

Transitions to Small Business Development Panel Discussion

Tuesday, December 6, 2022

Session Transcript:

>> Stephanie Fertig: Welcome back everyone again my name is Stephanie Fertig, and I'm the HHS Small Business program lead here at NIH. this next panel is certainly near and dear to my heart as we will be discussing transitions to small businesses. I am happy now to turn it over to the moderator Allison Hubble

>> Allison Hubel: Thank you very much Stephanie. I'll start by just a brief introduction of myself. my name is Allison Hubble I'm a faculty at the University of Minnesota. I am one of the Co-PIs on the MN-REACH Hub that was here at the University of Minnesota from the 2015 cohorts, and I'm a founder and CSO of Evia bio and we just won the walleye tank business plan competition on Friday so, we're riding high. Anyway, it's my honor to start the process of having the wonderful members of this panel describe their entrepreneurial journeys in a certain extent. So, I have a question for you folks. First please introduce yourself. Give us a very brief description of your technology, and a little bit of something about the Proof Of Concept center that you interacted with and provided you. with funding and or support. so, Tracy why don't you start us off.

>> Traci Lyons: Sure, can you guys hear me? Okay, hi my name is Tracy Lyons I'm a faculty member at the University of Colorado Anschutz Medical Campus. I'm an associate professor in the department of medicine and the division of medical oncology. I have recently developed a novel monoclonal antibody to treat breast cancer patients and my technology was supported by funds from our SPARK|REACH program here at the University.

>> Arash Kheradvar: Good afternoon, everyone my name is Arash Kheradvar. I'm a professor of biomedical engineering and medicine at the University of California Irvine. My lab is focused mainly on technologies related to structural heart diseases and in cardiac imaging. I'm also the founder of Valvention Inc which is a company that develops multiple products which is a transcatheter aortic valve it transcatheter mitral valve and minimally invasive cardiac support system.

>> Steve Soper: Yes, hello everyone it's nice to at least be with you today if not in person. My name is Steve Soper and I'm sorry part of my byline was omitted from the lead slide, I am a foundation distinguished professor at the University of Kansas in biomedical engineering, and our work focuses on developing diagnostics for a lot of different diseases, mainly cancer-related diseases, but our Proof Of Concept project was basically funded through the RADx redirect

program and we had developed and conceived of an idea for at-home tests for COVID-19 that basically used saliva as the input, and then tested for viral particles in particular SARS-CoV-2 from saliva. Now that tool is being repurposed for a variety of other application scenarios so thank you.

>>Allison Hubel: Well, that was great. It was wonderful for the community here online to get a sense about you and a little bit about your history. I've got a few more questions that I would like to ask I would also like to have the audience feel free to enter any questions they may have into the chat. Hopefully as we continue down this journey there will be some questions that some of you will want to ask this very distinguished panel. So, I'll move on to the second question. Was there aha moment for you when you realize that this was something that should be commercialized? It may not have been a single moment it may have been a series of moments. And we'll go in reverse order this time Steve do you want to jump on first?

>> Steve Soper: Absolutely, so the aha moment well I think we all are very familiar with that. in March of 2020 my university as well I'm sure a lot of your universities shut down so we couldn't meet in person, and what we decided to do was to do some brainstorming on tests or technologies that we could develop that would address the pandemic issue in particular testing at home or point of care testing. And what we did is we repurposed a lot of our technology that we had developed as part of our NIH-funded biotechnology resource center, specifically for a COVID-19 detection. So, a lot of work went into this with brainstorming through zoom sessions believe it or not, because we were quarantined at the time. And what has happened now with this technology is that COVID is still important for testing, in addition RSV and other influenza viruses, so we've tested this technology with those targets and have very successful results. Now this technology is being commercialized by a company I founded in 2011, and that is BioFluidica, that's stationed in in San Diego. And the IP has been generated around all this technology. see where writing papers writing grants doing the work eventually, we got back in person to do the work in mass conditions and then trying to market the technology as well.

>> Allison Hubel: Yeah, nothing like a real hard example of necessity being the mother of invention. Yeah, and the COVID pandemic basically motivated the commercialization of the technology and bringing it into the marketplace. Yeah, it'd be very interesting to do kind of a retrospective analysis of what kind of company creation resulted from this event interesting, anyway Arash are you willing to share a little bit about your aha moment?

>> Arash Kheradvar: Sure, my approach is a little bit different, so I basically didn't have that classic aha moment in my research. So, my lab is focused on clinical unmet need coming back from my background in medicine, we focus on unmet needs and then in order to solve that sometimes you must deep down into the very basic science and sometimes you need to do that like some type of more translational work. So I know that most university labs are basic science research and then you know there's an aha moment someone says or they think that oh you know this particular song piece of science can have a major application like for example in multiple things in the Covid situation, or lab as I said is very different so we are we already have few projects in the lab that we are working toward that, and you know obviously you have to

develop the infrastructure for that the basic science for that but then you know when we get to the level that we think that it has enough it has produced enough preliminary results that can be you know first of all I'm more comfortable on the results that I can now and ask for investment so that's the time that you know I would try to get into the commercialization and try to spin it off into a company.

>> Allison Hubel: So, I think that's that that is a wonderful story because different there's going to be different paths through commercialization and different motivations Steve is a classic example of a very acute need you however have gone through and used your training to kind of frame your entire research program around meeting unmet clinical needs. So, I can the differences in those paths are important and yet it maybe it will provoke people to think about all kinds of different other motivating factors, Tracy do you want to pipe in here?

>> Traci Lyons: Sure, absolutely so you know my lab has been studying what we call postpartum breast cancer for over a decade. And these are particularly nasty breast cancers that are diagnosed in women who have recently had children, many of these patients are my friends and my peers, and so I've been very motivated to try to figure out a better way to improve survival rates for these women who are three more three times more likely to develop breast cancer or to develop breast cancer metastases within five years of their diagnoses. So, about three years ago along with one of my colleagues we had designed a peptide, that we were hoping would generate novel monoclonal antibodies in a mouse. That would target the particular signaling pathway that we were interested in and just prior to the shutdown actually we got our first batch of purified antibody three Decembers ago I guess, and I had my graduate student put some tumors into mice and then use the antibody to treat those tumors and within four treatments and the animals were tumor free completely, and we removed the treatment for then a period of 45 days they did not have any recurrence of their mammary cancer and actually, when we re-challenged them with a new tumor challenge they did not get a tumor. And so that was my the best Christmas present ever and that was when my clinical collaborator Dr Virginia Borges said to me you may just have the next her too and so that was like the big moment and that I decided that we really needed to do something so through the SPARK|REACH program I was introduced to um a Serial entrepreneur who became very interested in the technology we licensed the technology I Co-Founded a company called Perla Therapeutics with him as the CEO and we are hopefully going to be fully financed by the 20th.

>> Allison Hubel: Champagne for everybody right, yes so what we're seeing here is kind of a Balance, everybody here has talked about an unmet clinical need I mean some of it is driven by personal experience knowing people who've developed cancer. Others of it's your life work related to your clinical interest and in others it's a pandemic. That everyone oh I shouldn't say everyone a lot of people have been predicting for a long time that finally came. So, there's always this balance between clinical need unmet clinical need and the technology that can address that clinical need. And so, both of those elements seem to need to be present for that aha moment to take place, so now we're going to talk about some fun things, right fun because we all know you're far enough along in this journey that you've put in a lot of late nights, and a lot of hard work. And so, my third question and once again we are soliciting any kind of input

from the audience is innovation is a path and not a destination. I'd like each of you to talk about resources that you took advantage of, during critical points down your path of innovation toward the marketplace. And please try to look at a mix of resources that you may have taken advantage of in both at your university or your home ecosystem and then more broadly out in the community, so Arash we haven't made you go first yet and so it's your turn.

>> Arash Kheradvar: Sure, obviously as you said it's a journey not a destination. And you should enjoy the journey because you know of destination comes very randomly, you have not much control over that it's important that you accomplish the journey to the best that you can. And you know there's always a lot of good, unexpected that's coming like as the Tracy just mentioned, so yeah that's very true I have been fortunate that UC Irvine has generally very much supportive of innovation. We do have UCI applied Innovation Institute that they are very focused on multiple aspects of innovation and there is a real value at UCI, if you can translate that technology like a science into technology that can be commercialized. So, I have been personally very fortunate, and generally University of California as you know every year the number of invention disclosure you know forever it has been the number one in the whole US so I've been fortunate in that environment but I know that there are a lot of smaller schools that you know this culture has not evolved yet, you know because of financial issues or because of you know more traditional way of looking into the science. So, yeah that's my experience and then the other thing is that like UCI is in Orange County you know it's a hub of startup companies on different grounds you know we wish we had more VCs around us like in San Francisco, New York or Boston. But we still have a lot of companies a small and large and medium-sized that you know basically accentuates this atmosphere of innovation around us. Tracy it's your turn.

>> Traci Lyons: Okay, great so I have been lucky to have the full support of the SPARK|REACH program here at the University it has absolutely been crucial for me being able to do this. I scientists don't know how to talk to finance people and finance people don't know how to talk to science people, and then just the sheer number of acronyms that you have to figure out and so I have a whole team of SPARK advisors we meet just like this once a month, and talk over what's going on what's coming next our CU Innovations office has been extraordinarily helpful in making helping me to understand you know contract negotiations what to what to ask or what to not ask for. I think one of the biggest things I've learned is to ask, no matter what it is if somebody uses this acronym, and you feel stupid because you don't know what it is just finally say what is an IND I have no idea what you're talking about out. Rick Duke and Claire McDonald head up our SPARK|REACH program and they have been crucial to our success in making this happen, in not only by introducing us to the right people. But just teaching us this process and it's been very challenging, but it's been fun to learn the business side of things. So, I've really enjoyed that and other members of the community who have done this have reached out to me and helped me as well we've also received some support from the American Cancer society's mission boost program which is similar in its goal to commercialize successes in the lab.

>> Steve Soper: Great thank you, let me say this we're all three professors starting a business is not easy endeavor and it's never done by one person I don't know what else to say and what that kind of leads me into all the people that really were instrumental in helping me bring this forward. And let me start with just like Tracy said her SPARK group I why we had money from the RADx program I was it was administered through and I'm going to make sure I say this right the Midwest Biomedical Accelerator Consortium out of the University of Missouri and I had weekly meetings during the pandemic while we were developing this technology with Steve Wolpe. Who's at the NIH who was it I think he's still at the NIH Jaya gosh from the University of Missouri and Bill Turpin from the University of Missouri, and not only did they give me technical hints on what was important especially Steve Wolpe in the Covid- 19 domain, but then also connections so we have we talked at a couple venture forums about the technology and raised quite a hoopla. I must say, and that kind of got us going and it reinvigorated the company that I found in 2011. that was kind of having troubles because of the pandemic as a lot of companies were but the CEO of the company Ralph Mueller kind of put his faith in me. let's bring this technology forward and getting it going, so this technology that that I'm touting didn't just start out of the blue it was filled off technology that we had been working on for several years. So, for example this biotechnology resource center that I'm I have been directing for the last five years, funded by the NIH the foundation a lot of that technology and then the infrastructure to build the devices that we were going to put out onto the marketplace for Covid- 19 was built by that grant, as well as the University of Kansas and my colleagues at UNC Chapel Hill and Louisiana State University as well. And then my colleagues too at those two universities helping me with new ideas how to build things quickly to get them to market the Proof Of Concept and then technologies only work as good as the answers they provide. And that's the way that's treated at least from the biomedical community is having access to clinical samples to test the technology under different clinical scenarios. And I had a colleague I have a colleague at KUMC Andy Godwin, who went out he was doing a lot of broad scale COVID testing in the span of a week. He was able to secure 500 saliva samples for me. We could test the technology to push it forward for an EUA approval through the FDA. So, we also had advisors from the FDA helping us. Oh my gosh, I could go on and on and on you know writing the patents getting those through our technology transfer office quickly and efficiently was another important linchpin in all of this, and making this happen over during the COVID period was not an easy endeavor because most of this was done through zoom and now it seems kind of commonplace to do zoom, but not at the time even when we got in the lab the students had to go through a lot of different precautions, like wearing masks and social distancing in order to get back into the lab and they actually rose to the occasion, and got a lot of the data that we needed to move things forward so that's kind of my little Spiel on that. Oh let me say one more thing Allison, before we quit yet this is a platform technology now testing demands for COVID is going down and you got to ride the different clinical needs as Arash said and what we're doing now is repurposing this technology for different application scenarios and one is the early detection of a variety of cancers in particular we're working on ovarian cancer right now using blood-based testing for the early detection of that disease.

>> Allison Hubel: So, these are just awesome nuggets of wisdom that you have gained. And if I were to kind of summarize this, at least through the lens of my experiences is one of the

hardest lessons for me were to realize to know what I don't know okay and if I don't know a quality system that I need to do in my business. I need to find someone to help me with that and so one of the things that these Proof Of Concept centers do is help connect you to those mentors those people who know the thing you don't know, and can help you move forward the other thing I have learned is when you are done networking you go back and you network some more. So, it would be great if everybody could comment a little bit on how and we do have another question in the chat, Jaya I will get to it. It's a wonderful question but I want one follow-up before we switch gears a bit it'd be great if you could talk about the strategies that you employed to expand your network to connect with those mentors that helped you move forward so why we don't we go back to Tracy again.

>>Traci Lyons: Yeah, I think you know my best comment for that is persistence and I have been wanting to make this technology since I first established my own lab in 2015. And I had so many people tell me that it's too hard, it's not possible, it's not going to work, and so I really sought out people who had experience at the university in tech transfer and developing novel therapeutics. And so, I was just lucky that we had the SPARK|REACH program. And that I could seek out those people at the university, and I mean I must credit them because beyond that I feel like that's all I did. And then once that got rolling, they introduced me to all the right people they found you know someone to finance the company and so I really must give them credit but also just say if people tell you no push back and say you know I'm I think this could work and go for it, if you really believe in it.

>>Arash Kheradvar: Yes, I fully agree with Tracy, my experience has been a little bit different as well given that the research that I'm working on our old class three devices so it adds another order of magnitude of difficulties, because in the lab you know it's so for medical devices you really need to in like from the beginning intend to develop those you know there's it's not that you're working on a particular science and then you know an idea of medical device comes to you that would be very rare you usually first focus on okay this device is needed and if that device is going to be developed it will help that number of patients and that number of patients is quite important because it generates the market of interest and that's very important to the eyes of the investors so and then when you have that moment or to understand that okay there is absolutely no solution in that then you must start thinking of the difficulty of designing you need to know the anatomy physiology that cellular problems everything you need to consider, then you develop a first prototype you put it into some in vitro testing it fails, and then you have to go back and change and come back and then now it it's okay, then next step will be the large animal, you go to the large animal you know there's sophistication to that so a hard drive that we implant you know it involves like 15 people view in the cat lab, for example we do have the interventionalists, we do have Imaging people, we need to have ultrasound, you need to have a cat lab you need to have all those stuff and they cost a lot of money, a lot of efforts then you get through that you go you do the acute animal study. Then you know chronic animal study, sometimes your animal dies not because of your technology because something just went wrong completely Irrelevant to your technology. So, these are like a system approach requires a lot of patience, perseverance and you know the fact that you know kind of be positive all the time although you know there are a lot of negativities around you. And I think

that's kind of the secret sauce to the success is to stay there, and then in order to do that you need to enjoy the journey until the success comes to you. So, that's kind of my experience in general on the device like a class three devices which are I think very difficult, then like a class one or even sometimes an Imaging modality that we also work on Imaging modalities as well.

>>Allison Hubel: So, it sounds like if I'm kind of summarizing this, that when you must go through all these series of hurdles you need whoever is the expert in that to be part of your team and help you get over that hurdle. So, it's almost like a continual process of networking because you're developing the team you need for your small animal, and that may need to vary from the large animal and that may need to vary from somebody who's capable of submitting the IDE right.

>>Arash Kheradvar: Absolutely, just to clarify like just a couple of weeks ago we had an animal we were implanting some growth accommodating pulmonary valve for young children in in some mini-Pigs or baby Pigs, basically Piglets. And so, like I asked my networks in Canon USA. Who they brought their team and their machine to do the Echocardiography you know we had a cat lab from Phoenix, and I had the physicians and the nurses from Children Hospital of Orange County. I had my team, and we did have some other some we had a couple of Veterinary surgeons, another one doing the anesthesia. So, it's a major teamwork and you know you must work with everyone and if every one of these elements fails the whole experiment fails, regardless of how good of a device you do have known if the anesthesia fails for whatever reason you're done that experiment is done.

>>Allison Hubel: So, Arash I know how fraud it must be and Steve you're an in vitro diagnostic. So that's another challenging area in which the nature of the network is critical, and you had the pressure of a pandemic, making you compress the time frame. So, if you can talk about that a bit and we're getting increasing numbers of questions in the chat, so we got some stuff to get through.

>>Steve Soper: Okay, I will make this short, but in terms of networking know who to network with. Do not try to be go beyond what you're capable of doing so for example of well all three of us are academicians of some sort I like to talk to technology. I go to meetings I talk to people both researchers and people and businesses about what we're doing from a technical perspective, but that's only half the battle the rest of it is to talk about the business proposition and that I'm not capable of doing I can't do that so the CEO of our company he does that, he talks about okay this is great technology but what are we going to get out of it from a business perspective. Are we covered with the IP he goes to meetings like JP Morgan, which I just found out about several years ago I didn't know about such a meeting because I don't go to those meetings so I think that's what my take-home message on that would be it's great to have an expanded network but make sure you know who your network with, and that you're capable of effectively networking with them and don't be afraid to pass off some of this adventure to people who are probably more capable to do that.

>>Allison Hubel: And you know as scientists and engineers, it's not part of our training to do the networking so this is something that really pulls us out of our comfort zone. But it's extremely critical and the Proof Of Concept centers can help you by help connect you to that greater network. And therefore grease the wheels for you moving forward so Jaya has waited very patiently so I'm going to read her question for early career scientists what best practices / mindsets would you recommend so that they can be better prepared to seek out the unmet medical needs and intentionally develop technologies to meet those needs? so is there anybody willing to.

>>Steve Soper: I'll start, Hi Jaya, so for early career scientists, I got a couple things to say about that be very careful about what discipline you're in, and promotion and tenure considerations many times translational or commercial related endeavors may hurt your promotion and 10-year process. Believe it or not, and some disciplines it's much more of a giving endeavor for this commercialization process like writing SBIR grants, writing patents, and I've seen a lot of big difference between those two. And so that's for people who are pre that are not tenured yet but those that are beyond tenure and are still moving up the ladder what I would say is don't be afraid to do translational work. I mean if at least in the basic sciences, it's kind of built on fundamental work and you know NSF for example, but you can balance both of those translational and fundamental research basic research work. And I would encourage you to do that and look into that the other thing I would say too is don't think that you know what should or should not be patented. I've talked to a lot of people and they say that I can't patent this, yeah but again as scientists and engineers that's not our forte we don't know that I would say take it to your technology transfer office they have the resources to decide what should or shouldn't be patented, and if you are thinking about starting a business patenting is the first step that you want to do, and you can do that at the proposal writing stage you can submit your proposals as the foundation for either a provisional or a full patent application. So I'll stop there let the other people add something.

>>Allison Hubel: So, once again just to refocus we're talking about how an early career scientist, can seek out those unmet medical needs an intentionally develop something that could have a therapeutic effect?

>>Arash Kheradvar: If I may continue, you know I do have a different perspective than a Steve. So when I started as an assistant professor my goal was not to get my tenure, I believe me I never even thought about it until the six months before like I got it. My goal was to be impactful, I didn't mind to even have to leave academia if I had to but my goal for those years was to be impactful and that's what I didn't believe me tenure just came with an acceleration without even thinking about it. So, I would suggest and I cannot recommend I always suggest because everybody has a different a story and an experience so my suggest the way what works for me is I was always just focused on the impact and what I agree with Steve is for every everything that I was going to publish that I thought it has some application, I would first submit it as a patent in the background and when I have the provisional stamped with USPTO then I would submit that paper. This is you know so, in my lab every couple of months at least we have one provisional submitting, and then every now and then few of those are combined

into one patent, so I started that as a rule you know from the very first day of my career as an academics and you know it worked for me.

>>Allison Hubel: So, Tracy don't want to cut you off, but we do have some questions from David and their insightful questions so let's he's getting down to the nitty-gritty here, I'm going to combine a couple of his questions together, when the best time is to bring in a sponsor during a phase one or a phase two grant in other words SBIR I'm assuming. And his follow-up question to that is how many times where you turned down from NIH funding? and I'm assuming this is not related to RO1 research but rather your commercialization of funding so does anyone want to jump in on that I I'm also happy to tell you how many times I'm rejected so.

>>Traci Lyons: I can speak quickly just to say that my REACH application was funded on the second try, my Mission Boost Grant was funded on the second try, my first SBIR just got reviewed. It will not be funded um and I think I did things a bit unconventionally, because I had the sponsor I knew through a mutual colleague, and he was actively seeking new technologies. And so he came in early, I think it's probably more traditional to get the sponsor a little bit later not like when you have the first experiment done showing that this works but I'd be interested to hear what the others think.

>>Arash Kheradvar: I was just looking into how many grants I've submitted over 200 grants in the team in 15 years that I have been in academics. And you know I have raised about 20 million dollars, in total with RO1 and others you know I think every 45 days I put a grant in since 2007 that I started my career. I still do that like this past couple of months I had to submit 8 grants, was difficult honestly these past 60 days. But you know sometimes happen so I think in order to have the pipeline of innovation there you have to be doing it there's no time that you can just sit and relax, you know and that's why I think we all agree on that you should enjoy the journey because that's the reality, and then one other thing just that in the previous question, so I think the academic entrepreneurs should be a CEO a CTO a CSO a CFO. Not you know getting paid as all those positions but you need to be there even if you do have a business partner. You know I can tell you so many stories of the CEOs not doing the best as they should I personally had a very bad experience with the CEO that I had. And you know it would basically ruin the whole technology that could have been sold for 50 million dollars, so I learned to basically also learn about their skills, because obviously you need to have them you need to have a great one, but you also need to double check some of things or basically have a vision there's no way that you can always say oh because you say that I agree, I think that's that was my experience at least.

>>Steve Soper: Yes, let me I always like to give you a little bit of a person perspective on things. And my comment would be for all these all of you who are academicians don't think you can write an SBIR grant by yourself, they have a little bit different format and I think Tracy will tell you that phase one maybe not so but phase two you have we've had with Bioflitica we've had great success with SBIR grants, and the reason for that is it's very simple we've hired a firm that's really specialized in writing SBR grants to help us. And their success rate was high so again bringing people who know how to write an SBIR grant they are not like RO1 grants I'll tell

you that right now, it was beneficial to get that to move forward and yeah, I know you might have further questions on that but yeah that's kind of my little two bits on that. So we can move forward I see there's still a couple more questions we may want to try to get to. Oh we did we kind of addressed them they were from David so, well let me just let me just add one to build on what Arash said I think this is very important, when to bring on a CEO for a company? I can tell you right now I've had experience in doing this both one way and the other. The best Proof Of Concept data on the technology you're touting for commercialization I think is critical, after that it makes sense to bring on a CEO to help you move that forward in terms of funding and commercialization. I've tried it with help getting a CEO early on for a Proof Of Concept data was collected fundraising was difficult, if not impossible, not just from SBIR but other venues as well Angel funds and VCs so it's that's not always true but boy that in my experience be careful when you bring on a CEO that it may or may not be successful and be very selective too. Those people are critical they're just as important as the mind behind the technology wow you got to work with them too that is the inventor and the CEO, you got to be thinking on the same page as well.

>>Allison Hubel: So, we have one last question, because we're getting close to the end, and it's meant for Arash. Many of the translational product development funds come with tight milestones and budget use restrictions? what is the distribution of translational grant proposals versus hypothesis-driven research grants that you have submitted? what would you say to those academic researchers who think applying for product development grants is a lot of work and funding is tied to deliverables?

>>Arash Kheradvar: I would say 50% were hypothesis-based 50% were kind of development based, you know you could submit a translational grant that is also still hypothesis based overall I think in the past five years the vision of NIH has changed more toward the translation. I remember in 2011, 2010 you know it was very difficult for a developmental grant or a clinical unmet need to get good reviews from the panels. Right now there are several panels in NIH that are focused on translation even at the RO1 R21 ones you know not just the SBIR, so I think it's just a matter of like kind of try you know and don't give up. That's the most important thing I would say I do have a philosophy that you know if you don't apply 100% you won't get it. If you apply there is a potential that the randomness helps you but obviously you know it depends on who are the 3 people who are looking into your grants, and you know who are competing with you on that same day, which you know it's 85% of the chance that you may get it funded or not. So, you shouldn't take it on your side and say oh you know I got this this is horrible no you shouldn't look at it that way. At least I want you know I said okay you know I'm happy that I had the opportunity to get some three people opinion I may not agree with none or I may agree with some, but you know the most important thing is to learn from there from that, take those negative points as the challenges as opportunities to improve and then resubmit and you know if you are if you have the perseverance to kind of stay on like against the road, and against their negativity, at some point good stuff going to happen.

>>Allison Hubel: So, I would like to thank all the panelists for their great contributions to this day's meetings. If somebody wants to reach out David had another question, but we've run out

of time, and I want to keep Stephanie happy, got to keep Stephanie happy. And so thanks to all of you and it's been my honor to serve with you.

>>Arash Kheradvar: Thank you very much, it was really a pleasure and if anybody from the audience would like to like to have a different conversation later, you know I will be very happy you know just looking to just Google my name you know my contact information coming and you know I would be happy to help as much as I can.