

CASE STUDY

A Personalized Approach: unique strategies and data mining for small biotech companies

When getting a new compound into the clinic, companies need a well-researched strategy to navigate the clinical trial landscape successfully. However, many up-and-coming enterprises do not possess the resources required to navigate these incredibly complicated and competitive waters. What's more, the current climate in drug development – acknowledging the numerous other biotechnology and pharmaceutical companies in competition to achieve the same end goal – increases the pressure to find any possible accelerated pathways that will get a drug to market the fastest. The pressure to map out and deliver a program quickly, especially for those companies without ample resources or systems in place for clinical development planning, can sometimes lead to missed opportunities if pursuing a novel trial design or accelerated pathway.

While most clinical research organizations (CROs) focus exclusively on executing clinical trials, smaller, start-up biotechnology companies need more strategic guidance from the outset. They need an expert CRO that can understand the unique challenges faced in the drug development process and work with them to develop a creative, strategic and data-driven clinical development plan (CDP).

THE CHALLENGE

An abundance of data, and a lack of resources

An early oncology-focused biotech firm's pre-clinical data suggested their first-in-class asset could possibly be effective in a number of indications. However, they lacked the available resources, technology and ability to organize key data and literature searches to perform an in-depth indication prioritization exercise. This is a complex exercise that helps determine the top indications to pursue that would offer the best chances and opportunities in the clinic.

As a young company developing their very first asset in the clinic, an overall strategy would be vitally important. Focusing on a novel and decision-gate-filled phase I/IIa approach would be paramount to the success of their program.

Successfully presenting their very first program – with its novel approach – to the FDA for the first time would be just as critical. While the team members had extensive previous experience with this process, working at a startup that is delivering its first investigational new drug (IND) without infrastructure, technology and adequate resources presents a unique challenge.

The company had finished the discovery phase for its molecule in late 2016 and wanted guidance on how to develop a pathway to IND in less than 12 months or by the end of 2017. They sought out a CRO that had the knowledge and understanding necessary to organize their information and expedite the process. MedSource became their partner and guide. Unlike conventional CROs, MedSource has a Scientific Development team that was able to help this company with their clinical development planning, indication prioritorization and path to IND. MedSource would also be selected as the CRO to execute the first trial, so this early engagement paved the way to train the MedSource team for the future endeavor.





THE STRATEGY

Prioritizing what matters

The biotech company had identified approximately 20 cancer solid tumor types and a few hematological targets that were likely to respond to their molecule. In order to identify the lead indications that would go first into the clinic, MedSource performed a full-service indication prioritization and datamining exercise. While other CROs will talk about prioritization, MedSource employs a process that clearly defines the opportunities available for a new molecule. In this case, the CRO delivered the data in an organized worksheet best suited to analysis and prioritizing. Early on, this worksheet identified indications that would give the program its best chance for success. Included were detailed tabs of valuable information that would be instrumental in building the clinical package for the IND application and a full library of literature supporting the evidence presented in the indication prioritorization worksheet.

In the indication prioritization process, there are key topics that define what data to investigate. With this client, the MedSource team examined the science and evidence of the drug by each tumor type, the possible paths of regulatory accelerated pathways, what "bar" needed to be beat (e.g., response rate, overall survival, etc.), epidemiology/prevalence of the disease, lines of therapy in monotherapy and combination, the competing trial landscape, competing drugs in development, possible recruitment rates, possible challenges in the clinic, and more. Individual tabs mapped out key topics in more detail that gave insight into possible efficacy and surrogate biomarkers. Working closely with the client, the MedSource team analyzed the worksheet and presented a number of possible options that weighed the heaviest scores on critical points, including what presented the strongest science, the most opportunities for acceleration, the highest unmet need, and the best options in line of therapy. These options were the top pathways the data indicated would provide the optimal chances for success not just into the clinic, but likely the fastest to market.

The design and approach for the phase I/IIa trial then, while novel, was supported with solid data and evidence. MedSource identified key opinion leaders and internal medical and regulatory expert team members to help validate and provide key input on the preliminary CDP as well as the data used to design it. The team also performed a roleplay exercise with a mock FDA meeting to help prepare the sponsor for the upcoming pre-IND meeting.



Developing a unique approach

MedSource's expertise and flexibility often creates the space for creative, 'out of the box' and strategic approaches to the clinical trial process. By working directly with the biotech firm to understand the distinctive qualities of the molecule at hand, MedSource was able to develop a quicker and more effective way to get the drug into the clinic. The resulting strategy and pre-clinical package of data supported an approach where the first-in-human trial was a healthy normal volunteer phase I dose-ascending trial design with a complex pharmacokinetics and pharmacodynamics element to produce valuable information about the safety and efficacy of the drug. By proposing to get the molecule in human volunteers sooner, they were able to receive IND application approval on an accelerated timeframe and move into phase Ila indication targeted protocols significantly earlier than anticipated.



THE OUTCOME

The biotech firm was hoping to submit their IND application in December of 2017. Thanks to MedSource's creativity and expertise, the IND application was submitted a few months early, accelerating the timeline and allowing the firm to receive the sought-after "safe to proceed" stamp from the FDA and first patient in the clinic by the end of the year. Using the key insights drawn from phase I, the firm expects to begin a series of phase II trials in mid-2018 in the lead tumor types and various combinations identified via the indication prioritization exercise.

MedSource's early involvement allowed the biotech firm to organize a high volume of complex data to reveal multiple roadmaps that presented the highest possible chances of success for their asset with acceleration. Because MedSource's team truly understood the firm's specific program, they were able to brainstorm as a larger group to develop a novel approach to phase I that saved the firm years of development typically required to get to phase IIa.

The data-mining and strategic guidance provided by MedSource allowed the biotech firm to give their flagship program the best chances and options for success. They had experienced teams, a great asset and an idea of where they wanted to go, but didn't have the summary analysis of key data to drive that decision. And circumstances like this aren't unique. Launching a first drug, no matter how innovative, can be tough for any small biotech. MedSource's expertise and creative thinking helps give these companies the guidance they need to succeed.

VISUAL SNAPSHOT

- **Clinical trial:** Phase I, first-in-human dose escalation trial
- **Condition:** AXL-enriched tumors, including acute myeloid leukemia, ovarian and breast cancers
- **Purpose:** Evaluate the safety and efficacy of a first-in-class antibody
- **Patient-type:** Healthy volunteer patient population