

IMMUNOLOGY

Source, Isolate, Edit,
Culture, and Analyze
Immune Cells



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Tools for Your Immunology Research

Scientific research can be demanding, so working efficiently is essential. You need the right tools that not only save time but also make your workflow easier. From primary human cells to cell isolation kits, culture media, supplements, and antibodies, STEMCELL Technologies provides the tools you need to simplify every step of your immunology research.



STEMCELL Products for Every Step of Your Immune Cell-Based Research

| Source | Isolate | Edit | Activate, Expand, & Differentiate | Analyze |
|---|--|---|---|---|
| <ul style="list-style-type: none">• Fresh Human Cells• Cryopreserved Human Cells• ThawSTAR® | <ul style="list-style-type: none">• EasySep™• RoboSep™• RosetteSep™• SepMate™• Lymphoprep™ | <ul style="list-style-type: none">• CellPore™• ArciTect™ | <ul style="list-style-type: none">• ImmunoCult™• Cytokines• StemSpan™• STEMdiff™• Peptide Pools | <ul style="list-style-type: none">• Antibodies• ELISA Kits• GloCell™ Fixable Viability Dyes• Annexin V Dyes• Organelle Dyes |

Human Primary Cells

It All Starts with the Right Cells

Source

Isolate

Edit

Activate, Expand,
& Differentiate

Analyze

Human primary cells are isolated directly from tissues, including blood and bone marrow. These cells are increasingly recognized for their importance in the study of biological processes, disease progression, and drug development, and for applications such as in vitro cell-based assays or the creation of xenografts or humanized mouse models.

Human primary cells retain key aspects of the tissue of origin and more accurately reflect the inherent variability between donors as compared to cell lines, including human leukocyte antigen (HLA) type and cytomegalovirus (CMV) status. The use of human primary cells increases the physiological relevance of cell culture systems, enabling you to generate meaningful data more predictive of in vivo outcomes. This approach reduces the need for extensive in vivo validation and helps to facilitate the translation of basic research into preclinical or clinical applications.

Using the right primary cells as the foundation for your experiments is the first step toward success in your research. Choose from a wide range of fresh or cryopreserved human primary cells isolated from peripheral blood (PB), cord blood, bone marrow, and mobilized peripheral blood.^{1,2}

Cryopreserved immune and progenitor cells isolated from full-size leukopaks (leukapheresis preparations), umbilical cords, or bone marrow are ready to use upon receipt. For users requiring fresh, unprocessed tissue samples, whole peripheral blood, mobilized peripheral blood, whole bone marrow, leukocyte reduction system (LRS) cones, and normal and mobilized leukopaks are also available.³

Why Use Human Primary Cells from STEMCELL Technologies?

PHYSIOLOGICALLY RELEVANT. Choose cells that are more physiologically representative of cells in vivo.

ETHICALLY SOURCED. Access donor samples collected using regulatory authority-approved consent forms and protocols.

CUSTOMIZABLE. Request custom products for non-standard cell types or collections with specific requirements.

FLEXIBLE. Reserve large numbers of cryopreserved cells and start experiments on your schedule with cells you've already tested.

EFFICIENT. Reduce time spent collecting and culturing primary cells.



Video

Leukopak Processing Video

www.stemcell.com/Leukopak-Video



Figure 1. Human Primary Cell Products

(A) Fresh Mobilized Leukopak, G-CSF (Catalog #200-0604) from donor mobilized with G-CSF (NEUPOGEN®) or filgrastim, (B) Fresh Leukopak (Catalog #70500) from normal donor and (C) Frozen Leukopak (Catalog #200-0130) from a normal donor, containing peripheral blood mononuclear cells (PBMCs) enriched using the Spectra Optia® Apheresis System.

1. Certain cryopreserved products are only available in select territories. Please contact Product and Scientific Support (techsupport@stemcell.com) for further information.

2. Fresh products currently available in the United States, Canada (excluding Quebec), the United Kingdom, and parts of Europe.

3. **Bone Marrow and Peripheral Blood Products (Normal Leukopaks, Whole Blood, Purified Cells, and LRS Cones) - Fresh Products:** Donors are screened for HIV-1, HIV-2, hepatitis B, and hepatitis C. Donors in the UK are also screened for HTLV III and syphilis. If the donor has been screened within 90 days prior to donation and the results are negative, the product will be shipped with the negative test result and date of most recent viral testing on the Certificate of Analysis (CoA). If the donor has not been screened within 90 days prior to collection, a test sample will be taken at the time of collection and the product will be shipped before the screening results are available. In the event that a test result is positive, the customer will be contacted as soon as possible (usually within 2 - 4 business days from the time of shipment, and within 4 - 7 business days in the case of fresh LRS cones).

Mobilized Peripheral Blood Leukopaks: For fresh mobilized leukopaks, donors are screened for HIV-1, HIV-2, hepatitis B, hepatitis C, HTLV III, Syphilis, and WNV. If the donor has been screened within 90 days prior to donation and the results are negative, the product will be shipped with the negative test result and date of most recent viral testing on the Certificate of Analysis (CoA). If the donor has not been screened within 90 days prior to collection, a test sample will be taken at the time of collection and the product will be shipped before the screening results are available. In the event that a test result is positive, the customer will be contacted as soon as possible (usually within 2 - 4 business days from the time of shipment).

Normal Leukopaks, Whole Blood, Purified Cells, and Bone Marrow - Cryopreserved Products: Donors are screened for HIV-1, HIV-2, hepatitis B, and hepatitis C. Donors in the UK are also screened for HTLV III and syphilis. If the donor has tested negative within 90 days prior to donation, the product will be shipped with the negative test result and date of the most recent viral testing on the CoA.

Cord Blood Products - Cryopreserved Products: Testing for HIV-1, HIV-2, hepatitis B, and hepatitis C is performed on a sample of maternal blood and/or donated cord blood. Products with negative test results from the donor screening are shipped with the CoA.

Cancer Blood Products - Fresh and Cryopreserved: Cancer patient donors are screened once initially for HIV-1, HIV-2, hepatitis B, and hepatitis C, with the test date and results recorded on the CoA. Only products with negative test results are shipped.

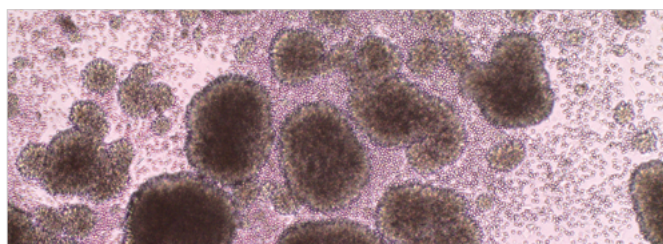


Figure 2. Human T Cells Isolated from a Leukopak

T cells isolated using the EasySep™ Human T Cell Isolation Kit (Catalog #17951), stimulated with ImmunoCult™ Human CD3/CD28 T Cell Activator (Catalog #10971), and cultured in ImmunoCult™-XF T Cell Expansion Medium (Catalog #10981).

All human primary cell products are ethically sourced using consent forms and protocols approved by either an Institutional Review Board, the Food and Drug Administration, the US Department of Health and Human Services, and/or an equivalent regulatory authority. Donations performed in the United States are in compliance with applicable federal, state, and local laws, regulations, and guidance. Cells sourced in the UK are collected using protocols and ICFs approved by the National Health Service (and Health Research Authority) Research Ethics Committee (REC) or equivalent agency. Donors are pre-screened for general health and viral status, including HIV-1, HIV-2, hepatitis B, and hepatitis C¹. Additional screening or analysis is available upon request. Our Quality Assurance, Quality Control, and Regulatory Affairs departments are ready to assist you with any necessary documentation to meet specific institutional requirements.

Peripheral Blood Mononuclear Cells

PBMCs include lymphocytes, monocytes, dendritic cells, and hematopoietic progenitors and can be used in a variety of cell-based assays.^{2,3} Large lots of cryopreserved PBMCs and purified cells are produced by processing entire full-size leukopaks. PBMC lot sizes are typically greater than 50 vials of 1×10^8 cells per vial, making it possible to reserve large numbers of vials from the same lot, thereby ensuring consistency across multiple experiments.



E-Book

Blood Sample Preparation E-Book

www.stemcell.com/forms/Blood-Sample-Preparation-E-Book.html



Figure 3. Human Peripheral Blood Mononuclear Cells, Frozen

Primary human mononuclear cells (MNCs; Catalog #70025) isolated from peripheral blood (PB) leukapheresis samples using density gradient separation and/or red blood cell lysis.

Normal PBMCs

Obtain cryopreserved PBMCs from a large donor pool with high-resolution HLA typing (A, B, C, DRB1, DRB3/4/5, and DQB1) and CMV status available upon request.

Diseased State PBMCs

Access cryopreserved PBMCs isolated from donors with⁴:

- **Autoimmune and inflammatory disorders:** amyotrophic lateral sclerosis (ALS), ankylosing spondylitis, autoimmune hepatitis, celiac disease, Crohn's disease, Graves' disease, Hashimoto's disease, Hidradenitis suppurativa, inflammatory myopathy, irritable bowel syndrome (IBS), lupus, myasthenia gravis, multiple sclerosis, osteoarthritis, psoriasis, rheumatoid arthritis, scleroderma, Sjogren's syndrome, type 1 interferonopathy, ulcerative colitis, vasculitis, and others.
- **Cancer:** hematopoietic malignancies, including acute myeloid leukemia (AML), myelofibrosis (MF), diffuse large B cell lymphoma (DLBCL), follicular lymphoma (FL), multiple myeloma (MM), chronic myelogenous leukemia (CML), acute lymphoblastic leukemia (ALL), chronic lymphocytic leukemia (CLL), and mantle cell lymphoma (MCL), and solid tumors, including liver, lung, breast, cervical, melanoma, ovarian, bladder, prostate, esophageal, colorectal, head & neck, gastric, kidney, pancreatic, and endometrial cancers.
- **Diabetes:** Type I and Type II
- **Lung disorders:** asthma and chronic obstructive pulmonary disease (COPD)



Figure 4. Diseased Human Peripheral Blood Products, Lung Cancer

(A) PBMCs, Frozen (Catalog #200-0444), (B) Peripheral Blood Leukopak Collection, Fresh (Catalog #200-0300), and (C) Whole Peripheral Blood Collection, Heparin⁵, Fresh (Catalog #200-0270). Diseased human PB products are obtained from donors diagnosed with cancer using Institutional Review Board (IRB)-approved consent forms and protocols.

See pages 33 - 38 for a complete listing of mononuclear cells, isolated subsets, plasma, serum, and unprocessed tissues from normal and diseased donors, or visit www.stemcell.com/PrimaryCells.

1. **Bone Marrow and Peripheral Blood Products: Normal Leukopaks, Whole Blood, Purified Cells, and LRS Cones - Fresh Products:** Donors are screened for HIV-1, HIV-2, hepatitis B, and hepatitis C. Donors in the UK are also screened for HTLV III and syphilis. If the donor has been screened within 90 days prior to donation and the results are negative, the product will be shipped with the negative test result and date of most recent viral testing on the Certificate of Analysis (CoA). If the donor has not been screened within 90 days prior to collection, a test sample will be taken at the time of collection and the product will be shipped before the screening results are available. In the event that a test result is positive, the customer will be contacted as soon as possible (usually within 2 - 4 business days from the time of shipment, and within 4 - 7 business days in the case of fresh LRS cones). **Mobilized Peripheral Blood Leukopaks - Fresh Products:** For fresh mobilized leukopaks, donors are screened for HIV-1, HIV-2, hepatitis B, hepatitis C, HTLV-II-II, Syphilis, and WNV. If the donor has been screened within 90 days prior to donation and the results are negative, the product will be shipped with the negative test result and date of most recent viral testing on the Certificate of Analysis (CoA). If the donor has not been screened within 90 days prior to collection, a test sample will be taken at the time of collection and the product will be shipped before the screening results are available. In the event that a test result is positive, the customer will be contacted as soon as possible (usually within 2 - 4 business days from the time of shipment). **Normal Leukopaks, Whole Blood, Purified Cells, and Bone Marrow - Cryopreserved Products:** Donors are screened for HIV-1, HIV-2, hepatitis B, and hepatitis C. Donors in the UK are also screened for HTLV III and syphilis. If the donor has tested negative within 90 days prior to donation, the product will be shipped with the negative test result and date of the most recent viral testing on the CoA. Cord Blood Products - Cryopreserved Products: Testing for HIV-1, HIV-2, hepatitis B, and hepatitis C is performed on a sample of maternal blood and/or donated cord blood. Products with negative test results from the donor screening are shipped with the CoA. Cancer Blood Products - Fresh and Cryopreserved: Cancer patient donors are screened once initially for HIV-1, HIV-2, hepatitis B, and hepatitis C, with the test date and results recorded on the CoA. Only products with negative test results are shipped.
2. Certain cryopreserved products are only available in select territories. Please contact Product and Scientific Support (techsupport@stemcell.com) for further information.
3. High-resolution HLA typing and CMV status are available upon request.
4. Diseased states indicate PBMCs obtained from donors diagnosed with given condition.
5. Heparin - sodium heparin.

Cell Isolation

Simplify Your Workflow with Highly Purified Cells

Source

Isolate

Edit

Activate, Expand,
& Differentiate

Analyze

Ensure your isolated cells are viable, highly purified, and suitable for downstream functional and biological studies using STEMCELL Technologies' column-free cell separation technologies. Easily and efficiently isolate high-quality cells from virtually any sample source, including peripheral blood mononuclear cells, spleen, whole blood, bone marrow, and leukopaks.



EasySep™

Simplified Immunomagnetic Cell Isolation

EasySep™ isolates cells easily and efficiently without the use of columns in as little as 8 minutes. With a simple pour, isolated cells are immediately ready for downstream use.



RoboSep™

Fully Automated Immunomagnetic Cell Isolation

RoboSep™-S and RoboSep™-16 fully automate all cell labeling and separation steps of the EasySep™ procedure, minimizing sample handling and freeing up technician time.



SepMate™

Hassle-Free PBMC Isolation

SepMate™ simplifies mononuclear cell isolation during density gradient centrifugation by eliminating the need to carefully layer samples or pipette off isolated cells. SepMate™ is suitable for in vitro diagnostic (IVD) applications.¹



RosetteSep™

Unique Immunodensity Cell Isolation

RosetteSep™ isolates highly purified cells directly from human whole blood during density gradient centrifugation, reducing your cell isolation workflow to a single step.

1. SepMate™ is available as an in vitro diagnostic (IVD) device for the isolation of mononuclear cells from human whole blood or bone marrow by density gradient centrifugation in Canada, the United States, Europe, and Australia. In all other regions, SepMate™ is available for research use only. Refer to page 18 for more information.



EasySep™ is a powerful immunomagnetic cell isolation platform that combines the specificity of monoclonal antibodies with the simplicity of a column-free magnetic system, offering easy and fast isolation of highly purified cell populations that are immediately ready for a wide range of downstream applications. EasySep™ protocols are optimized to minimize hands-on time, making cell isolation simpler and more efficient. This versatile technology supports positive selection, negative selection, or cell depletion and can be used to isolate cells in as little as 8 minutes from a variety of species (e.g. human, mouse, non-human primate, and rat) and sample sources, including splenocytes, lymph nodes, PBMCs, whole blood, leukopaks, cord blood, and bone marrow.



Video

Simplified Cell Isolation with EasySep™

www.stemcell.com/EasySepVideo

How Does EasySep™ Magnetic Separation Work?

Cells are targeted either for removal (negative selection and depletion) or positive selection using antibody complexes directed to specific cell surface antigens. The antibody complexes link targeted cells to EasySep™ magnetic particles. Labeled cells are pulled to the sides of the tube when the sample is placed in an EasySep™ cell isolation magnet, while untouched cells can be simply poured or pipetted off into a new tube. EasySep™ technology is column-free, reducing mechanical stress on cells and helping to preserve their functionality and viability.

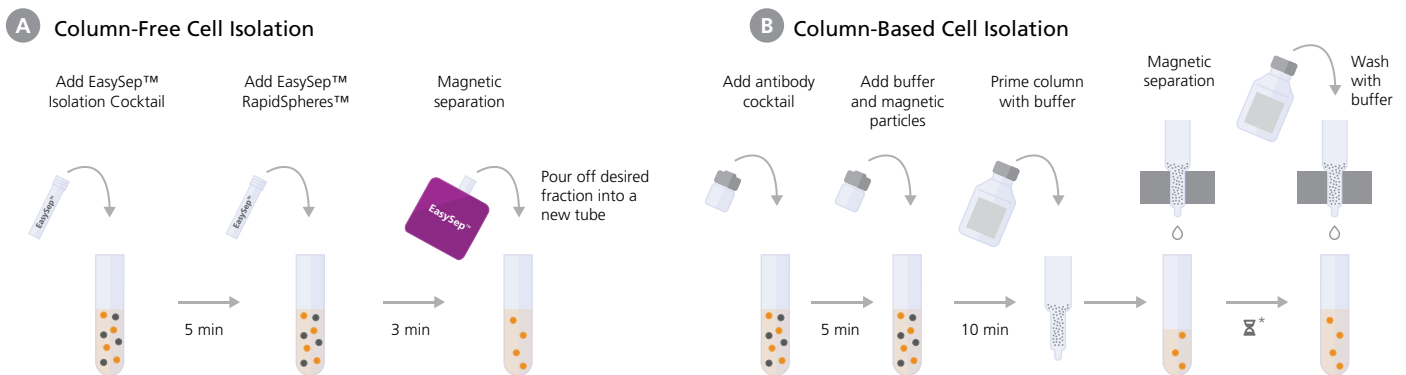




Figure 5. Comparison of Two Different Immunomagnetic Cell Isolation Protocols

Steps involved in the isolation of human T cells by negative selection using two different immunomagnetic cell isolation technologies are shown: (A) column-free EasySep™ technology (time taken may vary depending on the type of magnet used) and (B) a commercially available column-based technology (*elution time varies).

Why Use EasySep™ to Isolate Cells?

- EASY & EFFICIENT.** Isolate cells in as little as 8 minutes, with a simple pour.
- HIGH PURITY.** Achieve up to 99% cell purity with high recovery.
- COLUMN-FREE.** Obtain viable, functional cells without the need for columns and washes.
- VERSATILE.** Isolate cells from virtually any sample source, including whole blood and leukopaks.
- PROVEN.** Widely used in published research for over 20 years, supporting diverse downstream applications.

EasySep™ Magnets

| | EasySep™ Magnet ¹ | "The Big Easy" EasySep™ Magnet ² | Easy 50 EasySep™ Magnet | Easy 250 EasySep™ Magnet | EasyEights™ EasySep™ Magnet | EasyPlate™ EasySep™ Magnet |
|---|---|---|---|---|--|---|
| |  |  |  |  |  |  |
| Catalog # | 18000 | 18001 | 18002 | 100-0821 | 18103 | 18102 |
| Number of Samples | 1 | 1 | 1 | 1 | 8 on each side = 16 total | 96 |
| Start Sample Cell Number Range ³ | 0.1 - 2.5 x 10 ⁸ cells per 5 mL tube | 0.2 - 10 x 10 ⁸ cells per 14 mL tube | 0.5 - 20 x 10 ⁸ cells per 50 mL tube | 2.0 - 12.5 x 10 ⁹ cells | 0.125 - 2.0 x 10 ⁸ cells per 5 mL tube 0.25 - 8.0 x 10 ⁸ cells per 14 mL tube | 0.025 - 0.2 x 10 ⁸ cells per well |
| Collection Method | Pour off | Pour off | Pipette off | Pipette off | Pipette off | Pipette off |

1. Multiple EasySep™ magnets can be used together with the EasySep™ Multistand (Catalog #18010) for processing up to 4 samples simultaneously or with up to 6 EasySep™ EasyStands™ (Catalog #18130) for processing up to 6 samples (see page 59).

2. Multiple "The Big Easy" EasySep™ magnets can be used together with the EasySep™ Multistand (Catalog #18010) for processing up to 4 samples simultaneously (see page 59).

3. Minimum and maximum cell number range and volumes depend on the cell isolation kit, sample source, cell type being isolated, and flasks used during isolation.



Experience EasySep™: Request a Sample

Curious About How EasySep™ Can Simplify Your Research?

www.stemcell.com/EasySepSample

EasySep™ for Mouse Cells

Immunomagnetic Cell Isolation in as Little as 15 Minutes

EasySep™ kits, designed for ease of use, are available for the isolation of mouse cells in as little as 15 minutes from a variety of sample sources, including spleen, bone marrow, lymph nodes, and whole blood. Our EasySep™ negative selection kits use biotinylated antibodies to target unwanted cells, while positive selection kits use an antibody complex to select cells of interest.

Typical EasySep™ Mouse Cell Isolation Protocol (Negative Selection)

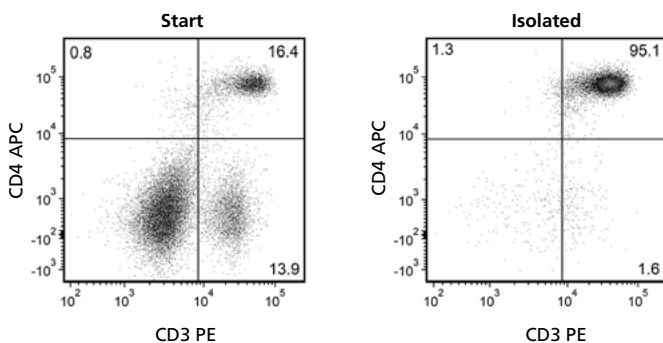
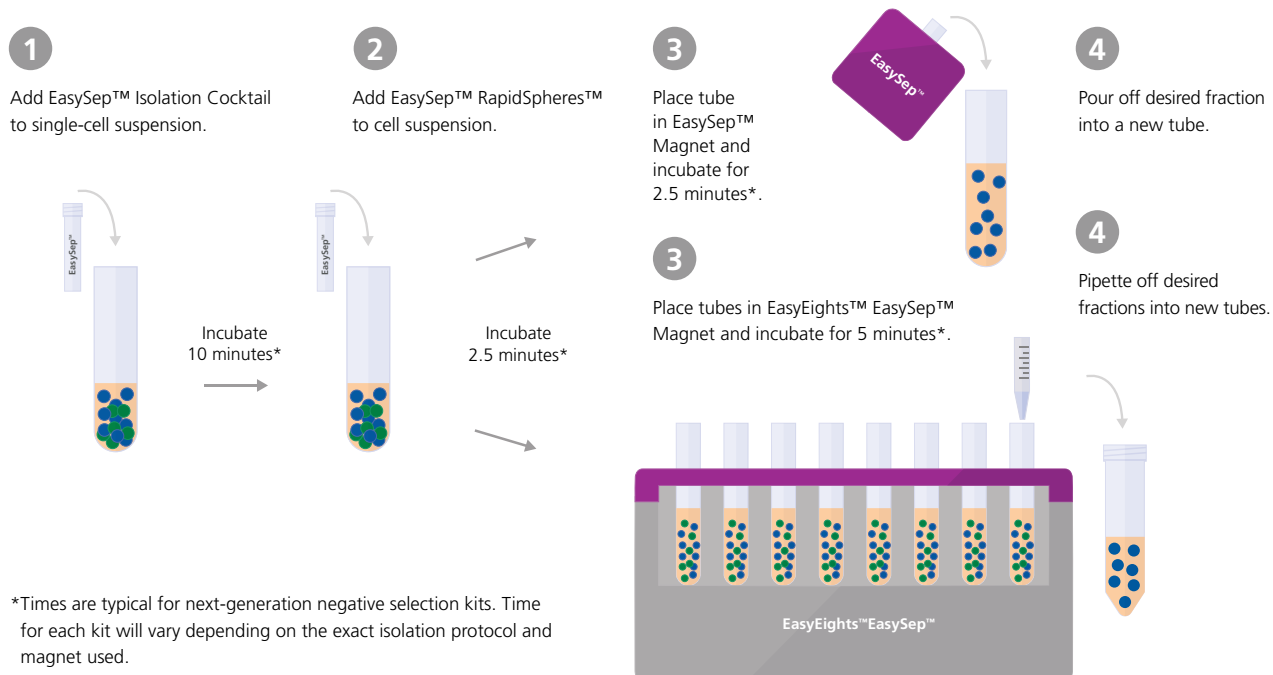


Figure 6. EasySep™ Mouse CD4+ T Cell Isolation Kit (Catalog #19852)

Starting with mouse splenocytes, the CD4+ T cell content (CD3+CD4+) of the isolated fraction is $95.4 \pm 3\%$ (mean \pm SD using the purple EasySep™ magnet). In the above example, the purities of the start and isolated CD3+CD4+ fractions are 16.4% and 95.1%, respectively.

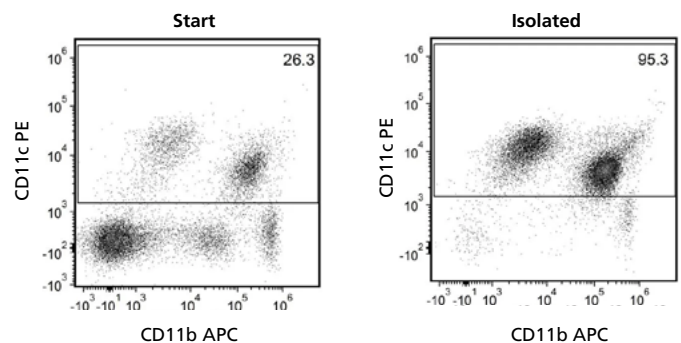


Figure 7. EasySep™ Mouse F4/80 Positive Selection Kit (Catalog #100-0659)

Starting with a naïve mouse lung single-cell suspension, the F4/80+ cell content of the isolated fraction is typically $94.3 \pm 2.8\%$ (mean \pm SD using the purple EasySep™ magnet). In the above example, the purities of the start and final isolated fractions are 26.3% and 95.3%, respectively.

EasySep™ for Human Cells

Immunomagnetic Cell Isolation in as Little as 8 Minutes

EasySep™ kits, designed for ease of use, are available for the isolation of human cells from a variety of sample sources, including peripheral blood mononuclear cells (PBMCs), whole blood, leukopaks, bone marrow, and cord blood. Cells of interest are targeted with antibody complexes and magnetic particles for negative or positive selection. Isolate highly purified, untouched, functional human immune cells in as little as 8 minutes with our next-generation EasySep™ cell isolation kits.



Free On-Demand Training

Human Immune Cell Isolation Course

www.stemcell.com/forms/On-Demand-Human-Immune-Cell-Isolation-Training.html

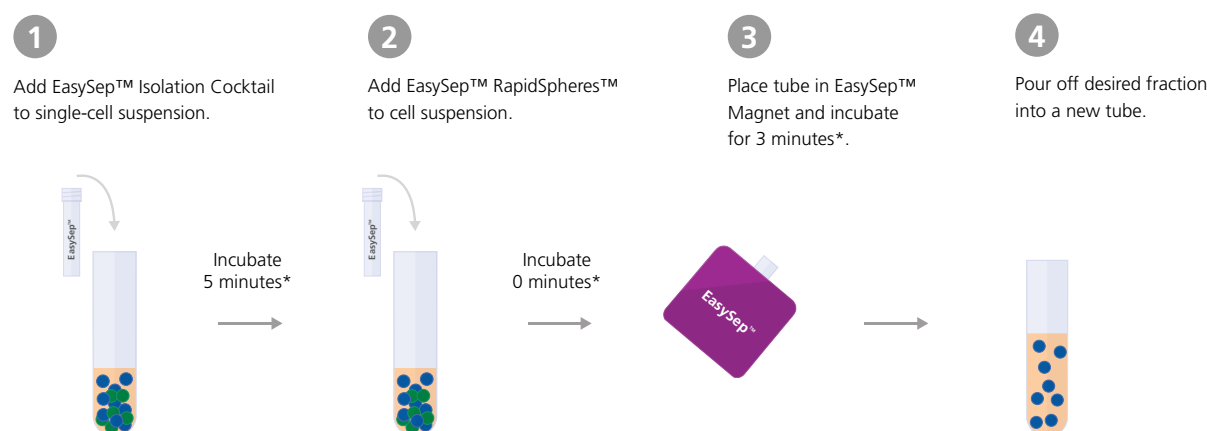
Did You Know?

There are more cell isolation options than ever with EasySep™.

EasySep™ Direct: isolate cells straight from whole blood without the need for lysis or centrifugation.

EasySep™ Release: isolate unique and rare cell types by quickly and easily removing magnetic particles from positively selected cells.

Typical EasySep™ Human Cell Isolation Protocol (Negative Selection)



*Times are typical for next-generation negative selection kits. Time for each kit will vary depending on the exact isolation protocol and magnet used. No particle incubation step is required for next-generation negative selection protocols.

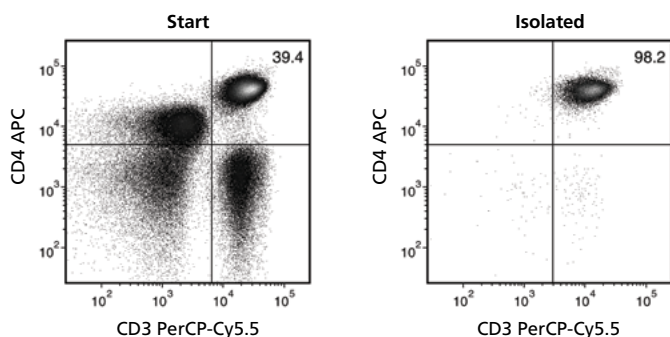


Figure 8. EasySep™ Human CD4+ T Cell Isolation Kit (Catalog #17952)

Starting with human peripheral blood mononuclear cells, the CD4+ T cell (CD3+CD4+) content of the isolated fraction is typically $94.8 \pm 2.3\%$ (mean \pm SD; gated on viable singlet cells). In the example above, the purities of the start and isolated fractions are 39.4% and 98.2%, respectively.

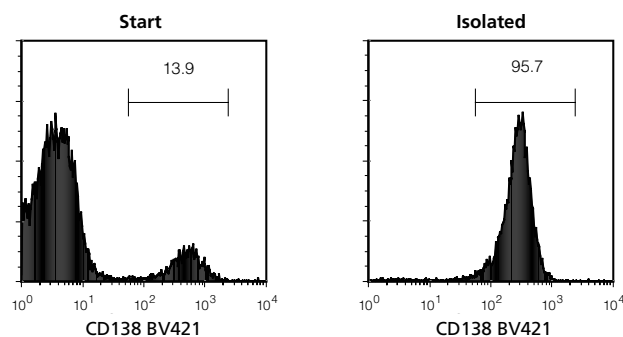


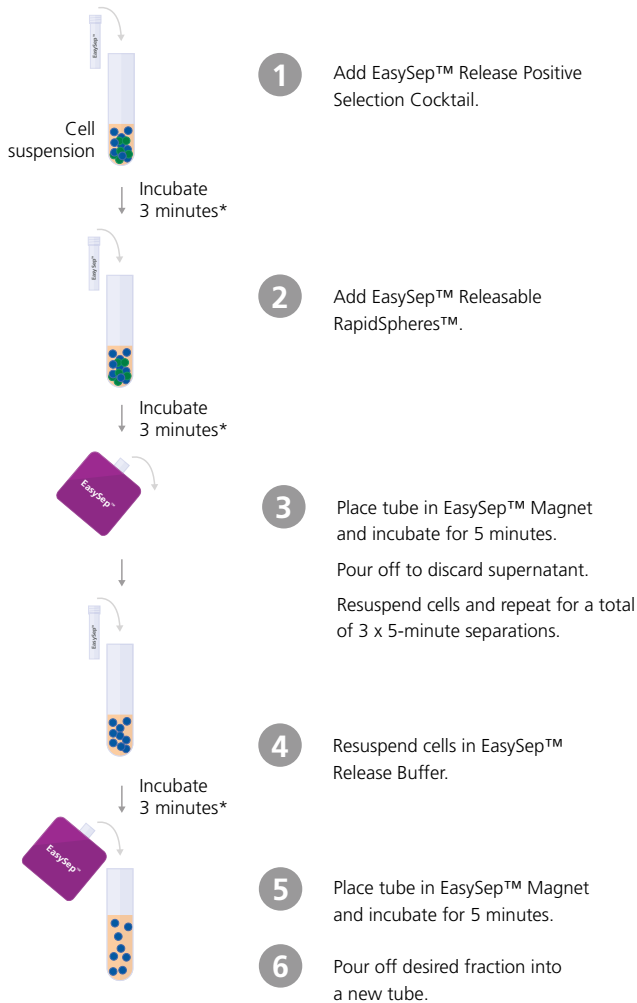
Figure 9. EasySep™ Human Whole Blood and Bone Marrow CD138 Positive Selection Kit II (Catalog #17887)

Starting with fresh whole blood spiked with a multiple myeloma cell line, U266, the CD138+ cell content of the selected fraction typically ranges from 83.7 - 98.3%. In the above example, the purities of the start and final isolated fractions are 13.9% and 95.7%, respectively.

EasySep™ Release

EasySep™ Release allows for the positive selection of human immune cells followed by the release of bound magnetic particles from your highly purified, isolated cells.

Typical EasySep™ Release Protocol



*Times are typical for EasySep™ Release kits. Times for each kit will vary depending on the exact isolation protocol.

Why Use EasySep™ Release?

PARTICLE-FREE. Culture and analyze your positively selected cells without magnetic particles.

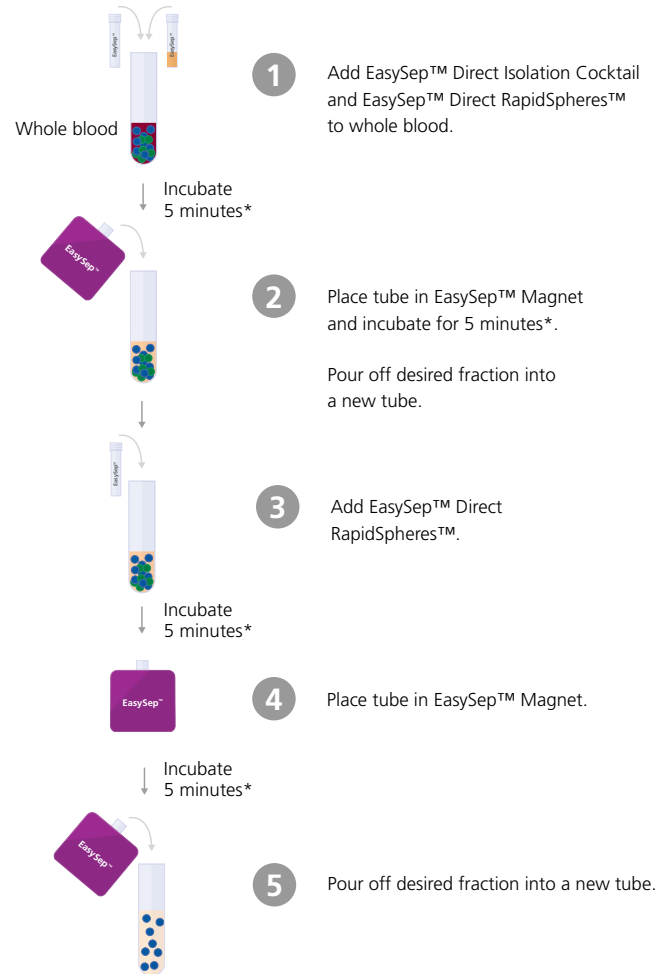
FLEXIBLE. Perform sequential positive selections to isolate unique and complex cell types.

FAST AND EASY. Obtain highly purified cells free of magnetic particles in under 30 minutes.

EasySep™ Direct

EasySep™ Direct immunomagnetically depletes red blood cells and unwanted cells in a single step without density gradient centrifugation, sedimentation, RBC lysis, or other pre-processing steps.

Typical EasySep™ Direct Protocol



*Times are typical for EasySep™ Direct kits. Times for each kit will vary depending on the exact isolation protocol.

Why Use EasySep™ Direct?

GENTLE. Isolate cells directly from whole blood without the need for lysis or centrifugation.

COLUMN-FREE. Eliminate the risk of columns clogging and obtain viable, functional cells.

HIGH PURITY. Obtain highly purified cells that are immediately available for downstream applications.

Scale Up Your Cell Isolations

With the Easy 250 EasySep™ Magnet



Scale up your manual cell isolations and obtain cells from large-volume samples such as full-size leukopaks and whole blood with the Easy 250 EasySep™ Magnet. Rather than splitting your cell suspension and performing multiple rounds of isolations, with the Easy 250 EasySep™ Magnet, you can process up to 225 mL and 12.5×10^9 cells in a single isolation step in as little as 20 minutes. Use this magnet with a standard T-75 cm² cell culture flask and EasySep™ reagents to speed up cell isolation from large-volume samples. The isolated cells are immediately ready for downstream applications.

Obtain purities of up to 99% for human cell types isolated from large sample volumes, including:

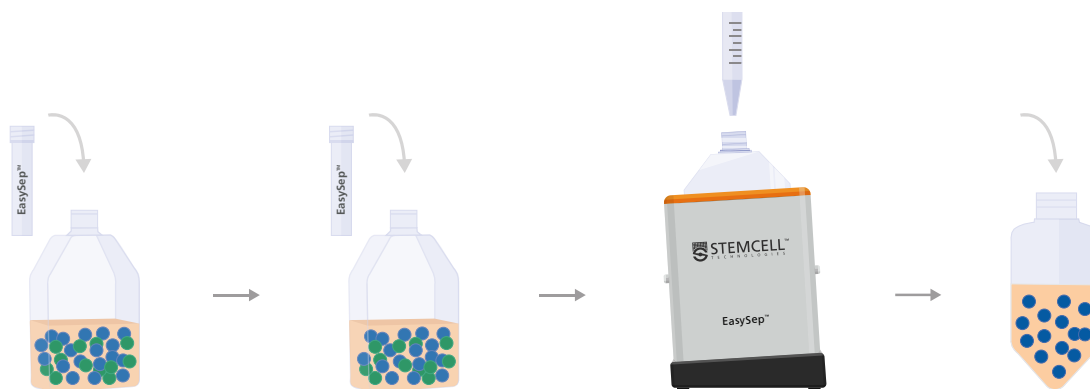
- T cells and T cell subsets
- B cells
- Monocytes
- Natural killer cells
- Peripheral blood mononuclear cells
- And more!

How Do You Use the Easy 250 EasySep™ Magnet?

Manual cell isolations from large-volume samples can be scaled up using the Easy 250 EasySep™ Magnet with a standard T-75 cm² cell culture flask and EasySep™ reagents.

Typical Easy 250 EasySep™ Magnet Cell Isolation Protocol (Negative Selection)

- 1** Add EasySep™ Isolation Cocktail to single-cell suspension in a T-75 cm² flask.
Incubate for 5 minutes*
- 2** Add EasySep™ RapidSpheres™ to cell suspension.
Place the T-75 cm² flask in EasySep™ Magnet.
- 3** Incubate for 10 minutes*.
Pipette off desired fractions into a new T-75 cm² flask, place it in EasySep™ Magnet, and incubate for 5 minutes*.
- 4** Pipette off desired fraction into a new tube.
Cells are ready for downstream applications.



*Times are typical for next-generation negative selection kits. Time for each kit will vary depending on the exact isolation protocol used.

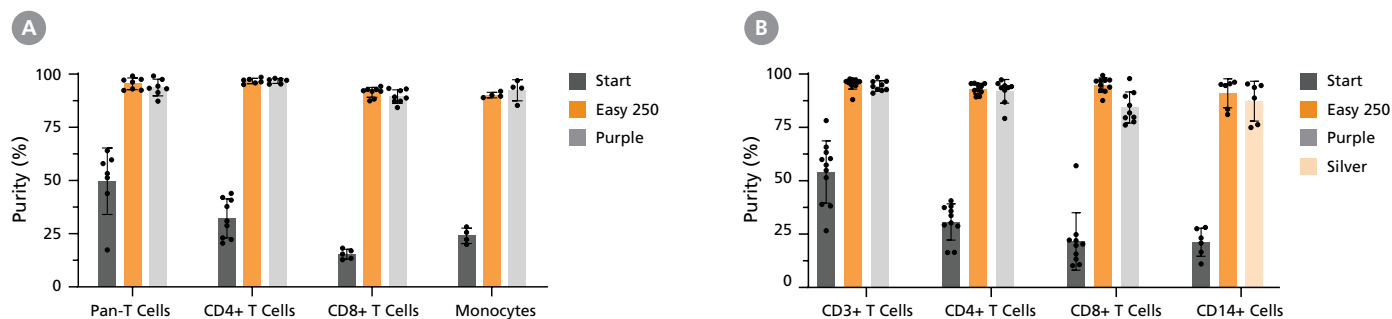


Figure 10. Using the Easy 250 EasySep™ Magnet Results in the Isolation of Highly Purified Cells of Interest

Human immune cells were isolated from processed leukopaks using the corresponding (A) EasySep™ negative selection kits or (B) EasySep™ positive selection kits (see Table 1). Cell purity was measured before isolation (Start) and after isolation with the Easy 250 EasySep™ Magnet (Easy 250), EasySep™ Magnet (Purple) or “The Big Easy” EasySep™ Magnet (Silver). Purity was assessed by staining with cell surface markers for pan-T cells (CD3+), CD4+ T cells (CD3+CD4+), CD8+ T cells (CD3+CD8+), or monocytes (CD14+CD45+), and analyzed by flow cytometry. Data shown as mean \pm SD; n = 4 - 12.



Product

Request a Free Easy 250 EasySep™ Magnet Demo

www.stemcell.com/forms/Demo-Easy250.html

Immune Cells Isolated with EasySep™

Viable and Functional Cells for Your Immunology Research

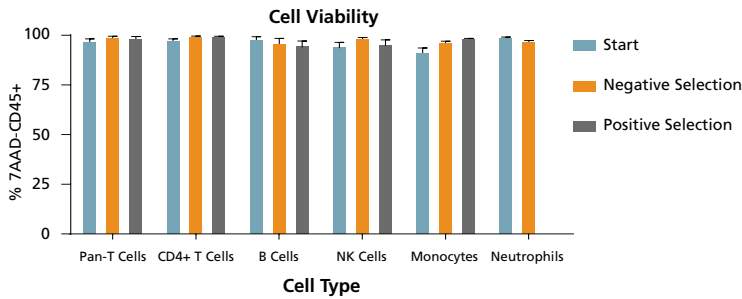


Figure 9. Cells Isolated Using EasySep™ Show Comparable Viability to Starting Samples

Immune cells were isolated from processed leukapheresis or peripheral blood samples using EasySep™ positive selection or negative selection kits. Pre- and post-isolation samples were stained with the cell viability dye 7-AAD and appropriate cell surface markers, and were assessed by flow cytometry. Cells isolated using EasySep™ showed no significant decrease in viability compared to the starting samples. Data shown as mean ± SEM; n = 3 - 7.

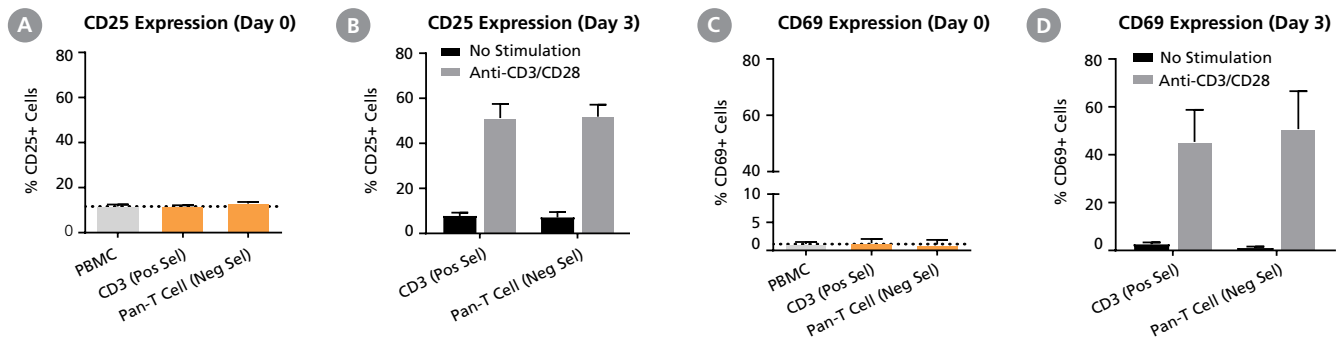


Figure 11. Human T Cells Isolated Using EasySep™ Show Appropriate Activation Status

T cells isolated from PBMCs using EasySep™ positive selection ("Pos Sel") or negative selection ("Neg Sel") kits were assessed for CD25 and CD69 expression immediately after isolation (Day 0) and after 3 days in culture with or without CD3/CD28 stimulation. (A,C) At Day 0, isolated T cells express similar levels of CD25 and CD69 compared to unmanipulated CD3+ PBMCs. (B,D) At Day 3, cells remain unactivated in the absence of stimulation, and upregulate activation markers CD25 and CD69 when stimulated. Data shown as mean ± SEM.

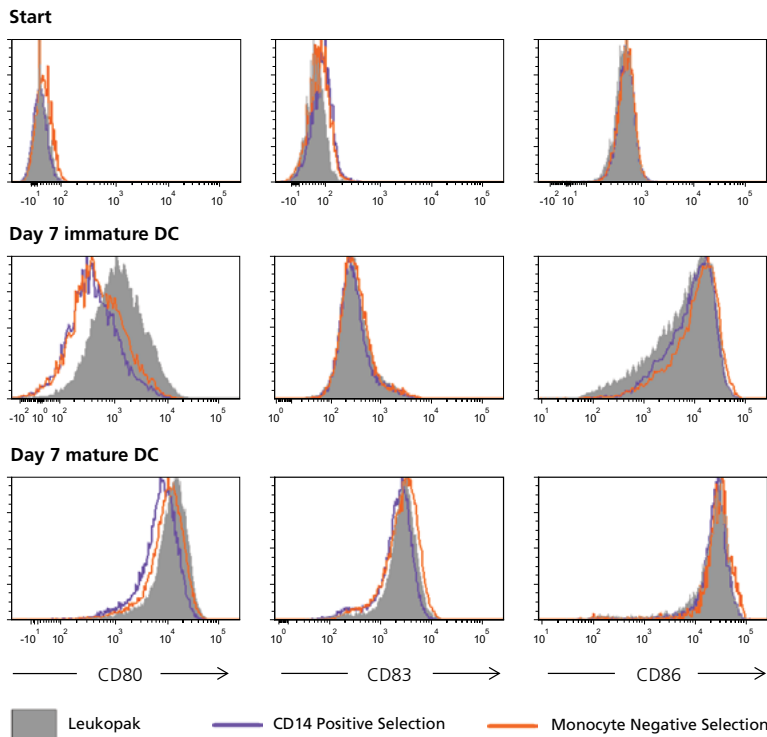


Figure 12. Human Monocytes Isolated Using EasySep™ Differentiate and Mature Appropriately upon Stimulation

Human monocytes were isolated using EasySep™ or competitor products and then cultured and differentiated into mature dendritic cells (DCs). On Day 0, cells from a leukopak were plated and monocytes were adherence selected for 2 hours. Non-adherent cells were washed away and adherent cells were cultured for 7 days. On Day 5, cells were cultured with maturation supplement for 2 days (mature DCs) or without maturation supplement (immature DCs). The expression of CD80, CD83, and CD86 in immature and mature DCs was determined by flow cytometry. At Day 7, cells expressed the mature DC markers CD80, CD83, and CD86.

Gene Expression Profiling of Immune Cells Isolated with EasySep™

Pre-enriching your samples with EasySep™ can make your next-generation sequencing workflow more efficient by improving the sequencing coverage in your cells of interest, saving you time and money.

Cells isolated using EasySep™ kits are fully compatible with next-generation sequencing workflows, including library preparation, amplification, and sequencing, resulting in high-quality reads (Table 1). Gene expression of CD4+ T cells isolated using EasySep™ are similar to the PBMC control (Figure 13), indicating that EasySep™ cell isolation protocols do not introduce artifacts that affect gene expression.

Table 1. Using the 10x Genomics Chromium™ Platform to Compare Single-Cell Gene Expression Profiles of EasySep™-Isolated CD4+ Cells to PBMC Controls

| | PBMC Control | Positive Selection ^a | Negative Selection ^b | Positive Selection with Particle Release ^c |
|----------------------------|--------------|---------------------------------|---------------------------------|---|
| Reads Mapped to Genome (%) | 88.70% | 90.60% | 88.40% | 91.10% |
| Valid Barcodes (%) | 96.90% | 97.00% | 96.90% | 96.90% |
| Q30 Bases in Barcode (%) | 96.70% | 96.80% | 96.70% | 96.80% |

Human CD4+ cells were isolated by negative selection or positive selection using a variety of EasySep™ kits containing different types of magnetic particles:

^aEasySep™ Dextran RapidSpheres™

^bEasySep™ D Magnetic Particles

^cEasySep™ Releasable RapidSpheres™

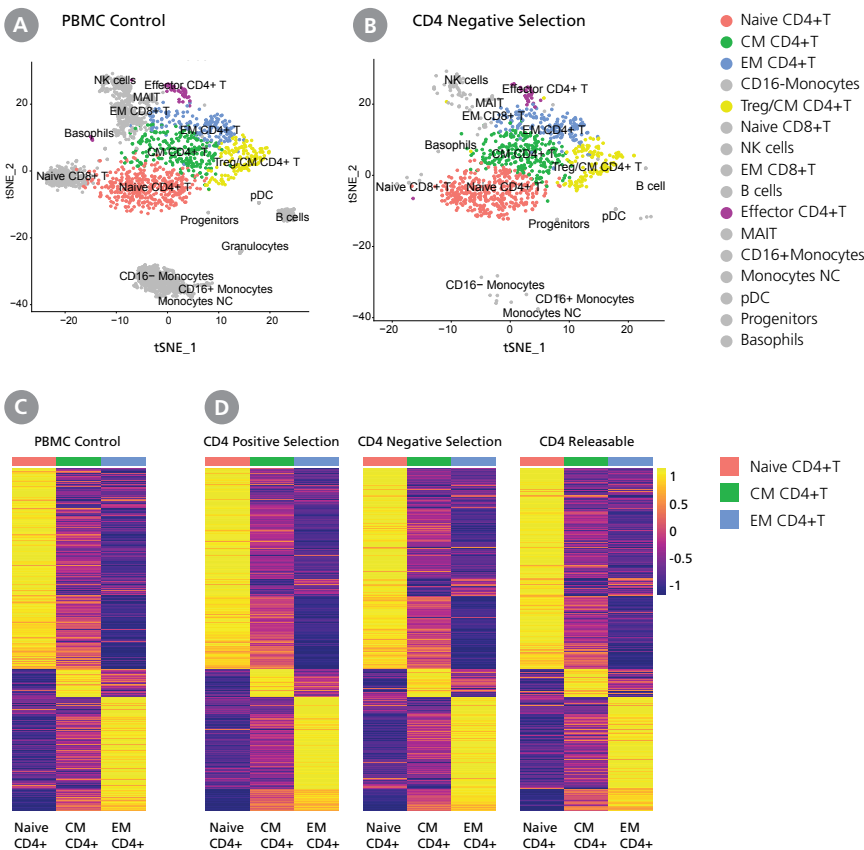


Figure 13. Gene Expression Profiles of EasySep™-Isolated CD4+ T Cells Are Similar to PBMC Control

(A,B) tSNE plots were generated using data from (A) PBMC control or (B) cells isolated using the EasySep™ Human CD4+ T Cell Enrichment Kit (Catalog #19052). CD4+ T cell clusters are colored as indicated in the legend. (C,D) 500 genes were selected from a previously published list of CD4+ T cell signature markers (Zhang et al., 2018). Expression heatmaps were generated for CD4+ cells from (C) PBMC control and (D) cells isolated using the EasySep™ Human CD4 Positive Selection Kit II (Catalog #17852), EasySep™ Human CD4+ T Cell Enrichment Kit (Catalog #19052), or the EasySep™ Release Human CD4 Positive Selection Kit (Catalog #17752). The average expression was calculated within each sample for three CD4+ T cell clusters identified by Seurat (naïve, central memory, and effector memory CD4+ T cells).

Reference

Zhang L et al. (2018) Lineage tracking reveals dynamic relationships of T cells in colorectal cancer. Nature 564(7735): 268–72.

RoboSep™

Fully Automated Immunomagnetic Cell Isolation

RoboSep™ instruments offer true walk-away automation of immunomagnetic cell separation. Using EasySep™ reagents, RoboSep™-S and RoboSep™-16 perform all cell labeling and magnetic isolation steps for up to four and sixteen samples, respectively. Sample handling is minimized and the use of disposable tips in these column-free systems ensures that isolated cells of interest are immediately available for any downstream application.



RoboSep™-S

The compact design of RoboSep™-S brings the convenience of automated cell isolation to any busy laboratory.



RoboSep™-16

The enhanced liquid-handling capabilities of RoboSep™-16 allow high-throughput users to efficiently isolate desired cells with speed and confidence.

Why Use RoboSep™?

FULLY AUTOMATED. Just load reagents and samples and walk away.

SIMULTANEOUS OR SEQUENTIAL CELL ISOLATION. Perform simultaneous cell isolations for up to 4 samples using RoboSep™-S and 16 samples using RoboSep™-16, or sequentially isolate different cell types from the same sample.

NO CROSS-CONTAMINATION. Eliminate the risk of cross-contamination with a column-free system and single-use disposable tips.

VERSATILE. Isolate virtually any cell type from a wide range of sample sources and sizes using positive or negative selection protocols.

How RoboSep™ Works

RoboSep™-S and RoboSep™-16 fit easily into the workflow of any lab that needs the speed, reliability, and convenience of automated cell isolation. Start your cell isolation protocol with as little as 5 minutes of “hands-on” time with RoboSep™-S and RoboSep™-16.

Typical RoboSep™-S Protocol



- 1 Select protocol. Load sample, EasySep™ reagents, buffer, and tips in carousel.



- 2 Press “Run”.



- 3 Return in 25 to 60 minutes to collect your separated cells.

Typical RoboSep™-16 Protocol



- 1 Select protocol. Load sample, EasySep™ reagents, buffer, and tips.



- 2 Press “Run”.



- 3 Return in 25 to 60 minutes to collect your separated cells.



Learn More

See RoboSep™ Instruments in Action
www.RoboSep.com

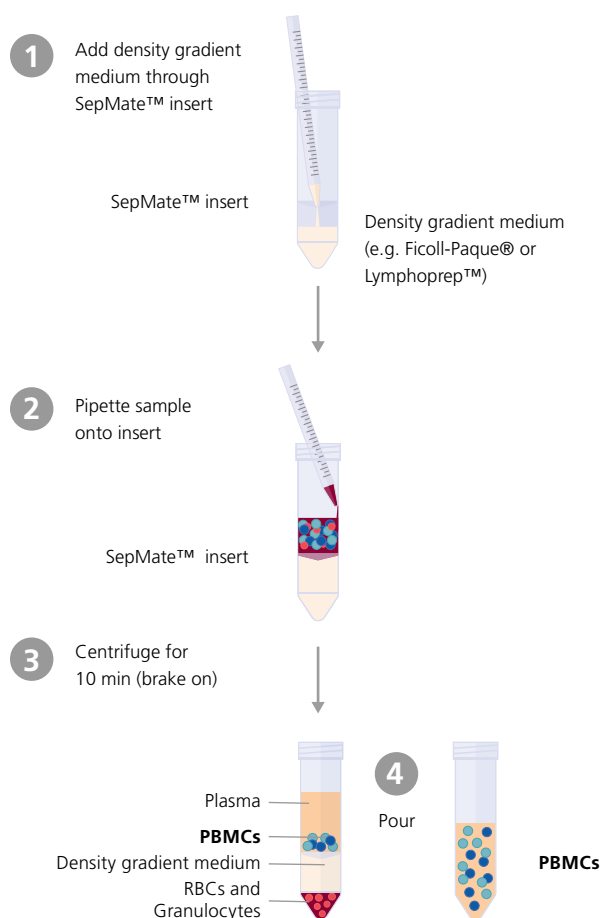
SepMate™

Hassle-Free PBMC Isolation

SepMate™ is a specialized tube for fast and easy PBMC isolation in just 15 minutes. The SepMate™ tube contains a unique insert that prevents the density gradient medium (e.g. Ficoll-Paque® or Lymphoprep™) and blood sample from mixing. The density gradient medium is pipetted through a central hole in the insert, and the sample is poured or rapidly pipetted on top of the insert. This eliminates the need to carefully layer the sample directly onto the density gradient medium, an otherwise time-consuming and highly laborious step. Only 10 minutes of centrifugation are required, and this step can be carried out with the brake on, further reducing the total time necessary for separation. After centrifugation, plasma and PBMCs are simply poured into a new tube.

SepMate™ is available as an in vitro diagnostic (IVD) device in select regions^{1,2}

Typical SepMate™ Protocol



Why Use SepMate™?

EASY. Avoid the need for slow and laborious sample layering over the density gradient medium.

FAST. Isolate PBMCs directly from whole blood in just 15 minutes.

CONSISTENT. Eliminate errors and minimize variability between separations.

VERSATILE. Combine with RosetteSep™ to isolate purified cell subsets from whole blood in 25 minutes.



Video

Isolate PBMCs from Whole Blood in Just 15 Minutes

www.stemcell.com/SepMateVideo

1. SepMate™ is available as an in vitro diagnostic (IVD) device for the isolation of mononuclear cells from human whole blood or bone marrow by density gradient centrifugation in Canada, the United States, Europe, and Australia. This product is also available in China where it is considered a non-medical device by the China Food and Drug Administration (CFDA), and should therefore be used as general laboratory equipment.
2. SepMate™ RUO is available in other regions for research use only.

Did You Know?

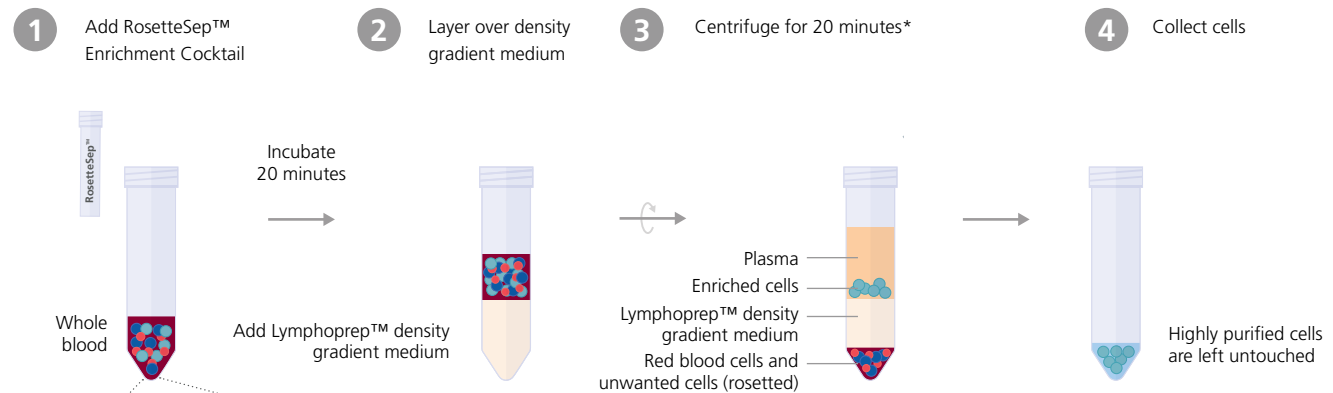
Lymphoprep™ has the same density as Ficoll-Paque®, is more cost-effective, and can be substituted for Ficoll-Paque® without any need to change your existing protocols.

RosetteSep™

Unique Immunodensity Cell Isolation

RosetteSep™ is a fast and easy immunodensity procedure for the isolation of untouched cells directly from whole blood. By crosslinking unwanted cells to red blood cells (RBCs) present in the sample, RosetteSep™ eliminates the need for a separate magnetic separation step because cells are purified during standard density gradient centrifugation. This approach significantly reduces sample handling time and maximizes convenience.

Typical RosetteSep™ Protocol



*Use SepMate™ to reduce centrifugation time to 10 minutes with brake on.

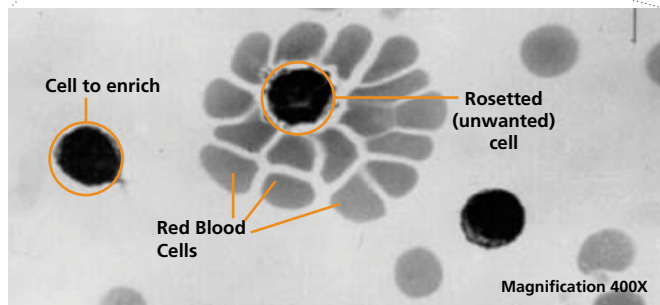


Figure 14. Micrograph of a Blood Sample After Addition of the RosetteSep™ Cocktail, and Prior to Density Gradient Centrifugation

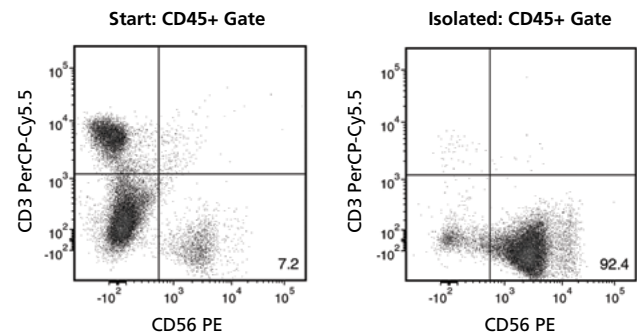


Figure 15. RosetteSep™ Human NK Cell Enrichment Cocktail (Catalog #15025)

Starting with whole peripheral blood, the NK cell content (gated on CD45+ cells) of the isolated fraction typically ranges from 80 - 98%. In the example above, the purities of the start and isolated fractions are 7.2% and 92.4%, respectively.

RosetteSep™ and SepMate™

Simplified and Standardized Cell Isolation

RosetteSep™ is easily combined with SepMate™ to rapidly and reproducibly isolate PBMC subsets from whole blood. By using the unique SepMate™ tube, sample throughput is increased and errors associated with improper sample layering are eliminated. This allows even users with minimal training to consistently perform cell isolation by density gradient centrifugation in a busy laboratory environment.

Cell Engineering and Molecular Tools

CellPore™ Transfection System

Source

Isolate

Edit

Activate, Expand,
& Differentiate

Analyze

Gentle Intracellular Delivery with High Efficiency and Viability

Intracellular delivery of molecules is crucial for advancing biological research and developing innovative cell and gene-based therapies. Traditional methods for transfecting cells are often limited in their ability to deliver a wide range of cargoes across diverse cell types. Additionally, these methods can inadvertently alter gene expression and disrupt cell function.

To address your cell engineering needs, we developed the CellPore™ Transfection System—an instrument offering versatility in delivering a variety of macromolecules into the cytosol of cells. Using gentle microfluidic technology, the system provides a simple, intuitive workflow that can be tailored to your specific research applications.

Why Use CellPore™?

HIGH PERFORMANCE. Achieve high delivery and viability for your cells.

EASY TO USE. Fine-tune a single parameter to identify optimal delivery and viability conditions.

GENTLE. Deliver cargoes intracellularly without altering cell quality.

FAST. Transfect up to 10 million cells per second.

VERSATILE. Deliver a wide variety of cargoes to a broad range of cell types.



How Does CellPore™ Work?

Consisting of a benchtop instrument, the system uses pressure to squeeze the cells at high speeds through parallel microfluidic channels embedded in a single-use delivery cartridge (included in the CellPore™ Transfection Kits). This creates transient cell membrane pores, a process known as mechanoporation, which enables the entry of target cargoes into the cytosol before the membrane reseals.

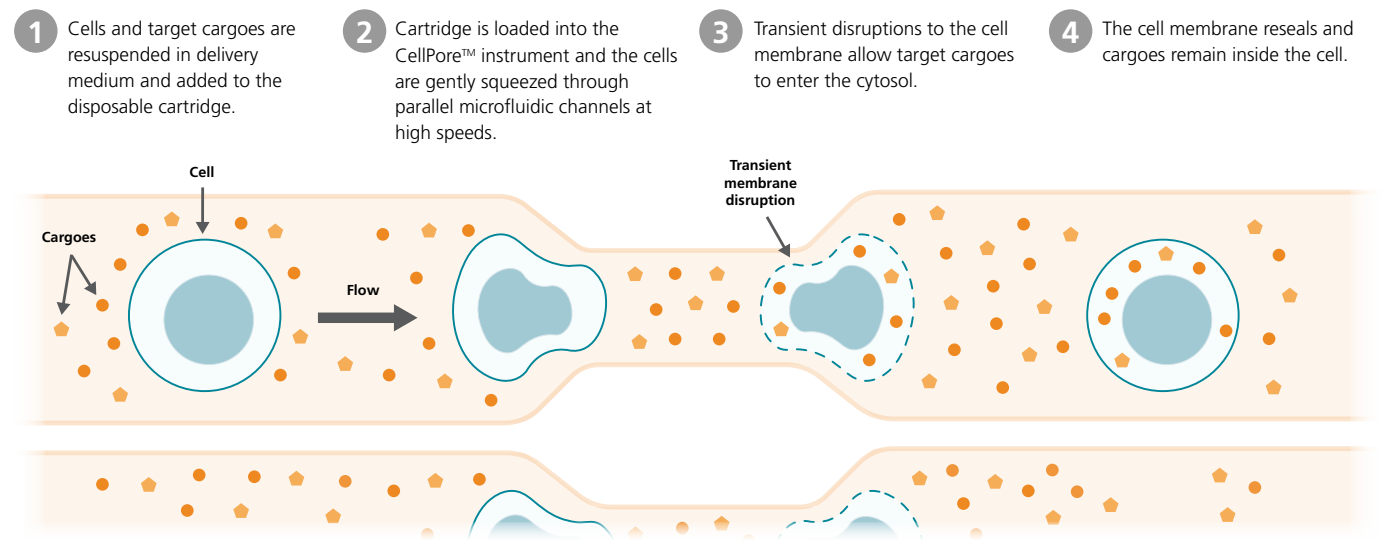


Figure 16. CellPore™ Transfection System Workflow

This figure illustrates the CellPore™ Transfection System workflow in three straightforward steps: 1) prepare cells sourced from freshly isolated or frozen samples using cell isolation technology such as EasySep™; 2) deliver one or more desired cargoes into your cells using the CellPore™ Transfection System; 3) analyze the delivery efficiency for downstream applications.



Request Demo
www.stemcell.com/CellPore-Demo

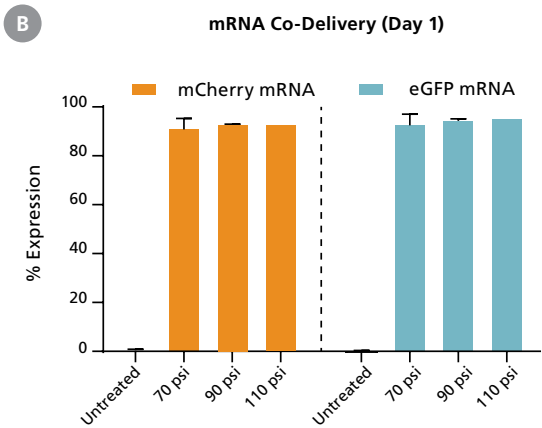
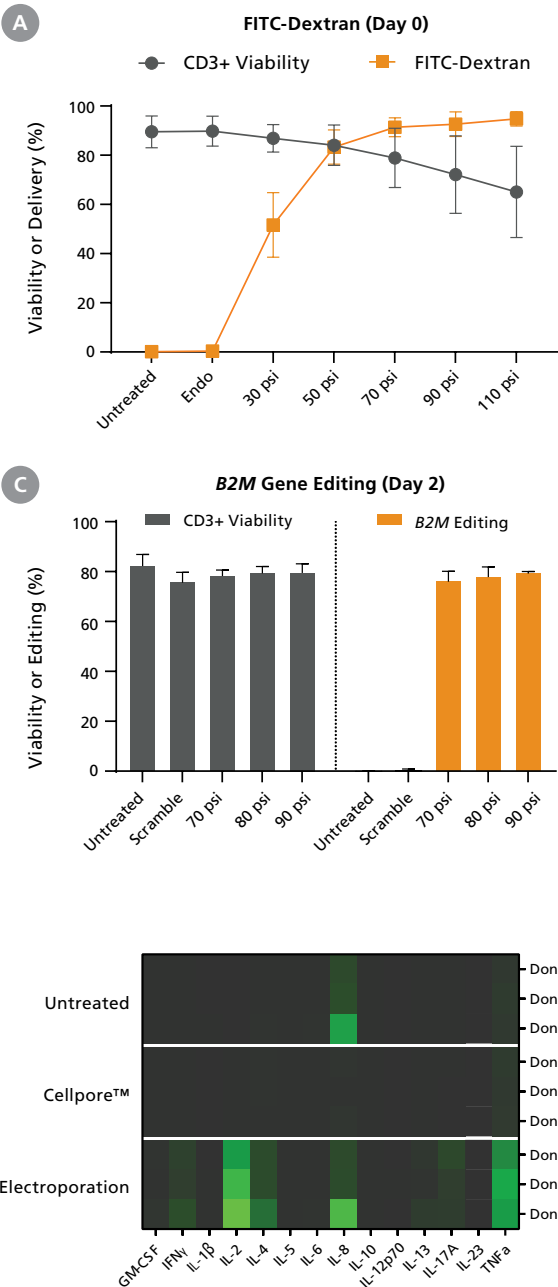


Figure 17. Identification of Optimal CellPore™ Delivery Parameters to Human Unactivated Pan T Cells

(A) CellPore™ FITC-Dextran or (B) mCherry and eGFP mRNA were delivered to 2×10^6 unactivated T cells via a pressure sweep, and optimal delivery/expression was measured at 70 - 90 psi. Cas9 RNPs targeting (C) the β -2-microglobulin (*B2M*) gene measured optimal gene editing efficiency at the 90 psi condition. All conditions were assessed by flow cytometry. Endocytosis (Endo) control represents natural uptake of CellPore™ FITC-Dextran in undelivered samples. Scramble control represents delivery of non-targeting gRNA Cas9 RNP complexes. Data are shown as mean ± SD (n = 2 - 5).

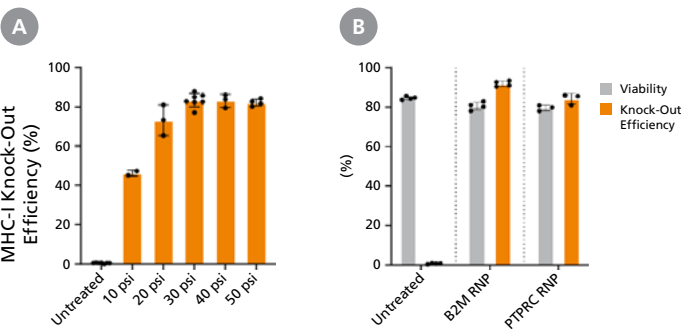


Figure 19. The CellPore™ Transfection System Enables Efficient Gene Knock-Out in CD34+ HSPCs

Cryopreserved cord blood-derived CD34+ HSPCs were thawed and cultured in StemSpan™ SFEM II medium supplemented with StemSpan™ CD34+ Expansion Supplement and 1 μ M UM729 for 24 hours. 40 pmol of RNP complexes (Cas9:sgRNA 1:2.5) targeting the *B2M* or *PTPRC* gene were delivered to 5×10^4 HSPCs in 80 μ L reactions using the CellPore™ Transfection System and CellPore™ Transfection Kit 300. Flow cytometry was used to assess viability and *B2M* (surface MHC-I marker) or *PTPRC* (surface CD45 marker) knock-out efficiency four days post-transfection. (A) A pressure sweep was performed to identify the optimal delivery pressure for CD34+ HSPCs, which was determined to be 30 psi. (B) At 30 psi, average knock-out efficiency achieved for *B2M* was $91.8\% \pm 1.4$ and for *PTPRC* was $84.2\% \pm 2.7$, while viability was preserved. Data are presented as mean ± SD (n = 2 - 7).

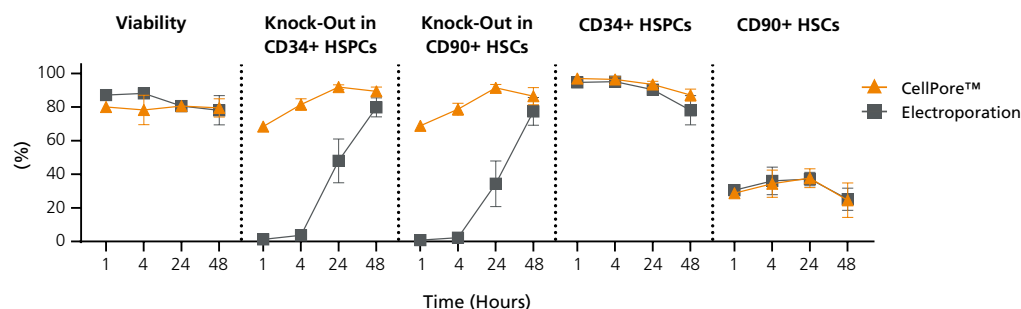


Figure 20. The CellPore™ Transfection System Enables Earlier Gene Editing of CD34+ HSPCs

Cas9 RNP complexes targeting *B2M* (40 pmol to 5×10^4 cells in 80 μ L, Cas9:sgRNA 1:2.5) were delivered to CD34+ HSPCs using the CellPore™ Transfection System at 30 psi or via an optimized electroporation protocol following pre-transfection culture durations of 1, 4, 24, or 48 hours. Four days post-transfection, viability, *B2M* gene knock-out efficiency, and CD45+CD34+ HSPC and primitive CD34+CD45RA-CD90+ HSC subset frequencies were assessed by flow cytometry. CellPore™ achieved $\geq 80\%$ knock-out efficiency with just 4 hours of pre-transfection culture, whereas electroporation required 48 hours of culture to consistently reach high editing efficiency. This shortened CellPore™ workflow presents a significant advantage in maintaining high bulk CD34+ HSPC as well as primitive CD90+ HSC frequencies. Data are shown as mean \pm SD ($n = 1 - 6$).

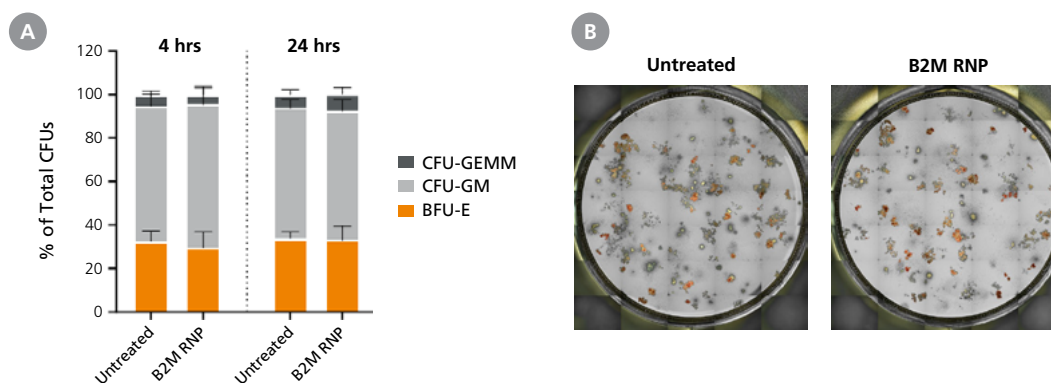
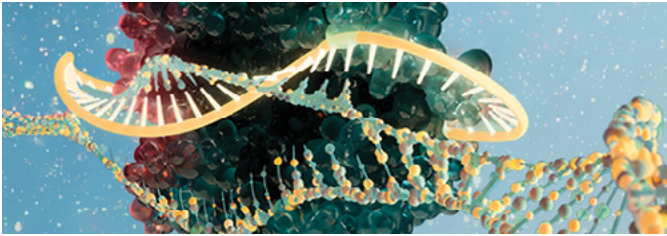


Figure 21. The CellPore™ Transfection System Preserves the Proliferation and Differentiation Potential in CD34+ HSPCs

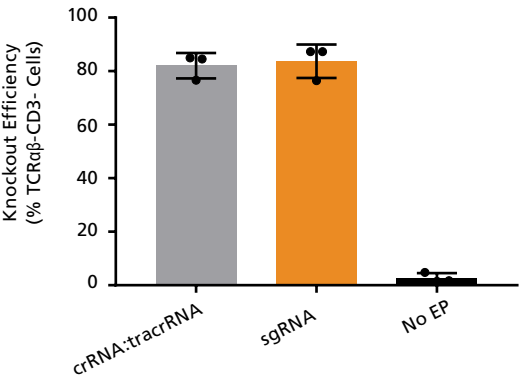
CD34+ HSPCs were pre-cultured for either 4 or 24 hours before delivery of Cas9 RNP complexes targeting *B2M* (40 pmol to 5×10^4 cells in 80 μ L, Cas9:sgRNA 1:2.5) using the CellPore™ Transfection System at 30 psi. 24 hours after transfection, cells were plated in triplicate in MethoCult™ H4435 Enriched medium and cultured for 14 days (A) CFU colony sub-type distribution and (B) colony sizes remained comparable to untreated controls. Data are shown as mean \pm SD ($n = 3 - 4$).



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For more information, please visit
www.stemcell.com/ArciTect.



ArciTect™ for CRISPR-Cas9 Genome Editing

Perform high-efficiency genome editing of primary human T cells using CRISPR-Cas9. ArciTect™ is a ribonucleoprotein (RNP)-based system that enables you to:

- Maximize delivery and expression in difficult-to-manipulate cell types by using RNP complexes.
- Get your results faster with ready-to-use purified Cas9 proteins and synthetic guide RNAs.
- Minimize potential off-target cutting with timely degradation of the RNP complex.

Figure 22. The ArciTect™ CRISPR-Cas9 System Enables Efficient TRAC Knockout in Human Primary T Cells

Human T cells were activated with ImmunoCult™ Human CD3/CD28 T Cell Activator (Catalog #10971) for 3 days and the cells were electroporated with ArciTect™ RNP-complexes containing either ArciTect™ crRNA:tracrRNA duplexes or sgRNA targeting the T cell receptor (TCR) alpha constant (TRAC) locus. Knockout efficiency was assessed 3 days after electroporation by flow cytometry analysis of TCRαβ and CD3 expression; n = 3 donors. Control samples were not electroporated (no EP). Error bars represent standard deviation.

Specialized Cell Culture Reagents

For Cell Activation, Expansion and Differentiation

Source

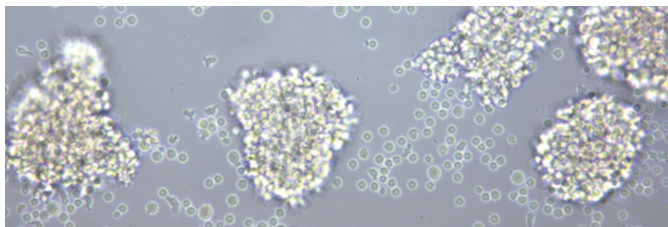
Isolate

Edit

Activate, Expand,
& Differentiate

Analyze

With high-quality and viable cells as the foundation for your research, integrating STEMCELL Technologies' cell culture reagents into your workflow will ensure reliable results. These specialized media, activators, supplements, and tools allow you to culture immune cells under defined stimulatory conditions to activate, edit, expand, or differentiate the cell population of interest. Refer to page 62 for more information.



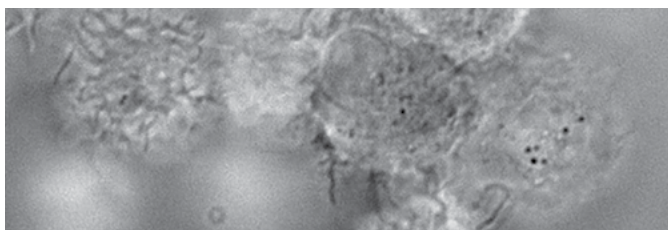
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ImmunoCult™ for B, NK, and T Cell Research

Advance your immunology and cell therapy research with ImmunoCult™ activators, expansion medium, and differentiation supplements.

- Activate and expand human B, NK, and T cells without the use of magnetic beads, feeder cells, serum, or antigens
- Eliminate variation by using serum- and xeno-free expansion medium.
- Generate cells immediately ready for downstream applications such as T cell and B cell engineering
- Streamline your T cell therapy development by combining GMP ImmunoCult™-XF media with T cell activators



For more information, please visit

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ImmunoCult™ for Macrophage and Dendritic Cell Research

Streamline your research on macrophages and dendritic cells (DCs) with ImmunoCult™:

- Generate macrophages and mature, as well as immature, DCs from isolated monocytes.
- Obtain high yields of macrophages and DCs with the desired phenotype and function.



Free On-Demand Training

Cell Expansion Course

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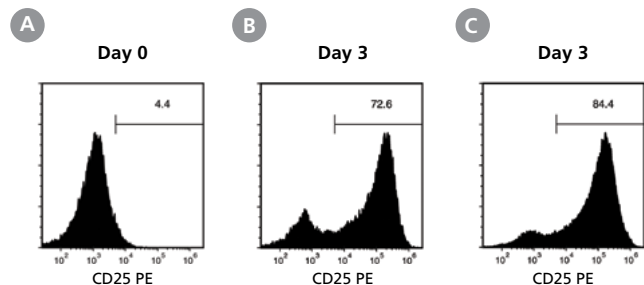


Figure 23. T Cells Are Activated When Stimulated with ImmunoCult™ Human CD3/CD28 or CD3/CD28/CD2 T Cell Activator

EasySep™-isolated T cells were cultured on day 0 with either ImmunoCult™ Human CD3/CD28 T Cell Activator (Catalog #10971) or ImmunoCult™ Human CD3/CD28/CD2 T Cell Activator (Catalog #10970) in ImmunoCult™-XF T Cell Expansion Medium (Catalog #10981). Cells were gated on CD4⁺ T cells and CD8⁺ T cells and T cell activation was assessed by CD25⁺ expression on day 0 and day 3. At the start of culture, the CD25⁺ cell population was (A) $5.63 \pm 2.4\%$ (mean \pm SD). After three days of activation, the CD25⁺ cell population was (B) $75.4 \pm 13.8\%$ (mean \pm SD) when activated with ImmunoCult™ Human CD3/CD28 T Cell Activator and (C) $88.8 \pm 3.2\%$ (mean \pm SD) when activated with ImmunoCult™ Human CD3/CD28/CD2 T Cell Activator.

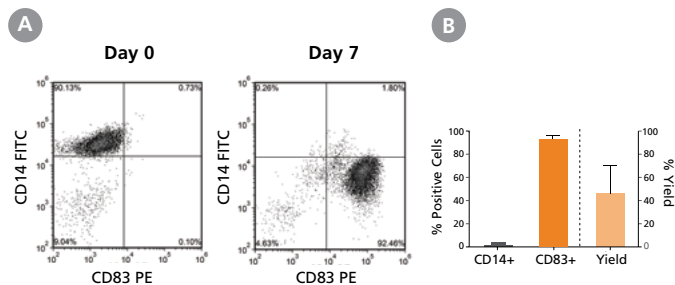


Figure 24. Mature DCs Generated with ImmunoCult™-ACF Dendritic Cell Medium and Supplements Show Desired Phenotype

EasySep™-isolated monocytes were cultured and differentiated into mature DCs following the protocol specified in the product information sheet (Catalog # 10985). (A) Representative flow cytometry plots of CD14 and CD83 expression in cells at day 0 (monocytes) and at day 7 (mature DCs). (B) The average percentage of CD14 and CD83 expression in cells at day 7 (mature DCs) was determined by flow cytometry. At day 7, a total of $93 \pm 5\%$ of the cells in culture expressed the mature DC marker CD83 and only $1 \pm 1\%$ of cells still expressed the monocyte marker CD14 (mean \pm SD, $n = 39$). Yield of mature DCs was determined by dividing the count of total viable cells at day 7 by the count of viable monocytes used at day 0. At day 7, the yield of viable mature DCs was $45 \pm 25\%$ (mean \pm SD, $n = 39$).

Differentiation of hPSCs to Immune Cells

The ability to differentiate human pluripotent stem cells (hPSCs) into immune cells provides a useful tool for developing adoptive immunotherapies in cancer patients as well as for research into the basic biology of these cells. STEMdiff™ immune kits facilitate the differentiation of hPSCs into T cells, natural killer (NK) cells, monocytes, or microglia—without the use of stromal cells and in serum-free culture conditions. For gene-edited or patient-derived hPSC lines, these optimized media and protocols enable the generation of a variety of cell types with the same genotype.

STEMdiff™ for T Cell or NK Cell Research

Consistently differentiate embryonic stem (ES) and induced pluripotent stem (iPS) cells into T cells or NK cells with high yield and frequency.

- Eliminate variation introduced by serum and stromal cell lines by using serum- and feeder-free conditions.
- Produce approximately 230 CD56⁺ NK cells or 60 CD4⁺CD8⁺ double-positive (DP) T cells per input hPSC-derived CD34⁺ cell.
- Reduce variability by producing uniform aggregates for embryoid body (EB) formation with AggreWell™.
- Avoid extra passaging steps required with stromal cell-based cultures.

For more information, please visit www.stemcell.com/STEMdiff-T or www.stemcell.com/stemdiff-NK.

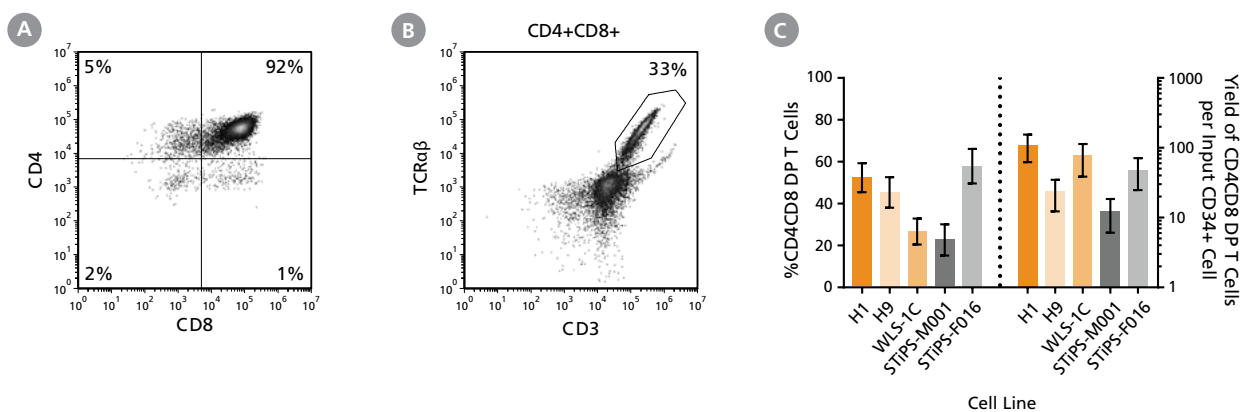


Figure 25. Generation of CD4+CD8+ DP T Cells From Human hPSCs After a Total of 40 Days of Culture Using the STEMdiff™ T Cell Kit

DP T cells were differentiated from hPSCs using STEMdiff™ T Cell Kit (Catalog #100-0194). Cells were harvested and analyzed for expression of CD3, CD4, CD8, and TCRαβ by flow cytometry. (A,B) Representative flow cytometry plots are shown for ES (H1)-derived cells. (C) The average frequency of viable CD4+CD8+ DP T cells on day 28 ranged between 23% and 58%, and the average yield of DP T cells produced per input hPSC-derived CD34+ cell was between 12 and 108. Data are shown as mean ± SEM (n = 6 - 17).

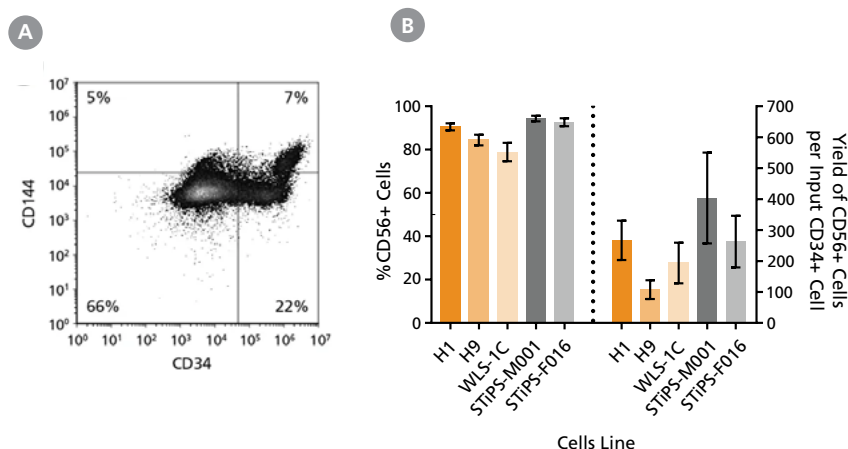


Figure 26. hPSCs Differentiate into CD56+ NK Cells After 40 Days of Culture

hPSCs were cultured using STEMdiff™ NK Cell Kit (Catalog #100-0170) for a total of 40 days. Cells were harvested and analyzed for expression of CD56 and CD16 by flow cytometry. (A) Representative flow cytometry plot is shown for ES (H1)-derived cells. (B) After 40 days of culture, the average frequency of viable CD56+ NK cells from hPSC-derived CD34+ cells ranged between 79% and 94%. The average yield of CD56+ cells produced per hPSC-derived CD34+ cell was between 108 and 404. Data are shown as mean ± SEM (n = 7 - 18).

STEMdiff™ for Monocyte Research

Reliably generate millions of CD14+ monocytes from embryonic stem (ES) and induced pluripotent stem (iPS) cell lines.

- Generate up to 7 million CD14+ monocytes per plate in just 14 - 23 days.
- Eliminate variation introduced by serum and feeder cells by using serum- and feeder-free conditions.
- Produce monocytes in a simple monolayer culture for easier harvest of suspended cells.
- Achieve robust generation of monocytes across multiple ES and iPS cell lines.

The feeder-free and serum-free conditions ensure a robust differentiation of hPSC-derived monocytes that can be further differentiated to dendritic cells or macrophages using ImmunoCult™ Dendritic Cell Culture Kit or ImmunoCult™-SF Macrophage Medium, respectively (see page 27).

For more information, please visit

www.stemcell.com/STEMdiff-Monocyte.

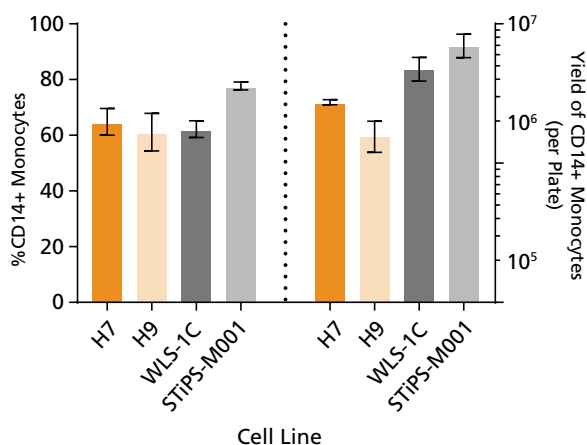


Figure 27. STEMdiff™ Monocyte Kit Enables Robust and Efficient Generation of CD14+ Monocytes

hPSCs were differentiated to monocytes using STEMdiff™ Monocyte Kit (Catalog #05320) and harvested every 2 - 3 days between days 17 and 23. The average frequency of viable CD14+ monocytes at the peak harvest was 61 - 78% and the average yield of CD14+ monocytes produced per 6-well plate was between 1.6×10^6 and 7.1×10^6 cells.

Lipopolysaccharide from *E. coli* (O55:B5)

Stimulate immune responses and model inflammation in diverse biomedical contexts with Lipopolysaccharide (LPS) from *E. coli*. Use LPS to stimulate macrophages, activate glial cells in the brain, study the pathogenesis of sepsis, and more.

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STEMdiff™ for Microglia Research

Differentiate greater than 90% of source hematopoietic progenitor cells (HPCs) into microglia, with few contaminating macrophages or monocytes.

- Integrate seamlessly into your STEMdiff™ Hematopoietic Kit HPC workflow.
- Generate more than 4 million microglia per differentiation kit.
- Replace more complex differentiation protocols with an easy-to-use culture system.
- Produce microglia capable of phagocytosis and activation, and co-culture with various neural cell types.

For more information, please visit

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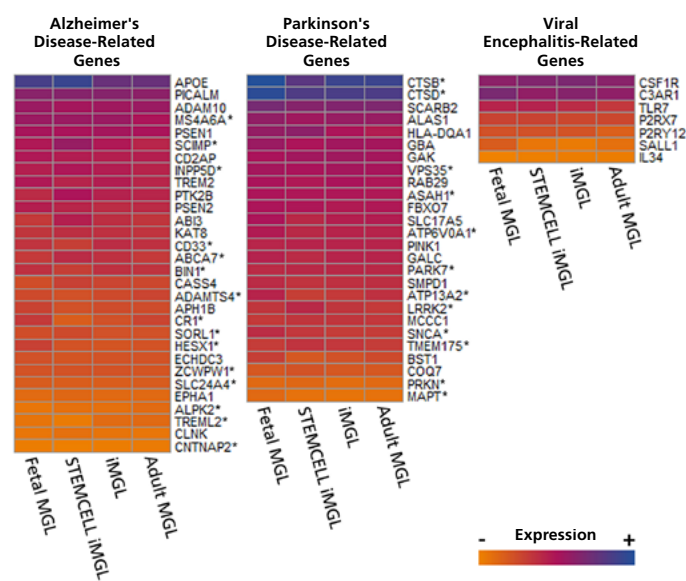


Figure 28. Microglia Generated with STEMdiff™ Microglia Culture System Express Disease-Relevant Genes Similar to Those from Published Differentiation and Maturation Protocols

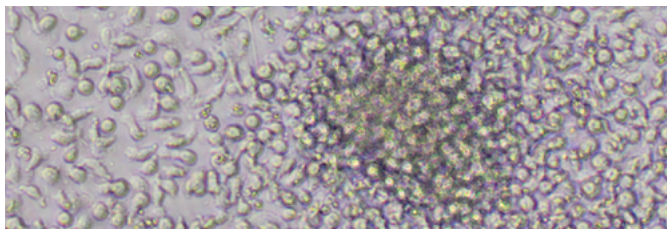
Bulk RNA-seq datasets were extracted from 8 different publications that generated hPSC- (iMGL) and primary- (MGL) derived microglia and their transcriptional profiles compared to data from microglia generated with STEMdiff™ Microglia Culture System. The heat map displays absolute expression levels for select genes associated with Alzheimer's disease, Parkinson's disease, and viral encephalitis. Significant differences in gene expression between microglia generated with STEMdiff™ Microglia Culture System and any of the other 3 groups were identified by differential gene expression analysis. * = $p < 0.05$ (DESeq2, adjusted). hPSC = human pluripotent stem cell.



Technical Bulletin

STEMdiff™ Monocyte

links.stemcell.com/STEMdiff-Monocyte



For more information, please visit
www.stemcell.com/StemSpan.

StemSpan™ for B, NK, and T Cell Research

Expand your research into the development of B, NK, and T lineage cells from hematopoietic stem and progenitor cells (HSPCs) with StemSpan™ media and supplement kits:

- Differentiate B, NK, or T cells from CD34+ HSPCs without the use of stromal cells or serum.
- Obtain high yields of CD19+ B cells, CD56+ NK cells, or CD4+CD8+ DP T cells per input CD34+ cell.
- Produce thousands of CD15+ granulocytes per input CD34+ human CB cell with StemSpan™ Myeloid Expansion Supplement.

Peptide Pools

Dive into immune cell activation with peptide pools. Stimulate antigen-specific T cells and other immune cells with more than 50 antigens.

To learn more, see page 66 or visit
www.stemcell.com/PeptidePools.

Cytokines

Activate, expand, and differentiate your cells with the right cytokines, chemokines, and growth factors. These high-quality reagents ensure reproducibility across a variety of applications for immunology research.

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www.stemcell.com/Cytokines.

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Ensure Consistent Downstream Cell Analyses with Compatible Products and Services for Your Workflow



Antibodies

Using the right antibody is an essential component for your research. Ensure that your downstream cell analysis, including phenotyping and purity assessments, work consistently by choosing from a line of high-quality primary and secondary antibodies that are verified to work with our cell isolation and cell culture reagents*.

Learn more at www.stemcell.com/Antibodies.

*STEMCELL Technologies' antibodies are verified for use with STEMCELL's cell isolation products for select applications. Please consult the product information sheet for a complete list of verified applications.

GloCell™ Fixable Viability Dyes

Easily assess cell viability with GloCell™ fixable viability dyes. GloCell™ dyes irreversibly bind intracellular and cell surface amine groups, are resistant to washing and fixation, and are compatible with flow cytometry and intracellular staining protocols. Stained cells can also be cryopreserved without loss of fluorescence intensity.

Learn more at www.stemcell.com/GloCell.

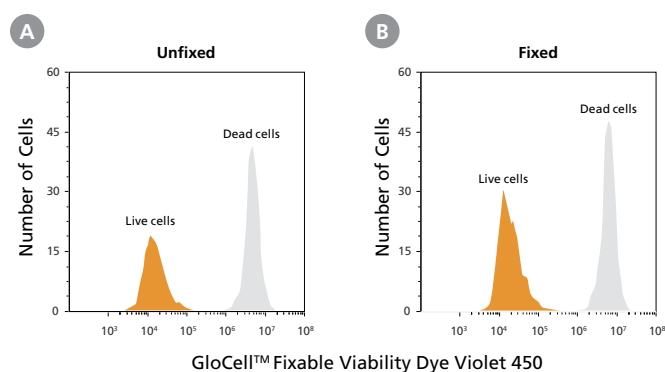


Figure 29. Fluorescence Signals in Unfixed and Fixed Cells Are Preserved when Using GloCell™ Fixable Viability Dye.

A mixture of live and dead (heat-shocked at 95°C for 30 minutes) WLS-1C human induced pluripotent stem (iPS) cells were stained with GloCell™ Fixable Viability Dye Violet 450 (Catalog #75009) with or without fixation in 4% paraformaldehyde. After staining, (A) unfixed and (B) fixed cells were immediately analyzed by flow cytometry.

Annexin V for Detecting Cell Apoptosis

Annexin V is a cell death marker that can be used to specifically detect early apoptotic mammalian cells. The Annexin V Apoptosis Detection Kit can be used for the combined detection of early-stage cell apoptosis using Annexin V, and late-stage cell apoptosis or necrosis using both Annexin V and 7-Aminoactinomycin D (7-AAD).

ELISA Kits

The enzyme-linked immunosorbent assay (ELISA) is a highly sensitive assay to detect and quantify cytokines, hematological factors, hormones, peptides, and immunoglobulins produced by cells. Use ELISA kits that are compatible with your workflow and feature low intra- and inter-assay variability for accurate, precise, and consistent analyte quantification.

Learn more at www.stemcell.com/ELISA.

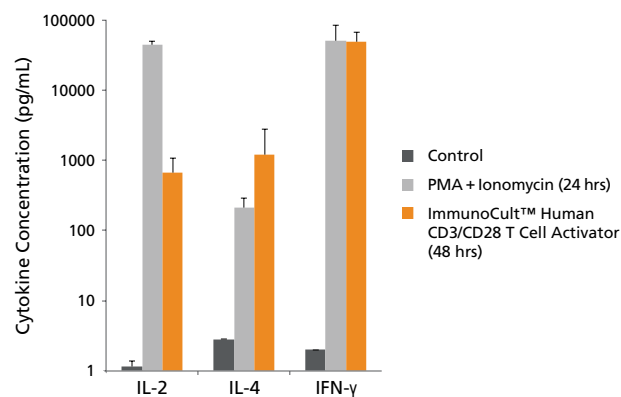


Figure 30. ELISA Kits Measure IL-2, IL-4, and IFN-γ Secreted by Activated Human T Cells

T cells were isolated from human apheresed blood using EasySep™ Human T Cell Isolation Kit and cultured in either RPMI Medium supplemented with 10% FBS, with or without 40 ng/mL PMA (Catalog #74042) and 1 µg/mL Ionomycin (Catalog #73722), or ImmunoCult™-XF T Cell Expansion Medium, with or without ImmunoCult™ Human CD3/CD28 T Cell Activator. Supernatants were collected, and concentrations of secreted cytokines were determined using the Human IL-2 ELISA Kit, Human IL-4 ELISA Kit, and Human IFN-γ ELISA Kit. All three cytokines were highly expressed by the activated cells compared to unstimulated control cultures.

Total Nucleic Acid Extraction with EasySep™

Use our EasySep™ cell separation technology to achieve consistent extraction of nucleic acids from a variety of sample types with simplified workflows with the EasySep™ Total Nucleic Acid Extraction Kit. With easy-to-use and scalable protocols, this kit enables you to increase your total nucleic acid extractions to 16 or 96 samples, while the magnetic bead technology allows you to avoid the use of spin columns and toxic reagents. Efficiently extract total nucleic acids (DNA and RNA) from whole blood, cell suspensions, and EasySep™-isolated cells with high purity. Extracted nucleic acids are ready for downstream applications such as qPCR.

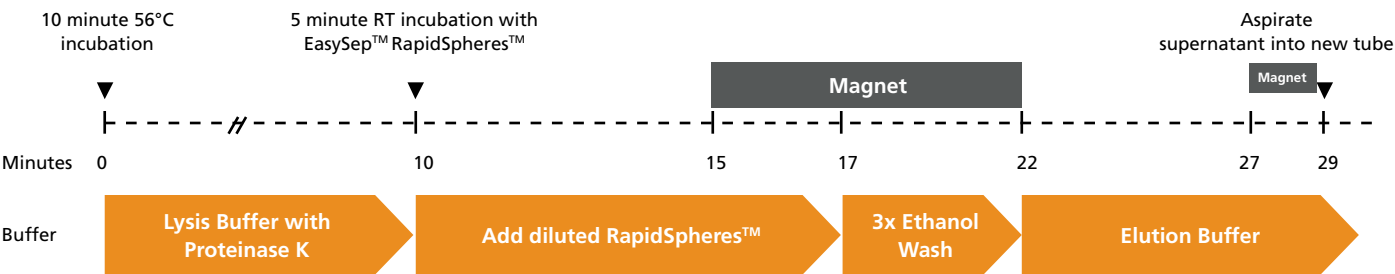


Figure 31. EasySep™ Total Nucleic Acid Extraction Kit Workflow

Diagram of the standard extraction workflow. Time points at which samples must be placed in the magnet are indicated with gray boxes. EasySep™ Lysis Buffer and Proteinase K are added to the sample and incubated at 56°C for 10 minutes. Diluted EasySep™ Nucleic Acid RapidSpheres™ are added to the sample and incubated at room temperature (RT) for 5 minutes, then placed in the magnet for 2 minutes. While in the magnet, the sample is washed three times with a 70% ethanol wash solution, and the supernatant is removed. The pellet is resuspended with the elution buffer while removed from the magnet and incubated at room temperature for 5 minutes. The sample is then placed in the magnet for 2 minutes before the supernatant is aspirated to a new tube to obtain the extracted nucleic acids.

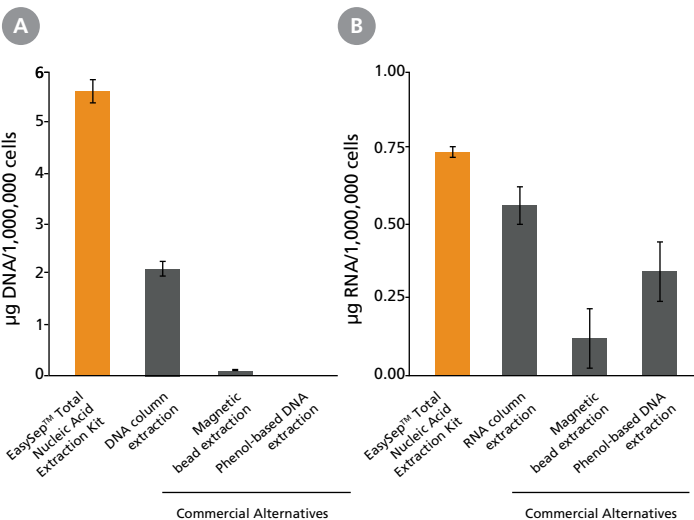


Figure 32. EasySep™ Total Nucleic Acid Extraction Kit Shows Improved DNA and RNA Recovery Relative to Other Commonly Used Methods

Normalized recovery (µg per 1 x 10⁶ cells) of (A) DNA and (B) RNA across EasySep™ Total Nucleic Acid Extraction Kit and other commonly used extraction methods. DNA and RNA concentrations were measured separately using the Qubit™ Fluorometer. Sample source: Leukopak, n = 3. Error bars represent ± 1 standard deviation.

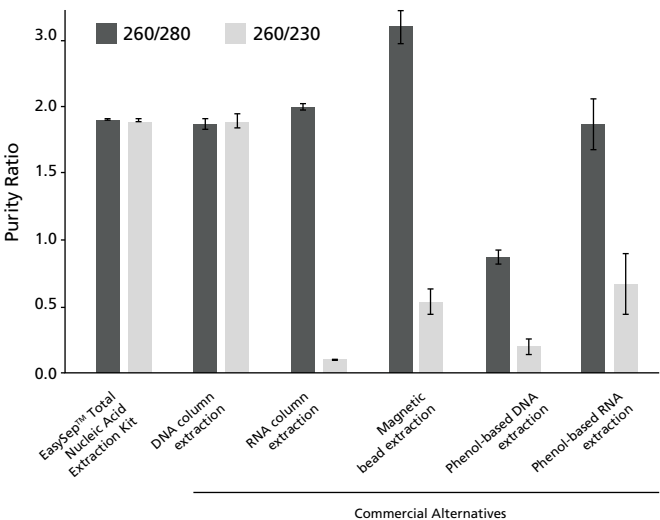


Figure 33. EasySep™ Total Nucleic Acid Extraction Kit Recovers Nucleic Acid of Optimal Purity

Purity ratios obtained using spectrophotometric absorbance measurements show that the nucleic acid recovered by the EasySep™ Total Nucleic Acid Extraction Kit is of optimal purity, benchmarked against other commonly used extraction methods. The 260/280 ratio, indicative of protein, phenol, and other contaminants within the extract that absorb at or near 280 nm, has an optimum purity ratio of ~ 1.8 for DNA and ~ 2.0 for RNA. The 260/230 ratio, a secondary measure of purity indicative of salt, phenol, and other organic compound contamination, has an optimal range of 1.8 - 2.2. Ratios that fall outside of these ranges are generally considered contaminated. Purity ratios were obtained using the Nanodrop™ Spectrophotometer. Sample source: Leukopak, n = 3. Error bars represent ± 1 standard deviation.

Contract Assay Services

Contract Assay Services (CAS) is a contract research organization (CRO) within STEMCELL Technologies. CAS combines the power of specialized STEMCELL products with the practical knowledge of our scientists to provide both standardized and customized assay services.

We work with you to design and execute cell-based assays to meet your needs. Our primary cell-based assays can provide clinically relevant results of the effects of small molecule compounds, including chemotherapeutic agents, or biologics on your cell type of interest. We offer standardized and customized primary cell-based assays for hematopoietic, immune, and mesenchymal cells.

Immune Toolkit for Customized Studies

CAS can assist in designing and optimizing studies to evaluate the effects of potential immunomodulatory agents on the immune system with the following tools and assay systems:

- Flow cytometric analysis (surface and intracellular)
- Quantitation of secreted proteins (ELISA, Meso Scale)
- Cell activation and suppression (PBMCs, T cells)
- Proliferation and viability assessment
- Macrophage and dendritic cell differentiation assessment
- Custom cell isolation and culture

To learn more about our contract assay services, visit

www.ContractAssay.com.



Product Listing

Human Primary Cells

Cryopreserved Human Peripheral Blood Products¹

| Description | Quantity | Catalog # |
|---|-------------------|-----------|
| Peripheral Blood Mononuclear Cells ² | 15 million cells | 70025.1 |
| | 25 million cells | 70025.2 |
| | 50 million cells | 70025.3 |
| | 100 million cells | 70025 |
| B Cells | 10 million cells | 70023 |
| | 20 million cells | 70023.1 |
| Pan-T Cells | 20 million cells | 70024 |
| | 40 million cells | 70024.1 |
| CD8+ Memory T Cells | 5 million cells | 200-0168 |
| Naïve Pan T Cells | 5 million cells | 200-0170 |
| Th17 Cells | 2 million cells | 200-0169 |
| CD4+CD25- T cells | 1 million cells | 200-0124 |
| | 2 million cells | 200-0125 |
| CD4+CD25+CD127low T cells | 1 million cells | 200-0122 |
| | 2 million cells | 200-0123 |
| CD4+CD25+CD127low FOXP3+ T cells (Tregs) | 1 million cells | 200-0120 |
| | 2 million cells | 200-0121 |
| CD4+ T Cells | 5 million cells | 200-0165 |
| | 15 million cells | 70026 |
| CD8+ T Cells | 5 million cells | 200-0164 |
| | 10 million cells | 70027 |
| CD4+CD45RA+ T Cells | 5 million cells | 70029 |
| CD8+CD45RA+ T Cells | 5 million cells | 70030 |
| CD4+CD45RO+ T Cells | 5 million cells | 70031 |
| CD19+CD27- Naïve B Cells | 1 million cells | 70032 |
| CD19+ B Cells | 10 million cells | 70033 |
| Monocytes | 10 million cells | 70034 |
| | 20 million cells | 200-0166 |
| | 40 million cells | 200-0167 |
| CD14+ Monocytes | 10 million cells | 70035.1 |
| | 20 million cells | 70035.2 |
| | 40 million cells | 70035 |
| NK Cells | 5 million cells | 70036 |
| CD56+ Cells ⁹ | 5 million cells | 70037 |
| Macrophages | 1.5 million cells | 70042 |
| Plasmacytoid Dendritic Cells | 0.5 million cells | 70046 |
| Pan Dendritic Cells | 5 million cells | 200-0560 |
| Gamma Delta T Cells | 2 million cells | 200-0730 |
| Plasma* | 10 mL | 70039.1 |
| | 50 mL | 70039.5 |
| | 100 mL | 70039 |
| Serum | 1 mL | 200-0160 |
| | 5 mL | 200-0161 |
| | 10 mL | 200-0162 |

*Additional sizes of 20 mL, 30 mL, 40 mL, and 150 mL for plasma are also available.

Fresh Human Peripheral Blood Products³

| Description | Anticoagulant | Quantity | Catalog # |
|---------------------------------------|------------------------------------|-------------------|-----------|
| Leukocyte Reduction System (LRS) Cone | ACDA ^{5a} | 1 cone | 200-0093 |
| Whole Peripheral Blood** | ACDA ^{5a} | 1 x 10 mL | 70504.1 |
| | | 2 x 10 mL | 70504.2 |
| | | 4 x 10 mL | 70504.4 |
| | | 5 x 10 mL | 70504.5 |
| | | 10 x 10 mL | 70504.6 |
| | | ≥450 mL | 70504 |
| Plasma | ACDA ^{5a} | 10 mL | 200-0150 |
| | | 20 mL | 200-0151 |
| | | 30 mL | 200-0152 |
| | | 40 mL | 200-0153 |
| | | 50 mL | 200-0154 |
| | | 100 mL | 200-0155 |
| Serum | -- | 1 mL | 200-0157 |
| | | 5 mL | 200-0158 |
| | | 10 mL | 200-0159 |
| Description | Cell Type | Quantity | Catalog # |
| Purified Cells | Peripheral Blood Mononuclear Cells | 100 million cells | 200-0077 |
| | | 300 million cells | 200-0078 |
| | Pan-T Cells | 5 million cells | 200-0046 |
| | | 10 million cells | 200-0047 |
| | | 25 million cells | 200-0048 |
| | | 40 million cells | 200-0022 |
| | B Cells | 5 million cells | 200-0059 |
| | | 10 million cells | 200-0060 |
| | NK Cells | 5 million cells | 200-0063 |
| | | 10 million cells | 200-0064 |
| | Gamma Delta T cells | 2 million cells | 200-0056 |
| | Monocytes | 10 million cells | 200-0067 |
| | | 50 million cells | 200-0068 |

**Additional sizes of 3 x 10 mL, 6 x 10 mL, 7 x 10 mL, 8 x 10 mL, 9 x 10 mL, 15 x 10 mL, 20 x 10 mL, and 250 mL for whole peripheral blood are available.



Video

Learn How to Safely Freeze Various Fresh Human Primary Cells

www.stemcell.com/Cryopreserve-Primary-Cells-With-Cryostor

Cryopreserved Human Peripheral Blood Cells¹

| Description | Quantity | Catalog # |
|---|-------------------|-----------|
| Neutrophils | 10 million cells | 200-0384 |
| Eosinophils | 1 million cells | 200-0385 |
| PB-Derived Immature Dendritic Cells ^{8a} | 1.5 million cells | 200-0370 |
| PB-Derived Mature Dendritic Cells ^{8a} | 1.5 million cells | 200-0371 |
| PB-Derived M0 Macrophages ^{8b} | 1.5 million cells | 200-0372 |
| PB-Derived M1 Macrophages ^{8b} | 1.5 million cells | 200-0373 |
| PB-Derived M2a Macrophages ^{8b} | 1.5 million cells | 200-0374 |

Leukopaks^{3,4}

| Description | Anticoagulant | Quantity | Catalog # |
|--|--------------------|--------------|-----------|
| Fresh Peripheral Blood Leukopak ⁴ | ACDA ^{5a} | Tenth Size | 200-0092 |
| | | Quarter Size | 70500.2 |
| | | Half Size | 70500.1 |
| | | Full Size | 70500 |
| Frozen Peripheral Blood Leukopak | ACDA ^{5a} | Tenth Size | 200-0470 |
| | | Quarter Size | 200-0132 |
| | | Half Size | 200-0131 |
| | | Full Size | 200-0130 |

Mobilized Leukopaks¹

| Description | Anticoagulant | Quantity | Apheresis | Catalog # |
|---|--------------------|----------|--------------------------------|--------------------------------|
| Fresh Mobilized Peripheral Blood Leukopak, G-CSF | ACDA ^{5a} | 1 bag | First Collection (Day 5) | 200-0602 |
| | | | Second Collection (Day 6) | 200-0603 |
| | | 2 bags | Both Collections (Day 5 and 6) | 100-1101 (200-0602 & 200-0603) |
| Fresh Mobilized Peripheral Blood Leukopak, Plerixafor | ACDA ^{5a} | 1 bag | First Collection | 200-0604 |
| Fresh Mobilized Peripheral Blood Leukopak, G-CSF and Plerixafor | ACDA ^{5a} | 1 bag | First Collection (Day 5) | 200-0607 |
| | | | Second Collection (Day 6) | 200-0608 |
| | | 2 bags | Both Collections (Day 5 and 6) | 100-1103 (200-0607 & 200-0608) |

Autoimmune and Inflammatory Diseased Human Blood Products¹

| Description | Quantity | Catalog # |
|-------------------------------------|------------------|-----------|
| Amyotrophic Lateral Sclerosis (ALS) | 10 million cells | 200-0827 |
| | 50 million cells | 200-0801 |
| | Plasma | 200-0842 |
| Ankylosing Spondylitis | 10 million cells | 200-0828 |
| | 50 million cells | 200-0802 |
| | Half leukopak | 200-0765 |
| | Full leukopak | 200-0756 |
| | Plasma | 200-0843 |
| Celiac Disease | 10 million cells | 70058 |
| | 50 million cells | 200-0805 |
| | Half leukopak | 200-0763 |
| | Full leukopak | 200-0754 |
| | Plasma | 200-0846 |
| COPD | 10 million cells | 70053 |
| | 50 million cells | 200-0806 |
| | Plasma | 200-0847 |
| Crohn's Disease | 10 million cells | 70052 |
| | 50 million cells | 200-0807 |
| | Half leukopak | 200-0766 |
| | Full leukopak | 200-0757 |
| | Plasma | 200-0848 |
| Diabetes, Type I | 10 million cells | 70061 |
| | 50 million cells | 200-0808 |
| | Half leukopak | 200-0760 |
| | Full leukopak | 200-0751 |
| | Plasma | 200-0849 |
| Diabetes, Type II | 10 million cells | 70062 |
| | 50 million cells | 200-0809 |
| | Half leukopak | 200-0761 |
| | Full leukopak | 200-0752 |
| | Plasma | 200-0850 |
| Graves' Disease | 10 million cells | 200-0830 |
| | 50 million cells | 200-0810 |
| | Plasma | 200-0851 |
| Hashimoto's Disease | 10 million cells | 200-0832 |
| | 50 million cells | 200-0812 |
| | Plasma | 200-0853 |

Autoimmune and Inflammatory Diseased Human Blood Products¹ (Continued)

| Description | Quantity | Catalog # |
|---------------------------------|------------------|-----------|
| Hidradenitis Suppurativa | 10 million cells | 200-0832 |
| | 50 million cells | 200-0812 |
| | Plasma | 200-0853 |
| Inflammatory Myopathy | 10 million cells | 200-0833 |
| | 50 million cells | 200-0813 |
| | Plasma | 200-0854 |
| Irritable Bowel Syndrome | 10 million cells | 200-0834 |
| | 50 million cells | 200-0814 |
| | Plasma | 200-0855 |
| Lupus | 10 million cells | 70054 |
| | 50 million cells | 200-0815 |
| | Half leukopak | 200-0767 |
| | Full leukopak | 200-0758 |
| | Plasma | 200-0856 |
| Multiple Sclerosis ² | 10 million cells | 200-0835 |
| | 50 million cells | 200-0816 |
| | Plasma | 200-0857 |
| Myasthenia Gravis | 10 million cells | 200-0836 |
| | 50 million cells | 200-0817 |
| | Plasma | 200-0858 |
| Osteoarthritis | 10 million cells | 70055 |
| | 50 million cells | 200-0818 |
| | Half leukopak | 200-0759 |
| | Full leukopak | 200-0750 |
| | Plasma | 200-0859 |
| Psoriasis | 10 million cells | 70056 |
| | 50 million cells | 200-0819 |
| | Half leukopak | 200-0762 |
| | Full leukopak | 200-0753 |
| | Plasma | 200-0860 |
| Rheumatoid Arthritis | 10 million cells | 70050 |
| | 50 million cells | 200-0820 |
| | Half leukopak | 200-0764 |
| | Full leukopak | 200-0755 |
| | Plasma | 200-0861 |
| Scleroderma | 10 million cells | 200-0837 |
| | 50 million cells | 200-0821 |
| | Plasma | 200-0862 |

Autoimmune and Inflammatory Diseased Human Blood Products¹ (Continued)

| Description | Quantity | Catalog # |
|-------------------------|------------------|-----------|
| Sjogren's Syndrome | 10 million cells | 200-0838 |
| | 50 million cells | 200-0822 |
| | Plasma | 200-0863 |
| Type 1 Interferonopathy | 10 million cells | 200-0839 |
| | 50 million cells | 200-0823 |
| | Plasma | 200-0864 |
| Ulcerative Colitis | 10 million cells | 70051 |
| | 50 million cells | 200-0824 |
| | Plasma | 200-0865 |
| Vasculitis | 10 million cells | 200-0840 |
| | 50 million cells | 200-0825 |
| | Plasma | 200-0866 |



Custom Product Options

Request Now

www.stemcell.com/Autoimmune-Custom-Requests
Hematological Cancer Diseased-State PBMCs^{1,6}

| Description | Quantity | Catalog # |
|---------------------------------------|----------------------|-----------|
| Acute Myeloid Leukemia (AML) | Custom | 200-0244 |
| | 5 - 19 million cells | 200-0450 |
| Myelofibrosis (MF) | Custom | 200-0251 |
| | 5 - 19 million cells | 200-0457 |
| Diffuse Large B Cell Lymphoma (DLBCL) | Custom | 200-0247 |
| | 5 - 19 million cells | 200-0453 |
| Follicular Lymphoma (FL) | Custom | 200-0248 |
| | 5 - 19 million cells | 200-0454 |
| Multiple Myeloma (MM) | Custom | 200-0250 |
| | 5 - 19 million cells | 200-0456 |
| Chronic Myelogenous Leukemia (CML) | Custom | 200-0246 |
| | 5 - 19 million cells | 200-0452 |
| Acute Lymphoblastic Leukemia (ALL) | Custom | 200-0243 |
| | 5 - 19 million cells | 200-0449 |
| Chronic Lymphocytic Leukemia (CLL) | Custom | 200-0245 |
| | 5 - 19 million cells | 200-0451 |
| Mantle Cell Lymphoma (MCL) | Custom | 200-0249 |
| | 5 - 19 million cells | 200-0455 |

Solid Tumor Cancer Diseased-State Human Blood Products^{1,6}

| Description | Format | Quantity | Catalog # |
|--------------------|---|----------------------|----------------------|
| Solid Tumor Cancer | Leukopak, Fresh | 1 billion cells | 200-0402 |
| | Whole Peripheral Blood, Fresh ^{5c,d} | Collection | 200-0401 200-0400 |
| | Custom, Frozen ⁴ | - | 200-0403 |
| Lung Cancer | Leukopak, Fresh | 1 billion cells | 200-0300 |
| | PBMCs ² , Frozen | 5 - 19 million cells | 200-0444 |
| | Whole Peripheral Blood, Fresh ^{5c,d} | Collection | 200-0285 200-0270 |
| | Custom, Frozen ⁴ | - | 200-0238 |
| Breast Cancer | Leukopak, Fresh | 1 billion cells | 200-0291 |
| | PBMCs ² , Frozen | 5 - 19 million cells | 200-0435 |
| | Whole Peripheral Blood, Fresh ^{5c,d} | Collection | 200-0276 200-0261 |
| | Custom, Frozen ⁴ | - | 200-0229 |
| Cervical Cancer | Leukopak, Fresh | 1 billion cells | 200-0292 |
| | PBMCs ² , Frozen | 5 - 19 million cells | 200-0436 |
| | Whole Peripheral Blood, Fresh ^{5c,d} | Collection | 200-0277 200-0262 |
| | Custom, Frozen ⁴ | - | 200-0230 |
| Melanoma | Leukopak, Fresh | 1 billion cells | 200-0301 |
| | PBMCs ² , Frozen | 5 - 19 million cells | 200-0445 |
| | Whole Peripheral Blood, Fresh ^{5c,d} | Collection | 200-0286 200-0271 |
| | Custom, Frozen ⁴ | - | 200-0239 |
| Ovarian Cancer | Leukopak, Fresh | 1 billion cells | 200-0302 |
| | PBMCs ² , Frozen | 5 - 19 million cells | 200-0446 |
| | Whole Peripheral Blood, Fresh ^{5c,d} | Collection | 200-0287 200-0272 |
| | Custom, Frozen ⁴ | - | 200-0240 |
| Bladder Cancer | Leukopak, Fresh | 1 billion cells | 200-0290 |
| | PBMCs ² , Frozen | 5 - 19 million cells | 200-0434 |
| | Whole Peripheral Blood, Fresh ^{5c,d} | Collection | 200-0275 200-0260 |
| | Custom, Frozen ⁴ | - | 200-0228 |
| Prostate Cancer | Leukopak, Fresh | 1 billion cells | 200-0304 |
| | PBMCs ² , Frozen | 5 - 19 million cells | 200-0448 |
| | Whole Peripheral Blood, Fresh ^{5c,d} | Collection | 200-0289 200-0274 |
| | Custom, Frozen ⁴ | - | 200-0242 |
| Esophageal Cancer | Leukopak, Fresh | 1 billion cells | 200-0295 |
| | PBMCs ² , Frozen | | 200-0439 |
| | Whole Peripheral Blood, Fresh ^{5c,d} | Collection | 200-0280 200-0265 |
| | Custom, Frozen ⁴ | - | 200-0233 |

Solid Tumor Cancer Diseased-State Human Blood Products^{1,6} (Continued)

| Description | Format | Quantity | Catalog # |
|----------------------|---|----------------------|----------------------|
| Colorectal Cancer | Leukopak, Fresh | 1 billion cells | 200-0293 |
| | PBMCs ² , Frozen | 5 - 19 million cells | 200-0437 |
| | Whole Peripheral Blood, Fresh ^{5c,d} | Collection | 200-0278 200-0263 |
| | Custom, Frozen ⁴ | - | 200-0231 |
| Head and Neck Cancer | Leukopak, Fresh | 1 billion cells | 200-0297 |
| | PBMCs ² , Frozen | 5 - 19 million cells | 200-0441 |
| | Whole Peripheral Blood, Fresh ^{5c,d} | Collection | 200-0282 200-0267 |
| | Custom, Frozen ⁴ | - | 200-0235 |
| Gastric Cancer | Leukopak, Fresh | 1 billion cells | 200-0296 |
| | PBMCs ² , Frozen | 5 - 19 million cells | 200-0440 |
| | Whole Peripheral Blood, Fresh ^{5c,d} | Collection | 200-0281 200-0266 |
| | Custom, Frozen ⁴ | - | 200-0234 |
| Kidney Cancer | Leukopak, Fresh | 1 billion cells | 200-0298 |
| | PBMCs ² , Frozen | 5 - 19 million cells | 200-0442 |
| | Whole Peripheral Blood, Fresh ^{5c,d} | Collection | 200-0283 200-0268 |
| | Custom, Frozen ⁴ | - | 200-0236 |
| Pancreatic Cancer | Leukopak, Fresh | 1 billion cells | 200-0303 |
| | PBMCs ² , Frozen | 5 - 19 million cells | 200-0447 |
| | Whole Peripheral Blood, Fresh ^{5c,d} | Collection | 200-0287 200-0273 |
| | Custom, Frozen ⁴ | - | 200-0241 |
| Endometrial Cancer | Leukopak, Fresh | 1 billion cells | 200-0294 |
| | PBMCs ² , Frozen | 5 - 19 million cells | 200-0438 |
| | Whole Peripheral Blood, Fresh ^{5c,d} | Collection | 200-0279 200-0264 |
| | Custom, Frozen ⁴ | - | 200-0232 |

Fresh Whole Bone Marrow³

| Description | Anticoagulant | Quantity | Catalog # |
|-------------------|--------------------------|----------|-----------|
| Whole Bone Marrow | Na Heparin ^{5d} | ≥ 25 mL | 70502.2 |
| | | ≥ 50 mL | 70502.1 |
| | | ≥ 100 mL | 70502 |

Human Platelet Lysate

| Description | Quantity | Catalog # |
|--|----------|-----------|
| Human Platelet Lysate | 50 mL | 06960 |
| | 100 mL | 06961 |
| | 500 mL | 06962 |
| Human Platelet Lysate, Fibrinogen-Depleted | 50 mL | 06963 |
| | 100 mL | 06964 |
| | 500 mL | 06965 |
| Human Platelet Lysate, Fibrinogen-Depleted, XF | 50 mL | 200-0360 |
| | 100 mL | 200-0361 |
| | 500 mL | 200-0362 |
| Human Platelet Lysate, Fibrinogen-Depleted GMP Compliant | 50 mL | 200-0322 |
| | 100 mL | 200-0323 |
| | 500 mL | 200-0324 |
| Human Platelet Lysate, Pathogen-Reduced, GMP-Compliant | 50 mL | 200-0720 |
| Human Platelet Lysate, Pathogen-Reduced, GMP-Compliant | 500 mL | 200-0721 |

For a complete listing of primary cells products, including mobilized peripheral blood products and cultured cells, please visit www.stemcell.com/PrimaryCells.

Cryopreserved Human Bone Marrow Products¹

| Description | Quantity | Catalog # |
|--|--------------------|-----------|
| Mononuclear Cells (MNCs) | 5 million cells | 70001.1 |
| | 15 million cells | 70001.2 |
| | 25 million cells | 70001 |
| | 50 million cells | 70001.3 |
| | 100 million cells | 70001.4 |
| CD34+ Cells | 0.1 million cells | 70002.1 |
| | 0.3 million cells | 70002.2 |
| | 0.5 million cells | 70002.3 |
| | 1 million cells | 70002 |
| | 2 million cells | 70002.4 |
| | 5 million cells | 70002.5 |
| CD36+ Cells ⁷ | 1 million cells | 70003 |
| CD33+ Cells | 5 million cells | 70006 |
| Stromal Cells in ACF Medium ⁷ | 0.75 million cells | 70071 |

Cryopreserved Human Umbilical Cord Blood Products¹

| Description | Quantity | Catalog # |
|----------------------------|-------------------|-----------|
| Mononuclear Cells (MNCs) | 15 million cells | 70007.1 |
| | 50 million cells | 70007.2 |
| | 150 million cells | 70007 |
| CD34+ Cells (Mixed Donor) | 0.2 million cells | 70008.1 |
| | 0.5 million cells | 70008.3 |
| | 1 million cells | 70008 |
| CD34+ Cells (Single Donor) | 0.2 million cells | 70008.2 |
| | 0.5 million cells | 70008.4 |
| | 0.6 million cells | 200-0000 |
| | 0.7 million cells | 200-0001 |
| | 0.8 million cells | 200-0002 |
| CD19+ B Cells | 1 million cells | 70013 |
| | 2.5 million cells | 70013.1 |
| | 5 million cells | 70013.2 |
| Pan-T Cells | 15 million cells | 70014 |
| CD4+ T Cells | 15 million cells | 70015 |
| CD4+CD45RA+ T Cells | 15 million cells | 70017 |
| CD8+ T Cells | 5 million cells | 70016 |
| CD14+ Monocytes | 5 million cells | 70018 |
| CD56+ Cells ⁹ | 1 million cells | 70019 |
| Plasma | 10 mL | 70020.1 |
| | 20 mL | 70020.2 |
| | 30 mL | 70020.3 |
| | 40 mL | 70020.4 |
| | 50 mL | 70020 |

1. Certain cryopreserved products are only available in select territories. Please contact Product and Scientific Support (techsupport@stemcell.com) for further information.
2. High-resolution HLA typing and CMV status are available upon request.
3. Fresh products (excluding bone marrow and purified cells) are currently available in the United States, Canada (excluding Quebec), the United Kingdom and parts of Europe. Fresh bone marrow and purified cells are currently available in the United States only.
4. A full-size leukopak typically contains $1.1 \pm 0.3 \times 10^{10}$ cells and has a volume of approximately 120 mL.
5. a) ACDA - Acid Citrate Dextrose Solution A is used as the anticoagulant; b) CP2D - Citrate-Phosphate-Double Dextrose is used as the anticoagulant; c) EDTA - Ethylenediaminetetraacetic Acid is used as the anticoagulant; d) Na Heparin - Sodium Heparin is used as the anticoagulant.
6. Diseased states indicate PBMCs obtained from donors diagnosed with given condition.
7. Cultured Cell Product.
8. a) ACF-cultured; b) SF-Cultured
9. CD56 antigen is expressed primarily on natural killer (NK) cells, as well as NKT cells in PB.

Human Cell Isolation Products

Human T Cell Isolation by Negative Selection

| Cell Type | Source ¹ | Product | Purity | For Processing | Compatible Staining Antibodies | Catalog # |
|-------------------|---------------------------------------|--|--------------|----------------------------|--|--------------------------------------|
| Naive Pan T Cells | PBMC | EasySep™ Human Naive Pan T Cell Isolation Kit | 96.1 ± 2.3% | 1 x 10 ⁹ cells | CD3 (Catalog #60011) CD4 (Catalog #60016) CD8a (Catalog #60022) CD45RO (Catalog #60097) | 17961 17961RF |
| T Cells | PBMC | EasySep™ Human T Cell Isolation Kit | 96.7 ± 1.5% | 1 x 10 ⁹ cells | | 17951 17951RF |
| | Leukopak | | 95.9 ± 2.8% | 1 x 10 ¹⁰ cells | | 100-0695 |
| | PBMC | EasySep™ HLA T Cell Enrichment Kit | 95.0 ± 99.0% | 1 x 10 ⁹ cells | | 19051HLA 19051HLARF |
| | Spleen, Lymph Node, Whole Blood | EasySep™ Direct HLA T Cell Isolation Kit | 94.9 ± 1.5% | 100 mL | | 19671 19671RF 89671 89671RF |
| | Whole Blood | EasySep™ HLA Whole Blood T Cell Enrichment Kit | 93.1 - 98.0% | 200 mL | | 19951HLA 19951HLARF |
| | | EasySep™ Direct Human T Cell Isolation Kit | 95.3 ± 1.4% | 100 mL | | 19661 19661RF |
| | | RosetteSep™ Human T Cell Enrichment Cocktail | 90.0 - 97.0% | 40 mL | | 15021 |
| | | | | 200 mL | | 15061 |
| | | RosetteSep™ HLA T Cell Enrichment Cocktail | 90.0 - 97.0% | 250 mL | | 15061HLA |
| | | | | 1000 mL | | 15081HLA |
| | | RosetteSep™ HLA Lymphoid Cell Enrichment Kit | > 85% | 200 mL | | 15271HLA ³ |

Human T Cell Isolation by Positive Selection

| Cell Type | Source ¹ | Product | Purity ² | For Processing | Compatible Staining Antibodies | Catalog # |
|------------|---|---|---------------------|----------------------------|---|------------------|
| CD2+ Cells | PBMC | EasySep™ Human CD2 Positive Selection Kit II | 93.8 ± 3.3% | 1 x 10 ⁹ cells | CD3 (Catalog #60011) CD56 (Catalog #60021) | 17883 17883RF |
| | PBMC | EasySep™ Release Human CD3 Positive Selection Kit | 98.7 ± 0.9% | 1 x 10 ⁹ cells | CD3 (Catalog #60011) CD4 (Catalog #60016) CD8a (Catalog #60022) | 17751 17751RF |
| | | EasySep™ Human CD3 Positive Selection Kit II | 99.2 ± 0.2% | | | 17851 17851RF |
| | Leukopak | EasySep™ Human CD3 Positive Selection Kit II | 95.9 ± 2.8% | 1 x 10 ¹⁰ cells | CD3 (Catalog #100-0287) CD4 (Catalog #60016) | 100-0692 |
| | Whole Blood, Buffy Coat, LRS Cone | EasySep™ HLA Chimerism Whole Blood CD3 Positive Selection Kit | 92.4 - 99.8% | 60 mL | CD2 (Catalog #60007) CD5 (Catalog #60082) CD20 (Catalog #60008) | 17871 17871RF |

RoboSep™-S Reagent Kits (RF) contain an EasySep™ Selection Kit with RoboSep™ Buffer and 1 - 2 boxes of RoboSep™ Tip Racks.

1. PBMC - Peripheral Blood Mononuclear Cells; LRS - Leukocyte Reduction System
2. Purities shown as either a range or mean ± SD.
3. This kit is designed to enrich only CD3+ lymphoid cells.

Human CD4+ T Cell Isolation by Negative Selection

| Cell Type | Source ¹ | Product | Purity ² | For Processing | Compatible Staining Antibodies | Catalog # |
|--------------|---------------------|---|---------------------|----------------------------|--|------------------|
| CD4+ T Cells | PBMC | EasySep™ Human CD4+ T Cell Isolation Kit | 94.8 ± 2.3% | 1 x 10 ⁹ cells | CD3 (Catalog #60011) CD4 (Catalog #60016) CD8a (Catalog #60022) CD45 (Catalog #60018) | 17952 17952RF |
| | Leukopak | | 96.5 ± 1.7% | 1 x 10 ¹⁰ cells | | 100-0696 |
| | Whole Blood | EasySep™ Direct Human CD4+ T Cell Isolation Kit | 93.6 ± 2.5% | 100 mL | | 19662 19662RF |
| | | RosetteSep™ Human CD4+ T Cell Enrichment Cocktail | 94.0 ± 5.0% | 40 mL | | 15022 |
| | | | | 200 mL | | 15062 |

Human CD4+ T Cell Isolation by Positive Selection

| Cell Type | Source ¹ | Product | Purity ² | For Processing | Compatible Staining Antibodies | Catalog # |
|--------------|-----------------------------------|---|---------------------|----------------------------|---|------------------|
| CD4+ T Cells | PBMC | EasySep™ Release Human CD4 Positive Selection Kit | 96.1 ± 4.1% | 1 x 10 ⁹ cells | CD3 (Catalog #60011) CD4 (Catalog #60016) CD8a (Catalog #60022) | 17752 17752RF |
| | | EasySep™ Human CD4 Positive Selection Kit II | 90.0 ± 6.0% | 1 x 10 ⁹ cells | | 17852 17852RF |
| | Leukopak | | 96.4 ± 1.6% | 1 x 10 ¹⁰ cells | | 100-0693 |
| | Whole Blood, Buffy Coat, LRS Cone | EasySep™ HLA Chimerism Whole Blood CD4 Positive Selection Kit | 97.0 ± 1.8% | 60 mL | | 17888 17888RF |

Human CD4+ T Cell Subset Isolation by Negative Selection

| Cell Type | Source ¹ | Product | Purity ² | For Processing | Compatible Staining Antibodies | Catalog # |
|----------------------|---------------------|---|---------------------|---------------------------|---|------------------|
| Resting CD4+ T Cells | PBMC | EasySep™ Human Resting CD4+ T Cell Isolation Kit | 89.0 ± 5.3% | 1 x 10 ⁹ cells | CD3 (Catalog #60011) CD8 (Catalog #60022) CD25 (Catalog #60153) | 17962 17962RF |
| Naïve CD4+ T Cells | PBMC | EasySep™ Human Naïve CD4+ T Cell Isolation Kit II | 96.6 ± 1.5% | 1 x 10 ⁹ cells | CD3 (Catalog #60011) CD4 (Catalog #60016) | 17555 17555RF |
| Memory CD4+ T Cells | PBMC | EasySep™ Human Memory CD4+ T Cell Enrichment Kit | 86.0 - 98.0% | 1 x 10 ⁹ cells | CD45 (Catalog #60018) CD45RO (Catalog #60097) | 19157 19157RF |
| Regulatory T Cells | Please see page 42. | | | | | |

Human CD4+ T Cell Subset Isolation by Positive Selection

| Cell Type | Source ¹ | Product | Purity ² | For Processing | Compatible Staining Antibodies | Catalog # |
|--|---------------------|--|--|---------------------------|--|-----------|
| Th17 Cells | PBMC | EasySep™ Human Th17 Cell Enrichment Kit II | 96.0 - 98.0% | 2 x 10 ⁹ cells | CD4 (Catalog #60016) CD196 (Catalog #60090) | 17862 |
| Central and Effector Memory CD4+ T Cells | PBMC | EasySep™ Human Central and Effector Memory CD4+ T Cell Isolation Kit | 92.3 ± 3.9% (CM) ³ 92.4 ± 4.1% (EM) ³ | 1 x 10 ⁹ cells | CD3 (Catalog #60127) CD45 (Catalog #60018) CD45RO (Catalog #60097) | 17865 |
| Regulatory T Cells | Please see page 42. | | | | | |

RoboSep™-S Reagent Kits (RF) contain an EasySep™ Selection Kit with RoboSep™ Buffer and 1 - 2 boxes of RoboSep™ Tip Racks.

1. PBMC - Peripheral Blood Mononuclear Cells; LRS - Luekocyte Reduction System
2. Purities shown as either a range or mean ± SD.
3. CM - Central Memory; EM - Effector Memory

Human CD8+ T Cell Isolation by Negative Selection

| Cell Type | Source ¹ | Product | Purity ² | For Processing | Compatible Staining Antibodies | Catalog # |
|------------|---------------------|---|---------------------|----------------------------|--|------------------|
| CD8+ Cells | PBMC | EasySep™ Human CD8+ T Cell Isolation Kit | 90.6 ± 4.6% | 1 x 10 ⁹ cells | CD3 (Catalog #60011) CD4 (Catalog #60016) CD8a (Catalog #60022) CD45 (Catalog #60018) | 17953 17953RF |
| | Leukopak | | 85.6 ± 4.9% | 1 x 10 ¹⁰ cells | CD3 (Catalog #60011) CD8a (Catalog #600125) | 100-0710 |
| | Whole Blood | EasySep™ Direct Human CD8+ T Cell Isolation Kit | 82.4 ± 4.9% | 100 mL | CD3 (Catalog #60011) CD4 (Catalog #60016) CD8a (Catalog #60022) CD45 (Catalog #60018) | 19663 |
| | | RosetteSep™ Human CD8+ T Cell Enrichment Cocktail | 84.0 ± 9.0% | 40 mL | | 15023 |
| | | | | 200 mL | | 15063 |

Human CD8+ T Cell Isolation by Positive Selection

| Cell Type | Source ¹ | Product | Purity ² | For Processing | Compatible Staining Antibodies | Catalog # |
|------------|-----------------------------------|---|---------------------|----------------------------|---|------------------|
| CD8+ Cells | PBMC | EasySep™ Human CD8 Positive Selection Kit II | 96.5 ± 2.4% | 1 x 10 ⁹ cells | CD3 (Catalog #60011) CD4 (Catalog #60016) CD8a (Catalog #60022) | 17853 17853RF |
| | Leukopak | | 93.9 ± 4.9% | 1 x 10 ¹⁰ cells | CD8a (Catalog #60022) CD8a (Catalog #60125) | 100-0699 |
| | Whole Blood, Buffy Coat, LRS Cone | EasySep™ HLA Chimerism Whole Blood CD8 Positive Selection Kit | 98.7 ± 1.1% | 60 mL | CD3 (Catalog #60011) CD4 (Catalog #60016) CD8a (Catalog #60022) | 17889 17889RF |

Human CD8+ T Cell Subset Isolation by Negative Selection

| Cell Type | Source ¹ | Product | Purity ² | For Processing | Compatible Staining Antibodies | Catalog # |
|---------------------|---------------------|---|---------------------|---------------------------|--|------------------|
| Naïve CD8+ T Cells | PBMC | EasySep™ Human Naïve CD8+ T Cell Isolation Kit II | 93.7 ± 2.4% | 1 x 10 ⁹ cells | CD3 (Catalog #60011) CD8a (Catalog #60022) CD45 (Catalog #60018) CD45RO (Catalog #60097) CD56 (Catalog #60021) | 17968 17968RF |
| Memory CD8+ T Cells | PBMC | EasySep™ Human Memory CD8+ T Cell Enrichment Kit | 72.0 - 92.0% | 1 x 10 ⁹ cells | CD3 (Catalog #60011) CD8a (Catalog #60022) CD45 (Catalog #60018) CD45RO (Catalog #60097) | 19159 19159RF |

Human CD8+ T Cell Subset Isolation by Positive Selection

| Cell Type | Source ¹ | Product | Purity ² | For Processing | Compatible Staining Antibodies | Catalog # |
|--|---------------------|--|--|---------------------------|--|-----------|
| Central and Effector Memory CD8+ T Cells | PBMC | EasySep™ Human Central and Effector Memory CD8+ T Cell Isolation Kit | 86.8 ± 8.4% (CM) ³ 88.7 ± 6.5% (EM) ³ | 1 x 10 ⁹ cells | CD3 (Catalog #60127) CD45 (Catalog #60018) CD45RO (Catalog #60097) | 17869 |

RoboSep™-S Reagent Kits (RF) contain an EasySep™ Selection Kit with RoboSep™ Buffer and 1 - 2 boxes of RoboSep™ Tip Racks.

1. PBMC - Peripheral Blood Mononuclear Cells; LRS - Leukocyte Reduction System
2. Purities shown as either a range or mean ± SD.
3. CM - Central Memory; EM - Effector Memory

Human Regulatory T Cell Isolation by Negative Selection

| Cell Type | Source ¹ | Product | Purity ² | For Processing | Compatible Staining Antibodies | Catalog # |
|-----------------------------|---------------------|---|---------------------------|---------------------------|---|------------------|
| CD4+CD127low T Cells | Whole Blood | RosetteSep™ Human CD4+CD127low T Cell Enrichment Cocktail | -- | 200 mL | CD4 (Catalog #60016) CD25 (Catalog #60153) | 15361 |
| CD4+CD127low CD49d- T Cells | PBMC | EasySep™ Human CD4+CD127low CD49d- Regulatory T Cell Enrichment Kit | 57.4 - 87.4% ³ | 2 x 10 ⁹ cells | | 19232 19232RF |

Human Regulatory T Cell Isolation by Positive Selection

| Cell Type | Source ¹ | Product | Purity ² | For Processing | Compatible Staining Antibodies | Catalog # |
|-------------------------------|---------------------|--|---------------------------|----------------------------|---|------------------|
| CD25+ Cells | PBMC | EasySep™ Human CD25 Positive Selection and Depletion Kit | 81 - 98% | 1 x 10 ⁹ cells | CD4 (Catalog #60016) CD25 (Catalog #60153) | 17861 |
| CD4+CD127low CD25high T Cells | PBMC | Human CD4+CD127lowCD25+ Regulatory T Cell Isolation Kit | 85.0 ± 4.8% ⁴ | 1 x 10 ⁹ cells | | 18063 18063RF |
| | Leukopak | | 78.4 ± 12.1% ⁴ | 1 x 10 ¹⁰ cells | | 100-1136 |

Human Gamma/Delta T Cell Isolation by Negative Selection

| Cell Type | Source ¹ | Product | Purity ² | For Processing | Compatible Staining Antibodies | Catalog # |
|---------------------|---------------------|---|---------------------|---------------------------|--|------------------|
| Gamma/Delta T Cells | PBMC | EasySep™ Human Gamma/Delta T Cell Isolation Kit | 90.0 - 97.0% | 1 x 10 ⁹ cells | CD2 (Catalog #60007) CD3 (Catalog #60011) CD4 (Catalog #60016) CD8a (Catalog #60022) CD45 (Catalog #60018) | 19255 19255RF |

RoboSep™-S Reagent Kits (RF) contain an EasySep™ Selection Kit with RoboSep™ Buffer and 1 - 2 boxes of RoboSep™ Tip Racks.

1. PBMC - Peripheral Blood Mononuclear Cells
2. Purities shown as either a range or mean ± SD.
3. Purity data represents the CD3+CD4+CD127lowCD25+FOXP3+ cell content of the enriched fraction.
4. Purity data represents the CD4+CD25+FOXP3+ cell content of the isolated fraction.

**Wallchart**

Regulatory T Cells Wallchart
www.stemcell.com/TregWallchart

**Scientific Poster**

Column-Free Isolation of Human Gamma/Delta T Cells
www.stemcell.com/GammaDeltaTPoster

**Wallchart**

Human Cell Frequency Wallchart
www.stemcell.com/forms/Wallchart-Cell-Frequencies.html

**Antibody Finder Tool**

Find the Antibody That's Right for You
www.stemcell.com/Antibodies-Overview

Human B Cell and Subset Isolation by Negative Selection

| Cell Type | Source ¹ | Product | Purity ² | For Processing | Compatible Staining Antibodies | Catalog # |
|--|---|---|---------------------|----------------------------|--|--------------------------------------|
| B Cells ³ | PBMC | EasySep™ Human B Cell Isolation Kit | 95.1 ± 1.4% | 1 x 10 ⁹ cells | CD3 (Catalog #60011) CD19 (Catalog #60005) CD45 (Catalog #60018) | 17954 17954RF |
| | Leukopak | | 99.4 ± 0.5% | 1 x 10 ¹⁰ cells | | 100-0971 |
| | PBMC | EasySep™ HLA B Cell Enrichment Kit | 95.0 - 99.0% | 1 x 10 ⁹ cells | CD19 (Catalog #60005) CD20 (Catalog #60008) | 19054HLA 19054HLARF |
| | Spleen, Lymph Node, Whole Blood | EasySep™ Direct HLA B Cell Isolation Kit | 97 ± 3% | 100 mL | CD3 (Catalog #60011) CD19 (Catalog #60005) CD20 (Catalog #60008) CD45 (Catalog #60018) | 19684 19684RF 89684 89684RF |
| | Whole Blood | EasySep™ HLA B Cell Enrichment: Complete Processing Kit for Whole Blood | 81.5 - 99.7% | 200 mL | | 19954HLA 19954HLARF |
| | | EasySep™ Direct Human B Cell Isolation Kit | 95.3 ± 2.7% | 100 mL | | 19674 19674RF |
| | | RosetteSep™ Human B Cell Enrichment Cocktail | 81.0 - 83.0% | 40 mL | CD19 (Catalog #60005) CD20 (Catalog #60008) | 15024 |
| | | | | 200 mL | | 15064 |
| | | RosetteSep™ HLA B Cell Enrichment Cocktail | 81.0 - 83.0% | 250 mL | | 15064HLA |
| | | | | 1000 mL | | 15084HLA |
| Pan-B Cells ⁴ | PBMC | EasySep™ Human Pan-B Cell Enrichment Kit | 90 - 99% | 1 x 10 ⁹ cells | CD4 (Catalog #60016) CD8a (Catalog #60022) CD14 (Catalog #60004) CD16 (Catalog #60041) CD19 (Catalog #60005) CD43 (Catalog #60085) CD56 (Catalog #60021) | 19554 19554RF |
| B Cells (without CD43 depletion) ⁵ | PBMC | EasySep™ Human B Cell Enrichment Kit II Without CD43 Depletion | 84.9 - 13.9% | 1 x 10 ⁹ cells | CD19 (Catalog #60005) CD20 (Catalog #60008) | 17963 17963RF |
| | Whole Blood | EasySep™ Direct Human B-CLL Cell Isolation Kit | 87.0 ± 7.6% | 100 mL | | 19664 |
| Naïve B Cells | PBMC | EasySep™ Human Naïve B Cell Isolation Kit | 94.9 ± 2.2% | 1 x 10 ⁹ cells | CD3 (Catalog #60011) CD19 (Catalog #60005) CD20 (Catalog #60008) CD45 (Catalog #60018) | 17254 17254RF |
| | Whole Blood | EasySep™ Direct Human Naïve B Cell Isolation Kit | 91.8 ± 3.6% | 100 mL | | 19264 |
| Plasma Cells | Bone Marrow | RosetteSep™ Human Multiple Myeloma Cell Enrichment Cocktail | > 95.0% | 40 mL | CD45 (Catalog #60018) CD138 (Syndecan-1) (Catalog #60003) | 15129 |
| | | | | 200 mL | | 15169 |

RoboSep™-S Reagent Kits (RF) contain an EasySep™ Selection Kit with RoboSep™ Buffer and 1 - 2 boxes of RoboSep™ Tip Racks.

1. PBMC - Peripheral Blood Mononuclear Cells
2. Purities shown as either a range or mean ± SD.
3. CD43 - B cells from normal samples.
4. B cells including plasma cells from non-leukemia or lymphoma samples.
5. B cells from B cell leukemia or lymphoma samples, or other disease states in which B cells may express CD43, CD123, or CD36. Note that samples from normal healthy donors were used to obtain purity data. The purity of isolated cells is typically higher when processing samples that have an elevated frequency of B cells (e.g., CLL samples).

Human B Cell and Subset Isolation by Positive Selection

| Cell Type | Source ¹ | Product | Purity ² | For Processing | Compatible Staining Antibodies | Catalog # |
|-----------------------------|-----------------------------------|--|---------------------|---------------------------|--|------------------|
| CD19+ Cells | PBMC | EasySep™ Release Human CD19 Positive Selection Kit | 97.7 ± 2.3% | 1 x 10 ⁹ cells | CD19 (Catalog #60005) CD20 (Catalog #60008) | 17754 |
| | | EasySep™ Human CD19 Positive Selection Kit II | 97.0 - 99.0% | 1 x 10 ⁹ cells | | 17854 17854RF |
| | Whole Blood, Buffy Coat, LRS Cone | EasySep™ HLA Chimerism Whole Blood CD19 Positive Selection Kit | 94.3 - 99.6% | 60 mL | | 17874 17874RF |
| CD19+ and CD20+ Cells | Whole Blood, Buffy Coat, LRS Cone | EasySep™ HLA Chimerism Whole Blood B Cell Positive Selection Kit | 92.5 ± 5.6% | 60 mL | CD19 (Catalog #60005) CD22 (Catalog #60083) | 17886 17886RF |
| CD19+CD27+ (Memory B) Cells | PBMC | EasySep™ Human Memory B Cell Isolation Kit | 97 ± 2% | 1 x 10 ⁹ cells | CD19 (Catalog #60005) CD27 (Catalog #60160) | 17864 |
| CD138+ (Plasma) Cells | PBMC, Bone Marrow | EasySep™ Human CD138 Positive Selection Kit II | 93.0 - 98.2% | 2 x 10 ⁹ cells | CD45 (Catalog #60018) CD138 (Syndecan-1) (Catalog #60003) | 17877 17877RF |
| | Whole Blood, Bone Marrow | EasySep™ Human Whole Blood and Bone Marrow CD138 Positive Selection Kit II | 83.7 - 98.3% | 60 mL | | 17887 17887RF |

Human NK Cell Isolation by Negative Selection

| Cell Type | Source ¹ | Product | Purity ² | For Processing | Compatible Staining Antibodies | Catalog # |
|-----------|---------------------|---|---------------------|----------------------------|--|----------------------|
| NK Cells | PBMC | EasySep™ Human NK Cell Isolation Kit | 85.0 ± 8.0% | 1 x 10 ⁹ cells | CD3 (Catalog #60011) CD45 (Catalog #60018) CD56 (Catalog #60021) | 17955 17955RF |
| | Leukopak | | 96.5 ± 1.7% | 1 x 10 ¹⁰ cells | | 100-0960 |
| | PBMC, Leukopak | EasySep™ Human Pan-NK Cell Isolation Kit | 89.4 ± 6.6% | 1 x 10 ⁹ cells | | 100-1580 100-1662 |
| | Whole Blood | EasySep™ Direct Human NK Cell Isolation Kit | 80.0 - 98.0% | 100 mL | | 19665 |
| | | RosetteSep™ Human NK Cell Enrichment Cocktail | 76.8 ± 12.2% | 40 mL | | 15025 |
| | | | | 200 mL | | 15065 |

Human NK Cell Isolation by Positive Selection

| Cell Type | Source ¹ | Product | Purity ² | For Processing | Compatible Staining Antibodies | Catalog # |
|-------------|----------------------|---|---------------------|---------------------------|--------------------------------|------------------|
| CD56+ Cells | PBMC | EasySep™ Human CD56 Positive Selection Kit II | 94.0 ± 3.0% | 1 x 10 ⁹ cells | CD56 (Catalog #60021) | 17855 17855RF |
| | Buffy Coat, LRS Cone | EasySep™ HLA Chimerism Buffy Coat CD56 Positive Selection Kit | 95.8 - 99.5% | 30 mL | | 17875 17875RF |

RoboSep™-S Reagent Kits (RF) contain an EasySep™ Selection Kit with RoboSep™ Buffer and 1 - 2 boxes of RoboSep™ Tip Racks.

1. PBMC - Peripheral Blood Mononuclear Cells; LRS - Leukocyte Reduction System
2. Purities shown as either a range or mean ± SD.

Human Total Lymphocyte Isolation by Negative Selection

| Cell Type | Source ¹ | Product | Purity ² | For Processing | Compatible Staining Antibodies | Catalog # |
|-------------------|---------------------|---|---------------------|----------------|---|------------------------|
| Total Lymphocytes | Whole Blood | EasySep™ Direct Human Total Lymphocyte Isolation Kit | 96.7 ± 1.5% | 100 mL | CD2 (Catalog #60007) CD3 (Catalog #60011) CD19 (Catalog #60005) CD20 (Catalog #60008) CD45 (Catalog #60018) CD54 (NCAM) (Catalog #60021) | 19655 19655RF |
| | | EasySep™ HLA Total Lymphocyte Enrichment: Complete Processing Kit for Whole Blood | 90.2 - 96.9% | 200 mL | | 19961HLA 19961HLARF |
| | | RosetteSep™ Human Total Lymphocyte Enrichment Cocktail | 94.0 ± 2.0% | 40 mL | | 15223 |
| | | | | 200 mL | | 15263 |
| | | RosetteSep™ HLA Total Lymphocyte Enrichment Cocktail | -- | 250 mL | | 15263HLA ³ |
| | | | | 1000 mL | | 15283HLA ³ |

Human Lymphoid Cell Isolation by Positive Selection

| Cell Type | Source ¹ | Product | Purity ² | For Processing | Compatible Staining Antibodies | Catalog # |
|----------------|-----------------------------------|--|---------------------|----------------|--|------------------|
| Lymphoid Cells | Whole Blood, Buffy Coat, LRS Cone | EasySep™ HLA Chimerism Whole Blood Lymphoid Positive Selection Kit | 99.5 ± 0.2% | 60 mL | CD2 (Catalog #60007) CD3 (Catalog #60011) CD19 (Catalog #60005) CD20 (Catalog #60008) | 17873 17873RF |

Human Innate Lymphoid Cell (ILC) Isolation by Negative Selection

| Cell Type | Source ¹ | Product | Purity ² | For Processing | Compatible Staining Antibodies | Catalog # |
|-------------------------------|---------------------|---------------------------------------|--|---------------------------|---|--|
| Group 2 Innate Lymphoid Cells | Leukopak | EasySep™ Human ILC2 Enrichment Kit | 13 - 78% (250 - 1450 fold enrichment) | 1 x 10 ⁹ cells | CD3 (Catalog #60011) CD14 (Catalog #60004) CD16 (Catalog #60041) CD19 (Catalog #60005) | 17972 |
| Pan-Innate Lymphoid Cells | Leukopak | EasySep™ Human Pan-ILC Enrichment Kit | 17 - 86% (198 - 1556 fold enrichment) | 1 x 10 ⁹ cells | CD34 (Catalog #60013) CD45 (Catalog #60018) CD123 (Catalog #60110) | 17975 ³ 17975RF ³ |

Human Innate Lymphoid Cell (ILC) Isolation by Positive Selection

| Cell Type | Source ¹ | Product | Purity ² | For Processing | Compatible Staining Antibodies | Catalog # |
|-------------------------------|---------------------|-----------------------------------|---------------------|---------------------------|---|-----------|
| Group 2 Innate Lymphoid Cells | Leukopak | EasySep™ Human ILC2 Isolation Kit | 84 - 95% | 2 x 10 ⁹ cells | CD3 (Catalog #60011) CD14 (Catalog #60004) CD16 (Catalog #60041) CD19 (Catalog #60005) CD34 (Catalog #60013) CD45 (Catalog #60018) CD123 (Catalog #60110) | 17782 |

RoboSep™-S Reagent Kits (RF) contain an EasySep™ Selection Kit with RoboSep™ Buffer and 1 - 2 boxes of RoboSep™ Tip Racks.

1. LRS - Leukocyte Reduction System
2. Purities shown as either a range or mean ± SD.
3. These kits enrich for group 1, group 2, and group 3 innate lymphoid cells (ILC1, ILC2, and ILC3).

Human Dendritic Cell Isolation by Negative Selection

| Cell Type | Source ¹ | Product | Purity ² | For Processing | Compatible Staining Antibodies | Catalog # |
|------------------------------|---------------------|---|---------------------|---------------------------|--|------------------|
| Pan-Dendritic Cells | PBMC | EasySep™ Human Pan-DC Pre-Enrichment Kit | 50.0 - 90.0% | 1 x 10 ⁹ cells | CD3 (Catalog #60011 and #60127) CD14 (Catalog #60004) CD16 (Catalog #60041) CD19 (Catalog #60005) CD20 (Catalog #60008) CD34 (Catalog #60013) CD56 (Catalog #60021) HLA-DR (Catalog #60164) | 19251 19251RF |
| Myeloid Dendritic Cells | PBMC | EasySep™ Human Myeloid DC Enrichment Kit | 79.0 - 94.0% | 2 x 10 ⁹ cells | | 19061 19061RF |
| Plasmacytoid Dendritic Cells | PBMC | EasySep™ Human Plasmacytoid DC Enrichment Kit | 87.0 - 97.0% | 2 x 10 ⁹ cells | | 19062 19062RF |
| | | EasySep™ Human Plasmacytoid DC Isolation Kit | 90 ± 5.3% | 2 x 10 ⁹ cells | | 17977 17977RF |

Human Monocyte Isolation by Negative Selection

| Cell Type | Source ¹ | Product | Purity ² | For Processing | Compatible Staining Antibodies | Catalog # |
|-----------|---------------------|---|---------------------|----------------------------|--|--|
| Monocytes | PBMC | EasySep™ Human Monocyte Enrichment Kit without CD16 Depletion | 82.7 ± 6.7% | 1 x 10 ⁹ cells | CD14 (Catalog #60004) CD16 (Catalog #60041) | 19058 ³ 19058RF ³ |
| | Leukopak | | 86.6 ± 3.6% | 1 x 10 ¹⁰ cells | | 100-1525 |
| | PBMC | EasySep™ Human Monocyte Isolation Kit | 89.7 ± 3.4% | 1 x 10 ⁹ cells | CD14 (Catalog #60004) CD45 (Catalog #60018) | 19359, 19359RF |
| | Leukopak | | 88.3 ± 4.0% | 1 x 10 ¹⁰ cells | CD14 (Catalog #60004 and #60124) | 100-0697 |
| | Whole Blood | EasySep™ Direct Human Monocyte Isolation Kit | 82.2 ± 8.4% | 100 mL | CD14 (Catalog #60004) CD45 (Catalog #60018) | 19669 19669RF |
| | | RosetteSep™ Human Monocyte Enrichment Cocktail | 72.0 - 85.0% | 40 mL | CD14 (Catalog #60004 and #60124) | 15028 |
| | | | | 200 mL | | 15068 |

Human Granulocyte and Subset Isolation by Negative Selection

| Cell Type | Source ¹ | Product | Purity ² | For Processing | Compatible Staining Antibodies | Catalog # |
|------------------|---------------------|---|---------------------|---------------------------|--|-------------------|
| Pan-Granulocytes | PMNC | EasySep™ Human Pan-Granulocyte Isolation Kit | 97.0 - 99.0% | 1 x 10 ⁹ cells | CD16 (Catalog #60041) CD66b (Catalog #60086) CD123 (Catalog #60110) CD45 (Catalog #60018) | 19259 19259RF |
| | Whole Blood | EasySep™ Direct Human Pan-Granulocyte Isolation Kit | 98.4 ± 1.5% | 100 mL | | 19659 |
| Basophils | PMNC | EasySep™ Human Basophil Isolation Kit | 94.0 ± 2.5% | 1 x 10 ⁹ cells | CD123 (Catalog #60110) | 17969 17969RF |
| | Whole Blood | EasySep™ Direct Human Basophil Isolation Kit | 97.3 ± 1.1% | 100 mL | | 19667 |
| Neutrophils | PMNC | EasySep™ Human Neutrophil Isolation Kit | 98.7 ± 0.9% | 100 mL | CD16 (Catalog #60041) CD66b (Catalog #60086) CD45 (Catalog #60018) | 17957 17957RF |
| | Whole Blood | EasySep™ Direct Human Neutrophil Isolation Kit | 97.3 ± 1.4% | 100 mL | | 19666 100-0404 |
| Eosinophils | PMNC | EasySep™ Human Eosinophil Isolation Kit | 96.5 ± 2.5% | 1 x 10 ⁹ cells | | 17956 17956RF |
| | Whole Blood | EasySep™ Direct Human Eosinophil Isolation Kit | 95.8 ± 2.7% | 100 mL | | 19656 |

RoboSep™-S Reagent Kits (RF) contain an EasySep™ Selection Kit with RoboSep™ Buffer and 1 - 2 boxes of RoboSep™ Tip Racks.

1. PBMC - Peripheral Blood Mononuclear Cells; PMNC - Polymorphonuclear Cells
2. Purities shown as either a range or mean ± SD.
3. These kits isolate CD14+CD16+ monocytes.

Human Dendritic Cell Isolation by Negative Selection

| Cell Type | Source ¹ | Product | Purity ² | For Processing | Compatible Staining Antibodies | Catalog # |
|---------------|---------------------|---|---------------------|----------------|---|-----------|
| Myeloid Cells | Whole Blood | RosetteSep™ HLA Myeloid Cell Enrichment Kit | 68.0 - 98.0% | 200 mL | CD11b (Catalog #60040) CD33 (Catalog # 60096) CD45 (Catalog #60018) CD66b (Catalog #60086) | 15272HLA |

Human Cell Isolation with In Vitro Diagnostic (IVD) Devices

| Cell Type | Source ¹ | Product | Selective | For Processing | Catalog # |
|-----------------------|---------------------|---|-----------|----------------|-----------------------|
| CD138+ (Plasma) Cells | Bone Marrow | EasySep™ Human Bone Marrow CD138 Positive Selection Kit (IVD) | Positive | 60 mL | 100-1133 ¹ |

Human Myeloid Cell Isolation by Positive Selection

| Cell Type | Source ¹ | Product | Purity ² | For Processing | Compatible Staining Antibodies | Catalog # |
|-----------------------------|-------------------------|---|---------------------|----------------------------|--|------------------|
| CD11b+ Cells | PBMC | EasySep™ Human CD11b Positive Selection and Depletion Kit | 91.9 ± 6.4% | 1 x 10 ⁹ cells | CD11b (Catalog #60040) CD45 (Catalog #60018) | 100-0742 |
| CD14+ Cells | PBMC | EasySep™ Human CD14 Positive Selection Kit II | 97.8 - 99.7% | 1 x 10 ⁹ cells | CD14 (Catalog #60004) CD36 (Catalog #60084) | 17858 17858RF |
| | Leukopak | | 93.9 ± 4.9% | 1 x 10 ¹⁰ cells | CD14 (Catalog #60004) CD14 (Catalog #60124) | 100-0694 |
| | Buffy Coat, LRS Cone | EasySep™ HLA Chimerism Buffy Coat CD14 Positive Selection Kit | 93.0 ± 6.4% | 30 mL | CD14 (Catalog #60004) CD36 (Catalog #60084) | 17878 17878RF |
| CD15+ Cells | PMNC | EasySep™ Human CD15 Positive Selection Kit | 98.8 ± 0.8% | 1 x 10 ⁹ cells | CD45 (Catalog #60018) | 18651 18651RF |
| | Whole Blood, Buffy Coat | EasySep™ HLA Chimerism Whole Blood CD15 Positive Selection Kit | 99.2 ± 1.1% | 60 mL | | 17881 17881RF |
| CD33+ Cells | Lysed Whole Blood | EasySep™ Human CD33 Positive Selection Kit II | 95.6 ± 1.6% | 1 x 10 ⁹ cells | CD66b (Catalog #60086) CD14 (Catalog #60004) | 17876 17876RF |
| | Whole Blood | EasySep™ HLA Chimerism Whole Blood CD33 Positive Selection Kit | 60.2 - 79.6% | 60 mL | | 17885 17885RF |
| CD33+CD66b+ (Myeloid) Cells | Lysed Whole Blood | EasySep™ Human Myeloid Positive Selection Kit II | 96.5 ± 1.3% | 1 x 10 ⁹ cells | CD66b (Catalog #60086) CD14 (Catalog #60004) CD33 (Catalog #60096) | 17893 17893RF |
| | Whole Blood, Buffy Coat | EasySep™ HLA Chimerism Whole Blood Myeloid Positive Selection Kit | 94.5 ± 4.1% | 60 mL | | 17884 17884RF |
| CD66b+ Cells (Granulocytes) | Whole Blood | EasySep™ HLA Chimerism Whole Blood CD66b Positive Selection Kit | 98.0 ± 0.8% | 60 mL | CD66b (Catalog #60086) | 17882 17882RF |
| HLA-DR+ Cells | PBMC, Leukopak | EasySep™ Human HLA-DR Positive Selection and Depletion Kit | 91.9 ± 6.4% | 1 x 10 ⁹ cells | Anti-HLA-DR, clone L243 | 100-0980 |
| CD271+ Cells | Bone Marrow | EasySep™ Human CD271 Selection Kit II | -- | 2 x 10 ⁹ cells | Dextran (Catalog #60026) | 17849 |

1. The EasySep™ Human Bone Marrow CD138 Positive Selection Kit is an in vitro diagnostic (IVD) medical device for hematopoietic cell enrichment available in Canada, the EU, the UK, and the US, and is intended for use with diagnostic assays for multiple myeloma as part of the pre-analytical workflow for laboratory professionals.

Isolation of Human Extracellular Vesicles by Positive Selection

| Separation Technology | Source | Product | For Processing | Compatible Staining Antibodies | Catalog # |
|-----------------------------------|---|--|---|--|-----------|
| Immunomagnetic Positive Selection | Plasma, Serum, Cell-Conditioned Medium | EasySep™ Human Pan-Extracellular Vesicle Positive Selection Kit | 20 mL of biofluid | CD9 (Catalog #100-0138) CD63 (Catalog #100-0139) CD81 (Catalog #100-0209) CD9/CD63/CD81 Panel (Catalog #100-0211) | 17891 |
| | | EasySep™ Human Extracellular Vesicle CD9 Positive Selection Kit | | | 17894 |
| | | EasySep™ Human Extracellular Vesicle CD81 Positive Selection Kit | | | 17892 |
| | | EasySep™ Human Extracellular Vesicle CD63 Positive Selection Kit | | | 17895 |
| | Plasma, Serum, Urine, Cell Culture Conditioned Medium | EasySep™ Extracellular Vesicle PE Positive Selection Kit | 20 mL of biofluid or conditioned medium | | 100-0812 |

Isolation of Extracellular Vesicles Using Size Exclusion Chromatography

| Separation Technology | Source | Product | For Processing | Compatible Staining Antibodies | Catalog # |
|-------------------------------|--|-----------------------------------|----------------|---|-----------|
| Size Exclusion Chromatography | Plasma, Serum, Cell-Conditioned Medium | Extracellular Vesicle SEC Columns | 0.5 mL | CD9 (Catalog #100-0138) CD63 (Catalog #100-0139) CD81 (Catalog #100-0209) CD9/CD63/CD81 Antibody Panel (Catalog #100-0211) | 100-0414 |
| | | | 2 mL | | 100-0415 |
| | | | 20 mL | | 100-0416 |

RoboSep™-S Reagent Kits (RF) contain an EasySep™ Selection Kit with RoboSep™ Buffer and 1 - 2 boxes of RoboSep™ Tip Racks.

1. PBMC - Peripheral Blood Mononuclear Cells; PMNC - Polymorphonuclear Cells; LRS - Leukocyte Reduction System
2. Purities shown as either a range or mean \pm SD.

Human Hematopoietic Progenitor Cell Isolation by Negative Selection

| Cell Type | Source ¹ | Product | Purity ² | For Processing | Compatible Staining Antibodies | Catalog # |
|---------------------------|---------------------|---|--|---------------------------|--------------------------------|--|
| Hematopoietic Progenitors | PBMC, CBMC | EasySep™ Human Progenitor Enrichment Kit with Platelet Depletion | 50.0 - 75.0% | 1 x 10 ⁹ cells | -- | 19356 ³ 19356RF ³ |
| | Bone Marrow | RosetteSep™ Human Bone Marrow Progenitor Cell Pre-Enrichment Cocktail | 25.0 ± 10.0 fold CD34+ cell enrichment | 40 mL | | 15027 |
| | | | | 200 mL | | 15067 |
| | Cord Blood | EasySep™ Human Progenitor Cell Enrichment Kit II | 77.5 ± 16.0% | 1 x 10 ⁹ cells | | 17936 17936RF |
| | Cord Blood | RosetteSep™ Human Hematopoietic Progenitor Cell Enrichment Cocktail | 29.0 ± 9.0% | 40 mL | | 15026 |
| | | | | 200 mL | | 15066 |
| | | Complete RosetteSep™ Human Cord Blood Progenitor Enrichment Kit | 29.0 ± 9.0% | 500 mL | | 15276 |
| Lineage Negative Cells | Cord Blood | RosetteSep™ Human Cord Blood Debulking Cocktail | 5.0 ± 1.0% (CD34+ cells) | 40 mL | | 15126 ⁴ |
| | | | | 200 mL | | 15166 ⁴ |

Human CD34+Hematopoietic Progenitor Cell Isolation by Positive Selection

| Cell Type | Source ¹ | Product | Purity ² | For Processing | Compatible Staining Antibodies | Catalog # |
|-------------|---|---|---------------------|---------------------------------------|--------------------------------|--|
| CD34+ Cells | Mobilized PBMC, CBMC, BMMC, and hESC and hiPSC Cultures | EasySep™ Human CD34 Positive Selection Kit II | 93.5 ± 1.1% | 5 x 10 ⁹ cells | CD34 (Catalog #60013) | 17856 ⁵ 17856RF ⁵ |
| | Mobilized Leukopak | | 94.6 ± 2.4% | 1 x 10 ¹⁰ cells | | 100-1569 |
| | Whole Blood, Buffy Coat | EasySep™ Human Whole Blood CD34 Positive Selection Kit II | 90.4 ± 7.0% | 75 mL whole blood 37 mL buffy coat | | 17879 17879RF |
| | Whole Blood | Complete Kit for Human Whole Blood CD34+ Cells | 95.1 ± 4.5% | 120 mL | | 15086 15086RF |
| | Cord Blood | EasySep™ Human Cord Blood CD34 Positive Selection Kit II | 91.0 ± 9.0% | 1000 mL | | 17896 ^{6,7} 17896RF ^{6,7} |
| | | EasySep™ Human Cord Blood CD34 Positive Selection Kit III | 87.0 ± 12% | 1000 mL | | 17897 ^{6,8} 17897RF ^{6,8} |

Human Total Leukocyte Isolation by Positive Selection

| Cell Type | Source | Product | Purity | For Processing | Compatible Staining Antibodies | Catalog # |
|-------------|----------------------------------|--|------------------|---------------------------|--------------------------------|----------------------|
| CD45+ Cells | Primary Human Tissues and Tumors | EasySep™ Release Human CD45 Positive Selection Kit | Varies by tissue | 1 x 10 ⁹ cells | CD45 (Catalog #60018) | 100-0105 100-0108 |

RoboSep™-S Reagent Kits (RF) contain an EasySep™ Selection Kit with RoboSep™ Buffer and 1 - 2 boxes of RoboSep™ Tip Racks.

1. PBMC - Peripheral Blood Mononuclear Cells; CBMC - Cord Blood Mononuclear Cells; BMMC - Bone Marrow Mononuclear Cells; hESC - Human Embryonic Stem Cell; LRS - Leukocyte Reduction System; hiPSC - Human Induced Pluripotent Stem Cell
2. Purities shown as either a range or mean ± SD. Purity data for 17856, 17856RF, 17879, 17879RF, and 15086 are reported relative to viable CD45+ cells.
3. This product is designed for use with samples that contain large numbers of platelets.
4. This product is recommended for debulking cord blood of lineage positive cells prior to freezing.
5. These kits are for use with previously frozen cord blood mononuclear cells. For isolation of CD34+ cells from fresh cord blood, please use 17896 and 17896RF.
6. These kits are for use with fresh cord blood. For isolation of CD34+ cells from previously frozen cord blood mononuclear cells, please use 17856 and 17856RF.
7. This kit contains antibodies for platelet depletion and is recommended for pre-enrichment of CD34+ cells from cord blood samples that contain large amounts of platelets. Platelets may affect the quality and purity of CD34+ cells if not depleted.
8. This kit does not contain antibodies for platelet depletion and is recommended for pre-enrichment of CD34+ cells from cord blood samples that contain few platelets or when platelet depletion is not desired.

Isolation of Other Human Cell Types by Negative Selection

| Cell Type | Source | Product | Purity | For Processing | Compatible Staining Antibodies | Catalog # |
|--|--|--|-------------------------|----------------|--|--|
| Peripheral Blood Mononuclear Cells (PBMCs) | Whole Blood, Buffy Coat, Cord Blood, Bone Marrow, Leukopak | EasySep™ Direct Human PBMC Isolation Kit | 98.3 ± 2.8% | 100 mL | CD235ab (Glycophorin A/B) (Catalog #60111) CD41 (Catalog #60114) CD45 (Catalog #60018) | 19654 |
| Circulating Epithelial Tumor Cells | Whole Blood | EasySep™ Direct Human CTC Enrichment Kit | 2.9 - 3.2 log depletion | 100 mL | Epithelial Cell (Catalog #60147) | 19657 |
| | | RosetteSep™ CTC Enrichment Cocktail Containing Anti-CD36 | 2.9 log depletion | 40 mL | CD326 (EpCAM) (Catalog #10109) CD45 (Catalog #60018) | 15127 |
| | | | | 200 mL | | 15167 |
| | | RosetteSep™ CTC Enrichment Cocktail Containing Anti-CD56 | 3.2 - 4.4 log depletion | 40 mL | | 15137 |
| | | | | 200 mL | | 15177 |
| Other Cell Types (Custom) | Any Source | EasySep™ Human Custom Enrichment Kit | -- | As requested | -- | 19309 ¹ 19309RF ¹ |
| | Whole Blood | RosetteSep™ Human Custom Cocktail | -- | As requested | -- | 15309 ¹ |

Isolation of Other Human Cell Types by Positive Selection

| Cell Type | Source | Product | Purity | For Processing | Compatible Staining Antibodies | Catalog # |
|---------------------------|--------------------------------|--|-------------|---------------------------|---|--|
| Other Cell Types (Custom) | Any Source | EasySep™ Human Custom Positive Selection Kit | -- | As requested | -- | 18309 ² 18309RF ² |
| | | EasySep™ Release Human Biotin Positive Selection Kit | -- | 1 x 10 ⁹ cells | -- | 17653 ³ |
| | | EasySep™ Release Human PE Positive Selection Kit | -- | 1 x 10 ⁹ cells | -- | 17654 ⁴ |
| | | EasySep™ Release Human APC Positive Selection Kit | -- | 1 x 10 ⁹ cells | -- | 100-0031 ⁷ |
| | | EasySep™ Human PE Positive Selection Kit II | -- | 1 x 10 ⁹ cells | Dextran (Catalog #60026) | 17664 ⁴ 17664RF ⁴ |
| | | | | 5 x 10 ⁹ cells | | 17694 ^{4,5} |
| | | EasySep™ Human FITC Positive Selection Kit II | -- | 1 x 10 ⁹ cells | | 17662 ⁶ 17662RF ⁶ |
| | | EasySep™ Human Biotin Positive Selection Kit II | -- | 1 x 10 ⁹ cells | | 17663 ³ 17663RF ³ |
| | | EasySep™ Release Human APC Positive Selection Kit II | -- | 1 x 10 ⁹ cells | | 100-0031 ⁷ |
| | | EasySep™ Human "Do-It-Yourself" Selection Kit II | -- | 1 x 10 ⁹ cells | | 17699 ⁸ 17699RF ⁸ |
| | Epithelial Cell Preparations | EasySep™ Human EpCAM Positive Selection Kit II | 96.2 ± 3.0% | 1 x 10 ⁹ cells | Epithelial Cell (Catalog #60147) CD45 (Catalog #60018) | 17846 17846RF |
| EGFR+ Cells | PBMC, Leukopak, Cultured Cells | EasySep™ Human EGFR Positive Selection Kit | 96.0 ± 2.8% | 1 x 10 ⁹ cells | -- | 100-1131 |

RoboSep™-S Reagent Kits (RF) contain an EasySep™ Selection Kit with RoboSep™ Buffer and 1 - 2 boxes of RoboSep™ Tip Racks.

1. Isolate any human cell type by negative selection.
2. Isolate any human cell type by positive selection.
3. Use with biotinylated antibodies.
4. Use with PE-conjugated antibodies.
5. This product includes 5 x 17664.
6. Use with FITC-conjugated antibodies.
7. Use with APC-conjugated antibodies.
8. Use your own mouse IgG1 antibodies.

Human Cell Depletion Products

Human T Cell and Subset Depletion

| Cell Type | Source ¹ | Product | Purity ² | For Processing | Compatible Staining Antibodies | Catalog # |
|-------------|---------------------|--|-----------------------------|----------------------------|--------------------------------|----------------|
| αβ T cells | Leukopak | EasySep™ Human TCR Alpha/Beta Depletion Kit | 99.9 ± 0.3% | 1 x 10 ⁹ cells | -- | 17847 |
| | | | 99.9 ± 0.3% | 1 x 10 ¹⁰ cells | | 100-1660 |
| CD3+ Cells | Whole Blood | RosetteSep™ Human CD3 Depletion Cocktail | Typically 3.0 log depletion | 40 mL 200 mL | CD3 (Catalog #60011) | 15621 15661 |
| CD4+ Cells | Whole Blood | RosetteSep™ Human CD4 Depletion Cocktail | Typically 2.0 log depletion | 40 mL 200 mL | CD4 (Catalog #60016) | 15622 15662 |
| CD8+ Cells | Whole Blood | RosetteSep™ Human CD8 Depletion Cocktail | Typically 2.0 log depletion | 40 mL 200 mL | CD8a (Catalog #60022) | 15623 15663 |
| CD25+ Cells | PBMC | EasySep™ Human CD25 Positive Selection and Depletion Kit | Typically 1.3 log depletion | 1 x 10 ⁹ cells | CD25 (Catalog #60153) | 17861 |

Human Myeloid Cell Depletion

| Cell Type | Source | Product | Purity | For Processing | Compatible Staining Antibodies | Catalog # |
|---------------|---|--|-----------------------------|---------------------------|---|-----------|
| Monocytes | Whole Blood | RosetteSep™ Human Monocyte Depletion Cocktail | Typically 2.8 log depletion | 40 mL | CD14 (Catalog #60004) CD16 (Catalog #60041) | 15628 |
| | | | | 200 mL | CD36 (Catalog #60084) CD45 (Catalog #60018) | 15668 |
| Myeloid Cells | Fresh lysed or washed processed Leukapheresis packs or frozen leukopaks, Cord Blood | EasySep™ Human HLA-DR Positive Selection and Depletion Kit | 2.0 ± 1.8% | 1 x 10 ⁹ cells | Anti-HLA-DR, clone L243 | 100-0980 |
| CD11b+ Cells | PBMC | EasySep™ Human CD11b Positive Selection and Depletion Kit | 1.7 ± 1.2% | 1 x 10 ⁹ cells | CD11b (Catalog #60040) CD45 (Catalog #60018) | 100-0742 |

Human Granulocyte and Subset Depletion

| Cell Type | Source | Product | Purity | For Processing | Compatible Staining Antibodies | Catalog # |
|--------------|-------------|--|-------------------|----------------|--------------------------------|-----------|
| Granulocytes | Whole Blood | RosetteSep™ Human Granulocyte Depletion Cocktail | < 1% Granulocytes | 40 mL | CD11b (Catalog #60040) | 15624 |
| | | | | 200 mL | CD16 (Catalog #60041) | 15664 |
| | | RosetteSep™ HLA Granulocyte Depletion Cocktail | < 1% Granulocytes | 250 mL | CD45 (Catalog #60018) | 15664HLA |
| | | | | 1000 mL | CD66b (Catalog #60086) | 15684HLA |

Depletion of Other Human Cell Types

| Cell Type | Source ¹ | Product | Purity | For Processing | Compatible Staining Antibodies | Catalog # |
|-------------------------|---------------------|---|-------------------------------|---------------------------|--|--|
| CD45+ Cells | PBMC | EasySep™ Human CD45 Depletion Kit II | Typically 4.0 log depletion | 2 x 10 ⁹ cells | CD45 (Catalog #60018) | 17898 ³ 17898RF ³ |
| | Whole Blood | RosetteSep™ Human CD45 Depletion Cocktail | Typically 3.6 log depletion | 40 mL | | 15122 ³ |
| | | | | 200 mL | | 15162 ³ |
| Red Blood Cells | Whole Blood | EasySep™ RBC Depletion Reagent | Typically <1% red blood cells | 100 mL | CD45 (Catalog #60018) GlyA (Catalog #10423) | 18170 18170RF |
| Dead Cells (Annexin V+) | Tissue Preparations | EasySep™ Dead Cell (Annexin V+) Removal Kit | -- | 1 x 10 ⁹ cells | -- | 17899 |

Mouse Cell Isolation Products

Mouse T Cell and Subset Isolation by Negative Selection

| Cell Type | Source | Product | Purity ¹ | For Processing | Compatible Staining Antibodies | Catalog # |
|---------------------|--------|---|---------------------|---------------------------|--|------------------|
| T Cells | Spleen | EasySep™ Mouse T Cell Isolation Kit | 96.6 ± 2.0% | 1 x 10 ⁹ cells | CD3e (Catalog #60015) CD90 (Catalog #60024) | 19851 19851RF |
| Pan-Naïve T Cells | Spleen | EasySep™ Mouse Pan-Naïve T Cell Isolation Kit | 90.0 - 97.0% | 1 x 10 ⁹ cells | | 19848 19848RF |
| CD4+ T Cells | Spleen | EasySep™ Mouse CD4+ T Cell Isolation Kit | 95.4 ± 3% | 1 x 10 ⁹ cells | CD3e (Catalog #60015) CD4 (Catalog #60017) | 19852 19852RF |
| Naïve CD4+ T Cells | Spleen | EasySep™ Mouse Naïve CD4+ T Cell Isolation Kit | 90.0 - 95.0% | 1 x 10 ⁹ cells | CD4 (Catalog #60017) CD44 (Catalog #60068) CD62L (Catalog #60109) | 19765 19765RF |
| Memory CD4+ T Cells | Spleen | EasySep™ Mouse Memory CD4+ T Cell Isolation Kit | 78.0 - 96.0% | 1 x 10 ⁹ cells | | 19767 19767RF |
| CD8+ T Cells | Spleen | EasySep™ Mouse CD8+ T Cell Isolation Kit | 94.4 ± 0.7% | 1 x 10 ⁹ cells | CD3e (Catalog #60015) CD8a (Catalog #60023) | 19853 19853RF |
| Naïve CD8+ T Cells | Spleen | EasySep™ Mouse Naïve CD8+ T Cell Isolation Kit | 92.0 - 98.0% | 1 x 10 ⁹ cells | CD8a (Catalog #60023) CD44 (Catalog #60068) CD62L (Catalog #60109) | 19858 19858RF |

Mouse T Cell and Subset Isolation by Positive Selection

| Cell Type | Source | Product | Purity ¹ | For Processing | Compatible Staining Antibodies | Catalog # |
|-------------------------|---------------------------------|---|---------------------|---------------------------|--|----------------------|
| CD90.2+ (Thy 1.2) Cells | Spleen | EasySep™ Mouse CD90.2 Positive Selection Kit II | 97.0 - 99.0% | 2 x 10 ⁹ cells | CD90.2 | 18951 18951RF |
| CD90.1+ (Thy 1.1) Cells | Spleen, Lymph Node, Whole Blood | EasySep™ Mouse CD90.1 Positive Selection Kit | 93.5 ± 3.9% | 2 x 10 ⁹ cells | CD90 (Catalog #60024) | 18958 18958RF |
| CD4+ Cells | Spleen | EasySep™ Mouse CD4 Positive Selection Kit II | 94.8 ± 3.5 % | 2 x 10 ⁹ cells | CD3e (Catalog #60015) CD4 (Catalog #60029) | 18952 18952RF |
| CD4+CD62L+ Cells | Spleen | EasySep™ Mouse CD4+CD62L+ T Cell Isolation Kit | 92.0 - 97.0% | 1 x 10 ⁹ cells | CD4 (Catalog #60017) CD44 (Catalog #60068) | 18765 18765RF |
| CD4+CD304+ Cells | Spleen | EasySep™ Release Mouse CD4+CD304+ Regulatory T Cell Isolation Kit | 90.4 ± 3.0% | 1 x 10 ⁹ cells | CD4 (Catalog #60029) CD4 (Catalog #60017) FOXP3, clone FJK-16s | 100-1570 100-1564 |
| | Lymph Nodes | | 92.1 ± 0.7% | | | |
| | Spleen | | 94.1 ± 2.9% | | | |
| CD4+CD25+ Cells | Spleen | EasySep™ Mouse CD4+CD25+ Regulatory T Cell Isolation Kit II | 70.0 - 93.0% | 1 x 10 ⁹ cells | CD4 (Catalog #60029) CD4 (Catalog #60017) | 18783 |
| CD25+ Cells | Spleen | EasySep™ Mouse CD25 Regulatory T Cell Positive Selection Kit | 80.0 - 93.0% | 1 x 10 ⁹ cells | CD4 (Catalog #60017) | 18782 18782RF |
| CD8a+ Cells | Spleen | EasySep™ Mouse CD8a Positive Selection Kit II | 96.3 ± 1.4% | 2 x 10 ⁹ cells | CD3e (Catalog #60015) CD8a (Catalog #60023) | 18953 18953RF |

RoboSep™-S Reagent Kits (RF) contain an EasySep™ Selection Kit with RoboSep™ Buffer and 1 - 2 boxes of RoboSep™ Tip Racks.

1. Purities shown as either a range or mean ± SD.

Mouse B Cell Isolation by Negative Selection

| Cell Type | Source | Product | Purity ¹ | For Processing | Compatible Staining Antibodies | Catalog # |
|-------------|--------|---|---------------------|---------------------------|---|--|
| B Cells | Spleen | EasySep™ Mouse B Cell Isolation Kit | 97.6 ± 1.7% | 1 x 10 ⁹ cells | CD19 (Catalog #60006) | 19854 ² 19854RF ² |
| Pan-B Cells | Spleen | EasySep™ Mouse Pan-B Cell Isolation Kit | 91.0 - 98.0% | 1 x 10 ⁹ cells | CD19 (Catalog #60006) CD138 (Catalog #60035) | 19844 ³ 19844RF ³ |

Mouse B Cell and Subset Isolation by Positive Selection

| Cell Type | Source | Product | Purity ¹ | For Processing | Compatible Staining Antibodies | Catalog # |
|--------------|---------------------------------|---|---|---------------------------|--|----------------------|
| CD19+ Cells | Spleen | EasySep™ Mouse CD19 Positive Selection Kit II | 95.0 - 99.6% | 2 x 10 ⁹ cells | CD19 (Catalog #60006) | 18954 18954RF |
| CD138+ Cells | Spleen, Lymph Node, Bone Marrow | EasySep™ Mouse CD138 Positive Selection Kit | 81.5 ± 4.9% | 2 x 10 ⁹ cells | CD138 (Catalog #60035) CD45R (Catalog #60019) CD267 (Catalog #60116) | 18957 18957RF |
| | Bone Marrow, Spleen | EasySep™ Release Mouse CD138 Positive Selection Kit | 85.5 ± 9.8% (bone marrow) 86.1 ± 7.4% (spleen) | 2 x 10 ⁹ cells | | 100-0601 100-1440 |

Mouse NK Cell Isolation by Negative Selection

| Cell Type | Source | Product | Purity ¹ | For Processing | Compatible Staining Antibodies | Catalog # |
|-----------|--------|--------------------------------------|---------------------|---------------------------|---|------------------|
| NK Cells | Spleen | EasySep™ Mouse NK Cell Isolation Kit | 67.0 - 89.0% | 1 x 10 ⁹ cells | CD3e (Catalog #60015) CD49b (Catalog #60020) | 19855 19855RF |

Mouse NK Cell Isolation by Positive Selection

| Cell Type | Source | Product | Purity ¹ | For Processing | Compatible Staining Antibodies | Catalog # |
|--------------|--------|---|---------------------|---------------------------|--------------------------------|------------------|
| CD49b+ Cells | Spleen | EasySep™ Mouse CD49b Positive Selection Kit | 74.0 - 90.0% | 2 x 10 ⁹ cells | Dextran (Catalog # 60026) | 18755 18755RF |



Wallchart

Frequencies & Percentages of Mouse Immune Cell Types

www.stemcell.com/MouseCellFreq

Mouse Innate Lymphoid Cell (ILC) Isolation by Negative Selection

| Cell Type | Source | Product | Purity ¹ | For Processing | Compatible Staining Antibodies | Catalog # |
|---|-------------------------------|---------------------------------------|--|---------------------------|--|-----------|
| Group 1, 2, and 3 Innate Lymphoid Cells | Bone Marrow, Lung, Lymph Node | EasySep™ Mouse Pan-ILC Enrichment Kit | 3.7 - 7.6% (lung; 10.3 ± 2.0 fold enrichment) 21.1 - 45.2% (lymph node; 60-129 fold enrichment) | 1 x 10 ⁹ cells | CD45 (Catalog #60030) CD3e (Catalog #60015) CD11b (Catalog #100-0433) CD11c (Catalog #100-0440) CD19 (Catalog #60112) Gr-1 (Catalog #60028) TER119 (Catalog #60033) TCR Gamma/Delta (Catalog #60104) | 19875 |
| Group 2 Innate Lymphoid Cells | Lung | EasySep™ Mouse ILC2 Enrichment Kit | 2.2 - 7.1% (3 - 11 fold enrichment) | 1 x 10 ⁹ cells | CD45 (Catalog #60030) CD90.2 CD3e (Catalog #60015) CD11b (Catalog #100-0433) CD11c (Catalog #100-0440) CD19 (Catalog #60112) Gr-1 (Catalog #60028) CD161 (Catalog #100-0459) TER119 (Catalog #60033) TCR Gamma/Delta (Catalog #60104) | 19842 |

RoboSep™-S Reagent Kits (RF) contain an EasySep™ Selection Kit with RoboSep™ Buffer and 1 - 2 boxes of RoboSep™ Tip Racks.

1. Purities shown as either a range or mean ± SD.
2. This kit is designed for the isolation of conventional (B-2) B cells only.
3. This kit is designed to isolate all B cells, including conventional (B-2) B cells, B-1 B cells, and plasma cells.

Mouse Dendritic Cell Isolation by Negative Selection

| Cell Type | Source | Product | Purity ¹ | For Processing | Compatible Staining Antibodies | Catalog # |
|------------------------------|--------|--|---------------------|---------------------------|---|------------------|
| Pan-Dendritic Cells | Spleen | EasySep™ Mouse Pan-DC Enrichment Kit II | 57.3 ± 5.5% | 2 x 10 ⁹ cells | CD11c (Catalog #60002), CD3e (Catalog #60015) CD19 (Catalog #60112) Ly-6G (Catalog #60031) F4/80 (Catalog #60027) NK1.1 (Catalog #60103), TER119 (Catalog #60033) | 19863 |
| Plasmacytoid Dendritic Cells | Spleen | EasySep™ Mouse Plasmacytoid DC Isolation Kit | 62.0 - 94.0% | 2 x 10 ⁹ cells | CD11c (Catalog #100-0440) | 19764 19764RF |

Mouse Monocyte Isolation by Negative Selection

| Cell Type | Source | Product | Purity ¹ | For Processing | Compatible Staining Antibodies | Catalog # |
|-----------|--------------------------|---------------------------------------|---------------------|---------------------------|---|------------------|
| Monocytes | Whole Blood, Bone Marrow | EasySep™ Mouse Monocyte Isolation Kit | 89.5 ± 4.8% | 1 x 10 ⁹ cells | CD11b (Catalog #100-0433) F4/80 (Catalog #60027) | 19861 19861RF |

Mouse Macrophage Isolation by Positive Selection

| Cell Type | Source | Product | Purity ¹ | For Processing | Compatible Staining Antibodies | Catalog # |
|-------------|---------------------------------|---|---|---|--|-----------|
| Macrophages | Lung, Spleen, Peritoneal Lavage | EasySep™ Mouse F4/80 Positive Selection Kit | 94.3 ± 2.8% (lung) 88.8 ± 3.4% (spleen) 97.0 ± 0.4% (peritoneal lavage) | 7.5 x 10 ⁸ (lung) 2 x 10 ⁹ cells (spleen) 6 x 10 ⁸ cells (peritoneal lavage) | F4/80 (Catalog #60027) CD11b (Catalog #100-0433) CD45 (Catalog #60030) | 100-0659 |

Mouse Neutrophil Isolation by Negative Selection

| Cell Type | Source | Product | Purity ¹ | For Processing | Compatible Staining Antibodies | Catalog # |
|-------------|--------------------------|--|--|---------------------------|---|------------------|
| Neutrophils | Whole Blood, Bone Marrow | EasySep™ Mouse Neutrophil Enrichment Kit | 88.6 ± 4.9% (whole blood) 88.2 ± 3.2% (bone marrow) | 1 x 10 ⁹ cells | CD11b (Catalog #100-0433) Gr-1 (Catalog #60028) Ly6G (Catalog #60031) | 19762 19762RF |

Mouse Myeloid-Derived Suppressor Cell (MDSC) Isolation by Negative Selection

| Cell Type | Source | Product | Purity ¹ | For Processing | Compatible Staining Antibodies | Catalog # |
|---|----------------------------------|--|---|---------------------------|--|-----------|
| Myeloid-Derived Suppressor Cells (CD11b+Gr1+) | Bone Marrow, Whole Blood, Spleen | EasySep™ Mouse MDSC (CD11b+Gr1+) Isolation Kit | 94.3 ± 2.1% (spleen; tumor-bearing BALB/c mice) 86.0 ± 4.6% (spleen; naive C57BL/6 mice) | 1 x 10 ⁹ cells | CD45 (Catalog #60030) CD11b (Catalog #100-0433) Gr1 (Catalog #60028) | 19867 |

RoboSep™-S Reagent Kits (RF) contain an EasySep™ Selection Kit with RoboSep™ Buffer and 1 - 2 boxes of RoboSep™ Tip Racks.

1. Purities shown as either a range or mean ± SD.

Mouse Myeloid Cell Isolation by Positive Selection

| Cell Type | Source | Product | Purity ¹ | For Processing | Compatible Staining Antibodies | Catalog # |
|--------------|------------------------------------|--|---------------------|---------------------------|---|------------------|
| CD11b+ Cells | Spleen | EasySep™ Mouse CD11b Positive Selection Kit II | 91.5 ± 4.3% | 2 x 10 ⁹ cells | CD11b (Catalog #60001) IgG (H+L, Catalog #60138) | 18970 18970RF |
| | Bone Marrow | | 99.7 ± 0.3% | | | |
| | Lung | | 95.5 ± 1.3% | | | |
| | Brain | | 94.2 ± 4.0% | 7 x 10 ⁸ cells | | |
| CD11c+ Cells | Spleen, Cultured Bone Marrow | EasySep™ Mouse CD11c Positive Selection Kit II with Spleen Dissociation Medium | 86.8 ± 9.7% | 2 x 10 ⁹ cells | CD11c (Catalog #100-0440) | 18781 18781RF |
| | | EasySep™ Mouse CD11c Positive Selection Kit II | 87.0 - 98.0% | 2 x 10 ⁹ cells | | 18780 18780RF |

Mouse Hematopoietic Progenitor Isolation by Negative Selection

| Cell Type | Source | Product | Purity ¹ | For Processing | Compatible Staining Antibodies | Catalog # |
|--------------------------------|-------------|--|---------------------|---------------------------|--|------------------|
| Hematopoietic Progenitor Cells | Bone Marrow | EasySep™ Mouse Hematopoietic Progenitor Cell Isolation Kit | 60.0 - 84.0% | 1 x 10 ⁹ cells | CD3 (Catalog #60015) CD11b (Catalog #100-0433) CD19 (Catalog #60006) CD45R (Catalog #60019) Gr-1 (Catalog #60028) TER119 (Catalog #60033) | 19856 19856RF |

Mouse Hematopoietic Progenitor Isolation by Positive Selection

| Cell Type | Source | Product | Purity ¹ | For Processing | Compatible Staining Antibodies | Catalog # |
|----------------------|-------------|--|---------------------|---------------------------|--------------------------------|------------------|
| SCA1+ Cells | Bone Marrow | EasySep™ Mouse SCA1 Positive Selection Kit | 87.0 - 97.0% | 2 x 10 ⁹ cells | Sca1 (Catalog #60032) | 18756 18756RF |
| CD117+ (c-KIT) Cells | Bone Marrow | EasySep™ Mouse CD117 (cKit) Positive Selection Kit | 88.0 - 95.0% | 2 x 10 ⁹ cells | Dextran (Catalog #60026) | 18757 18757RF |

Mouse Total Leukocyte Isolation by Positive Selection

| Cell Type | Source | Product | Purity ¹ | For Processing | Compatible Staining Antibodies | Catalog # |
|-------------------------------|---|---|---------------------|---------------------------|--|----------------------|
| CD45+ Cells | Lymphoid Organs or Non-Hematopoietic Tissue | EasySep™ Mouse CD45 Positive Selection Kit | 97.1 ± 1.2% | 2 x 10 ⁹ cells | CD45.1 (Catalog #60117) CD45.2 (Catalog #60118) | 18945 |
| Tumor-Infiltrating Leukocytes | Human Tumor Xenograft | EasySep™ Release Human CD45 Positive Selection Kit for Humanized Mice | 86.1 ± 8.6% | 1 x 10 ⁹ cells | CD45 (Catalog #60118) | 100-0107 100-0109 |
| | Single-Cell Suspensions of Solid Tumors | EasySep™ Mouse TIL (CD45) Positive Selection Kit | 84.6 - 95.2% | 1 x 10 ⁹ cells | CD45 (Catalog #60030), CD45.1 (Catalog #60117) CD45.2 (Catalog #60118) | 100-0350 |

RoboSep™-S Reagent Kits (RF) contain an EasySep™ Selection Kit with RoboSep™ Buffer and 1 - 2 boxes of RoboSep™ Tip Racks.

1. Purities shown as either a range or mean ± SD.

Depletion of Mouse Cell Types

| Cell Type | Source | Product | For Processing | Catalog # |
|-------------------------|---------------------|---|---------------------------|-----------|
| Dead Cells (Annexin V+) | Tissue Preparations | EasySep™ Dead Cell (Annexin V+) Removal Kit | 1 x 10 ⁹ cells | 17899 |

Isolation of Other Mouse Cell Types by Negative Selection

| Cell Type | Source | Product | Purity ¹ | For Processing | Compatible Staining Antibodies | Catalog # |
|---|----------------------------|--|---------------------|---------------------------|--|--|
| Human Cells from Xenograft-Recipient Mice | Bone Marrow, Spleen, Blood | EasySep™ Mouse/Human Chimera Isolation Kit | 80.0 - 98.0% | 1 x 10 ⁹ cells | CD45 (Catalog #60018) CD45R (Catalog #60019) TER119 (Catalog #60033) | 19849 |
| Other Cell Types (Custom) | Any Source | EasySep™ Mouse Custom Enrichment Kit | -- | As requested | -- | 19709 ² 19709RF ² |

Isolation of Other Mouse Cell Types by Positive Selection

| Cell Type | Source | Product | Purity ¹ | For Processing | Compatible Staining Antibodies | Catalog # |
|---------------------------|------------|--|---------------------|---------------------------|--------------------------------|--|
| Other Cell Types (Custom) | Any Source | EasySep™ Release Mouse Biotin Positive Selection Kit | -- | 1 x 10 ⁹ cells | -- | 17655 ⁴ |
| | | EasySep™ Release Mouse PE Positive Selection Kit | -- | 1 x 10 ⁹ cells | -- | 17656 ⁵ |
| | | EasySep™ Mouse PE Positive Selection Kit II | -- | 1 x 10 ⁹ cells | Dextran (Catalog #60026) | 17666 ⁵ 17666RF ⁵ |
| | | | -- | 5 x 10 ⁹ cells | | 17696 ^{5,6} 17696RF |
| | | EasySep™ Mouse FITC Positive Selection Kit II | -- | 1 x 10 ⁹ cells | | 17668 ⁷ 17668RF ⁷ |
| | | EasySep™ Mouse Biotin Positive Selection Kit II | -- | 1 x 10 ⁹ cells | | 17665 ⁴ 17665RF ⁴ |
| | | EasySep™ Mouse APC Positive Selection Kit II | -- | 1 x 10 ⁹ cells | | 17667 ⁸ 17667RF ⁸ |
| | | EasySep™ Release Mouse APC Positive Selection Kit | -- | 1 x 10 ⁹ cells | -- | 100-0033 |
| | | EasySep™ Mouse Custom Positive Selection Kit | -- | As requested | -- | 18709 ³ 18709RF ³ |

RoboSep™-S Reagent Kits (RF) contain an EasySep™ Selection Kit with RoboSep™ Buffer and 1 - 2 boxes of RoboSep™ Tip Racks.

1. Purities shown as either a range or mean ± SD.
2. Isolate any mouse cell type by negative selection.
3. Isolate any mouse cell type by positive selection.
4. Use with biotinylated antibodies.
5. Use with PE-conjugated antibodies.
6. This product includes 5 x 17666.
7. Use with FITC-conjugated antibodies.
8. Use with APC-conjugated antibodies.

Other Species Cell Isolation Products

Rat Cell Isolation by Negative or Positive Selection, or Depletion

| Cell Type | Selection Method | Source | Product | Purity ¹ | For Processing | Catalog # |
|------------------------|------------------|---------------------------------|--|-----------------------------|---------------------------|--|
| T Cells | Negative | Spleen, Whole Blood, Lymph Node | EasySep™ Rat T Cell Isolation Kit | 98.1 ± 1.2% | 1 x 10 ⁹ cells | 19641 19641RF |
| CD4+ T Cells | Negative | Spleen, Whole Blood, Lymph Node | EasySep™ Rat CD4+ T Cell Isolation Kit | 97.2 ± 1.2% | 1 x 10 ⁹ cells | 19642 19642RF |
| CD8+ T Cells | Negative | Spleen, Whole Blood, Lymph Node | EasySep™ Rat CD8+ T Cell Isolation Kit | 92.3 ± 3.1% | 1 x 10 ⁹ cells | 19643 19643RF |
| B Cells | Negative | Spleen, Whole Blood, Lymph Node | EasySep™ Rat B Cell Isolation Kit | 94.1 ± 3.8% | 1 x 10 ⁹ cells | 19644 19644RF |
| IgM+ Cells | Depletion | Spleen, Whole Blood, Lymph Node | EasySep™ Rat IgM Depletion Kit | Typically 1.6 log depletion | 1 x 10 ⁹ cells | 18644 18644RF |
| Any Cell Type (Custom) | Negative | Any Source | EasySep™ Rat Custom Enrichment Kit | -- | As requested | 19609 ² 19609RF ² |
| | Positive | Any Source | EasySep™ Rat Custom Positive Selection Kit | -- | As requested | 18609 ³ 18609RF ³ |

Non-Human Primate Cell Isolation by Negative or Positive Selection

| Cell Type | Selection Method | Product | Purity ² | For Processing | Catalog # |
|------------------------|------------------|--|---------------------|-------------------------|--|
| T Cell | Negative | EasySep™ Non-Human Primate T Cell Isolation Kit | 94.6 ± 3.4% | 1x10 ⁹ cells | 19581 19581RF |
| CD4+ T Cell | | EasySep™ Non-Human Primate CD4+ T Cell Isolation Kit | 84.5 ± 3.3% | 1x10 ⁹ cells | 19582 19582RF |
| CD8+ T Cell | | EasySep™ Non-Human Primate CD8+ T Cell Isolation Kit | 89.2 ± 3.5% | 1x10 ⁹ cells | 19583 19583RF |
| B Cells | Negative | EasySep™ Non-Human Primate B Cell Isolation Kit | 91.4 ± 5.2% | 1x10 ⁹ cells | 100-0345 100-0347 |
| Any Cell Type (Custom) | Negative | EasySep™ Non-Human Primate Custom Enrichment Kit | 94.6 ± 3.4% | As requested | 19809 ⁴ 19809RF ⁴ |
| | Positive | EasySep™ Non-Human Primate Custom Positive Selection Kit | | | 18809 ⁵ 18809RF ⁵ |

Isolation of Cells from Other Species by Positive Selection

| Cell Type | Source | Product | For Processing | Catalog # |
|---------------|------------|---|---------------------------|--|
| Any Cell Type | Any Source | EasySep™ PE Positive Selection Kit | 1 x 10 ⁹ cells | 17684 ⁶ 17684RF ⁶ |
| | | EasySep™ FITC Positive Selection Kit | 1 x 10 ⁹ cells | 17682 ⁷ 17682RF ⁷ |
| | | EasySep™ Biotin Positive Selection Kit | 1 x 10 ⁹ cells | 17683 ⁸ 17683RF ⁸ |
| | | EasySep™ APC Positive Selection Kit | 1 x 10 ⁹ cells | 17681 ⁹ 17681RF ⁹ |
| | | EasySep™ "Do-It-Yourself" Selection Kit | 1 x 10 ⁹ cells | 17698 ¹⁰ 17698RF ¹⁰ |

RoboSep™-S Reagent Kits (RF) contain an EasySep™ Selection Kit with RoboSep™ Buffer and 1 - 2 boxes of RoboSep™ Tip Racks.

1. Purities shown as either a range or mean ± SD
2. Isolate any rat cell type by negative selection.
3. Isolate any rat cell type by positive selection.
4. Isolate any non-human primate cell type by negative selection.
5. Isolate any non-human primate cell type by positive selection.
6. Use with PE-conjugated antibodies.
7. Use with FITC-conjugated antibodies.
8. Use with biotinylated antibodies.
9. Use with APC-conjugated antibodies.
10. Use with your own mouse IgG1 antibody.

Cell Isolation Magnets, Instruments, and Accessories

RoboSep™ Instruments & Accessories

| Product | Catalog # |
|---|-----------|
| For RoboSep™-S | |
| RoboSep™-S | 21000 |
| RoboSep™-S Double Package | 21002 |
| RoboSep™-S Triple Package | 21003 |
| RoboSep™ Service Rack | 20101 |
| RoboSep™ Buffer ¹ (250 mL) | 20104 |
| RoboSep™ Buffer 5X Concentrate (250 mL) | 20124 |
| RoboSep™ Filter Tip Racks ¹ (1 box of 8 racks) | 20125 |
| RoboSep™ Tip Head Polishing Compound (7 mL) | 20119 |
| For RoboSep™-16 | |
| RoboSep™-16 | 23000 |
| RoboSep™-16 Double Package | 23302 |
| RoboSep™ Buffer (250 mL) | 20104 |
| RoboSep™ Buffer 5X Concentrate (250 mL) | 20124 |
| Sterile Filtered Conductive Tips | 23101 |
| Non-Sterile Filtered Conductive Tips | 23102 |
| Waste Bags | 23103 |

EasySep™ Magnet Stands

| Product | Catalog # | Unit Size |
|---|--------------------|----------------------|
| EasySep™ EasyStand™ | 18130 ² | 1 stand |
| EasySep™ EasyStand™ with EasySep™ Magnet | 18131 | 1 stand & 1 x 18000 |
| 4 x EasySep™ EasyStand™ | 18134 | 4 stands |
| 4 x EasySep™ EasyStand™ with EasySep™ Magnets | 18135 | 4 stands & 4 x 18000 |
| 6 x EasySep™ EasyStand™ | 18136 | 6 stands |
| 6 x EasySep™ EasyStand™ with EasySep™ Magnets | 18137 | 6 stands & 6 x 18000 |
| EasySep™ Multistand | 18010 ³ | 1 stand |
| EasySep™ Multistand with EasySep™ Magnets | 18004 | 1 stand & 4 x 18000 |
| EasySep™ Multistand with "The Big Easy" Magnets | 18100 | 1 stand & 4 x 18001 |

1. RoboSep™-S Reagent Kits (RF) contain an EasySep™ Selection Kit with RoboSep™ Buffer and 1 - 2 boxes of RoboSep™ Tip Racks.
2. Each EasySep™ EasyStand™ can hold a single EasySep™ Magnet and can link up to 6 individual EasySep™ EasyStands™ together.
3. The EasySep™ Multistand allows the separation of up to 4 samples at one time.

EasySep™ Magnets

| Product | Catalog # |
|--------------------------------|-----------|
| EasySep™ Magnet | 18000 |
| "The Big Easy" EasySep™ Magnet | 18001 |
| Easy 50 EasySep™ Magnet | 18002 |
| Easy 250 EasySep™ Magnet | 100-0821 |
| EasyEight™ EasySep™ Magnet | 18103 |
| EasyPlate™ EasySep™ Magnet | 18102 |

Instrument Service Options

| Product | Catalog # |
|--|-----------|
| For RoboSep™-S | |
| 1-Year Warranty | 21200 |
| Preventative Maintenance (PM) Visit (for an Instrument without a Warranty) | 21203 |
| 1-Year Warranty with 1 PM Visit | 21202 |
| Additional PM Visit (for an Instrument on an active Warranty) | 21209 |
| Installation Qualification, Operation Qualification, and Instrument Performance Verification (IQ/OQ/IPV) | 21206 |
| 1-Year Warranty + PM Visit + IQ/OQ/IPV | 21211 |
| For RoboSep™-16 | |
| 1-Year Warranty | 23200 |
| PM Visit (for an Instrument without a Warranty) | 23203 |
| 1-Year Warranty with 1 PM Visit | 23202 |
| Additional PM Visit (for an Instrument on an active Warranty) | 23209 |
| 1-Year Warranty + PM Visit + IQ/OQ/IPV | 23211 |

Cell Thawing Instruments

| Product | Catalog # |
|---|-----------|
| ThawSTAR® CFT2 Automated Thawing System | 100-0650 |
| ThawSTAR® CFT2 Transporter | 100-0642 |
| ThawSTAR® CFT2 Confirmation Vials | 100-0643 |
| ThawSTAR® CFT2 IOPQ Kit | 100-0730 |

Freezing Accessories

| Product | Catalog # |
|---|-----------|
| Corning® CoolCell® LX Cell Freezing Container | 200-0642 |

SepMate™ Products

| Product | Catalog # | Blood Volume Processed | Unit Size |
|---------------------------------|----------------|------------------------|------------------------|
| SepMate™-15 (IVD ¹) | 85415 85420 | 0.5 - 5 mL | 100 tubes 500 tubes |
| SepMate™-15 (RUO ²) | 86415 86420 | | 100 tubes 500 tubes |
| SepMate™-50 (IVD ¹) | 85450 85460 | 4 - 17 mL | 100 tubes 500 tubes |
| SepMate™-50 (RUO ²) | 86450 86460 | | 100 tubes 500 tubes |

Plasticware

| Product | Volume | Catalog # |
|--|---------|--|
| Corning® Filtered Pipette Tips | 2 µL | 38034 |
| | 10 µL | 38035 |
| | 30 µL | 38033 |
| | 200 µL | 38032 |
| | 1000 µL | 38031 |
| Falcon® Conical Tubes | 15 mL | 38009 |
| | 50 mL | 38010 |
| Falcon® Round-Bottom Polystyrene Tubes | 5 mL | 38007 (500 tubes, with caps) 38025 (1000 tubes, with caps) 38055 (1000 tubes, without caps) |
| Falcon® Round-Bottom Polypropylene Tubes | 5 mL | 38057 (500 tubes, with caps) 38056 (1000 tubes, without caps) |
| Falcon® Round-Bottom Tubes with Cell Strainer Cap | 5 mL | 38030 |
| Reversible Strainers | — | 27270 (100 µm, large) 27217 (100 µm, small) 27250 (37 µm, large) 27215 (37 µm, small) 27260 (70 µm, large) 27216 (70 µm, small) |

1. SepMate™ is available as an *in vitro* diagnostic (IVD) device for the isolation of mononuclear cells from human whole blood or bone marrow by density gradient centrifugation in Canada, the United States, Europe, and Australia. This product is also available in China where it is considered a non-medical device by the China Food and Drug Administration (CFDA), and should therefore be used as general laboratory equipment.
2. SepMate™ RUO is available in other regions for research use only.
3. Lymphoprep™ has the same density as Ficoll-Paque® and can be substituted for Ficoll-Paque® without any need to change your existing protocols.
4. This kit can be used following cell separation using EasySep™ kits.

Density Media

| Product | Catalog # | Unit Size |
|--------------------------|-----------|------------|
| Lymphoprep™ ³ | 18060 | 250 mL |
| | 18061 | 500 mL |
| | 07811 | 4 x 250 mL |
| | 07861 | 6 x 500 mL |
| OptiPrep™ | 07820 | 250 mL |
| HetaSep™ | 07806 | 20 mL |
| | 07906 | 100 mL |
| RosetteSep™ DM-L | 15705 | 100 mL |
| RosetteSep™ DM-M | 15725 | 100 mL |
| SpinSep™ Density Medium | 17531 | 100 mL |

Enzymes for Tissue Dissociation

| Product | Catalog # | Unit Size |
|---------------------------------|-----------|-----------|
| ACCUTASE™ | 07920 | 100 mL |
| Collagenase Type I | 07902 | 5 mL |
| Collagenase Type IV | 07909 | 100 mL |
| Collagenase/Hyaluronidase (10X) | 07912 | 10 mL |
| Dispase (1 mg/mL) | 07923 | 100 mL |
| DNase I (1 mg/mL) | 07900 | 1 mL |
| Spleen Dissociation Medium | 07915 | 10 x 4 mL |
| Trypsin-EDTA (0.05%) | 07910 | 500 mL |
| Trypsin in Citrate Saline | 07400 | 100 mL |

Nucleic Acid Purification Kits

| Product | Size | Catalog # |
|---|-------|-----------|
| EasySep™ Total Nucleic Acid Extraction Kit | 1 kit | 100-1079 |
| Genomic DNA Purification Kit ⁴ | 1 kit | 79020 |
| Gel and PCR Clean-up Kit | 1 kit | 79030 |
| Total RNA Purification Kit ⁴ | 1 kit | 79040 |

Cell Engineering and Molecular Tools

CellPore™ Products

| Product | Catalog # |
|--------------------------------|-----------|
| CellPore™ Transfection System | 100-0946 |
| CellPore™ Transfection Kit 300 | 100-1020 |

CellPore™ Instrument Service Options

| Product | Catalog # |
|--|-----------|
| 1-Year Warranty | 500-0271 |
| Installation Qualification, Operation Qualification, and Instrument Performance Verification (IQ/OQ/IPV) | 500-0270 |



Video

CellPore™: For Gentle Intracellular Delivery
www.stemcell.com/CellPore-Video

ArciTect™ Products

| Product | Size | Catalog # |
|---|---------------|-----------|
| ArciTect™ sgRNA | 4 nmol | 200-0013 |
| ArciTect™ crRNA | 2 nmol | 76010 |
| | 10 nmol | 76011 |
| | 20 nmol | 76012 |
| ArciTect™ tracrRNA Kit | 5 nmol kit | 76016 |
| | 10 nmol kit | 76017 |
| | 20 nmol kit | 76018 |
| ArciTect™ Cas9 Nuclease | 100 µg | 76002 |
| | 300 µg | 76004 |
| ArciTect™ T7 Endonuclease I Kit | 25 reactions | 76021 |
| | 125 reactions | 76022 |
| ArciTect™ High-Fidelity DNA Polymerase Kit | 500 reactions | 76026 |
| ArciTect™ Human CRISPR Optimization Kit, APC | 1 kit | 100-0470 |
| ArciTect™ Human CRISPR Optimization Kit, PE | 1 kit | 100-0471 |
| ArciTect™ Human CRISPR Optimization Kit, FITC | 1 kit | 100-0472 |
| ArciTect™ Human HPRT Positive Control Kit | 1 kit | 76013 |
| ArciTect™ Annealing Buffer (5X) | 1 mL | 76020 |

Specialized Cell Culture Media

ImmunoCult™ Products

| Product | Catalog # | Size | Applications |
|--|----------------|---------------|--|
| ImmunoCult™-XF T Cell Expansion Medium | 10981 | 500 mL | Serum- and xeno-free (XF) culture medium optimized for the consistent and reliable culture and expansion of isolated T cells. |
| ImmunoCult™-XF, GMP compliant | 100-0956 | 500 mL | High-performance, serum and xeno-free medium, produced under relevant cGMPs for the expansion of T cells, for use in T cell therapy development and manufacturing.. |
| ImmunoCult™ Human CD3/CD28/CD2 T Cell Activator | 10970 10990 | 2 mL 10 mL | Activation supplements containing antibody complexes that target T cell receptors designed to activate and expand T cells in culture. They can be used in combination with ImmunoCult™-XF T Cell Expansion Medium or any other media for culturing human T cells. |
| ImmunoCult™ Human CD3/CD28 T Cell Activator | 10971 10991 | 2 mL 10 mL | |
| ImmunoCult™ Human CD3/CD28 T Cell Activator, GMP compliant | 100-0784 | 10 mL | |
| ImmunoCult™ Human CD3/CD28/CD2 T Cell Activator, GMP compliant | 100-0785 | 10 mL | GMP compliant T cell activation supplements containing antibody complexes that target T cell receptors designed to activate and expand T cells in culture. They can be used in combination with GMP ImmunoCult™-XF or any other media for culturing human T cells. |
| ImmunoCult™ Human Th1 Differentiation Supplement | 10973 | 1 mL | Serum-free culture supplements formulated to promote the robust activation, expansion, and differentiation of human peripheral blood-derived, naïve CD4+ T cells into regulatory T cells (Tregs), Th1 cells, or Th2 cells. Supplements are intended for use with ImmunoCult™-XF T Cell Expansion Medium (Catalog #10981) and ImmunoCult™ Human CD3/CD28 T Cell Activator (Catalog #10971). |
| ImmunoCult™ Human Th2 Differentiation Supplement | 10975 | 1 mL | |
| ImmunoCult™ Human Treg Differentiation Supplement | 10977 | 1 mL | |
| ImmunoCult™ Mouse T Cell Activator Kit | 100-1572 | 1 kit | Soluble activation supplements allow for flexible design and activation by CD3/CD28 or CD3/CD28/CD2. Achieve optimal activation without the use of magnetic beads, feeder cells, or antigen. Rely on a highly stable, filter-sterilized, soluble reagent that is compatible with common T cell growth medium. |
| ImmunoCult™ Mouse Th1 Differentiation Supplement | 10953 | 1 mL | Culture supplements formulated to promote the robust differentiation of mouse splenocyte-derived naïve CD4+ T cells into Th1 cells, Th2 cells, or regulatory T cells (Tregs). |
| ImmunoCult™ Mouse Th2 Differentiation Supplement | 10955 | 1 mL | |
| ImmunoCult™ Mouse Treg Differentiation Supplement | 10957 | 1 mL | |
| ImmunoCult™ Human B Cell Expansion Kit | 100-0645 | 1 kit | Serum-free and feeder-free culture medium promoting the consistent expansion of human B cells and their maturation to plasma cells. |
| ImmunoCult™ Mouse B Cell Expansion Kit | 100-1003 | 1 kit | Serum-free culture kit for in vitro expansion of mouse B cells. |
| ImmunoCult™-SF Macrophage Medium | 10961 | 250 mL | Serum-free culture medium formulated to support the maturation of monocytes into M1 and M2a macrophages. |
| ImmunoCult™ NK Cell Expansion Kit | 100-0711 | 1 kit | Serum-free and feeder-free culture medium and supplements promoting the consistent and reliable expansion of human NK cells. |
| ImmunoCult™ Dendritic Cell Culture Kit | 10985 | 1 kit | Kit designed to generate mature DCs from human monocytes in 7 days. |

For more information, please visit www.ImmunoCult.com.

StemSpan™ Products¹

| Product | Catalog # | Size | Applications |
|-------------------------------------|-----------|-------|---|
| StemSpan™ NK Cell Generation Kit | 09960 | 1 kit | For expansion and differentiation of human CD34+ hematopoietic progenitor cells to NK cells. |
| StemSpan™ T Cell Generation Kit | 09940 | 1 kit | For expansion and differentiation of human CD34+ hematopoietic progenitor cells to T cells. |
| StemSpan™ B Cell Generation Kit | 100-1250 | 1 kit | For expansion and differentiation of human CD34+ hematopoietic progenitor cells from cord blood to B cells. |
| StemSpan™ Leukemic Cell Culture Kit | 09720 | 1 kit | For culture, expansion, and drug screening of chronic and acute myeloid leukemia cells |

For more information, please visit www.StemSpan.com.

STEMdiff™ Products¹

| Product | Catalog # | Size | Applications |
|---|-----------|-------|--|
| STEMdiff™ T Cell Kit | 100-0194 | 1 kit | For expansion and differentiation of hPSCs to T cells |
| STEMdiff™ NK Cell Kit | 100-0170 | 1 kit | For expansion and differentiation of hPSCs to NK cells |
| STEMdiff™ Monocyte Kit | 05320 | 1 kit | For expansion and differentiation of hPSCs to monocytes |
| STEMdiff™ Microglia Differentiation Kit | 100-0019 | 1 kit | For differentiation of microglia precursors from hPSC-derived hematopoietic progenitor cells |
| STEMdiff™ Microglia Maturation Kit | 100-0020 | 1 kit | For maturation of microglia from hPSC-derived microglia precursors |

For more information, please visit www.STEMdiff.com.

1. Most kit components are available for individual purchase. Please check the product pages or contact your sales representative or the Product & Scientific Support team at techsupport@stemcell.com for further information or more information.

Recombinant Cytokines

| Product | Catalog # | | |
|----------------------------|-----------|-------|-------|
| | Human | Mouse | Rat |
| Recombinant Cytokine | | | |
| GM-CSF ^{1,2} | 78015 | 78017 | 78018 |
| G-CSF ^{1,2} | 78012 | 78014 | -- |
| M-CSF ^{1,2} | 78057 | 78059 | 78117 |
| IFN- β | 78113 | -- | -- |
| IFN- γ ¹ | 78020 | 78021 | 78114 |
| TNF- α ¹ | 78068 | 78069 | 78124 |
| TNF- β | 78125 | -- | -- |
| TNF-receptor 1 | 78126 | -- | -- |
| GRO-beta (CXCL2) | 78112 | -- | -- |
| MIP-3 α (CCL20) | 78118 | -- | -- |
| TRAIL | -- | 78122 | -- |
| IL-1 α ¹ | 78115 | 78129 | -- |
| IL-1 β ¹ | 78034 | 78035 | -- |
| IL-2 ^{1,2} | 78036 | 78081 | -- |
| IL-3 ^{1,2} | 78040 | 78042 | 78181 |
| IL-4 ^{1,2} | 78045 | 78047 | -- |
| IL-5 ¹ | 78048 | 78049 | -- |
| IL-6 ¹ | 78050 | 78052 | -- |
| IL-7 ¹ | 78053 | 78054 | -- |
| IL-10 ^{1,2} | 78024 | 78079 | -- |
| IL-11 ¹ | 78025 | 78026 | -- |
| IL-12 | 78027 | 78028 | -- |
| IL-13 | 78029 | 78030 | -- |
| IL-15 | 78031 | -- | -- |
| IL-17A | 78032 | 78033 | -- |
| IL-21 | 78082 | 78116 | -- |
| IL-22 | 78038 | 78039 | -- |
| IL-33 | 78043 | 78044 | -- |

For more information or to view our complete listing of over 200 cytokines, please visit www.stemcell.com/Cytokines.

ELISA Kits

| Product | Catalog # | |
|-------------------------------|-------------|--------------|
| | 2-Plate Kit | 10-Plate Kit |
| ELISA Complete Kits | | |
| Human IFN- α ELISA Kit | 02000 | 02001 |
| Human IFN- γ ELISA Kit | 02002 | 02003 |
| Human IgE ELISA Kit | 02032 | 02033 |
| Human IL-1 β ELISA Kit | 02004 | 02005 |
| Human IL-2 ELISA Kit | 02006 | 02007 |
| Human IL-4 ELISA Kit | 02008 | 02009 |
| Human IL-5 ELISA Kit | 02010 | 02011 |
| Human IL-10 ELISA Kit | 02012 | 02013 |
| Human IL-12 (p70) ELISA Kit | 02014 | 02015 |

ELISA Kits

| Product | Catalog # | |
|---------------------------------------|-------------|--------------|
| | 2-Plate Kit | 10-Plate Kit |
| ELISA Complete Kits (Continued) | | |
| Human IL-13 ELISA Kit | 02034 | 02035 |
| Human IL-17A ELISA Kit | 02036 | 02037 |
| Human IL-23 ELISA Kit | 02016 | 02017 |
| Human Latent TGF- β 1 ELISA Kit | 02018 | 02019 |
| Mouse IFN- γ ELISA Kit | 02020 | 02021 |
| Mouse IL-2 ELISA Kit | 02022 | 02023 |
| Mouse IL-4 ELISA Kit | 02038 | 02039 |
| Mouse IL-5 ELISA Kit | 02024 | 02025 |
| Mouse IL-12 (p70) ELISA Kit | 02026 | 02027 |
| Mouse IL-12/-23 (p40) ELISA Kit | 02028 | 02029 |
| Mouse TNF- α ELISA Kit | 02030 | 02031 |

| Product | Catalog # |
|------------------------------------|-----------|
| ELISA Immunology Research Kits | |
| Human IL-6 ELISA Kit | 100-1138 |
| Human IL-7 ELISA Kit | 100-1139 |
| Human TNF- α ELISA Kit | 100-1142 |
| Human IL-8 (CXCL8) ELISA Kit | 100-1143 |
| Human C-Reactive Protein ELISA Kit | 100-1144 |
| Human IL-22 ELISA Kit | 100-1145 |
| Human GM-CSF (CSF2) ELISA Kit | 100-1146 |
| Human RANTES (CCL5) ELISA Kit | 100-1147 |

| Product | Catalog # |
|-----------------------------------|-----------|
| ELISA Antibody Pair Kits | |
| Human IgE ELISA Antibody Pair Kit | 01993 |
| Human IgG ELISA Antibody Pair Kit | 01994 |
| Human IgM ELISA Antibody Pair Kit | 01995 |
| Mouse IgA ELISA Antibody Pair Kit | 01996 |
| Mouse IgE ELISA Antibody Pair Kit | 01997 |
| Mouse IgG ELISA Antibody Pair Kit | 01998 |
| Mouse IgM ELISA Antibody Pair Kit | 01999 |

1. Animal Component-Free version available

2. International Units (IU) data is available at www.stemcell.com/IU-data.

For more information or to view the complete ELISA product listing, please visit www.stemcell.com/ELISA.

Cryopreservation Media

| Product | Catalog # | Size |
|----------------|-----------|-----------------|
| CryoStor® CS10 | 07930 | 100 mL |
| | 07931 | 5 x 16 mL vials |
| | 07940 | 1000 mL bag |
| | 07952 | 16 x 10 mL |
| | 07955 | 100 mL bag |
| | 07959 | 5 x 10 mL |
| CryoStor® CS5 | 07933 | 100 mL |
| | 07949 | 5 x 10 mL |
| | 07953 | 100 mL bag |
| CryoStor® CS2 | 07932 | 100 mL |
| CryoStor® CSB | 100-0237 | 100 mL |
| | 100-0238 | 500 mL |
| | 100-0239 | 1000 mL |



Video

Freeze Human PBMCs with CryoStor® CS10
www.stemcell.com/Cryopreserve-Primary-Cells-With-Cryostor

Cell Dyes and Stains

Cell Counting / Viability Reagents

| Product | Size | Catalog # |
|------------------------------------|-------------------------|----------------------|
| Trypan Blue | 100 mL | 07050 |
| 3% Acetic Acid with Methylene Blue | 100 mL | 07060 |
| 7-AAD | 200 tests 500 tests | 75001.1 75001 |
| Propidium Iodide | 10 mg | 75002 |
| CFDA-SE | 10 mg | 75003 |
| DAPI | 10 mg | 75004 |
| Hoechst 33342 (Hydrochloride) | 5 mL | 100-1540 |
| Far Red Nuclear Stain | 0.5 mL | 100-1541 |
| ATP Assay, Bioluminescence | 100 tests 1000 tests | 100-1542 100-1543 |
| WST-8 Cell Quantification Assay | 1000 test | 100-1544 |

GloCell™ Fixable Viability Dyes

| Product | Catalog # | |
|---|-----------|-----------|
| | 100 Tests | 500 Tests |
| GloCell™ Fixable Viability Dye Red 710 | 75006.1 | 75006 |
| GloCell™ Fixable Viability Dye Red 780 | 75007.1 | 75007 |
| GloCell™ Fixable Viability Dye UV 450 | 75008.1 | 75008 |
| GloCell™ Fixable Viability Dye Violet 450 | 75009.1 | 75009 |
| GloCell™ Fixable Viability Dye Violet 510 | 75010.1 | 75010 |
| GloCell™ Fixable Viability Dye Violet 540 | 75011.1 | 75011 |

For more information, please visit www.stemcell.com/GloCell.

Annexin V Dyes

| Product | Size | Catalog # |
|--|-----------------------------------|----------------------|
| Annexin V | APC, 25 tests APC, 100 tests | 100-0328 100-0329 |
| | PE, 25 tests PE, 100 tests | 100-0330 100-0331 |
| | FITC, 25 tests FITC, 100 tests | 100-0332 100-0333 |
| Annexin V Binding Buffer | 50 mL | 100-0334 |
| Annexin V Apoptosis Detection Kit with 7-AAD | FITC, 1 kit | 100-0338 |
| | PE, 1 kit | 100-0337 |
| | APC, 1 kit | 100-0339 |

Tools for Infectious Disease Research

Recombinant Proteins

| Product | Size | Catalog # |
|---|--------|-----------|
| SARS-CoV-2 Recombinant Spike Protein, aa16-685 (HEK293-expressed) | 100 µg | 100-0594 |

Primary Antibodies

| Product | Size | Catalog # |
|--|--------|-----------|
| Anti-SARS-CoV Nucleoprotein Antibody, Clone 001 (Recombinant) | 50 µL | 100-0529 |
| | 100 µL | 100-0580 |
| Anti-SARS-CoV Spike Protein S1 Receptor-Binding Domain Antibody, Clone D005 (Recombinant) | 50 µL | 100-0581 |
| | 100 µL | 100-0582 |
| Anti-SARS-CoV-2 Spike Protein S1 Receptor-Binding Domain Antibody, Clone Covi-1 (Blocking/Recombinant) | 100 µL | 100-0583 |
| Anti-SARS-CoV-2 Spike Protein S1 Receptor-Binding Domain Antibody, Clone Covi-2 (Blocking/Recombinant) | 100 µL | 100-0584 |

ELISA Kits

| Product | Catalog # |
|---|-----------|
| Human SARS-CoV-2 Nucleoprotein IgG Antibody ELISA Kit | 100-0686 |
| Human ACE2 ELISA Kit | 100-0687 |
| Mouse ACE2 ELISA Kit | 100-0688 |
| Human CD13 (ANPEP) ELISA Kit | 100-0689 |

1. Human SARS-CoV-2 IgM/IgG Rapid Test Kit is for research use only and not intended for human or animal diagnostic or therapeutic use.

Peptide Substrates for Detection of Coronavirus Proteases

| Product | Size | Catalog # |
|--------------------------------|------------|-----------|
| CoV Protease Substrate-1 TF5 | 100 tests | 100-0505 |
| | 1000 tests | 100-0506 |
| CoV Protease Substrate-1 EDANS | 100 tests | 100-0507 |
| | 1000 tests | 100-0508 |
| CoV Protease Substrate-2 EDANS | 100 tests | 100-0509 |
| | 1000 tests | 100-0510 |
| CoV Protease Substrate-2 IF670 | 100 tests | 100-0511 |
| | 1000 tests | 100-0512 |

Peptide Pools

| Product | Size | Catalog # |
|--|---------------|-----------|
| SARS-CoV-2 (Nucleocapsid Protein) Peptide Pool | 25 µg/peptide | 100-0647 |
| SARS-CoV-2 (Spike Protein) Peptide Pool | 25 µg/peptide | 100-0676 |
| SARS-CoV-2 (Spike Protein) Delta/B.1.617.2 Mutation Peptide Pool | 25 µg/peptide | 100-1380 |
| SARS-CoV-2 (Spike Protein) Delta/B.1.617.2 WT Reference Peptide Pool | 25 µg/peptide | 100-1381 |
| SARS-CoV-2 (Spike Protein) Omicron XBB.1.5.X Peptide Pool | 25 µg/peptide | 100-1422 |
| SARS-CoV-2 (Spike Protein) Omicron/B.1.1.529 Peptide Pool | 25 µg/peptide | 100-1420 |
| SARS-CoV-2 (Spike Protein) Omicron/B.1.1.529 Mutation Peptide Pool | 25 µg/peptide | 100-1382 |
| SARS-CoV-2 (Spike Protein) Omicron/B.1.1.529 WT Reference Peptide Pool | 25 µg/peptide | 100-1383 |
| SARS-CoV-2 (Spike Protein) Omicron BA.4/BA.5 Peptide Pool | 25 µg/peptide | 100-1421 |
| SARS-CoV-2 (VME1) Peptide Pool | 25 µg/peptide | 100-0648 |
| Influenza (HLA Class I Control) Peptide Pool | 25 µg/peptide | 100-0672 |
| RSV (HLA Class I Control) Peptide Pool | 25 µg/peptide | 100-0674 |
| EBV (BZLF1) Peptide Pool | 25 µg/peptide | 100-0670 |

Peptide Pools (Continued)

| Product | Size | Catalog # |
|--|---------------|-----------|
| EBV (EBNA-1) Peptide Pool | 25 µg/peptide | 100-0669 |
| EBV (EBNA-3A) Peptide Pool | 25 µg/peptide | 100-1386 |
| EBV (EBNA-3B) Peptide Pool | 25 µg/peptide | 100-1387 |
| EBV (GP350/340) Peptide Pool | 25 µg/peptide | 100-1390 |
| EBV (HLA Class I Control) Peptide Pool | 25 µg/peptide | 100-1391 |
| EBV (LMP1) Peptide Pool | 25 µg/peptide | 100-1388 |
| EBV (LMP2) Peptide Pool | 25 µg/peptide | 100-0671 |
| EBV (LMP2A) Peptide Pool | 25 µg/peptide | 100-1389 |
| CMV (pp65) Peptide Pool | 25 µg/peptide | 100-0668 |
| CMV (HLA Class I Control) Peptide Pool | 25 µg/peptide | 100-1414 |
| CMV (IE1) Peptide Pool | 25 µg/peptide | 100-1413 |
| HHV1 (gD) Peptide Pool | 25 µg/peptide | 100-1406 |
| HHV6 (U54) Peptide Pool | 25 µg/peptide | 100-1401 |
| HHV6 (U90) Peptide Pool | 25 µg/peptide | 100-1402 |
| HHV8 (K8) Peptide Pool | 25 µg/peptide | 100-1403 |
| HHV8 (K8.1) Peptide Pool | 25 µg/peptide | 100-1404 |
| HIV-1 (B Gag) Peptide Pool | 25 µg/peptide | 100-1385 |
| HIV (HLA Class I Control) Peptide Pool | 25 µg/peptide | 100-1384 |
| HPV16 (L1) Peptide Pool | 25 µg/peptide | 100-1392 |
| HPV16 (L2) Peptide Pool | 25 µg/peptide | 100-1393 |
| HPV16 (E7) Peptide Pool | 25 µg/peptide | 100-1394 |
| HPV18 (L1) Peptide Pool | 25 µg/peptide | 100-1396 |
| HPV18 (L2) Peptide Pool | 25 µg/peptide | 100-1397 |
| JCV (LT) Peptide Pool | 25 µg/peptide | 100-1399 |

| Product | Size | Catalog # |
|--|---------------|-----------|
| JCV (VP1) Peptide Pool | 25 µg/peptide | 100-1400 |
| BKV (LT) Peptide Pool | 25 µg/peptide | 100-1398 |
| VZV (gE) Peptide Pool | 25 µg/peptide | 100-1408 |
| VZV (IE63) Peptide Pool | 25 µg/peptide | 100-1409 |
| CMV (IE2) Peptide Pool | 25 µg/peptide | 100-1412 |
| CMV (UL44) Peptide Pool | 25 µg/peptide | 100-1405 |
| CEF (HLA Class I Control) Peptide Pool | 25 µg/peptide | 100-0675 |
| Clostridium (Tetanus Toxin) Peptide Pool | 25 µg/peptide | 100-1410 |
| Candida (MP65) Peptide Pool | 25 µg/peptide | 100-1407 |
| Human (Actin) Peptide Pool | 25 µg/peptide | 100-1411 |

For more information or to view our complete listing of viral peptide pools, please visit www.stemcell.com/PeptidePools.

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