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Third year medical student Krista Pennington conducts breast cancer research at LSUHSC in Shreveport on Wednesday afternoon. (Val Horvath/The Times)

SMART program gives students smarts to help make medical history

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Krista Pennington is studying how to turn viruses behind several common ailments into a weapon in the war against breast cancer.

Pennington, a third-year student at LSU Medical School in Shreveport, credits a 14-year-old program for high school students with sparking her interest in research. She's among 123 students from Caddo and Bossier parishes who participated in the Science and Medicine Academic Research Training (SMART) program, which gives them a chance to work in a lab at LSU Health Sciences Center in Shreveport.

"I've been interested in gene therapy since age 16," Pennington said. "I was always fascinated by the potential of that therapy."

Now she's testing genetically modified adenoviruses on breast tumor samples collected from patients at LSUHSC-S. Adenoviruses cause respiratory infections and diarrhea in humans. Researchers have changed the viruses so they infect and kill cancer cells.

The viruses have shown promise when tested in mice and on lab-cultured cancer cells. Research by Pennington and others at LSUHSC-S has shown the virus is infecting and replicating in cancer cells.

"When the virus replicates, the infected cell dies," she said. "Our modified virus is both infecting and replicating in an actual human cancer."

She'll help present the findings at a national conference.

Despite her interest in research, she looks forward to working with patients after medical school and training. She hopes to work in the Shreveport-Bossier City area.

"I intend to pursue a career in general surgery with a strong research component," Pennington said.

The Biomedical Research Foundation of Northwest Louisiana created the SMART program in 1997 as part of efforts to develop a biotechnology industry in the area. Private donations to the foundation support the program. Since 1997, donors have provided \$198,000. The money covers stipends for the students during a full-time summer internship at LSUHSC-S labs. The students continue working 10 hours a week during their senior year of high school.

Eighty percent, 101 of the 123 SMART students, planned or are planning a science-related career, said Jay Meyers, foundation spokesman. Some SMART alumni are drawing national attention with their innovations.

Chris Yu, who participated in SMART in 2003, helped develop a film — similar to a Listerine breath

freshner strip — that could deliver a powdered rotavirus vaccine to children in poor countries.

Most rotavirus vaccines are liquid and need refrigeration, which often isn't available in poverty-stricken areas.

Yu graduated from Johns Hopkins University with bachelor's and master's degrees in biomedical engineering. He is enrolled in the University of Pennsylvania's MD/PhD program.

Other SMART participants stay closer to home.

"Past SMART participants are returning to LSUHSC to work during their summers and semester breaks, and a number of students are returning to attend graduate and medical school," Meyers said.

Additional Facts

RELATED LINKS

Biomedical Research Foundation: <http://www.biomed.org/>

SMART program: http://www.biomed.org/bio_med_education.cfm#3

LSU Health Sciences Center-Shreveport: <http://www.lsuhsershreveport.edu/>
