

CASY^{VIVO} Cell Counter & Analyzer - Powering Breakthroughs in Cell Research

Evaluating Monocyte Quality: Sorting vs. Adherence

Hornschuh et al. (2022). Magnetic Sorting Preserves Non-Adherent Monocyte Function; *Biology*, 11(5):610. DOI: 10.3390/biology11050610.

Immunology; Monocytes;	
Index	IM11
Standardization	X
Counting	X
Viability	X
Volume	X

The Challenge:

To compare monocyte isolation methods (negative magnetic sorting vs. adherence), the study needed to accurately quantify cell yield, viability, size, and functional integrity (adherence, migration) of the isolated cells.

CASY's Contribution:

CASY provided precise, label-free quantification of monocyte yield, viability, and size (diameter) post-isolation. It was also used to standardize cell seeding and count migrated/adherent T-cells in functional assays. The CASY data demonstrated that negative sorting yields more viable, functional monocytes.

Key Benefits to Researchers:

- **Accuracy:** Provided objective data on cell yield, size, and viability, enabling a direct, statistically valid comparison between isolation protocols
- **Standardization:** Enabled rapid, label-free standardization of cell density (100,000 cells/well) for all downstream functional assays (adherence, chemotaxis, co-culture).
- **Functional Validation:** Was essential for quantifying the *results* of functional assays, counting migrated and adherent T-cells to prove the functional integrity of the sorted monocytes.

CASY-Based Validation of Monocyte Isolation Efficiency

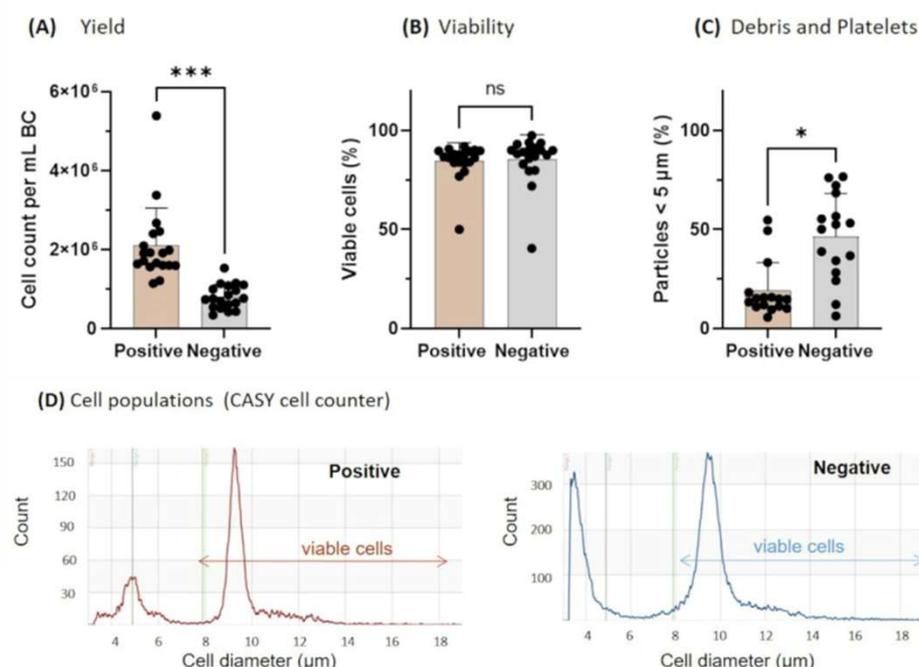


Figure 2. Effect of positive and negative isolation on yield (A), viability (B), and debris/platelets (C) measured by CASY cell counter A representative cell count vs. cell size profile after positive or negative selection is shown in (D). (A–C): Results are presented as single dots for each BC and as Means + SD. Pairwise comparisons were calculated with the Wilcoxon matched-pairs signed rank test. (A–D): n = 19; *** p < 0.001, * p < 0.05, ns = not significant.