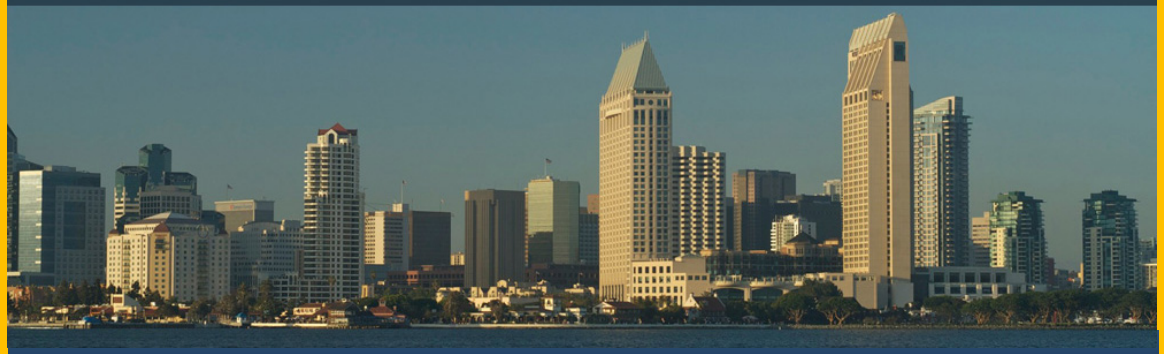
Tina Nova

Interview conducted by

Mark Jones, PhD

April 26, 1999

San Diego Technology Archive



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Tina Nova

Dr. Tina S. Nova Bennett, Ph.D. Founded Genoptix Inc. in 2000. Dr. Nova Bennett has been the President and Chief Executive Officer of Genoptix Inc. since March 2000. Dr. Nova Bennett also Co-founded Nanogen, where she served as Chief Operating Officer and President from 1994 to 2000, including during Nanogen's 1998 initial public offering and Selective Genetics, where she served as Chief Operating Officer from 1992 to 1994. From 1988 to 1992, Dr. Nova Bennett held various director-level positions with Ligand Pharmaceuticals. Dr. Nova Bennett also held various research and management positions with Hybritech, a former subsidiary of Eli Lilly. Over the past several years she has been involved in the co-founding of three life science companies in the San Diego biotechnology community. She served as Chairman of Molecular Reflections. She has been a Director of Arena Pharmaceuticals Inc. since September 15, 2004, Adamis Pharmaceuticals Corp. since February 16, 2011 and Cypress Bioscience Inc. since April 26, 2007. Dr. Nova Bennett has been an Executive Director of Genoptix Inc. since March 2000. She served as a Director of Cyntellect Inc. She served as an Executive Director of New Leads Discovery. She served as a Director of Heska Corp. since December 31, 2004. Dr. Nova Bennett serves on the Advisory Boards of the UC San Diego Division of Biological Sciences, the Keck Graduate Institute of Applied Life Sciences Advisory Council and UC Irvine Division of Biological Sciences. Additionally, she serves on the Board of Trustees of University of San Diego. Dr. Nova Bennett was the winner of the 2004 BIOCOM James McGraw Distinguished Contribution Award, the 2004 Distinguished Alumnus Award UC Riverside, the 2003 Distinguished Alumnus Award UC Irvine, the 2002 Outstanding Executive Award UC San Diego Jacobs School of Engineering and the 2001 Athena Pinnacle Award. Dr. Nova Bennett received a B.Sc. degree in Biological Sciences at the University of California, Irvine, where she graduated with Honors. She also received Ph.D. in Biochemistry from the University of California, Riverside and conducted post- doctoral research at NYU Medical School.

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THE SAN DIEGO TECHNOLOGY ARCHIVE

INTERVIEWEE: **Tina Nova**

INTERVIEWER: **Mark Jones, PhD**

DATE: **April 26, 1999**

JONES: How did you get into the sciences?

NOVA: Right. I have a bachelor's degree in the biological sciences from the University of California at Irvine, and then, I thought I wanted to be a medical doctor, like everyone else who was a biology major at that time, and I got into medical school at the end of my undergraduate career, and I wasn't sure if it's what I wanted to do or not, so a family friend got me a job at a free clinic in Laguna Beach, which was just down from UC- Irvine that summer. And I went to that free clinic and worked there for a summer, and then I was convinced that I didn't want to be a medical doctor, but I wanted to stay in the sciences. I had done undergraduate research, you know, the UC 199 courses, when I was at Irvine, so I knew that's what I wanted to do, so I declined going to medical. My family and friends thought I was really crazy at the time, but I'm really glad I did, because I knew it was wrong for me, and it would have been a mistake to have gone down a path that was not correct. So, for two years, I worked at a lab at UC-Riverside for a woman named Dr. Jolinda Traugh. She was the department chairman of the department of biochemistry at UC-Riverside. And I chose Riverside, because I looked up biochemistry and saw that Wisconsin was number one and Riverside was number two rated at that time. I decided that Riverside was more attractive than Wisconsin after being at UC- Irvine. So, I went to her lab and worked as a technician for two years, and during that time, I took some graduate courses at night, again, trying to decide what I wanted to do, and at the end of that time, I then became a graduate student in her lab, and then continued and got my Ph.D. in biochemistry from her, at UC-Riverside.

JONES: What did you work on?

NOVA: At that time, there was no real such thing as molecular biology- that was a new field. You couldn't even do a Ph.D. in molecular biology, which seems funny to look back on that, think about that. Molecular biology was sort of part of biochemistry. All of my work was done on protein synthesis, how proteins are made, what controls them, what controls the signals for turning the pathways on and off, and phosphorylation was the big thing, any sort of post-translational modification to protein, and how they regulated the protein, was the hot thing at the time. So, we isolated all these proteins and we phosphorylated them, and then looked at their action and saw how that affected turning on or off protein synthesis. And then we started making these new things called monoclonal antibodies that had just been discovered at that time, so we started making monoclonal antibodies and proteins and Fab regulation.

JONES: How did you find this technology at Riverside?

NOVA: Well, the whole protein regulation area was, Jolinda Traugh had done her Ph.D. with a guy named Bob Trout at UC-Davis. She then post-doc'd with Ed Krebs, who was the father of all of this, and went on to win the Nobel Prize in this area, and what he did, something called cyclic AMP, dependent reactions, and we did cyclic AMP independent actions, so it came from her original work with Ed Krebs, who, as I mentioned, went on to win the Nobel Prize in this area, and then monoclonal antibodies were discovered by Kohler and Milstein, and the new procedure just got published, and we literally sat there with the protocol, and said, 'add two drops of this, and four drops of that,' and we made monoclonals. We were the first lab to make monoclonals at UC-Riverside, to start doing that.

JONES: Did you have any trouble getting it to work?

NOVA: Not at all. It worked great, it worked great, so it was not hard at all. But back in those days, we did real science, I mean, we put together our own pieces and parts. You couldn't buy kits to do things, like you can now. Actually, I think it was a great way to learn science because you had to do it yourself, and do it from scratch. It was like tinker toys, you just had to try it and pray that things stayed together, you know, putting on jackets and going into cold rooms and isolating proteins and being in the cold for hours and hours, I think it preserved all of us, actually. The bad side was that everything we did required labeling things with radioactive material. Therefore, we had a lot of exposure to radioactive material, which was something, obviously, you

didn't want to do. But when you're young and naive and you don't know, you just do it to get done what you need to get done. I kind of think back and think, 'Oh my gosh, we did that?' But it was different.

JONES: What was the attitude at Riverside, you were trying to figure out what to do with your Ph.D.…

NOVA: Oh, the attitude was 100%, if you have half a brain in your head, you won't go into industry. If you're good, you go into academics. It was very, no one from industry ever gave a seminar, no one from industry ever came to the campus, and I didn't even know what it meant to go into industry. It was looked down upon, very much. That's one thing I knew for sure. At that point, though, my path was to go do a post-doc, and then go into academics, and do exactly what my major professor had done, and follow that path. I never even questioned it. So then I went on to do my post-doc, and that's where I actually kind of made a change of direction, because I didn't enjoy my post-doc. I picked up and moved to New York City, so you can imagine what that was like. I went to NYU Medical School, and after being at some place like UC-Riverside, where everyone knew each other, and it was a very friendly group, a team-oriented place, all of a sudden, I'm at NYU Medical School, and the people in the lab next door don't even talk to you. Everyone's kind of in their own little world doing their own thing, and I found that very disillusioning because I thought that at that time, 'Oh, you know, when you're a post-doc, it gets even better.' But what I found is that it was even worse. And so, that experience actually made me start thinking, 'Is this really what I want to do with the rest of my life?' You know, sometimes if you're not happy with your situation, it's actually better, because then you start to question, 'Why I am going in this direction?' So, that's where that all started. So, at the end of my post-doc, I started to look around, and I decided that I needed to get back to California after being in New York for three years, which was a great experience, but I needed to come back home. So, I had heard about San Diego being a biotech center, and San Francisco. Really, Hybritech was in San Diego, Amgen was in the San Fernando Valley, and Genentech was in San Francisco, so I kind of decided, based on that, that San Diego sounds like a nice place. That's how bad that position was.

JONES: Were you working with monoclonals during your post-doc?

NOVA: I was working with monoclonals during my post-doc, and as a matter of fact, a couple of the monoclonals that I had worked on ended up being licensed to

Hybritech. And that's how I had heard about Hybritech. Hybritech had contacted the lab that I was in and asked if they could license the monoclonals that I had made. And so, it was kind of neat, because then I had a product before I even went to Hybritech.

JONES: What were the monoclonals for?

NOVA: They were made to a couple of the skin proteins. If you look at all the layers of the skin, the proteins are different, and their markers of differentiation, so as cells start moving through the layers of skin, they differ, and so how can you actually figure out what is going on at what time? You can sort of use monoclonals to sort of do this work. So, they were used for what is called immunostaining. Which was just tagging the antibodies with a dye, and then you could take skin sample, add the monoclonals, and you could see exactly where these proteins were. So, it was an immunohistology kit that Hybritech put out with those monoclonals. They were called AE1 and AE3. They were just names that came out of 96, and that was my connection to Hybritech.

JONES: When you were doing your post-doc, and this new stuff is going on in California, how did you become aware of it?

NOVA: I had read a little bit about it, and I started hearing a little bit about it. I had some friends that went to Genentech, and I had some friends that went to Amgen, and so therefore, it started to become, we started to become more aware of it as an industry. But I really didn't understand what it meant at all. Again, it represented something to me that I wasn't sure that I wanted to do, but I was very curious about it. I called my major professor at Riverside and told her that I was sort of interested in checking into it, and she told me, 'Oh, Tina, you're way too good for that. You don't need to go into industry. You should go on and be a professor and have your own lab, and have you own independent thing.' She had come from a different generation, and it was different, and I understood that, but I respected her so much that it was actually a very difficult decision for me. So I came out to, I applied for a post-doc at the Salk Institute and I came out and applied for a job at Hybritech. At the Salk Institute, they offered me a post-doc, and then I also got offered a job at Hybritech. And it was a very difficult decision, but at the time, one thing I noticed was that the people at Hybritech were people that I really liked, and were more like me. Because there was a difference between the people that went into academics and went to

industry at that time, differences in personality and things that were important to them. It's probably not fair to make those sorts of generalizations, but it felt that way. And I really liked the people at Hybritech, and I was very attracted by what they were doing, and that's how I made the decision to do that.

JONES: How did you originally get in touch with them?

NOVA: Mainly, it was through the licensing of my monoclonal antibodies. That was before, I was still at NYU Medical School at that time. We had published those antibodies and they found out about them, they found my name on the paper, they then called NYU Medical School. So, then I heard about them through that. I said, 'Hybritech? What's that?' They said, 'We're a start-up biotech company in San Diego, you should come by.' And I thought, 'What the heck is that?' I had no idea. So, I was really naive when I went to Hybritech. And I went to Hybritech and I interviewed in the cell biology with Joanne Martinis who was running that department at the time.

JONES: Had she been the one to read your papers?

NOVA: I don't actually know. The contact at NYU was actually through the business development section, so that was kind of the group that called me, so I wasn't sure what scientist had seen what. So, I went and interviewed with Joanne, and Joanne ran cell biology and after my interview with her, she said, 'Oh, I think you belong in the diagnostics department, that would fit your background better.' I didn't know what diagnostics was, and I'm like, 'Oh, OK, I fit in the diagnostics department. OK, whatever you say.' And they changed my interview schedule right then and there while I was at Hybritech. And so I went over to the diagnostics group and met with David Kabakoff, and all of that group, and interviewed for an entire day, and I remember no one fed me lunch, and, finally, at the very end of the day, I had the nerve to ask where the ladies room was. It took me that long to get up the nerve to do that. When I left, I really was excited about it. It was my first idea about the industry and what they were doing. It was very exciting. So, they called me and offered me job, and they offered me $28,500. And I thought, 'Gosh, that sounds a little low. I was really hoping for $30,000. That seems so funny now. I was making about $20,000 at the post-doc, because it was in New York City. You got paid more as a post-doc in New York than you did anywhere else because it was so impossible to live there. But it was tax free money, so, in a way, I was taking a step down in salary by going to $28,500 which was taxed. I remember that I called back and talked to Barbara

McCampbell, who was the head of Human Resources at the time, and I told her that I wasn't sure that I could take this job for $28,500. This was the beginning of my negotiating skills. I had no clue what I was even doing. And she said, 'No, that's the offer, forget it, take it or leave it. What did you expect?' I said, 'Well, I was kind of expecting $30,000.' So I didn't accept the job on the phone, and then David Kabakoff called me and said, "We'd really like you to come. I know it's low, but once we get you in the door, we can do something about your salary, but we can't do a thing about it at this point, you just have to take it like that.' So, I finally said yes to him, and they move me up rapidly after that, but it was kind of funny.

JONES: They were still offering stock options, right?

NOVA: There wasn't that much. It was like, I think it was 400 shares. It wasn't much. But again, at the time, I didn't even know what those were. I thought, 'Oh, stock. That's really nice.' They could have told me anything and I would have accepted at that point in my life. I thought that was pretty neat, actually. You know, at that point, the science was the most important thing.

JONES: Was this 1983?

NOVA: 1983, exactly right. So, I went in and was kind of given a couple of projects to work on. It turned out I was given the worst project in the whole company, but I didn't know that at the time. They asked me to work on the stabilization of prostate specific antigen, PSA, in serum.

JONES: Which turned into the best.

NOVA: It turned into the best product. What happened was, every time you took PSA and you put it into serum, it disappeared. It was being bound or destroyed, or what have you, I don't remember the details, but it disappeared. And they had to have serum calibrators to calibrate it against, otherwise it would be non-true human test, and all their tests had human calibrators, human serum calibrators. So, if we had to do something artificial, it would be against an artificial matrix, which was not desirable at all. So how can you take PSA and put it in serum? So, here I was, by myself, in the corner of the lab bench. I literally had like two feet of bench in the corner. I had a cubicle in the middle of a room with about twenty-five other people in this room, which was probably about the size of this office. I'm not kidding, there were twenty-five of us in a room this size. We were like in cubicle after cubicle all

around the room. Bob Woolford, Rick Anderson, and I all started about the same time, they put our cubicles in the center of the room because there was no space on the periphery. So, they put holes in the carpet, and they put telephones for us, and we were literally sitting in the middle of a room with twenty-five people. And the lab bench was probably two feet. It was nothing. We were packed in there like you can't believe. This was our first real building past the trailer. They thought it was luxurious. I thought it was unbelievably tight. So, I sat there by myself and worked on this PSA stability problem, and in two months, we had a project review. I really didn't talk to anyone for a couple of months. I was kind of by myself, and we had this project review, and I said, 'Oh, I've got this figured out,' and they said, 'You what?' I said, 'Well, I've got this figured out.' And they said, 'You've got to be kidding. We've been trying to do this for years.' And I said, 'No, it's quite simple.' I had just literally worked on it intensely for two months, and that patent plaque that's over there in that corner in that wood frame, is the front page of my patent that was issued for the stabilization in serum.

JONES: Yeah, I was looking at that, and they didn't actually file it until '91.

NOVA: Yeah, they didn't file until '91 because it was a real controversy within the company about whether they should file it or not, because they were wondering if they should keep it as a trade secret. So, that was the controversy. They were afraid whether to even let that out or not. So, they just wanted to keep it quiet because they thought, if we make these calibrators, nobody could copy them. So, that's why, they kept it quite a while before it was made public. So, that was quite exciting, and again, I didn't even know what patents were, or what that meant. I sat down with Larry Respess who was the general counsel at the time, for hour after hour after hour, explaining to him this invention, how I came up with it, and what sorts of other things I thought you could do with it. And I just thought, 'You know, this is such a waste of time, sitting here going over this.' And now I look back and think, 'Boy, was I stupid.' So, I got to hire a technician, two technicians, as my bonus for doing this. They were all excited that I had solved this, so it was great. Then they kind of knew who I was, at that point, which was funny. They assigned me the cardiac kit, CK-MB, and that was my reward. CK-MB was on the market, they had the first kit on the market, and it was a disaster. They had problem after problem and problem. CK-MB are enzymes, so they're difficult. They're very different than just looking for a protein, they're actually proteins that are enzymes, so they have stability issues, and what have you. So, I was given the charge of making a new product, which was called CK-

MB II. And so, I ended up having a whole project team around CK-MB II. That's where I really spent my next couple of years, working intensely on that.

JONES: So, the idea was to do the first one, only more reliable?

NOVA: Yeah, to improve the whole thing and make it more reliable, because it was a manufacturing nightmare. Every week there was something wrong with it. There were customer complaints, and on, and on, and on. So, that was quite a challenge, to start over, to pick new antibodies, and completely redo the product. But you had to use the old product as sort of the standard. You couldn't deviate from that because this is what the customers had out in the field, and we didn't want to go through too much with the FDA as far as the approval went. So, it was challenging. There was no question about that. It had a lot of attention. So, that was the good news and the bad news.

JONES: Who were you reporting to at this time?

NOVA: Gosh, I reported to so many people. We moved around supervisors a lot. I started out reporting to Jim Myrtle in the very, very beginning. He was my first supervisor. And then, as things changed and products changed, I moved around quite a bit. But David Kabakoff and I became very good friends and were close, and keep tabs on projects, so really, he was kind of the mainstay, although none of us reported to him directly, he became who became the most influential on all the projects, and was sort of the person we stayed in touch with. We had supervisors come and go, and people come and go. Then, the bad part of Hybritech, I actually reported to a guy named Steve Shaffle, I don't know if you've heard about him or not in Hybritech history, but several of us had to report to him, and we really didn't care for him, and it was really a miserable time, and then there was a big blow-up. It turned out he didn't have a Ph.D., and he left the company. It was quite a scandal at the time. It was just such shock to me. I couldn't believe that someone who actually do something like that. I was such a purist at the time that it was hard to believe that someone could do that. So, that was an experience I had never encountered before, as well. The neat thing about Hybritech, you never know how great something is until after you leave, you don't know at the time, but the people there were phenomenal, and the amount of talent that was there, and the intelligence that was there, and the energy that was there. It was unbelievable. And we were all so young. We kind of forget about that. I mean, this was really a young group of people. And we were aggressive.

We worked like crazy. We loved what we did, and no one had to motivate us. It's just incredible that that culture existed. I don't know how you can recapture that. I don't if with this next generation you ever can, but we were really dedicated to the cause. And the other neat thing was that at Hybritech, there was a lot of freedom. You could really do what you needed to do, and you didn't really have to get approvals every time you wanted to do something. Once they trusted you to do something, you got to do it. They'd say, 'That's your job, go do it.'

JONES: Did you have the resources to do what you needed to do?

NOVA: You know, you never had enough, that's always true. You never had enough people. But I had a terrific group of people that I loved working with. There was a real team spirit, 'Oh, you're on the CK team, and you're on the PSA team, and you're on the HCG team.' And because you could make these clear cut divisions within one group, it caused a lot of positive competition, but also a lot of camaraderie, too, so it was very interesting how it was able to do that, because it was easy to break up into these teams. But the neat thing was, we not only got to develop the products, we got to take it all the way. We got to transfer it to process development, we got to take it to manufacturing and QC, and we learned things that we had never been exposed to. And we were allowed to do it, because there was no one else to do it. That's the main reason we were allowed to do it, because there weren't enough people to do it. So, if you wanted your product to get out, you sort of had to take the ball to the next step. I laugh when I think back about how much we were trusted to do what we did, considering what we knew, which was nothing. It was a tremendous experience. I don't think I could have gone anywhere else where I would have been exposed to so much. If I had gone to a large company, they wouldn't have allowed me to do that. Why would they get inexperienced to do that? But at Hybritech, we could do that. It was neat.

JONES: After CK-MB, what was the next thing?

NOVA: I worked on alpha feta protein, which had already been approved for testicular cancer, but had not been approved for amniotic fluid for neural tube defects. So, we were taking the kit and just approving it for a different usage. And then, we had a big program on the BONEMARKERS, which actually, we ended up putting in the freezer. I don't know if any of those products ever came back out of the freezer, but it kind of came to an end. There was a huge bone program, and I was

working on calcitonin. We got the product completely done and it never transferred to manufacturing because it was a marketing thing -- would there be a market big enough for calcitonin.

JONES: But you got it to work.

NOVA: We got it to work, we got it done. It's probably still in the freezer with my labels on it. That was a little discouraging. You're told to do something, you get it done, and nobody cares. That was a little bit hard, but at that point, that was when the merger, the acquisition, not the merger, the acquisition had happened, and things had changed quite a bit. Priorities had changed, people had changed, things were changing, and were quite different after that.

JONES: Can you specify, the atmosphere, what kind of changes?

NOVA: It was hard. You know, it was real obvious to those of us scientists that this change meant that a lot of people there had gotten wealthy. We knew that it was a few, and that it was the people at the top, and it really wasn't the scientists, it was the administrators. Nobody really cared about that, but we saw a lot of new Porsches and Ferraris, and what have you, in the parking lot. So, we saw a lot of changes. I think the hardest part was we were all brought together after the acquisition and told that nothing would change, and then, of course it changed. I think that, in retrospect, I always tell the companies that I've been involved with after that is that that's not really a fair thing to say. If you have a merger, or acquisition, or something, things do change, and that's OK, and you should kind of warn your employees that it means something different, but it means something better, otherwise you wouldn't have done it. So, I really believed that nothing was going to change, and that was hard, because I wanted to believe that nothing was going to change, and after a year, I could see that the people that I really admired were starting to leave one by one. And that was very difficult. I spent a lot of time in Indianapolis those last couple of years that I was there, and I found that the emphasis wasn't on the science, it was different, it was on management, it was on quality this and that programs, and they wanted us to walk around with these buttons that said, 'I graduated from this quality program.' And I found that the emphasis on the science wasn't there, and that was why I'd gone into science, to be a scientist, and not to join quality teams, and I started getting disillusioned, and people that were coming into Hybritech didn't understand what I did. They weren't diagnostics people, they were therapeutics people. I think that Eli

Lilly bought a diagnostics company and they thought that they had bought a therapeutics company, which is what it was supposed to end up being, but that's not what it was. It was a diagnostics company. And all of a sudden, people were there who didn't even know what we were doing. That was difficult. They were neat people. They knew their area cold. They were bright. There were a lot of super people who came over from Indianapolis. The funniest part was that they were all whining about San Diego, and how they had to move to these small homes with no yards, because they had left these giant homes. It's interesting now, I look up and a lot of those people are still here. You know, they were convinced that they were going to go back to Indianapolis, and they didn't. In the end, they ended up going on to other companies here. But it was a real culture shock. It was not only a mix of scientific talent that was different, but age that was different. We were so young, and they were experienced, they were older. I remember we went to this meeting in Indianapolis to meet these scientists, and I'm talking to these guys, and they're telling me that they have granddaughters my age. It didn't feel like a collaboration. It felt like there were generations between us. I felt like we'll always be treated liked the granddaughter, you know, not as fellow scientists. So, it felt odd. The good part was that I got to go through their management program and things that I could never have done at Hybritech because, one, we couldn't afford it, and two, we never stopped long enough to do things like that. So, I got experiences and exposure to things that I would have never seen. I got to go through the management program and go to the executive dining room, where the CEO from Lilly comes out, this perfect man, you know, with the gray suit, the gray hair, and the shiny shoes. If you drew a CEO, this is the guy you would draw. He came out and gave us our little certificates and what have you, and to see that, to be exposed to that, was really great, I mean, it really us. But, on the other hand, at that point, I sort of decided that wasn't for me. And I knew that it was time for me to move on, and I missed the old Hybritech, and I missed the old environment, and that's when I started to get a little bit antsy, and that was 1988.

JONES: Where did you start to look, what did you start to think about?

NOVA: I didn't even know how to look to be honest. Talk about truly being a scientist -- I had no idea even how to do that, but I got calls. People who left Hybritech had given headhunters or other people my name, which was very flattering to get these calls. A couple of opportunities came by that I looked at, that I knew they were not very good. And it turns out that those companies never made it in town. So, I made the right decision. But then I was contacted by some of the venture capitalists

who had been involved with Hybritech in the very beginning, who were long out of Hybritech, and that was Kleiner-Perkins, about Ligand. And that was when I made the decision to leave and I went to Ligand. I resigned in December of 1987 and I went to Ligand in January of 1988 where I was employee number one.

JONES: By the time you got to Hybritech, was Howard already gone?

NOVA: No, Howard was still at Hybritech and I met Howard because Howard had done the licensing deal with NYU for my antibodies. So, Howard's was the first name I had ever heard from Hybritech. So, when I came to Hybritech, I went by and introduced myself because we had talked to each other on the phone from the NYU days. He was getting ready to go. He wasn't in the basic science side, he was in business development, and I was in science, so I didn't see him very much. I saw him to say hello. I can't remember what year he left, but then he went to Gen-Probe, but we did overlap and I knew him. When I went to talk to them about Ligand, it was not sure, at that time, whether Howard would be coming to Ligand. I talked to Kleiner-Perkins, they were talking to Howard, but they did not know. When I accepted the job, they did not know that Howard was coming to Ligand. So, I did not know until after I was hired that Howard was going to be the CEO.

JONES: So, at this point, it was just Kleiner-Perkins and they were talking to Scripps?

NOVA: They had brought the Scripps people over and then I was the first employee that was not from Scripps.

JONES: What did they want you to do?

NOVA: I was Director of Development, which meant assay development and to put the whole thing together because at that point, the technology was obviously different. It wasn't Ligand, it was Progenx, and the whole thing was monoclonal antibodies which I had done at Hybritech, and the idea was that you would take patient profiles, you would take patients' serum, you would run their profiles against all of these monoclonal antibodies and you would see this pattern, and you would see this pattern that Mark has, and this pattern that Tina has, and you would be able to look at these bands and see the differences, and that would tell you you're prognosis was different, and this drug had worked on you, but it hadn't worked on me, and that sort of thing, looking at these differences. I thought it was really neat because it was a cancer company, and besides that it got me back to the bench and away from quality

classes at Eli Lilly. I thought it was a great opportunity, and when I went over there, there were just a few people from Scripps there. I was the only person who had industrial experience, and the lab was empty. There wasn't a scale, there wasn't a vortex, there wasn't anything. We were in the General Atomics complex, and it was literally starting from scratch. I just acted like I could do it, and I was scared to death. Then Howard came two months later. I started in January, and I think he came in either March or April. I knew that they were talking to Howard again, but I didn't know in what capacity at that point. Then he came as CEO about three or four months after I had started. So, there we were over in this horrible General Atomics building. It was really bad back then. They've gone in and actually kind of fixed up those rooms. They were freezing in the winter and steaming in the summer, and they had those windows that would open, you remember in elementary school, they had those bars that you would take and open up the windows? It was like that, and you had these poles all over the place to open up windows, which was terrible because we had all this tissue culture growing and you didn't want to bring dust into these rooms, and every once in a while we'd go by some lab, and we would see these guys from General Atomics jackhammering out the floor because they couldn't get the radioactivity out, and I thought, 'This is the weirdest place, this place is so strange.' There were armed guards at the door every morning that you had to go by. It was bizarre, it was a completely bizarre world, that's for sure.

JONES: How did the company progress, and your role in it?

NOVA: I put the lab together, and I started working on the science with these monoclonals and what I rapidly found was that the monoclonals were not monoclonals. They were antibodies, but they were polyclonals. They weren't monoclonals. Things had been done in an academic way at Scripps, and they hadn't been put through the rigors that you put things through when you're in a company. So, I went in and started putting it through the rigors of industry, what you had to do to qualify antibodies, and purify antibodies, and in an academic environments, they don't do things like that. They just use ascites fluid and put it on the gels. Well, I took the antibodies and started purifying them and I saw that there was more than one antibody there. And what I figured out was that the fusion partners for the monoclonals were secretors, so they were making multiple antibodies, and that in order for us to clean this up, we would really need to make new monoclonals. Plus, we couldn't find any patterns. We had all these patient samples and all these patients' sample histories, and a zillion patterns.

NOVA: Even after purifying the antibodies?

JONES: Yeah, there was just no pattern there. It was just way too difficult a thing to do. And pretty much, the investors had been convinced by the scientists coming out of Scripps, that this had the potential to do this, and it hadn't been proven, like all companies that had started at that time, but it looked very difficult. And it was very hard to say, 'Oh, see this band here on this gel? That means that this person is a smoker and this person isn't.' It wouldn't hold up. Just nothing would hold up. It was crazy now that I think back on it. I can't believe that I even tried it, but that goes to show you what my personality is like. It gets crazier as the years go, you'll see. But pretty much, at the June board meeting, I didn't think that they had bought the car that they had picked out, and that we needed either to start over or do something else. That was a very low point in my career because I had left a very good job at Lilly, Lilly-Hybritech, and I knew that there was a tremendous amount of opportunity for me at that company because they had very few women in scientific management and they made it very clear to me that being a female gave me an edge and that they wanted to keep me. Then, all of sudden, I'm over in this company in which the science doesn't work six months later. That was very hard. I mean, I was proud of myself for scientifically figuring out the problem. On the other hand, I didn't know what that meant for my job and my career. It was a very down time for me. But, Howard, being Howard, had already started talking to Ron Evans about other technology because we knew we needed to strengthen the technology and this was the intracelluar receptor technology. So, at that point, we were going to do both. We were going to do both the old science and the new science and put the two together, keep them both going in parallel.

JONES: Did you see some way to proceed with the other?

NOVA: Well, we could have started over. We could have made new monoclonals. Yeah, we could have taken that from scratch to see if it still worked, but I remember Brook Byers said to me, we went to a party at Howard's ranch up in Julian, and Brook Byers and I were sitting in this little boat on this lake, and he asked me, 'If it was your money, Tina, would you continue doing this technology?' And I said, 'No.' And that was the end. We quit doing that technology and we started doing the other one. It was amazing. So, it was a restart is what it was. So, here we are starting from scratch again, after killing ourselves for the first year. So, it was two start-ups, not one. I count that as two, not as one. We renamed the company and we started over. Believe

it or not, the name Progenx was already. It's a horrible name, and believe it or not, two companies wanted it. We had no intention, actually, of changing the name because Progenx was protein - gene expression kind of put together, but there was another company by the same name. We were P-R-O-G-E-N-X, and there was a P-R-O-G-E-N-I-C-S back east, I believe, and they had trademarked the name before we had. So, we changed our name to Ligand and started the new technology, and here is this new challenge again. So, I go over to the Salk Institute and I see how they're transfecting cells. You transfect cells with these receptors, and then you test them with these drugs. That was the whole point. Make it high-throughput, make it so that you can test a lot of drugs, and use the intracellular receptors as the mechanism, which was new and different. I went over to the Salk and I watched them do the experiments and they doing them in these 10cm dishes, that are about this big, and every one of those was one drug, one reaction, one receptor. And I thought, we can't do it like that, that will just drive us crazy. So, we transferred the technology over to Ligand and we optimized it, it went through every component and said, 'Why are you using 10 millimole of magnesium?' 'I don't know, the last post-doc used 10 millimole of magnesium.' You know, we figured out whether 10 millimole right or not, and went through each component and each piece and optimized a complete assay. Then we scaled it down into 96 well plates, which a lot of people were very skeptical of, you know, 'I don't know if you can take it down to that level.' So, we did it in steps, we did 10 cm to 5 cm, and I forget how many we did in between, but it kept working. In fact, they were even actually getting better, and we got down to 96 well plates. Then I bought these Beckman robots, they were called, I forget, anyway these Beckman robots, it has an arm, and it comes over and gets pipette tips and goes over and goes into the 96 well plate, and you could program it any way you wanted. You could come out of a 96 well plate, or you could come out of a trough that had buffer in it, whatever. So, myself and two other technicians, Steve Roy and Steve Lecharsek, sat down and literally for about a month we programmed the Beckman Biomech, that's what it's called, the Biomech, to do what we wanted it to do. And we invented these assays, these transfection assays on the Biomech, inside of a hood, so it would all stay sterile for the cells and everything, and in six months, we had eight hoods, we had Biomechs in every hood, we had teams at every hood, and we were going through hundreds of compounds a day. And they still use basically that same technique today. So, that was a lot of fun, when we invented it. So, that was so cool, because at Hybritech, I was doing science and I was inventing things, and all of a sudden, I was at Ligand and I got to be doing it again. It was a lot of hard work, a lot of hard work,

starting from scratch, building out labs, hiring people. I was really the highest-ranking scientific level person at the company at the time, so I pretty much ran R&D for three and a half, four years, maybe, I can't remember, in that position, and mainly doing this screening assay and what have you. So, that was terrific, and then, let's see, how long did I stay there? I stayed until '92. And I just got bored with what I was doing. I was doing this high through-put screening over and over and over again. It was set up, and, in my office, I was just going through this much data, and then this much data, and this much data, and then, three feet of data. I was needed. It wasn't that I wasn't needed. It's just that I was doing the same thing over and over and over again. And I got tired of it, and decided that I needed a change again.

JONES: By this time, again, Howard was gone?

NOVA: Howard left six months before I left. He left in January of '92, I left in June. I think we both felt the same thing about the same time: time to move on. It's interesting how that happens. You just know. I really think there's a bell curve of contribution to a company, and you have to know when you're still at the top of that bell curve and to get out when you're still at the top of the bell curve, so you get out before you're on the other side of it, and you're detrimental. But at that point, they had hired a lot of big pharmaceutical people. And they were the right people to come in for the next generation. We were wrong, we were start-up people, we were different personalities. And Howard went on to, I went and I talked to Howard. He took two years off after that. That's when he was just Birndorf Biotech, but he pretty much didn't work for those two years. I, unfortunately, was not in a financial position to make such a decision.

JONES: So you stayed at Ligand for that period?

NOVA: I stayed for six months, and then I left and I was the first employee at Prizm Pharmaceuticals, which is now Selective Genetics. So, Prizm Pharmaceuticals. I was hired by Dick Schneider, who had been 3i and 3i was on the board of Ligand, so that was my connection. So, it wasn't, I don't think, 3i may have been an investor, but there weren't any companies in between here, so there was a connection back to Ligand. He was on that board, by having Dick Schneider, who was on the board of Ligand, in on the board of Prizm. At that time he was with Domain. So, he was with 3i when they made the original investment into Ligand. He then went to Domain, and

then Domain made the original investment into Prizm Pharmaceuticals. So, here I was, employee number one for the second time.

JONES: Where did the technology for Prizm come from?

NOVA: That came from the Whittier Institute, which was an off-shoot of Scripps. It was called the Whittier Institute for, it doesn't exist anymore, it used to be over at Scripps Memorial Hospital, it was called the Whittier Institute for Diabetes Research. The Whittier Family put the money into the institute, and that pretty much ran out. There is still something over there called the Whittier, but it isn't the way it was at that time. But all those guys had joint appointments at Scripps, so it was really part of Scripps. And that technology was growth factors and hooking toxins to growth factors, so it was targeted therapy. It was brand new. So, there we were, an empty lab again, a bunch of academics who don't know how to do anything, transfer the technology, optimize it, blah, blah, blah. I knew how to do it. I had it down by that point, starting a company by scratch, negotiating building leases, and all that sort of thing, and we built out the space over by Protein Polymers on Sorrento Valley Road. I stayed there for only two years. I was the vice-president and chief operating officer. I helped put that together, and I married one of the founders of the company, and decided that the two of us shouldn't be at the same company at the same time. Which they were not happy about. They wanted me to stay and they didn't care that we had gotten married. That was OK with them. But it wasn't OK with me because I didn't want to work at the same place as my husband, so I made the decision to leave. In the meantime, I had been talking to Howard about Nanogen. He was going to be coming back to work, and he called me about Nanogen. It sounded exciting, and by that time, it had been a two year break, and yeah, let's go do something again, and so we both came here together in the very beginning of '94. He put seed capital in in '93, but we really started the company in February of '94. So I said, 'Look, you get your first round of financing in place, and I'll come over there, and soon as I finish the financing at Prizm, because I'd knew they'd be mad I was leaving, but I didn't want to leave them without money. So, we went out and raised $16 million over there. They had hired a CEO, and so we had a six month overlap, so I knew it was OK, time-wise, to go. So I left and came here in February of '94. And I've been here almost five and a half years, which is amazing. And here we were again, no building, nothing in the lab, no people. So that was number three. It was exciting.

JONES: So you've done it all again, taking care of all the operations.

NOVA: Yeah, I like all the operations stuff. I like the details, I like the people-hiring, I like putting the labs together, I like getting the equipment lease lines, getting the science together. I did Human Resources and Finance here for three years before we hired anyone. I love all that diversity, and again, since this was my third time doing it, it became a little bit easier. It's a heck of a lot of work, yeah, but I like all of the operations stuff. Howard is not an operations person at all. In fact, I think that's why we get along so well, because we complement each other. We have completely different skill sets, and so, I think he does what he does much better than me, and vice versa on the inside. I think that's why we've paired and been successful a couple of times now.

JONES: Where do you see yourself going from here?

NOVA: Gosh, that's a great question. Well, Nanogen isn't done yet, as far as me personally, because we're just starting to introduce the product, and we're just at the point now where we're starting to see five and half years of hard work come to fruition. And so once I feel like it's gotten over the stage where I've seen it actually be successful, then it'll be time for me to go. Back to my bell curve, you've got to know when you're right for the company and when it's time to leave. I don't want to be a detriment to Nanogen, and at some point, when it's a huge commercialization, when the company is over that line, they're going to need someone very different from my skill sets, and those I don't have, and then I should move on and make that space available so, I just have to figure out when it feels right. It doesn't feel right yet. I'll know when that time comes. What's next? Good question.

JONES: Well, there's a lot going on here in San Diego.

NOVA: There's a lot going on in San Diego, and I want to stay in San Diego. My husband has a company here. My kids are in school. I have a daughter in high school. And so, at this point.... She's my Hybritech baby. I have a Hybritech baby and a Nanogen baby. It's not a good time for her to leave. But I'm happy here. I have no desire to leave. I don't think I need to, because I love what I do, and that's what important. I think it's a little crazy, and I think, 'Why am I working this way? Why am I working this hard at this point in my career, but....'

JONES: How hard do you work? When do you start in the morning and when do you quit at night?

NOVA: I put in pretty long hours. I'm here anywhere between six and six-thirty every morning, without fail, and if I'm not here by then, I have major anxiety, and I can't do anything until I get here. And my kids are asleep at that point, so it's great. I'm leaving, but my husband who is not a morning person takes care of the whole morning then. So, I get a good couple of hours of work done before I see one human being come in the door, which is terrific because I get a lot done.

JONES: Has this been a consistent pattern?

NOVA: Yeah, it really has. I've probably been coming in earlier in the past couple of years here than I have. It used to be always seven o'clock, and it's moved and it gets earlier and earlier, but mainly because I feel like I have so much to do. The more responsibility you have, the more you have to do. So yeah, I am a morning person. I was raised on a farm in Central California. My family are farmers, my brothers are farmers, my sister is a farmer. My sister-in-law is from a farming family. The whole group are farmers except for me. I'm absolutely the black sheep of the family.

JONES: What do they make of you career here?

NOVA: Oh, they think I'm totally bizarre. They're not quite sure what I do, but they're very, very supportive. But my dad was Mr. Work Ethic, I mean, he was like up in the morning early and get to work, and you know, that's the only way you get ahead, is to work hard. So, I was raised with that my whole life. When I was a kid, on Saturdays, both my sister and I got up at four in the morning, five in the morning, and went out and raked hay and cultivated cotton, and that sort of thing. I spent many years on a tractor, so nothing will get you educated faster than lots of years on a tractor, I'll tell you that right now. So, anyway, I've always been able to wake up early, and I find that it's a great time for me. And I usually stay until six every night, and by six o'clock, I'm dead, you know, I've put in my good twelve hours solid, and I go home and deal with the kids and all their issues, and what they need me for, and then about ten o'clock, I'll spend another hour and a half with whatever pile of reading and things I need to do, just kind of clean-up work, so thirteen and a half to fourteen is my usual. And weekends when I have to. I'm much better about that than I used to be. I don't do it as much as I used to because I didn't think it was fair to my kids. Actually before I had kids, I would do it all the time, I would never leave work at all. Back in my early Hybritech days, I was really bad, but I've gotten better. I've put a little bit more balance in my life. It took some time.

JONES: Nanogen will be manufacturing here in San Diego, right?

NOVA: That's the plan, right. Both Howard and I really don't want to leave San Diego, and do we think we could go somewhere else where the conditions may be better, in quotes, than they are here, looking at the city, looking at the traffic, looking at California? You know, sure, we could probably find somewhere else that would meet all of those requirements better. But I really want to keep the research and the manufacturing in the same place. I'm just a real believer in that. I think that when you start separating things, they never work the same. This science is tough. This is not easy science. This is not making things that are simple, and bringing them in and expecting them to work. This is very tough work and very tough science, and the integration of this is going to continue to be of great difficulty, and having the two separated would be a real mistake. We have not considered anything away from San Diego for that reason.

JONES: Are you in touch with the technical problems at the bench?

NOVA: I am. R&D reports to me, so very I'm up on it. I have never left that. I think that's the part of my career that I've enjoyed the most is staying close to the science. You know, I think most people in my position, you know, at this point in my career, have left it, pretty much, and aren't as close to the science as they once were. But I have not, because that's what I love. That's what I do, and so yes, I'm very close to it, and I think that helps me make much better decisions about what needs to be done because I understand the science. I think it's a great advantage.

JONES: What are some of the problems that you've had with this particular technology, working with things very small?

NOVA: Yeah, this was tough. This is toughest technology I've ever worked on. There's no question about that. I mean, Hybritech was monoclonal antibodies. There's a frame of reference. There were lots of monoclonal antibodies. If you got stuck doing something, you could go to the library and look up how other people had solved problems, and you could apply those to the science you were doing. The same thing was true of receptor assays at Ligand. But at Nanogen, everything we did was new. We invented the science here. We invented putting together microelectronics and molecular biology, putting molecules in an electronic field. There is no frame of reference for exactly what we do. You can't go spend three hours at the library and think about a scientific problem and solve it with other things you read. So that is

what has made it the toughest, and sort of the integration of all these pieces that have never been put together before. I remember we first started Nanogen and I went to a chip manufacturer, and I said, 'We need to manufacture some chips and this is what we're doing,' and he said, 'You put a wet sample on these? Well, what for? These are electronic devices. You're not supposed to put water on them,' like 'You stupid idiot.' And I'm shaking my head, 'Yeah, I know.' So, this industry says, 'You're not supposed to do this,' and this industry says, 'You're not supposed to do that.' We said, 'OK, fine. Now we're putting those two together.' So, we did things that were not conventional. That has been the toughest part of this science. And as you said, just working with a few microliters in a very small area is very intense and not easy to do. And then the hiring has been interesting because, you know, you put together engineers, and molecular biologists, and chemists, and microelectronics guys, people who have never worked next to each other in their whole entire careers.

JONES: How has that worked out? Have there been culture clashes?

NOVA: Oh yeah, it's been very tough. First of all, it's been very difficult to find people who will appreciate the other side. You know, if you ask most engineers, 'What do you know about DNA?' they'll say, 'Well, I know it's in my cells, but that's about it.' And the same thing with molecular biologists, "What do you know about electrochemistry and engineering?' Well, nothing. It's hard enough to hire hard-working, dedicated people. So, how do you hire hard-working dedicated people who will step outside of the box, if you will, and look at the other side? So, the interviewing and the hiring has been tougher here than any place I've ever been before. And you have to say, 'You are dependent on other's people's problems. You can't just go off and do what you're doing. At Hybritech, if one person wasn't doing something right and was screwing off, that didn't hurt you. You could just go do your job. It was like, 'Hey, that's their problem.' But here that's not true. You're so interdependent. The chip people have to make the chips, the chemistry people have to put a chemistry on top that works properly, the molecular have to put the probes on correctly, and then the whole things has to come together. It's kind of like the old box of Christmas lights that you get out of the garage once a year. You put them on the tree and you hope that when you plug them in it really works. It's the same thing here. All these pieces have to come together, and you've put a lot of work in it until you plug it in and see if it works, and so you're much more dependent on your partners, so that's different. That's really different. But I think this generation is a

little bit more cognizant of that than we were, and is a little bit more cross-trained than we were, and that helps a lot.

JONES: Howard put his own money into this, yes?

NOVA: His contribution was very small compared to what we've spent. That was because he believed in the technology and he knew he would get a good return for that investment. We already had a venture capitalist. Enterprise Partners was already in the company in the beginning to put in the majority of the seed round, and continued to be part of the subsequent rounds. We could have raised venture capital independent of that. Enough people were excited about what we were doing that raising money for this company has never been difficult, because people are very jazzed about the science. It's actually an easy sell, if you will, compared to other sciences. People are excited about it.

JONES: Even without having it…

NOVA: Proven? Yes, it's true, it's true, but it works, and we couldn't have raised over a hundred and some million dollars if it didn't work, and I have to tell you, when I came here, we didn't know if it would work. In the beginning, there was an idea, there was some data, it was very limited. We filed our first patent in September right before we started the company, but it was questionable whether it would all work and come together and be a viable product. Working and being a product are two different things. We knew it would work. We didn't know if we could would turn it into a product. That was chance we took when we came to the company, but I loved it, Howard loved it, we both thought it was the coolest thing we had seen, and we were going to make it work, and I think we have. I know we have. I love that.

JONES: What's your experience as a woman being involved in this business? Are you involved with Athena at all?

NOVA: I have given talks for them. I'm not a regular meeting goer to anything, and mainly because, as I said, I'm here at six o'clock in the morning. It's hard for me to get up and leave, go to a meeting, and come back, not that I'm not supportive. I'm very supportive of those moves, and I know Barbara Bry, who started that, very well, and she's terrific, and a lot of women involved in that are terrific who I know well. But, yeah, Athena started out and had just a few people attending the meetings, and now it fills an entire room at the Hyatt. It goes to show you how things have changed. I

never found it an obstacle, being female. I think that's one reason I've really liked the start-up stage because I don't think it matters what you are, especially in the beginning. All you have to do is do the work. The work needs to be done, the science needs to be put together, and it needs to be successful, and I don't find the venture capitalists really hung up on who does that. If you're willing to come in and put in thirteen hours a day, they don't care if you're animal, mineral, or vegetable, I mean, as long as you come in and do that, I mean, they're very supportive of you. The most prejudices I have felt have been when I've been associated with the bigger companies. I mean felt it at Lilly, big time. Looking around and seeing how many women scientists were in management, and they were not there. And this is quite a while ago, and I know that things have changed there, so I don't mean to be unfair, but at that point, I really felt like an oddball. And when the guys came in from the large pharmaceutical companies in Ligand later in my career, they were not used to working with women at higher levels, and it was different for them, too. So, I find that the closer I get to the larger companies, the more I feel that. Being at the smaller end, and the start-up phase, I don't feel it at all. It's never felt like an obstacle, and I've never let it be an obstacle. I mean, I think many women get very hung up with things, they get hung up with what they hear, and the jokes, and I think they let it get in the way. I never let it get in the way. I love what I do. And that's what I want to do, and I don't care who doesn't bother me at all. And so, no, I don't think it's been an obstacle. You know I've talked to other women about what I do, and they say, 'I want to do what you've done,' and I say, 'OK, but think about it. It's not easy. Do you want to pay that price to really do that?' I think younger women have much better balanced lives than women my age. I'm forty-six. I think that my generation had a tough time -- we're supposed to be like this, but we're trying to do this, and we've tried to balance everything and do everything, and we didn't do a good job. Most of my friends that are successful are divorced. I'm divorced. I was divorced before and got remarried. And I think we paid a price to do what we were doing. I think the younger generation has that balanced better, and they've put they're family and career, they're not afraid to say, I have to leave at five o'clock to go pick up my kids and go to soccer. My generation didn't feel comfortable doing that, saying, 'I've got to go pick up my kids at five o'clock.' We would make other excuses, 'I've got to go to the dentist,' you know, something that was more acceptable because it didn't feel acceptable to make those comments. And whether it was or wasn't, I'm not sure, but it didn't feel right, and it didn't feel like you could easily do that. Women have gotten over that, which is terrific. I don't think I could have gotten where I've gotten if I

hadn't put in the time that I've put into it, I really don't. How do you tell women, 'This is the price I had to pay, do you want to do that? Think about it.' I find that they often get to a certain spot, a certain point, senior scientist, principal scientist, manager, director, and then they say, 'I don't want to do what you do. I'm comfortable where I am.' So, I think that as long as you understand that, it's OK. I think because it's hard to do, and the hours, and the pressure, and the stress, I mean, it's a lot of stress to be responsible for and what you're taking on. It's a tremendous amount of responsibility, and I've never taken that lightly. I think it's a mistake if you do. I also think you can't forget where you came from. I keep my tractor stories handy because I don't want to end up back there. And I remember what it's like to live on twenty thousand dollars a year. I remember what it's like to say, 'OK, which bill am I going to pay this month?' If you forget that, I think that you lose touch with people and what they're trying to do in their careers, and where they're going. I think that's really important, and I don't take the job lightly, and therefore the pressure and responsibility of it is tremendous, and you have to be willing to take that on. I help them as much as I can. I meet with a lot of women who call me up and say, 'Please, could I just come by and talk to you, and could you help me? Can you look over my resume, where should I go?' I do it for men, I do it for women. Whoever calls me, I do it for them. I say OK because someone helped me, and it's really nice to have someone help you. I think that women haven't had a lot of mentors, and it's been tough for them. I now think that there are a lot of women out there who are good mentors, who are available, you just have to go ask, and it's amazing if you ask, you can get it. And the venture capitalists have been terrific to me. Howard has been terrific to me. No one has ever gotten in my way because I'm female, but then again, I've been here for them, too, so I think it's both sides. As I said, if they want to tell their stupid jokes and go play go play golf, fine, go, get out of here. It doesn't offend me at all. I hear women say, 'Doesn't that bother you when they go play golf.' I say, 'No, I hate golf. If I wanted to play golf, I could play golf. I don't want to play golf. When we have a break, they play golf, I go to the mall. I'm thrilled, they're thrilled, OK? We each get to go do like I have to compete with them, and do exactly what they want to do. I have my thing.

END INTERVIEW

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Tina Nova. Interview conducted by Mark Jones, April 26, 1999.
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.