

Genedata Screener®

# Cell Population Extension

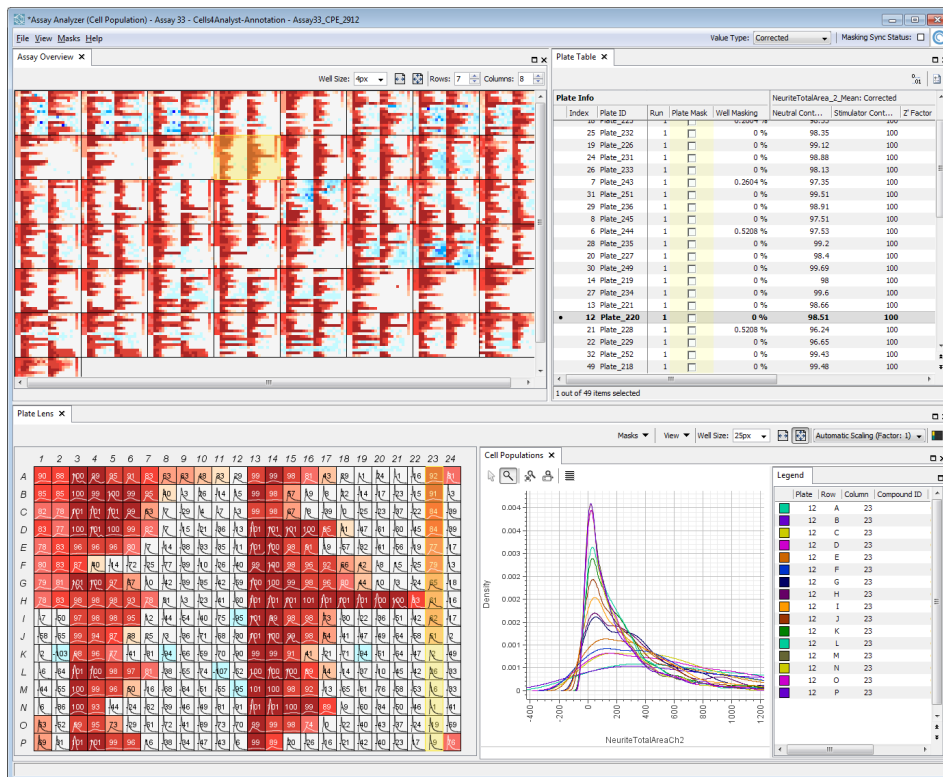
## Scalable Processing of Single-Cell Data for Screening

Genedata Screener enables interactive processing of single-cell data from High Content Screening and related technologies. Automated yet fully interactive, it rapidly processes complete assay data sets, and captures physiological detail while eliminating tedious detail work.

## New Frontier of Screening: The Single-Cell Domain

With the Cell Population Extension, multi-featured measurements at single-cell resolution are read into Genedata Screener for a complete screen, from local or central data storage. Results per well are calculated from individual cell populations based on user-defined criteria and functions to aggregate individual cell values to a population result. Cell population visualizations aid in definition, optimization and validation of such processing; interactive changes trigger re-calculation on-the-fly.

- ▶ Cell Level Data
- ▶ Cell Population Analysis
- ▶ Population Histograms
- ▶ Interactive Aggregation
- ▶ Custom Aggregation
- ▶ Cell-to-Z' Factor
- ▶ Multiple Plates
- ▶ Complete Workflow



Assay Analyzer with Cell Population Extension

(FIG. 1) Interactive visualizers enable identification and separate treatment of individual cell populations.

## Process Single-Cell Data

Cellular data are derived from technologies that analyze individual cells in High Content Screening or cytometric applications. Oftentimes, instruments have integrated such data making it impossible to review cell population and control the way per-well results are calculated.

Consequently, any changes require an analysis rerun on the instrument and a restart on the processing pipeline. Genedata Screener with Cell Population Extension eliminates these steps and gives you full control.

## Visualization of Cell Populations

The Plate Lens is key to reviewing and comparing cell population for specific wells. It overviews the selected population across all wells and allows overlaying histogram plots for specific wells or well groups.

## Cell-to-Well Aggregation

Calculation of well results from cellular data is flexibly embedded in the following steps:

- ▶ Normalizing a cellular feature by another (e.g. adjust intensity read-out by size, per cell)
- ▶ Filtering cells that will become part of the well results (one-dimensional gating)
- ▶ Calculating a well result for the selected cells (e.g. count, median, robust standard deviation, etc.)

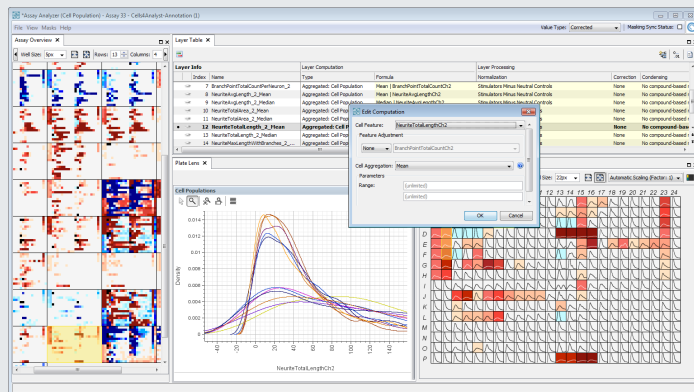
A set of the most important calculations is provided by default; additional calculations are easily configured.

## Integration into Screening Workflow

Assay Analyzer with Cell Population Extension provides a single application for routine analysis of cellular data. Starting interactive data analysis at the single-cell level is effortless and routine analysis of cell populations can become part of the screening data analysis workflow.

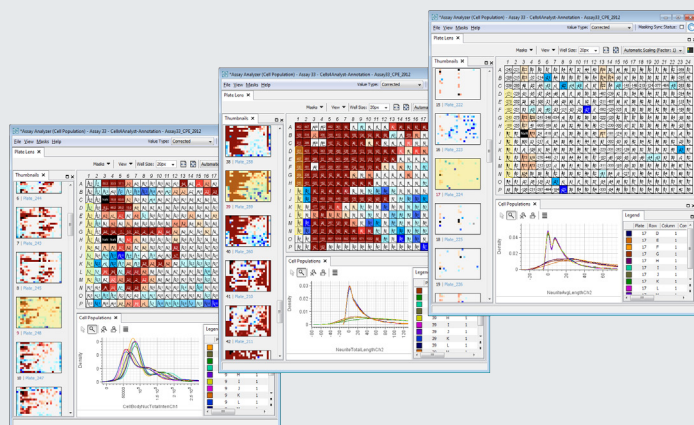
## Part of a Complete Screening Solution

Genedata Screener provides a centralized backbone for data analysis from plate-based screening experiments. Specific extensions for data from High Content, Cell Population or Time-Series Experiments specifically add support for these technologies.



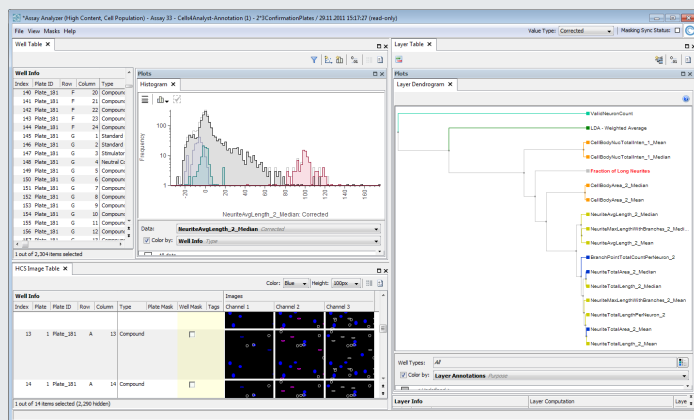
Cell Population Analysis for Complete Assays

(FIG. 2) Interactive review and aggregation of cell population; each resulting in individual well features.



Visualization of Cell Populations

(FIG. 3) Histogram overlays for different cell populations and different features indicating different well groups.



Optimal Support for Complex Experiments

(FIG. 4) Well distributions for the complete experiment, statistically guided navigation and HCS Images (requires High Content Extension).



Genedata Screener® is part of the Genedata portfolio of advanced software solutions that serve the evolving needs of drug discovery, industrial biotechnology, and other life sciences.

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