John Dobak

Interview conducted by

Matthew Shindell, Historian

August 26, 2008

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John Dobak

Dr. John D. Dobak, M.D. founded Innercool Therapies Inc. in 1998 and serves as its President and Chief Executive Officer. Dr. Dobak is the Founder of the JAKK Group, and serves as its President. He is a Co-inventor of Innercool's technology. He founded Lithera, Inc. in 2007, and served as its Chief Executive Officer until March 21, 2011. Dr. Dobak was Founder of CryoGen Inc. and served as its President and Vice President of Research & Development. He founded Leptos Biomedical Inc. in 2002 and serves as Consultant. Dr. Dobak serves as a Director of INNERCOOL therapies, Inc. Leptos Biomedical, Inc., and Lithera, Inc. Dr. Dobak received his M.D. from the University of California, San Diego, and completed a medical internship at the University of California, Los Angeles. He received a Bachelor's Degree from UCLA.

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THE SAN DIEGO TECHNOLOGY ARCHIVE

INTERVIEWEE: **John Dobak**

INTERVIEWER: **Matthew Shindell, Historian**

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SHINDELL: So, today is August 26. This is an interview with John Dobak. The interviewer is Matthew Shindell. So, John, if you'll go back as far as you like. If you could tell us how you got involved in San Diego biotech?

DOBAK: Sure. So, I started out, I was at UCLA and I was a biology major. I had an interest in going to medical school and I had an interest in being a surgeon, and applied, like all undergraduates, to a lot of different medical schools and got into a couple, but decided that San Diego would be the best choice for me, in particular the surf was a big attraction. And so, I came down here from UCLA and started medical school.

SHINDELL: What year was that?

DOBAK: That was in 1988. I was a gung-ho medical student and ready to learn all about being a doctor. And, the first two years of medical school are spent primarily on the main campus there at UCSD, in classes, and they're didactic sessions. And, at one point I think CONNECT, the CONNECT Program, which was a big part of sort of the growth of the high-tech community here in San Diego, it had been around for a few years and I had kept hearing about it peripherally that they had some interesting talks by researchers and, and business people in San Diego, and that I ought to attend one of these. And, of course, we got in free because we were medical students and I remember that I went to a discussion. This was probably in 1989 and it was really sort of a heyday of biotechnology. I think there was a big IPO boom at the time, or there was a lot of financing pouring into the area and I, they had a program called Meet the Researchers, which paired a businessperson with a scientific person and they talked about how they took a technology and formed a company around it. At the first program I attended, one of the speakers was Ted Greene. I can't, unfortunately, remember who the researcher was at the time. But, they were talking in general

about starting companies. I think at the time Ted Greene was investing out of a fund, a venture capital fund he had formed called BioQuest. And, I thought their story was terrific. I thought it was a great combination of science, and medicine, and business, and I got very intrigued. And, I guess that was sort of my first exposure to the entrepreneurial world and the biotech world in San Diego, and it obviously stuck with me, that experience at that CONNECT Program. As I progressed through medical school, I attended additional CONNECT events and these were big, big soirées at the time, where, two, three, four hundred people would, would show up and everybody was having a good time, and full of hope and having fun with being a part of the cutting edge. It just looked like a fun place to be and, and so at some point in medical school I started thinking about, "How could I be an entrepreneur? Is that a career path for me?" But, it's pretty hard as a medical student to really change the course you're on. I mean, you get in medical school it's sort of like you're stepping on a, I always said it was like stepping onto a freight train [Laugh] and you're going to go from Point A to Point B. There's really nothing that can stop you. And, Point A is the start of medical school. Point B is the completion of a residency or a fellowship. And that's, anywhere from eight years of your life, and probably, could be as many as ten. And to, to slow that train down would be impossible. You're looking at the jump from the train to change your life's course at that point. So, I sort of entertained the idea that maybe I'd be an entrepreneur but I don't know that I really took it seriously. But I started looking at things a little differently. I started thinking, you know, "Where would new technologies be useful? What were problems that could be solved?" And, I was trying to familiarize myself with how people went about starting companies, and protecting ideas, and intellectual property, etcetera. I went in to medical school thinking I was supposed to be a surgeon and I think my family all had expected me to be a surgeon, and I did a surgical rotation and I wasn't quite sure, to say the least, with every other night call, that that was going to be the right path for me. So, on top of trying to divert off this course of traditional medical practice I also had to explain to my family that I was not going to be a surgeon. My mother and my grandfather were probably the most heartbroken about that. But anyway . . .

SHINDELL: Were there a lot of doctors in your family? Were you following in anyone's footsteps? Or . . .

DOBAK: Didn't have any doctors in my family. My sister was interested in medicine. She became a nurse and then got her master's in public health and went into the administrative side of things. But, my grandfather's father was a physician and I think

at one point my grandfather wanted to be a physician but I think World War II got in the way of that. And so, he had big hopes and expectations. I think for me, in terms of being a, a physician, I ultimately finished medical school and got my MD and my license and all that. But, but at some point I had an epiphany that, you know, I was, actually I can remember it very clearly. I was up at Stanford. I was doing an externship in neurology. I had gone so far as to convince myself that I was going to be a head and neck surgeon. I had applied to numerous head and neck residency programs. I had interviewed at some. And, the match was going to occur within a month or two. The match is a big process for medical students. It determines where you're going to go to your residency. And, I was staying at this huge house on Palo Alto, University Avenue, and I remember it was like, almost like an atrium and I was always freezing early in the morning, but I, I just woke up one morning, it was still dark, and I just said, "I can't go into head and neck, and, and I have to go try to be an entrepreneur, or try to do something different." At the time I was trying to sort of still figure it out. And so, I withdrew from the match, the otolaryngology, or head and neck surgery, match, which was a painful process. And, and decided I was going to figure out something else. I was going to put my post medical school training on hold. And, I was going to see if I could do something, you know, in this biotech or high-tech entrepreneurial area. So, so after medical school I applied for a postdoc fellowship, essentially, which was at the Scripps Research Institute. It was an NIH, scientist training program. And, I did that for a year. During that time I think I took some extension courses on – I think actually this is where I might have met Cole, in fact. He might have been teaching a course. Or, at some point I took a course with him about how to start a high-tech business, and learned a little bit about venture capital financing, and some basic fundamentals about the area. And, at the time, during that year I also tried to write what was called a Small Business Innovative Research Grant to try to fund some ideas for, that maybe were, or could serve as the basis for a company, and none of that really panned out. The grant got rejected, you know, I couldn't really get any traction with these ideas. And, my fellowship, or my postdoc program, was coming to an end and so I decided that I'd better do something in clinical medicine. And so, I went up to Harbor UCLA, which was a county hospital outside of Los Angeles to do an internship and residency program. And, but I still couldn't shake the idea of trying to be an entrepreneur, at this point. I think I had really, having now sort of taken myself off the traditional path of medical training I was more determined than ever to try to get into the area. And, and so I still thought about it. I still was vetting ideas, and resubmitted this SBIR grant and it was finally

accepted, and that was during my internship program. And, I can remember being absolutely manic at one time. I was doing trauma surgery in my internship and it was every other night call, and I was like the unlucky guy who got two months back to back. And, I always said, "You know, sleep deprivation is a treatment for insomnia," and I, in my case – or, excuse me. "Sleep deprivation was a treatment for depression," and in my case I think I got manic. I wasn't depressed but it made me a little bit manic. I can remember I couldn't sleep and I was up all night writing these SBIR grants, despite already having been up thirty-six hours, and I was trying to write business plans. And so, I submitted this SBIR grant and that ultimately got funded. And, at the same time I met a guy who liked this idea that I was working on and he also decided to fund that idea with $100,000. So, I sort of got my foot in the door, so to speak, during that year away up at UCLA, ironically I wasn't even in San Diego, but was able to get my foot in the door and, to start something entrepreneurial here in San Diego and so after that I told the guys that I, it probably wasn't best for me right now to continue on in the residency program. I got my medical license. Finished my last rotation, took my last medical board exam, but I didn't continue on with my formal residency training, which would have been internal medicine. I came back down here to San Diego and, to work on this project. I always thought that I might go back to my, you know, my medical training, but I just never did, one thing led to another and I never made it back.

SHINDELL: Uhm-hmm. Now, in those early years when you were attending seminars that CONNECT was putting on and attending their get-togethers, did you make many connections then that you still have today or did you more just pick up information in those seminars?

DOBAK: I did meet some, some people. I wouldn't say that they were connections. I mean, I, again I met Ted Greene. I met Howard Birndorf. He probably doesn't remember the first time I met him [Laugh] when I was just a medical student. There's a gentleman, Paul Grayson, who started company in the area and did some venture capital work. I met him at the time. In fact, his wife was actually a pediatric resident when I was a medical student. So, there are folks like that that I know and know of, and Cole I met in those early days that, you know, we've all been around and moved in those circles since then. So, I guess that's the answer to your question, "Yes, more or less."

SHINDELL: So, in your assessment would you say that being in San Diego really is what allowed you to, I don't know, develop the entrepreneur within. Or, like say if you had stayed up at UCLA or maybe been at a completely different medical school do you think you would have stayed on that medical track?

DOBAK: I think, without a doubt, San Diego influenced that, my whole career path, and it was the exposure. I mean, at that time biotech, particularly in San Diego, was, it was sort of a little mini boom. It was the start after Hybritech had been sold, several years before. A number of those people were going out and starting companies. Some venture capital was beginning to flow into San Diego. It was really the first new industry outside of, I think, defense contracting was probably one of the bigger areas here at the time. And so, there was a lot of excitement about this new high-tech area in San Diego, tied into the medical school, which was a centerpiece, I think, in San Diego in a lot of ways, even though it was young. I think at UCLA, I don't think that something like this would have been as embraced by the community in general, and I don't think I would have fed off the energy that was around this new industry in San Diego, biotech, like I did if I was, for example, at UCLA. I think, there's a lot of other things going on at UCLA, particularly Hollywood, [Laugh] having been as an undergrad at UCLA. So, I don't think I would have gotten bitten by that same bug, and certainly in other parts of the country. So, I would say without a doubt it was being here at that particular time that probably, really influenced my decision.

SHINDELL: So, it seems like '88 or '89 is kind of when you became aware of biotech. At what point, what year would you say you sort of fully engaged in biotech or when did you really dip your feet into biotech here?

DOBAK: So, that would have been '93 in the sense that that was when I took this postdoc fellowship. I was learning molecular biology techniques.

SHINDELL: That was the Scripps fellowship?

DOBAK: That was at Scripps, at the Scripps Research Institute there at Green Hospital. So, that was, you know, when I started to try to immerse myself in, in understanding Biotech, at least from a science perspective. I still hadn't really grasped the business fundamentals yet. I mean, the interesting thing is I would ultimately went into the medical device area, which in San Diego was really nascent and hadn't really formed at all. I mean, there was Alaris, which was probably the major device company in town. I think Peter Farah was probably getting Resmed off the ground

around that time. But I, I got into the medical device, which has a lot of engineering aspects to it and really ultimately started medical device companies here in San Diego. But, it was definitely that whole entrepreneurial environment, the idea you could combine science, and medicine, and business, and it was biotech that was originally I was exposed to even though I went into the medical device area. So, that would have been '93. And, '94, you know, finally got some financing. And then '95, I came down here and really started my first company and, and, and built some prototypes, and . . .

SHINDELL: What was the name of the first company?

DOBAK: The first company was called CryoGen.

SHINDELL: Uhm-hmm. And what sorts of devices were you designing at that point?

DOBAK: So, CryoGen, I started that company with the idea that we were going to develop a heart catheter that could treat arrhythmias. And, we were essentially treating abnormal beating of the heart, and we would do that by essentially freezing or destroying the area of the heart that was causing or generating the arrhythmia. And, you know, there was a need for a safe way to deliver extreme cold via a cardiac catheter so that you could perform a procedure like that. And so . . .

SHINDELL: Now, was this a procedure then that you were pioneering or was it the device? Was there already a procedure similar to this?

DOBAK: The procedures did exist but it was a very crude at the time and it was sort of a blossoming area of the device world and they were looking for new tools to deliver energy to the heart safely so that you could treat these arrhythmias. And so I was, we were, I was sort of tapping into that need there. They didn't know what would be the best energy source at the time for treating arrhythmias. Was it laser? Was it radio frequency? Was it cryo or very cold, extreme cold temperatures? In, when they did open-heart surgery, when they cracked open the chest and they were going to treat an arrhythmia that way they would freeze the tissue because it appeared to be the safest viable way, most, most viable way to treat arrhythmias. But, so we were trying to reduce that procedure that was done by cutting open the chest, reduce it to a catheter procedure where you'd thread a device up through a vein in the groin and into the heart and you could just treat it and the patient would go home the same day.

SHINDELL: Uhm-hmm. So, it'd go up the femoral artery and the . . .

DOBAK: Femoral artery?

SHINDELL: Yeah?

DOBAK: Or femoral vein. [Coughing] [Patting chest] I better get a . . .

SHINDELL: Sure. Do you want me to pause for a second?

DOBAK: Sure. [Clears throat] [Recording paused] Okay.

SHINDELL: Are you ready again? Okay.

DOBAK: Sure.

SHINDELL: Okay, so you were describing the device and how it worked.

DOBAK: Okay, so we left off that we were trying to replace the surgical procedure where you open up the chest with that.

SHINDELL: With a less invasive sort of . . .

DOBAK: With a less invasive device. And so . . .

SHINDELL: And, how did you come by that idea?

DOBAK: So, there is a story behind all that. How did I get interested even in cryosurgery? And, the story behind that, I was in medical school. Actually, I was a fourth-year medical student and I was doing dermatology rotation, and every medical student gets put on wart detail, essentially, where they, they have to treat the warts that come into the clinic that day. And, the way you treated a wart was you put some liquid nitrogen in a Styrofoam cup, dab a Q-tip in it, and, or put a Q-tip in it and dab that onto the wart and freeze the wart. And so, I was on wart detail that day and the resident said, "Go get some liquid nitrogen." Liquid nitrogen was stored in this thing called a dewar, which is a container, and I went to pour some liquid nitrogen into the Styrofoam cup and the liquid nitrogen – I don't know if you've ever worked with it before – but it kind of lurches out of that container, [Laugh] or it can, and it lurched out and it startled me, and I dropped the container, the dewar and the liquid nitrogen spilled out all over the floor and evaporated very quickly. And so, there was no more

liquid nitrogen, and the shipments came once a day to the clinic, or once a week or something, and there was no liquid nitrogen available to treat the warts. And, the resident, after he gave me a thorough tongue lashing said, "Well, now you're going to have to go burn the warts off with this little electrocautery device." And he said, "You're going to have to inject anesthesia, and it doesn't heal as well," blah, blah, blah. So, I went to go get the electrocautery device and it was this nice little thing. I pulled it out of a closet. It plugged right into the wall and it was ready to go. And, I said, "This seems like the way, you know, to treat this. Why can't I just pull a little cryosurgery [Laugh] machine out of the closet and plug it in?" And that was what got me thinking about it and I learned quickly that there was probably not a development or a market opportunity that would justify the development costs for a wart machine, [Laugh] if you will. But, I began to learn about this area for treating the heart. And there, you know, the technology would be best applied. And, the trick there was to get extremely cold temperatures but have very low operating pressures. And, I won't give you a lecture here on the cryosurgery, but, the higher the pressure, typically, of a gas in a cryogenic system you can get a greater temperature at the tip. But, if you're going to put a heart catheter in the body you don't want a high pressure gas in that heart catheter. So, to achieve those very cold temperatures we wanted to do so at a low pressure and there was a way to use some special gas mixtures and a special compressor to get to those low temperatures and, and be able to actually deliver the very cold freezing temperature to a tip of a catheter that was within the heart, basically. So that was, that was the first idea and invention. I filed for an SBIR grant to build that system to fund, -

SHINDELL: That was the . . .

DOBAK: ...the build of prototype catheters.

SHINDELL: Was that the first one that you had approved?

DOBAK: That was the first. That was the SBIR grant. My first and only SBIR grant, and I have written other SBIR grants but have not been as fortunate enough to get them financed. But, we, I also, there was a local gentleman named [Shung- Ho] Chan who had a company in town called Applied Biotech, and they actually developed one of the early pregnancy test kits. Something called the One Step, and his company was acquired by Warner Lambert. So he had some money and was, and he put some money into that company to develop a catheter for treating cardiac arrhythmias.

SHINDELL: Uhm-hmm. Hmm. So, I'm just curious, when you had the money from the SBIR grant and also the investment that you had from outside, how did you go about sort of putting together – I'm guessing you had to find some engineers with some experience in this area, or you know, also people with other kinds of expertise as well. So, how did you go about putting together the first group that you worked with there?

DOBAK: So, when I had the SBIR grant and, and the financing from Dr. Chang, that total was about $200,000. That's not a lot, I learned quickly, it seemed like all the money in the world at the time but there's not a whole lot you can do in terms of developing medical devices or biotech drugs with a couple hundred thousand dollars. So I didn't, and wasn't able to hire anyone. I didn't really form a team but I contracted some work out, and there was a gentleman at the National Institutes of Standards and Technology named Ray Radebaugh, who was a cryogenic engineer, and we, I signed him up. We had a contract with NIST to develop some prototype devices and, and gas mixtures that would allow us to get to these low temperatures. And, that's where the bulk of the money went, to support that work that Ray did. And, and I didn't hire anyone initially. And then, after we built some prototypes and proved some concepts, some basic concepts, we, I raised some venture capital money, and then set about to hire some folks. And, there wasn't that many, really, engineers in town, particular medical device. There were a few. There was a division of Medtronic in town, and so there were a few guys around that knew things about cardiac catheters from that. But, there wasn't a whole lot of activity. There did happen to be some cryogenic engineers in town because, in defense contracting and a lot of military applications, and sensors, and detectors there, they need to be cooled down to low temperatures. So, there were some guys that knew about heat transfer and, and heat exchange, I found who those guys were. A guy named Ray Sarwinski, and Dr. Crum, Duane Crum, and they had some early input into, to how we were going to develop it when I began to really build a formal company, hire some employees. And, so I think in the early days we really recruited a lot of people in, and some people from divergent industries, and they learned about the medical side of engineering. We recruited people from the Bay Area and other parts of the country to come work here, that had medical device experience. At the time, there were really two clusters of medical devices. There was one that was in Orange County, which was close by, and that was from all these companies, Baxter, Edwards, that had formed back in the '60s, Shiley. That just reminds me of something. Shiley, of the Shiley Eye Center, he

was an inventor of the Shiley heart valve. One of the early heart valves. But, those companies all started in Orange County, and then out in Minneapolis was the other big area for devices, because Medtronic was one of the early companies there. The interesting thing, I said Orange County, so I grew up in Orange County and, and I grew up in a town called Tustin, and it turns out that Shiley started his first heart valve company in Tustin. And, and then a lot of companies were spun out from that and Baxter and Edward, those were all in this little area that I grew up. I had no idea about these companies but I can remember now, after I got into the medical device business and I learned about it, I can remember riding my bike through these industrial parks where Edwards, and Baxter, and Bentley Labs, and all these places existed. I remember seeing the signs for these companies, having no idea what they did, but riding my bike. So, perhaps by some way of, [Laugh] some, you know, osmosis or something in the water in Orange County that, that sort of influenced me to do devices. So, so we then recruited people and used headhunters and things like that, to get circled back to your question how we built the companies.

SHINDELL: And, what about patenting? Had you already acquired patents at the point where you were building prototypes? Were the prototypes patented, and was that necessary before you went after venture capital?

DOBAK: So, I had filed a patent. In fact, I put it on a credit card. This was right out of medical school. I didn't have any money. I think actually I began to file a patent on this mixed-gas cryosurgical instrument my fourth year of medical school.

SHINDELL: Oh.

DOBAK: And, I just financed it on a credit card. I didn't know anything about it. I think I probably called the first guy in the yellow pages and I don't even know if he was the right guy. And, that patent had a lot of mistakes, but it was issued and the, the claims were incredibly broad. It got attacked by Johnson & Johnson later, and they pointed out some of the flaws with the patent. But, we did get a very nice broad patent. And so, I did have a patent filed at the time that I was raising money, but it hadn't issued at that point, quite yet. Or, it may have finally issued by the time I had raised my first round of venture capital. I can't remember exactly. But, I had filed for a patent at the very least prior to raising money in the area.

SHINDELL: Uhm-hmm. And you had minimal, sort of, legal advice on, on that application?

DOBAK: Well, I did, again I did hire a patent attorney. He wasn't very experienced in medical devices. He was a general patent attorney and he was great. He worked on a fixed fee as opposed to an hourly rate, and he wrote a, he wrote a patent that had a very broad claim. It survived the attack from Johnson & Johnson. But, he wasn't a specialist in the area, but it was a, it was enough to get something going and carve out a niche of intellectual property, and that was the first patent that I ever, that I ever got issued. Now, this is not to brag but there are probably several hundred patents that I'm the author on. Now, those are not, it doesn't mean that I have all those patents, but patents get continuations filed, and they always link back to one of the early applications. I tend to file maybe the first five or six applications, then all the subsequent applications get linked to it. But, there are now many, and I'm amazed, when I go on the patent website, if I type my name in I have to do a subsearch to find the patent [Laugh] that I want. But, anyway.

SHINDELL: So, since starting your first company, has it become easier to, to go on since then? I mean, accumulating experience maybe, accumulating connections? How does an entrepreneur sort of propel themselves, or how did you propel yourself past that first device and that first company?

DOBAK: So, definitely it gets easier because you've got the contacts. I mean, I probably know every venture capitalist or have presented just about to every venture capitalist or venture capital firm, certainly in San Diego and probably in all of California. And, and so I know all those guys. I can usually call them up to talk about an idea. You understand what it costs, what the process is to develop these products. You know better where to look for answers, and so it is a more efficient process. And I, I think definitely what facilitates starting additional companies is just having all those contacts and having a better idea about, about how, how the development occurs and how the company is created. I think you also get better at selecting ideas, at least you hope you do because there's a lot of technology out there and some of this is figuring how to apply that technology to the right marketplace. But, it's a high-risk area. So, my second company I started very quickly, you know. So, I learned about cryosurgery. I then started a company called InnerCool Therapies and I took the same investors that I had essentially from CryoGen and I told them I had this idea for a company to do what we called endovascular hypothermia, which was cooling the body just a few degrees Celsius to protect the tissues of the brain and the heart for, for patients that were, having a heart attack or a stroke. And, you know, people think they are the same, CryoGen and InnerCool, because they had the word "cool" in

them, or "cooling" or associated with that, but the, the companies were really polar opposites. In one case we were trying to destroy tissue with extreme cold. In this case [INNERCOOL] we were trying to protect tissue with very mild cooling. But it was an endovascular catheter device. It didn't go up into the heart but got close to the heart, and, and there was some evidence that hypothermia could protect the brain from traumatic injuries and during stroke, and the problem was the way they were trying to cool people was essentially dumping them into a tub of ice, or ice-cold water. Very archaic way to do it, and not very elegant, no control. If the patient had any level of consciousness, obviously not very comfortable. So, we decided to figure out a way to cool the body from the inside out by cooling the blood with a catheter that was in the femoral vein, and then that cooled blood would, would go on to cool the organs efficiently. You didn't have any cold and contact with the skin, so the patients wouldn't feel it. And, and the investors liked that idea. I had some experience, obviously, in general in engineering similar type devices, or devices that were quasi-related. And, and, and so they, those same backers put some money into that company and I left CryoGen to start InnerCool.

SHINDELL: But, CryoGen kept running?

DOBAK: CryoGen kept running. CryoGen then got split into two companies, the heart company and there was a gynecologist on the East Coast that wanted to essentially perform an office-based hysterectomy by freezing the uterus instead of surgically removing it. And he wanted to develop our system for that, so we spun that off into another company that developed that system. There was just not enough synergy between gynecology and the heart and so the, the two companies kind of went on separate but parallel paths. The devices were very, very different. One was a long flexible slender tube and the other was a rigid device that could be placed into the uterus. But, so that company went on. InnerCool is still around today. Or, excuse me, CryoGen is, they've got those products approved and, and they're around today.

SHINDELL: And, how many companies have there been since InnerCool?

DOBAK: So, I started InnerCool and, and then after InnerCool I started a company in the neuro-stimulation area, which is essentially putting pacemaker-type electrical stimulation devices onto specific nerves and stimulating those nerves. And that was a company that I started to treat obesity. We had a novel nerve target that we were going to stimulate and, and try to suppress appetite, or control food intake and

increase metabolism. And, that company is just going to start the clinical trials now for that device. We had to move that company to the Minneapolis area because we, you know, when I started out it was easy to recruit people to San Diego. The cost of living hadn't gone through the roof. But, in that ten years from my first company, when Leptos got financed there had been a huge jump in the housing cost, for example, in particular in San Diego, and I couldn't recruit the types of engineers to San Diego that we needed to run that company [Leptos]. Most of these types of engineers lived in Minneapolis. You can imagine what they could get for a house in San Diego at a certain price, compared to what they had in Minneapolis, it just wasn't attractive enough for them. So, we ultimately hired a CEO that was out of a company called Medtronic in Minneapolis and the company relocated there. So, that company [Leptos] is now in Minneapolis. With this company, I've shifted directions again and this is now a pharmaceutical company that I'm running, called Lithera, and I'm not doing a device in this particular opportunity, and working on pharmaceuticals which is definitely a core competency of the San Diego area. Now, there are a lot of device companies in San Diego. I think there are hundred device companies. I can't imagine there are more than five or six device companies back in the early '90s when I started CryoGen. But now, there must be a hundred device companies.

SHINDELL: Well, let me ask you a question related to that then. I mean, since the point that you started your first device company CryoGen, how has the sort of landscape of, of San Diego, either the biotech landscape, or more specifically the device landscape, how has that changed other than growing in size? Like, what have been the big landmark changes during your time?

DOBAK: So, when I started CryoGen, like I said there were only a handful of device companies in town. There were also, I don't know if, I don't think there were any venture capital funds in town, actually. There might have been some smaller funds, but the venture capital community was, was very immature at the time. In fact, I raised all my money from venture capitalists in the Bay Area. So, the two things that have changed in the medical devices, now there are dozens of companies and there's a whole pool of engineers and, and a whole pool of resources now to support those companies, that didn't exist or were very immature at the time of the founding of CryoGen. The other big change in San Diego is there now are a number of venture capital firms, either firms that are based and originated in San Diego, or firms that have a satellite office in San Diego. And, that's a, a major change. And, I think the financing community has now recognized that San Diego is a source for good

investments and good company ideas. And so, most, a lot of firms want to have a presence or are very open to San Diego. I can remember my first venture capital firm investor when I started CryoGen. I spent a month convincing these guys that it was okay to locate the company in San Diego. They wanted me to move to the Bay Area. They were located in the Bay Area. I can remember I brought them down here. I took them on a tour through the medical school. I took them to a local research and animal lab facility and I showed them we could do all these things. I introduced them to a local recruiter that could help find the engineering. It was a big process, because they weren't convinced that you could start a company in San Diego. Now, I, I don't think that type of convincing has to occur at all. It's a given that there are plenty of companies around. There's plenty of talent in town to, to develop a device company.

SHINDELL: Now, the biotech story here sort of has its moment of, you know, the sale of Hybritech being this, this really big moment. Is there anything in, in devices that was like a moment like that? Or, you know, is the fate of the device industry here really tied to those less device-oriented biotech companies? Do they share the same fate or are they separate sort of entities?

DOBAK: Well, there wasn't sort of a big bang. I mean, there was a big bang for the biotech industry and that was with the sale of Hybritech, and all those people going out and starting companies. I would say that there was a fairly big group in general engineering in San Diego. And, device is very different from biotech in that it's engineering as opposed to biology. There was already a big engineering establishment here in San Diego. A lot of it was out of the defense world. So, that was sort of known in the area. I would say that the device, instead of having a big bang it sort of just grew more incrementally and, and gradually in San Diego, is my impression. There were a few companies, like I said, Alaris, and IVAC, and there was a division of Medtronic down here, and some of those, all of those companies helped play into the growth of the device industry in town. But, there wasn't one catalyst, one moment that you can put your finger on, I think, like with the people that harked back to the Hybritech sale.

SHINDELL: Now, what you were saying just a little bit ago it sounds like you've relied a lot, or maybe not relied a lot – how should I put it? That you've taken advantage of sort of the close proximity of the medical school, of the university, of other research institutes, both to make your case for why San Diego is a good place for a company but also, you know, for the success of your own company. But, how

would you characterize the relationship here in San Diego between these different entities? How closely do they work and why is that close relationship, if it is a close relationship, why is it possible? Is it something unique to this place or is it something that happens or can happen anywhere?

DOBAK: So, so I think the university's a big factor. I mean, for example, Dr. Juan Lasheras, who was the chairman of Mechanical Engineering, is a professor of mechanical engineering at UCSD, was a cofounder of InnerCool and played an integral role in developing and designing that device. I think what you have, in general, with UCSD, now today is that the culture on the campus and among the academicians, it is not viewed negatively to have an entrepreneurial spirit if you're an academician. For a long time the idea that you were going to apply your science to a business endeavor, or for-profit, was you were a pariah in the academic world. And, I think that maybe this is because UCSD is a young university. I never got the sense that the academic folks on the campus thought that, or viewed, the idea of applying ideas for businesses and having an entrepreneurial bent was a problem. And, I can remember my professors in, in medical schools, some of them that had been involved with companies, spoke highly of it. And maybe this attitude existed because we were a young university, in the late '60s it was founded. So, maybe there was not a long history of the stigma associated with combining science and business that other academic institutions faced. And, I would say that that's probably the number one thing that if an entrepreneur calls a clinician, professor, or a basic science professor at the university and is rejected by that individual, it's going to be very hard for them to transfer any kind of science that might exist in the university. But, I think, at UCSD they're open to receiving those calls, and talking about things, and figuring out opportunities. I think some of them [academicians] have relationships with venture capitalists and will take ideas directly to those venture capitalists. So, it plays a huge role just having an academic body that is open to the idea of starting companies.

SHINDELL: Now, your major, you mentioned that Johnson & Johnson did challenge your patent at one point. I hope you don't mind if I switch gears? Just looking down at the questions here and seeing that we do have questions related to that sort of issue. So, obviously you must have gotten more involved with patent attorneys at that point than your, your one patent attorney from earlier. So, I wonder how, you know, based on this experience and then your experience with patents now, you say you have, you know, more than a hundred patent applications that have your name attached to them, how do you view the role of patents in what you do? Do you think

that patents facilitate the diffusion of knowledge or, you know, would people do this work if there, if it weren't for the protection that patents sort of give them? Or, you know, how do you feel about patents and the role they play?

DOBAK: Patents are vital from an entrepreneur's perspective. I mean, it's the only way to protect an idea. It's the only way to carve out an asset that you can own and, and potentially finance. So, as an entrepreneur they're absolutely vital. I think that in general intellectual property can spur the spread of knowledge in the sense that, when companies get formed around technologies and hundreds of millions of dollars get invested and a big, a large chunk of that investment gets poured into research and development, and invariably research and development leads to new, additional discoveries. And, I think there may be, it may delay the spread of that knowledge a little bit. There's going to be a gap until that intellectual property gets filed, and until that intellectual property is on the record. But, but I think in general the, the development that intellectual property can initiate leads to an incredible growth of knowledge. So, now in general do I think patents are great? In this country, I mean I think the whole process is pretty broken and can be gamed, and it's, it's expensive, and it takes a long time. And, so I think there's a lot of problems, per se, with the U.S. Patent Office, and I don't think you'll hear anyone defend them at this point. But, but, so everybody wants a better process for getting patents. But, they're, I think they're key, absolutely important and vital to an entrepreneur.

SHINDELL: Do you feel like your experience with the litigation with Johnson & Johnson was sort of a unique experience? Do you think that the small guy, the small company, usually, you know, has success against the big company? Or, do you feel like, you know, you got lucky? Or, how, how do you view that experience?

DOBAK: So, I should say – J&J inherited the lawsuit. We actually kind of got in a lawsuit with another small company that J&J then acquired. But, J&J pursued it and, and they used their deep pockets to force us to spend a lot of money to defend ourselves. I mean, patents are a blessing and a curse. The patent is only as good, in terms of the value, if you can defend it. And, to defend a patent is enormously expensive. Getting a patent is great because it helps you get a company financed. But, defending a patent is probably outside the scope of any individual. It costs millions of dollars. Unless you're incredibly wealthy and have an enormous appetite for risk, most independent entrepreneurs can't really afford to defend a patent by themselves. So they, it, and because big companies have huge resources they can outspend an

individual or an entrepreneur, a sole entrepreneur tremendously. So, a patent is really used to get a company financed. It offers the chance for protection, but, but if it ever comes down to defending that patent it's going to require the collective of the investors or the success and profitability of the company to defend that patent. So, they can be a little bit of a blessing and a curse in that regard that, you need them upfront but you, it would be very difficult for anybody to, to defend them individually. I think companies exploit that to some degree, right? They know there's probably a lot of intellectual property that can't be defended because it's too costly by the individual and, and that's the threat that the large corporation can have against an entrepreneur to, to avoid the confrontation with them. Does that answer your question?

SHINDELL: I think so. You know, you could still comment a bit more just about, you know, how you felt about the process as you were going through it, something maybe more specific to your experience. Sort of, I don't know . . . well, you know, whatever you're comfortable talking about. I don't know if – if you don't want to get into specific details about how the process went, went down, or . . .

DOBAK: Oh, you mean the litigation?

SHINDELL: Yeah.

DOBAK: Oh yeah, the litigation was, it was an interesting experience. I mean I, I think I spent close to fifty hours in deposition. They always had three lawyers on their side, in those depositions. They videotaped those depositions. The lawyer that was on the other side was very confrontational, and they definitely, I mean it's my opinion that, you know, part of their strategy was to make us spend our money. And, you take a private company that is, is struggling to sort of survive and you start making them spend a lot of money on patent lawsuits, not only does it, or patent law, not only does it detract from their development and putting dollars directly into their development, but investors get concerned if you're in the middle of a litigation, potentially. So, it can jeopardize your ability to raise capital. And, I think that's what, what J&J, part of their plan was, or at least the, the litigation that was inherited by them. The – I mean, just on a personal note, I can just remember getting these transcripts from these depositions. They were just, they were telephone books, and trying to wade through them, and you're supposed to correct the record, and, and I just thought it was, it was so ridiculous, such a huge distraction, and it got to be so grinding. And so, I guess

there was a sort of a personal toll also of trying to fight the lawsuit, aside from the economic issues that come about, all the, all the paper, everything that had to be produced, all the documents. It was a big distraction for the company.

SHINDELL: Okay. Well, that covers patents and patent litigation, unless you have anything else to say about it?

DOBAK: I'm sorry?

SHINDELL: Unless you have something else to say about patents or patent litigation we can move on to [Laugh] -

DOBAK: No.

SHINDELL: ...something else.

DOBAK: Anyway, I already got on my soapbox [Laugh] about the Patent Office and, but . . .

SHINDELL: Now, with the growth of biotech and the growth of the device industry here, do you think there is any individual or any key individuals who are responsible for making these industries, or high-tech industries in general, sort of a priority for San Diego? Either people within these fields or maybe politicians, or, you know, whoever it might be?

DOBAK: Well, I mean, I think, I think people would obviously point to Bill Otterson, because of his role with CONNECT. I think certainly guys like David Hale, some of the graduates of the Hybritech, Ted Greene, I mean those guys played big roles in, in bringing the whole industry to San Diego. Duane Roth also played a big role. I mean, I think those guys, they had a political bent to them and I was always amazed, you know. I didn't understand the political process. I was fresh out of medical school. And, I can always remember they had all these committees and, that discussed these political issues, and they were real, they were real issues. They had a lot of long-term vision on how to make the industry grow here. I mean, they weren't just focused on, all those guys were not just focused on their companies, but it was really, "How do you make San Diego a place that biotech can, can thrive and survive?" And so, they, they did have a lot of initiatives around developing a workforce making the local regulations more friendly to these companies. And, I mean those were the individuals that I can recall that I think are probably some of the foundation that really set the

stage so that all these, this little cluster could develop. I think some of the early backers in the area. Jim Berglund was a guy that was here financing some of the early companies, and that's always a big role, you know, in any kind of area that develops a high-tech entrepreneurial environment, you know. The financing is obviously key. It takes tens of millions of dollars to do these things.

SHINDELL: How do you feel about the characterization of San Diego as a, a hub, both a hub of biotech activity and then also a cluster, and sort of the, the, what seems like the conventional wisdom that the success of biotech here in San Diego comes from the fact that it's clustered in such a tight spot? You know, everyone sort of seeing each other all of the time, and employees moving from company to company. Do you think that that has played a role in the success of the sector here?

DOBAK: Well, no doubt. I mean, if you can't find a job right here, you get recruited elsewhere, [Laugh] so you lose that, that talent. So, you need to have the pool of companies that – and, this is a business where failure is, is the norm, and companies are turning over all the time. Those employees have to have somewhere to go. You have to have a cluster of companies and opportunities that give the employees a home after their company may run into trouble, or after it gets acquired, whatever the case may be. It's just there's a lot of turnover. So, you really need that cluster. Certainly the exchange of ideas. I have never, you know, you hear stuff about Silicon Valley, and like the high-tech brew, or what was it that Steve Jobs and all those guys, they went and had a beer. It was like a happy hour. I never got the sense that that existed in San Diego.

SHINDELL: Oh really?

DOBAK: I think people networked, but I think my impression was that it was a lot of programs that were put together. I think CONNECT played a big role so people could get together and talk, but I don't think it was informal, as informal as, as like Silicon Valley and, you know, just having a beer and talking about – at least, I never had that. Maybe that's because I was more in the device, and devices were, were really sort of new, "newer" I guess is the better term in San Diego. There wasn't that, that same pool of people trying to start those companies. And, I guess I would say biotech's probably a bit different than high-tech and, it's a little bit older and more mature crowd. The timelines are different. It doesn't move [sirens in background] quite as fast, per se. So maybe you get folks with different priorities and different

responsibilities can can't have the, "go out and have a beer every, [Laugh] every other night and talk about new company ideas" mentality.

SHINDELL: Yeah. So, it's more about key individuals and organizations like CONNECT, and Biocom than it is about sort of informal get-togethers?

DOBAK: That's been my impression, certainly in the '90s. Now, I know there's some efforts. But, I would still say it's more of a formal effort, you know. There's the Shout group, which is trying to bring together young entrepreneurs or, or new entrepreneurs, or people that want to be entrepreneurs in the area and just have a networking event. So, that's always been my impression is, as opposed to informal gatherings, people doing it on their own, there's been CONNECT, or Biocom, or groups that have formed for the purpose of networking and scheduling these kinds of events.

SHINDELL: Sort of a formal informality, I guess? [Laugh]

DOBAK: Yeah. That's, that's one way to think about it.

SHINDELL: So, that's, I think we've covered pretty much everything. So, now let's go to the point. I mean, we've gone a little bit over an hour. I don't know how much you planned on, on spending. But, I think we're ready to move on to sort of the final evaluations, how you would evaluate [Laugh] sort of your life and career here in San Diego. It sounds like you're pretty happy with the path you've taken. You don't regret not becoming a surgeon?

DOBAK: I don't regret not becoming a surgeon. I, certainly the grass is always greener. I get together with my medical school buddies and I, I miss the idea of patient care, and from their perspective they, you know, they're a little envious about, about my, my path. So, and I guess that's the, that's the nature of things. But, I don't have regrets at this point, at all. I'm happy with my career choice.

SHINDELL: And, what would you say was sort of your most important moment in your career here? Or, your favorite, I guess.

DOBAK: So, I guess on, in terms of high notes? **P**robably, I would probably say it was that first bit of real financing that I, that I obtained. When you, when, as I was trying to start these companies you always hear about raising venture capital, and it's a source to really building an organization. I agree with that. Some people don't agree

with that, that you really need venture capital financing. And so, it was like this big goal, this big effort to try to, you know, get tapped into that source of capital. And, I think raising that first round, that was like a big milestone for me. In terms of significance one of the most significant things was not a high, but I can remember very vividly we. At InnerCool we did a big clinical trial in heart attack patients, spent a lot of money. We, the company had spent about $40 million developing the product doing the clinical work for that indication, and we literally walked in one day, we had a meeting with our data monitoring board, and turned the card over and it was a Joker. Right? [Laugh] It was a negative study. And, I mean, overnight the whole company, everything changed, right, it went from full of hope and fun and, to sadness, and layoffs, and, and I mean that's, that's the nature of the business. And we had to – in terms of a significant, that was a huge thing. I had spent almost six years of my existence trying to build that company, grow it, and we had, you know, forty or fifty employees at the time, and it was a real, it was like a big family. Basketball every lunch out in the parking lot and everybody was excited about the opportunities, and then all of a sudden, "Whoa. We have a negative trial," and it was a huge setback. So, that was a significant milestone. That was probably, I think in 2005.

SHINDELL: Uhm-hmm. Now, how did you deal with that?

DOBAK: Well, you know, I think I was put into a serious funk, if not a depression, for a little while, you know. For probably a year. It took a long time to recover. I mean, in terms of just, I felt obligated to the employees that remained at the company. We laid off most everybody, but I felt obligated to the employees and the investors to try to figure out what to do with the opportunity. And, we ultimately found a home for it and the company now has grown back up again and they're out selling the product into different indications, but that, it took a good two years. And so you're, it's two years of a situation of trying to essentially wind something down or find a home for it as opposed to building and being excited about the future. And, at the same time I think, I had a newborn and there was a whole bunch of things that went on with a corporate partner that we had. I mean it was an incredible time. Those are stories unto itself about the negotiations and the phone call at 4 a.m. the day before Thanksgiving to tell us, "We're not going to finance you any further." But, so that was a significant negative milestone. But, probably the first big milestone on a high point was, you know, finally raising this coveted venture capital and being able to actually grow, begin to grow a company in earnest. And that, that sort of set the stage, gave

me the experience and the ability to raise additional capital and start additional companies.

SHINDELL: Uhm-hmm. If you could, based on your own career, if there's any one piece of advice you could draw from your career for a young entrepreneur, you know, what would it be? What is the moral so far of your career?

DOBAK: I mean, there's so many things people say that are so darn cliché, you know? "Shoot for the stars. If you only make it halfway there [Laugh] you'll be fine." For me, I think the, one of the biggest things that I have learned is, I mean, obviously you've got to take risks. And, I think that that's part of living life. I mean, the ups and downs. There were high points and, and there were low points, and we just talked about two of them. And those ups and downs on the emotional roller coaster I think, to me, is what living is all about. I mean, some people like more of a straight-line in life. They don't like a lot of deviations from the norm or the mean. But, but for me it's the ups and downs. You can't appreciate the highs if you haven't experienced the lows. So, that's definitely really come home, you know, through this process, is that, that that's, that's an important piece of what I sort of view as living life. I often think, when I'm in the, for example, the period when I had that negative clinical trial and it was a tremendous low for a long period of time, I would always ask myself, "Would I have done it differently? Is this all worth it?" And, I always came back to the conclusion that, "Yeah, okay. This is a tough, this is a challenging time, but I wouldn't do it any differently. And this, this storm will pass." So, I don't know if that's a moral, but I certainly think that if you're, short of all the other things, right, I mean it's rewarding to have ideas, to be creative. You've got to have a thick skin. Don't let people tell you "no." Be tenacious. All those sorts of things. I think, in terms of a lesson is, you know, be prepared for the ups and downs and decide that that's how you want to live your life, because that's what this, this, this business is about. And, I think ultimately it's a positive. It's a real, a real kick, so to speak. But, you got to, you got to like and appreciate the ups and downs if you're going to go into this, in this business.

SHINDELL: This next question is sort of a catch-all question.

DOBAK: Uhm-hmm.

SHINDELL: Is there anything that I should have asked you that I didn't? Or, is there anything that you wanted to, you know, sort of be your last word, I guess, in this interview?

DOBAK: No, I don't think there's anything specific to answer. I just thought the whole interview was interesting. With a, the whole concept of this interview, because I always like to think forward. You hear these things, you know, in fifty years someone listening to this, [Laugh] they're going to think, "This sounds so archaic," [Laugh] yet today we think it's so cutting edge. I just think it's interesting to record this kind of stuff, and so I hope it, I hope it survives in that sense. So. But, I think we covered everything.

SHINDELL: Oh, okay. Well then . . .

DOBAK: Maybe I'll get back to you a little bit about what's my, my big take-home lesson. [Laugh] I obviously haven't thought about it. I've been so immersed in doing all this stuff. But, what is the moral of, aside trying to be all those cliché [Laugh] remarks about, about, you know, what it takes to be an entrepreneur. But . . .

SHINDELL: Uhm-hmm. Well, some of them may be clichés because they're true. Who knows? So. [Laugh]

DOBAK: Yeah. Yeah.

SHINDELL: Well then the last question, really, is who, who would you recommend that we interview? You've already listed Drew Senyei and Jim Berglund, before we started the interview. Is there anyone else that you would say is on, should be on our top five?

DOBAK: I think, well I mean there are guys that have financed a lot of San Diego companies and it's gone back fairly far. They weren't, per se, local guys but they had a big hand. Some of the guys at Domain, Jim Blair. For example, Brian Dovey, they have financed a lot of the companies. Bob More, of late. In the last, that's been in the last seven, you know, six or seven years, but they've had a big hand in financing companies. I mean in the, in probably the last five years they're clearly the largest financers and backers of companies here in San Diego. And, so those would be, I mean those guys, I mean a lot of those guys that I'm mentioning now, I think you've got all the key operating guys from Duane Roth, David Hale, Ted Greene, Howard

Birndorf, of course, Cole Owen, who we've talked about. Let me think who else. No, I mean I think you, those are the main guys that, and Karen, they've probably got other folks that are, those are the folks that stand out in my mind. You can also talk with Paul Grayson, might be another person to talk with. He's been around for a while.

SHINDELL: Okay. All right. Well then thank you very much for this interview. It's been a pleasure.

DOBAK: My pleasure.

END INTERVIEW.

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The San Diego Technology Archive (SDTA), UC San Diego Library, La Jolla, CA.

The San Diego Technology Archive (SDTA), an initiative of the UC San Diego Library, documents the history, formation, and evolution of the companies that formed the San Diego region's high-tech cluster, beginning in 1965. The SDTA captures the vision, strategic thinking, and recollections of key technology and business founders, entrepreneurs, academics, venture capitalists, early employees, and service providers, many of whom figured prominently in the development of San Diego's dynamic technology cluster. As these individuals articulate and comment on their contributions, innovations, and entrepreneurial trajectories, a rich living history emerges about the extraordinarily synergistic academic and commercial collaborations that distinguish the San Diego technology community.