



# science scholar

Roberto A. Lleras '08 breaks educational barriers in the field of biomedical science.

Story by Audrey R. Browka Photo by Shaun M. Maciejewski

Whenever **Roberto A. Lleras '08** returns home to Roselle, NJ, he always stops in at the Terence Cardinal Cooke Health Care Center in Spanish-Harlem, NY. Lleras' father, Andrew, is an administrator at the center but the nurses there are a special source of encouragement to Roberto.

"They always tell me 'Sigue, sigue,' which is Spanish for 'keep going,'" says Lleras. "The nurses remind me that my educational pursuits

associate professor of computer science and director of the Bioinformatics Program. "In addition to his lab work in molecular biology, Roberto's bioinformatics background enables him to understand how computer applications can be used to interpret and analyze biological data."

The recipient of the Bioinformatics Program's Excellence in Research Award, Lleras recently teamed with Burhans and her

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are about more than just me. They're about my family and my community."

Lleras' educational pursuits are also about breaking barriers.

The National Center for Education Statistics reports that only six percent of all bachelor's degrees conferred in the United States each year are earned by Hispanics. Lleras was among this group when he earned his degree in bioinformatics in May. He will be among an even smaller percentage of Hispanic and African American doctoral candidates this fall, when he attends Albert Einstein College of Medicine of Yeshiva University. Furthermore, he will pursue a PhD in a field that relatively few minorities consider. Lleras' particular interest is biomedical science.

"Roberto is probably one of the most enthusiastic students I've ever had," says **John M. Kalb, PhD**, associate professor of biology. "He always came prepared to class, was ready to answer all my questions and often had quite a few of his own."

That's why when Lleras volunteered to work in Kalb's lab during his sophomore year, his professor accepted the offer. The two collaborated on a genetic mutation project. It was then that Kalb realized Lleras' potential as a researcher.

"Roberto demonstrated such a high interest in lab work and was always willing to spend the time necessary," recalls Kalb, who later appointed Lleras to a paid position in his lab. Kalb also recommended him for what would be a pivotal summer research experience at San Jose State University.

Lleras spent 10 weeks at the research-intensive institution and worked 10 to 12 hour days in the developmental biology lab. During that time, Lleras made a significant discovery. "I came to Canisius as a pre-med student but instead discovered my passion for research," he says.

So too did large and highly competitive Research 1 (R-1) institutions. The University of California at Berkeley and Boston University both invited Lleras to participate in their summer research programs in 2007. Lleras chose Berkeley, where he worked alongside undergraduate research students from that university, as well as from Virginia Tech University and the University of Florida, to name a few.

"My Canisius education provided me with the ability and the opportunity to compete successfully against students from R-1 schools," says Lleras.

Those experiences also afforded Lleras with many options for graduate school. He received full scholarship and fellowship offers from New York University, the University of California at Berkeley, the University of California at San Diego and Cornell University, as well as Albert Einstein University.

"Part of what made Roberto so attractive to graduate school recruiters was his interdisciplinary education," explains **Debra T. Burhans, PhD**,

colleague, Doreen Ware, PhD, a computational biologist at Long Island's Cold Spring Harbor Laboratory, to collaborate on a research project funded by a grant from the National Science Foundation.

"Roberto redesigned an existing computer program, adding on a database component to make it more powerful," explains Burhans. "The result was a database system capable of storing and analyzing multiple gene expression data sets." Burhans and Lleras presented this project at the Intelligence Systems in Molecular Biology meeting in Toronto, in July.

"He is a real role model for young minorities," says Burhans, who underscores the glaring under-representation of Hispanics and African Americans in the sciences. "We need more students like Roberto; someone whom young minorities can look to and say, 'This guy did it and he's just like me.'"

Lleras recognizes his responsibility as a role model and the need to serve the community. "My parents always taught me that everyone has a responsibility to give back, as a way to thank God for what we've been given in life."

At Canisius, Lleras made good on that responsibility through his involvement with the Circle K service club. As president of the organization, he led members in volunteer efforts for Habitat for Humanity, the South Buffalo Community Table and the Niagara Lutheran Church Home. Lleras also volunteered at an inner-city summer camp for nine and 10-year old children, while he attended Berkeley's undergraduate research program. He hosted a science fair for the campers. To capture their attention, Lleras came into class with leeches on his arms, hands and fingers.

"The kids went wild and by the end of my presentation, I had more than 20 students tell me that they wanted to be scientists," recalls Lleras. "They started to see science as a fun, viable option - much like it's been for me."

Lleras envisions several different scenarios in his future: researcher, professor, maybe even physician. Regardless of where his future takes him, however, there is one particular breakthrough this scientist will accomplish.

"I want to be a source of encouragement for young students to consider science," he says. "Through my work, I want to spark their interests, show them it's an exciting field in which they can help people, mentor them, and then give them constant encouragement to stay the course and follow their dreams."

It's the same type of support Lleras says he received from his family, his college professors and the nurses at Terence Cardinal Cooke Health Care Center.

"When you have that many people rooting for you, you can't help but want to work harder to become that much better." ■