

SPOTLIGHT

EMMA
LENDY

PHD STUDENT, BIOCHEMISTRY

The student

As a sixth-grader in Wheaton, Illinois, Emma Lendy was the only girl to choose the category, How Things Work, for a middle-school science project. In helping her build a working telegraph, Lendy's mechanical engineer father "fostered my interest in delving into why things work, not just taking them for granted," she says. Lendy's ongoing curiosity and Purdue's reputation in science led her to West Lafayette for undergraduate study in biochemistry after a high school career

test suggested the discipline matched her interests and aptitude. At Purdue, Lendy worked in Professor of Biochemistry Barbara Golden's lab for three-and-a-half years. "Being able to take up research as a freshman makes you feel your professor has faith in you,"

Lendy says. "It was an incredible experience and cemented that research was the right career path for me." She then entered the PULSe (Purdue University Interdisciplinary Life Science) program in 2016. After a year of rotations, she joined the lab of Andrew Mesecar, Walther Professor in Cancer Structural Biology. Lendy had taken Mesecar's class as a senior, "and I knew that I wanted to go into some sort of virology/drug design," she says.

The research

The first of Lendy's two research projects focuses on designing selective drugs for Alzheimer's disease and type 2 diabetes. "When we're targeting human

"With coronavirus we're seeing the scientific method working in real time. We're continuing to learn information, revising our research with new data and new hypotheses."

diseases like these, we want our drugs to be selective and bind only to the target protein," she says. To that end, Lendy uses X-ray crystallography to visualize exactly how the drug molecule fits the target. "This allows us to design the drug to specifically exclude interactions that could occur outside of our target," she explains. Lendy's second project involves designing broad-spectrum drugs to inhibit the entire coronavirus family. "When we're trying to design drugs that target proteins in viruses (antivirals) or bacteria (antibiotics), we want to be able to design the drugs so that one drug has the potential to bind multiple targets," she says. The importance of having a broad-spectrum antiviral has become evident in the context of the coronavirus pandemic: "The whole lab has been working 24/7 since this thing started," she says.

Opportunities

Lendy says Mesecar "is great about pushing you into situations you'll get a lot of personal growth out of." In her second year of doctoral study she co-chaired an annual student-led symposium called the Hitchhiker's Guide to the Biomolecular Galaxy. She appreciates the connections in industry and academia she made through the event and Purdue's support of it.

Future plans

Lendy remains on track to complete her PhD in May but says circumstances around the coronavirus could delay her graduation. Her next step is likely a postdoctoral fellowship or industry position with a pharmaceutical company where she can continue contributing to drug design. In her free time, Lendy enjoys reading, crochet and time spent with her Australian shepherd, Daisy.