Novel AI-Driven Insights to Guide Early Drug Discovery

March 2024

NASDAQ: POAI

Predictive Oncology®

Forward-looking statements

This presentation includes "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. These statements include but are not limited to our plans, objectives, expectations, intentions and other statements that contain words such as "expects," "contemplates," "anticipates," "plans," "intends," "believes" and variations of such words or similar expressions that predict or indicate future events or trends, or that do not relate to historical matters. These statements are based on our current beliefs or expectations and are inherently subject to significant uncertainties and changes in circumstances, many of which are beyond our control. There can be no assurance that our beliefs or expectations will be achieved. Actual results may differ materially from our beliefs or expectations due to economic, business, competitive, market, regulatory and other factors. A full discussion of our operations and financial conditions, as well as risk factors that may affect our business and future prospect, is contained in our most recent regulatory filings with the U.S. Securities and Exchange Commission ("SEC"), including our Form 10–K filed March 21, 2023

Revolutionizing Drug Discovery as We Know It
A New, Unique and Scientifically Validated AI/ML Offering

Groundbreaking

Predictive is delivering new intelligence that **biopharma has never been possible before** – the ability to introduce the "human element" into the earliest phases of drug discovery

Validated

PEDAL predicts with 92% accuracy a tumor sample's response to a drug: enables "go/no go" decisions before spending significant time and money on late-stage trials

Unique Assets

POAI is the only (AI)-enabled drug discovery company with an extensive, proprietary biobank of more than 150,000 heterogenous human tumor samples. Repository of actionable drug and tumor response data; library of 200,000+ pathology slides. CLIA wet lab under the direction of a Board Certified Pathologist allows for *in silico* modeling and bench level experimentation.

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PEDAL Platform: An Active Learning Platform

Initial Data

Stable Model
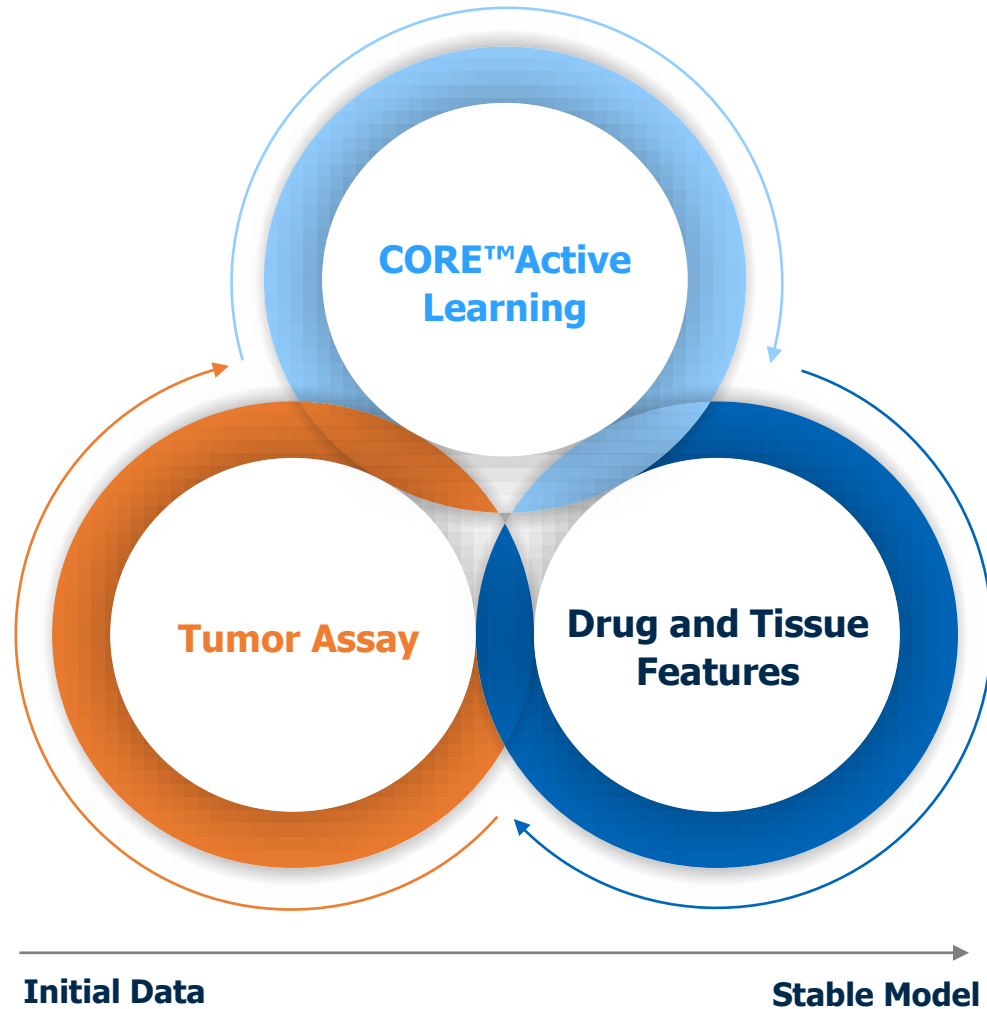
Drug and Tissue Features

Proprietary real-world, **historical drug response and/or other relevant clinical data** associated with 150,000+ tumor samples

Flexibility to use POAI's data along with customer-provided and/or public databases of drug and tissue features

CORE™Active Learning

Active learning developed at **Carnegie Mellon University** for constructing predictive models of all possible combinations of patient-specific drug response and using these models to efficiently drive rounds of "wet-lab" drug-response testing

Tumor Assay

Customizable tumor assay design leveraging **1000s of well characterized primary patient tumor cells**

Clinically validated, translatable assays

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Proprietary Biobank Provides Access to Heterogenous Tumor Samples to Design Customized Assays for Biopharma Clients

Cellular heterogeneity is maintained in our standard assays, providing an advantage over immortalized cell-lines

Performed in a highly regulated CLIA lab. Testing process is automated to maximize data quality efficiency

Maintains cell-to-cell contact per the original patient tumor sample, allowing for tumor-stromal interactions within the tumor explant culture. Tumor microenvironment may be studied

Various biochemical parameters can be studied, and the system is adaptable to different conditions

Tumor types with 500+ samples:

Ovarian	Fallopian
Endometrial	Sarcoma
Lung	Pancreatic
Colon	Rectal
Breast	Kidney
Uterine	Appendiceal
Cervical	Colorectal
Peritoneal	

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Heterogeneity: Major Challenge for Pharma, AI/ML

But a source of differentiation and value creation for the Predictive solution

PROBLEMS

PEDAL SOLUTIONS

Problems	Pedal Solutions
Extensive variation (heterogeneity) among patient tumors' responses	Introduce heterogeneity earlier; the ability to "see" years into clinical trials
High cost / long time to screen drugs against 100s of patient samples.	Earlier go/no go calls save time and capital for biopharma and academia
High clinical failure rate results in lost time and money for drug developers.	Mitigation of avoidable late-stage clinical risk

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PEDAL: Accelerating Drug Discovery While Mitigating Risk

Predictive Oncology can predict success in the earliest stages of drug discovery, resulting in significant mitigation of risk for its partners
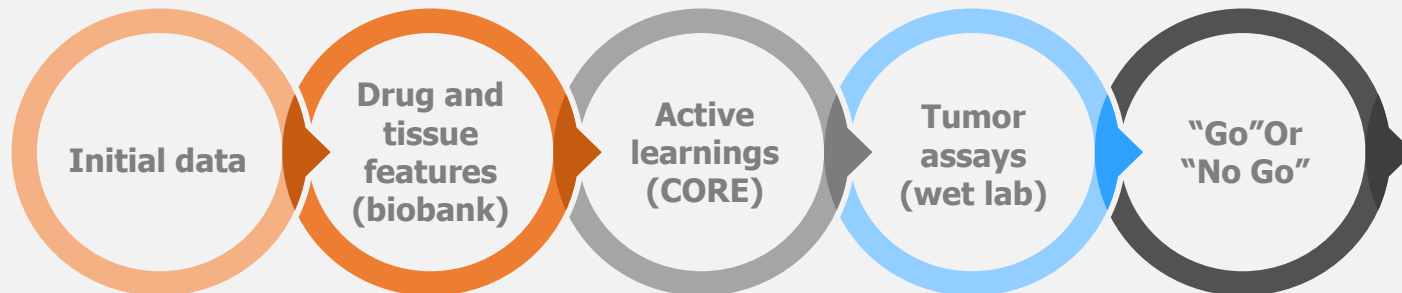
As long as
5
years

Traditional drug discovery process

Pre-clinical activities

Molecules/ targets → Screening → Hit to Lead → Lead Optimization → Candidate selection

As little as
4
months

Drug discovery incorporating PEDAL

Initial data → Drug and tissue features (biobank) → Active learnings (CORE) → Tumor assays (wet lab) → "Go" Or "No Go"

Increased chance of clinical success with intelligence gathered during the pre-clinical phase

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Contract Engagement and Momentum

February '23

- Predictive Oncology launches **ACE program** to partner with academic and research institutions to advance their drug discovery initiatives

- Predictive Oncology and **Cvergenx** announce partnership to develop the first-ever genomics-based approach to precision radiation therapy and drug discovery using artificial intelligence

- Predictive Oncology and **Cancer Research Horizons** partner to pursue development of cancer drugs

MARCH '23

- Predictive Oncology collaborates with **Integra Therapeutics** to pursue a novel method to enhance Integra's ability to use gene editing for future cancer therapies

NOVEMBER '23

- Predictive Oncology successfully completes a multi-year retrospective study with **UPMC Magee-Womens Hospital** designed to build multi-omic machine learning (ML) models to predict overall short- and long-term survival in ovarian cancer.

CRH Utillizes PEDAL Platform to Drive Drug Discovery

Engagement offers the potential for substantial development milestones and long-term royalties

In March 2023, Cancer Research Horizons and Predictive Oncology entered into a **partnership to utilize Predictive Oncology's PEDAL™ platform to drive development of oncology drugs**

Cancer Research Horizons is the innovation arm of Cancer Research UK (CRUK) and the **world's largest private funder** of cancer research:

Access to a network of more than **4,000 leading cancer researchers**

11 drugs currently on the market

~$370 million annual research spend

More than **160 drugs** in various stages of development

Predictive Oncology Completes AI-driven Study of Ovarian Cancer with UPMC Magee-Womens Hospital

AI/ML Powered Evidence-Based Molecular Decision-Making for Improved Outcomes in Ovarian Cancer

In November 2023, Predictive Oncology and UPMC Magee-Womens completed a multi-year study using AI to build multi-omic machine learning (ML) models to predict short-and long-term survival in ovarian cancer.

Ultimately, these models could support the tailoring of therapies to individual patients with the goal of positively affecting the overall survival of ovarian cancer patients

Study incorporated one of the largest sets of multi-omic data from **235 ovarian cancer patients**, to identify the key features from these datasets driving overall survival endpoints.

Iterative ML enable more informed selection of drug/tumor combinations to increase probability of technical success rate during development.

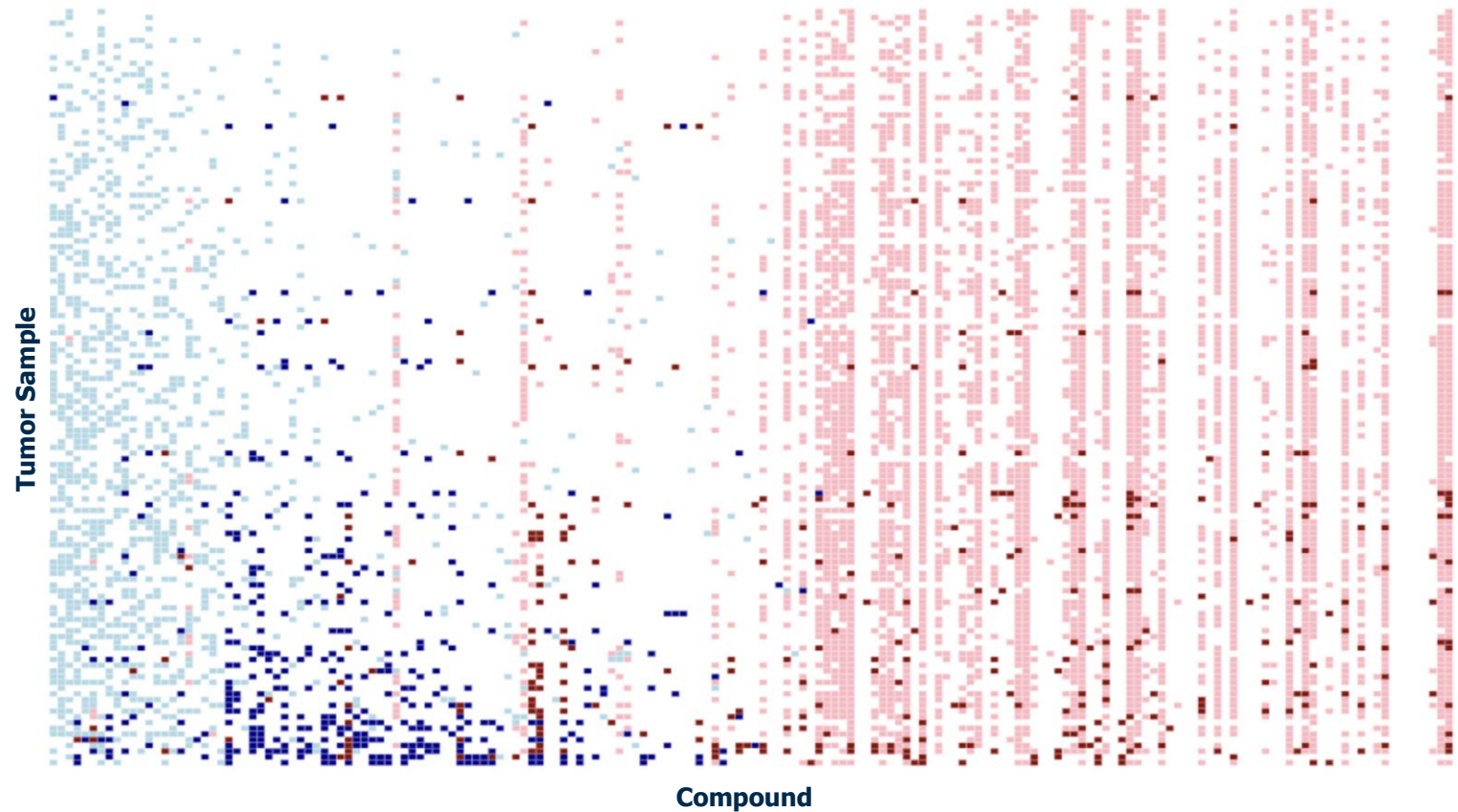Multi-omic features deliver strong predictive models with high levels of accuracy.

Models have the potential to become invaluable clinical support tools

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A Higher "Hit" Rate Often Translates to Higher Probability of Clinical Success

The output from a PEDAL campaign shows the **drug/tumor combinations which are predicted and lab-tested 'hits' or 'misses.'**

Compounds which have a higher 'hit' rate will likely have a **higher probability of clinical success.**

Drug developers spend billions of dollars on **eventual failures that POAI can predict in advance.**

Tumor Sample

Compound

Hit (predicted)   Miss (predicted)

Hit (result)   Miss (result)

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11

Examples of PEDAL engagement designs

Hundreds of compounds with 1-4 tumor types to select best drug/tumor type combination

Top compound in combination with SoC for drug combination selection

Tens of compounds to identify strongest candidate for development

Evaluation of failed compounds in new tumor types to repurpose strong drugs

Biomarker development

Pipeline replenishment

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Biologics Business

Complementary AI-Driven Formulations and Solubility Services

The number and frequency of **protein therapeutics** brought to market has increased dramatically.

The optimal dose must be **identified**, properly **circulated**, **delivered** and **absorbed** in the body to be effective.

Predictive can identify alternative, potentially more viable formulations and amplify the quantity of protein being produced.

POAI's AI-driven formulation platform analyzes **4,000+ combinations** using approved excipients to find the optimal formula tailored to the final product application.

Fee-for-service contract structures yield near-term revenue opportunities

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PEDAL Contract Structure and Revenue Model

PEDAL

Subscription Fees
(Access to Drug Response Data and Tumor Samples)

Project-based Fees
(In Silico models. Develop Custom Assays. Provide Analytics)

Licensing Fees
(Monetization or Outsourcing of Assets)

Success Fees
(Milestone Payments tied to Development or Commercialization)

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Global Pharma Contracts Validate Our Model

Typical deals average $25m upfront; $500m - $2b in milestones and royalties

AZN / Quell Therapeutics Ltd.

June 2023

$85M upfront, inc. equity investment

$2 billion in potential milestones

Sales royalties

Pfizer / CytoReason

September 2022

$20M upfront

$90M in potential milestones

5 years

Sanofi / Atomwise

August 2022

$20M upfront

$1B in potential milestones

5 targets

Lilly / Verge

June 2021

$25M upfront

$694 in potential milestones

4 targets

3 years

Lilly / Schrodinger

June 2019

$425M in potential milestones

1 target

Lilly / Atomwise

June 2019

$1M discovery milestone

$550M in potential development and commercialization milestones

10 targets

Latest - Sept 2023: Verge Genomics signs four-year, **$42 million upfront**, $840m in milestones plus royalties deal plus equity with Alexion/AZN to find new targets for rare neurodegenerative diseases.

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Investment Summary

Commercial Stage

Predictive is well positioned to drive adoption in the rapidly growing AI/drug discovery industry with the differentiated PEDAL platform offering

Validated Platform

PEDAL predicts with 92% accuracy a tumor sample's response to a drug;

Barrier to Entry

POAI has the only proprietary biobank 150,000+ assay-capable heterogenous human tumor samples

A competitor would need to spend ~20 years and extreme amounts of capital to attempt to replicate;

Gaining Momentum

CRH (Horizons) program updates and future new client contract announcements or technology access and sharing in future cost savings and revenue opportunities

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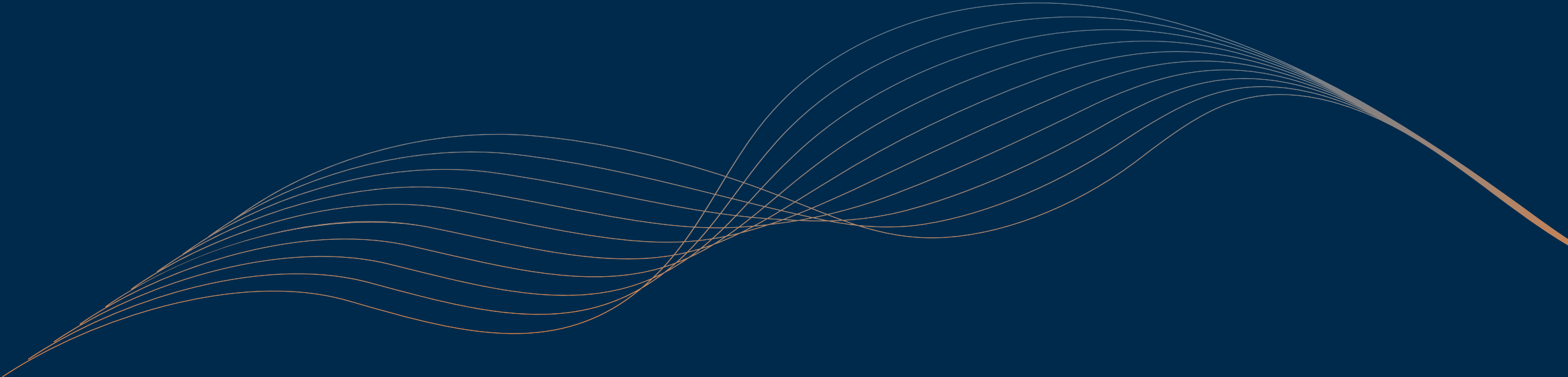
Thank You

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