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FSU researchers win GAP awards to launch ideas to marketplace

Kathleen Haughney



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Five Florida State University researchers are receiving financial support from the university to transform promising lines of research into viable technologies for the global marketplace.

Researchers Hoyong Chung, Daniel Kaplan, Biwu Ma, Yaacov Petscher and Cheryl Xu will receive a combined total of more than \$100,000 from the university to work on new projects such as environmentally friendly plastics, cancer therapies and a new material for a light-emitting diode, among others.

They received the money through the university's biannual GAP competition, a "Shark Tank"- like event that allows researchers to pitch their ideas to a panel of local business men and women, Vice President for Research Gary K. Ostrander and Office of Commercialization Director Brent Edington.

"As a research university, FSU has a mission to produce new technologies and make discoveries that can make our world a better place," Ostrander said. "The GAP competition is an excellent opportunity for researchers to pitch their ideas and seek funding to help move their work to the next stage of development."

The GAP program provides university researchers with funding to help prepare their work for commercialization and potentially find outside investors. Over the past 10 years, it has doled out more than \$2 million to help researchers develop products such as new cancer treatments, food contamination test kits and next-generation wound dressings.

"The support our office provides through these grants helps researchers refine their technologies and prepare them for the marketplace," Edington said.

At the spring competition, the panel agreed to fund five promising projects.





Top row: Hoyong Chung, Daniel Kaplan, Biwu Ma. Bottom row: Yaacov Petscher, Cheryl Xu.

The winning projects are:

- **An environmentally friendly plastic:** Chung, assistant professor of chemical and biomedical engineering, is examining ways to make new, functional plastics out of natural products. According to Chung, 99 percent of current plastic is petroleum based. He has been experimenting with lignin, a plant-based material that would be partially biodegradable.
- **A marker for colorectal cancer:** Kaplan, an associate professor in the College of Medicine, has identified a protein that could be an early indication for colorectal cancer, which affects almost 1.2 million people. If this cancer is caught early, the survival rate is high. Unfortunately, it is often not caught at the early stages.
- **Organic light-emitting diodes (LEDs):** Ma, associate professor of chemical engineering, is working with a class of materials called perovskites to build organic LEDs. Perovskites are any materials that have the same type of crystal structure as calcium titanium oxide. Perovskites have shown tremendous potential in creating LEDs that are both more cost efficient and brighter than traditional LEDs.
- **Better student evaluations:** Petscher, director of research for the Florida Center for Reading Research at Florida State, has developed new testing materials with more in-depth analytics to help teachers predict who is struggling and how to help these students catch up to their classmates. Current tests only show current ability, while Petscher's new diagnostic tool also predicts possible hurdles for students down the line.
- **Sensors in extreme environments:** Xu, associate professor in the Department of Mechanical Engineering, is using a 3D printer to create a novel ceramic material that can withstand harsh environments, such as the inside of a high-speed jet turbine. The sensors can provide critical data about heat and pressure abnormalities occurring in the intricate spaces of these turbines that can help predict issues before they occur.

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