

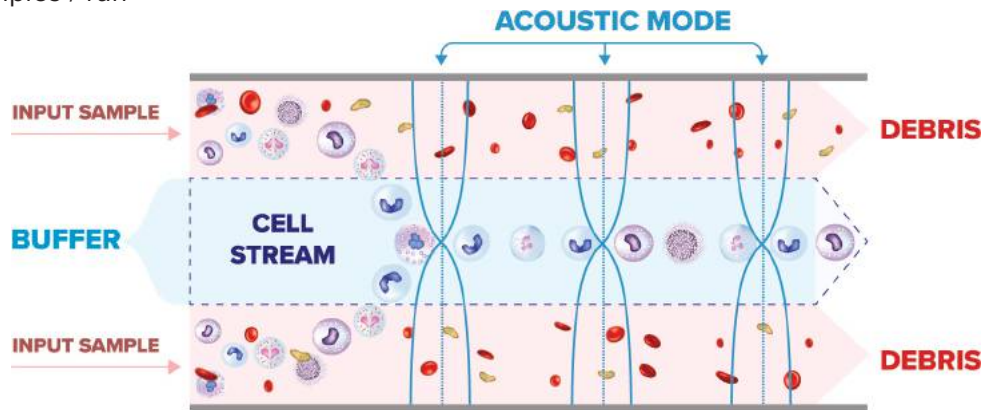
# MARS<sup>®</sup> CS

The Best of MARS<sup>®</sup> Technologies

# MARS<sup>®</sup> Technology

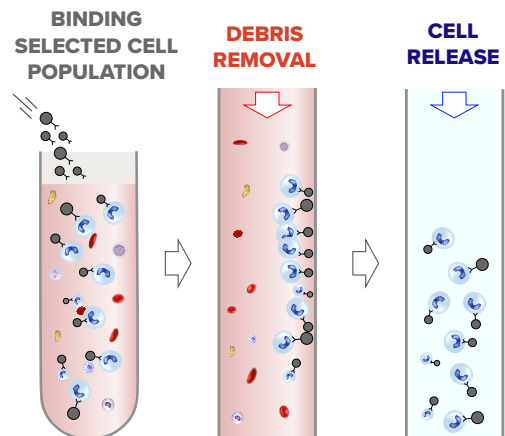
## ACOUSTIC CELL WASH

- Label-free cells 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 is reduced,
- 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



# Complete End To End Solution For Rare Cell Sorting

in collaboration with:

**nanoclect:**  
Biomedical, Inc.

MARS® and WOLF® together provide exceptionally high performance in enrichment and isolation of rare cells from Whole Blood, with 100 fold enhanced sensitivity and 4200x enrichment of rare cells.

With MARS® and WOLF® workflow rare cells (0.1% and below) can be efficiently enriched and sorted with high purity.

This includes, but is not limited to:

- CTCs, MDRs
- Plasma cells
- Antigen-specific T cells
- Hematopoietic stem cells

A MARS®-WOLF® workflow provides a gentle, flexible and easy rare cell isolation.

Spike in blood with A549

Add MARS MAG LINE reagents:  
FcR Block, CD45 PE anti beadsPE

Lyse

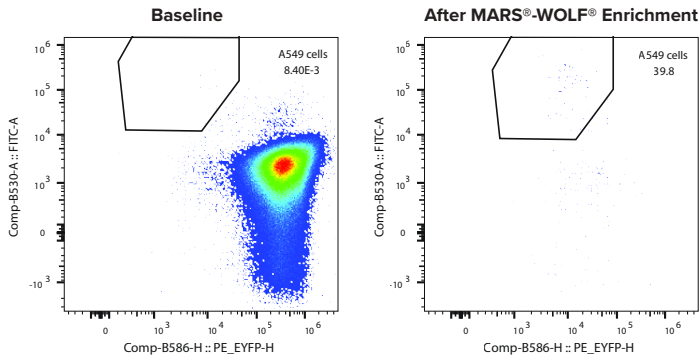
### STEP 1

MARS® Acoustic Wash  
MARS® Mag Negative Separation

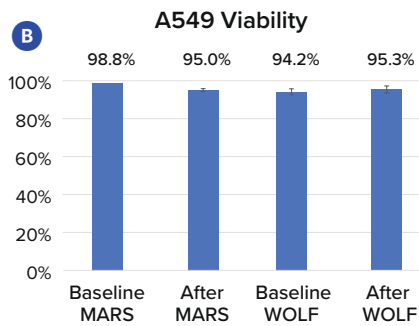
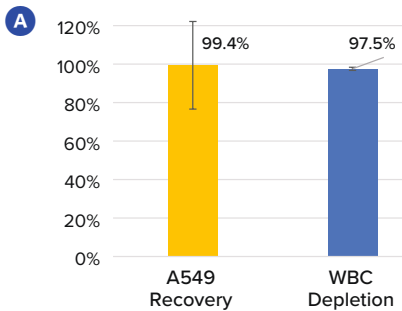
Centrifuge

### STEP 2

WOLF® Sorting



MARS® and WOLF® rare cell isolation from initial 0.01% spike-in to 39.8% final purity.



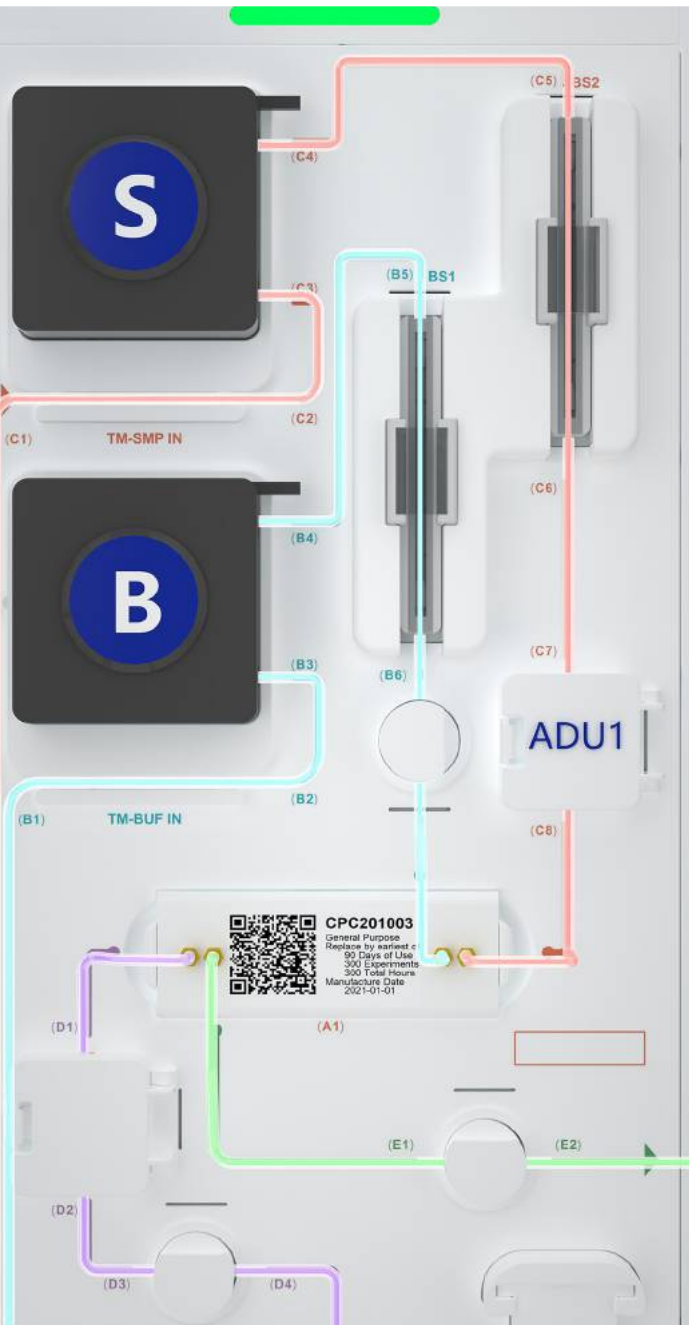
(A) A549 cell enrichment from whole blood using MARS® platform. (B) both MARS® and WOLF® instruments ensure high cell viability. n=3 experiments

# MARS<sup>®</sup> CS Instrument

## THE BEST OF OUR TECHNOLOGIES

Integrated label-free sample preparation, concentration and immuno-magnetic cell selection provide users the flexibility necessary for robust assay optimization.

With no need for centrifugation, the cells are treated gently and their viability and physiology remain unaltered.

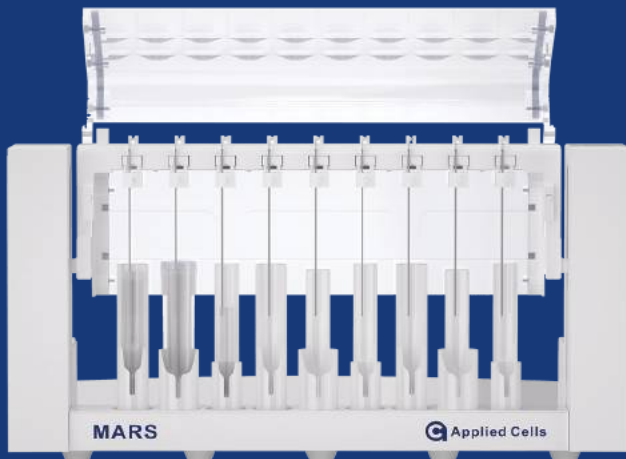


Easily replaceable fluidic tubing set and fluidic components

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**

**Compatible with 5ml, 15ml, and 50ml sample tubes**

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



# MARS® Applications

CLICK TO READ MORE

CD3+ Cell Isolation

CD8+ Cell isolation

CD14+ Cell Isolation

CD19+ Cell Isolation

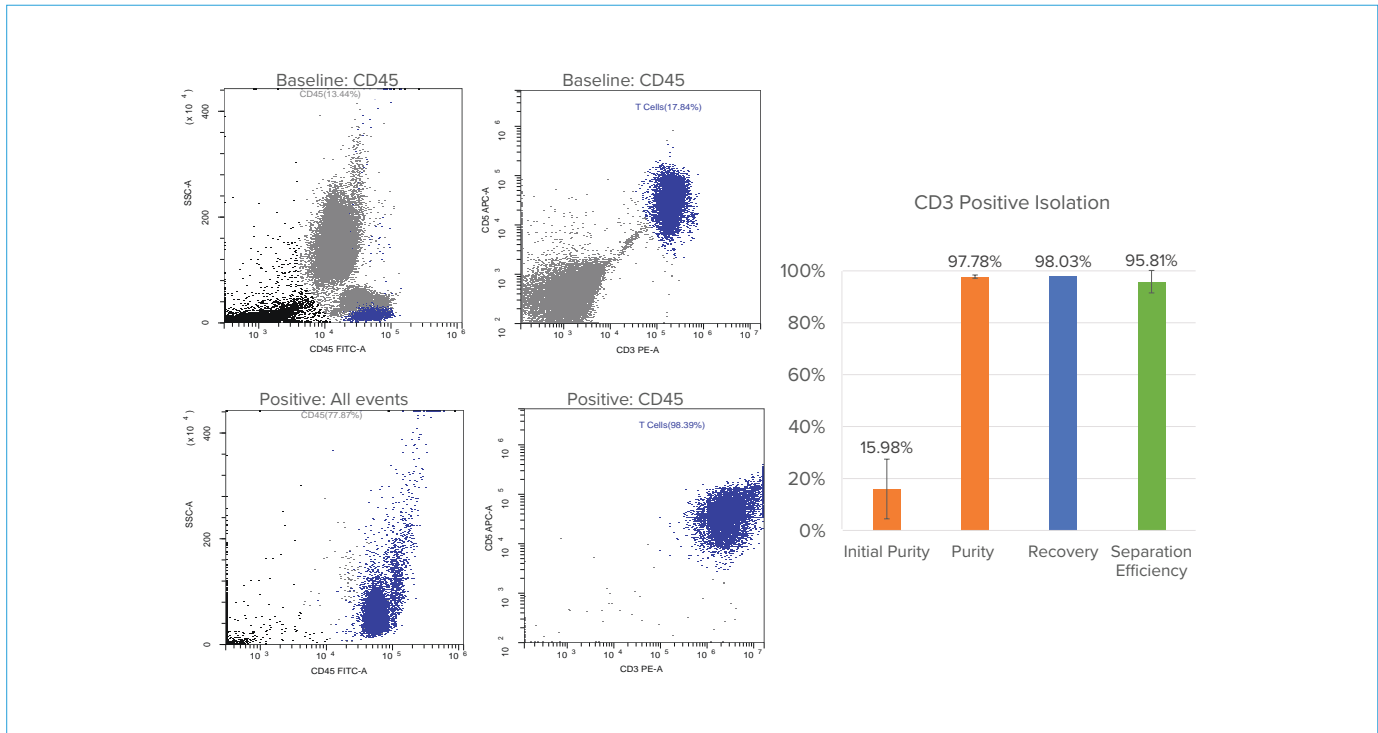
CD34+ Cell Isolation

CD45+ Cell Depletion

CD138+ Cell Isolation

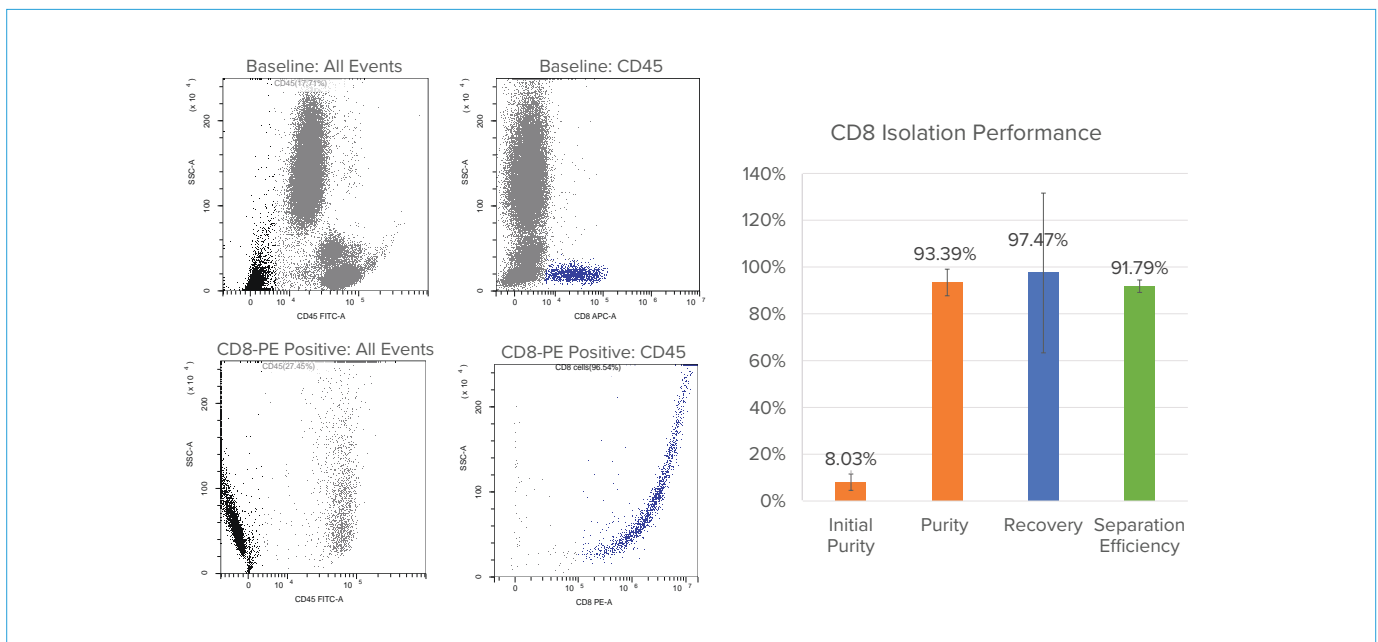
Neutrophil Isolation

# CD3+ Cell Isolation



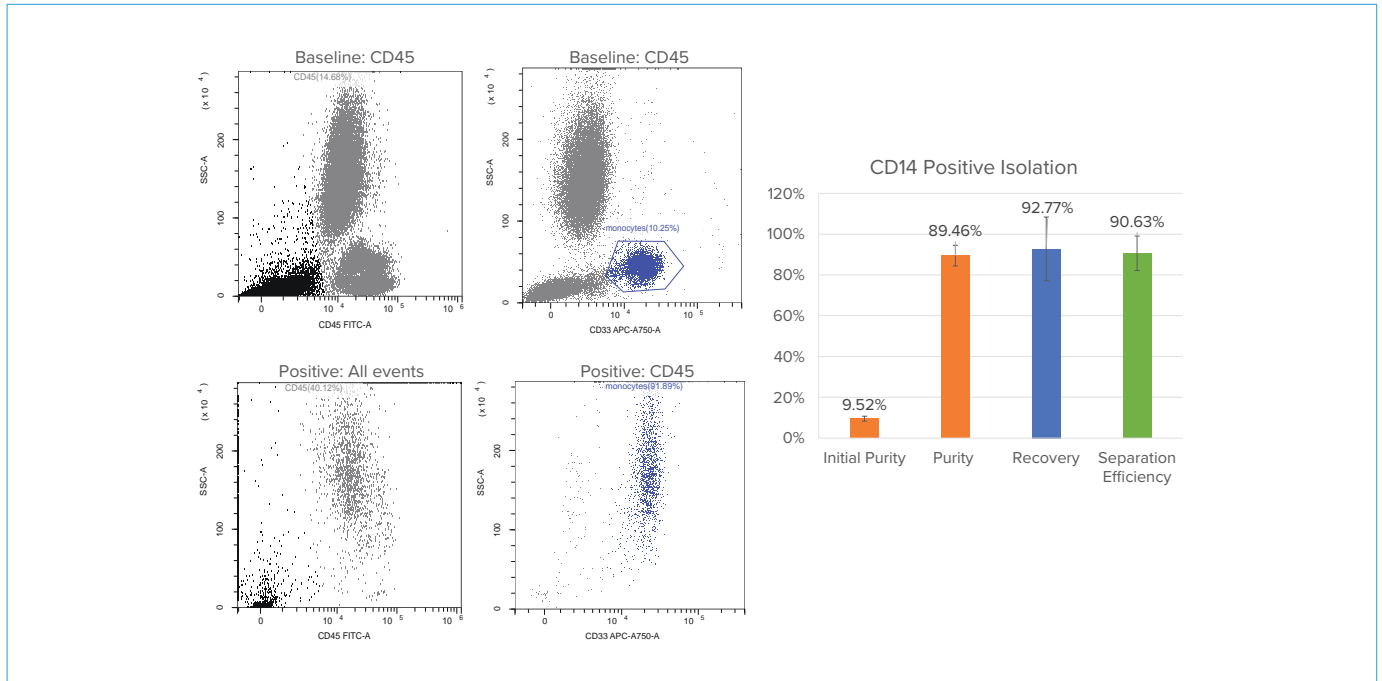
**Cell isolation using MARS CS and MAG LINE:** CD3+ cell isolation with MARS Anti-PE Magnetic Nanobeads from Whole Blood with No Lyse, No Wash Magnetic Selection yielded over 97% purity and over 98% recovery.

# CD8+ Cell Isolation



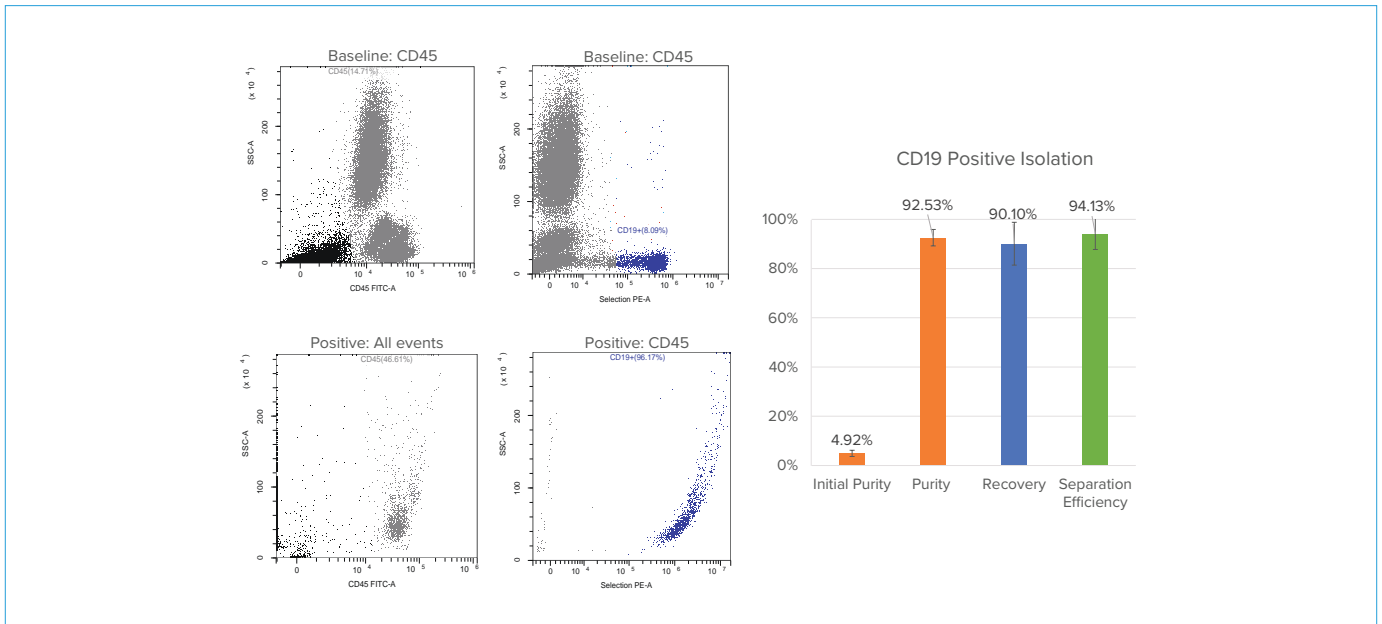
**Cell isolation using MARS CS and MAG LINE:** CD8+ cell isolation with MARS Anti-PE Magnetic Nanobeads from Whole Blood with No Lyse, No Wash Magnetic Selection yielded over 93% purity and over 97% recovery.

# CD14+ Cell Isolation



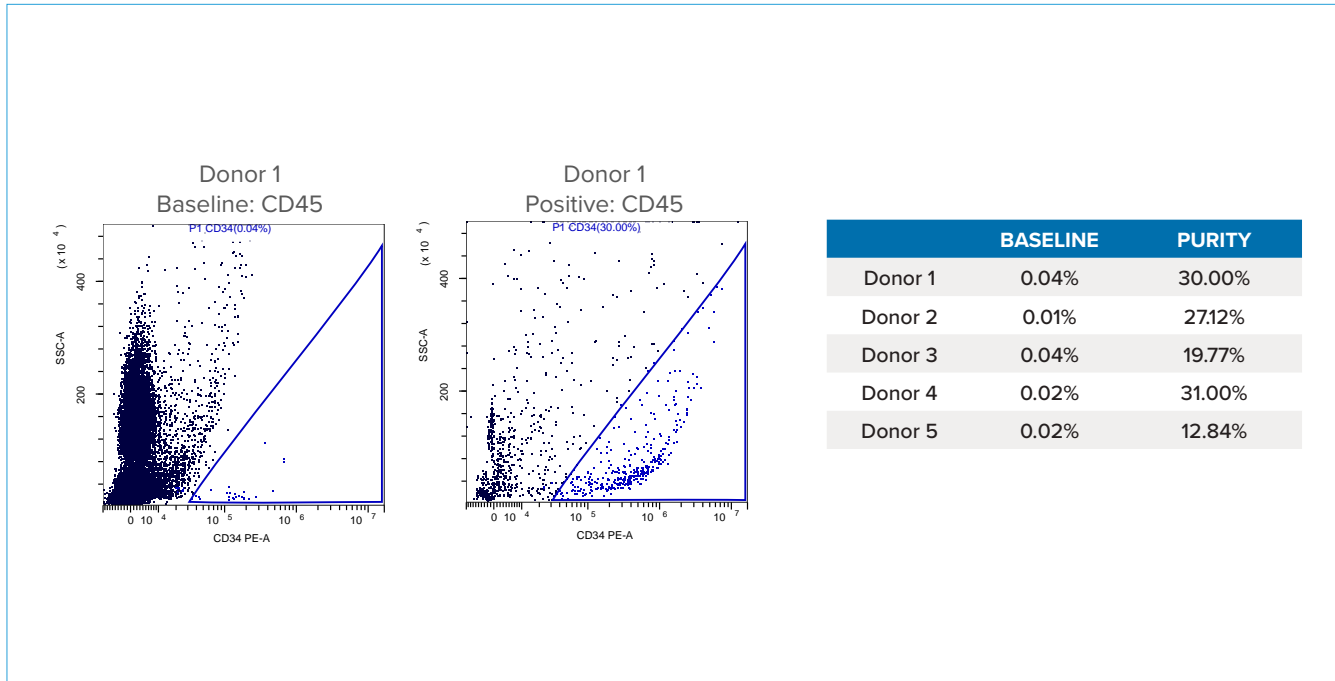
**Cell isolation using MARS CS and MAG LINE:** CD14+ cell isolation with MARS MAG LINE of reagents from Whole Blood with No Lyse, No Wash Magnetic Selection yielded over 89% purity and over 92% recovery of monocytes.

# CD19+ Cell Isolation



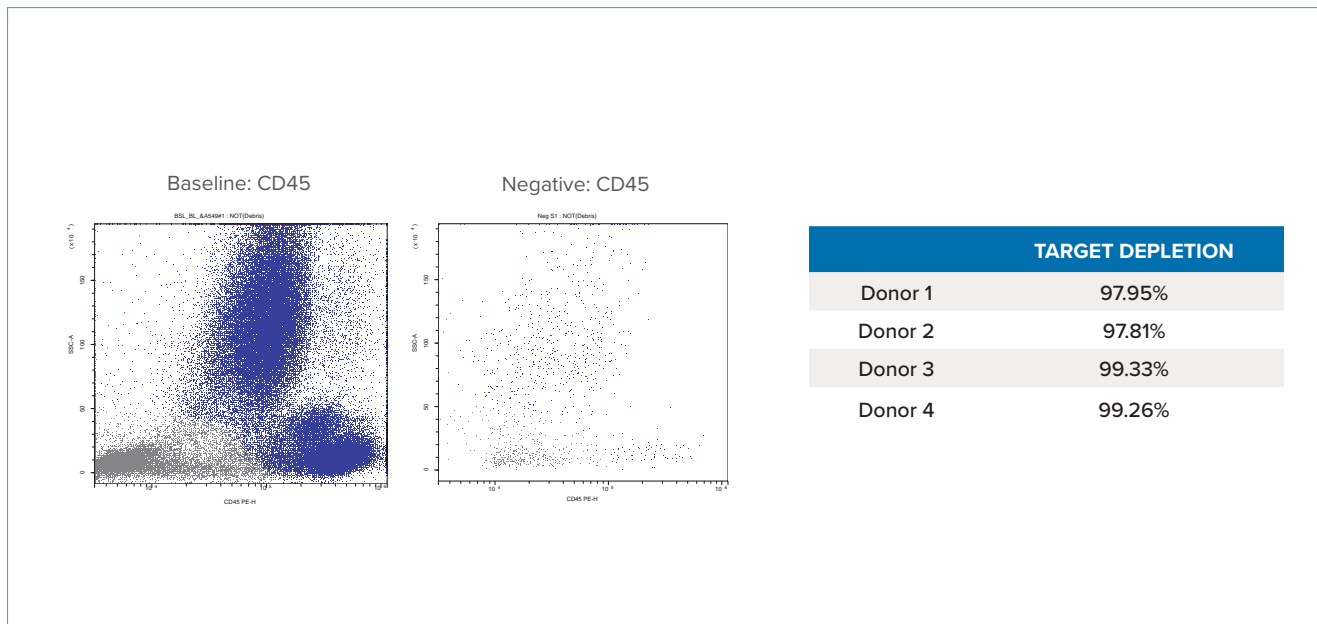
**Cell isolation using MARS CS and MAG LINE:** CD19+ cell isolation with MARS MAG LINE of reagents from Whole Blood with No Lyse, No Wash Magnetic Selection yielded over 92% purity and over 90% recovery of CD19+ cells.

# CD34+ Cell Isolation



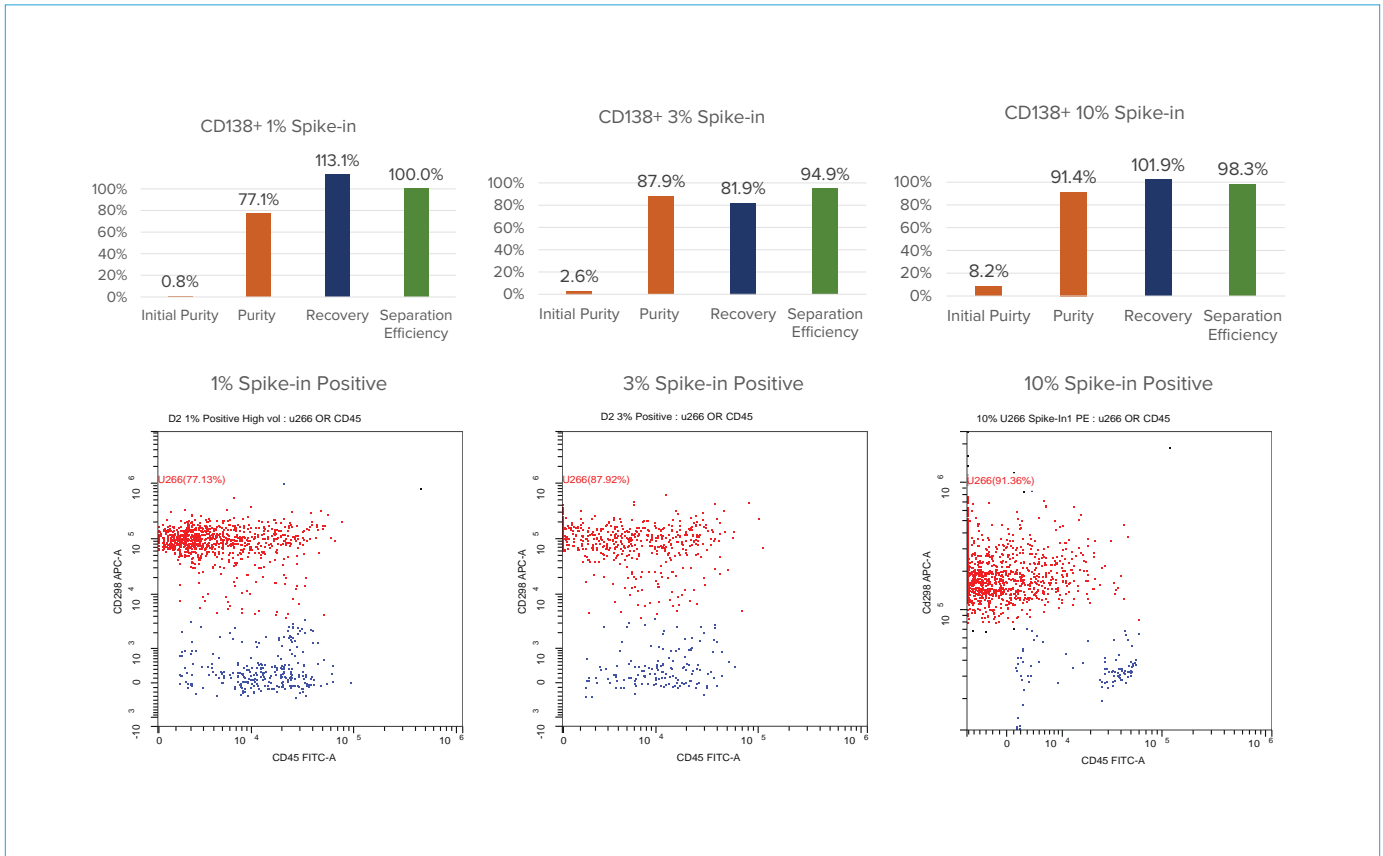
Cell isolation using **MARS CS and MAG LINE** yielded high CD34+ Cell Enrichment across multiple Peripheral Blood Samples with as high as 1500-fold enrichment.

# CD45+ Cell Depletion



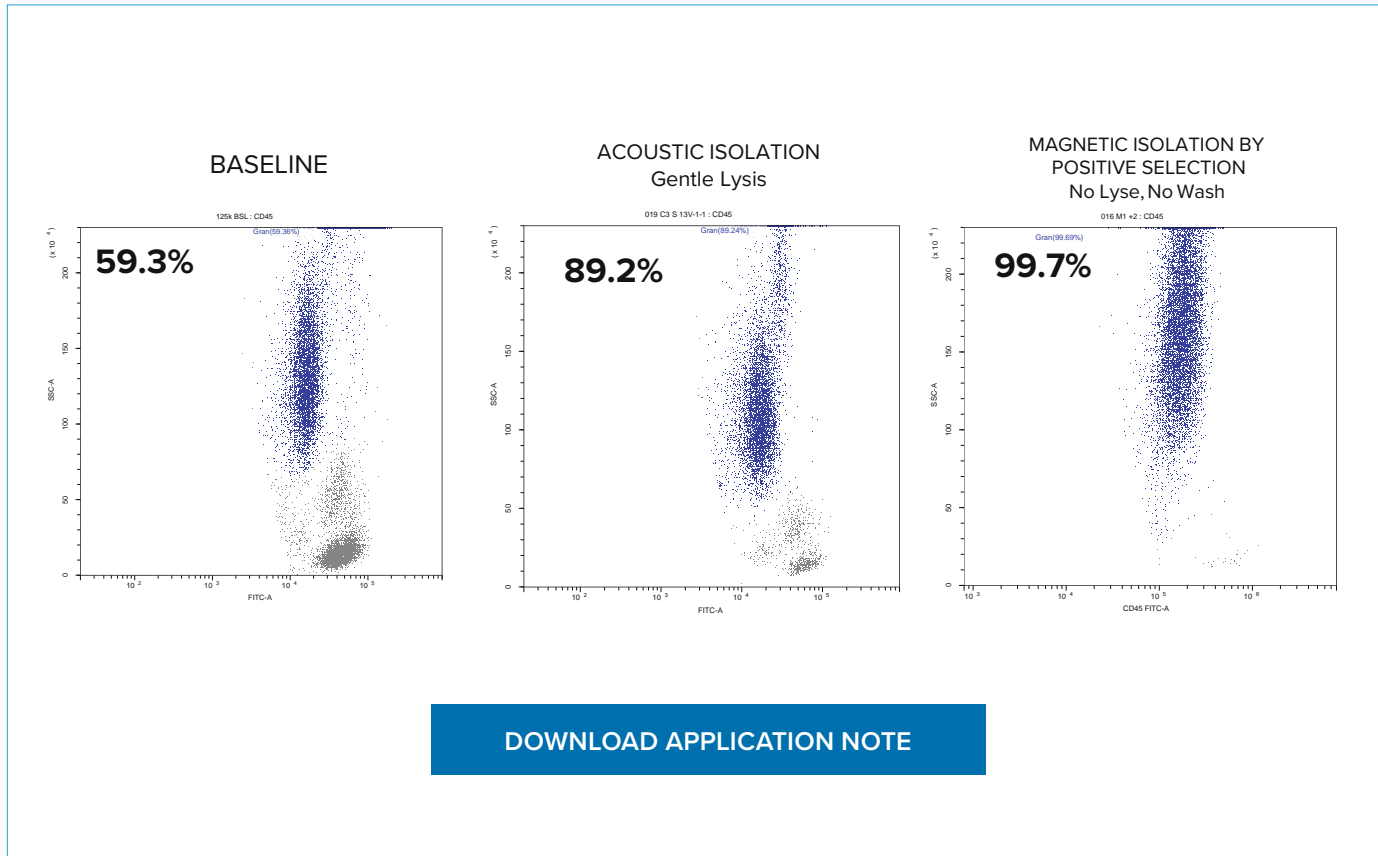
Cell isolation using **MARS CS and MAG LINE negative selection**: CD45+ cells were depleted from human blood using CD45 PE-conjugated antibody and MARS anti-PE Magnetic Nanobeads complex. CD45+ cells were depleted on average by 99%.

# CD138+ Cell Isolation



**Cell isolation using MARS CS and MAG LINE:** CD138+ U266 cells were prestained with CD298-APC prior to spike-in to whole blood. Cells were isolated from Whole Blood using CD138 PE-conjugated antibody and MARS anti-PE Magnetic Nanobeads. CD138+ cells are enriched from 1% to up to 77% (1% spike-in), from 3% to up to 88% (3% spike-in) and from 8% to up to 91% (10% spike-in).

# Fast and Gentle Neutrophil Isolation

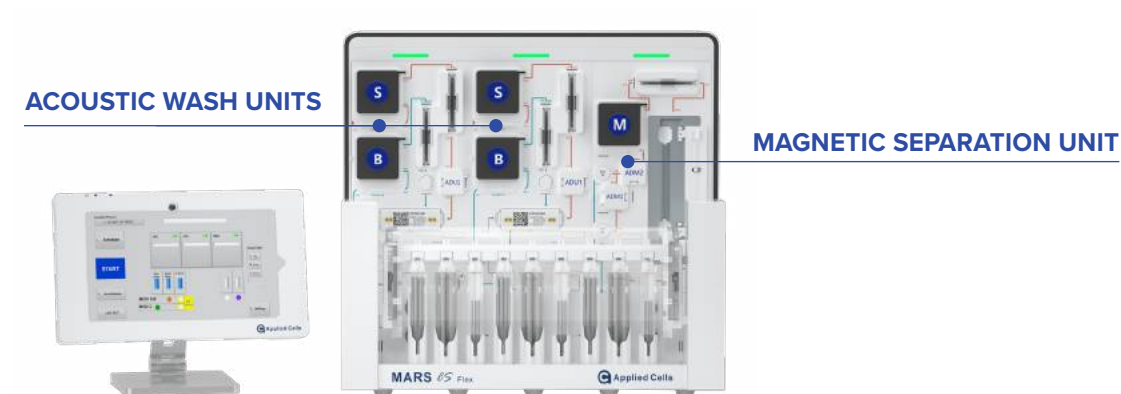


**MARS CS workflow for gentle Neutrophil selection** provides high purity and yield no Ficoll gradient required. Achieve over 89% Neutrophil purity with gentle RBC lysis and our proprietary label-free Acoustic Isolation. Achieve over 99% purity using No Lyse, No Wash Magnetic Selection.

# MARS CS

## EASY OPTIMIZATION AND AUTOMATION

MARS CS is a flexible solution that allows users to run individual modules in order to optimize their assays. A range of programs provides options to set up an automated workflow for cell wash, concentration and / or magnetic separation.



Modules	2 Acoustic modules	1 Magnetic module
Function	white blood cell separation from RBC and debris based on differences in physical parameters	immuno-magnetic cell separation targeting specific cell surface markers
Compatible Samples	Whole blood, Bone marrow, Apheresis, Frozen PBMC's, Dissociated Tissue Samples (TIL's and Tumor)	
Lysis	Yes	Optional
Labeling	Optional	Yes, Magnetic
Voltage range	recommended: 12 - 20V	N/A
Sample In/ Out Volumes	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
Sample Cell Count	up to 10M/min	up to 500M cells per run
Speed	0.6-1ml/min	0.5-1ml/min
Supporting buffers	MARS Clean, MARS Wash	MARS Clean, MARS MAG
Key features	No Ficoll, No centrifugation	No Matrix, No centrifugation



[www.appliedcells.com](http://www.appliedcells.com)

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