

# READY-2-GO CELL HEALTH ASSAY SERVICES

## BACKGROUND

Cell health is a fundamental measurement in cell biology and can be assessed in a variety of ways. Commonly, cells are evaluated for viability (i.e. live or dead) using vital dyes, which selectively penetrate dead cells due to the disruption of their membrane integrity, while live cells with intact membranes remain unstained. Cell proliferation is also frequently assessed, as, depending on the disease of interest, drug developers may want to promote cell repopulation (e.g. degenerative diseases) or avoid it (e.g. cancers).

Evaluating the impact of drug candidates on cell proliferation and viability is essential in any drug-discovery or drug-development campaign. This is frequently the first step in characterizing new compounds or potential disease treatments, as the potential toxicity of drug candidates must be assessed before moving them into clinical trials.

## THE CHALLENGE

The binary classification of cells as live or dead in reporting viability is limited and lacks nuance. For example, cells undergoing apoptosis may be classified as viable, although they are in the process of dying. Additionally, as cells die, they lose their ability to adhere to the plate or well surface, which renders measuring viability and proliferation difficult or impossible, especially via cell imaging. This cell loss can skew data towards only the cells that remain attached.

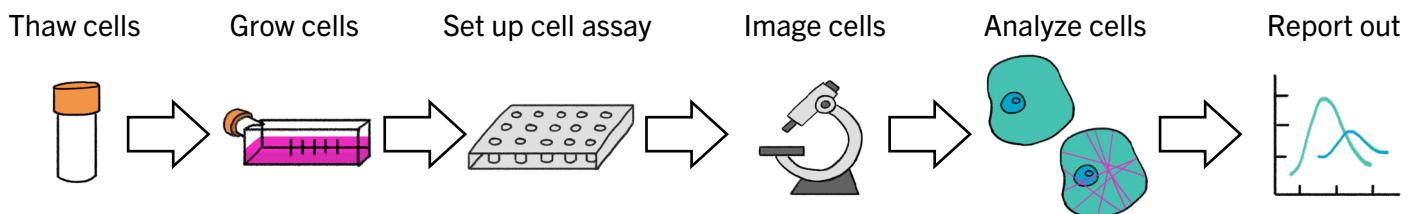
One way to combat this issue of dead-cell detachment is to minimize the number and force of pipetting actions, as frequent and/or strong liquid displacement on the cells promotes the loss of dead or dying cells. However, this is difficult to accomplish in multiplexed assays that would be valuable for obtaining a more thorough assessment of cell health.

## OUR SOLUTION

Our Ready-2-Go (R2G) Cell Health Assay Service measures cell viability, proliferation, and apoptosis using a protocol that minimizes the number of pipetting actions that could cause dead cells to detach from the well surface and result in skewed data. This is accomplished with an antibody-free approach to staining and imaging cells.

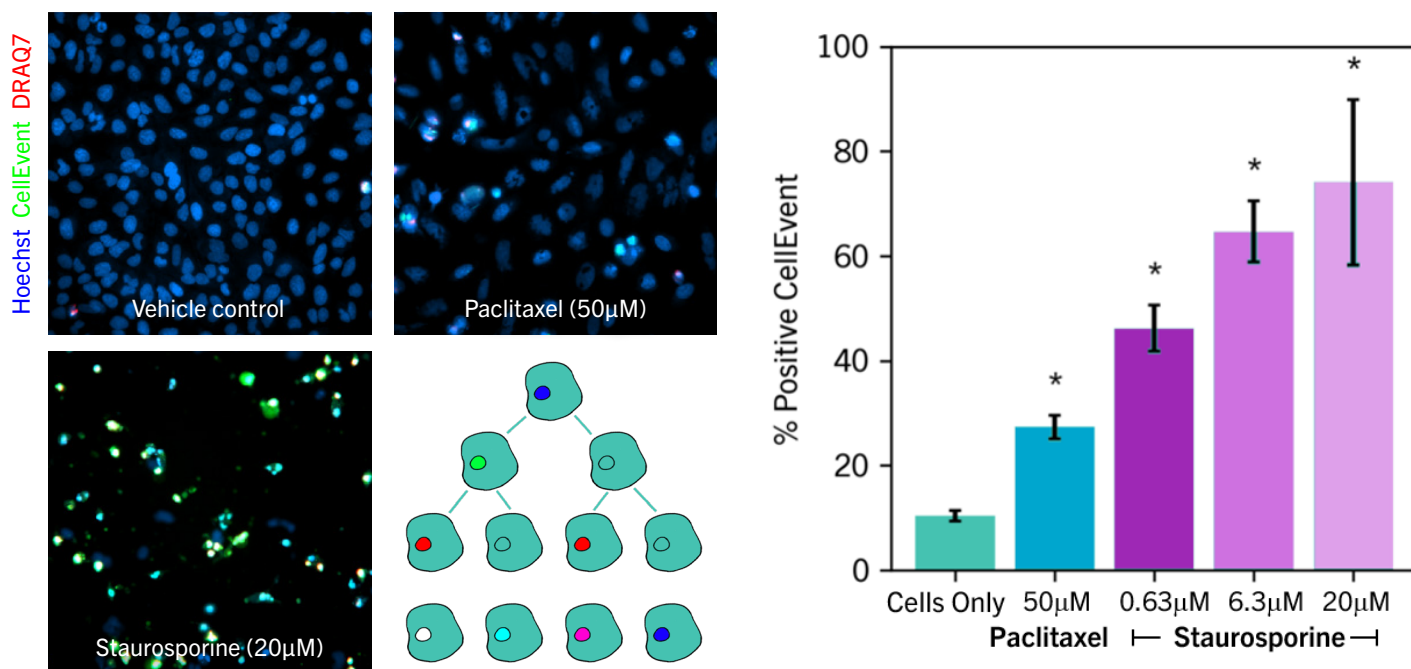
- **Get better insights into cell health.** Multiplexed readouts of proliferation, viability, and apoptosis.
- **Higher assurance of data quality.** Antibody-free protocol limits number of wash steps and antibody-lot variability.

## PROCESS OVERVIEW



## HOW IT WORKS

Cells are seeded into 384-well plates and incubated in the presence of compound for 4, 24, and 48 hours, at which point they are fixed and stained in preparation for imaging and analysis. In the images below, A549 cells were treated with Paclitaxel and staurosporine for 24 hours. Nuclei were stained with Hoechst (blue), apoptotic cells with CellEvent (green), and dead cells with DRAQ7 (red). This palette affords gating of 4 populations of cells - alive, alive & early apoptotic, late apoptotic, and dead. Proliferation is determined by the comparing nuclear counts at time zero and the endpoint.



## ASSAY SERVICE DETAILS

	Ready-2-Go Cell Health	Bespoke Assay Services
Cells (select one)	A549 (Human lung carcinoma epithelial cells) U-2 OS (Human osteosarcoma epithelial cells)	If you would like to expand the service offering beyond R2G shown on left, please contact us at <a href="mailto:info@phenovista.com">info@phenovista.com</a> or reach out to your local sales representative.
Markers	Hoechst (all nuclei), DRAQ7 (dead nuclei), CellEvent (apoptotic cells)	
Dosing	6 doses of your test article	
Positive Control*	Staurosporine (apoptosis)	
Negative Control*	Paclitaxel (proliferation)	
Assay Readouts	Total cell count, % apoptotic cells, total apoptotic cells, % viable	

\* Vehicle and untreated controls also included.

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