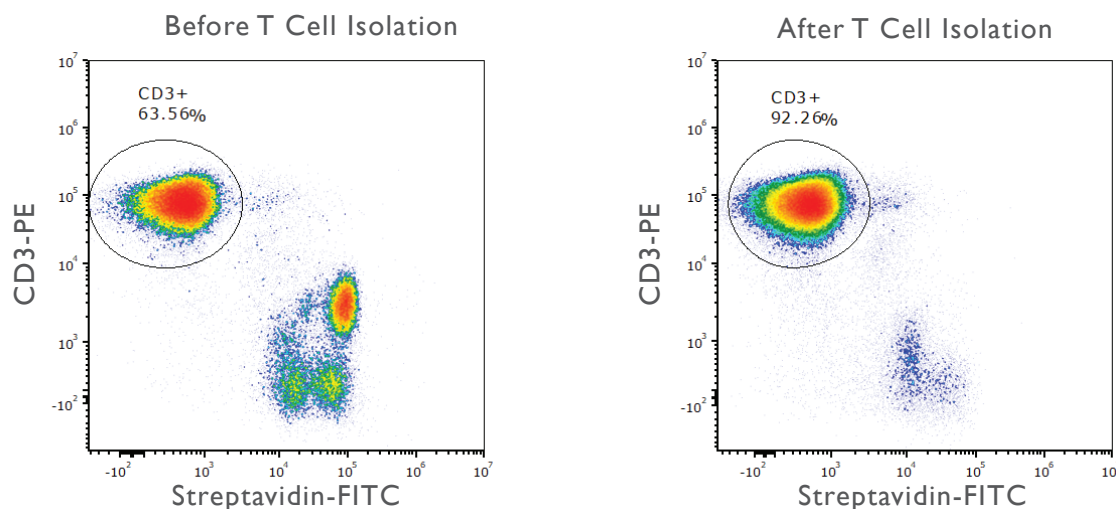
Sample Species and Source: Human PBMCs

Cell Separation Method: Negative Selection

Capacity: Full Kit = 1 billion cells; Trial Kit = 300 million cells

EXAMPLE OF A HUMAN T CELL ISOLATION

Isolation of human T cells from PBMCs was performed using Akadeum Life Sciences Human T Cell Isolation Kit (#13210-120). Cells were labeled with Streptavidin-FITC and CD3-PE. Dead cells and debris were excluded from analysis.



SAFETY INFORMATION

For research use only. Not intended for any animal or human therapeutic or diagnostic use.

Before use, please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

GENERAL NOTES

For tips concerning sample preparation, cell labeling and separation, visit www.akadeum.com/technology/

For product-specific background information and applications of this product, refer to the respective product page at www.akadeum.com/products/

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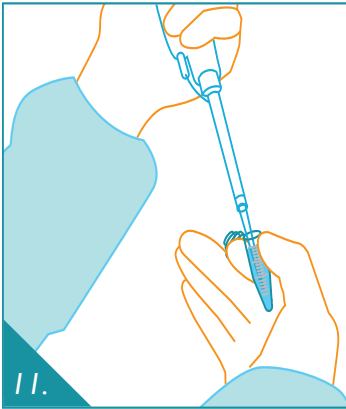
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Protocol: Human T Cell Isolation

The protocol below is for samples containing between 10^7 and 10^8 cells. If a sample is larger than 10^8 cells, split the sample into two. For a protocol optimized for samples fewer than 10^7 cells, contact us: info@akadeum.com

Note: Work quickly using pre-chilled Separation Buffer (2-8°C)



PREPARE YOUR CELLS

1. Begin with human PBMCs.
2. Centrifuge PBMC suspension (5 min, 400 × g), aspirate supernatant, and wash once with 5 mL of Separation Buffer.
3. Centrifuge samples (5 min, 400 × g) and aspirate supernatant.
4. Resuspend cells at 1×10^7 cells per 50 μL of Separation Buffer (see Table I) and transfer to 5 mL Eppendorf tubes.

LABEL CELLS

5. Add 10 μL of biotin-antibody cocktail per 1×10^7 cells (see Table I). Mix briefly.
6. Incubate sample for 20 min at 4°C.
7. Add 1 mL Separation Buffer and centrifuge (5 min, 400 × g). Aspirate supernatant.
8. Resuspend cells at 1×10^7 cells per 50 μL of Separation Buffer (see Table I).



BIND MICROBUBBLES

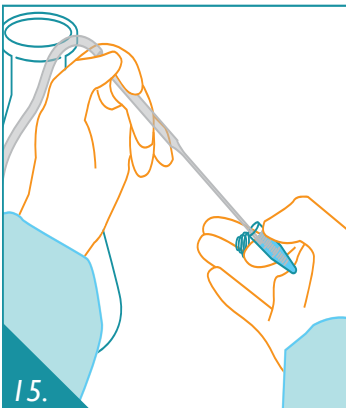
9. Prepare microbubbles by resuspending in solution (microbubble mixture should be a homogenous white solution, i.e. look like milk). Vigorously mix or pipet. Immediately proceed to next step.
10. Add 80 μL of microbubbles per 1×10^7 cells to first sample (see Table I).
11. Set the pipet volume to ~50% of the total sample volume (cell suspension + microbubbles) and mix with gentle trituration for 30 pipet strokes using a low retention 1000 μL pipet tip (see Table I).

Note: This pipet setting ensures adequate mixing of microbubbles and cells for binding.

12. Immediately add 3 mL Separation Buffer to sample.

Note: This facilitates separation of microbubbles from the cell pellet.

13. Repeat steps 10-12 for remaining samples making sure to **resuspend microbubbles before each sample**.



SEPARATE CELLS

14. Centrifuge samples (5 min, 400 × g). **Note:** Akadeum recommends using a swinging bucket rotor for this step to facilitate microbubble aspiration.
15. Use vacuum aspirator to aspirate off white microbubble layer and supernatant. Take care not to aspirate cell pellet.
16. Resuspend cells at 1×10^7 cells per 50 μL of Separation Buffer (see Table I) by pipetting. Transfer cells to a new tube if desired due to residual microbubbles stuck to tube.
17. Continue to flow cytometry or other downstream processing or handling.



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Rev2019Jun25

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Table I. Example Volumes For Cell Isolation

Total Cells	Resuspension Volume	Antibody	Microbubbles	Mixing Volume
1×10^7	50 μL	10 μL	80 μL	65 μL
5×10^7	250 μL	50 μL	400 μL	325 μL
1×10^8	500 μL	100 μL	800 μL	650 μL