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Angelica M. Riestra

For Angelica M. Riestra, community and science have gone hand in hand since she designed her first science project in 8th grade to see whether homes in her largely Latino neighborhood in San Diego had high levels of lead. She found two houses contaminated with lead, and discovered that most of the residents living in those homes were not fully aware of the health risks.

Now 24 and a first-year graduate student at the University of California, Los Angeles (UCLA), Riestra remains committed to changing how people in the Latino community and beyond view science. “A lot of people in our community think that science is about becoming a doctor, but there’s also a whole world of academic research. I want to help expose students to this and to provide them with the tools and confidence to be able to gain access to this field,” she said.

Angelica M. Riestra University of California, Los Angeles Los Angeles, CA
Photo: Mark HarmelA high-resolution photograph is available on request.
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Riestra’s parents neither speak nor read English fluently. Even though they could not help her with homework, she says their work ethic has been one of the most important lessons in her life. “As a young girl, I learned to be independent and seek out the resources I needed to accomplish my dreams,” she says. “My parents knew that I had big dreams, and they have always been my personal cheerleaders, which allowed me to venture into new territories—like being a first-generation college student, the first in my family to major in the sciences, and the first to pursue a Ph.D.”

As a high school student, Riestra realized that science could be part of those dreams. For two summers in Mark Lawson’s research lab at the University of California, San Diego (UCSD), she studied how lead and pesticides affect the production of a pituitary hormone. There, she found a project that brought science to bear on an issue of personal interest, recalling her father’s stories of being sprayed with pesticide while picking crops.

The experience—and the fact that Lawson came from a similar background—changed Riestra’s perspective on the future. Among other things, it fueled Riestra’s commitment to involving more Latino and African

American students in science activities and classes at her own high school. She developed an ambitious plan to recruit students to design science fair projects, and she helped them prepare for the science fair competition. Most of the 25 student she helped recruit that year—a record number—were selected to compete in the citywide science fair. Although excited by the accomplishments of her fellow students, she was also saddened by the experience. “I had confirmed that the students at my school had so much potential, but that most of it was not being tapped.”

When she started college at UCLA, Riestra was forced to confront the reality that some of her high school classes had not prepared her well for science classes at the university level. “I had to teach myself in weeks what I should have learned over the course of a school year. But I was determined not to give up,” she says.

By her sophomore year, Riestra was ready to step back into the laboratory. Temporarily derailed by a graduate student who suggested that she might want to consider working at McDonald’s instead of in the lab, Riestra sought advice from Elma L. González, director of the Minority Access to Research Careers program at UCLA. “Learning about González’s own struggle to obtain a college education and faculty position gave me the reassurance that I too could overcome my challenges,” she says. “My goal is to become a professor and research scientist, with the hope that my presence will help inspire other students with similar backgrounds.” González helped her get a new mentor and project in the laboratory of Sherie Morrison, where she conducted research to find new ways to fight *Cryptococcus neoformans*, an opportunistic fungus that causes life-threatening meningitis.

The next year, Riestra was nominated to participate in HHMI’s Exceptional Research Opportunities Program (EXROP), working for a summer with HHMI investigator William Jacobs Jr., at Albert Einstein College of Medicine in New York. Riestra’s project was to help determine the target of pyrazinamide, a drug used to treat tuberculosis, in hopes of understanding how the drug works and what makes some TB bacteria resistant to it. Riestra remembers, “My EXROP experience came at the most critical time in my life. At that point, I was questioning whether I could do it. But I worked really hard and, with Jacobs and my postdoc mentor’s belief in my potential, I realized ‘Wow, I really can do this.’ If I hadn’t had that boost in my confidence, I don’t know if I would have continued.”

Now a first-year microbiology graduate student, Riestra is back at UCLA and ready to help other minority students get excited about science. Through various outreach programs at the school, she gives tours of her lab to junior high and high school students and their parents, and mentors younger science majors. This has allowed her to provide a “support network” for minority students. “Since my parents didn’t go to college, they couldn’t always guide me when I had questions about school, but we are trying to build that community of support,” she said.

Her desire to reach out to the community can also be seen in Riestra's scientific interests. While she hasn't chosen a specialty yet, she is considering parasitology. The field suits her scientific curiosity—there are so many unanswered questions about how parasites can enter and infect host cells, she says. And parasitology would let her contribute to improving understanding of major public health problems.

Riestra hasn't yet selected which lab she wants to join for her graduate studies at UCLA, but she already has a plan for how she will run her own lab when she is a professor. Her plan includes an outreach program like the one that made such a difference for her. "I am extremely grateful for all of the mentors who helped me to arrive at this point in my life. As a product of outreach, I want to emphasize how mentorship can change the course of a student's life and dreams." For Riestra, the Gilliam fellowship allows her to combine her two passions—scientific research and bringing science to the community. "It's my passport to do both."