Immunology Workflow Battlecard

The immune system consists of innate and adaptive immune cells that work together to protect the host against infections and malignancies. From primary human cells to cell isolation kits, culture media, supplements, and antibodies, STEMCELL Technologies provides the tools for every step of immunology research.

Target Audience

Researchers studying:

- Infectious diseases
- Immuno-oncology (e.g., CAR-T cells)
- Inflammation or autoimmune diseases
- Immune cell biology (T cell, B cell, etc)

Competitors

- **FACS:** Fluorescence-activated cell sorting, traditional method, slow protocol
- **MACS® (Miltenyi):** Column-based isolation system
- **MagniSort™ (Thermo):** Slower protocol, requires wash step, no option of automation
- **MojoSort™ (BioLegend):** Slower protocol, no option of automation

Top Resources

- Immunology Brochure
- Cell Separation Methods Library
- Cell Separation Videos
- Cell Separation Wallcharts

Best Practices Before Contacting Any New Immunology Lead

Do background research on the lead. Try to establish the leads research focus by researching the lead online. Search the Common Immunology Search Terms on the Websites listed below:

- **Common Immunology Search Terms:** Immunology, infectious disease, autoimmune disease, immuno-oncology, immune system, immune cell, cell isolation, cell separation
- **Common Websites to Search:** Google Scholar, PubMed, Google, or the Company or University website

Interacting with Potential Immunology Customers

Step 1. Ask Questions to Establish a Product Fit

- Are you isolating immune cells?
- What are your current research projects and objectives?
- Does your research involve isolating cells?
- What system do you currently use to isolate your cells?

Step 2. Ask Questions to Introduce STEMCELL

- Have you heard of STEMCELL Technologies before?
- Have you heard of EasySep™ before?

Step 3. Introduce STEMCELL Technologies

STEMCELL Technologies is a Canadian biotechnology company that develops speciality cell culture media, cell isolation systems, and accessory products for life science research.

Step 4. Introduce EasySep™

The EasySep system is a small, immunomagnetic system that can isolate cells in as quickly as 8 minutes, without the use of columns.

Step 5. Introduce Your Distributor Company

Introduce your company as a distributor of STEMCELL and other related products.

Step 6. Ask Questions to Determine the Workflow Stage

Ask questions to determine the workflow stage the customer is at, and introduce STEMCELL products.

Immunology Workflow

Cell Sourcing	Cell Isolation & Magnets	Immune Cell Culture & Activation	Cryopreservation
Questions to ask: 1. Do you work with primary cells? 2. Have you considered using frozen primary cells in your research? 3. Where do you source your primary cells from currently? 4. Do you need cells from specific donors?	**Questions to ask:** 1. Which cells would you like to isolate? 2. What species would you like to isolate cells from (human, mouse, rat, non-human primates, etc.)? 3. What is your starting sample (whole blood, bone marrow, freshly isolated or frozen PBMCs, single cell suspension from tissue, etc.)? 4. How many samples do you process per day? 5. What assays are you doing with your cells after isolation?	**Questions to ask:** 1. Do you encounter large differences in viability, recovery or functionality of your previously cryopreserved cells after thawing? 2. Do you intend to use your cryopreserved cells for clinical applications? Or are you aiming for clinical applications in the long term?	**Questions to ask:** 1. What immune cells are you studying? 2. Are you culturing human immune cells in your workflow? 3. Would you like to avoid the use of undefined serum in your human immune cell cultures? 4. How do you isolate your cells upstream of your immune cell cultures?

Cell Sourcing | Cell Isolation & Magnets | Immune Cell Culture & Activation | Cryopreservation & Analysis

Cell Sourcing

- **Cryopreserved Primary Cells**

Video: How to Thaw Frozen Human Primary Cells

COMMON PAIN POINTS	STEMCELL VALUE
Difficult to access cells from specific donors (HLA type, blood type, age range, ethnicity, diseased, etc.)	STEMCELL carries cryopreserved primary cells from donors with diverse specifications.

Cell Isolation & Magnets

Centrifugation

- **SepMate™** - Check RUO vs IVD options for your market
- **Lymphoprep™** (#07801)

Video: How SepMate™ PBMC Isolation Tubes Work

Immunodensity Separation

- **RosetteSep™** - Negative selection, density centrifugation, no magnet required

Video: Cell Isolation in One Spin Using SepMate™ Tubes and RosetteSep™ Cell Separation Reagents

Manual Immunomagnetic Separation

- **EasySep™** - Positive or Negative selection, STEMCELL magnet required

Video: How to Isolate Cells with EasySep™ Column-Free Cell Separation Technology

Automated Immunomagnetic Separation

- **RoboSep™-S** (#21000) - Up to 4 isolations at once
- **Robosep™-16** (#23000) - Up to 16 isolations at once

Video: Automate Cell Isolation with the RoboSep™-S Cell Separation Instrument

STEMCELL Magnets

- **EasySep™** (#18000) - 5 mL tube, process up to 2.5 x 10^8 cells
- **Big Easy™** (#18001) - 14 mL tube, process up to 1 x 10^9 cells
- **EasyEights™** (#18103) - 5 mL & 14 mL tubes, process up to 16 samples at once
- **Easy50™** (#18002) - 50 mL tube, process up to 4 x 10^9 cells

Video: How to Isolate Cells Using the EasySep™ Purple/Silver Magnets

Video: How to Isolate Cells Directly from Whole Blood - EasySep™ Direct Protocol, EasyEights Magnet

COMMON PAIN POINTS	STEMCELL VALUE
Challenging to layer blood and collect PBMCs during density gradient isolation from whole blood	**SepMate™** tubes contain a plastic insert for easy blood layering, PBMCs can be easily poured off after 10 min centrifugation (brake on).
Time consuming and labor intensive to prep blood samples prior to cell isolation	**RosetteSep™** and **SepMate™** or **EasySep™ Direct** can be used to isolate untouched cells from human whole blood in as little as 30 minutes.
Long cell isolation protocol times or poor purity	**EasySep™** can be used to isolate cells with high purity in as little as 8 minutes from a variety of species and sample sources.
Cells can clog in isolation columns	**EasySep™** is an immunomagnetic, column-free cell isolation system.
Difficult or time consuming to process different sample sizes, or more than 1 sample at a time	**STEMCELL magnets** allow processing sample volumes of 0.1- 50 mL, **EasyEights™** allows processing of 8 samples at once per side.
Time consuming to isolate cells from several samples at once	**RoboSep™** allows automated isolation of target cells from 4 or 16 samples at a time, customers can perform other work in the meantime.

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Immune Cell Culture & Activation

T Cells

- **ImmunoCult™ for T Cells**

B Cells

- **ImmunoCult™ for B Cells**

Dendritic Cells & Macrophages

- **ImmunoCult™ for DCs**
- **ImmunoCult™ for Macrophages**

COMMON PAIN POINTS	STEMCELL VALUE
Serum in media could lead to higher variability of differentiated cells (due to undefined components and batch to batch variability)	Human **ImmunoCult™** media and supplements are serum free, which reduces variability.
Time consuming to find the best combination and concentration of additives to maximize cell yield when creating homemade media	**ImmunoCult™** is a ready to use culture/differentiation protocol. **ImmunoCult™** reagents are optimized for high cell yield and function of target cells.
High variability in human T cell expansion and problematic transition to long term pre-clinical applications with serum based expansion media	Serum and xeno-free **ImmunoCult™-XF T Cell Expansion Medium** generates a high yield of T cells. Supports applicability in pre-clinical applications in the long term (e.g., CAR-T cells).
Difficult to isolate large numbers of DCs, macrophages, plasma cells or Th1/Th2/Treg cells from human blood or tissues for downstream applications	Using **ImmunoCult™**, can generate macrophages, DCs, plasma cell or Th1/Th2/Treg cells under serum-free or animal component free conditions with high yields.

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Cryopreservation & Analysis

Cryopreservation

- **CryoStor® CS10** (#07930)

COMMON PAIN POINTS	STEMCELL VALUE
Batch variations in serum in cryopreservation media leads to variability in viability, recovery and functionality of cells after thawing.	**CryoStor® CS10** is defined, serum-free and animal component-free, which leads to more consistent viability, recovery and functionality of cells after thawing.
Risk of introducing infectious agents when cryopreserving cells for clinical applications when using serum containing cryopreservation media.	**CryoStor® CS10** is manufactured under cGMP with USP grade components that will avoid potential introduction of infectious agents.