

Sutter Health CPMC

Case Study

THE COMPANY

California Pacific Medical Center is one of the largest private, non-profit, academic medical centers in California with a medical staff of over 1,000 and is a Sutter Health affiliate. CPMC offers cancer diagnosis, cancer treatment, physician specialists, and research as part of their comprehensive cancer services, among many other applications.

THE CHALLENGE

Significant advances have been made in cancer treatments with the onset of tumor genetic testing. This profiling can identify mutations leading to more targeted chemotherapies and improved patient outcomes. Unfortunately, there are limitations to this approach. Often times, insufficient information is available to accurately identify the mutation(s) driving tumor growth, or an existing targeted therapy may not exist. Additionally, these profiles are incomplete in that they do not assess the overall tumor biology.

Throughout the course of treatment, cancer patients often receive a series of single-drug doses or multi-drug combinations. These collective treatment plans, while based on the best available information, may not be specific enough to a single patient's condition to achieve the best results.

THE SOLUTION

HIGH-THROUGHPUT SOLUTION (HTS) FOR DRUG SCREENING OF PATIENT-DERIVED TUMOR SAMPLES

CPMC has developed a method to take cancer tissue biopsies and generate patient-derived cell lines (PDCs) using xenograft models. These PDCs can then be used as a surrogate ("Avatar") for the patient's' specific tumor to screen multiple dose regimens and/or combinations of chemotherapies.

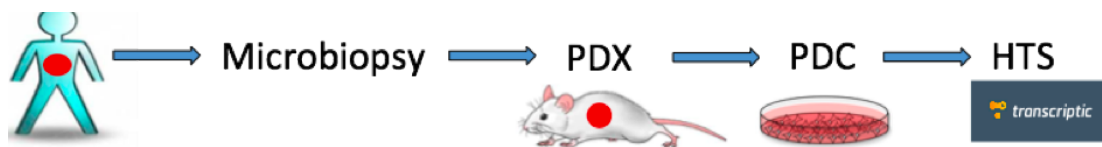


Figure 1. Diagram of generating PDCs for high-throughput screening.

Using Transcriptic's cloud-based, automated laboratory, CPMC can readily create and submit dosing screens tailored to individual patients through the web-based interface. New chemotherapy compounds can be easily added to any screen and doses/combinations adjusted enabling screens to be iterative with generated data and up-to-date with current research.

These screens allow for on-demand, high-throughput assessment performed remotely with data returned in real-time. The assays

are executed using advanced technologies developed at Transcriptic, removing human introduced bias and error, leading to robust, reproducible data.

This ability to rapidly assess the efficacy of both the dose-response of a single agent chemotherapy, and combinatory effects with other chemotherapies, allows for a customized treatment plan for each patient driving better outcomes with no added patient inconvenience or discomfort.

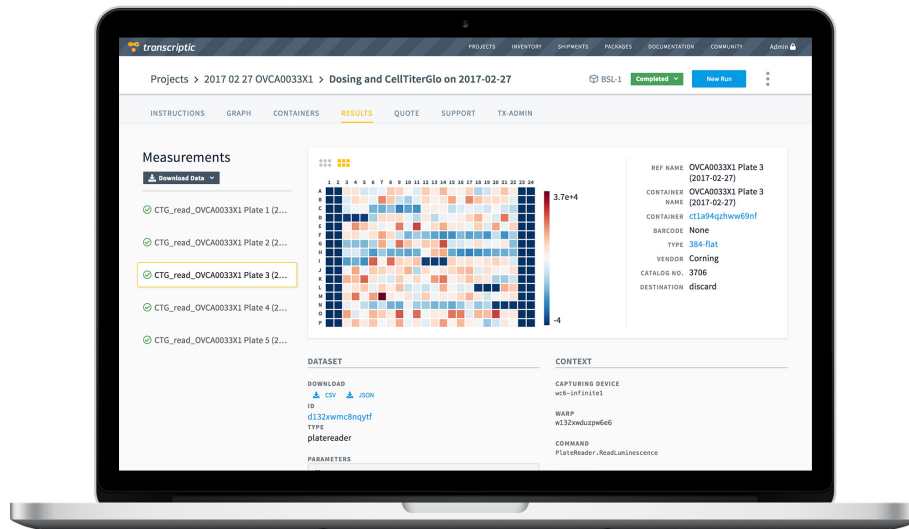


Figure 2. Luminescence 384-well plate measurements rendered graphically on Transcriptic's web interface.

THE VALUE TO CPMC

Transcriptic's Cloud Based Laboratory provided multiple advantages including:

- Eliminated the need to develop an expensive in-house HTS platform, saving capital expenditures and the cost of FTEs to support it.
- Access to micronized liquid handling providing assays which use minimal amounts of expensive reagents and drug compounds
- Able to launch and manage experiments anytime from anywhere from a web browser providing increased control and insight
- Greater flexibility and control of in-app protocol development and execution. Reduced data cycle times by leveraging Transcriptic's in-house expertise and increased scalability of the workflow
- Real-time access to data and cross-collaboration with different teams and different sites
- With changes in CPMC staffing, new employees were able to get up and running more quickly
- Quality control measures make it easy to troubleshoot any experimental inconsistencies

“Transcriptic’s Robotic Cloud Lab gave CPMC flexibility and control of protocol development and implementation, with the ability to control experiments from anywhere with a web browser.”

Sean D. McAllister, PhD, Senior Scientist, CPMCRI