>> Hello, everybody. My name is Michael Weingarten. I'm the director of the NCI, SCR development center. I want to welcome everybody to today's webinar on the I-Corps NIH program. Before I introduce the others on the panel, I just want to go over a few housekeeping rules.

So during -- over the course of the webinar, if everybody could please submit your questions via the chat box. We're gonna be answering your questions throughout the webinar and we'll also have time at the end of this session for any questions that you might have. Next slide. And today our participants, let me introduce our other panel members. We have Edmund Pendleton, who actually is going to be our lead I-corps instructor. Edmund has been working with us for a couple years now as we've been running the I-Corps program, and he is actually the director of the Washington, D.C. I-Corps node for the National Science Foundation.

We're also joined by Jennifer Nichols, the CEO of a small business called Jan Biotech. And Jennifer actually just went through the very last cohort that we just had on the I-Corps program that just ended a little bit over a month ago. So Jennifer is gonna be sharing some of her personal experiences, in terms of what her team and her company learned by going through the I-Corps program. So you'll be able to get some realtime information.

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Just a little background. I-Corps stands for Innovation Corps, a program developed by

the National Science Foundation back in 2010. They have actually been offering this program to academic teams and they've had over 700 different teams go through the I-Corps program. And they found it to be a very promising model for helping academic teams decide whether to start a company around the technology that they're developing. In this slide here actually it shows a little over a year ago President Obama announced the expansion of the I-Corps program from the National Science Foundation to multiple agencies. We've had the opportunity to actually work with the NSF over the past two and a half years in developing the Innovation Corps and NIH program.

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So what is I-Corps? I think probably the best way to describe I-Corps is it really teaches companies over the course of about a seven or eight week program how to build a business model around the technology that you're developing. So it's an intensive entrepreneurial immersion program and it really helps give you the skills and strategies for how you go about developing your business model and reduce commercialization risk. Really what's different about the I-Corps program, it really focuses on reaching out to customers over the course of the program where you develop and test a series of hypotheses about the technology and a market that you're developing. So over the course of the entire program, each team that will go through the program is expected to get out of the lab and to conduct over 100 different interviews over the whole term of the program. So the format is very focused on experiential learning. So the organizing principle for the I-Corps program is what we called the business model canvas and there are nine components to the business model canvas which we show here. This is really what each of -- the teams that get accepted to the program, how you'll really be organizing and focusing as you move through the program. So if you start with kind of the center piece of the business model canvas we call this the value proposition, this is really the first component that you'll focus on as you get into the program. It identifies what customer problems or needs are you trying to solve or data. What are the features of the technology that you're developing that match those key customer needs or problems?

Another key component that you'll focus very early on is customer segments, really defining, you know, who are we trying to solve a problem or fulfill a need for. Does the value proposition match that specific need? Next, what are the channels to actually reach those customers? In other words, are you going to reach out to the specific customers who might be interested in actually purchasing your product down the line? Areas such as key activities. What is your regulatory strategy around the technology that you're developing, whether it's a drug, device, diagnostic or research tool? Key resources. Particularly important in the life sciences area. What is your reimbursement strategy for your technology, which is gonna be a key component to most of you in terms of how you actually get paid for the technology. Also other areas such as key

partners, all of you know that particularly in the life sciences area, areas such as drug or diagnostics development, the product development time line is many times ten years or month so you're gonna have to form key [Indiscernible] with strategy partners like. So you actually give a lot of thought to identifying who your key partners might be as you're developing your technology.

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As I mentioned, you know, the business model cavern is kind of the organizing principle. You develop a hypotheses for each of those different components of the business model canvas. What you do over the course of the eight weeks is you have a -- you come into the course with what your initial thoughts are on each of those items on the business model canvas and you have a hypothesis for each of those different items. Then over the course of the program on a weekly basis you're going out and you're interviewing 15 or more different customers, and you're either validating or invalidating each of those different hypotheses. And you're modifying your business model canvas on a weekly basis and then you're coming back and sharing that information with all the other teams as well as the instructors that are going through the program.

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So as many of you know, SBIR phase two has two key components, research strategy and commercialization plan. All of you are excellent scientists. What I-Corps really focuses on is the second component, the commercialization strategy and really helps you go through the steps of figuring out and developing all the key components of your commercialization strategy.

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Can you hit it one more time? Thank you.

What is customer development? You're not going out and pitching your product or your technology to a -- trying to create sales. Instead what you're doing is listing to potential customers or other stakeholders and you're really learning what customers' wants and needs are and what the specific pain points are in their daily routines. So you're helping define key features of the technology that you're developing that actually match up with key customer needs and problems that they don't currently have solutions for. We have a total of three cohorts to date and 57 teams that have gone through the program, 57 teams that really cut across the NIH.

As I mentioned earlier, each team that goes through the program is expected to conduct at least 100 different customer interviews. On total there's 57 teams of that actually conducted over 6300 different interviews. We surveyed the companies at the beginning

and midpoint and end of the course. From all 57 teams, we've surveyed them on what their feelings and thoughts are on what they actually got out of the program. And 90% of the teams have rated the program either very good or excellent. And 90% would also recommend I-Corps NIH to other companies.

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Little bit of additional breakdown. I mentioned the nine components to the business model canvas. As you can see most of the teams that come into the program do so with very little knowledge of the business model canvas, all the way from value proposition to customer segments to key activities p.m. by the end of the program, you know, they actually have a great deal of knowledge. So the program has done a very good job at steeping each of the teams in all those different components of the business model canvas.

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One of the things that we didn't quite expect actually from teams entering into the program was that they actually did not have very much knowledge in terms of areas such as medical reimbursement and regulatory strategy. So that was a bit of a surprise, but as you can see from this slide, by the end of the course, all of the -- you know, all the companies that went through the program were actually able to achieve a great deal of knowledge and to advance with their reimbursement and regulatory strategies forward, which is really having a positive impact as they move forward into their phase two SBIRs but also in further development and ultimate commercialization of their technologies?

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And then, finally, we also asked them a series of questions really trying to get at what the ultimate goals of the course were. Number 1, had you adequately assessed your technologies readiness for commercialization? Had you developed a scalable business model? Have you identified and validated the market for the product that you're developing based on the technology? As you can see for each of these different components all the teams that went through the program rated the program very high in moving them along that commercialization path.

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Just one example, this is actually a company, company called Novoron that went through our very first cohort are the I-Corps program. Novoron entered the program and they were developing a new drug to restore function after spinal-cord injury. By going through I-Corps, what they were actually able to learn was that there was not a

lot of interest in the development of early stage spinal-cord injury drugs but instead they were able to define a great deal of interest in drug development for multiple sclerosis. So they actually took the program back in December of 2014. They completed it then. And because of the information they got out of the I-Corps program they were able to then pivot and develop and write a new grant application to the NIH, really going after this new indication, particularly focused on multiple sclerosis. And they were actually able to get a new grant award a year later, focusing on drug development for that indication.

In addition they negotiated -- they're negotiating two different deals with strategy partners. One of those partners is actually out of Korea and they're negotiating two strategic partnerships that have mutual nondisclosure agreements on those. They've also been recognized as one of the top start-ups in the San Diego area.

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For I-Corps NIH this coming yeah, we have a total of 17 participants institutes. So for -- in order for you to be eligible to apply for this program, your entity does have to be participating in the program. And, again, these are all of the institutes that are currently participating.

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The other key is this provides you just sort of the summary details on the NIH administrative supplement that you can now apply for. And to get all the details on this, I encourage you to go up to the NCI SBIR website, which is sbir.cancer.gov and you'll be able to link to the supplemental description right off our home page. Applications for the very first cohort are due November 1. For all applications that are received, it will first go through a written review. And for those that pass the written review by internal NIH folks who are reviewing the applications, you then will go on to the next stage of review, which is actually a phone interview. And we're gonna let folks know if they were selected for award by early January. And then the course will kick off at the beginning of February. And it will go until late March. So about an 8-week time frame. We can accept up to 24 teams into this cohort from across all the different entities that are participating.

In terms of funding levels, we will -- you can apply for up to $50,000 in terms of an administrative supplement. And those are to cover both the registration costs for the course itself as well as the time costs for the team that you put together that goes through the program. As well as your travel and other costs associated with the program.

In order to be eligible for applying, you have to have an active phase one SBIR or STTR grant with one of the participating institutes. The application due date is January 9. That will also go through the same sort of review process and equal -- let's companies that have been selected hoe if they've been selected by mid-March and the class will actually start in late April.

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So that's the summary of the program and.

>> Hi, Michael. We do have a couple questions on here, and as we do get transitioned to Edmund, can you answer for the audience, how does NIH I-Corps differ from the NSF I-Corps program?

>> Thanks very much for that question, Christie. So there are a number of differences between the NSF and the NIH programs. The curriculum is actually quite similar in terms of, you know, the key components of the business model canvas that I discussed. But one of the key differences is that the NSF's program is actually currently focused on academic teams who have not yet made the decision on whether they should start a company. One of the key goals of going through the program by the NSF -- by the NSF teams, it really helps to make a go or no-go decision on whether they've got enough value in terms of the technology they're developing that they should move on to create a company around that technology.

The NIH program is completely focused on SBIR and particularly on, you know -- if there are phase one companies that cut across all these different entities. So that's one key difference. Our participants have already made the decision to start a company and have done so and have applied and received an SBIR award.

The other key component is in the way that the course is taught. We have a combination of people who are experts in the teaching of I-Corps itself as well as domain experts who are coming in to teach the course. So the way we teach the course, we actually have domain expertise in the areas of drug development, diagnostics development, and device development, as well as areas of research tools and additional health. We teach the course with those -- bringing those experts to the table, so that they can really help shepherd the companies that are going through the program.

Okay. So we're gonna go ahead and move on to our next presenter, and let me go ahead and hand it over to Edmund. And, Edmund, please take it away.

>> All right. Thank you very much, Michael. That's a great introduction. And I'll see if I can advance the slides here. I'm gonna try that. Okay. Great. It seems like it's gonna work. Michael gave a great overview. I'm gonna dive in a little deeper and we'll have plenty of time for questions afterwards. I kind of like to frame the discussion by starting with the question why I-Corps. Michael mentioned it, but you may not know that the NSF invests about $7 billion every year into fundamental research and the primary question they were trying to answer which led to this program was the following question. You know, how can we increase the economic impact of these research dollars? We all know that some of it is fundamental science, it may not have commercial potential, but a good deal of it does and fundamentally they were not getting as much of it out into the real world as they want inspected that's why they sort of started the initiative. In fact they looked to Silicon Valley, I like to say if there are any teams on from Kelly, all the cool things start in California and move east, this is no different. They noticed Steve Blank was teaching a very innovative course at Stanford and what made this very different than what had been known to start-ups, it was really developed for engineers at the time and that was a significant change.

Prior to that point, if you wanted to learn how to build a startup, you went to the business school, right? Now we're sending more and more people to the engineering school as we go through this.

Really, this is what led to the I-Corps program at NSF. We often refer to the course itself as the LaunchPad course.

The most important thing, though, I really want to emphasize here is that the course was developed by entrepreneurs and, more importantly, it's taught by entrepreneurs like myself and the other folks that are on the teaching team. We'll talk a lot about our experience when you come into the course.

You may occasionally hear this phrase uttered in the popular press called "lean start-up." I'll point out a lot of what we do comes from that movement. In fact I'd say what we do is really the foundation of that movement but it's a little bit of a misleading phrase because it isn't just for start-ups. I will point out here if you have any interest, there's a couple of very good articles, one by Steve Blank in the "Harvard Business Review," another in "The Economist," and you'll have access do these slides. You can download them later if you'd like. I'd like to focus in on this quote, has nothing to do with I-Corps specifically but I love it from buzz, who said "you promised me mars colonies and instead I got Facebook." We all wanted this and got this instead. I'm a big fan of Facebook by the way but the reason I like to use this analogy is that really it sort of highlights the distinction that we have in I-Corps versus other programs you see out there.

This is the first program. This really is taking these lean start-up principles, the things people think apply to web-based companies and app companies working out of Starbucks, and we've applied them to very complex engineering technology and science-based start-ups. That's one of the things that really makes us different and unique compared to other things that are out there.

Now, kind of the final frontier for us, although it's now old news, but the final frontier for us is really life sciences. There were a lot of questions of whether you could apply this stuff to life sciences because it's a different sort of complex marketplace and multiple marketplaces depending on what you're doing. We'll talk about that. You know does $7 billion and NIH $30 billion. Fundamentally, they were trying to answer the same question. A lot of it spin out into the SBIR program like y'all are involved in and they were looking of course to increase economic impact as well. Just like the NSF folks we believe there's a better way to create start-ups, which is what you all are hopefully going to all apply to be members of, I'm hopeful. If you have any interest in taking a look at some of the blogs Steve Blank has written about it. You can do so here. As Michael mentioned we've done three cohorts to date. We have been a part of all of those, about 60 teams, I think 57 is the precise number.

What we've certainly learned in that short period of time we've been doing it, it's not just about the execution of science, right? You really need to explore these other aspects of building a business. And we really focus a lot on this market and customer risk. These other things are important to you, but we really, really focus on what we call marketing customer risk in the I-Corps program. We really start there as sort of our first principle.

Sorry. Double clicked. Let me go back for a moment. Seems to be a time delay so I apologize for that. We'll just keep moving forward here hopefully.

Okay. There we are. All right. Great.

So why are we really here? Let me give you sort of a quick synopsis of why we do this. Okay?

I'm sorry. I keep seeing somebody's mouse click there.

So our goal is actually to increase your odds for success.

I'll let someone go ahead and click for me. All right? If they don't mind.

I want to point out we're trying to improve your odds for success here. We're not trying to do this. It's a very different thing. A lot of programs you see out there accelerators

and others are really trying to pick winners, right? They're investing in companies they think are gonna return the money that they've put in, but that's not what we do in I-Corps. In fact, if you look at start-ups, they're pretty daunting, you're probably all familiar with these and I don't want to put a bad spin on the rainy day here in D.C. but the reality is most start-ups fail. It's very risky and innovation is a risky business.

What we're trying to do is really create more winners. The reason I like to show this slide is I point out to people I can't totally guarantee your suck cease. I'm just hoping to shift the curb somewhat, right? The reason I bring this up, I want to point out there's no prescriptive formula here. That's not what we're saying. What we are trying to teach you is a methodology that will increase your chances for success and if not in this company, for the next one. That's really important to us. We're very much based on teaching a set of skills, not just worried about a specific outcome as it relates to a current business.

Real quickly, how do we build a up? Couple things we do differently. We use a business model canvas that Michael has gone through but that really isn't the secret sauce. The secret sauce is we use this concept of customer development or customer discovery. What that basically means we send you out of the building really doing three things that we'll dive into. Number 1, we're looking for a problem solution fit, which simply means is there a problem or need in the market that enough people care about. A lot of sciences companies, this is not a big deal because you have a pretty decent idea that there's a patient at the end of whatever you're working on. What you will find out is other players in the environment that might not view the problem or need [Indiscernible] we'll send you out to explore that in the course. The second phase of this concept, is it really a product-market fit. You've identified an opportunity out there. Now the question is can you build a product or service to meet it. That's an entirely different process, right? So we start with the problem first. We move to the solution second. And, finally, we end up here.

It's great if you can find a problem, build a solution for it, but is it a real business there at the end of the day or just a new product idea or perhaps a technology that you need to license to a bigger company? So we do all three of these things in the context of the course. Again, various teams address different points along the trajectory through these things.

So this is our mantra. Get out of the building!

That's the whole concept. Validated facts versus untested guesses, as we like to say, evidence comes from the customer discovery interviews. This is what we call evidence-based entrepreneurship. So real quickly and I'll wrap up and turn it over to Jennifer who is going to be way more interesting than I am. What are you going to do? As I like to say, you're gonna jump in and over eight weeks, as Michael mentioned, you'll

do 100 interviews.

And most people have this feeling in this stomach -- big hole and pit in their stomach, thinking, oh, my gosh, I can't possibly do that. Can I do 15? Maybe 20?

And the real reason is the following. I like to quote a couple start-up gurus, I call them, Richard Feynman, "The first principle is that you must not fool yourself," and yet you're the easiest to fool. Another is from Mike Tyson, "Everyone has a plan until he gets punched in the face."

This going out and talking to people really can be like this experience right here. That's why we're pushing [Indiscernible] in fact we're hoping to help you avoid the top three -- at least the top one start-up mistake, building something no one wants. Why is it especially valuable for life sciences? There's a lot to learn. They're very complex with many stakeholders and the pathways to market are often very lengthy, costly and complex. So we're a big believer that although the start-up risks are generally very high, this NIH I-Corps program can significantly improve your odds for success and we're hopeful you'll join us starting early next year and later in the year if you can't do the first cohort.

I think that's all for me, Michael and Christie, and I'll turn it over to Jennifer.

>> Thanks, Edmund. We'll take more questions afterwards and go straight to Jennifer. Thanks.

>> Thank you. Thank you, Edmund. That was awesome as usual.

Let's see. I think -- do I have control? Not yet.

>> Yes, you do.

>> Okay. So here we are. I'm Jennifer Nichols. The CEO of Jan Biotech. We just finished up our I-Corps program in August. Our company was started in 2013 as an R&D program focused on diagnostics. Like most of the I-Corps participants in our cohort, I think we knew about the minimum viable product concept from books, but we weren't really sure what that meant for us. Our journey through the program I think really helped us focus in on our customer needs and helped us clarify the concept of the minimum viable product and hopefully you'll see that through the presentation. This presentation I'll show you is actually our final presentation of the whole cohort so hopefully you will be inspired to learn some major things for your company. These are actually things we learned. Obviously you'll learn your own things, but I think there was

some really powerful things that we learned through the program.

At the end of it we did have 103 interviews. It was a lot. And it was difficult to do and stressful at times, but it was super useful. Like I said I'm Jennifer, the cofounder. I had with me on my team Dr. Janet Huie, our PI, and I also had Dennis Brown who was our industry expert. He was our industry expert but not in diagnostics, he was in many different industries like software, finance, logistics and very successful, more of our investment and money guy.

So I'll get started with these. We thought we had it all figured out when we came into the program. We thought we would be the new diagnostic standard of determining whether a HIV patient would be able to go off and stay off of therapy. We thought we'd be able to sell millions of units based on the simple idea we were just more sensitive. Our strategy was based on three points initially. We were gonna provide great sensitivity, price it low, and partner with a big pharmaceutical company that would put us at the top of the game. But what we quickly realized was none of this was actually gonna be the case. We started off at UCSF and managed our way over to Harvard and university of Pennsylvania to meet with key leaders who provided us with critical information. This led us to a new R&A target site that would prove essential for improving sensitivity and clearly distinguish our as say from others attempt to go provide the same solution. Initially our assay was set up to test bulk RNA but that doesn't contain significant amounts of genetic data. Through value proposition interviews we were instead guided toward a single cell analysis that would further predict a patient's ability to stay off therapy. Luckily the design changes were easy to implement and were more of enhancements. The design change was [Indiscernible] subsequent customer interviews with pharmaceutical companies as well. Great, we're able to further validate our customer segments and dialed in on new value proposition through interviews with key opinion leaders but were still unsure of how we're actually gonna turn a profit. It is imperative for us to find out if we were -- what we were developing could be priced competitively enough to make money and create a sustainable business. The topic of pricing led us to key interviews with HIV pharmaceutical companies such Merck. It's here we realized no one cared if it was priced low. You have to base your pricing on a cancer therapy model, not continuous treatment. The lifetime value of diagnostics should be condensed into six months or a year. That was super powerful because the diagnostic would be priced according to a short term value, which would allow us to charge up to 15 times more for a single test than previously thought. And that was important because initially we believed that the client was gonna test six times a year and three times a year that was gonna be covered by insurance, perhaps 3% of 1.2 million could receive three tests in a year. So you would expect 2,000,397 in revenue. At $60 a test. For a return on your investment of $32 million at year five. But actually with our new pricing strategy that allows us to charge at least a thousand dollars per test and that quote is based on a value pricing model that's still on the lower end where some of the companies are charging up to

$13,000 per test but at $1,000 per test you could get to $520 million by year five. It takes the typical diagnostic company $3 million to get a research use only diagnostic out into the commercialized world but it takes $125 million to get a clinical diagnostic through FDA. So for a return on a $15 million investment we must exceed $500 million in sales within five to seven years assuming the company values at five to ten times per sale and assuming the investor owns 50% equity. That was pretty exciting stuff.

This type of value pricing increases our company's valuation, allowing us to raise capital with confidence that we can deliver a solid return on investment to our investors by year five.

We thought we could use a big name pharmaceutical company such as Gilead. They wanted an NDA signed before they had the conversation. It actually took the entire full eight weeks. We finally contacted them and had the conversation about how we could possibly partner up. It became clear that we needed more data and credibility before they were going to add us to their clinical studies. There's still a possibility they could be a good partner in the future, but for now it's looking more like they'll remain in the customer segment. It was through our partnership discovery interviews we realized that partnering with Harvard and university of Rochester would give us the ability to achieve our technical goals we have defined through the I-Corps program. So in the end we learned a lot of things through the process but there were three key revelation that's increased our strategy. One that sensitivity isn't enough to create demand and we'd have to hit specific targets and develop a more defined accounting method. Two, low cost is not a driver. In turn we have a new pricing strategy and leverage for new investment. Three, partnering with universities early on rather than pharmaceutical companies would provide us with access to human samples and highly could have coveted human trials. As you can see here this was our business model canvas on day one. Obviously a lot of -- a big mess, lot of things invalidated. But by the end we had this clean slate, focused in view and a really good view on how we were gonna get our product to market and how we're going to finance our product to market.

That's pretty much it for the final presentation that we did. It was a lot of work in eight weeks but it really helped us accelerate the process of getting something to market. We now know who we need to talk torque the interviews that we conducted were straightforward and we built great relationships with these people who are willing to help us. We never believed these people were out there and willing to help you. You'd never believe it. Unless you get out there and actually make the calls and get out of your comfort zone you'd never know it.

So that's pretty much it. Unless people have questions. Does anybody want to add to that? Is there anything missing?

>> Jennifer, thank you for that, and thank you for all our panelists. We do have questions coming in, and this one I will address. I think first to Edmund and then to you, maybe, Jennifer. So the question is why did you not want to execute a nondisclosure agreement with Gilead. For instance maybe you thought this was pretty standard in the industry? I think, Edmund you might have something to say.

>> I'll jump in first and say, in the context of I-Corps, we highly, highly recommend that teams don't do that. The primary reason is, number 1, you're not actually going out and talking about things that are proprietary. What you're trying to to assess are problems and needs. You're not really talking about how your thing works, whatever that thing may be. And hopefully you're not asking them how their stuff works either.

So it will be a little clearer when you come through the course but we say what you're doing in I-Corps is purely customer discovery, not necessarily validating technology.

And the other practical reason is there's just no way to get to 100 interviews if you have to have an NDA for each. There may be cases where an NDA is required. We ask you to postpone that and have that after the course. I'll let Jennifer comment.

>> Yeah. I mean, actually Edmund was in on that question that I had. It was the first couple weeks of the cohort and I said to Edmund, they want an NDA, what am I supposed to do? He said just that. The other thing I did talk to an attorney and the attorney said that, you know, he doesn't recommend it either, especially with a big pharmaceutical company. There's just no way -- NDAs are really open-ended anyway and there's a lot of loophole and the last thing you want to get involved in that early on, talk about material too sensitive that early on.

>> Agree. They're rarely written in your favor as the start-up either. Go ahead.

>> Jennifer, another question I think a lot of people want to know, what have your next steps back since finishing. I think you finished earlier this summer. What are your steps after I-Corps?

>> So, you know, what we've actually accomplished was we wrote the phase two and we, you know, had a really solid commercialization plan and I don't -- I think we would have had a good one to begin with but now it's very clear. It addresses everything they want here and really easy to write, especially since we cut and pasted a lot of things we had learned from the I-Corps program. Probably the most exciting thing was being able to make a partnership with Harvard medical and get in a clinical trial, highly coveted clinical trial that the samples are just very difficult to come by and because of this I-Corps program and starting the conversation so early on, we were able to work out all the details and we were able to add that into our phase two of the proposal, which is I

don't think -- it's very, very hard to do. So we're very excited about that.

>> Jennifer, I'm sorry, we have a lot of questions coming in so I want to make sure we get to all of them.

Regarding the Industry Expert, yours was not part of your company, can you talk about how you secured them and what was the role of the industry expert on your team?

>> Sure. I mean, that was probably the hardest part of getting the whole team together because we did get an outside person, which I have to tell you I believe is very -- it's strategic in the sense that you don't have people -- you're not drinking your own Kool-Aid, right? They're really critical, not critical but, you know, in a good way, telling you maybe you want to think about it this way, maybe not the right thing for you, why do you do it like that? It was useful for us to get somebody from the outside. Securing that person was a little more difficult. This is gonna probably be the -- any team's first shot at getting out of the -- getting out of the building, right? Calling them up, getting out of your comfort zone and asking for something that you're not typically comfortable asking for. So if you can secure your industry expert generally speaking you're gonna do great in the cohort, but there's many ways to do it. I don't -- I think a lot of them had internal people but we actually secured it by giving a small amount of equity as we would to an advisory board member. And so we did put him on the advisory board and then we compensated him with a small a equity. That's how we did it.

>> Great. Thank you for that. This one is for Edmund. How are partners and customers identified for I-Corps? For these potential customer discovery interviews?

>> Great question. And I'll kind of keep it fairly high level. When we say customer, I often say it's the little c version. We'll talk about stakeholders as a more generic term, end users, decision makers, payers and others in the buying organization that you need to understand.

But there are also partners too that you need to understand and partner organizations that have their own set of stakeholders. I'll be honest with you, and I think Jennifer can corroborate this, sometimes the difference between a customer and a partner in the beginning is not so clear. And it's through this discovery process that that hopefully will become clearer to you. So I see it all the time. And companies sometimes switch from thinking someone is a partner to thinking of them more as a customer through the course and vice versa. So it's really through this discovery process, but we do emphasize and want teams to talk to people that are not just customers but also potential partners later on in the course.

>> Thank you. This question is for Michael. Michael, a lot of people are wondering, can

they still be eligible if they're phase one project looks to expire before the February cohort ends? What can we tell those folks?

>> Yeah. So you have to have an active phase one project in order to apply. However, you can work with the IC. If you still have research activities, for example, on the project it's possible you might be able to get a no-cost extension so that your phase one project would still be active over the course of the 8-week program. If you have a specific question along those lines, I invite you to either contact Christie or your entity's point of contact regarding your specific situation. But that's how other companies have been able to handle and prior cohorts.

>> Thanks, Michael. This next question is for Jennifer. Now that you have gone through I-Corps and you finished and got your next steps lined up, when you reflect back, what are some of the key reasons you would recommend that other SBIR companies go through I-Corps?

>> Yeah. I think that -- I think that what it does for you as a company is it -- you know, as scientists, we all -- we have a great grasp on the science of it but not many of us have been through the MBA program. So what it does is, you know, you see, oh, you have to have a business plan. When you go to investors you have to have this big document, this live document that's constantly changing of like a thousand pages of -- all the things that you need to do in your business and it's kind of hard to put all that together. And what this I really felt like did, this business model canvas, kind of puts this thousand page document front and center, right? You can move sticky notes around, erase on a whiteboard and do all this and shift things. Because it is a live document, always changing. But this -- what it also does, allows you to put into a PowerPoint or presentation to your investor or -- I mean, in our case it's investor but whoever, you know, maybe you're just looking for a key personnel to hire on, of why they should join the business, why they should be part of it, and makes you to really focus in and narrow down and be able to explain it in a really clear and concise way.

>> Jennifer, let me jump in and add one quick thing. I wanted to mention to folks that I've not only taught this for NIH SBIR teams but I'm also doing it for NSF teams including 160 that went through a small or short course with me about a month ago. More importantly I've started doing more and more work with corporate clients, and I can tell you they see the value in this too. Some of them are big companies that you would know, products you would recognize. And they realize that, look, even we don't go out and validate sometimes before we start building things that were headed in the right direction. And it sounds obvious but remember Mike Tyson, if you want a quick answer, remember that quote because I think that really summarizes it. And that's enough for me.

>> Go ahead.

>> This next question is probably for Michael. Do the key people on the team have to include the CEO? Can it not include the CEO?

>> It does not require that it includes a CEO. What we do ask is that as part of your three-member team that you have a corporate-level executive or what we call a C-level executive. So someone who has decision-making authority and is high-level management for the company. We certainly recommend that the CEO be the person that goes through the program and is actively involved in doing the customer discovery because we think that's how the company is gonna actually get the most out of it so that the person who is actually making the key decisions for your company actually gets to see customer feedback directly themselves as opposed to getting that information second hand. This is not something that you can kind of outsource out, but the whole goal of the I-Corps program is experiential learning and having the 3-member team actually experience this together, get customer feedback together and be able to pivot on the technology and the strategy directly based on what they learn. And that's why having folks like Jennifer, who is the CEO of her company, actually directly involved in the program I think are so beneficial. And, I don't know, Jennifer you might want to add something on that.

>> Yeah. I think it's important, I think from our standpoint, I think it was really important for us to have key roles. I think a lot of times we think that we're all jack of all trades and that we know everything about everything because, you know, it's your baby and you want to do the right thing so you kind of try to take on all these roles and do everything yourself. But I think it's important for the three roles, basically, to have, you know -- and this is what investors want to see too. They want to see that people are in a role and that they're participating in the way that they're supposed to participate. It just shows good, you know -- a good structure of your company.

The one thing I do want to say is, going into this, I was concerned. All I really cared about was if this was gonna accelerate my go-to-market plan, right? I think it really has. I think that, look, if -- when I asked our industry expert, should we do this? He was like, listen, you got to do it anyway. You're gonna do customer discovery. Why wouldn't you do it when you can get tons of feedback from outside sources that you're never -- if you do this on your own you're gonna get a lot of feedback but you're not gonna get the feedback from industry experts and panelists and people telling you on a daily basis, essential, for eight weeks what you're doing wrong, what you're doing right, what you need to expand on and what you can just leave in the corner. It's really powerful, and if you have the time to devote to it and you do it right, you can really -- you can really go

places and nobody likes to hear that their baby is ugly, but sometimes you just need to hear that, you know, what you're working on isn't exactly what they want. So, sorry, I know I kind of got off topic, but I forgot to add that in on that last part.

>> Thanks, Jennifer.

So I know you just spoke about how, you know -- when you came into this program you felt like you really needed to ask yourself do you have a business model plan. There are some on Q&A boards that wonder if maybe they are too early for the I-Corps program so I'll direct this one to Edmund. For someone who is in SBIR phase one awardee based on developing a proof of concept medical device with no precedent, you know, not sure if it's clear there will be customers or if there will be stakeholders or partners, you know, they haven't really tested whether or not this theory can be turned into reality, is this the type of company that's too early for I-Corps, Edmund?

>> Actually, no. I would say it's kind of the perfect stage. And what I mean by that -- I'll tell you real quickly. I'm running a couple cohorts right now where the starting point is a problem. Meaning they've identified problems in the market they think are there. They have no solution at all for them today. And we send the teams out to, quote, test their problem first to better understand it. So the real short answer is, I think it's perfect timing for such a team. The more challenging teams tend to be those that are already down a certain path and reluctant he's not to give them up although we'll help them if the market says to. That's a great time for somebody to come through I-Corps. The instructors are all accustomed to deal with teams that might be in slightly different starting places. So it's not a problem.

>> Thank you, Edmund. This question is for Michael. Is participation in I-Corps considered when evaluating phase two submissions?

>> I'm sorry, could you repeat that?

>> Is your participation in I-Corps considered as a factor when evaluating phase two SBIR submissions?

>> No, it's not a direct factor. However, what we've learned from talking with a number of the companies of that actually gone through the program, is that it really does help companies with developing a strong commercialization plan around their technology.

So, you know, you certainly see -- you certainly see higher quality because a lot of the -- a lot of the areas that companies are focusing on are very similar to the key components of the commercialization strategy for the phase two. And Jennifer mentioned it herself,

that it really -- you know, going out and having a customer -- the customer interviews, really helped where they were able to put a lot of that data they collected over their customer interviews right into their commercialization strategy in their phase two. So it's not a requirement, but we think it really does help the companies that go through it.

>> Thank you. Here's a question for others, maybe Edmund. Are there any durational requirements for the customer discovery interviews that take place? Do they need to be face-to-face? Can a group interview them or can a focus group be used for the process?

>> Excellent question. In I-Corps we really do emphasize particularly in the beginning that you do these interviews face-to-face because you learn much more from that sort of ability to measure someone's body reaction, when you have a conversation. And we prefer that at least two people from your team go on the interview so that one can focus on asking questions and the other one can focus on taking notes.

Now, that doesn't mean that a group interview might not be helpful, but what we typically find is that can lead to group think so we prefer that you not use focus groups, that you do one-on-one interviews in the beginning. As you continue to gather information, if a focus group or a group setting is the only way to do it, there may be value in trying it. But just keep in mind there could be potential bias that slips in.

So, again, one on one is what we recommend. I mean, I'm sorry in person is what we recommend. If not, if you can do it by Skype or some other means, that's the second best alternative.

>> Thank you. And I think we have one more -- time for one more question before we have to sign off. This is for Michael and Edmund, if you can briefly say what are the key characteristics that you're looking to see in an I-Corps team coming in?

>> Let me jump in for just a sec and then, Edmund, please jump in right after.

So I think probably the most important thing is the commitment from the team, that they really want to get as much as they can out of the program and they're willing to put the time that is really needed to go out and conduct the interviews in order to be successful.

And then to be open-minded. Edmund mentioned that it's really important when you come in not to be totally wedded to a certain path and where you're attached to that and you're not willing to change based on what you learned because otherwise the program will be just you trying to validate what you think you already know, whereas

when most go through this program they actually realize they don't -- that there's a lot that they don't know and it -- and they pivot based on the new learnings they get. So I would say commitment, being able to, you know, to commit the time is clearly key. And then being open to the learnings that you achieve through the program and then pivoting based on those learnings.

>> Michael, I don't have a lot to add. I will double down and say from an standpoint, if I have a team committed to the process, I don't care where they are, early or late stage they are. I don't really think too much about their technology or ultimate product opportunity. What I focus on is teaching a set of skills. I'm very proud of what Jennifer and her team has done in this course but the reality is I'm hopeful she'll continue to use what we taught in many, many years to come and I'm quite sure she'll be successful if not in this start-up she will be in a future one. So that's our goal and we're looking for committed teams and that's pretty much it.

>> Great. I just want to take this time. I know we're near the end. I want to thank very much CEO Jennifer Nichols from Jan Biotech for being on this panel with us today. I also want to thank Edmund, our lead instructor and all of you on the line for sticking with us, on behalf of Michael Weingarten and myself, thank you for attending today's webinar. We will make the slides available afterwards, as well as a transcript, anyone who has registered for the event, even if you didn't get to join us today, your friends and neighbors will get links to the materials afterwards. If you have any questions following this, please feel free to reach out if you check out our funding opportunity announcement. My contact info is listed. Again, this is Christie Canaria, it is Christie.canaria@nih.gov.

Thanks again. We look forward to having your applications come in. Bye-bye