

Positive Selection of CD34+ cells from CDChex and Whole Blood

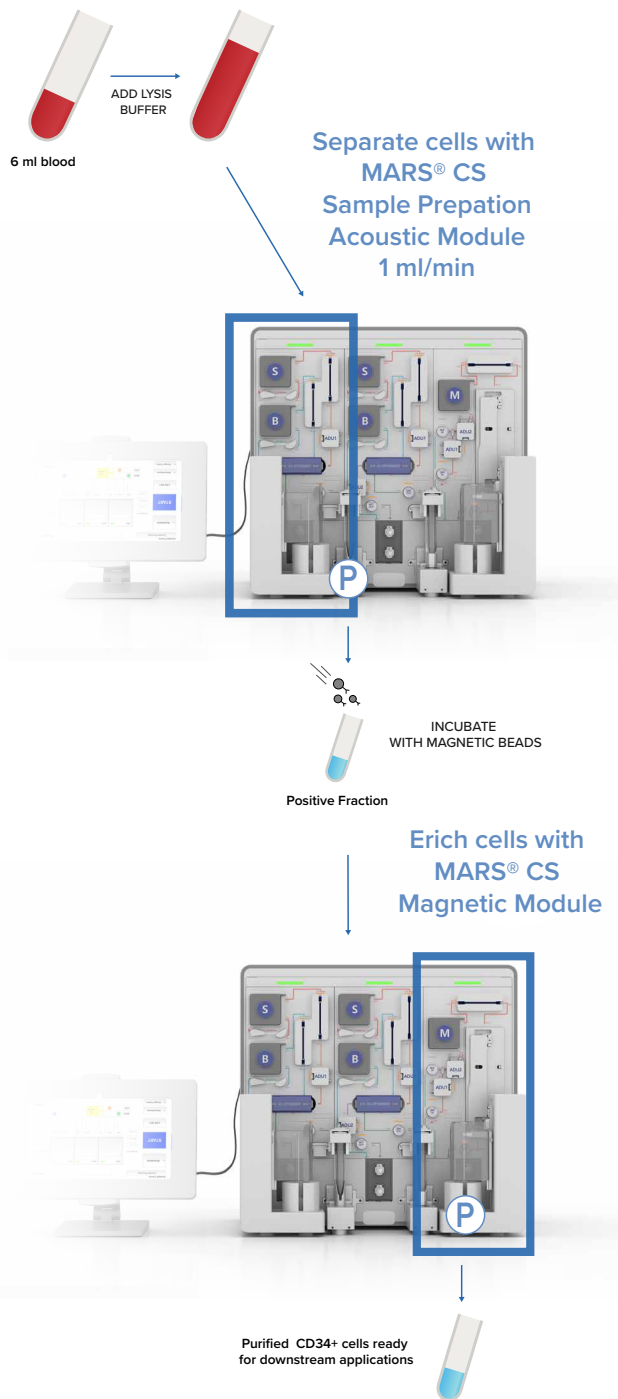


FIGURE 1. MARS® CS sample acoustic wash with no labeling, followed by magnetic separation workflow ensuring cell selection with high recovery and purity.

INTRODUCTION

CD34+ cell isolation from whole blood is usually performed with RBC lysis followed by a density gradient separation method, typically using Ficoll - based protocols. Although widely applied, the methodology is very time and labor-intensive and leads to cell loss and poor recovery. The MARS® CS system provides a fast, and efficient way to isolate stem cells from a low volume of whole blood in a short time.

RESULTS

The MARS Workflow (Fig. 1) was Validated Using CDChex (Fig. 2):

- isolation of CD34+ cells in a single MAG enrichment step
- 24.83% purity from initial 0.37%
- 84.8% cell recovery with 17514 CD34+ events/mL

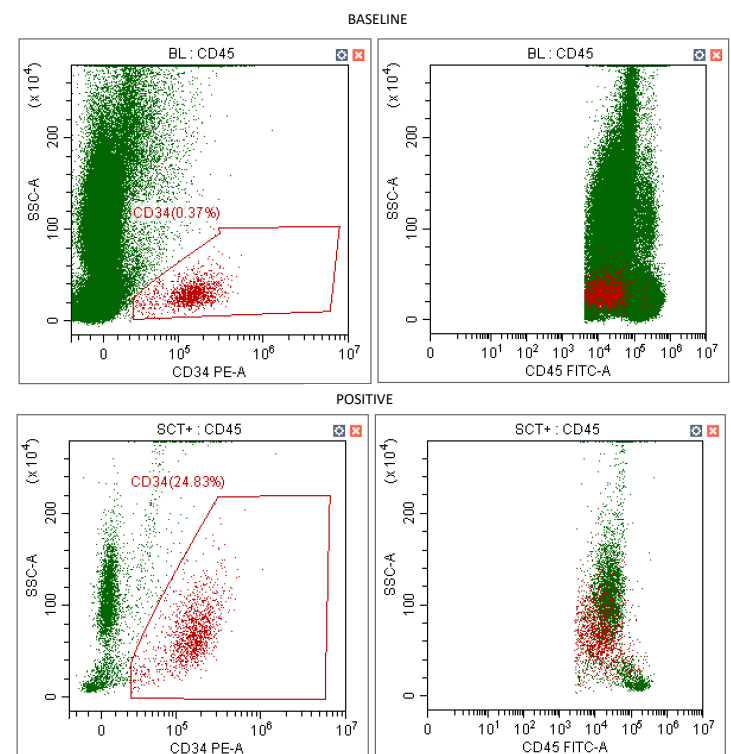


FIGURE 2. CD34+ cells enrichment from CDChex Level 2 used as an Assay Control.

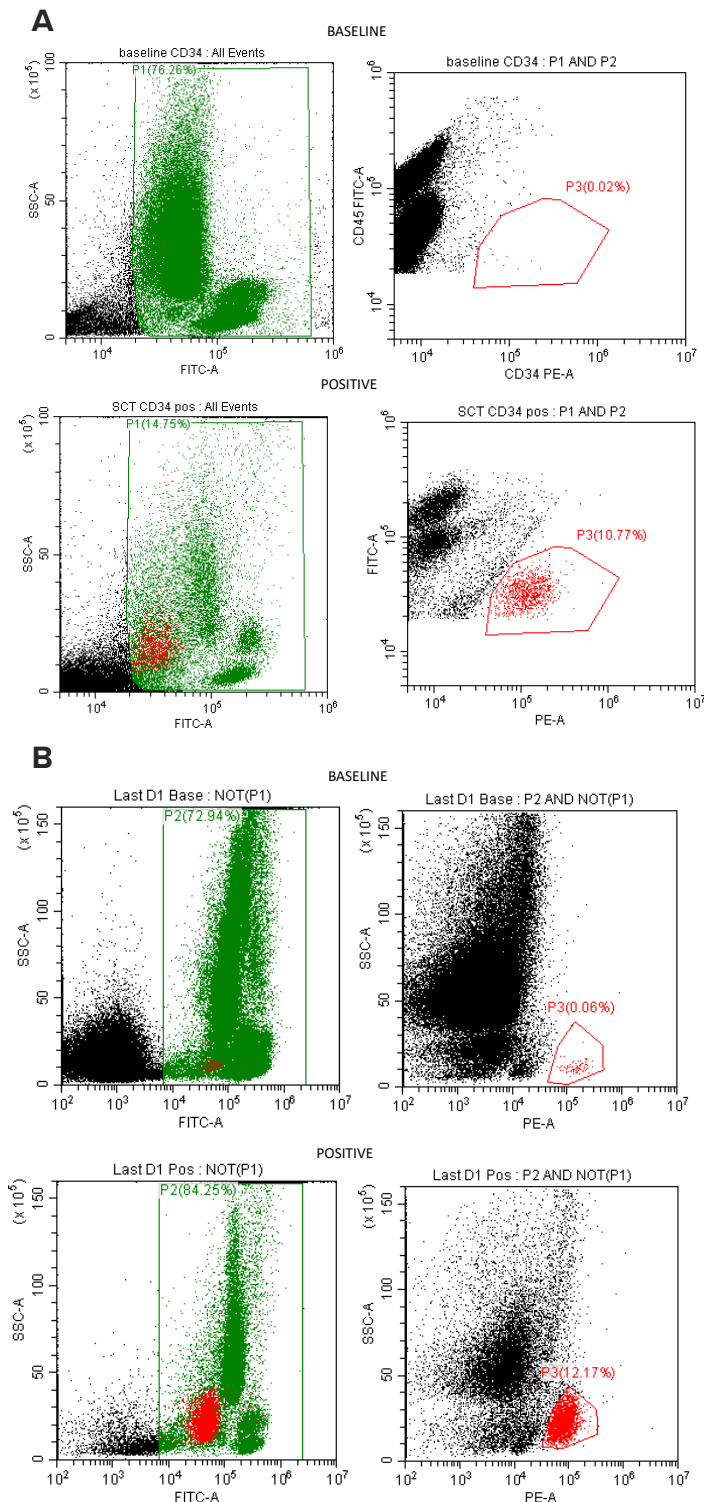


FIGURE 3. CD34+ cells enrichment from Peripheral Blood in two independent experiments using (A) Donor 1 and (B) Donor 2 samples.

Despite Donor-to-Donor Variability, CD34+ Cell Enrichment was Achieved in All Peripheral Blood Samples (Fig.3):

- input sample: 6 ml of whole blood cells per donor
- purity is based on Total White Blood Cells
- Donor 1: Enrichment from 0.02% to **10.77%** purity
- Donor 2: Enrichment from 0.06% to **12.17%** purity
- Donor 3: Enrichment from 0.09% to **8.5%** purity (data not shown)

SUMMARY

Using MARS® CS systems ensures:

- ✓ **No more Ficoll** gradient step in cell isolation protocols
- ✓ Good cell **purity** even at very low starting CD34+ level
- ✓ Processing of **15 samples in a 6-hour** workday
- ✓ Total hands-on time of 15 minutes per 3 donor samples
- ✓ **Full automation** of sample preparation and cell isolation
- ✓ **Low** consumables **cost**, low reagent consumption
- ✓ **No more** magnetic column costs
- ✓ Intuitive, easy to use **interface**
- ✓ **Preprogrammed** assay protocols
- ✓ **Flexibility:** run 1 or up to 3 samples in parallel
- ✓ **Parallel sample processing** thanks to independent sample preparation and cell isolation systems

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Applied Cells' MARS® Systems are for research use only, not for therapeutic or diagnostic use.