

CASY<sup>VIVO</sup> Cell Counter & Analyzer - Powering Breakthroughs in Cell Research

## Characterization of Monocyte Phenotype and Function in Crohn's Disease Study

Winkel et al. (2025). Monocytes from Crohn's disease patients retain GM-CSF responsiveness; *Frontiers in Immunology*, 16. DOI: 10.3389/fimmu.2025.1683899.

Immunology; Monocytes, Crohn's Disease	
Index	IM7
Standardization	X
Counting	X
Viability	X
Volume	X

### The Challenge:

To accurately compare monocyte yield, size, viability, adherence, and migration between active Crohn's disease (aCD) patients and healthy donors (HDs) before and after ex vivo activation

### CASY's Contribution:

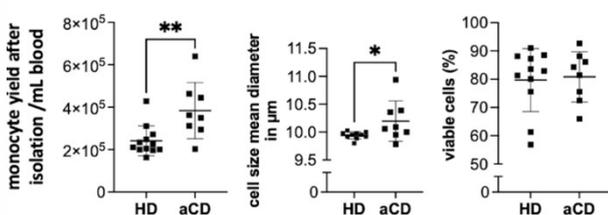
CASY provided label-free quantification of monocyte yield, mean diameter, and viability directly after isolation and after 24h culture. It also counted cells in adherence and migration assays. CASY data showed aCD monocytes had higher yield and size at isolation but comparable viability

### Key Benefits to Researchers:

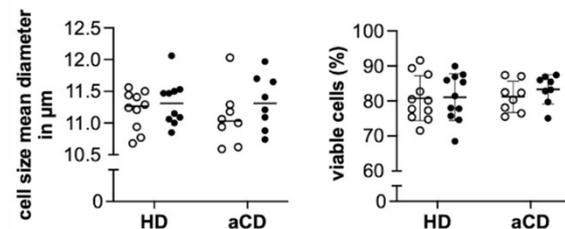
- **Accuracy:** Enabled precise, objective quantification of cell numbers for yield, adherence, and migration assays, crucial for comparing groups and conditions.
- **Phenotyping:** Provided label-free, quantitative data on cell size and viability, key parameters for characterizing the monocyte phenotype at baseline and post-activation.
- **Standardization:** Ensured accurate cell counts for seeding functional assays and normalizing results (e.g., cytokine release per cell).

### CASY-Based Characterization of Monocyte Properties and GM-CSF Response.

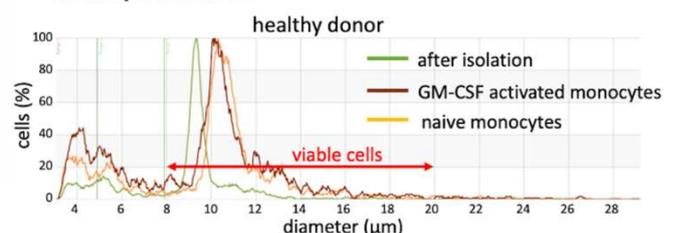
#### A monocytes after isolation



#### B monocytes after 24 h



#### C monocyte size charts



All cell metrics were quantified using the CASY cell counter.

(A) Monocyte yield, size, and viability immediately post-isolation.

(B) Comparative analysis of monocyte size and viability following 24h incubation ± GM-CSF.

(C) Representative CASY histograms illustrating shifts in cell diameter and absolute counts from isolation (0h) to final incubation (44h).