CD34+ Cell Isolation from Cord Blood MNC

INTRODUCTION

CD34+ cells offer valuable insights into hematopoiesis, hematological disorders, and regenerative medicine. They have potential in cancer therapies, autoimmune diseases, and genetic disorders. Isolating CD34+ cells from Cord Blood Mononuclear Cells (MNC) is crucial for research in hematopoietic stem cell biology and therapeutic advancements. MARS® Platform ensures the enrichment of CD34+ cells, enhancing purity, viability, and yield for advancing innovations in personalized treatments, including cellular therapies.

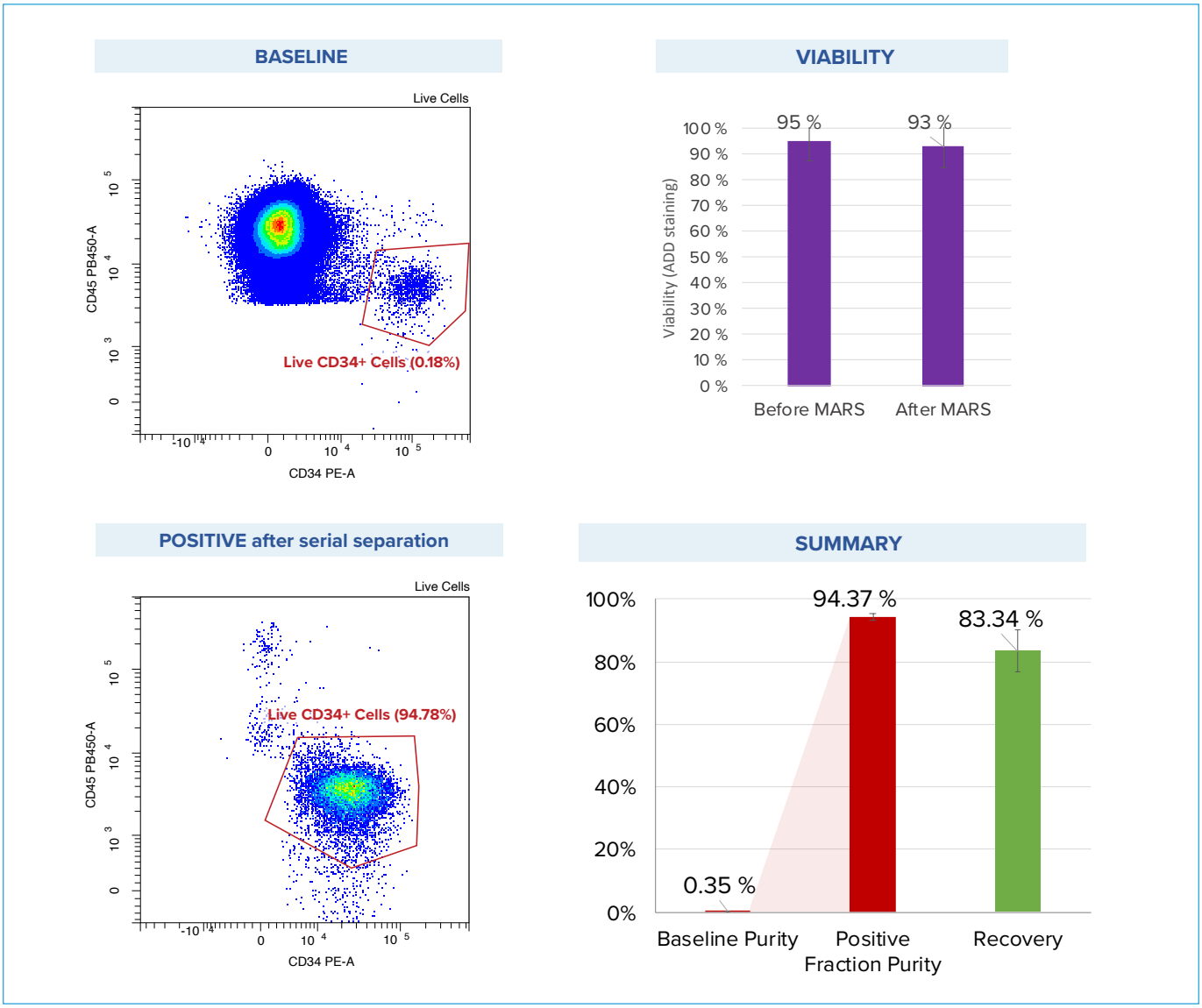

Figure 1. The MARS® platform provides a convenient and cost-effective solution for isolating CD34+ cells from CBMCs. By utilizing an **automated** CD34+ enrichment process, the workflow enhances purity while ensuring **reproducibility**, **high recovery, high viability** of the isolated cells. Example data (Baseline and Positive): Gating: the 'Live CD34+ Cells' gate includes 7AAD negative, CD34+ and CD45+ dim cells (platelets, red blood cell debris and aggregates excluded); Summary: n=3 experiments

MATERIALS AND METHODS

The data was generated during CD34+ hematopoietic stem cell enrichment from Human Cord Blood Mononuclear Cells.

Reagents:

MARS® MAG Premium LINE Human CD34 Positive Selection Kit (#R_MP009)

MARS Instrument:

MARS® Bar with the TITO configutation

Protocol:

1. Prepare an MNC suspension from cord blood using centrifugation over a density gradient medium.
2. Resuspend MNC to a concentration of 100 million cells per ml.
3. Add 100ul cocktail per ml of cells and incubate for 15min at room temperature with rotation.
4. Add 75ul beads per ml of cells, and incubate for an additional 10 minutes at room temperature, with rotation.
5. Add a three-fold volume of MARS® MAG buffer to the mixture
6. Run CD34 serial purification process on MARS

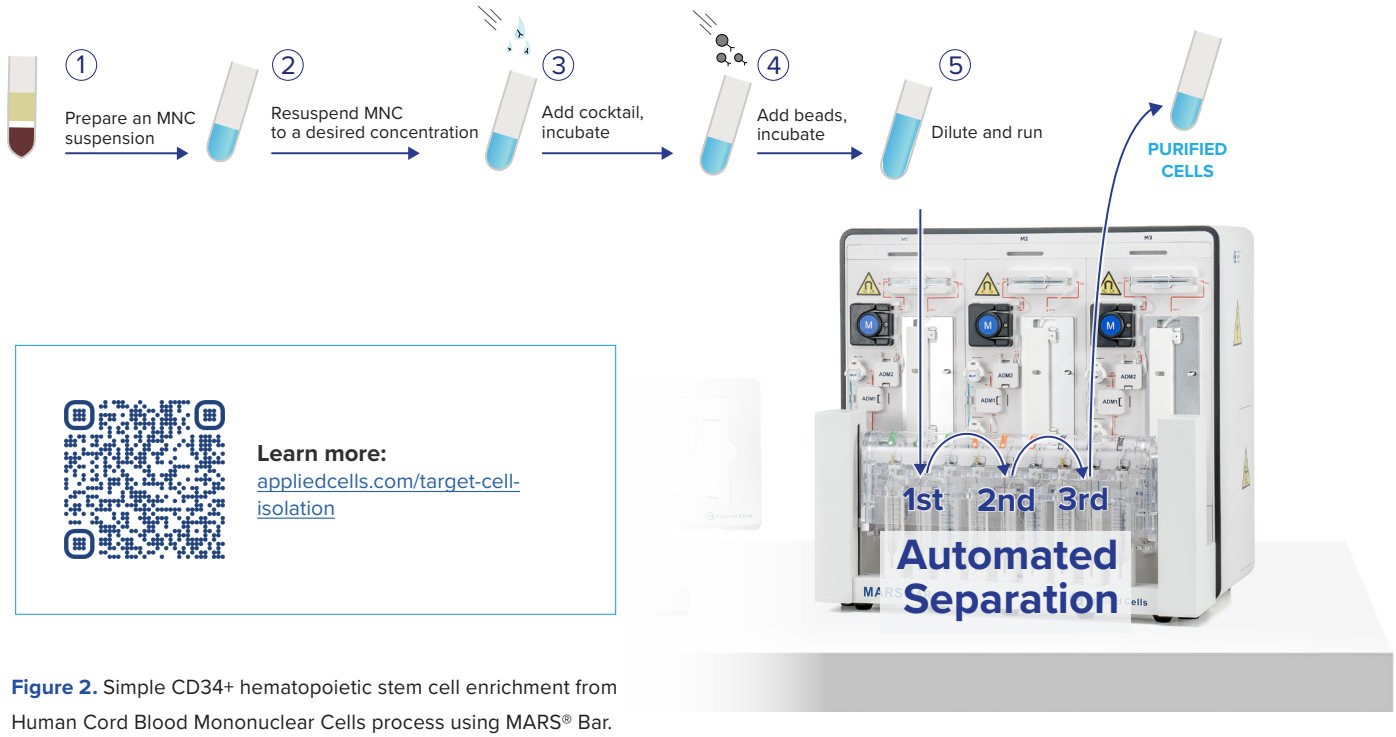

Figure 2. Simple CD34+ hematopoietic stem cell enrichment from Human Cord Blood Mononuclear Cells process using MARS® Bar.

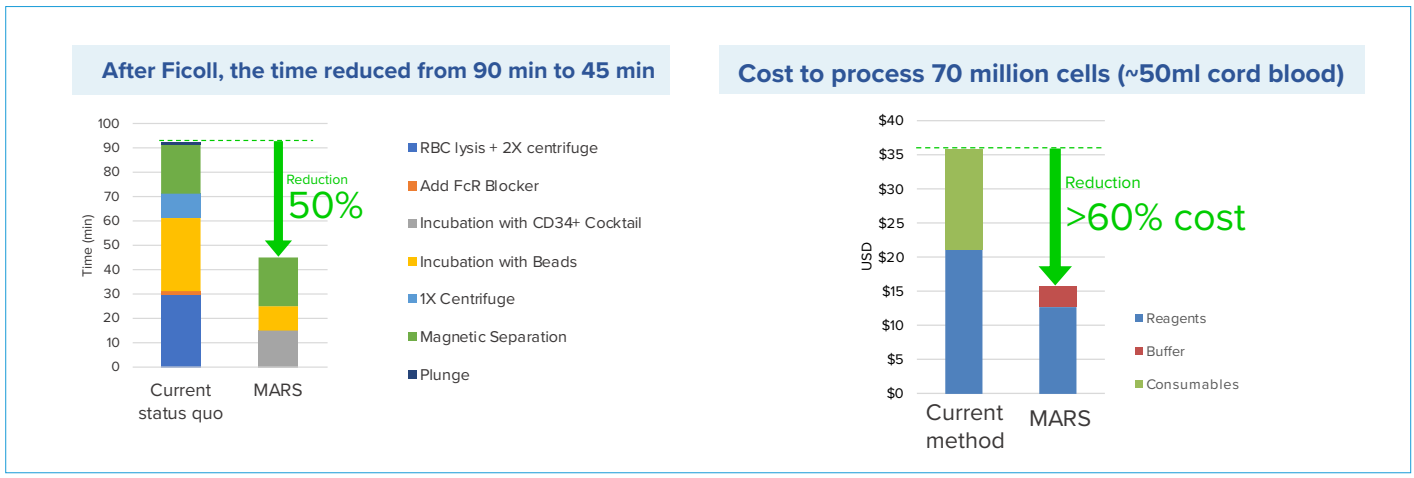

Figure 3. The MARS® platform offers an easy workflow for cells separation. Using MARS® **decreases the assay cost by 60%** compared to the current method applied by the user significantly **cuts down experiment time** by approximately 50% (for 50 mL input sample). *The processing time and estimated cost information provided by our user is intended for general guidance only. We do not guarantee its accuracy, completeness, or suitability for any particular purpose. We disclaim any responsibility or liability for any decisions made or actions taken based on this information.*

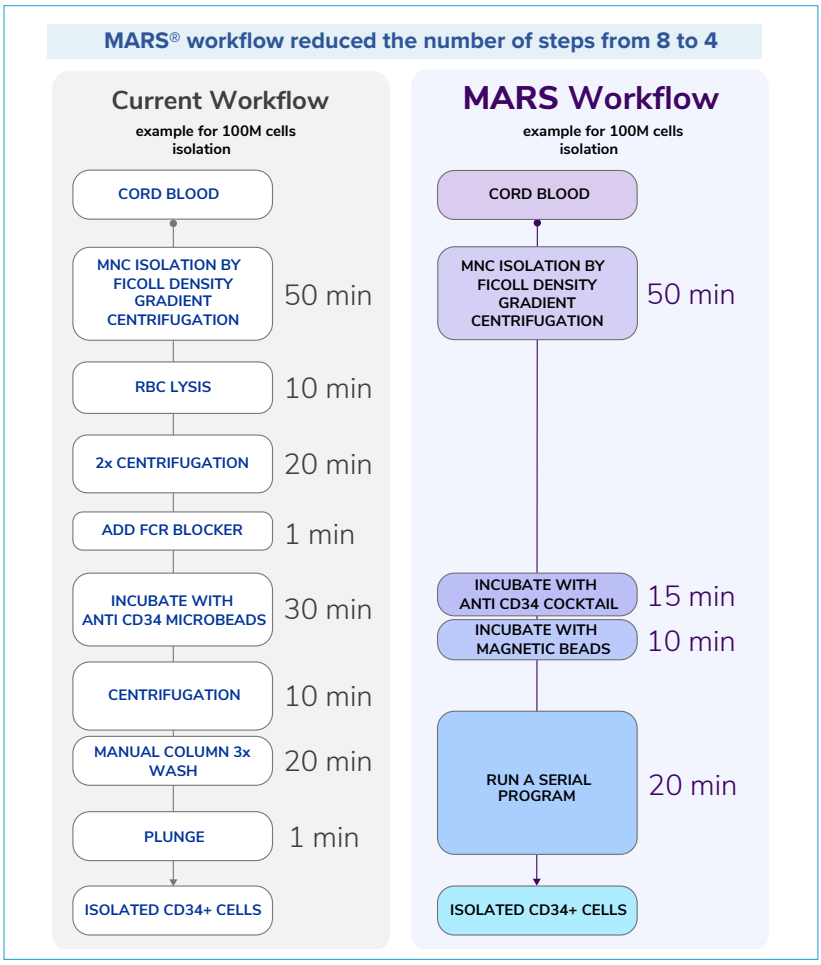

Figure 4. A schematic showing a workflow: labeling protocol followed by an automated serial program MARS® Immunomagnetic isolation run.

EFFICIENT, ECONOMICAL AND REUSABLE

With **reusable and cleanable fluidics**, MARS® dramatically reduces the per sample running cost. Preset cleaning protocols offer unprecedented efficiency, enabling multiple sample runs without the need for fluidics replacement.

UNRIVALED RECOVERY AND PURITY

Break away from traditional limitations. Our technology guarantees **high cell purity** that far outstrip conventional methods. When it comes to **recovery**, we persistently outperform - even after intensive serial runs.

AUTOMATED PRECISION

MARS® brings the next level of automation. **Automatic 2x or 3x separation** promises unrivaled consistency and a seamless user experience, setting us apart from the laborious manual methods.

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