CASE STUDY

Recovering Survivors: Rescue Viable Cells From Dead Cells and Debris

DISCOVERY LIFE SCIENCES

Over 100 Samples With 100% Success in Sample Quality Improvement

Discovery Life Sciences (DLS), the leading provider of human viable cell biospecimens for drug and method development, utilized the LeviCell® 1.0 system to successfully process, enrich and analyze over 100 cryopreserved human samples obtained from 20 different disease indications including solid tissue and hematological malignancies. With minimal training and no supervision from LevitasBio, DLS utilized the fast, simple, and robust LeviCell 1.0 workflow to process and enrich the most challenging samples with groundbreaking results and 100% success rate in removing 80% of dead cells and debris, on average.

Results You Can Trust From the DTC Experts

DLS pioneered the validation of using dissociated tumor cell (DTC) samples as a viable alternative to fresh tissue. Through internal R&D and client partnerships, DLS has evaluated the performance of the dissociated samples across many applications, cultivating unmatched expertise in applying human tissue dissociation to custom projects. Their validation of the LeviCell 1.0 system and results speak for themselves.

LeviCell 1.0 system performance is not affected by sample type or quality. When using Levitation Technology, performance in yield and % dead cell removal are equivalent across samples obtained from dissociated tissue as well as blood-derived malignancies (Figure 1A and B).

Success Across All Tissue Etiologies Tested

DLS processed the most challenging samples derived from 20 different tissue etiologies, including lung and brain (Figure 2). The LeviCell 1.0 system successfully enriched viable cells while removing most debris from every sample.

KEY HIGHLIGHTS

Successful Validation of the LeviCell 1.0 System by DLS

- >100 cryopreserved human samples from 20 different disease indications tested
- Results showed 80% removal of dead cells and debris, reaching average cell yield of 60%
- Performance obtained from a wide range of cell inputs, from 4,400 to >5M

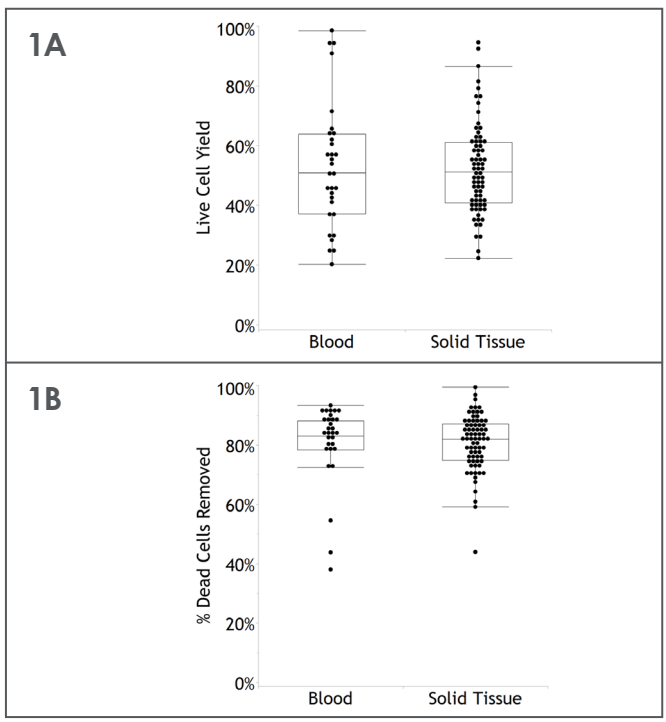

Figure 1. LeviCell enrichment performance is consistent across different sample types on yield (A) and % dead cell removal (B). *The average yield of viable cells obtained is 60% and for dead cell removal is 77% across both sample types. Dead cell removal % was estimated using the formula: (dead cells input)-(dead cells output)/(dead cells input).*

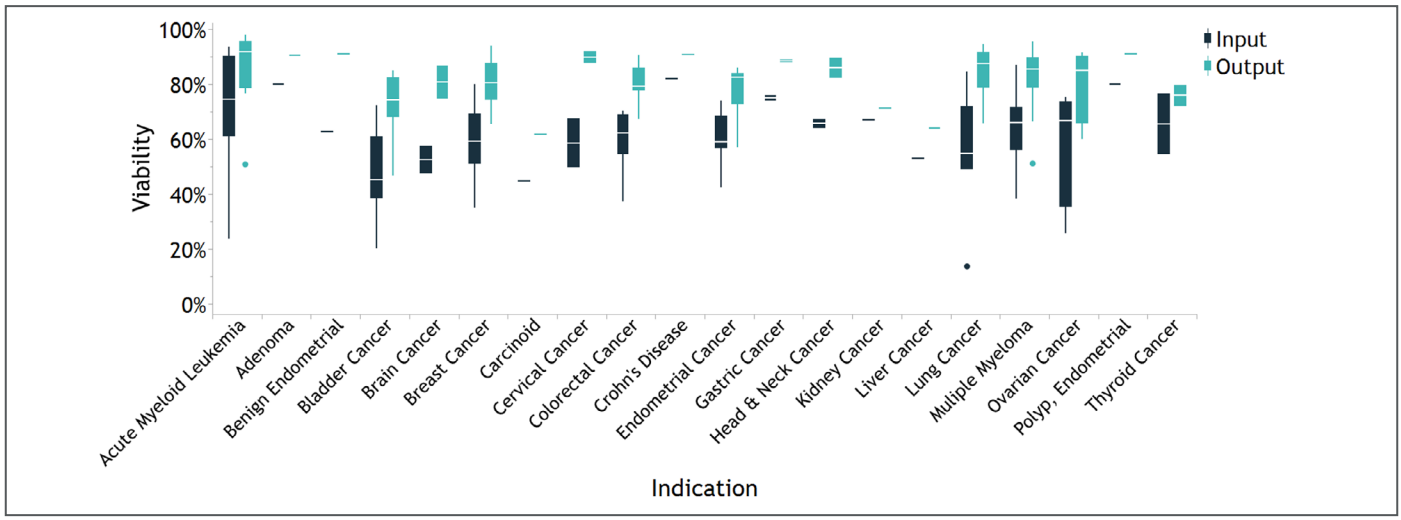

Figure 2. 20 different sample types were successfully enriched, leading to improved viability across all samples. *Input viability ranged from 14% to 93%. Post-enrichment output viability ranged from 47% to 98%.*

Exceptional Performance With Low Cell Numbers

Low starting cell numbers is a common limiting factor to successful cell enrichment and analysis. This often translates into low to no yield, potentially stalling a research project. With the LeviCell 1.0 system, the output is not limited by the input, making the LeviCell an ideal fit for enrichment of rare and precious samples (Figure 3).

DLS Provided Samples, Processing, and Analysis

DLS provided all samples from their large standard inventory of primary human samples and were processed using DLS's in house dissociation protocols. Pre- and post-LeviCell enrichment numbers for total and viable cells were counted using Propidium Iodide & Acridine Orange cell staining assay on the Nexcelom K2 system. LevitasBio was not involved in the processing or analysis of the samples, and all results were reported directly by DLS.

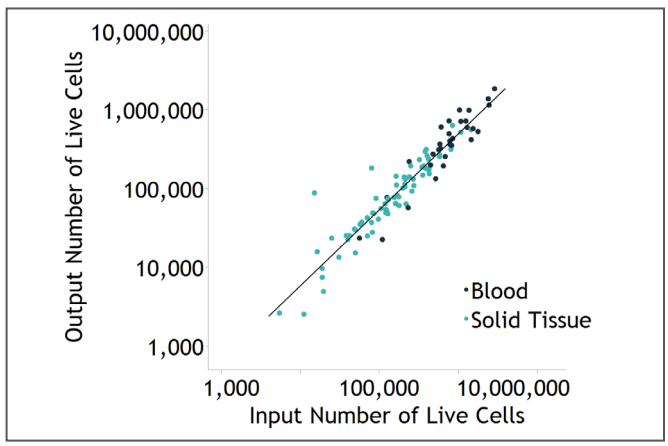

Figure 3. The LeviCell 1.0 system can enrich samples with a wide range of input cell numbers. *The ratio of input to output is linear, confirming minimal cell loss as observed in this input range of 4,400 to >5M.*

A Winning Combination

DLS provided samples and processing expertise, combined with the power of the LeviCell system, enabled access to previously inaccessible samples with too few viable cells to process using standard techniques. This innovation in sample access enables new and powerful insights by unlocking information held within these important samples.

For more information, visit **levitasbio.com,** or contact **sales@levitasbio.com**.

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