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The \$50 Million Solution: HHMI Ups Investment in Undergraduate Science

Colleges face a number of tough challenges in teaching science today. New fields that blur the lines between disciplines are emerging, and biologists, chemists, physicists and mathematicians are forging interdisciplinary collaborations. Scientists trained to be outstanding researchers need to learn to be outstanding teachers. More minorities must be encouraged to pursue scientific careers.

To help colleges meet these challenges, the Howard Hughes Medical Institute (HHMI) is awarding \$49.7 million in grants to 42 baccalaureate and master's degree institutions in 17 states and Puerto Rico. This brings HHMI's investment in undergraduate science to more than \$606 million.

The four-year grants, ranging from \$500,000 to \$1.6 million, support a variety of programs to improve undergraduate science, from new courses in hot fields such as bioinformatics and computational biology, to fellowships for postdoctoral researchers that include teaching experiences, and a mobile teaching laboratory to bring science to disadvantaged and minority students in remote areas.

Although its investigators conduct research at universities and medical schools, HHMI supports science at colleges because they also play a vital role in education, according to Peter Bruns, vice president for grants and special programs at HHMI. "Good science can be done in different settings, in colleges as well as universities," says Bruns. "Colleges are a better learning environment for some students, and they serve underrepresented minorities extremely well."

Undergraduate biology is not well-funded nationally, notes Stephen Barkanic, director of HHMI's undergraduate science education program. "Public and private funders tend to focus their support on research programs, infrastructure, and graduate training, but undergraduate biology tends to be neglected. Smaller colleges and universities, in particular, often are overlooked in the intensive competition for grant dollars."

The new grants encourage collaboration among recipients. Carleton and St. Olaf Colleges in Minnesota, for example, are collaborating with Michigan's Hope College to create faculty teams from biology, the physical sciences, and mathematics who will work together on research and develop

interdisciplinary courses and labs.

The grants also support training in teaching for postdoctoral fellows in science. City University of New York Queens College, Occidental College in Los Angeles, and North Carolina's Davidson College, for example, will establish postdoctoral fellowships that provide training and experience in teaching as a component of a strong research program.

Several of the new grants address the ongoing underrepresentation of some minorities in the sciences. Bryn Mawr College and Haverford College in Pennsylvania will bring their strengths in science to a partnership with Philadelphia area schools. Undergraduates and faculty from both colleges will mentor middle- and high-school students, providing laboratory experiences and writing workshops. The colleges also will offer summer workshops for Philadelphia area teachers.

In the lower Rio Grande Valley, where the population is 88 percent Hispanic and the unemployment rate is triple the national average, the University of Texas-Pan American will equip a mobile teaching laboratory staffed with scientist-educators to bring contemporary biology to students and teachers throughout the region. And Florida A and M University in Tallahassee, a historically black institution, will develop after-school and summer science and technology programs to attract the mostly African-American students of the Leon County South Side Schools.

HHMI invited 198 public and private baccalaureate and master's institutions to compete for the new awards. They were selected for their record of preparing students for graduate education and careers in research, teaching, or medicine. A panel of distinguished scientists and educators reviewed proposals and recommended the 42 awards approved by the Institute's Board of Trustees on May 4.

Awardees are: