AutoHCS Pilot Screen

DATA SHEET

Pilot Screen: Automated Drug Discovery Assays

Image analysis and visualization platform ViQi Inc. offers researchers a quantitative pilot screen that applies AI to their high-content analysis dataset. This opportunity is ideal for researchers who want to:

1. Use AI to highlight what isn't accounted for or discovered yet.
2. Understand how to get the same result with less expensive or time-consuming sample preparation and image requirements.
3. Broadly understand the benefits of AI to their work without incurring the risks of exploring the technology or tailoring their workflows.

Partner Prerequisites

- Image data with a plate map of controls, compounds, and concentrations as a spreadsheet or figure.
- Provide feedback on the process of working with us, workflow, and results.
- Allow anonymized data to be shared for publication to expand knowledge in the field of HCS.

Recommended pilot screen:

- Research-grade HCS dataset
  - ~1000-3000 high-quality images
  - 20x-60x
  - 0-5 fluorescence channels +/- brightfield
  - 2D or 3D
  - Conventional culture, organoids, explants, etc.
  - Typically, 1-2 384-well plates.
- 2-3 day turn-around for report

Current AutoHCS analyses:

Target phenotype: Find compounds that affect viability, induce apoptosis, or induce any other phenotype represented by one or more positive controls.

Dose-Response: Characterize 5-20 compounds, 4+ doses, 3+ technical replicates, 4+ images per well

Morphological clustering: 4+ compounds or treatments, 3+ technical replicates. This analysis will compare phenotypic similarities between compounds/treatments.

Chemoprotectant and antiviral screen: The above analyses conducted with a background phenotype (e.g. toxins, infectivity), screening for chemoprotectants that revert the phenotype.

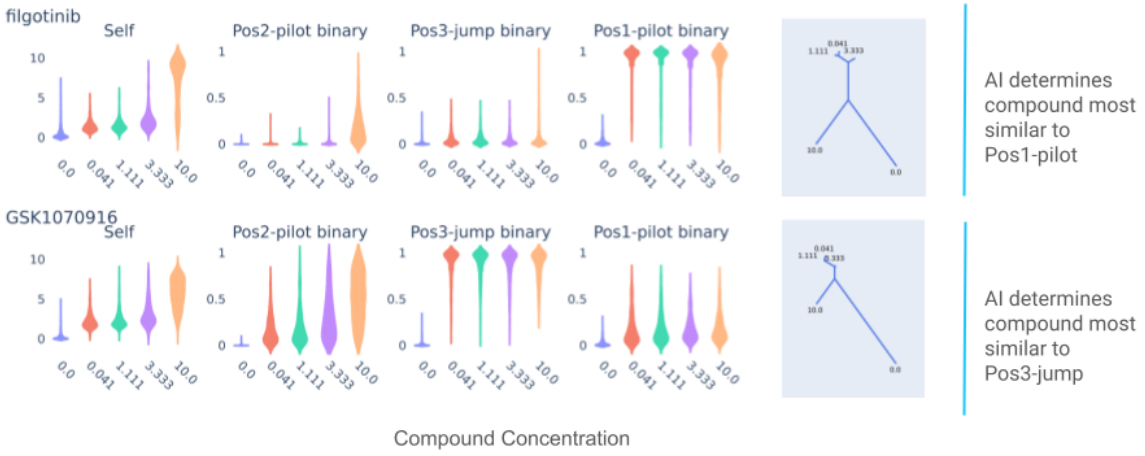
Time course analysis: The above analyses conducted across a time course in brightfield or non-toxic dyes on live cells.

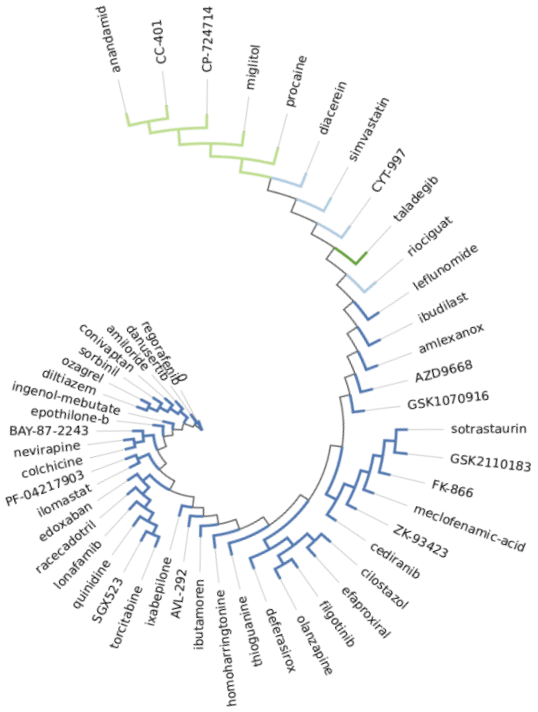
ViQi's multidisciplinary team has conducted several successful pilot screens (SBI2 2023 poster and talk). Most recently, our analysis of the open-source JUMP dataset reveals mechanisms of actions that strongly correlate across our morphological clusters (SBI2 2023 poster).

ViQi's Commitment

- Run AI assays in one or a combination of the current AutoHCS analyses (listed above).
- Share data and answer questions about how AI was applied to your dataset.
- Quantitative analysis and report as violin plots, dendrograms, and tables.

Examples from JUMP dataset:





Interested? Get in Touch

For expressions of interest or questions, contact:

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About ViQi, Inc

ViQi provides large-scale image analysis and visualization expertise and cloud-based software for pharmaceutical and biotech companies, and contract research organizations. More: viqiai.com

For more details, visit the AutoHCS poster at viqiai.com:

HCS Screening Partners Timeline

Thank you for your interest. This is an outline of the pilot and what you can expect.

Estimated data prep time: **1-2 hours. Total ViQi team meeting time: 2-3 hours**

Preparation

1. ViQi will send a Material Transfer Agreement or Master Service Agreement for e-signature.
2. ViQi will schedule a 1-hour meeting to:
   a. Understand objectives and setup, and establish assay goals.
   b. Develop dataset and metadata transfer protocol.
3. Researchers will upload image and experimental data (individual files and/or folders) to ViQi's file drop (https://filedrop.viqiai.cloud/).
4. If necessary, ViQi will schedule a half-hour meeting for clarification of objectives, setup, and data management.

AI Assays Run

It will take ViQi approximately 2-3 days to run the AI assays on the dataset. ViQi will apply its proprietary AI training algorithms to automatically optimize and train the best AI models and use them to quantify phenotypic responses to compound treatments.

Assay Report and Demonstration

ViQi will schedule a 90-minute meeting to share findings and demonstrate how the AI assays were run on the dataset.

Feedback Meeting

ViQi will schedule a 1-hour meeting to interview researchers about the process, workflows, and working with ViQi.

Final Report Delivery

Researchers will be provided a summary of the pilot study and an export of data collected in PDF, HTML and CSV files based on all learnings from analysis and meetings.

YOUR NEXT STEP
Email Dr. Ilya Goldberg at assay@viqiai.com and let us know about your pilot screen.