

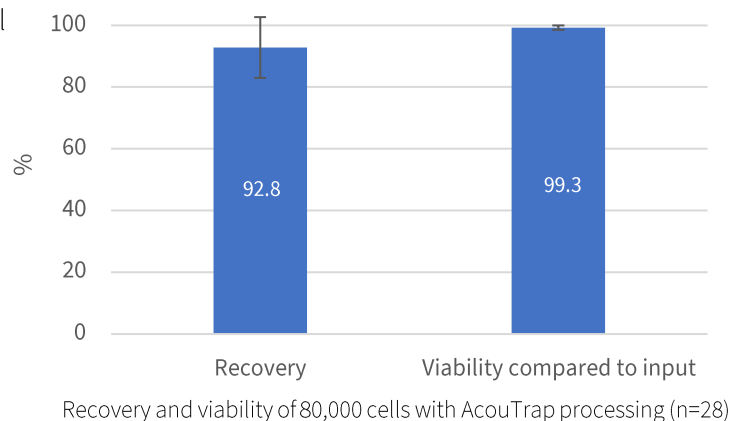
AUTOMATED CELL HANDLING

Rapid Staining and Washing of Precious Cells

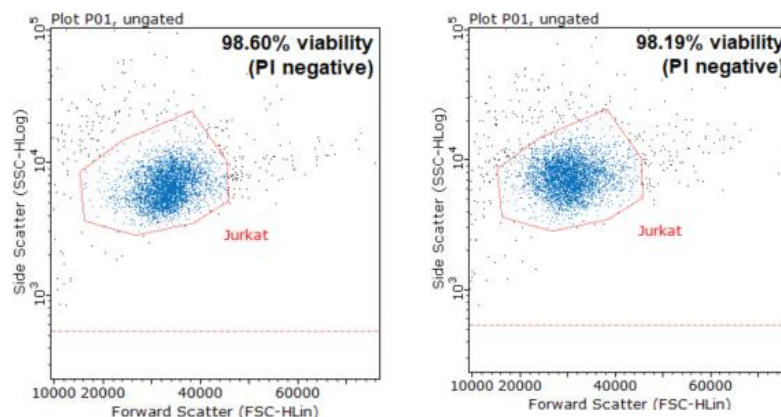
Preparation of cell samples for flow cytometry typically involves staining with fluorescent antibodies. To improve specificity, a centrifugation-based wash is often performed, requiring several manual handling steps. This process can dramatically decrease the recovery and viability of the sample and is especially ill-suited for samples with low cell numbers. AcouTrap is an automated platform for performing efficient staining and washing of cells with high recovery.

High recovery washing with maintained viability

- AcouTrap enables automated washing of low cell numbers with minimized cell loss
- Gentle wash of up to 100,000 cells per sample
- Maintained cell viability
- Sample processing at 50-100 $\mu\text{L}/\text{min}$



Comparison of flow cytometry cell populations before (left) and after (right) AcouTrap processing.

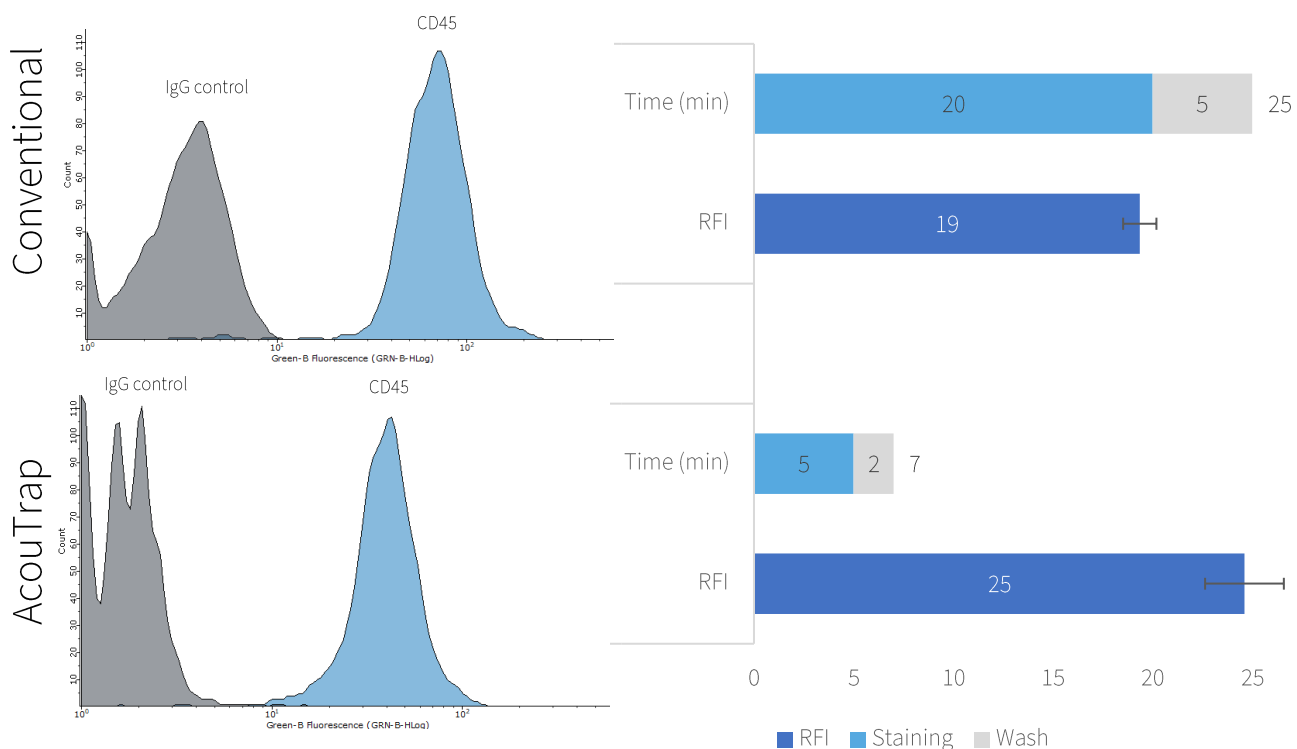


Cultured Jurkat cells were washed using AcouTrap. For recovery analysis, samples were measured directly using flow cytometry (Guava easyCyte, Luminex). For viability assessment, samples were stained using PI (BD Biosciences). None of the samples showed a decrease in viable cells compared to the input sample (n=28).

AcouTrap provides improved performance of cell labeling assays

- AcouTrap offers 3x faster processing compared to conventional centrifugation-based protocol
- Assay automation with minimized manual handling steps reduces variation
- Rapid surface marker staining with enhanced binding kinetics resulting in >90% staining efficiency already after 3 minutes
- Efficient washing reduces background fluorescence resulting in improved separation between populations
- AcouTrap staining and wash cycle produces higher relative fluorescence intensity (RFI) than conventional method including one centrifugation-based wash

Faster processing and higher signal-to-noise compared to conventional methods



Staining and washing of cultured Jurkat cells with 10 μ L anti-CD45-FITC or an isotype control was performed using either the AcouTrap method or a conventional method (20 minutes of incubation in the dark followed by a 1 mL wash at 200 rcf for 5 minutes). The samples were analyzed using a Guava easyCyte flow cytometer, counting 2000 events per sample. The RFI was calculated as the median fluorescence intensity of the CD45 signal over the median fluorescence intensity of the isotype control. n=19 for the AcouTrap method and n=10 for the conventional method.