Predictive Power: How CASY Ensures Reliable TB Vaccine Research

Tanner et.al.(2020) Tools for Assessing the Protective Efficacy of TB Vaccines in Humans: in vitro Mycobacterial Growth Inhibition Predicts Outcome of in vivo Mycobacterial Infection, Front Immunol. 2019; 10: 2983

The Challenge:

Validating the Mycobacterial Growth Inhibition Assay (MGIA) for predicting TB vaccine efficacy required exceptionally precise cell quantification and rigorous standardization to ensure reliable and reproducible outcomes.

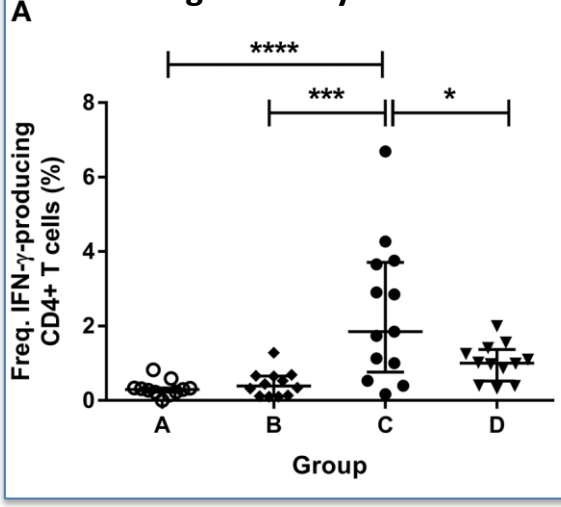
CASY's Contribution:

The CASY Cell Counter and Analyzer was essential for providing the precise quantification of peripheral blood mononuclear cells (PBMCs) needed for the MGIA. This critical initial step ensured the accuracy and validity of the entire assay.

Key Benefits to Researchers:

- **Reliable Downstream Assays:** Guarantee accurate assessment of immune cell function, crucial for sensitive assays like MGIA.
- **Enhanced Standardization:** Achieve consistent cell counts, minimizing variability between experiments and strengthening the validation of critical biomarkers.
- **Robust Data for Validation:** CASY's precision underpinned the study's significant finding that MGIA correlates with in vivo human protection, facilitating robust assessment of vaccine candidates.
- **Crucial for Complex Immunological Studies:** Provides the foundational accuracy required for the reliability of complex downstream immunological assays.

Accurate Initial Cell Counting with CASY Underpins Reliable Downstream Immunological Assays



(Fig 3: A higher frequency of specific cytokine-producing CD4+ T cells correlates with better control of mycobacterial growth in the MGIA.