



Optical Coherence Tomography Cell Monitoring

OCTiCell™ use ChromoLogic's unique Optical Coherence Tomography approach to image moving cells in bioreactors and sterile vials without any contact with the sterile media.

OCTiCell provides continuous, non-invasive, non-destructive, real-time, in-line monitoring of bioreactors of:

- Cell Concentration
- Cell Viability
- Cell Size

Benefits of OCTiCell™

Non-Invasive: No probes inserted into the culture, no risk of contamination

No consumables: OCTiCell images the cells in place

No sample loss: No cells are harmed or removed

Reduced Labor cost: No more manual subsampling

Continuous: 24/7 automated measurements

Compatible: Works with any clear-walled bioreactor or vial.

Reliable: Same or better accuracy than industry standard offline cell counters



Key Applications:

Cell Expansion Monitoring: Track culture health continuously throughout the growth cycle

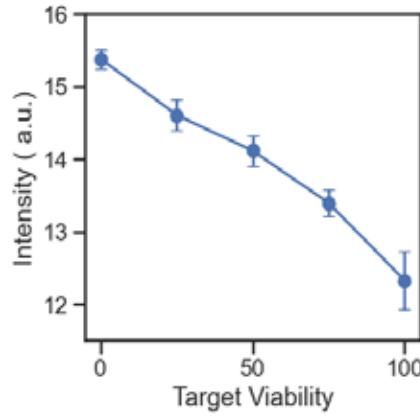
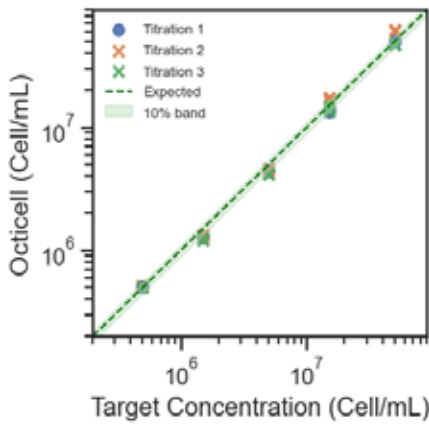
Sterile Product Qualification: Verify the quality of packaged cell products through sealed vials without breaking containment.

GMP/GLP Manufacturing QC: Meet regulatory monitoring requirements with automated, audit-ready data logs and a minimal contamination risk profile

Process Development & Optimization: Generate rich, continuous culture data to fine-tune growth conditions and scale-up protocols



OCTiCell Performance



Evaluations

Concentration: Jurkat T cells were grown in standard flask culture and then quantified by OCTiCell in a 1 mL sterile vial. A serial dilution was then performed in media from 5×10^7 to 5×10^5 /mL. OCTiCell's measured concentration was compared to the target dilution concentration.

Viability: To titrate viability, Jurkat T cells were killed by Heat Shock and mixed with live cells at varying ratios. OCTiCell measurements of backscattered light intensity



OCTiCell™ User Interface

- 1 Track Concentration
- 2 Track Viability
- 3 Track Size
- 4 Cell Diameter Distribution
- 5 Monitor Streamed Image
- 6 Monitor Growth Statistics
- 7 Acquisition Control

OCTiCell™ Monitors Cells Growing in Motion

OCTiCell™ is an extremely versatile technology that can monitor cells in motion through any transparent surface. OCTiCell™ has been shown to measure cell growth in a variety of bioreactor forms including: Shake Flasks, Impeller, Rocking-Bag, Vertical wheel, and sterile vials.



Shake Flask Bioreactor



Impeller Flask Bioreactor



Rocking-Bag Bioreactor



Vertical Wheel

OCTiCell™ Specifications

Cell Concentration Accuracy (vs offline cell counter)	+/- 10%
Mean Size Measurement Accuracy	+/- 1.5 μ m
Viability Measure (correlation with offline cell counter viability)	0.99
Sampled Volume	1.8 μ L
Measurement Time	40 s
Maximum Concentration	10^7 /ml
Probe Dimensions	18 x 18 x 39 mm
System Dimensions	19 x 33 x 15 cm ³