

GRADUATE AG RESEARCH SPOTLIGHT



Allison Norvil

"DNA methyltransferases are conserved from bacteria to humans, but they still have unique functions in the cell. Despite how long the field has been studying these enzymes, we're still trying to understand how they function and contribute to cancer development — that's how complicated they are."

Allison Norvil, PhD student, Biochemistry

THE STUDENT: Allison Norvil chose Purdue for bachelor's degree study based on its close and interactive community of undergraduate and graduate students. Her awareness of its importance would prove prophetic. The Chicago-area resident then chose a biochemistry major for its inclusion of two areas of interest, biology and organic chemistry. "I was always interested in medicine but didn't want to be a doctor," she explains. "I liked the idea of exploring the nitty-gritty details of how things work biochemically in the human body." As a junior, she started doing research in the lab of Assistant Professor of Biochemistry Humaira Gowher. Because the lab was relatively new, Norvil was assigned her own project under the mentorship of Gowher and the lab's first graduate student, Chris Petell, both of whom were key to her advancing the project. "I wanted to stay on and keep working on it," Norvil says. She was accepted as a master's student and then, through hard work and dedication, transferred into the PhD program and continued in the Gowher lab. She was a first author on a manuscript published in October 2016, her second year as a PhD student, which included the research she began as an undergraduate. This earned her the department's Henry Moses Award for early publication of a scientific paper that demonstrates the author's excellence in research. Gowher remains Norvil's mentor and advisor.

THE RESEARCH: Gowher's lab focuses on DNA methylation. "One of the things I look at are enzymes that methylate DNA and how they function inside the cell," Norvil says. "Enzymes are little machines in

your body that work to speed up molecular reactions. DNA methylation is a modification that occurs to your DNA, and enzymes serve as 'dimmer switches' on the expression of these genes." Incorrect modifications are observed in cancer, she notes, and further describes her work as "a small part of cancer research, looking at how a single mutation changes the activity of an enzyme." Norvil cites her department's collaboration with the Center for Cancer Research and its core facilities as a distinctive strength, which had a positive impact on her research. She also credits her department's seminar series, fellow labmates, and other professors in her development as a scientist.

THE LONG VIEW: Norvil is intrigued by the long-term view of her research: "A lot of the small things I do might not seem like much day to day, but I like the big picture of how these things work." Publishing demonstrates "you were able to complete a meaningful story," she adds. "I feel accomplished even if I moved the scientific field slightly forward."

FUTURE PLANS: Norvil hopes to complete her degree in spring 2020 and land a position in industry, where she can work with products that directly help patients or in drug development. In her spare time, she enjoys riding her bike, kickboxing and hanging with friends. Norvil recently was elected social chair for the graduate student organization. "It's important for graduate students to get to know their fellow graduate students and to interact with people outside of their lab on a more friendly level," she says.