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Kelly M. Cadenas

Kelly M. Cadenas decided to make the most of her educational opportunities when she moved with her mother and her siblings to the United States from Nicaragua. Cadenas was just beginning high school yet she had already seen students fall through the cracks or discover that they could do very little with their college degree in Nicaragua. Indeed, those experiences made her even more determined to become an academic scientist and mentor, especially to students from minority backgrounds. “It is much more unfortunate to see students not actualize their full potential in a country full of resources and opportunities” like the United States, says Cadenas, now 22 and a graduate student at the University of California, Los Angeles.

Growing up, Cadenas was more interested in the arts than in science, and briefly considered becoming a graphic designer. Very few members of her family went to college, and those who did pursued careers in law, business, or medicine, which, for her, didn’t seem quite right. “Medicine didn’t seem to fit my personality and the way I thought about things,” says Cadenas, who was valedictorian of her Naples, Florida, high school class. “But I had no idea what type of career would suit me better.”

Then in the summer before her senior year in high school, Cadenas participated in the Young Scholars Program at Florida State University and joined a microbiology lab, where she did experiments with *Escherichia coli* bacteria. “I really enjoyed my experience there,” Cadenas says. “After that, research was a possibility—something I might want to do.”

Kelly M. Cadenas University of California, Los Angeles Los Angeles, CA
Photo: Mark HarmelA high-resolution photograph is available on request.
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As an undergraduate at Harvard University, she had the good fortune to join a program run by HHMI Professor Richard M. Losick that allows 6 to 10 students a year to work on long-term research projects. When Losick learned that Cadenas was interested in microbiology, he offered her a job in his own lab, and she began studying bacterial biofilms, thin layers of bacteria that aggregate on the surface of water or solids.

Despite her success in the lab, Cadenas felt that her high school education had not prepared her as well as some of her peers for the rigorous coursework

at Harvard. “It was often a challenge to take classes where a solid educational background was automatically assumed,” she says. But Cadenas, who took outside classes to improve specific skills, such as writing, said Losick’s advice and support over three years in his lab helped her overcome that self-doubt. “I encountered countless obstacles along the way, but my three-year commitment to my research project allowed me to grow both as a researcher and a student of science,” she says.

At Losick’s suggestion, Cadenas spent the summer of 2006 working in the lab of HHMI President-elect Robert Tjian at the University of California, Berkeley, as part of HHMI’s Exceptional Research Opportunities Program (EXROP). Under Tjian’s guidance, she studied a protein that helps maintain the self-renewal capacity of embryonic stem cells.

Buoyed by her successes in Losick’s and Tjian’s labs, she decided to apply to graduate school. “When I made the decision to go to graduate school, I had three years’ worth of hands-on experience and valuable lessons, both personal and scientific, to support my decision,” she says.

When Cadenas was choosing what to study in graduate school at UCLA, she homed in on neuroscience, which would allow her to combine her love for science with her long-term interest in philosophy. “There are questions in neurobiology that seem almost philosophical to me,” says Cadenas, who briefly considered getting a master’s degree in philosophy. Consciousness and perception “have for many years captured my attention in philosophy classes, and so I think it will be fascinating to investigate them from a biological standpoint as well.”

After earning her doctorate in neuroscience, Cadenas intends to become a professor and participate in the type of educational programs that helped her become a scientist. “I have often found it inspiring to talk to professors with a similar background. Such talks gave me the sense that I could succeed too, despite my disadvantages,” she says. “I hope that when I join academia I, too, will be a mentor for these students.”