

The American Association of Immunologists
Oral History Project

Transcript

Ellen S. Vitetta Ph.D.
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Interview conducted by
Brien Williams, Ph.D.

Williams: This is an interview with Dr. Ellen Vitetta for the American Association of Immunologists Centennial Oral History Project. Dr. Vitetta is professor of immunology and microbiology at the University of Texas Southwestern Medical Center and a distinguished teaching professor at the UT Southwestern Academy of Teachers. She's also the Sheryle Simmons Patigian Distinguished Chair in Cancer Immunobiology and Director of the Cancer Immunobiology Center at UT Southwestern.

Dr. Vitetta was president of the American Association of Immunologists from '93 to '94, and served as an AAI Council member from 1988 to 1993. She was awarded the AAI Excellence in Mentoring Award in 2002 and the AAI Lifetime Achievement Award in 2007.

We are in the Cancer Immunobiology Center at UT Southwestern. Today is Monday, April 15, 2013, and I'm Brien Williams.

Williams: Let's start now with you talking a little bit about your interests as a child.

Vitetta: Well, as a child most of my interests revolved around two things that would be relevant to this interview. I loved math. I was very convinced for a long time that I would end up as a mathematician. And I loved animals, and I don't mean just dogs and cats, but ants and spiders and snakes and lizards, and I grew up in a household full of them, to the dismay of my parents, birds flying around and all this sort of thing. So I was very interested in perhaps becoming a veterinarian.

Those two interests were carried through quite a while, through high school

already married with a child. I started very young. So it turned out to be a good location and it turned out to be a really fantastic place.

Williams: So you were there for three years?

Vitetta: I was actually there as a student, I was there as a fellow, and I was there as a faculty member. As far as I was concerned, I was going to spend the rest of my life, if not in New York, on the East Coast. So, of course, coming to Texas was quite a cultural change for me.

Williams: Right. We'll get to that. Talk about some of your mentors at NYU and your favorite people.

Vitetta: There were many mentors, but I would have to say that the mentor that made me into an immunologist and eventually hired me in Texas and became my boss was Dr. Jonathan Uhr, who I know you'll be interviewing, and he was a fantastic immunologist. And actually sitting in second year medical school listening to his lecture in immunology, it was at that moment I decided I wanted to be an immunologist. A few meetings with him and a few meetings with his colleagues and others over the next few years made it clear to me that's what I wanted to do.

Williams: You have spoken of several what I'd call sort of "aha" moments. Another one occurred for you at Cold Spring Harbor, didn't it?

Vitetta: The Cold Spring Harbor event.

Williams: That was when you're first attending there a meeting, it may have been even one of the earliest meetings of immunologists there, not sure, and it had to do, I think, with the B lymphocytes.

Vitetta: I've been to several Cold Spring Harbors. My very first Cold Spring Harbor meeting was as a student, and I went there as a student, as an observer. I
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Vitetta: Despite everything[laugh]

Williams: What were your own personal ambitions when you got here? What direction did you want to take yourself in?

Vitetta: I wanted to understand several things, and they had to do with how we make antibodies and why we make antibodies and what kind of antibodies we make and the cells that make them and how they know when there's something foreign in your environment that they should make an antibody against instead of making it against your own.

That involved at that time understanding how B cells worked, and Jonathan and I shared that interest and ran a joint laboratory, and we recruited students and fellows into that laboratory. I would say for the first ten years that we were here, we unraveled the nature of the receptor on B cells and how it was able to sense a foreign organism and many questions related to the biology of B cell biology. It was an exciting time because it was virgin ground and everything was new and nothing was predictable, and you had to put things together that didn't seem to go together, and that's just what I love. I love that kind of thing.

Williams: Did you have a sense of competition in that area of exploration in other institutions around the country?

Vitetta: Sure. I think science is by definition a very competitive profession, and sometimes the competition is friendly and sometimes it's not friendly. But I learned very early on that we were really all on the same team, and the competition was not to be ignored or blown off or treated as if they were trying to destroy your work, but rather they were part of a team. So I very quickly got over that personal thing that many people have where they don't like their competitors. In fact, if you look at my publications, most of the time I linked up with my competitors and we ended up if you can't fight 'em, join 'em sort of thing, and we worked together, and that was very stimulating to me.

Williams: How has the spirit of the place changed over the years?

Vitetta: I think it's changed in many ways that's not unique to UT Southwestern, but it's probably common in many academic institutions. We've grown larger. We were a small, very small group, where we would meet each other in front of the candy machine or outside the restroom or in the halls, and we'd talk and there was a lot of crossfertilization of ideas from different fields.

Then the school began to grow and buildings grew up everywhere, and we became a two-campus kind of institution on two different sides of the street, and a two-hospital and three-hospital. It became bigger and bigger where you didn't really run into people as often. We began to accumulate Nobel Prize winners on the campus, and it changed. It changed in many ways the culture of

Southwestern. We moved up the list of the best medical and graduate schools in the world, and instead of being a mom-pop sort of thing, we became much more wellknown, and along with that, there's a certain price you pay.

Williams: How did Dr. Uhr relate to these changes that were occurring?

Vitetta: I think he probably felt them, too, but he and I had had one feature that I think was important, and that is that we loved our science and we kept our eye on the ball. So when Form 673 had to be filled out or you couldn't inject a mouse, we just made jokes of it and moved forward. We didn't waste our brain space, you know, agonizing and complaining about it. We both had a very well-developed sense of the ridiculous and would sometimes lock ourselves in a room and just get hysterical and laugh about all the crazy things that we had to do to get from A to B to C

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Williams: Why don't you name them and their applications.

Vitetta: Our main platform to begin with was to take monoclonal antibodies that recognized disease-causing tissues, for example, a tumor, a B lymphoma, and we would take that antibody and we would attach it to a warhead, and our particular warhead was a piece of the toxin ricin. We would then send that into a mouse to start with, and it would home to the tumor, and it would be internalized, and the tumor cells would be destroyed. So it was literally a ballistic missile, and it was incredibly effective in mice, and we were able to develop a procedure. Not easy to scale it up in our GMP lab, because, after all, you now had to make it extremely sterile with very defined conditions acceptable to the FDA, homogenous, able to withstand storage and quality control testing, and then take it into a human clinical trial.

What dose do you use? Where do you start? The first trials you do in humans are not to see if you cure anybody, just to see if you don't kill anybody. So you take very terminal patients who have nothing else for them, and you gradually give a drug, and you see when side effects start to happen. In industry, side effects start to happen, typically in a company's the end of the drug, but in academia, the difference is we could go back and say we've got a side effect, we've got to understand it and we've got to get rid of it, and we would reengineer our molecule.

We realized after studying this for so many years that we knew exactly how to make a vaccine as long as they would pay for it or give me a grant to do the work. We developed a recombinant ricin vaccine that was totally safe. We could grow bacteria in the laboratory and purify in two steps and make in huge quantities, and we actually carried out two clinical trials on volunteers here at Southwestern, our medical and graduate students. It was a very exciting time to actually do that. The trials worked beautifully, and the vaccine is now awaiting further steps. We hope to move it to the national stockpile. So that was exciting.

Then, of course, having now done therapeutics and vaccines, it finally occurred to me how we might make vaccines for more ordinary things, viruses, infectious bacteria, and we're currently working on a platform that we're very excited about that we think may be applicable to things like hepatitis and West Nile virus and HIV, entirely out of box, typical me, upside-down-backwards approach, and that is being studied now in the laboratory.

Williams: How large is your laboratory now?

Vitetta: Now it's small because of the funding cuts. We went from forty to thirty to twenty to twelve, and now I think we're at about ten, and grants are hard to come by. We have to make really careful decisions whether we'll do this experiment or that experiment, whether we use ten mice or six mice, and it's become a huge source of frustration to me because when you have something going and working, you want to just go at it. And I have to sit with budgets and figure out just what I can afford to do, and it's not always what I want to do. Until our government

Vitetta: Right.

Williams: But now it sounds like maybe it became more cohesive, or am I wrong about that?

Vitetta: In terms of where we are with the vaccine program, etc., no, I would say it's just the opposite. I would say that we've had to get more interdisciplinary. For example, we do much of our chemistry now for this new vaccine platform for viruses and bacteria with chemists who work in Berkeley, and we actually send our students and our fellows out to the Berkeley laboratories where they do

Southwestern, and we had a very large symposium where we had [James] Watson and [Francis] Crick and [Sydney] Brenner and [David] Baltimore, and you name it, and there wasn't a single woman on the program. So the women here, who were still few in number, began to contact each other and say, "There's something amiss here."

So two of us, another full professor in biochemistry and myself, took it upon ourselves to formally complain to the president of UT Southwestern, and that brought the local Dallas newspaper into the picture, which is another. We found ourselves sitting up in the President's office in, as we call it the tower here, the big tall tower building, and complaining that this was unacceptable. It was sending a bad message to the women here, you know.

about childcare, about the seminars, about who to talk to if they have a problem or an issue with their director or their chair, and it's made a huge difference here. It's not solved yet but it's gone a long way, and I'm really very proud of that.

Williams: What about the balance between men and women in your graduate school and postdocs and so forth?

Vitetta: I would say that the balance here is pretty much the same as everywhere, and it goes something like this. If you look at our medical graduate students, it's fifty-fifty male and female. If you look at our assistant professors and then our associate professors and then our professors, it's a pyramid. So by the time you get to the top and you look and you ask how many female chairs do we have at Southwestern and the center directors, it's four. We're talking about 10, 12 percent.

Having watched that, I realize we're stoking the pipeline with a lot of women, but they're dropping out or leaving as they move up the ladder. As you know, this is a very popular theme these days, why women don't stay. Is it our fault, or is it the system that discriminates against us? I have my own views of why it happens, so it's really a mixture of factors, and I think this recent book, *Leaning In*, addresses many of them that I've dealt with myself.

Williams: What are some of the top ones, your candidates?

Vitetta: I would say that there is an inherent but not intentional bias on the part of many males that's hard for them to have females as equals at the highest levels. So it's fairly easy when you're starting. You're all in the *Titanic* together and it's rapidly going down, and you're each for each other. But as you go up the ladder and your competition is male versus female, this sort of attitude that you have to be twice as good and work twice as long to be a female just happens.

You've probably read about this, but there have been experiments, experiments where grants have been reviewed with a female name versus a male name on them, and the predictable occurs. So part of it is this unconscious sort of fear of having a woman as an equal at the top of the ladder. That said, I think there's less and less intentional sort of sexism, and we're more aware now that women have to be treated equally, and we have rules about that.

But I think the other half that people don't appreciate is women themselves choose not to get to the top. Why do they do that? And I don't think it has much to do with the family, the family versus work if you will don't know how to put it, but being pulled in two directions. I think that's a problem, there's no question about it, and it was a terrible problem when I started. But now with childcare and with leave and for example, here a female or a male child provider can take a year off the tenure track, which is also something else that WISMAC did. So it's not so much a problem, it's just a very hard time for a woman.

But I think what happens—and this has been my personal observation—is that women don't like combat and they don't like confrontation. They tend to like interactions and camaraderie and working together. And as you move up the ranks, there's a lot of competition and combat, and women just say, "I don't need this. I can be happier doing something else; I don't have to go in with my helmet on every day."

So a lot of them just choose to leave this and go into, if they're a physician, private practice, or if they're a basic scientist, into a pharmaceutical company where there's a less stressful, more amiable situation. So it's hard, and I find myself sitting with the other chairs and center directors, usually one of the two women who shows up, and I find that room very filled with testosterone. I have to realize that, and I have to know that when a woman says something that it will be listened to and not commented on, and then ten minutes later a male in the room will say the same thing, and everybody will say, "That's a wonderful idea." And I have to realize that it is that way, and I just learned to realize that if it's implemented and it's a great idea, it was my idea, and I have to be happy with that.

But someday maybe it won't have to be like that. The good news is I'm sitting there. So I'm very pragmatic that way. I try to change it, and I try to tell women what they'll be up against and to not buckle at the knees. I appreciate this is the way it is, nobody's out to get you, it's not intentional, we're just different genders and we think about different things.

Williams: Speak for a moment about Linda Buck.

Vitetta: Oh, Linda Buck. Linda Buck was my second graduate school student here, was working in our B cell group, was a very ordinary graduate student among several, but had one extraordinary quality, and that was that she asked more questions per unit time than any student I've ever had. And she would follow me into the restroom to ask questions, she'd follow me down to my car to ask questions, and the questions were sometimes insane, but sometimes they were incredibly interesting questions. She also had an enormous amount of stamina. When she got her teeth into something, you couldn't yank her out without yanking her teeth out at the same time. [laughs]

So, between her questioning and her stamina, she went off to do a postdoctoral fellowship initially, at my suggestion, in immunology and moved on from there to a neurobiology laboratory. We stayed in constant touch, and we would tell each other the various things happening to us in our lives. I gave her a lot of advice about negotiating the shark-infested waters.

I remember the day that they submitted their paper, which would eventually be the basis for the Nobel Prize, Richard Axel and Lip Libman and Linda Buck. When I saw the

paper, she sent it to me, I knew this was a Nobel Prize. I knew it was so incredible, and it was really a question of time and politics, and since Linda was a fellow when she did the work, whether the prize would go to her mentor or her or both of them. But as soon as that paper was submitted, she left the lab where she was at, and she established her own lab at Harvard, and she continued full speed ahead, and Richard Axel continued full speed ahead, and they both managed to feed the concepts and continue their work. The work was extraordinary from both of them.

I remember the call I got after she'd heard from the Nobel Committee very early in the morning she called me and she thanked me for teaching her how to do science. And since I'm a consummate teacher, that was, for me, one of the most wonderful things I've ever heard from a former trainee. So I was very excited and

Then about four hours later I got a call from the dean at UT Southwestern congratulating me but also telling me that I had won the Outstanding Faculty Teaching Award. And then I gave my presidential address, and when I came back to the room, flowers had come from everywhere, from every country, from every state. The room was festooned with flowers. My wife was answering the door and finding places to put the flowers, between the National Academy and the teaching and all these things at once. The address went fine, my presidential

myself stand in an office with a senator in my case once with Hillary Clinton, and explain what we were doing and have them actually not fall asleep or go into a coma. And that was important to me. I think we scientists don't understand that we can't expect support and excitement from people when they don't understand what the hell it is we're doing, and that was important to me.

Williams: Elaborate a little bit on your meeting with Hillary Clinton.

Vitetta: Oh, it was interesting. Hillary was then very into her healthcare interests, and I was called upon in a context we won't go into, to talk to her about these issues and what immunologists did and why it was important and why it should be part of her thinking, research in immunology. I found her to be incredibly brilliant incredibly brilliant and insightful, but incredibly removed from any understanding of what it is we actually do and the day slogging through the trenches for a scientist and that a mouse may cost \$40. These are things that most people don't understand.

I also realized then in speaking with her and subsequently others that the government has to allow scientists to do what it is they do best, which is to be creative and thoughtful and not tell us we have to work on AIDS or Alzheimer's or biodefense, that the best ideas will not come from (t)-2(hTc -0.002 Tw 4.96 0 Td [(e)6(,)

like to be, because you can only be active at so many things, and the women's thing was my number one priority.

Williams: Do you think the AAI today is different from what it was like in the mid-1970s, or not?

Vitetta: It's hard for me to say since I don't sit in those meetings. So you're talking about the AAI Council or the AAI as an association?

Williams: As an association

Vitetta: Well, I think the Association has changed. I think it's grown larger. It's become much more multiethnic. It's become much more political. The word that comes to mind is "political," but what I mean is that people now are very afraid, because of the limited funding to insult anybody because they might have something to say about their grant application. So people are much more careful about what they say or about confrontation or questions, while when I started in the Association in '74 and when I was president in '94, you could get up at a microphone and you could say, "That's the craziest thing I ever heard. You just did that experiment wrong. It's not the way it should be." And people were okay with that, and now they're much more guarded and much more afraid of the system, and I think that's bad for science. I think we need to remain open and we need to argue. Arguments are always a wonderful thing in science because it makes you clarify your own thinking to listen to your own words coming out of

they say, “We’re going to hire you for this side.” But I could just as well argue the other side, because nothing’s black and white. It’s all gray.

So I find it interesting. It makes me brush up on my own skills and the history of various things. They send me documents and patents, and I have to reinterpret them back twenty years. I have to take my brain back, and then I take my brain forward again and try to put the two together. That part is extremely ~~interes~~

I find talking to juries very interesting because you’re taking people in everyday life who don’t know an antibody from a hole in the wall, and you’re trying to convince them that this person has infringed on that patent for something they are clueless. They’re just waiting for lunchtime so they can have their sandwich. And you have to be able to ~~go~~ there as an expert witness ~~and~~ you have to grab them. You have to make analogies to things they understand, how to make an apple pie or how you put gas in your car, and reduce everything to an understandable analogy so that they can think through the problem. That’s a lot of fun because I’m a teacher at heart, so I like that.

The other thing that’s very nice about it is it’s ~~real~~ way to raise money for my Center, because if you write a grant for \$100,000, you put in hundreds of hours and you get it or you don’t get it. I know for every hour I’m on that witness stand there’s money ~~goi~~ into my Center. So I feel that at least it’s a guaranteed way to help support my ~~center~~.

Williams: As a consequence, do you become longwinded?

Vitetta: No. I’ll tell you what takes the time. Where you make money, the most money, is not actually when you’re in court, but the preparation, because a ~~box~~ will arrive, and I’m not talking a ~~box~~; I’m talking a *box*. In there will be sixty documents that you have to read in two weeks and have a ~~height~~ conference call and be able to go line by line and comparison to ~~compare~~ and keep it all together. And ~~the~~ reading of those documents and the thinking and putting your arguments together is very ~~time~~ consuming, so you charge a law firm for the hours that you spend.

Then, of course, you’re deposed by the opposite team, and you’re in a room for four hours ~~being~~ questioned and challenged and yelled at, and you’re getting paid to be abused for those hours. [laughs] ~~Yeah~~, I think it’s really interesting. It’s really interesting and exciting to me.

Williams: What advice do you give your trainees today about careers in the field?

Vitetta: That’s a hard question to answer, and it depends very much on the person I’m advising. If somebody wants to be like me and wants to be eventually a chair or a director of an academic institution, they have to be the sort of person that I know—they’re all smart; they all know how to do experiments ~~but~~ I know has

bright people and you've got to invest in humans and invest in science, we're finished. That's how I see it. I think they've got to understand it's going to require a certain number of dollars to invest in a certain number of people, and if you're not willing to do that, people are not going to come to this anymore. They're going to go into computer technology and they're going to go into the kinds of things that we see now happening with communication and with things of that nature. They just don't want to fight the battle every day. And I think our government is just incredibly unrealistic when it comes to what it takes to actually do science, and I don't know what to do about it.

William s: Do you consider this an American problem?

Vitetta: No, it's global, but we were or maybe still are the leaders in the scientific arena, and now what's happening is that we are squeezing the brightest people out into other professions. They'd rather go to work for Facebook or work for Google or start up a company, and people at my level who are senior scientists who are good at training the next generation will be thrown out of the system because they're going to take the little money they have and fund the people coming into the pipeline, and there will be nobody there as role models or people to train them or give them advice. So it's falling apart at a lot of levels, and I think it could all be rescued if the government would understand they have to invest in science, and I hear it all the time when I listen to our president or our Congress or our Senate say that we're going to be on the cutting edge of science in the world and we're the best and the brightest. But those are words.

Vitetta: What do I do to have fun? Well, I find science a lot of fun for one thing. I grow things. I'm an orchid breeder. I actually make orchid crosses and show them at orchid shows and win prizes and donate them to my wife. So I love growing things. I'm very big on growing things and genetically engineering things. I love flowers. I love gardening. I love anything to do with life.

I enjoy volunteer time with animal organizations. I read a lot, I'm a big reader, and I don't mean just books. I read everything. I read women's magazines. I read science magazines. I read *The Wall Street Journal*. I read fashion magazines. I read things on the Internet. I go to Reddit and YouTube and watch things, because I like to see how people think and how people are. I'm very interested in behavior. So that's a big part of what I do is reading and trying to understand people.

And, of course, my family I should mention. I spend time with my daughter, who's an artist, a very good artist, and she also works on the Macintosh books for Apple computer. She's very high on the food chain there. Terrific artist and very creative.

Williams: Is she a Texan?

Vitetta: She was born and raised in Texas, and she lives in San Francisco.

Williams: Have we left anything unsaid today? I'm sure we have. But are there some things that I haven't prompted you on or that you'd like to say?

Vitetta: I don't know. I'm just thinking. I don't really think so, unless you have some things that come to mind. I mean, you've done all these interviews. Have there been themes?

Williams: Well, somewhat, and you've expressed most of them. I guess one final question I have sort of, is just talk about your energy.

Vitetta: My energy?

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