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

Mapping the Roots of Resistance: High-Resolution Viability Profiling in Leukemia

Simonicova K. et al. (2025). Acquired Resistance to Decitabine Associated with the Deoxycytidine Kinase A180P Mutation; Int. J. Mol. Sci., 26, 5083. DOI: 10.3390/ijms26105083.

Cell Culture; *MOLM-13*; *SKM-1*; Drug Resistance	
Index	CC2
Standardization	
Counting	X
Viability	X
Volume	

The Challenge:

Investigating decitabine (DAC) resistance in acute myeloid leukemia cells and evaluating the effects of various drug concentrations required highly accurate and reliable measurements of both cell number and viability.

CASY's Contribution:

The CASY Model Cell Counter was crucial for precisely determining the number and viability of sensitive and resistant MOLM-13 and SKM-1 cells after drug incubation. Its direct assessment of plasma membrane integrity via electrical resistance provided a robust method for distinguishing viable from non-viable cells, enabling effective monitoring of cell responses and detailed dose-response analyses.

Key Benefits to Researchers:

- **Accurate Cell Count & Viability:** Obtain precise measurements of both cell number and viability, essential for evaluating drug effects and understanding resistance mechanisms.
- **Reliable Membrane Integrity:** Directly assess plasma membrane integrity using electrical resistance, providing a robust and objective method for distinguishing viable from non-viable cells.
- **Efficient Drug Response Monitoring:** Effectively track cell responses to various drug treatments over time, supporting detailed dose-response and resistance analyses.
- **Crucial for Drug Discovery:** Provides fundamental data needed to identify novel mutations and inform new treatment sequences in oncology.

Relative number of viable cells as measured by CASY