

VUMC Reporter

VANDERBILT UNIVERSITY MEDICAL CENTER'S WEEKLY NEWSPAPER

Education project takes Hudson back to his roots

BY: BRANDY WILLENBERG

7/21/2006 - All eyes are on Billy Hudson, Ph.D., as he holds up a piece of damaged styrofoam to describe the filter of a kidney of a patient with diabetes. "I still don't know what's wrong here," he says, looking at the young people in front of him. "One of you may someday answer that question."

Director of the Matrix Biology Center and Elliot V. Newman Professor of Medicine and Biochemistry at Vanderbilt University Medical Center, Hudson is the pioneer of the Aspirnaut Initiative — a collaborative research project between Vanderbilt's Center for Science Outreach, the school district of Sheridan, Ark., and the rural community of Grapevine, Ark. 'Aspirnaut' is the term organizers coined to describe students who aspire, seek and achieve.

Recognizing the nation's decreasing student performance in the fields of math and science, the project aims to elevate science and math achievement among bright middle and high school students in rural communities and to assist in the professional development of math and science teachers.

"We have a big problem attracting American-born students into math and science careers" Hudson said.

"The pilot project is an attempt to intensify training in math and science for high-ability students, expose them to mathematicians and scientists, and show them a path to careers in math and science. We want to intervene early in their training, while in elementary and secondary schools, and introduce them to the excitement of discovery."

As part of the initiative, Hudson, an Arkansas native, is going back to his roots. The project focuses on rural students in the community of Grapevine, Ark., where, Hudson notes, students are intellectually underserved as a result of long bus rides to and from school and lack of community involvement in their education. "Since I grew up there, I know the families, kids and school system. I wanted to do something to help kids in that rural community get elevated training in math and science and get exposed to math and science careers," Hudson said.

Beginning to fulfill that vision, VUMC and the Center for Science Outreach recently hosted 12 Arkansas students at a week-long summer science camp. Through hands-on lab activities, lab tours and face-to-face meetings with Vanderbilt scientists and researchers, the students were able to experience the exciting side of math and science careers. "The summer science camps are designed to allow students to see science as fun and exciting, not intimidating or 'too hard,'" said Virginia Shepherd, Ph.D., director of the Center for Science Outreach. "We need to continue to allow these kids to experience the joy of discovery and to continue this curiosity as they grow into adulthood."

Along with the students, 14 Arkansas teachers spent a week here attending training sessions on how to meet the challenges of turning bright students on to exploring careers in science and math. Often, Hudson said, rural students are not exposed to teachers who have a concentration in math or science. The workshop focused on the professional development of Arkansas math and science teachers, pinpointing the challenges in math and science education and developing a computer-based curriculum to meet such challenges.

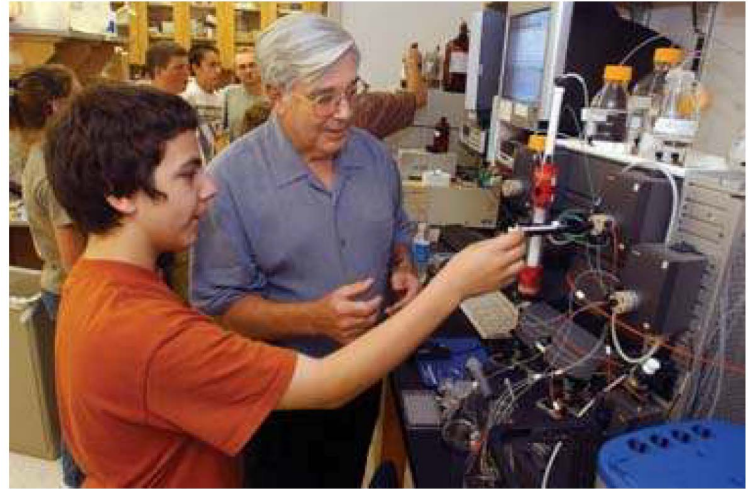
"The project is an attempt to enhance the skills of teachers to identify and develop the talent of their students. We're trying to get the teachers exposed to the excitement of discovery," Hudson said. In addition to the science camp, Hudson is planning for the Aspirnaut Initiative to become more involved within the rural Arkansas community once funding is secured. "What you see at Vanderbilt are a couple of components of the bigger plan," Hudson said.

Students in rural communities are often on school buses up to three hours a day due to the consolidation of school districts. The goals of the Aspirnaut Initiative are to transform the long bus rides into productive learning opportunities by placing laptops on buses, making on-board teaching assistants available and focusing on individualized learning — with an emphasis in math and science — by means of Web sites and a computer-based curriculum.

Establishing one-room satellite schools within the rural communities to provide enhanced learning opportunities through computer access, video-conferencing, e-mail mentors and teacher supervision is also an objective of the initiative. "We are trying to turn a negative into a positive. The Aspirnaut project is an attempt to enhance the public schools and do more individualized learning," Hudson said.

Hudson and his research team hope that the results of the Aspirnaut Initiative will lead to a prototype that can be replicated in rural communities throughout the United States.

Vanderbilt's Julie Hudson, M.D., David S. Cordray, Ph.D., and Laura Williams, a graduate student, are involved in the project. Collaborators also include members of the North Little Rock and Sheridan, Ark., school districts. The project has been endorsed by two members of the National Academy of Sciences; Stanley Cohen, Ph.D., Distinguished Professor Emeritus of Biochemistry, and William Lennarz, Ph.D., Distinguished Professor and Chair of the Department of Biochemistry at the State University of New York at Stonybrook.



Billy Hudson, Ph.D., shows Chris Cox, and eighth-grade student visiting from Grapevine Ark., HPLC equipment used in his lab to separate molecules for purification. Cox was part of a group of students from Grapevine who spent a week at Vanderbilt. Photo by Dana Johnson