



**THIS PRODUCT INFORMATION SHEET IS PROVIDED FOR USE WITH ROBOSEP™ (SECTION A), THE PURPLE EASYSEP™ MAGNET (SECTION B) OR "THE BIG EASY" SILVER EASYSEP™ MAGNET (SECTION C).**

If using other EasySep™ Magnets, please visit [www.stemcell.com](http://www.stemcell.com) to download the magnet-specific Product Information Sheet or contact Technical Support at [techsupport@stemcell.com](mailto:techsupport@stemcell.com).

**A) FULLY AUTOMATED PROTOCOL USING ROBOSEP™ (CATALOG #20000).**

This procedure is used for processing **500 µL - 8.5 mL** of sample (up to  $4.25 \times 10^8$  cells).

1. Prepare cell suspension at a concentration of  $5 \times 10^7$  cells/mL in RoboSep™ Buffer (Catalog #20104) (see Notes and Tips, reverse side). Cells must be placed in a 14 mL (17 x 100 mm) polystyrene tube to properly fit into the RoboSep™ carousel.

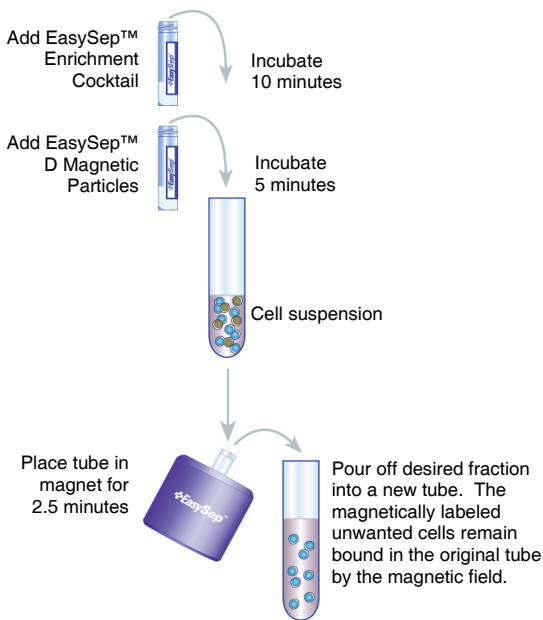
*Falcon™ 14 mL Polystyrene Round-Bottom Tubes (BD Biosciences, Catalog #352057) are recommended.*

2. Select the appropriate RoboSep™ protocol:
  - Human NK Negative Selection 19055 - high recovery

If a modified RoboSep™ protocol is required, please contact STEMCELL Technologies' Technical Support at [techsupport@stemcell.com](mailto:techsupport@stemcell.com).

3. Load the RoboSep™ carousel as directed by the on-screen prompts. **Vortex the EasySep™ D Magnetic Particles for 30 seconds before loading. Ensure that the particles are in a uniform suspension with no visible aggregates.** When all desired quadrants are loaded, press the green "Run" button. All cell labeling and separation steps will be performed by RoboSep™.
4. When cell separation is complete, remove the enriched cells in the 50 mL tube located to the left of the tip rack. The enriched cells are now ready for use.

**MANUAL EASYSEP™ PROTOCOL DIAGRAM**



**B) MANUAL EASYSEP™ PROTOCOL USING THE PURPLE EASYSEP™ MAGNET (CATALOG #18000).**

This procedure is used for processing **250 µL - 2 mL** of sample (up to  $1 \times 10^8$  cells).

1. Prepare cell suspension at a concentration of  $5 \times 10^7$  cells/mL in recommended medium (see Notes and Tips, reverse side). Cells must be placed in a 5 mL (12 x 75 mm) polystyrene tube to properly fit into the Purple EasySep™ Magnet.  
*Falcon™ 5 mL Polystyrene Round-Bottom Tubes (BD Biosciences, Catalog #352058) are recommended.*
2. Add the EasySep™ Human NK Cell Enrichment Cocktail at **50 µL/mL cells** (e.g. for 2 mL of cells, add 100 µL of cocktail). Mix well and incubate at room temperature (15 - 25°C) for **10 minutes**.
3. Vortex the EasySep™ D Magnetic Particles for 30 seconds. Ensure that the particles are in a uniform suspension with no visible aggregates.
4. Add the EasySep™ D Magnetic Particles at **100 µL/mL cells** (e.g. for 2 mL of cells, add 200 µL of magnetic particles). Mix well and incubate at room temperature (15 - 25°C) for **5 minutes**.
5. Bring the cell suspension up to a **total volume of 2.5 mL** by adding recommended medium. Mix the cells in the tube by gently pipetting up and down 2 - 3 times. Place the tube (without cap) into the magnet. Set aside for **2.5 minutes**.
6. Pick up the EasySep™ Magnet, and in one continuous motion invert the magnet and tube, pouring off the desired fraction into a new 5 mL polystyrene tube. The magnetically labeled unwanted cells will remain bound inside the original tube, held by the magnetic field of the EasySep™ Magnet. Leave the magnet and tube in inverted position for 2 - 3 seconds, then return to upright position. *Do not shake or blot off any drops that may remain hanging from the mouth of the tube.* The negatively selected, enriched cells in the new tube are now ready for use.

*Additional Notes:*

**Recommendations for increased recovery:** Some of the desired cells may be left behind in the original tube after pouring off the desired fraction. These cells may be recovered by resuspending the magnetically labeled cells in 2.5 mL of the recommended medium and performing an additional round of magnetic separation. The supernatant of this separation step can be combined with the primary desired fraction. This will improve recovery, but may decrease purity. Purity assessment prior to pooling is therefore recommended, especially for cell populations with low start percentages.

**C) MANUAL EASYSEP™ PROTOCOL USING "THE BIG EASY" SILVER EASYSEP™ MAGNET (CATALOG #18001).**

This procedure is used for processing **500 µL - 8.5 mL** of sample (up to  $4.25 \times 10^8$  cells).

1. Prepare cell suspension at a concentration of  $5 \times 10^7$  cells/mL in recommended medium (see Notes and Tips, reverse side). Cells must be placed in a 14 mL (17 x 100 mm) polystyrene tube to properly fit into the Silver EasySep™ Magnet.

*Falcon™ 14 mL Polystyrene Round-Bottom Tubes (BD Biosciences, Catalog #352057) are recommended.*

2. Add the EasySep™ Human NK Cell Enrichment Cocktail at **50 µL/mL cells** (e.g. for 2 mL of cells, add 100 µL of cocktail). Mix well and incubate at room temperature (15 - 25°C) for **10 minutes**.
3. Vortex the EasySep™ D Magnetic Particles for 30 seconds. Ensure that the particles are in a uniform suspension with no visible aggregates.
4. Add the EasySep™ D Magnetic Particles at **100 µL/mL cells** (e.g. for 2 mL of cells, add 200 µL of magnetic particles). Mix well and incubate at room temperature (15 - 25°C) for **5 minutes**.
5. Bring the cell suspension up to a **total volume of 5 mL** (for  $<10^8$  cells) or **10 mL** (for  $1 - 4.25 \times 10^8$  cells) by adding recommended medium. Mix the cells in the tube by gently pipetting up and down 2 - 3 times. Place the tube (without cap) into the magnet. Set aside for **2.5 minutes**.
6. Pick up the EasySep™ Magnet, and in one continuous motion invert the magnet and tube, pouring off the desired fraction into a new 14 mL polystyrene tube. The magnetically labeled unwanted cells will remain bound inside the original tube, held by the magnetic field of the EasySep™ Magnet. Leave the magnet and tube in inverted position for 2 - 3 seconds, then return to upright position. *Do not shake or blot off any drops that may remain hanging from the mouth of the tube.* The negatively selected, enriched cells in the new tube are now ready for use.

*Additional Notes:*

**Recommendations for increased recovery:** Some of the desired cells may be left behind in the original tube after pouring off the desired fraction. These cells may be recovered by resuspending the magnetically labeled cells in 5 mL (for  $<10^8$  cells) or 10 mL (for  $1 - 4.25 \times 10^8$  cells) of the recommended medium and performing an additional round of magnetic separation. The supernatant of this separation step can be combined with the primary desired fraction. This will improve recovery, but may decrease purity. Purity assessment prior to pooling is therefore recommended, especially for cell populations with low start percentages.

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## Components:

- EasySep™ Human NK Cell Enrichment Cocktail 1.0 mL
- EasySep™ D Magnetic Particles 2 x 1.0 mL



NEGATIVE SELECTION

**REQUIRED EQUIPMENT:**

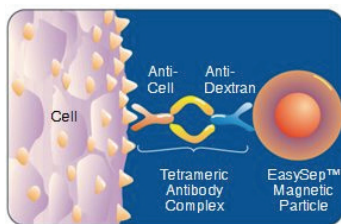
EasySep™ Magnet (Catalog #18000), or "The Big Easy" EasySep™ Magnet (Catalog #18001), or RoboSep™ (Catalog #20000).

**PRODUCT DESCRIPTION AND APPLICATIONS:**

EasySep™ Human NK Cell Enrichment Cocktail and EasySep™ D Magnetic Particles label non-NK cells for magnetic separation. These reagents are designed to enrich NK cells from fresh or previously frozen peripheral blood mononuclear cells or ammonium chloride-lysed leukapheresis by depletion of non-NK cells.

**EASYSEPTM LABELING OF HUMAN CELLS:**

Unwanted cells are specifically labeled with dextran-coated magnetic particles using bispecific Tetrameric Antibody Complexes (TAC). These complexes recognize both dextran and the cell surface antigen expressed on the unwanted cells (Figure 1). The small size of the magnetic dextran iron particles allows for efficient binding to the TAC-labeled cells. Magnetically labeled cells are then separated from unlabeled target cells using the EasySep™ procedure (reverse side).



**Figure 1.**  
Schematic Drawing of EasySep™  
TAC Magnetic Labeling of Human  
Cells.

**NOTES AND TIPS:****PREPARING THE CELL SUSPENSION****FROM WHOLE PERIPHERAL BLOOD**

Prepare a mononuclear cell suspension from whole peripheral blood by density gradient centrifugation. **For previously frozen mononuclear cells, we recommend incubating the cells with DNase I (Catalog #07900) at a concentration of 100 µg/mL for at least 15 minutes at room temperature (15 - 25°C) prior to labeling and separation.** Filter clumpy suspensions through a 30 µm mesh nylon strainer for optimal results.

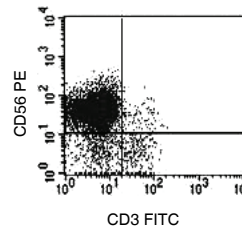
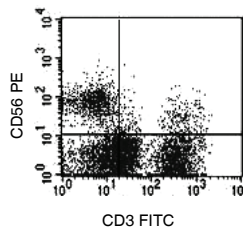
**FROM PERIPHERAL BLOOD APHERESIS (LEUKOPAK)**

If working with large volumes (>150 mL), concentrate Leukopak cells first by centrifuging at 500 x g for 10 minutes. Remove the supernatant and resuspend the cells in 1/10th of the original Leukopak volume with recommended medium (e.g. for 300 mL of cells, resuspend in 30 mL of recommended medium). For small volumes (150 mL or less), add the Ammonium Chloride Solution (Catalog #07800/07850) directly to the cell suspension.

1. Add an equal volume of Ammonium Chloride Solution to the Leukopak suspension (e.g. for 5 mL of Leukopak suspension, add 5 mL Ammonium Chloride Solution).
2. Incubate 15 minutes on ice.
3. Centrifuge at 500 x g for 10 minutes at room temperature (15 - 25°C). Remove the supernatant.
4. Wash the cells by topping up the tube with recommended medium. Centrifuge the cells at 150 x g for 10 minutes at room temperature (15 - 25°C) with the brake off. Carefully remove the supernatant.
5. Repeat the wash step one or more times until most of the platelets have been removed (indicated by a clear supernatant).
6. Resuspend cells at recommended cell concentration, in the recommended medium.

**RECOMMENDED MEDIUM.** The recommended medium is RoboSep™ Buffer (Catalog #20104), or Phosphate Buffered Saline (PBS) + 2% FBS (Catalog #07905) with 1 mM EDTA. Medium should be Ca<sup>++</sup> and Mg<sup>++</sup> free.

**ASSESSING PURITY.** Purity of NK cells can be measured by flow cytometry after staining with fluorochrome-conjugated antibodies against CD56 and CD3 (e.g. PE anti-CD56, Catalog #10526, and FITC anti-CD3, Catalog #10402). NK cells are CD56<sup>+</sup>CD3<sup>-</sup>.

**TYPICAL EASYSEPTM HUMAN NK CELL ENRICHMENT PROFILE:**Start: 10% CD56<sup>+</sup>CD3<sup>-</sup> CellsEnriched: 96% CD56<sup>+</sup>CD3<sup>-</sup> Cells

The NK cell content of the enriched fraction varies, depending on the starting sample. Starting with previously frozen mononuclear cells containing more than 10% NK cells, the NK cell content of the enriched fraction typically ranges from 73 - 95%. Purities may be lower when starting with samples containing less than 10% NK cells.

**COMPONENT DESCRIPTIONS:****EASYSEPTM HUMAN NK CELL ENRICHMENT COCKTAIL****CODE #19055C.1**

This cocktail contains a combination of monoclonal antibodies bound in bispecific Tetrameric Antibody Complexes (TAC) which are directed against cell surface antigens on human blood cells (CD3, CD4, CD14, CD19, CD20, CD36, CD66b, CD123, HLA-DR, glycoporphin A) and dextran. The mouse monoclonal antibody subclass is IgG<sub>1</sub>. It should be noted that this product is a biological reagent, and as such cannot be completely characterized or quantified. Some variability is unavoidable.

**EASYSEPTM D MAGNETIC PARTICLES****CODE #19250**

A suspension of magnetic dextran iron particles in TRIS buffer.

**STABILITY AND STORAGE:****EASYSEPTM HUMAN NK CELL ENRICHMENT COCKTAIL****EASYSEPTM D MAGNETIC PARTICLES**

Product stable at 2 - 8°C until expiry date as indicated on label. Contents have been sterility tested. Do not freeze this product. This product may be shipped at room temperature (15 - 25°C), and should be refrigerated upon receipt.