

Rochester Prep students publish research in scientific journal

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When Rochester Prep High School 12th grader Joyceline Dweh first stepped into the gleaming biomedical lab at Rochester Institute of Technology last fall, her goal was a simple one: Don't break anything.

"I was just trying not to touch the big equipment," she said. About eight months later, Dweh and two classmates have mastered the equipment and gone a step further. They're among the authors of a formal scientific research paper published last month by the American Society for Microbiology.

Its title: "Isolation, Whole-Genome Sequencing, and Annotation of *Yimella* sp. RIT 621, a Strain That Produces Antibiotic Compounds Against *Escherichia coli* ATCC 25922 and *Bacillus subtilis* BGSC 168."

What?

They discovered that a certain little-studied strain of bacteria kills two other sorts of bacteria that are harmful to humans, explained their mentor, André Hudson, a biochemist and head of RIT's Thomas H. Gosnell School of Life Sciences.

That discovery, once refined and commercialized, could become a use ful weapon in the ongoing arms race of antibiotic resistance.

Primary credit goes to Atlantis Aziz-Dickerson, the Rochester Prep student who swabbed under a door handle at RIT and picked up the bacteria in question, a strain of bacteria called *Yimella* . She, Dweh and D'Asia Buchanan then sequenced that strain's genomic sequence and analyzed its different properties. That might seem like contribution enough for three high school students. But as Hudson said: "It's not science until it's been communicated."

Aziz-Dickerson, Buchanan and Dweh spent a semester on the RIT campus for a senior capstone project, one aspect of a robust partnership between the university and Rochester Prep. Of the three of them, only Aziz-Buchanan intends to study biomedical science, but all said the experience helped them understand what college will be like.

"We were excited just for the experience," Buchanan said. "Then it turned out to be such a big thing."

Like the Rochester Prep students, Hudson knew nothing about microbiology when one of his professors at Virginia Union University, a historically black school in Richmond, invited him into a lab and showed him the basics.

He has often published research with his college students, but never before with high schoolers, he said.

"There's a lot of serendipity and luck, but also hard work," he said. "If they weren't here this wouldn't have happened because we never would have swabbed that door."

As for *Yamilla* , Hudson said the next step is to isolate the particular chemical compound that gives makes it an effective antibiotic — "Basically picking out the ingredient in the soup," he said.

The students will have moved on in their own academic careers by then, but Aziz-Dickerson said she was proud to have the article on her résumé nonetheless.

"Getting published can get you far in life," she said. "I think if I can do this, I can do anything I put my mind to."

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