FACES OF / MASS SPECTROMETRY / Lisa Jones



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January 2023



It's Never Too Late

L isa Jones has a clear commitment toward fostering diversity in mass spectrometry and throughout the STEM disciplines. In fact, as a member of ASMS Diversity Committee, she took part in the development of this series, "Faces of Mass Spectrometry." Lisa's two-year term as an ASMS board member, as the Member-At-Large for Education, ended this past June.

Over the summer, after being recruited by several universities, Lisa started a new position with the University of California San Diego (UCSD). Part of what led her to UCSD was their concerted effort to increase diversity in faculty and forge connections between African American studies courses and STEM courses. As part of this initiative, Lisa is developing her own course focusing on biomedical health disparities research.

Currently, Lisa's lab is developing an in vivo foot printing method in cells, which is an expansion of a method developed in the lab of Michael Gross. Lisa first met Michael as a postdoc working in his lab. She credits her time with his lab as being a pivotal influence on her interest in setting up her own lab rather than pursuing a job in industry.

Lisa encourages those entering the field of mass spec to consider participating in ASMS activities to meet other scientists who can become collaborators and mentors. Although her own introduction to mass spec began relatively late in her career, Lisa's accomplishments are proof that it is never too late to get involved and make an impact in mass spec.

How did you get your start in mass spec? Was it before, during, or after your undergraduate years at Syracuse University?

It was definitely afterward. I got my start in mass spec relatively late in my career. I did my Ph.D. in a structural protein lab, doing NMR and fluorescent-based studies. And when I left my Ph.D., my thought was that I wanted to stay in proteins and protein structure, but I wanted to work on big complexes, which are not accessible by NMR. I ended up in the virology lab of Peter Prevelige at the University of Alabama at Birmingham (UAB). He was studying HIV. He was using both hydrogen deuterium mass spectrometry and native mass spectrometry to probe the structure of the HIV capsid protein. So, it was in my postdoc position that I actually got into mass spectrometry.

Did you always want to work in the science field? Or did you have other professional interests throughout your career?

I've kind of always liked science. When I was in middle school, there was some thought that I would go to law school, but that thought really was short lived. In high school, I participated in a lot of afterschool science programs, and I knew that's what I wanted to do. When I started my undergrad years, I thought I was going to end up going to medical school. But then I started doing research in a lab, and I loved it, and I decided I was going to get my Ph.D. instead.

How did you begin working with Michael Gross, and how did working with him influence your career?

While I was a postdoc at UAB, I was doing hydrogen-deuterium exchange. And Michael Gross was looking for a postdoc with hydrogen–deuterium exchange experience. He emailed Peter Prevelige and Peter said to me that this would be a good opportunity. He also told me that this was a group where everybody ends up getting industry jobs, which appealed to me. So, I got that job, and Michael then said, "You actually should be a faculty member." I was just like, "No, I came here to go into industry, because all of your people go to industry." But then, he included me on all of the grants he sent out, and that helped me see what writing grants was like. He also gave me freedom to try to develop my own research projects. I eventually pivoted to wanting to be a faculty member, and then setting up my own research lab. Michael was very influential in that decision and in my career—I think if I hadn't done a postdoc with him, I probably would be in industry right now.

What led you to your current position at the University of California San Diego (UCSD)?

I actually just got here in July. It's been a crazy year, because I moved all the way across the country. While I was in the School of



Pharmacy at the University of Maryland I started being recruited by the University of North Carolina at Chapel Hill, and long story short, an email that I wrote to their chemistry department made its way into the public domain. After that, my life turned completely upside down—I had a lot of other schools show interest in me. From about May of 2021 to January of 2022, I did a ton of traveling to different schools to follow through with this recruitment process. In the end, I chose UCSD for several reasons. It's just an amazing campus all around, and there is amazing science going on here, which means I can find good collaborators. The weather doesn't hurt, either—I honestly was looking for a place without winter. I was seriously considering six schools, and in my mind, I separated them into the "three cold weather schools" versus the "three warm weather schools." The three warm weather schools were, of course, always at the top of my list!

Tell us about your initiative at UCSD to connect Black studies with science, technology, engineering, and mathematics (STEM?

This is a very interesting program called Advancing Faculty Diversity in Blackness and STEM. At the time of the program's development, UCSD had a minor in African American Studies. From their data, they found that 50% of their African American Studies minors were STEM majors, and UCSD wanted to bridge that gap. They also wanted to increase the diversity of the faculty. So, they received a grant to hire 13 Black faculty members in the different STEM departments across campus, including the School One of the things that has helped me become comfortable with the mass spec community has been receiving such a warm welcome through ASMS.

> Lisa Jones with Dennis R, Childs, the Director of the Black Diaspora and African American Studies (BDAAS) program at UCSD, attending the BDAAS major launch party. (Photo courtesy of Lisa Jones.)

of Medicine. Each one of those faculty members would develop a diversity course—something that could be part of the African American Studies program but also a STEM-based class. That actually brings me to another major reason I chose UCSD: As an undergrad, I was a biochemistry major and an African American Studies minor, although technically I did not finish the minor. That probably was because there weren't enough classes that cross-listed. If more classes had overlapped, I probably would have finished the minor.

It was really interesting to me that UCSD wanted to bridge this gap between those two programs. As part of that effort, I am currently developing a course that will focus on biomedical health disparities research, so there will be a social sciences component. There's going to be a great deal of discussion about the history of underrepresented groups with clinical trials and biomedical research, along with why there's so much distrust in the community. We'll also talk about the current up-to-date, stateof-the art research that's happening and how it impacts health disparities. I'm currently in the process of trying to get this course approved, and if that works out, it will start next fall. I have this year off from teaching, which is nice, because it gives me time to develop the course.

What kinds of leadership roles have you had with ASMS? Have you taken part in ASMS committees?

The first committee I was on was the Diversity Committee, and I just recently finished a two-year term on the ASMS board. I was

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the board member at large for education. In that role, I oversaw short courses, as well as workshops. Through that experience I got the opportunity to usher in some new short courses. It was also very fun to see the inner workings of the society and work with others on the board.

What has been the most significant research finding you've come across?

I might not necessarily characterize this as a "finding," per se, but in my lab right now, there's a good deal of significance in developing what we call in vivo foot printing method. We have expanded on an in vitro method that was developed in the lab of Michael Gross, and we do it in cells and in live worms that are used as animal models for human diseases. To me, this is by far the most significant thing that has come out of my lab. I think that method will have a strong impact in the field of structural biology. Right now, we're looking forward to pivoting and using it for biological applications to show the power of the method.

What are your interests outside of the lab?

I'm very passionate about cycling, although I haven't done it in probably the last year. I have both a mountain bike and a road bike. I just love biking through nature, because it lets me hear the sounds of nature while I can see the colors, flowers, and trees. Cycling, actually, was something that I started in Michael Gross's lab. He's a big cyclist, and he would always talk about it. So I was like, "You know what? I should go get my own bike!" I used to live in Indianapolis, which is a very good biking city, so biking was my primary method of transportation to get to work. Now that I'm here in San Diego, I'm really looking forward to being able to cycle all year round because of the great weather. I've also just started getting into hiking, and I think being in the San Diego weather will definitely also foster that.



The Jones lab at the University of Maryland. Beginning at the top, from left: Luciano DiStefano, Daniel Deredge, Alan McKenzie-Coe, Emily Hart, Zhihuii Zhang, Danté Johnson, Raquel Shortt, Ayotunde Okusolubo, Chukwuebuka Eburoh, Jessica Espino, Jacqueline Masketr, Nicholas Montes, and Lisa Jones

What advice would you give to someone starting out in mass spec?

As someone who wasn't trained in mass spec as an undergraduate or graduate student, one of the things that has helped me become comfortable with the mass spec community has been receiving such a warm welcome from that community through ASMS. I think participating in ASMS activities is an excellent way to immerse yourself in mass spectrometry and to meet other people who can be collaborators, supporters, and mentors. So, that's probably my biggest advice: Get to know people in the mass spec community!