

Enhanced Rare Cell Sorting Capability Enabled by MARS® and WOLF®

in collaboration with:

nanoclect:
Biomedical, Inc.

INTRODUCTION

MARS® acoustic technology utilizes active-microfluidics acoustics for the separation of sample particles without labeling, based only on the difference in their physical parameters. The isolated cells are ready for negative **MARS® MAG selection**, where cells bound to magnetic beads are captured in flow channels, without the need for dedicated columns. Combining the two technologies, MARS enables rare cell enrichment from peripheral whole blood or bone marrow without manual PBMC preparation and the controlled process leads to unprecedented recovery.

The **NanoCelect WOLF®** Cell Sorter uses microfluidic-based sorting with robust laser-excitation. WOLF's microfluidic channel is gentler than any conventional cell sorter or flow cytometer, allowing for sorting cells with improved cell viability. It is an intuitive instrument with fixed optics and no fluidics cart, providing less complexity, less clean-up, and more time for experiments.

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.

Spike in blood with A549

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

Lyse

STEP 1

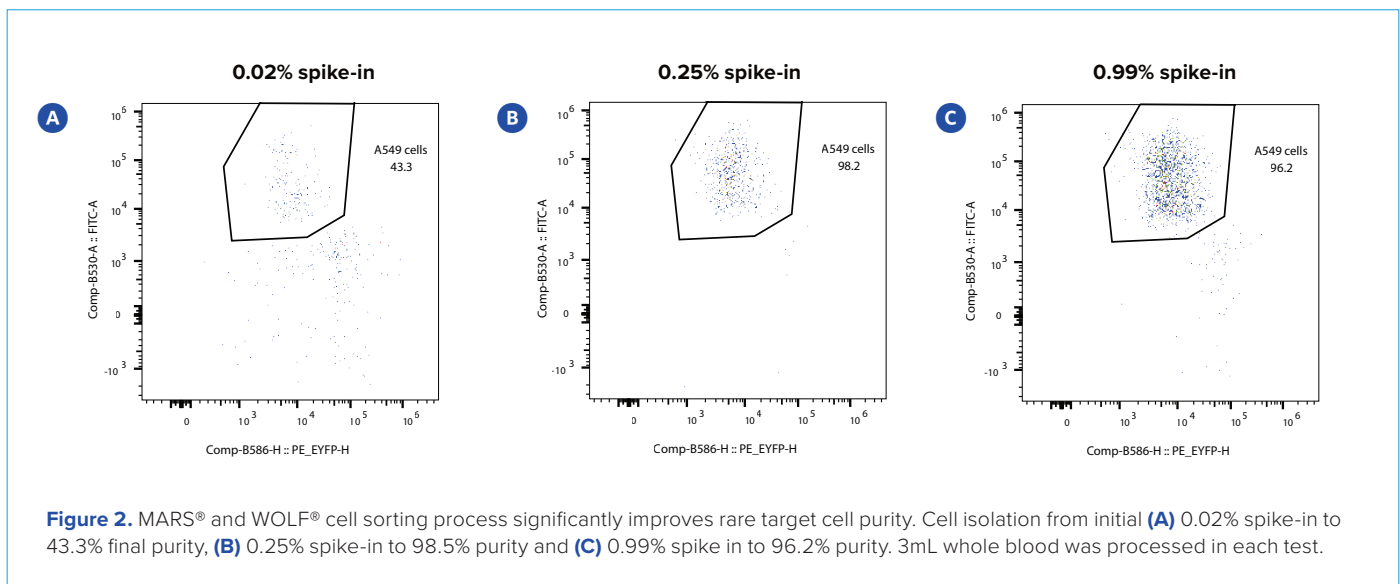
MARS® Acoustic Wash
MARS® Mag Negative Separation

Centrifuge

STEP 2

WOLF® Sorting

Figure 1. A MARS®-WOLF® workflow provides a gentle, flexible and easy rare cell isolation.



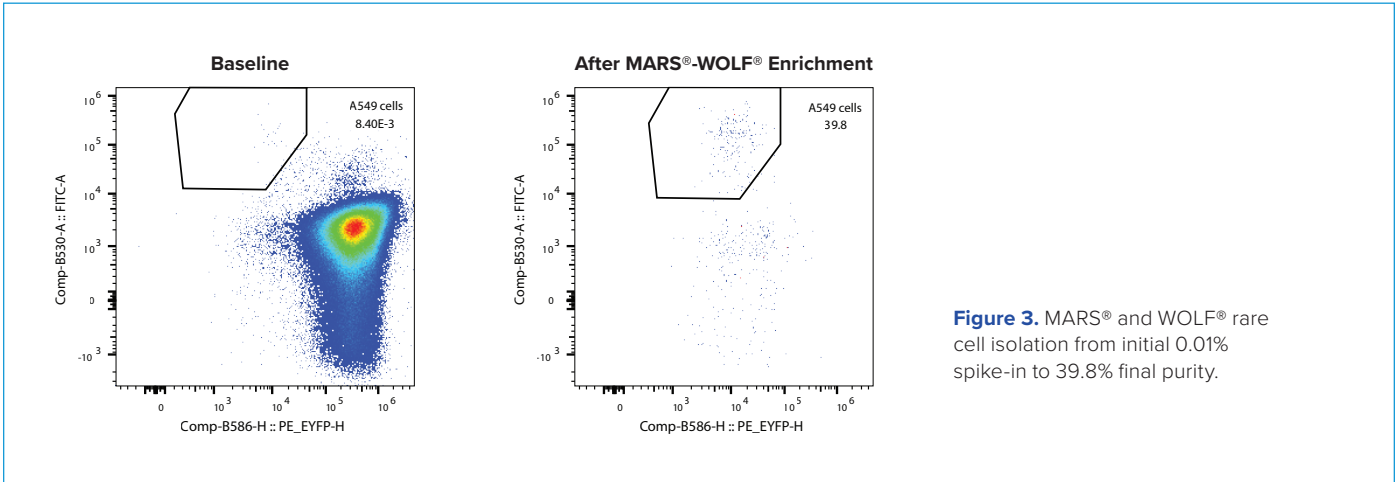


Figure 3. MARS® and WOLF® rare cell isolation from initial 0.01% spike-in to 39.8% final purity.

RESULTS

MARS® and WOLF® technologies are a powerful solution to further enhance gentle and rapid enrichment and isolation of rare cells with:

- ✓ **Gentle** bulk and single-cell sorting
- ✓ Exceptionally high **sensitivity and cell** recovery
- ✓ Very high cell **purity**
- ✓ High cell **viability**
- ✓ **Minimal hands-on** sample manipulation
- ✓ **Label-free** Acoustic separation
- ✓ Efficient **RBC and debris removal**
- ✓ No **ficoll gradient** WBC preparation
- ✓ Immunomagnetic, **matrix-free** cell isolation
- ✓ **Sterile** and disposable fluidics
- ✓ **Fast** and **easy workflow** for assay optimization

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

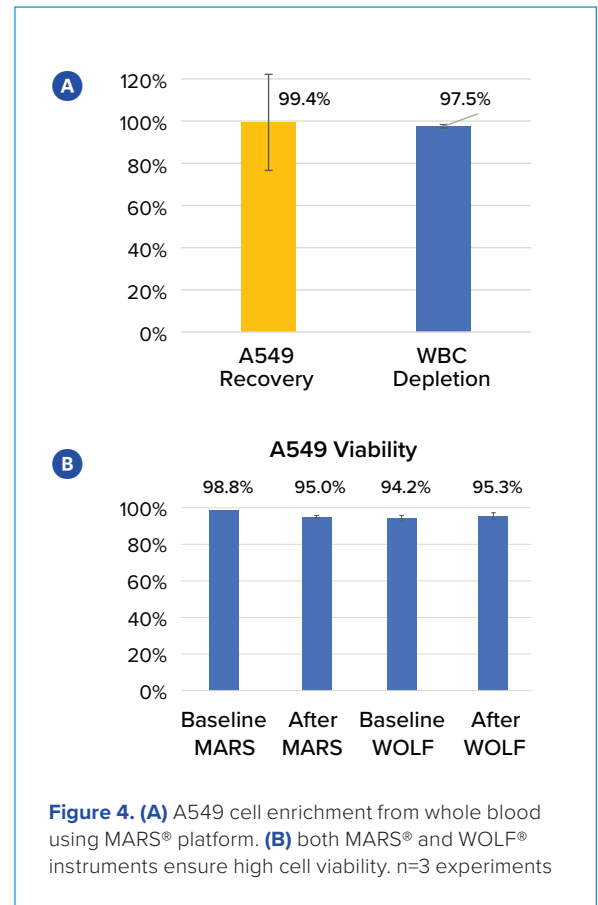


Figure 4. (A) A549 cell enrichment from whole blood using MARS® platform. **(B)** both MARS® and WOLF® instruments ensure high cell viability. n=3 experiments

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