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High school youths ready experiments for space

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When American Richard Garriott flies into space in October, experiments prepared by juniors at Huffman High and Indian Springs schools will be headed to the International Space Station with him.

"I wanted to get high school kids involved" and Garriott supported the idea, said Joe Ng, associate professor at the University of Alabama in Huntsville's Department of Biology, who led a workshop in Birmingham Wednesday for the students.

The students - six from Huffman, 14 from Indian Springs - helped prepare the experiments during a workshop at the Center for Biophysical Sciences and Engineering at the University of Alabama at Birmingham.

The experiments on protein crystallization are among hundreds of samples Garriott is taking into space. Others will be prepared by Alabama high school students during similar workshops in Huntsville, Ng said.

Garriott, the son of astronaut Owen Garriott, will travel on a Russian Soyuz spacecraft to the International Space Station for 10 to 14 days, Ng said. After he returns, the results will be shared with the students, who can compare the results with a control group left on Earth.

At the morning workshop session, students learned about protein crystallography. Crystallization is essential for protein engineering and drug design, and research has shown that crystals grown in space generally grow larger and have fewer impurities.

They also heard from Larry DeLucas, the UAB center's director, who served as a payload specialist on the space shuttle Columbia in 1992. He conducted experiments and returned with 34 protein crystals for UAB researchers to study in designing drugs for fighting AIDS, cancer, diabetes and other diseases.

In the afternoon, while Ng supervised and graduate students Emily Roth and Kimberly Seaman assisted, the students prepared the experiments.

The teens' science teachers were happy to see them at work.

"They're involved in cutting-edge research at UAB," said Bob Pollard, the Indian Springs teacher who accompanied his students. "If successful, they (the students) will be part of groundbreaking technology and groundbreaking science. Also, they can be part of something that will make a difference down the road."

Family connection:

DeLucas suggested Indian Springs School in north Shelby County because of his familiarity with it. Two of his children are alumni. But he wanted to invite urban students to have the same experience.

Michael Froning, dean of UAB's School of Education, suggested Huffman High because he knew the Advance Placement biology teacher, Michal Robinson.

"We were very surprised" but "immediately very excited" about participating, Robinson said during the lab work as she watched her students measuring sodium chloride (salt) concentrations in a liquid solution.

When her students get back to the classroom, they'll prepare other samples to go into space, discuss their experience and relate what they learned to the classroom, Robinson said.

"It's very important that we don't just teach by chapter and topic," she said. "We try to use a holistic

approach, and use practical examples."

For the Indian Springs students, the workshop is part of an independent study project for credit, Pollard said. Students are required to do other work, including reading, research and experiments at school. They'll take some of the proteins back and monitor crystal growth back in their own lab.

It was also an opportunity for his students to meet world-class scientists, Pollard said.

The scientists said they hope the workshop inspires students to pursue college and careers in science.

Insight and fun:

Students said their day was well spent.

"It's been fun. I'm really interested in this stuff," said Stephanie Shooner, a junior at Indian Springs who wants to be a scientist working in structural biology.

Huffman junior Marzell McAfee, who wants to be a biochemist, said it was a great experience.

"It gives you insight into what you can do as a biochemist or in the medical field," he said. "It was a great opportunity for me."

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