



4. Customized partnership

Given the complex nuances of the cancer drug discovery process, researchers looking to increase the probability of technical success of their company's pipeline should partner with companies with leading-edge platforms that are flexible to a variety of pipeline needs. Look for a partner that has all the elements to create AI-driven discovery campaigns built around your needs—from the use of proprietary samples to strong AI machine learning capabilities.

Looking for a way to step up the use of AI in your team's oncology drug development process? The PEDAL platform from Predictive Oncology leverages a unique combination of resources not available from any other partner:

- **The world's largest proprietary biobank of tumor samples**—150,000+ clinical cases covering 137 different tumor types, plus associated assay capabilities
- **A supplementary knowledgebase**—historical drug response, biomarker, tissue imaging, patient characteristics and additional public data sets
- **Advanced AI machine-learning platform CORE™ (Computational Research Engine)**, developed by top researchers at Carnegie Mellon University and licensed exclusively to Predictive Oncology; CORE takes a polypharmacological/pharmacogenomic approach to active machine learning, constructing models of all possible combinations of patient-specific drug response and using these models to efficiently drive rounds of wet-lab drug-response testing in an iterative manner.

A recent proof of concept study demonstrated that PEDAL could predict whether or not a drug compound would be a hit for a given tumor sample with 92% accuracy.

Interested in exploring a pilot program leveraging the PEDAL platform? Contact us here.

Driving knowledge

Behind it all is our **machine learning technology**, called **CoRE®**, which was developed by two professors from Carnegie Mellon University (CMU), one of whom founded CMU's machine learning program. This proprietary technology serves as the **engine** behind our PeDAL platform and makes millions of computations that help narrow down which molecules will be most successful against the tumors (and which ones won't) with speed, accuracy and efficiency. The predictive model gets more accurate at each stage of the process. These predictions can help pharmaceutical companies achieve a higher probability of success.

Propelling discovery

Collaborating with our human engine of scientists, researchers and technologists, we also supply the brainpower to help advance the efforts of drug development in our CLIA-certified lab. Predictive Oncology supports our partners at the pharmaceutical and biotech companies with a one-stop-shop solution for their oncology drug discovery process.

In addition to leveraging the PeDAL platform for drug discovery, the platform provides an opportunity to **reassess or repurpose drugs** through new evaluation across additional tumor types.

Moving along the continuum

And it doesn't stop there. In addition to the flagship technology of our PeDAL platform that powers this process, we offer a suite of other products and technologies along the drug development continuum, from early discovery to clinical trials.

Advancing the discovery with 3D tumor models

For clinical trials over the last 20 years, only 115 were approved. In a world where that process costs nearly \$650 million on average for a single cancer drug, a 92% rate of failure means billions of dollars and thousands of development and testing hours wasted.

The number of cancer drugs entering pre-clinical and clinical trials is on the rise. In 2020, 23% of all clinical trials were oncology drug trials, according to ClinTrials.gov.

Artificial intelligence in drug discovery

The global AI in drug discovery market is expected to reach \$1.1 billion this year, with oncology at 20% of revenue share, according to McKinsey. Expectations by the end of 2022 are anticipated to reach \$1.1 billion.

The AI-fueled drug pipeline has been expanding at an annual rate of almost 40%.

AI can accelerate the time to identify