Validation of a simulation-derived novel drug target in oncology

turbine™

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Website
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Industry
Biotechnology

Location
London, UK &
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Employee count
11-50

Overview

Turbine built a simulation-first drug discovery platform that models how a cell operates at the molecular level and tests the effects of millions of potential drugs through the use of their proprietary AI-enabled technology. Turbine's SimulatedCell™ platform tests almost an infinite number of interventions, reflective of the molecular diversity of human cells. The result is a more focused, rational, and faster drug discovery process.

Turbine focuses on a precision medicine approach in oncology for their drug discovery efforts. With their unique technology, Turbine is able to rapidly run virtual screenings at scale in order to develop new hypotheses relating to novel drug targets, biomarkers and rational combination strategies.

Turbine's key differentiator within the industry is their ability to accurately model human biology, which results in developing hypotheses with a robust mechanistic understanding of the underlying cancer biology. Unlike others in the industry, this rapid and precise approach prevents progressing low likelihood targets and instead enables them to identify new targets, potential companion biomarkers, and combination therapies.

Challenges & Objectives

Turbine has been primarily focused on the validation of the results of their target screens. To advance the TURB2 programme into the next stage of development, Turbine needed to find a partner that could provide them with reliable, fast, and responsive wet lab experimentation, in particular including cell models representative of the target population that they are targeting within their programme.

One of the main challenges faced by Turbine was validating their *in silico* predictions and thereby leveraging the unique insights they derived from their SimulatedCell™ platform. Working with academic labs in the past, Turbine found themselves limited to a small number of suitable research techniques and cell-based models as well as confronted with issues around data quality and reproducibility. In the end, it came down to who they could entrust with the generation of fully reliable and trustworthy data that would underlie their go/no-go decisions.

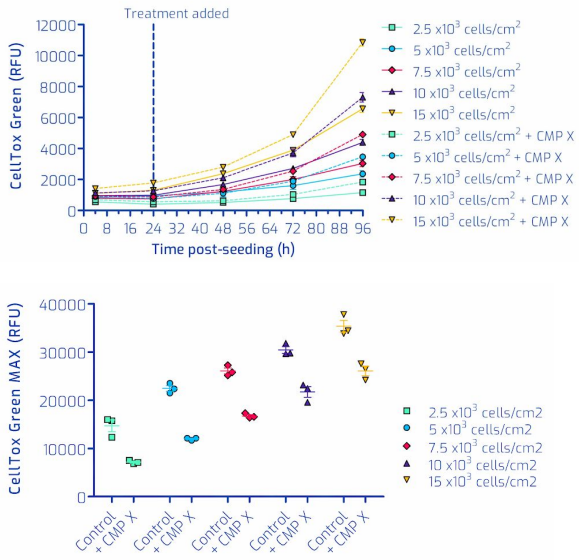
"Working with Arctoris over the past 8 months, we got exactly what we needed: a broad range of experimental capabilities, high quality datasets - including full access to the raw data - and in-depth scientific discussions, enabling us to progress our TURB2 programme."

- Daniel Veres MD PhD, Turbine, Chief Scientific Officer

Action & Results

Turbine chose to work with Arctoris. The partnership with Arctoris enabled them to engage in scientific discussions with experienced drug hunters, receive detailed guidance on the optimal research plan, and select the most suitable assays for their target validation project. Reproducibility and quality of the ultimate results were some of the key factors that Turbine wanted to address by choosing Arctoris' fully auditable experiments. With Arctoris' wide selection of validated cell lines, fully auditable experiments, and continuous support from their experienced scientific team, Turbine was able to identify and select models representative of their target patient population and complete their ambitious target validation project.

The team worked closely with Turbine throughout the project planning process, during experiment execution, and during the data analysis and interpretation phase, enabling a full concierge service that extended beyond formal project completion. Being able to access decades of drug discovery expertise on demand resulted in a level of support and guidance that enabled Turbine to reach a deeper level of understanding and arrive at data-driven decisions on their TURB2 drug discovery programme.



Effects of CMP X on cell cytotoxicity in PSN1 cells

PSN1 cells were seeded into a real-time cell cytotoxicity (CellTox Green) assay at varying densities. 24 hours later the cells were treated with either a vehicle control or 5µM CMP X. Assay reads were taken 4, 24, 48, 72 and 96 h post-treatment.

(Top) Raw CellTox Green intensity over time
(Bottom) Maximal CellTox Green intensity obtained after cell lysis at 96 h time-point

Value

Availability of relevant and validated cell models, access to a unique fully automated technology platform, and the guidance provided by an experienced team are the key reasons why Turbine chose to work with Arctoris.

To learn more about how Arctoris can help expedite your drug discovery process, contact us today at www.arctoris.com.