

**AION Labs Challenge 4:**  
**Prediction of clinical trial outcome in biomarker stratified cancer patient populations**

**Frequently Asked Questions**

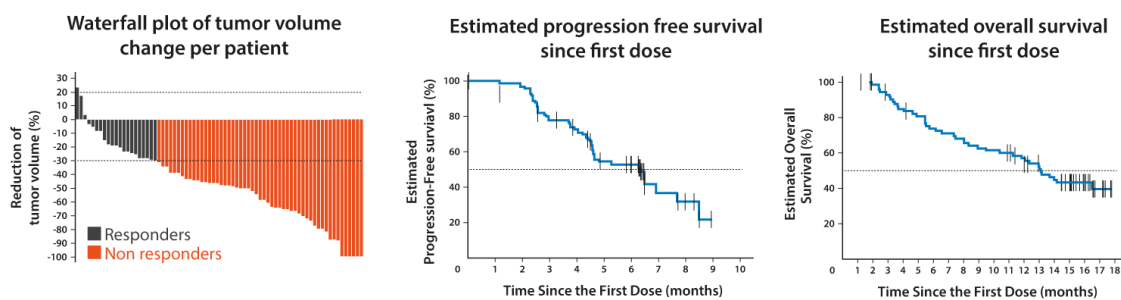
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This document compiles many frequently asked questions regarding the specific challenge and the application process. Please feel free to ask any questions we missed at [info@aionlabs.com](mailto:info@aionlabs.com).

**What is this challenge all about?**

Early oncology clinical trials typically have a single study arm with toxicity and efficacy related primary endpoints. The arm is typically small and only powered to test response rate against an assumed response rate based on the literature.

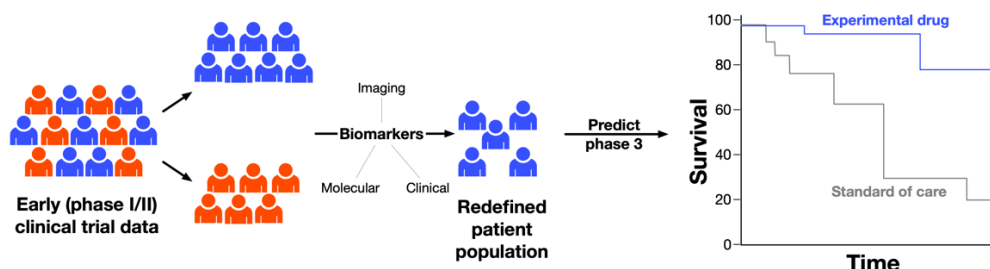
The figure below is a typical read out of an early oncology trial. Tumor volume is typically measured by percent change since the treatment started and presented as a waterfall plot (left panel), progression free survival and overall survival are typically measured as a Kaplan–Meier plot (middle and right panel).



In single arm clinical trials, we do not know how the patients recruited into the trials would have responded to the standard of care. A randomized blinded trial is typically reserved to large and expensive phase III trials.

The early single arm trials provide a significant amount of molecular, clinical and pathology data that previously did not exist in humans. We seek to leverage this data to increase the likelihood of phase III success.

In this challenge we are looking for a platform that will predict the outcome of a phase III randomized oncology clinical trial given a single arm early phase I/II data. The platform is expected to optimize the patient population for the phase III study by identifying biomarkers within the existing early data and considering the standard of care to maximize the likelihood of success. The schematic below illustrates the concept for enhancing phase III success rates:

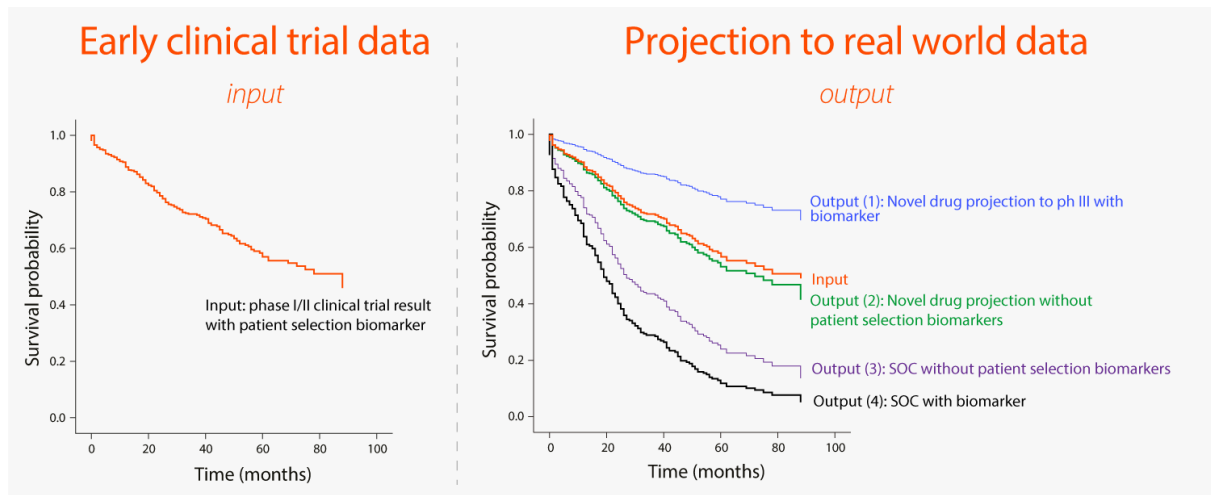


The input to the platform will be early oncology clinical trials results (phase I/II) where a novel drug or drug combination was tested. For development purposes and proof of concept, data sets of results from control arms of multiple historic oncology clinical trials will be provided.

The expected output should be:

1. A predictive biomarker identified using the input clinical trial data.
2. A projection of response to standard or care or the tested drug in a patient population potentially positive to the biomarker in (1) or a patient population without biomarker selection.

The figure below illustrates the expected output where a single arm Kaplan-Meier plot has been projected to 4 different patient populations as shown above.



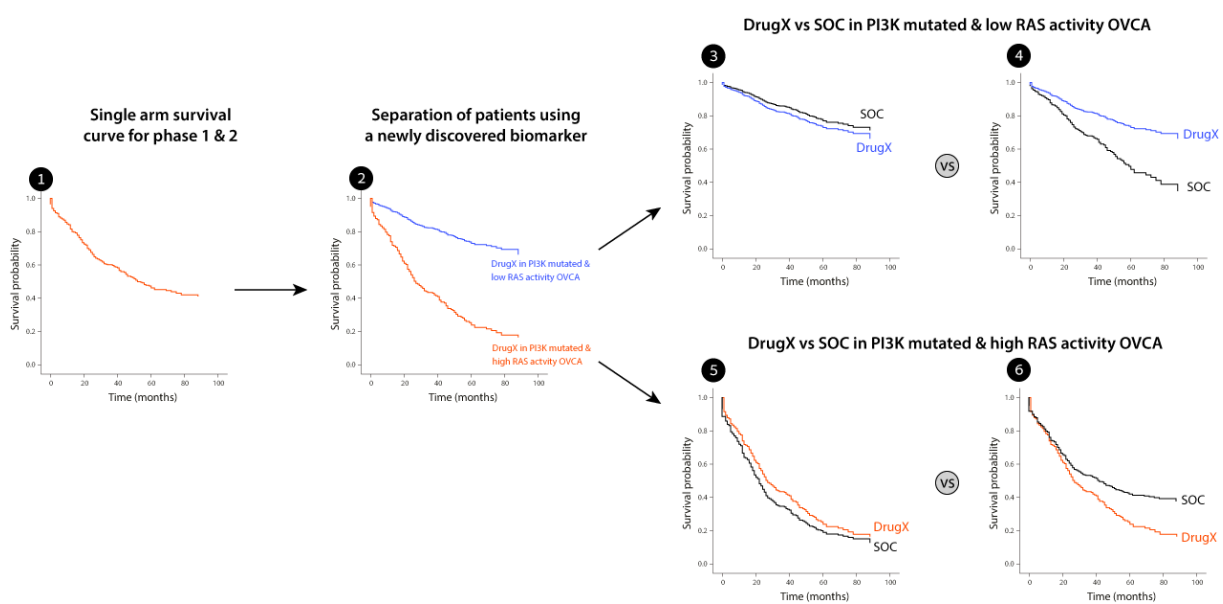
The platform is expected to allow the use of predictive biomarkers that are typically not measured in clinical care.

### Can you provide an example that will demonstrate the impact of this technology and the complexity to address?

Imagine you have a new drug X in ovarian cancer. You found that your drug X works for patients with PI3K mutations and that was your selection biomarker in Phase 1 and 2.

Analyzing the data from phase 1 and 2, which includes deep molecular profiling of the tumors, you found that high RAS pathway activity (measured by gene expression) is a resistance mechanism to the drug. Assuming we decide to target this subpopulation – how would we perform compared to the standard of care treatment which we did not measure? Consider the following figure. The initial data was a single arm clinical trial of phase 1 and 2 combined (1). We then identified the RAS activity biomarker which separated our results to 2 very distinct groups (2). The low RAS activity group shows very good survival rates. However, what about the standard of care? If you consider cases 3 and 5 – our drug X does not improve at all on the standard of care and raises serious questions regarding the continuation of the program. However, if we consider case number 4 and 6 we would have a strong

incentive to adopt a biomarker, update the design of the trial and continue the program for the low RAS activity group. Such an analysis would prevent phase 3 failure and will bring the drug to patients in need.



There are 2 big challenges in the above scenario that should be addressed. The first: RAS activity will not be available directly in patient’s record. How will you address this problem? Second: how will you reliably match the different patient populations, considering they come from 2 different data sources?

### I have my own great idea. What is the advantage of joining AION Labs vs trying to create my own company?

AION Labs was created to build successful pharma AI companies. Our field is complex, spans many disciplines and validation, which happens in patients, is slow and expensive. To be a successful pharma AI company, we believe that all stakeholders should work together from day one. By joining AION Labs you ensure that you are working on an important problem for the field with your potential customers. You will have mentors from each pharma company who are experts in the field to guide you, challenge you and test your results. You will also have AWS as a partner to help you design your platform architecture and our VC partner to guide you on the business side and ensure your success as a commercial company. In our model you will be able to focus on the science and prove the value of the platform before you are forced to deal with the business aspect of a company. Once you graduate from AION Labs, you will have a network of partners and customers who know and trust your product.

### How is AION Labs different from any other incubator / accelerator?

AION Labs is very different. We are an innovation lab and not an incubator, which means we create companies with our candidates. We focus on AI companies in the drug discovery and development space and our team has expertise in that field. We provide substantial funding to get started (\$2M for 4 years), access to vast private data and to experts and mentors in multiple pharma

companies. The pharma mentors came up with this problem to solve, they will review the applications and be part of the process to select the founders. They will also be your potential customers and this type of relationship ensures a commitment to your success and a product market fit. In addition, AWS will support you on the technology side and our VC will mentor you on the business side and help you with building your business model. Having all partners work together by your side from day 1, is what makes our model different – we remove the roadblocks and set you up for success!

## How is equity distributed between AION Labs and my startup?

The partners who are sponsoring your specific startup (minimum 2) will have direct equity in your startup. AION Labs doesn't have any equity in your company. There are no additional special rights or IP to any of the partners who joined besides equity. The exact equity will be determined based on what you bring with you as you join AION Labs. Our model is flexible, and we promise to be fair. We do not provide specific numbers because it is difficult to setup a one size fits all model. In one scenario, a young and brilliant team can join with just an idea and another scenario is a small company with a technology and even a seed investment. We will negotiate the terms and we promise that our offer will be fair.

## How do I apply for the challenge?

Please apply through the BioMed X platform [here](#). The application requires a proposal for solving the challenge. Even if you don't have one yet, **please register** in the system so we can communicate with you while the challenge is open.

## I am not sure I can come up with a great proposal in the time provided, what should I do?

We don't expect you to solve this complex issue within a few days in a short proposal. We are looking for proposals that show you understand the main issues of this field and demonstrate your creativity. You will have a chance to refine your proposals in our boot camp. Don't miss your opportunity to shine!

## I would love to work in the suggested field but it's not really my field of expertise. Should I apply?

Yes! The key to team success is diversity. Do your best to bring your point of view in the application and go for it.

## I am not sure which role to apply for, Group Leader / Scientist Founder or Postdoctoral Researchers / Scientist Co-Founders. Can you explain the difference?

A startup company will initially have one group lead and two researchers. The group lead is responsible for the startup and the person who will be the leader of the new company. The boot camp winner will be a person who applied for the group lead position. Once the winner is announced, he/she can choose up to 2 co-founders from the boot camp or hire later.

If you wish to lead the startup and have experience beyond a PhD, you should apply as a group lead. However, if you recently completed a MSc or PhD, you have better chances to join a startup team if you apply as a scientist / co-founder.

## Is the boot camp fully paid for by AION Labs?

Yes! If you are among the selected candidates, we will cover all travel costs and take care of everything for you including flights, hotel and local transportation.

## Do I have to attend the boot camp physically or can I participate remotely?

We believe it is extremely important for you to be present in person. It will allow you to meet other people who might be your co-founders in a new startup. You will also have a chance to visit the place where you will live and work for the next 4 years. Therefore, we require all participants to be present physically in Israel, unless there are very unusual circumstances which prevent you from traveling (visa issues, covid restrictions, etc.).

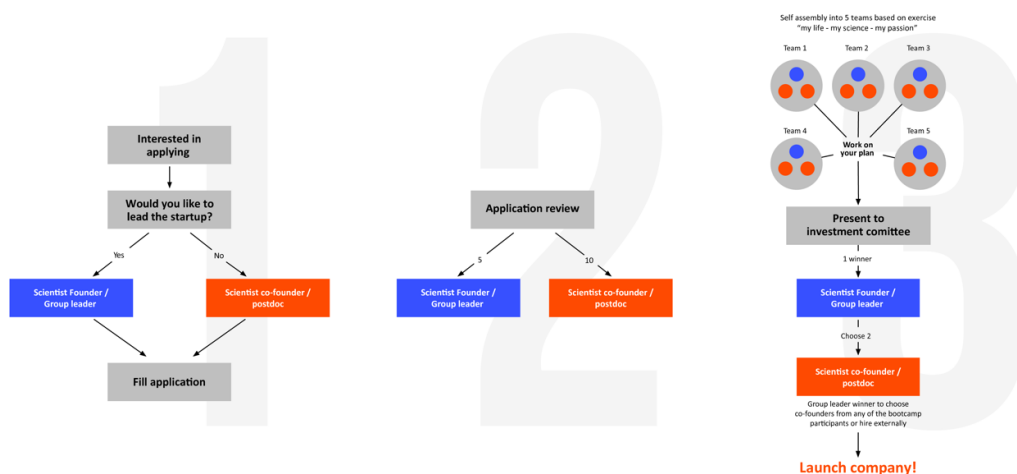
## How many people are invited to the boot camp?

We invite 5 group leader / founder candidates and 10 scientists /co-founder candidates.

## What should I expect in the boot camp?

The boot camp is all about pushing your proposal to the next stage or starting from scratch and creating a completely new one with your team. We will help you to associate in groups of 3 (group leader + 2 researchers) and you will be working intensively on your proposals with close feedback from our mentors. It is a crash course in how to build a scientific work plan. On the 5<sup>th</sup> day, you will present to our investment committee which will select the winning team and plan.

Below is a schematic of how the boot camp works:



## **As a group leader, what happens after I win the boot camp?**

Congratulations! As the winner, we will offer you a contract to start your own company in AION Labs. You will be able to choose up to 2 co-founders from the boot camp who will join you (or hire later). In addition, your startup will receive funding in the amount of at least 500,000 USD per year for a period of up to 4 years, free access to our facilities in Rehovot, 100,000 USD cloud credits from AWS, and continuous support from our experienced mentors.

## **If I win, do I have to relocate to Israel?**

Yes. All our startup teams at AION Labs are required to be present in our innovation lab. The lab is designed in a way that will allow our startup teams to be synergistic when co-localized and this will also be the best way to become part of the Israeli healthcare ecosystem and form strategic partnerships with industry and academia. That said, it doesn't mean that all employees must be local. It will be possible for a startup to hire remotely if needed.

## **I heard that Israel is a very expensive place to live. Will my salary allow me to live comfortably?**

Yes. At AION Labs the budget allocates industry level salaries to all employees. This is important to allow us to compete for local talent and to make sure you can live comfortably and focus on your work. In addition, it is your company, so you can decide what your salary is.

## **Me and my family don't speak Hebrew. Is it easy to communicate with people in English?**

Yes. Almost all Israelis everywhere in the country speak English. You will also be part of a multi-national community at AION Labs where everyone will default to speaking English all the time.

## **What about schools and kindergartens? Are there international schools?**

Once you win the boot camp and decide to move to Israel, our team will assist you and your family with everything you need. There are many international schools in Israel since this is a state that has many immigrants every year from many countries. We will be happy to answer specific questions.

## **Can my company grow beyond the initial team?**

Of course! Like any other company, we will support you in raising additional funds and grow. However, at AION Labs we believe in elegant scientific proof of concept before scaling. You have very strong partners who are by your side and can push you a long way – 4 big pharma companies, AWS as your technology partner and IBF as your VC partner. All of us, including the AION Labs CTO, are committed to your success and we will push you forward in solving the key challenges. If the company is successful, we will all be committed to grow it further.

## **I already have a company in this space – Can I join AION Labs regardless of the specific challenge?**

A company cannot apply to our boot camp challenges. Only people can apply as individuals. That said, we have a second track allowing you to join as a company. We only require that at least 2 of our

*AION Labs Boot Camp FAQ*

partners agree that your company is solving a key problem in our field. Please contact us at [info@aionlabs.com](mailto:info@aionlabs.com) to schedule a meeting.