



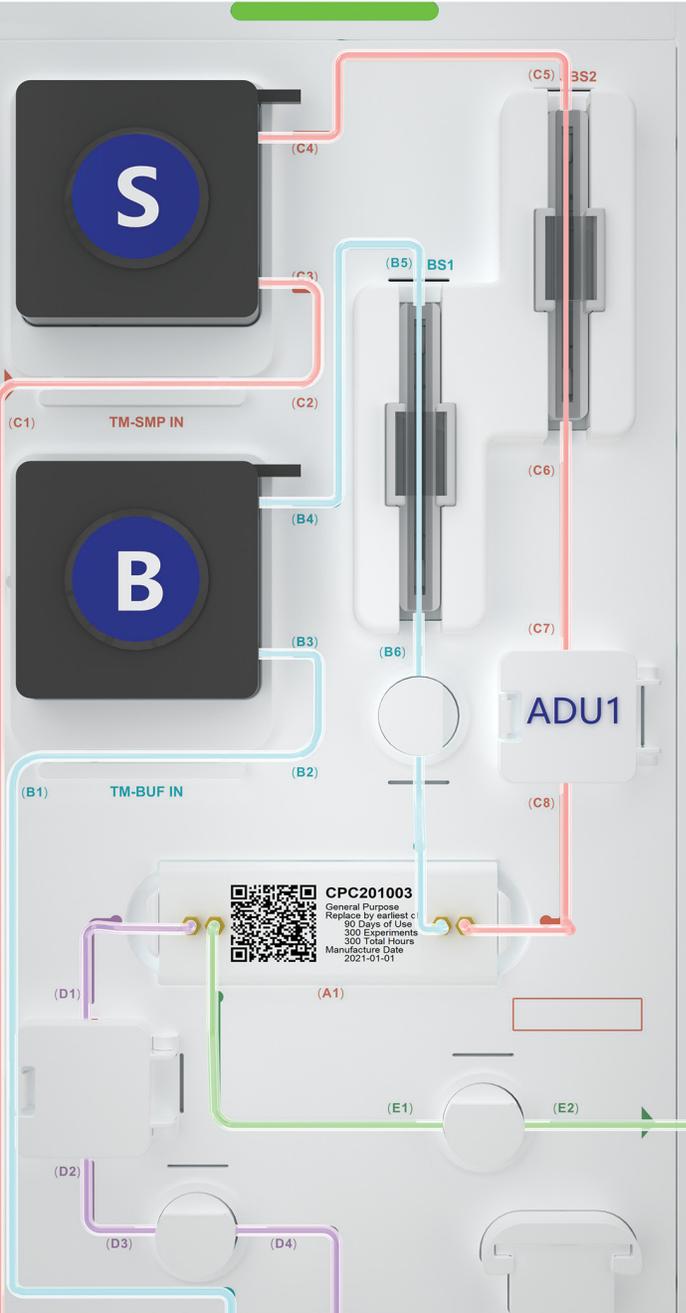
# MARS<sup>®</sup> SP | MARS<sup>®</sup> Bar

Advancing the Future of Sample  
Preparation and Cell Isolation

# MARS<sup>®</sup> Instruments

## COMPLETE CELL SEPARATION SOLUTION

Label-free WBC sample preparation and immuno-magnetic cell selection provide users the flexibility necessary for robust assay optimization and easy upscaling.

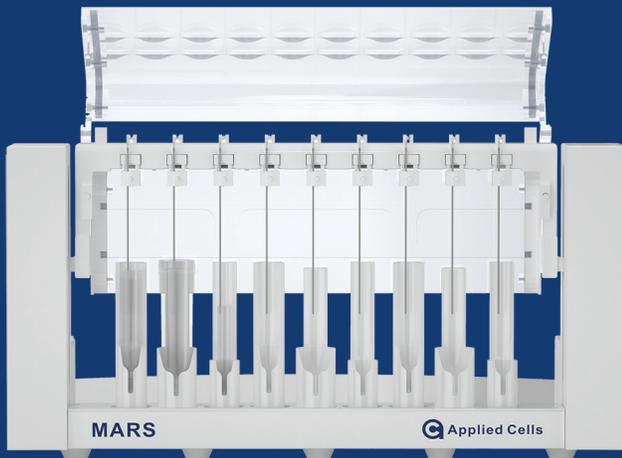


Easily replaceable fluidic tubing set and fluidic components

Sterilizable and disposable

Audio and visual assistance for automated and step-away operation

**Fully internalized tanks for easy operation and transportation**



**Sampling mechanism enables multiple sample parallel processing and easy scaling up.**

**Systems are compatible with 5ml, 15ml, and 50ml sample tubes as well as bags.**

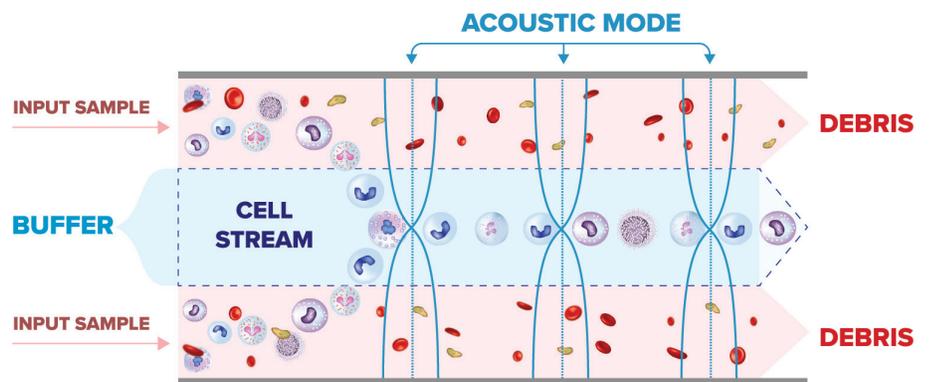
**Operate the control panel from a distance for use in bio-safety hood**



# MARS® Technology

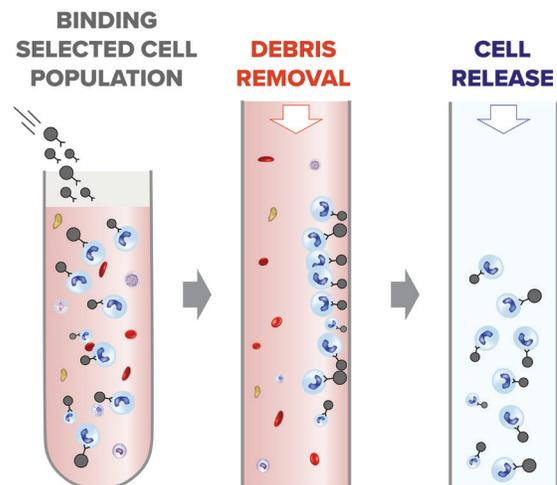
## ACOUSTIC CELL WASH

- Label-free cell separation from lysed cell debris, dead cells, and other small particles.
- Separation of particles based on differences in their physical parameters.
- Tunable module for enrichment of desired cells.
- Efficient RBC and debris removal.
- Fast process - up to 3ml / min.
- Up to 3 samples / run



## IMMUNO-MAGNETIC CELL SEPARATION

- Separation in MARS flow channels
- Reduced dead volume
- Minimal number of cells are trapped in the system
- Unprecedented recovery
- Unlimited cell capacity without clogging
- Fast process up to 3 ml / min
- Up to 3 samples / run

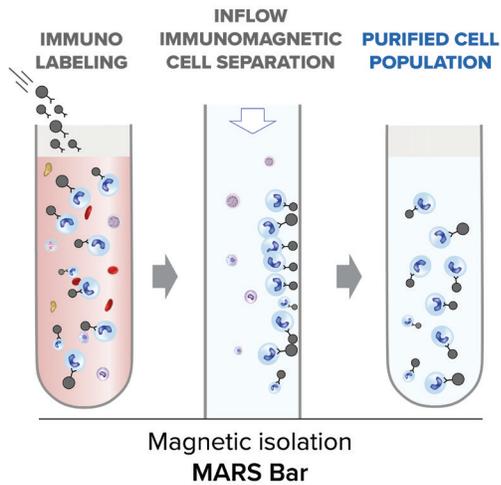


# MARS<sup>®</sup> Workflows

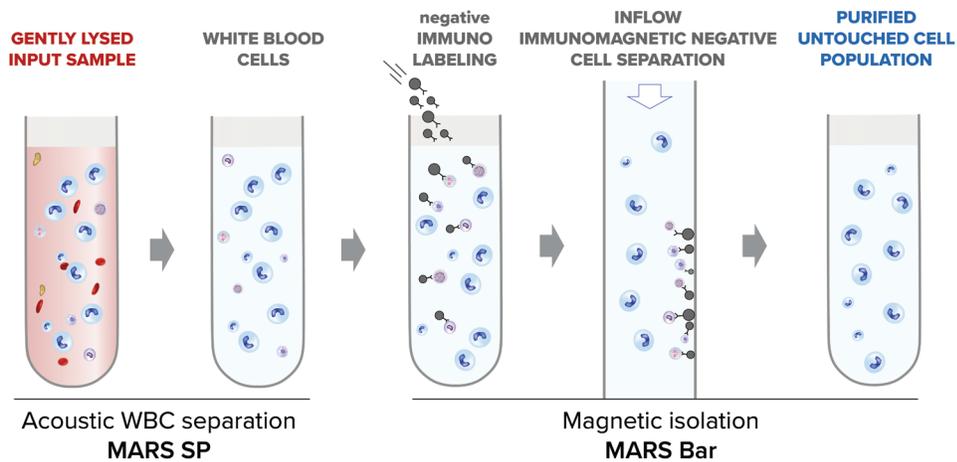
Exquisitely easy and gentle workflows ensure high cell viability and minimal hands on time.

- No Ficol gradient
- No centrifugation
- No dedicated separation columns

## SIMPLE AND FAST POSITIVE ISOLATION



## SIMPLE AND FAST NEGATIVE ISOLATION



# The power of MARS® technologies

## A VARIETY OF INPUT SAMPLES



WHOLE BLOOD



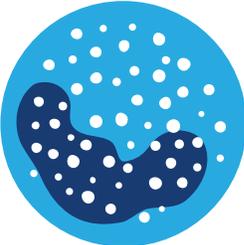
TISSUES



BONE MARROW



APHERESIS



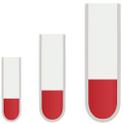
PBMCS

## SMALL TO LARGE SCALE

3 modules allow users to run up to 3 samples at the same time or split larger volumes to shorten the processing time.



Lysed Blood Sample



1-3 Blood Samples

up to  
3 mL/min

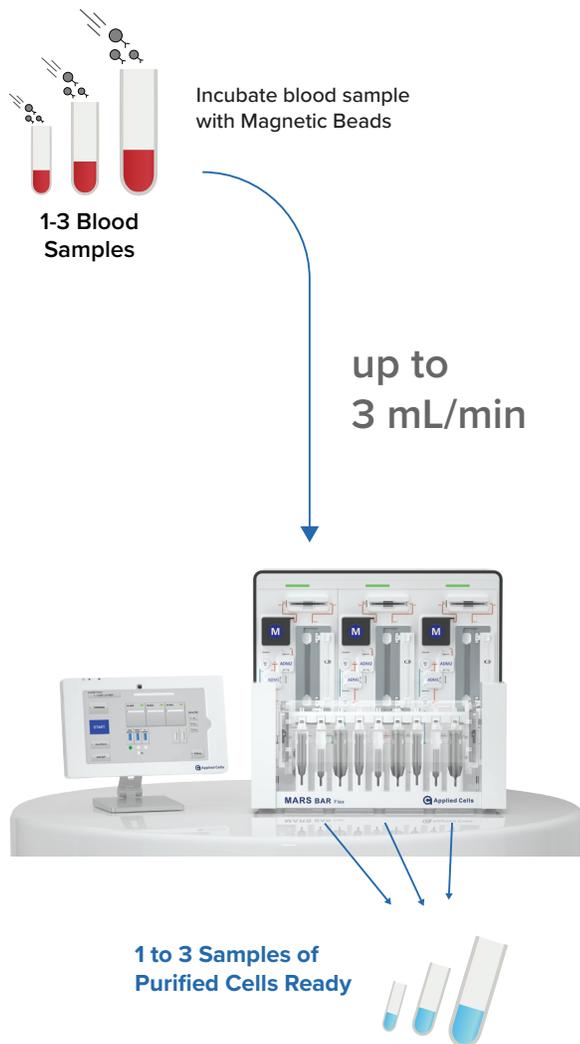


1 to 3 samples of purified cells ready

# EASY ASSAY UPSCALING

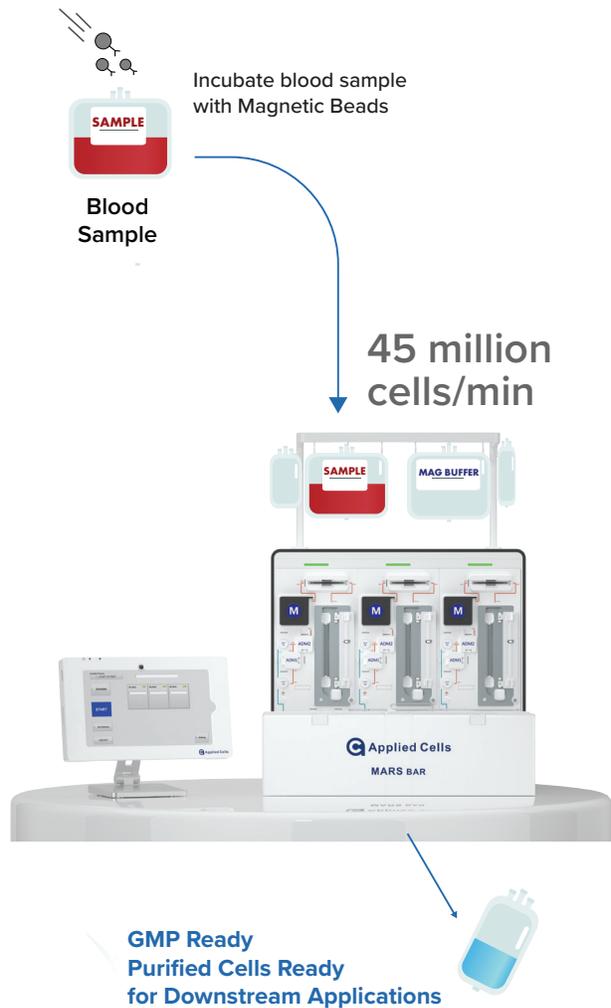
## STEP 1

Optimise the assay in a small scale, starting at 300  $\mu$ L / sample



## STEP 2

Upscale the assay to achieve highest purity in a fast and cost-effective manner



# MARS® Applications

CLICK TO READ MORE

## Label-free Acoustic Cell Isolation

TIL Cell Isolation

Cell Isolation from Lung Tumor Biopsy Sample

## Choose the suitable method

Neutrophil Isolation

## Negative cell selection

CD45+ Cell Isolation

## Positive Magnetic Cell Selection

CD3+ Cell Isolation

CD14+ Cell Isolation

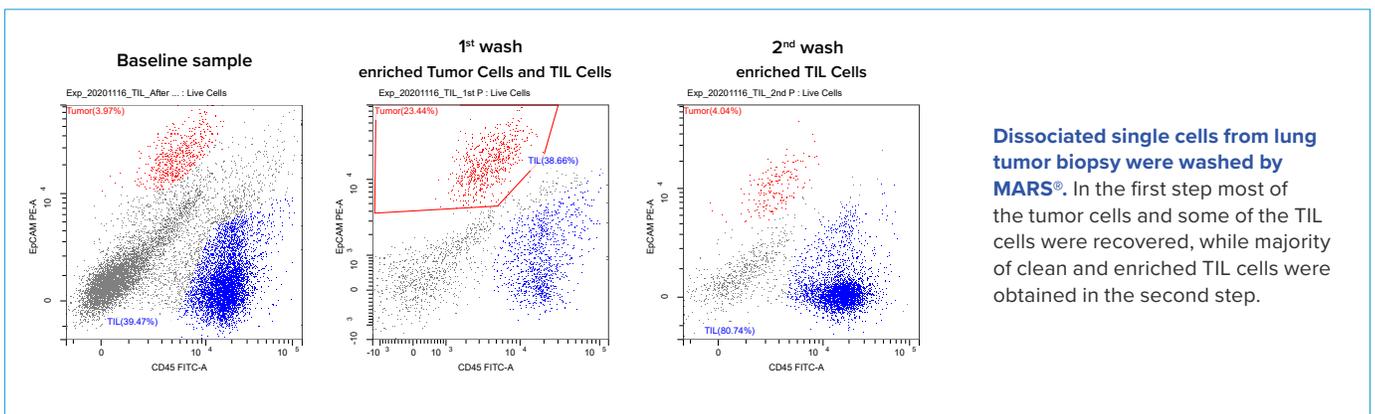
CD34+ Cell Isolation

CD8+ Cell isolation

CD19+ Cell Isolation

CD138+ Cell Isolation

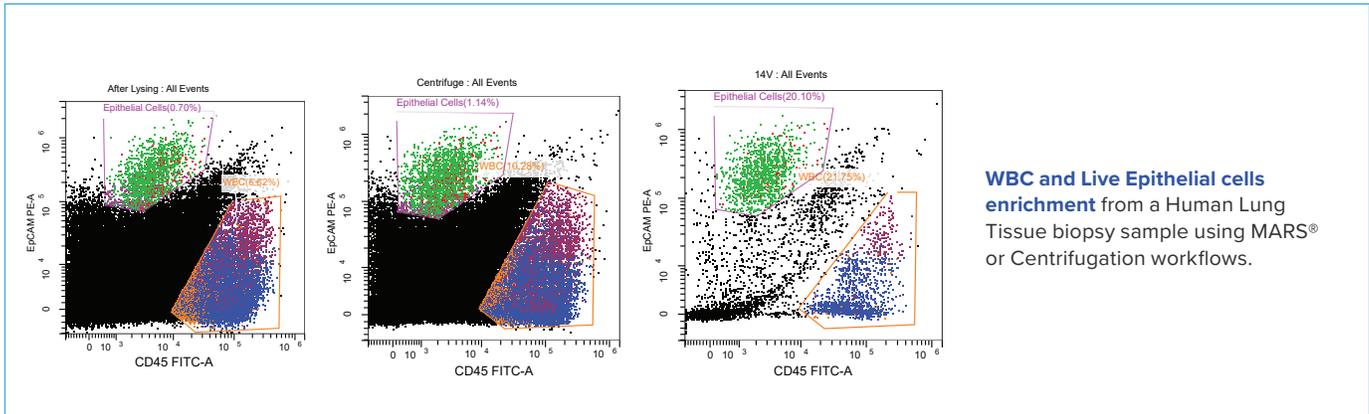
## TIL Cell Isolation



**Dissociated single cells from lung tumor biopsy were washed by MARS®.** In the first step most of the tumor cells and some of the TIL cells were recovered, while majority of clean and enriched TIL cells were obtained in the second step.

[DOWNLOAD APPLICATION NOTE](#)

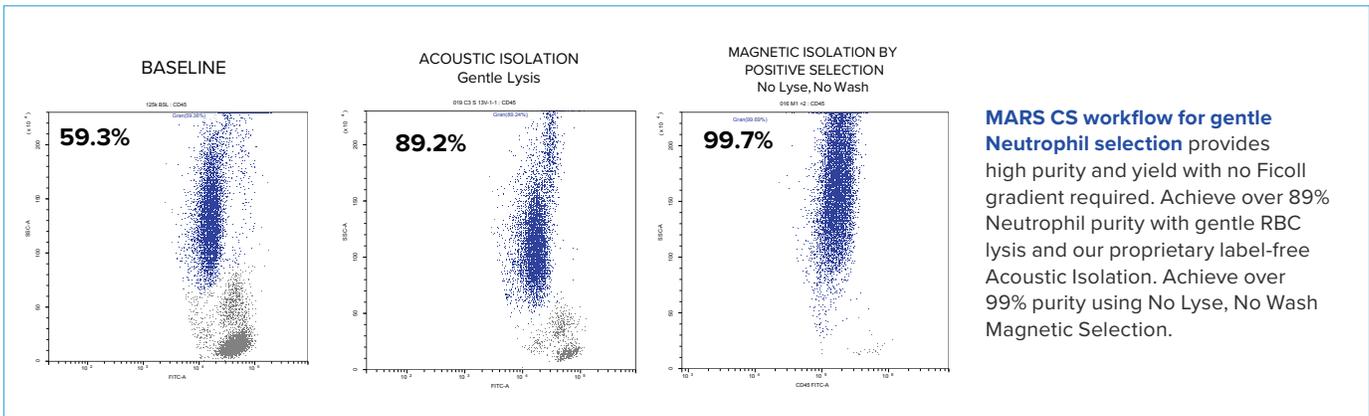
# Cell Isolation from Lung Tumor Biopsy Sample



**WBC and Live Epithelial cells enrichment** from a Human Lung Tissue biopsy sample using MARS® or Centrifugation workflows.

[DOWNLOAD APPLICATION NOTE](#)

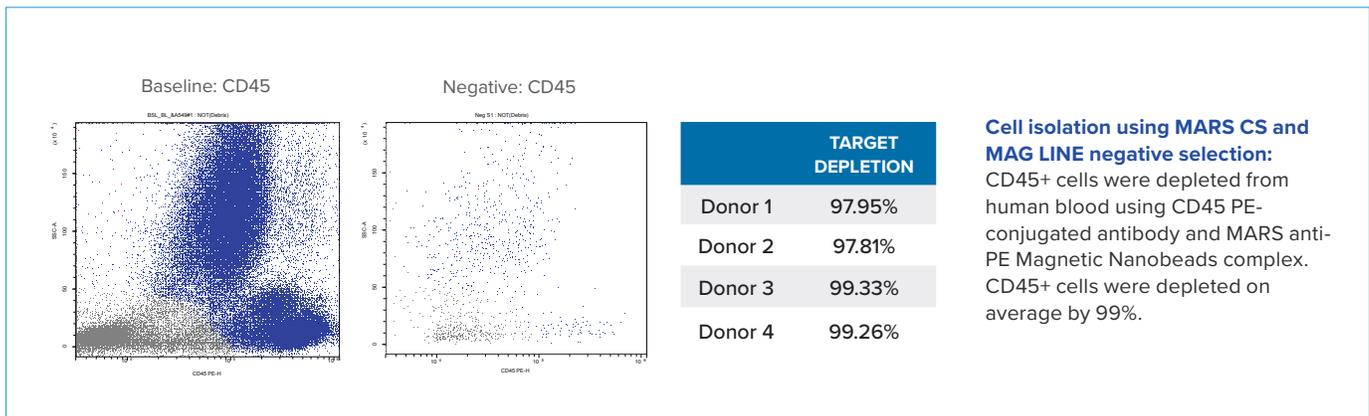
# Fast and Gentle Neutrophil Isolation



**MARS CS workflow for gentle Neutrophil selection** provides high purity and yield with no Ficoll gradient required. Achieve over 89% Neutrophil purity with gentle RBC lysis and our proprietary label-free Acoustic Isolation. Achieve over 99% purity using No Lyse, No Wash Magnetic Selection.

[DOWNLOAD APPLICATION NOTE](#)

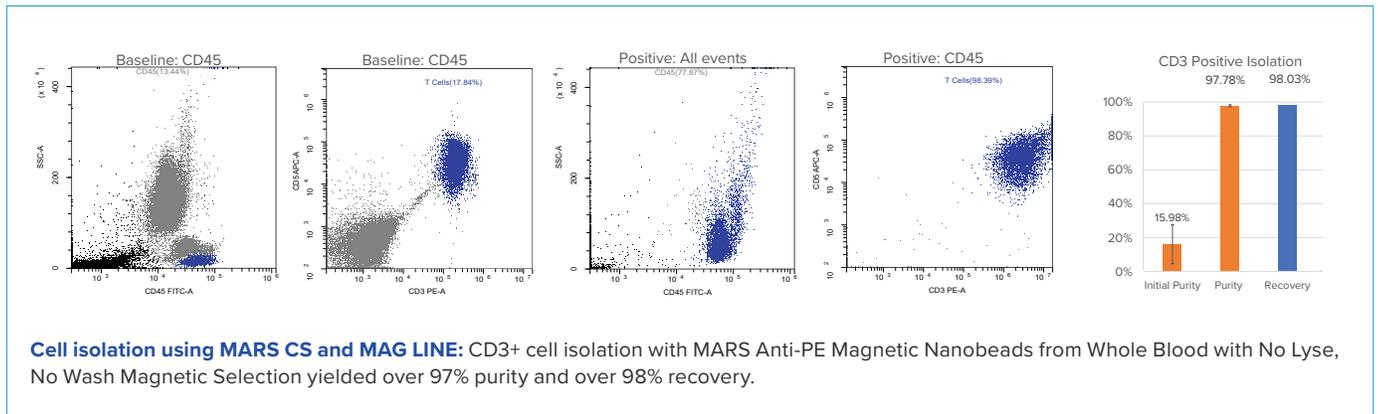
# CD45+ Cell Depletion



**Cell isolation using MARS CS and MAG LINE negative selection:** CD45+ cells were depleted from human blood using CD45 PE-conjugated antibody and MARS anti-PE Magnetic Nanobeads complex. CD45+ cells were depleted on average by 99%.

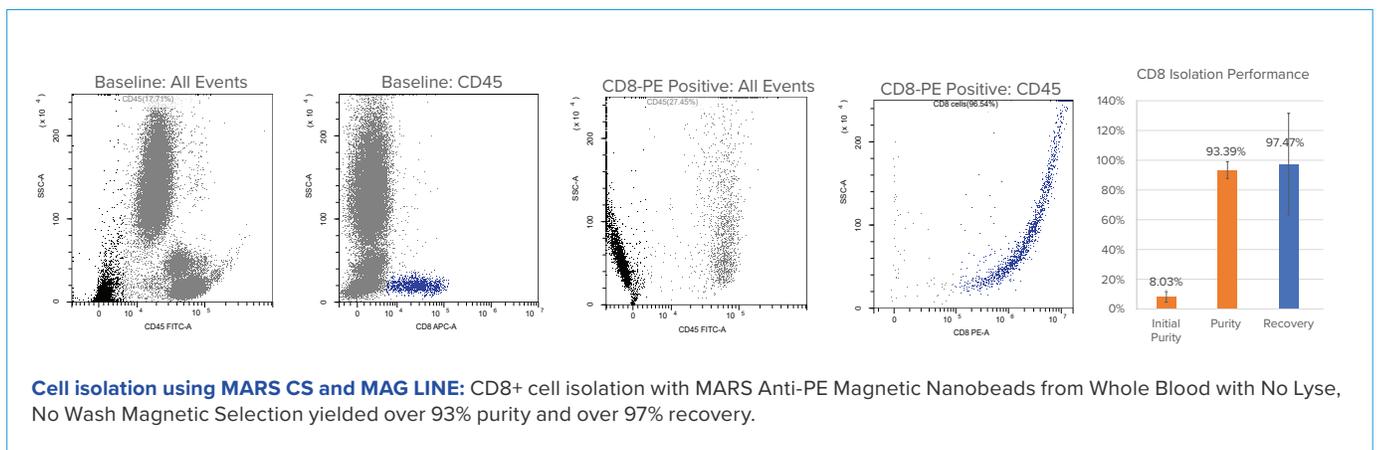
[DOWNLOAD APPLICATION NOTE](#)

## CD3+ Cell Isolation



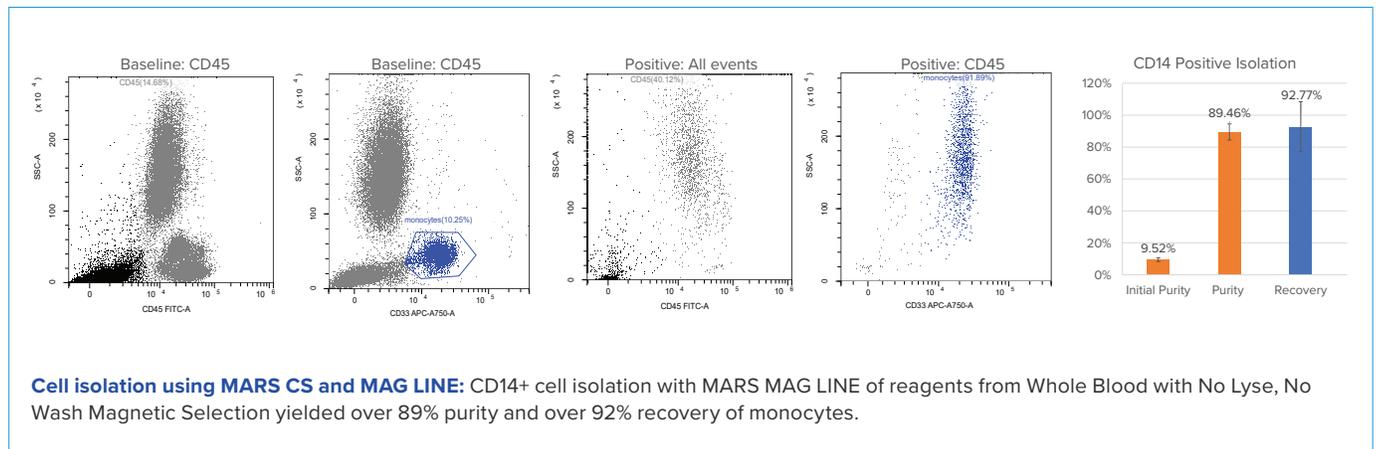
[DOWNLOAD APPLICATION NOTE](#)

## CD8+ Cell Isolation



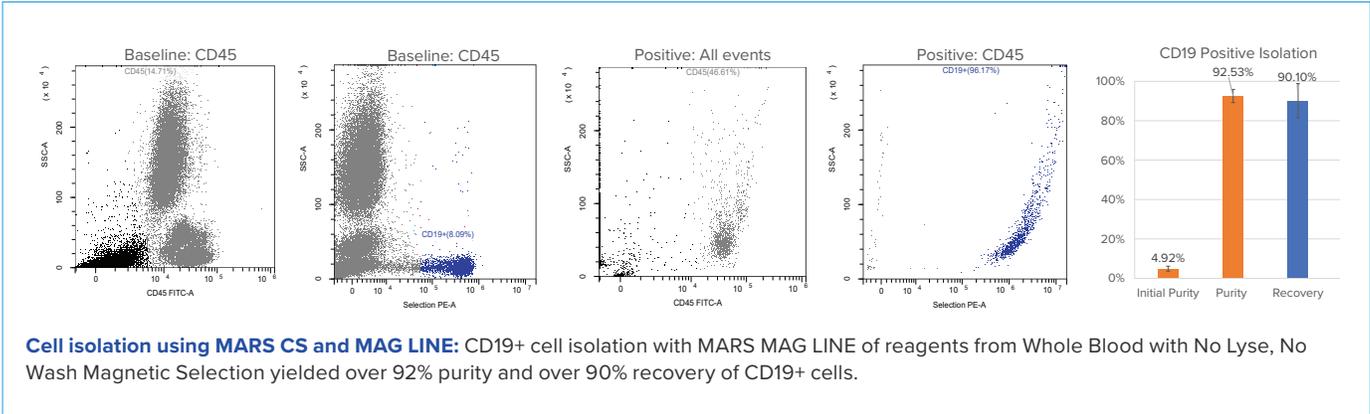
[DOWNLOAD APPLICATION NOTE](#)

## CD14+ Cell Isolation



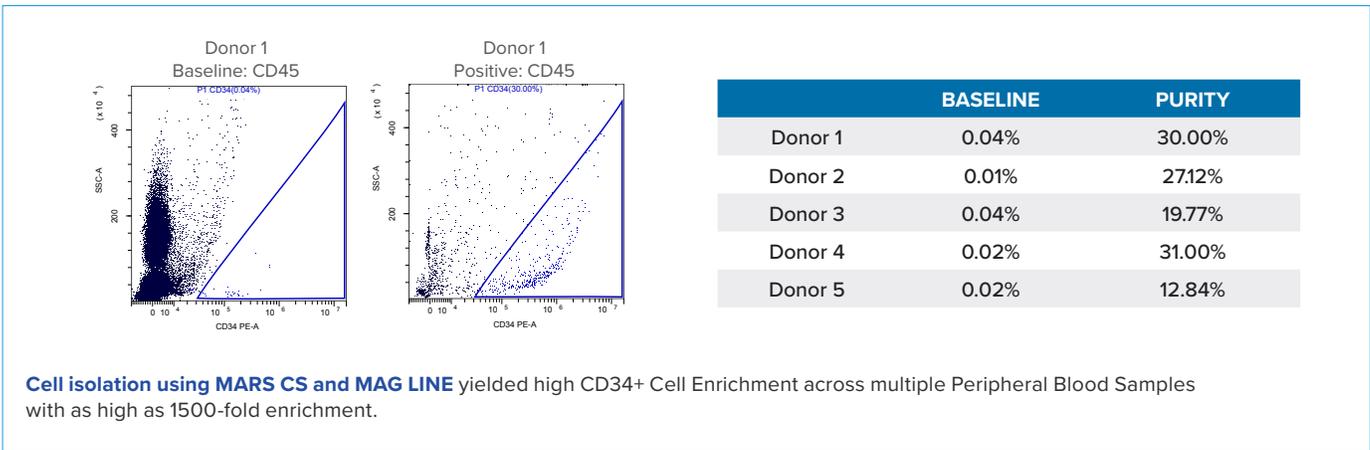
[DOWNLOAD APPLICATION NOTE](#)

# CD19+ Cell Isolation



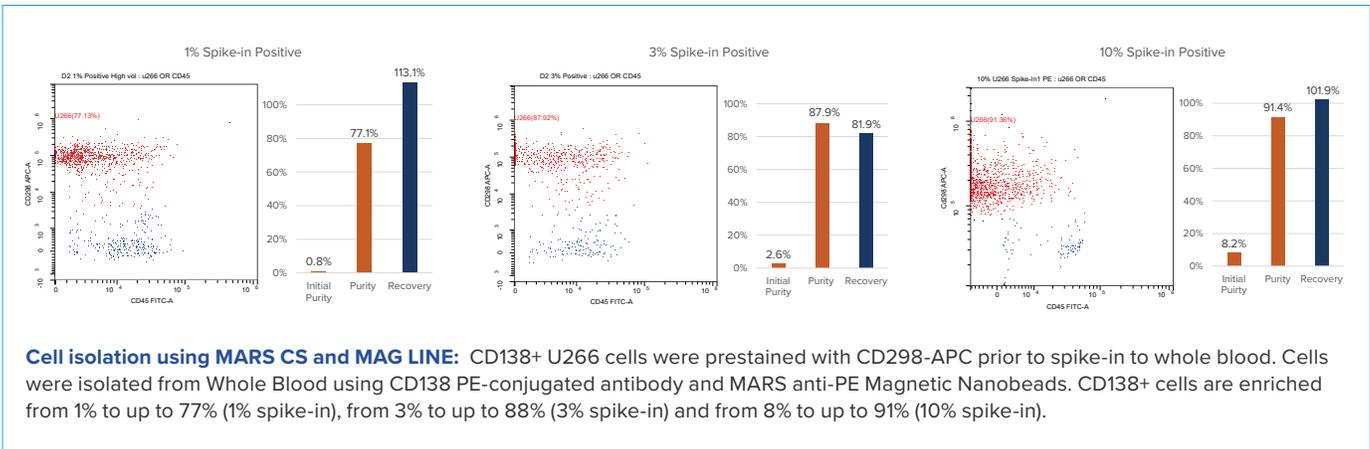
[DOWNLOAD APPLICATION NOTE](#)

# CD34+ Cell Isolation



[DOWNLOAD APPLICATION NOTE](#)

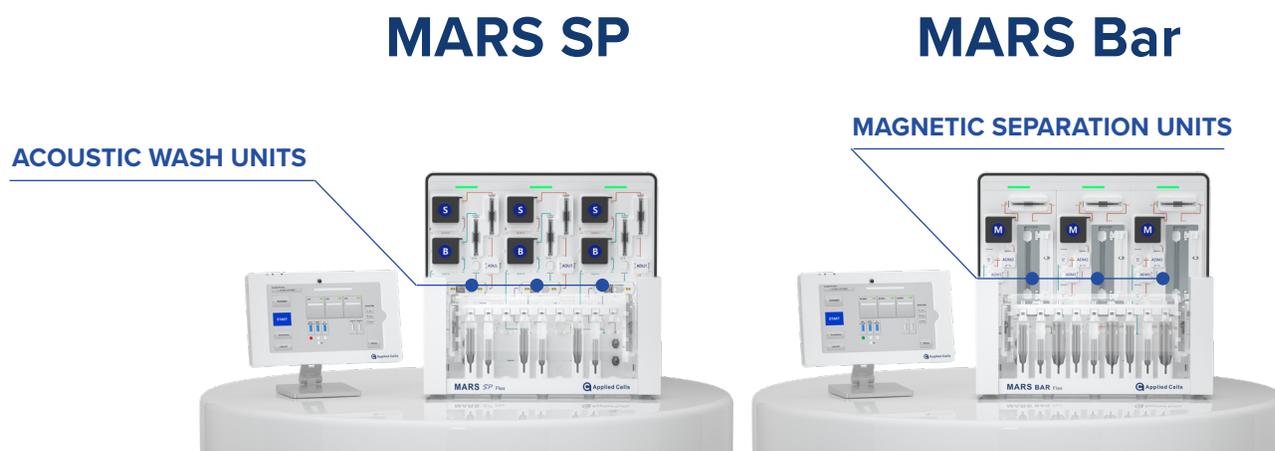
# CD138+ Cell Isolation



[DOWNLOAD APPLICATION NOTE](#)

MARS offers flexible solutions that allow users to run individual modules in order to optimize the assay and then easily upscale cell isolation.

A range of programs provides options to set up an automated workflow for cell wash, concentration and/or magnetic separation.



<b>Modules</b>	<b>3 Acoustic modules</b>	<b>3 Magnetic modules</b>
<b>Function</b>	white blood cell separation from RBC and debris based on the difference in physical parameters	immuno-magnetic cell separation targeting specific cell surface markers
<b>Compatible Samples</b>	Whole blood, Bone marrow, Apheresis, Frozen PBMC's, Dissociated Tissue Samples (TIL's and Tumor)	
<b>Lysis</b>	Yes	Optional
<b>Labeling</b>	Optional	Yes, Magnetic
<b>Voltage range</b>	recommended: 12 - 20V	N/A
<b>Sample In/ Out Volumes</b>	SAMPLE IN: minimum 500 uL OUT ⊕: 0.7x sample IN OUT ⊖: 2.2x sample IN	SAMPLE IN: minimum 300 uL OUT ⊕: 1 mL OUT ⊖: sample IN + 1.5 mL
<b>Sample Cell Count</b>	up to 10M/min	up to 500M cells per run
<b>Speed</b>	0.6-1ml/min	0.5-1ml/min
<b>Supporting buffers</b>	MARS Clean, MARS Wash	MARS Clean, MARS MAG
<b>Key features</b>	No Ficoll, No centrifugation	No Matrix, No centrifugation

For research use only. Not for use in therapeutic or diagnostic procedures.

© Copyright 2022. All rights reserved. Applied Cells and MARS are registered trademarks of Applied Cells, Inc. All other trademarks are the property of their respective owners.

AC\_B005A