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## High school interns explore scientific frontiers in Clemson labs

By Anna Simon • STAFF WRITER • June 29, 2008

CLEMSON -- It takes patience to feed a monarch butterfly.



Clemson graduate students Daria Monaenkova, left, and Vijoya Sa watch as Campbell Yore, a 17-year-old Governor's School for Science and Mathematics student from Greenville, works with a monarch butterfly. (PAUL BROWN)

Standing in a Clemson University lab at a frontier of science, 17-year-old Campbell Yore of Greenville held the delicate insect's wings with one sterile-gloved hand and used a toothpick he held in his other hand to direct the butterfly to feed on a paper towel soaked in a sugary solution.

For six weeks this summer, Yore, a rising senior at the South Carolina Governor's School for Science and Mathematics, is part of an actual university research team studying how butterflies eat in order to develop specialized biomedical devices that mimic nature.

Under the direction of Konstantin Kornev, a materials science professor, they hope to develop conduits from nanotubes and nanofibers that work like a butterfly's proboscis an appendix that absorbs nectar through pores to help chemotherapy patients combat saliva loss, take blood samples from infant patients, and assist geneticists working with cells, Kornev said.

"Working in a research lab is something I've dreamed about since I was young," said Yore, who wants a career in science "because it's the tool which I best believe can answer my own curiosity."

Yore is one of 68 rising high school seniors from the Governor's School in university research labs -- about half at Clemson-- this summer through a Summer Program for Research Interns funded in part by the Howard Hughes Medical Institute.

While most university students are gone for the summer, students in this program and others are taking their places in university labs at the frontiers of science.

Karolina Puskarczyk, of Mauldin, another Governor's School senior, is working with chicken embryos in research to prevent middle ear birth defects in a lab with Susan Chapman, an assistant professor of Biological Sciences.

"One in 300 babies is born with hearing problems," Puskarczyk said. "Hearing problems are the second most common congenital birth defect."

Jonathon Baker, of Wagener, a rising senior at Aiken High, has a two-week internship in Kornev's lab through the School of Materials Science & Engineering Summer Program. He is working on development of an absorbent blanket that can be dropped on an oil spill or chemical factory accident to suck up the toxins.

The high school interns are the brightest of the brightest. Many even have their work published in journals, said Cora Allard, director of Clemson's Summer Program for Research Interns.

Baker, who rose above tough competition for the summer internship, isn't intimidated by the high bar that's been set.

"I like to push myself. I like the challenge," he said.

Not all the high school interns are students. Larry Jones, a physical science and astronomy teacher at D.W. Daniel High, is working in Kornev's lab this summer through a National Science Foundation program and will create a teaching module to use in his classroom.

"It will give me a broader background and base to teach from and better advise students on engineering as a potential career choice," said Jones, who as an education major didn't have this kind of lab experience in his college days.

That's not to mention that the work he is doing is fascinating, could lead to technology that betters society. And, for a teacher who loves both science and learning, it's just plain fun.

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