Agilent

Trusted Answers

Biosensor Technology Meets Live Cell Imaging

xCELLigence RTCA eSight

Multimode Real-Time Cell Analyzer

The Power of Live Cell Imaging Now Combined with the Analytical Sensitivity of xCELLigence Biosensor Technology

Exceptional versatility

Providing label-free, real-time biosensor measurements and kinetic imaging of the same live cell populations, independently or simultaneously.

Generate physiologically relevant data

Easily monitor cell health, adhesion, morphology, proliferation, and cytolysis in primary or native cells alone or in co-culture, providing unprecedented insight into cellular mechanisms and functionality.

More in-live cell imaging

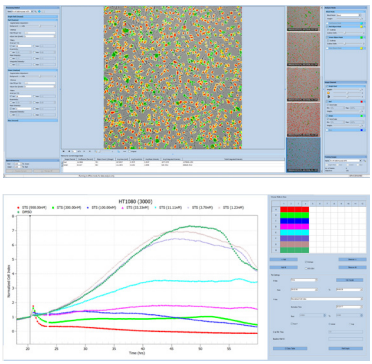
The imaging platform supports three fluorescence channels, a plethora of well plate formats, an array of reporter reagents, and flexible user-defined schedules.

Very fast

Can read a 96-well plate in 15 seconds with the xCELLigence biosensor technology, and image an entire 96-well plate in 6 minutes.

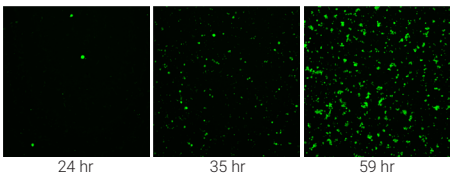
Two complementary modalities, one experiment, easy workflow

Single setup for dual measurements

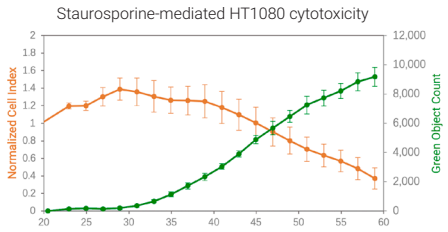


Live cell imaging and real-time biosensor measurement are performed on the same cell populations to provide incisive information on cell behavior. Place plates in incubator, set up real-time data acquisition and analysis parameters, then walk away.

Multimodal data acquisition

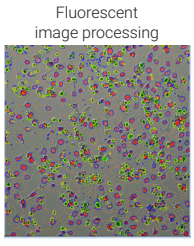


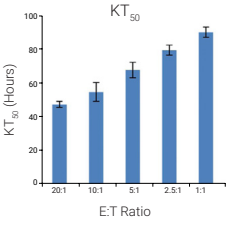
Automatically acquires biosensor signal and images over time. Powerful software integrates two data types in one temporal display.

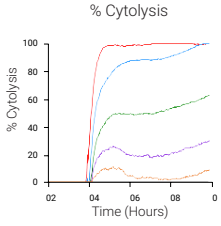


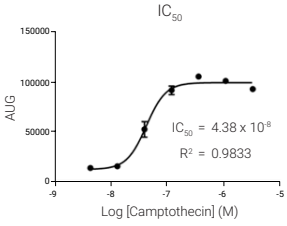
Information-rich and powerful analysis

Cell analysis can be displayed and exported in diverse formats, such as fluorescent images, KT_{50} (time to reach 50% cytolysis at a given E:T ratio), % cytolysis dose response, or IC_{50} dose response curves.



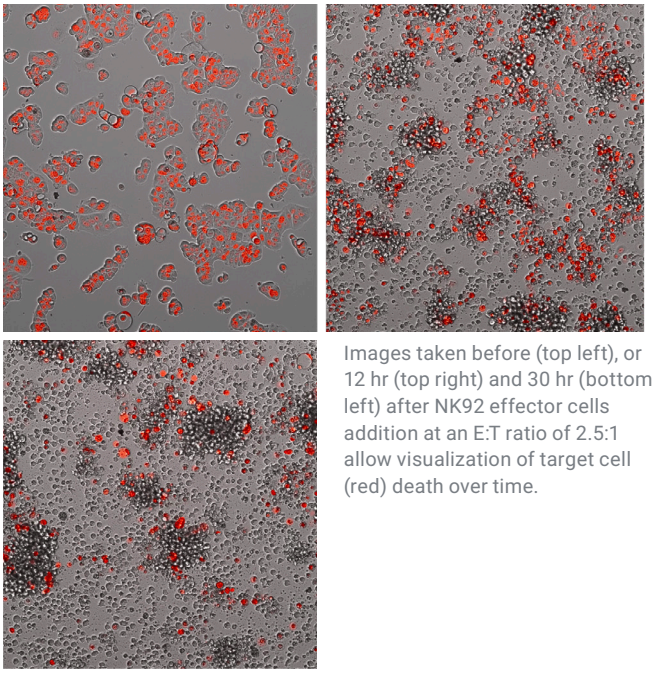






Functionality overview

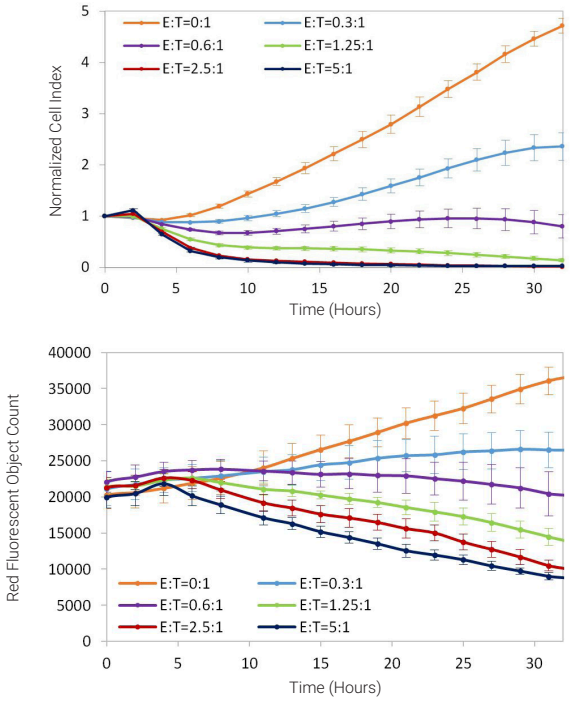
The xCELLigence technology utilizes proprietary microtiter plates (E-Plates) embedded with gold biosensors at the bottom of each well, which serve to non-invasively quantify cell behavior. Over the course of an experiment, the biosensors monitor cell metrics such as proliferation, adhesion, morphology, migration, differentiation, and much more. The measurement is exceptionally fast and provides exquisite temporal resolution so that all relevant responses can be measured in seconds, minutes, hours, and days. In concert with the biosensor measurements, cell images can be captured in real-time, thereby providing a spatial and temporal dynamic view of the cell populations and analytically validating time-dependent cell health and behavior at an unprecedented level of details for any cell-based assay.



Images taken before (top left), or 12 hr (top right) and 30 hr (bottom left) after NK92 effector cells addition at an E:T ratio of 2.5:1 allow visualization of target cell (red) death over time.

Broad applications

The streamlined workflow, high reproducibility, and quantitative kinetics of the eSight system makes it ideal for a wide range of cell-based assays such as proliferation, cytotoxicity, and apoptosis. The example below illustrates the monitoring of immune cell-mediated killing of cancer target cells in real-time. MCF7 breast cancer cells were transfected with a lentivirus expressing a red fluorescent protein (eLenti Red, Cat# 8711011), seeded on an E-Plate for 25 hours, and then treated with NK92 cells at different effector:target (E:T) ratios.



Effectors addition causes cancer cell death in a E:T ratio-dependent manner as shown by biosensor (top) and imaging (bottom) measurements. Red fluorescent object count indicates number of living target cells.

Learn more:
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