

FGCU

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protein strands from viruses. They're testing different plants to see if their compounds can inhibit the virus. That's much the same way Thomas Edison tested plants in his Fort Myers lab to find a way to make synthetic rubber.

And while FGCU's labs are considerably more modern than Edison's, they're still somewhat makeshift — FGCU was not set up to be a research institution. However, they have some of the top equipment in the nation, thanks to the grants Isern and Michael pull in. Some of the devices they use to spin or view or test viruses and cells are the only ones of their kind in Florida.

And they're having some success.

Isern and Michael have already applied for one patent — FGCU's first in its 10-year history. It could, after years of testing and government approvals, be the basis of new drug.

Their continued testing, with money from the one-year government grant, could lead to new vaccines that would protect troops sent to global hot spots or pills to keep you from catching the flu.

Over in the chemistry lab, Barreto is using biocides and light to kill off the viruses. A biocide is a chemical agent, such as a pesticide, that is can destroy living organisms

"Basically, I am looking for new biocides," said Barreto. "A lot of biocides kill but they leave residual toxins."

Barreto is trying to find one that is effective but does not have any side effects. He compared the process to keeping a swimming pool clean with chlorine, which sanitizes but bothers the eyes. Keeping with the analogy, he said he would like to find a biocide that



FLORIDA WEEKLY PHOTO
Sharon Isern, a biology professor at FGCU, works with compounds that keep viruses from entering human cell walls. The research Isern and her partners are doing at the new university could lead to a cure for the common flu or West Nile Virus.

did the same job, yet had the ability to turn itself off — like removing the chlorine only when you go for a dip.

Isern and Michael are having some success using botanical chemicals such as seagrass as antivirals. They are trying to see which antivirals inhibit the virus from entering cells and which work to stop replication once a virus has entered a cell.

"They could be used to protect and detect," Isern said.

She said the team is also looking at antivirals that do not require refrigeration,



FLORIDA WEEKLY PHOTO
Scott Michael, a biology professor at FGCU and Isern's research partner, works in a specially designed lab table in the university's level-2 biosafety facility on campus.

a big plus in emerging nations where electricity is a premium.

"We're hoping to be able to develop these switchable biocides and a series of antiviral drugs that kill pathogens," Michael said.

The trio works with low risk viruses — parts of infectious viruses that won't make you sick — out of the university's biosafety level-2 labs. When they need to have tests done on the real virus, a safe lab — where scientists don space suits in highly secure facilities, similar to the labs in the film "Outbreak" — does the work. Most of it goes to the University of Texas at Galveston, which houses one of the four level-4 labs in North America.

The grant, which comes from the Office of Naval Research and began on June 1, is the second part of a project that the three professors began in 2005. However, as the first FGCU researchers to land such a large grant, there have also been some obstacles along the way. For example, the university did not have a policy on intellectual property rights and was unaccustomed to professors spending the amount of money necessary to use up \$1 million within 12 months.

But the trio of researchers agree, it's a win-win situation for the university. The additional funds allow the professors to purchase high cost technology and also allows students to access cutting edge research.

The three professors have five post doctoral students, four technicians and six undergraduate students helping with the research.

When the research is completed, the students become co-authors on papers and it becomes a part of their permanent portfolio.

"They go off and do really wonderful things," said Michael. "It sets their careers on fire." ■

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