

Screeener™ AssayAnalyzer

Overview

Validating data from a large primary screen requires careful examination of 100's or even 1000's of plates. Millions of compounds must be reviewed in order to extract a subset of potentially promising leads, posing an enormous challenge to balance data quality against expensive processing costs.

Conventional data mining software ignores many of the specific challenges posed by high-throughput screening. AssayAnalyzer combines powerful quality control features with advanced high-throughput capabilities in a software environment catering directly to the screening community.

Benefits →

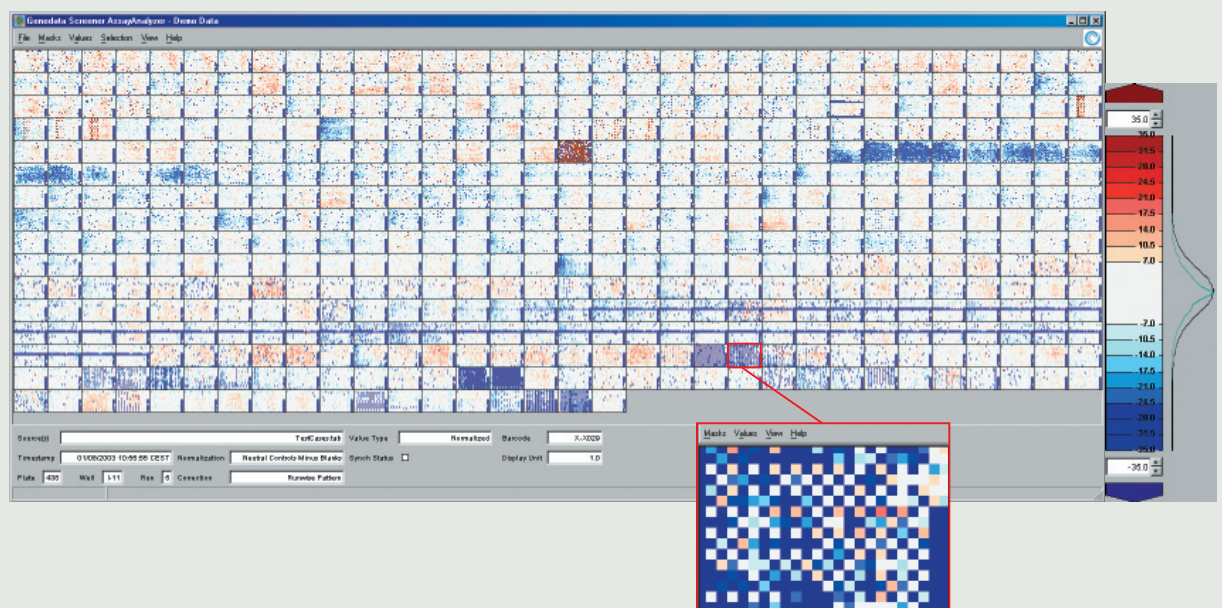
Reduce screening time and cost

Increase data and process quality

Key Features →

- Highly scalable, flexible and automatable
- Reduces costly false positives as well as false negatives
- Reduces data analysis time from days to just minutes
- Provides unique overview of entire screening campaign
- Enables consistent application of diagnostic and quality criteria
- Facilitates quality and process improvements

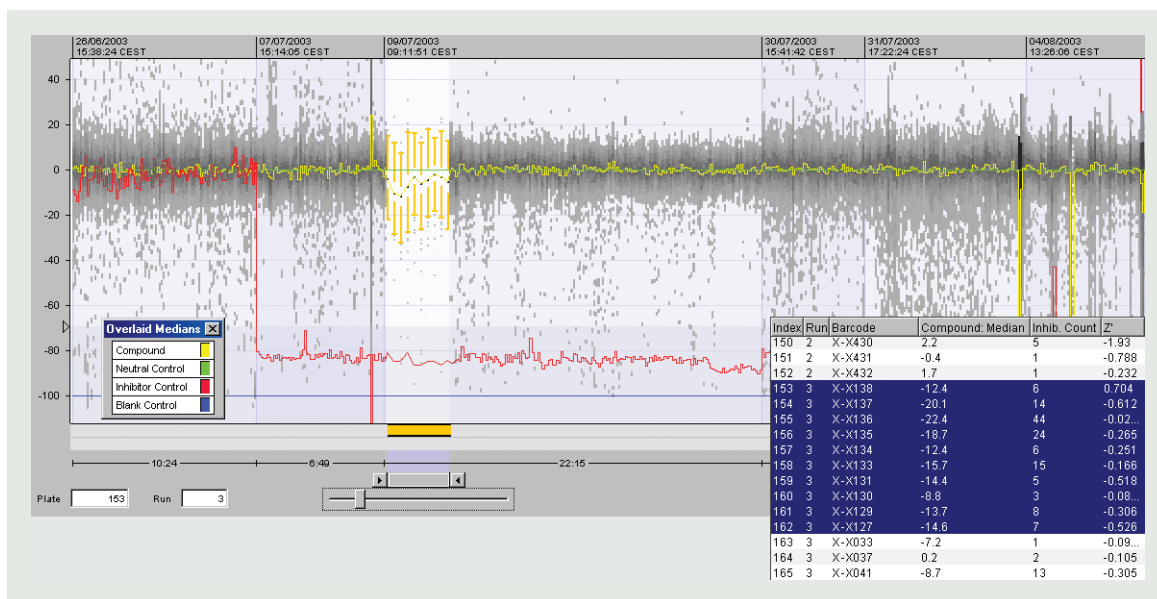
Interactive Overview of All Plates



AssayAnalyzer provides a unique overview of an entire screening campaign. The color-coded display of signal values shown corresponds to 500 multi-parametric plate readouts from six batches. More than 5000 plates can be viewed simultaneously. Failed plates stand out and can be inspected by zooming into the display. False-positives can be detected quickly and consistently.

Effective handling of data quality problems avoids costly downstream processing of false positives, as well as the potentially greater cost of losing sight of genuinely active compounds in the noise. AssayAnalyzer's powerful statistical algorithms and intuitive displays increase awareness of quality issues, thereby facilitating process improvements.

Monitoring Quality Metrics Over Time



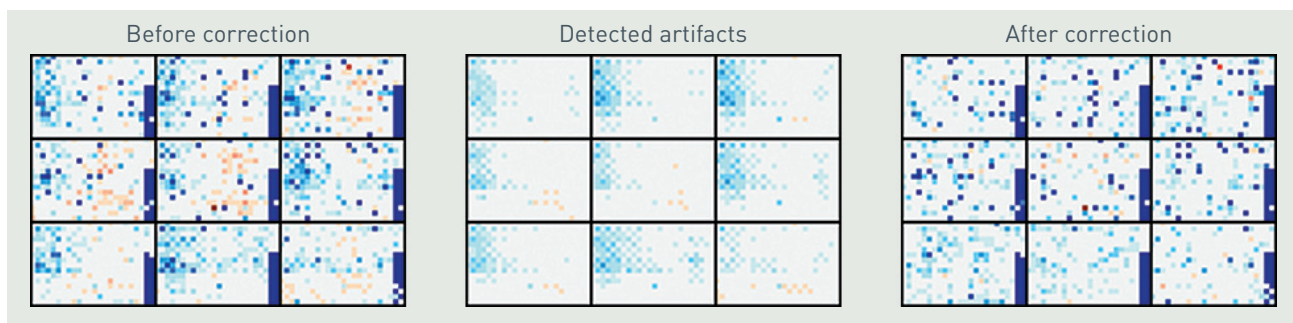
The trend display provides another overview; emphasizing changes during a screening batch, or several batches. Signal values are arranged in a row of vertically oriented histograms, each histogram representing a single plate. Individual histograms can be inspected by zooming-in to the display.

Quality issues can be consistently identified using the plates table (insert, above), which contains quality metrics corresponding to each plate. Selections from the display are reflected in the table and across all displays.

The quality metrics can be subjected to a threshold, applied using an interactive cursor in the trend display. Thresholding an entire campaign avoids the need to validate on a plate-by-plate basis and ensures consistency and reproducibility. Thresholds can be defined according to company-specific business rules.

Suspect plates can be stored together in the software as a separate group, one of many features to enhance analysis tracking. Table values can be exported for viewing in other tools, eg. excel.

Revealing Process Artifacts



AssayAnalyzer's sophisticated pattern detection algorithms can detect more subtle artifacts. Recurring patterns such as the patch of increased inhibition in the upper left side of nine successive plates shown above (left), may not be evident immediately. The middle image reveals the pattern of affected wells. The software can correct and compensate for such problems, recovering data that might otherwise need to be discarded.

Clearly identifying such problems provides a head-start to resolving them, before they are repeated in subsequent batches.

In addition to features that automate and standardize the data validation process, AssayAnalyzer has many features that simply save time and make scientists' work more efficient. Examples include the import and assay wizards. The import wizard helps extract information from the machine-created raw data files corresponding to each plate. The assay wizard defines analysis procedures. They simplify otherwise time-consuming tasks and are highly intuitive to use.

AssayAnalyzer is a module of the Screener™ system. Together with the Condoseo module for dose-response analysis, and Sarileo for biological and chemical profiling, the system covers the complete screening analysis cycle - from validating primary data to exploring high potential leads.

A high performance operational database is available supporting mass storage of data and analysis results.

We have a proven track record in seamless integration of the Screener™ system with corporate IT infrastructure.