



## EasySep™ FITC Positive Selection Kit II

Positive Selection

Catalog #17682

For processing  $1 \times 10^9$  cells



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## Description

Isolate highly purified cells labeled with FITC (fluorescein isothiocyanate)-conjugated antibodies from any single-cell suspension by immunomagnetic positive selection.

- Fast and easy-to-use
- No columns required

This kit targets cells labeled with FITC-conjugated antibodies (not provided) for positive selection. Desired cells are labeled with antibodies and magnetic particles, and separated without columns using an EasySep™ magnet. Unwanted cells are simply poured off, while desired cells remain in the tube. Isolated cells are immediately available for downstream applications such as flow cytometry, cell culture, or cell-based assays.

## Component Descriptions

| COMPONENT NAME                                | COMPONENT # | QUANTITY | STORAGE                             | SHELF LIFE                                  | FORMAT   |
|---|-------------|----------|-------------------------------------|---|--|
| EasySep™ FITC Selection Cocktail              | 18152       | 1 x 1 mL | Store at 2 - 8°C.<br>Do not freeze. | Stable until expiry date (EXP)<br>on label. | A combination of monoclonal antibodies in PBS. |
| EasySep™ Dextran RapidSpheres™ 50100          | 50100       | 1 x 1 mL | Store at 2 - 8°C.<br>Do not freeze. | Stable until expiry date (EXP)<br>on label. | A suspension of magnetic particles in water.   |
| RoboSep™ Vial For Primary Conjugated Antibody | 18550       | 1 vial   | Not applicable                      | Not applicable                              | Not applicable                                 |

PBS - phosphate-buffered saline

Components may be shipped at room temperature (15 - 25°C) but should be stored as indicated above.

## Sample Preparation

Prepare a single-cell suspension.



## Recommended Medium



EasySep™ Buffer (Catalog #20144), RoboSep™ Buffer (Catalog #20104), or PBS containing 2% fetal bovine serum (FBS) and 1 mM EDTA. Medium should be free of  $Ca^{++}$  and  $Mg^{++}$ .

**Directions for Use – Manual EasySep™ Protocols**

See page 1 for Sample Preparation and Recommended Medium. Refer to Tables 1 and 2 for detailed instructions regarding the EasySep™ procedure for each magnet.

**Table 1. EasySep™ FITC Positive Selection Kit II Protocol**

|  |   | EASYSEP™ MAGNETS   |  |
|--|---|--|--|
| STEP   | INSTRUCTIONS  | <br><b>EasySep™</b><br>(Catalog #18000)   | <br><b>“The Big Easy”</b><br>(Catalog #18001)   |
| 1  | Prepare sample at the indicated cell concentration within the volume range.   | 1 x 10 <sup>8</sup> cells/mL<br>0.1 - 2.5 mL<br>NOTE: If starting with fewer than 1 x 10 <sup>7</sup> cells, resuspend cells in 0.1 mL. For samples with a starting frequency of desired cells < 2%, start with a concentration of 2 x 10 <sup>8</sup> cells/mL. | 1 x 10 <sup>8</sup> cells/mL<br>0.25 - 8 mL<br>NOTE: If starting with fewer than 2.5 x 10 <sup>7</sup> cells, resuspend cells in 0.25 mL. For samples with a starting frequency of desired cells < 2%, start with a concentration of 2 x 10 <sup>8</sup> cells/mL. |
|  | Add sample to required tube.  | 5 mL (12 x 75 mm) polystyrene round-bottom tube (e.g. Catalog #38007)  | 14 mL (17 x 95 mm) polystyrene round-bottom tube (e.g. Catalog #38008)   |
| 2  | Add species-specific FcR blocker (not provided) to sample.  | 0.5 - 3 µg/mL of sample  | 0.5 - 3 µg/mL of sample  |
| 3  | Add FITC-conjugated antibody to sample.†  | 0.3 - 3 µg/mL of sample  | 0.3 - 3 µg/mL of sample  |
|  | Mix and incubate.   | RT for 15 minutes  | RT for 15 minutes  |
| OPTIONAL WASH STEP may improve performance. Add recommended medium to top up the sample to the indicated volume and centrifuge. Resuspend sample in original volume. |   | Top up with 10-fold excess recommended medium and centrifuge. Carefully aspirate and discard supernatant. Resuspend in the same volume as step 1.  | Top up with 10-fold excess recommended medium and centrifuge. Carefully aspirate and discard supernatant. Resuspend in the same volume as step 1.  |
| 4  | Add Selection Cocktail to sample.   | 100 µL/mL of sample  | 100 µL/mL of sample  |
|  | Mix and incubate.   | RT for 15 minutes  | RT for 15 minutes  |
| 5  | Vortex RapidSpheres™. NOTE: Particles should appear evenly dispersed.   | 30 seconds   | 30 seconds   |
| 6  | Add RapidSpheres™ to sample.  | 50 µL/mL of sample <sup>§</sup>  | 50 µL/mL of sample <sup>§</sup>  |
|  | Mix and incubate.   | RT for 10 minutes <sup>‡</sup>   | RT for 10 minutes <sup>‡</sup>   |
| 7  | Add recommended medium to top up the sample to the indicated volume. Mix by gently pipetting up and down 2 - 3 times.   | Top up to 2.5 mL   | <ul style="list-style-type: none"> <li>• Top up to 5 mL for samples &lt; 1 mL</li> <li>• Top up to 10 mL for samples ≥ 1 mL</li> </ul>   |
|  | Place the tube (without lid) into the magnet and incubate.  | RT for 5 minutes*  | RT for 5 minutes*  |
| 8  | Pick up the magnet, and in one continuous motion invert the magnet and tube,** pouring off the supernatant. Remove the tube from the magnet; this tube contains the isolated cells. | Discard supernatant  | Discard supernatant  |
| 9  | Repeat steps as indicated.  | Steps 7 and 8, two more times (total of 3 x 5-minute separations)  | Steps 7 and 8, two more times (total of 3 x 5-minute separations)  |
| Continue on to next page.  |   | Continue on to next page.  | Continue on to next page.  |

|      |  | EASYSEP™ MAGNETS  |   |
|------|--|---|---|
| STEP | INSTRUCTIONS (CONTINUED)   |  <b>EasySep™</b><br>(Catalog #18000) | <b>“The Big Easy”</b><br>(Catalog #18001)  |
|      | <b>OPTIONAL ADDITIONAL SEPARATION(S)</b><br>For samples with a starting frequency of desired cells < 15%<br>NOTE: This will improve purity but may reduce recovery | Repeat steps 7 and 8, up to three more times (total of 4 - 6 x 5-minute separations)                                  | Repeat steps 7 and 8, up to three more times (total of 4 - 6 x 5-minute separations)  |
| 10   | Resuspend cells in desired medium. Be sure to collect cells from the sides of the tube.  | Isolated cells are ready for use  | Isolated cells are ready for use  |

RT - room temperature (15 - 25°C)

† Titrate FITC-conjugated antibody for optimal purity and recovery.

§ Magnetic particles may be titrated to optimize performance; a range of 25 - 75 µL/mL is recommended.

‡ Purity may be improved by decreasing magnetic particle incubation time to 5 minutes.

\* Recovery may be improved by increasing separation time in the magnet to 10 minutes for each round.

\*\* Leave the magnet and tube inverted for 2 - 3 seconds, then return upright. Do not shake or blot off any drops that may remain hanging from the mouth of the tube.

**Table 2. EasySep™ FITC Positive Selection Kit II Protocol**

|  |  | EASYSEP™ MAGNETS   |  |
|--|--|--|--|
| STEP   | INSTRUCTIONS   | EasyEights™ (Catalog #18103)   |  |
|  |  | 5 mL tube  | 14 mL tube   |
| 1  | Prepare sample at the indicated cell concentration within the volume range.  | 1 x 10 <sup>8</sup> cells/mL<br>0.1 - 2.5 mL   | 1 x 10 <sup>8</sup> cells/mL<br>0.25 - 8 mL  |
|  | Add sample to required tube.   | 5 mL (12 x 75 mm) polystyrene round-bottom tube<br>(e.g. Catalog #38007)   | 14 mL (17 x 95 mm) polystyrene round-bottom tube<br>(e.g. Catalog #38008)  |
| 2  | Add species-specific FcR blocker (not provided) to sample.   | 0.5 - 3 µg/mL of sample  | 0.5 - 3 µg/mL of sample  |
| 3  | Add FITC-conjugated antibody to sample. <sup>†</sup>   | 0.3 - 3 µg/mL of sample  | 0.3 - 3 µg/mL of sample  |
|  | Mix and incubate.  | RT for 15 minutes  | RT for 15 minutes  |
| OPTIONAL WASH STEP may improve performance. Add recommended medium to top up the sample to the indicated volume and centrifuge. Resuspend sample in original volume. |  | Top up with 10-fold excess recommended medium and centrifuge. Carefully aspirate and discard supernatant. Resuspend in the same volume as in step 1. | Top up with 10-fold excess recommended medium and centrifuge. Carefully aspirate and discard supernatant. Resuspend in the same volume as in step 1. |
| 4  | Add Selection Cocktail to sample.  | 100 µL/mL of sample  | 100 µL/mL of sample  |
|  | Mix and incubate.  | RT for 15 minutes  | RT for 15 minutes  |
| 5  | Vortex RapidSpheres™.<br>NOTE: Particles should appear evenly dispersed.   | 30 seconds   | 30 seconds   |
| 6  | Add RapidSpheres™ to sample.   | 75 µL/mL of sample <sup>§</sup>  | 75 µL/mL of sample <sup>§</sup>  |
|  | Mix and incubate.  | RT for 10 minutes <sup>‡</sup>   | RT for 10 minutes <sup>‡</sup>   |
| 7  | Add recommended medium to top up the sample to the indicated volume. Mix by gently pipetting up and down 2 - 3 times.    | Top up to 2.5 mL   | <ul style="list-style-type: none"> <li>• Top up to 5 mL for samples &lt; 1 mL</li> <li>• Top up to 10 mL for samples ≥ 1 mL</li> </ul>               |
|  | Place the tube (without lid) into the magnet and incubate.   | RT for 10 minutes  | RT for 10 minutes  |
| 8  | Carefully pipette*** (do not pour) off the supernatant. Remove the tube, containing the isolated cells, from the magnet. | Discard supernatant  | Discard supernatant  |
| 9  | Repeat steps as indicated.   | Steps 7 and 8, two more times<br>(total of 3 x 10-minute separations)  | Steps 7 and 8, two more times<br>(total of 3 x 10-minute separations)  |
| Continue on the next page.   |  | Continue on the next page.   | Continue on the next page.   |

|      |  | EASYSEP™ MAGNETS   |  |
|------|--|--|--|
| STEP | INSTRUCTIONS (CONTINUED)   | EasyEights™ (Catalog #18103)   |  |
|      |  | 5 mL tube  | 14 mL tube   |
|      | <b>OPTIONAL ADDITIONAL SEPARATION(S)</b><br>For samples with a starting frequency of desired cells < 15%<br><b>NOTE: This will improve purity but may reduce recovery.</b> | Repeat steps 7 and 8, up to three more times<br>(total of 4 - 6 x 10-minute separations) | Repeat steps 7 and 8, up to three more times<br>(total of 4 - 6 x 10-minute separations) |
| 10   | Resuspend cells in desired medium. Be sure to collect cells from the sides of the tube.  | Isolated cells are ready for use   | Isolated cells are ready for use   |

RT - room temperature (15 - 25°C)

† Titrate FITC-conjugated antibody for optimal purity and recovery.

§ Magnetic particles may be titrated to optimize performance; a range of 50 - 100 µL/mL is recommended.

‡ Purity may be improved by decreasing magnetic particle incubation time to 5 minutes.

\*\*\* Collect the entire supernatant, all at once, into a single pipette (e.g. for EasyEights™ 5 mL tube use a 2 mL serological pipette [Catalog #38002]; for EasyEights™ 14 mL tube use a 10 mL serological pipette [Catalog #38004]).

## Directions for Use – Fully Automated RoboSep™ Protocol

See page 1 for Sample Preparation and Recommended Medium. Refer to Table 3 for detailed instructions regarding the RoboSep™ procedure.

**Table 3. RoboSep™ FITC Positive Selection Kit II Protocol**

| STEP | INSTRUCTIONS  | RoboSep™<br>(Catalog #20000 and #21000)  |
|------|---|--|
| 1    | Prepare sample at the indicated cell concentration within the volume range.   | 1 x 10 <sup>8</sup> cells/mL<br>0.25 - 8 mL<br>NOTE: If starting with fewer than 2.5 x 10 <sup>7</sup> cells, resuspend cells in 0.25 mL. For samples with a starting frequency of desired cells < 2%, start with a concentration of 2 x 10 <sup>8</sup> cells/mL. |
|      | Add sample to required tube.  | 14 mL (17 x 95 mm) polystyrene round-bottom tube (e.g. Catalog #38008)   |
| 2    | Add species-specific FcR blocker (not provided) to sample and mix.  | 0.5 - 3 µg/mL of sample  |
| 3    | Select protocol.  | Any Species FITC Positive Selection 17682  |
| 4    | Transfer FITC-conjugated antibody to the RoboSep™ Vial provided.  | Use of this vial is required for RoboSep™ to run properly  |
| 5    | Vortex RapidSpheres™.<br>NOTE: Particles should appear evenly dispersed.  | 30 seconds   |
| 6    | Load the carousel.  | Follow on-screen prompts   |
|      | Start the protocol.   | Press the green "Run" button   |
| 7    | Unload the carousel when the run is complete. Remove the tube containing the isolated cells and resuspend in desired medium. Be sure to collect cells from the sides of the tube. | Isolated cells are ready for use   |

## Notes and Tips

### FcR BLOCKING ANTIBODY (NOT PROVIDED)

The FcR blocking antibody is used to prevent non-specific selection of monocytes and macrophages. A species-specific FcR blocking antibody may be required to achieve desired purities.

### OPTIMIZING PURITY

Purity can be increased, for some cell types, by decreasing the amount of EasySep™ FITC Selection Cocktail added. This may decrease recovery but will also reduce side scatter during subsequent flow cytometry analysis.

### OPTIMIZING RECOVERY

Recovery of positively selected FITC-labeled cells is dependent on the quality of the FITC-conjugated antibody used. Antibodies that have expired or that have been stored improperly may show lower affinity for the surface marker on the target cell, resulting in lower recovery.

It is important to add enough FITC-conjugated antibody to ensure a significant fluorescence intensity of the target cells, as there is a strong correlation between fluorescence intensity and cell recovery. We recommend that the fluorescence intensity of the positively selected cells be at least 100-fold (2 logarithms) greater than that of the negative control for adequate recovery.

### ASSESSING PURITY

The positively selected cells have already been FITC-labeled, so the purity can be assessed directly by flow cytometry.

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