

MS Grad Students Contribute to Research Study in PNAS

Brittany Philpot, Alex Patent, Sonia Flores and Gabby Cailing joined Dr. Dale Bredesen and Dr. Rammohan Rao in laboratory research at the Buck Institute for Research on Aging that shows ApoE4 reduces neuroprotective SirT1 levels. The study's findings examined the mechanism by which ApoE4 confers risk for the development of Alzheimer's disease.

"This may be a start to looking at a therapeutic approach to improving the effects of Alzheimer's on patients," says Philpot, who plans to attend medical school after graduating from Dominican in 2014. "This research gives us more insight into Alzheimer's disease and lets us better understand a part of the disease that is not well known."

Patent, who was first of the four Dominican MS students to join the Bredesen lab, contributed studies analyzing whether ApoE4's negative effects on APP (amyloid precursor protein) could be abrogated through the use of small molecules. He passed his research onto the other students for their input and analysis.

"I believe that the significance of the research is that it shows that Alzheimer's isn't all about amyloid beta, which is what the majority of Alzheimer's research has focused on for 100 years," says Patent, who is now attending law school at Santa Clara University where his goal is to aid scientists in properly protecting their intellectual property. "Our research presents a novel screening method for early detection and treatment, with the goal of identifying a therapeutic able to prevent the development and progression of the disease in individuals carrying the ApoE4 gene."

Flores, who is now working for as a manufacturing technician for a medical device company while pursuing her goal of becoming an optometrist, explored how APP-APOE interaction triggers tau phosphorylation.

"Not only are we pushing the boundaries of our understanding when it comes to a devastating disease, but it also gives hope to many thousands of people who are suffering and will suffer from this disease," Flores says. "The opportunity of working in a lab with professionals researching such a significant and devastating disease is something I will never forget. To be in such a nurturing environment while in lab and in class helped me obtain skills that absolutely contributed to our research."

Since 2008, [Dominican's School of Health and Natural Sciences](#) has partnered with the Buck Institute to offer a master's degree in biological sciences with an emphasis on age research. The Buck Institute is the first independent research facility in the United States to focus solely on aging and age-related conditions.

"But for Dominican's MS program, I would not have had such a prodigious opportunity," Patent says.

"Being in this program has broadened my future and I have learned so much from the hands-on experience in both the classroom and laboratory," Philpot says. "I have been able to witness research go from the stages of an idea to a published work and I feel fortunate to be a part of it." Philpot, Patent, Flores and Cailing were among 11 individuals who worked on the research. Drs. Bredesen and Rao designed, wrote and presented the paper.

Philpot, who is currently working as a lab assistant at the Buck Institute, is turning her research into her thesis.

“Being a part of this research has allowed me to expand my scientific background and I can build on what I have learned from the Bredesen lab in my future goals,” Philpot says. “I want to go to medical school and research is a pivotal part of the medical world in advancing techniques and drugs that can better treat a patient. This also demonstrates how Dominican gives the opportunity to make a difference and contribute to research that affects the scientific community. Without this program, I would not know the different techniques that I have acquired over the year and how they are used in order to further knowledge in science.”

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