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Nationally Recognized Research for Molecular Biology Student

CEDARVILLE, OHIO -- A freshman-year speech class assignment came full circle for Jenna Martin, now a senior molecular biology major from Hebron, Kentucky.

For Martin's speech assignment, she was asked to choose a potential career path to research and present. Martin spoke about developing miniature organs that assist in studying transplantation – organoids. Little did she know, three summers later she would be interning with Cincinnati Children's Hospital doing research on organ transplantation that would be published and nationally recognized.

Because of COVID-19, many internship opportunities for Martin's goals were limited or completely disbanded. Martin was feeling anxious about this, so she reached out to her high school science teacher, someone she considers to be a mentor in her life. While meeting over coffee, Martin was directed toward the internship of her dreams.

Shortly after, she applied for the Summer Undergrad Research Fellowships (SURF) program at the University of Cincinnati Children's Hospital. One week later she had an interview with Dr. David Hildeman, director of the immunology graduate program at Cincinnati Children's Hospital, for one of the internship positions.

"The Lord handed this internship to me," said Martin. "I was not seeking it, but I was praying, and in need of an internship."

As an undergraduate student, Martin found herself working with nine other team members, six of whom were either active doctoral students or had already received their doctorate. The others were research fellows who have master's degrees.

For Martin, her role consisted of isolating plasma cells from tissue samples to develop a drug treatment to keep patients' bodies from rejecting transplants. She worked with two specific drugs that are inhibitors of the two main pathways by which the body degrades proteins. These drugs had proved to be effective to a limited extent.

The goal for the drugs is to deplete the plasma cell population because they are the main way the body produces antibodies.

"If we can deplete the plasma cells to a certain extent to lower that antibody level then they may be able to accept a transplant and keep it," said Martin. "We deal with a lot of people who have had a transplant and then immediately reject. I worked with these two drugs to try to find a synergistic combination between the two."

Not only was this internship a perfect fit for Martin's goals, but it also became personal as a relative passed away in need of a new kidney.

“All summer I was working with that in mind because it impacted me personally,” said Martin.

Martin presented her research at the end of the summer to a group of medical doctors, and the research has been presented across the country by the Ph.D. student she worked with. Her name is on the list of authors of the scientific paper that is in the process of being reviewed for publication.

Martin received praise throughout her internship from many. She gives credit back to Cedarville University’s programs and instructors, especially Dr. Sharon Cooper, assistant professor of biology, for engraining skills in her that she has needed to perform.

At the end of her 10-week internship, Martin was remarkably successful. This success came with inevitable failure along the way. “This summer taught me how to fail gracefully with humility and work through those to produce results.”

Her posture toward her work this summer became praise to God for getting to study this, even if she failed. “And if he reveals something new about his creation to me, that is all for his glory,” said Martin.

Located in southwest Ohio, Cedarville University is an accredited, Christ-centered, Baptist institution with an enrollment of 5,082 undergraduate, graduate, and dual enrolled high school students in more than 175 areas of study. Founded in 1887, Cedarville is one of the largest private universities in Ohio, recognized nationally for its authentic Christian community, rigorous academic programs, high graduation and retention rates, accredited professional and health science offerings, and the #4 national ranking by the Wall Street Journal for student engagement. For more information about the University, visit www.cedarville.edu.

Written by Abby Totten

Photo Caption: Jenna Martin with her research poster

Photo Caption: Jenna Martin and her high school science teacher