OMNI Life Science

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

Standardization of Alveolar Epithelial Models for Barrier and Infection Assays

Carius et al. (2023). A Monoclonal Human Alveolar Epithelial Cell Line ("Arlo") with Pronounced Barrier Function... Adv. Sci., 10, 2207301. DOI: 10.1002/advs.202207301.

Cell Culture; Alveolar Epithelial Cell; Single Cell	
Index	CC11
Standardization	X
Counting	X
Viability	X
Volume	X

The Challenge:

Accurately quantifying multiple alveolar epithelial cell lines to ensure a standardized seeding density (1.5 x 10^5 cells/cm^{-2}) for all barrier function, transport, and infection assays.

CASY's Contribution:

CASY provided precise, label-free quantification of cell number, viability, and size for all cell lines. This enabled the critical standardization of seeding density for all key functional experiments, including TEER measurements, transport studies, and viral infections.

Key Benefits to Researchers:

- **Standardization:** Ensured all cell lines were seeded at a precise, identical density (1.5 x 10^5 cells/cm^{-2}), which is the most critical factor for comparing barrier properties (TEER) and transport.
- **Precision:** Delivered objective, reproducible counts and viability data for multiple different cell types (primary and cell lines) using different capillary sizes (150µm and 60µm).
- **Phenotyping:** Provided quantitative cell size distribution and aggregation data, allowing for the morphological and phenotypic comparison of the new "Arlo" cell line to hAELVi cells.

CASY-Guided Single-Cell Cloning: Optimizing Printing Parameters

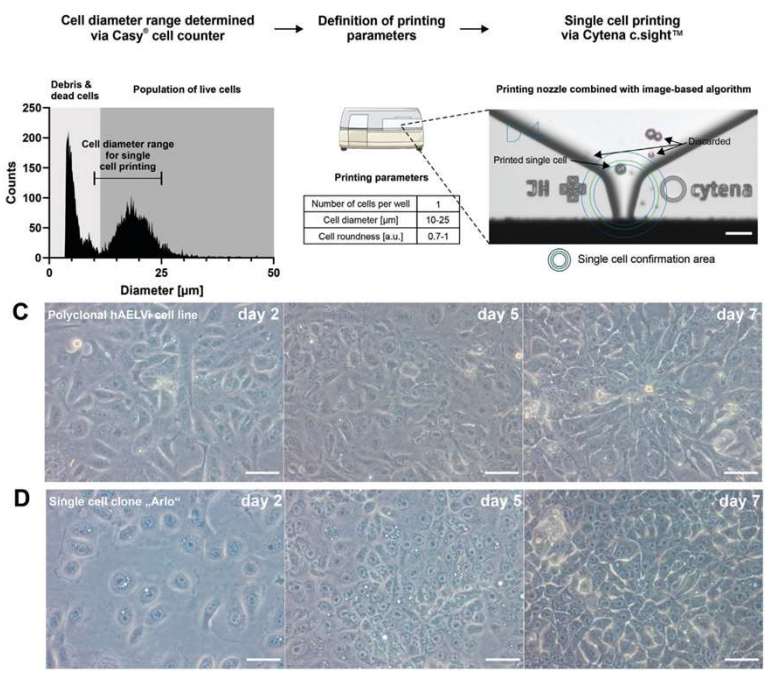

Figure 1. Generation of the single cell clone “Arlo.”... B) Before single-cell printing, the cell diameter of the polyclonal hAELVi cell suspension was determined via a Casy cell counter to define the printing parameters. ... C,D) Light microscopic images showing morphological differences between C) the polyclonal hAELVi cell line and D) the single cell clone “Arlo” when cultured in T25 cm^2 culture flasks for 7 d. Scale: 50 µm for all images displayed.