



Jurkat Cell Analyses Using the Vi-CELL BLU Cell Viability Analyzer

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Jurkat Cells

Jurkat cells are human leukemic T lymphocytes. They have been used as a model to characterize the T-cell receptor signaling pathway¹. They are also used as a host to determine transduction efficiency of lentiviral vectors².

Equipment Used

Vi-CELL BLU cell viability analyzer

Vi-CELL BLU reagent pack

Instrument Settings

When using the Vi-CELL BLU cell viability analyzer, most cells can be analyzed using the default instrument settings. In some instances, certain cell lines may require modification of these analysis parameters. The Vi-CELL BLU intuitive software allows easy user selection of optimum instrument settings thus ensuring accurate results. The instrument settings used for this analysis of Jurkat cells are listed below:

Cell type	<input type="text" value="Jurkat"/>	Viable spot brightness	<input type="text" value="50.0"/> %
Minimum diameter	<input type="text" value="4.00"/> μm	Viable spot area	<input type="text" value="5.0"/> %
Maximum diameter	<input type="text" value="30.00"/> μm	Mixing cycles	<input type="text" value="3"/>
Images	<input type="text" value="100"/>	Concentration Adjustment Factor	<input type="text" value="0.0"/> % ?
Cell sharpness	<input type="text" value="7.0"/>		
Min circularity	<input type="text" value="0.10"/>		
Declassify degree	<input type="text" value="Medium"/>		
Aspiration cycles	<input type="text" value="3"/>		

Results

The results reported by the Vi-CELL BLU cell viability analyzer are shown in the Results Sections of Figure 1. Percentage viability and total Jurkat cell concentration are 91.5% and 8.99×10^6 cells/mL respectively. The Vi-CELL BLU cell viability analyzer also reports viable cell concentration, mean cell diameter, size distribution and average cellular circularity. The cell images may be archived for future re-analyses.

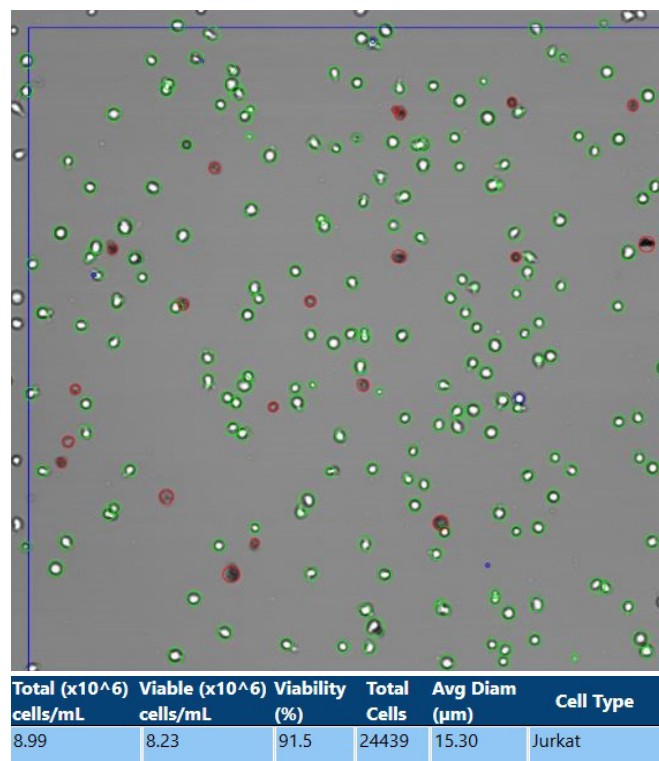


Figure 1. Viable cells are circled in green and non-viable in red.

Conclusion

The Vi-CELL BLU cell viability analyzer automates the standard manual method, providing accurate results and removing the subjective nature inherent in the manual method. The significantly greater number of cells tested provides greater statistical confidence in the results than the manual technique.

References

1. Abraham, R and Weiss, A. Nature Reviews: Immunology 2004; 4: 301-308. Jurkat T cells and development of the T-cell receptor signalling paradigm.
2. Nasri, M et al. Cytotechnology 2014; 66(6): 1031-1038. Production, purification and titration of a lentivirus-based vector for gene delivery purposes.

Product is not verified or validated for use in diagnostic procedures.

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