

UCSD awarded \$1.4 million grant from Hughes Institute: funds to train more disadvantaged science students

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UCSD AWARDED \$1.4 MILLION GRANT FROM HUGHES INSTITUTE; FUNDS TO TRAIN MORE DISADVANTAGED SCIENCE STUDENTS

In a development that will strengthen the University of California San Diego's already aggressive efforts to attract and train economically disadvantaged students in the biological sciences, the Howard Hughes Medical Institute (HHMI) has announced that UCSD is one of 58 universities to receive major funding from the institute to help revitalize undergraduate science education.

UCSD is the recipient of a four-year grant totaling \$1.4 million, the HHMI announced. The award is part of \$91 1 million in grants that will be given by the institute to research and doctoral universities nationwide in HHMI's quest to enhance undergraduate programs in the biological sciences. Since 1988, more than \$425 million has been awarded through HHMI's undergraduate grants program, the largest private initiative in U.S. history to strengthen undergraduate science education nationwide.

This marks the third successive time UCSD has been awarded an HHMI grant, which is given and renewed on a competitive basis. HHMI grants to UCSD since 1989 total \$5 million, affecting thousands of disadvantaged area high school students and UCSD science undergraduates.

"There is no other way to put it -- we are extremely happy that UCSD has been selected again to receive an HHMI award," says Gabriele Wienhausen, Ph.D., vice chair of education in the Department of Biology at UCSD, and director of the HHMI Undergraduate Biological Sciences Education Program at the university. "This grant, like the previous ones, will enhance our efforts to assist educationally and socioeconomically disadvantaged science students at targeted high schools in San Diego," says Wienhausen.

Funds will allow UCSD to continue to work with the targeted schools via science outreach programs, and through undergraduate science and curriculum development support programs once those students are science majors at the university, says Wienhausen, who administers the HHMI program with co-director Barbara Sawrey, Ph.D., vice chair of education in the Department of Chemistry and Biochemistry at UCSD.

From assisting targeted schools with science instruction and classroom techniques to providing students at these schools with science project counseling, summer science camp experiences, and intensive educational and social support networks when they enroll at UCSD -- efforts through HHMI-funded programs have yielded positive results at UCSD, says Wienhausen.

"Follow-up evaluations from our previous HHMI grants actually show that high school science students participating in our programs graduate from high school with a considerably higher grade point average (GPA) than the average college-bound student." She adds that evaluation of the undergraduate program is equally encouraging. Participating students "have a lower drop-out rate, change their major less often and maintain a significantly higher GPA than the average UCSD science major," she indicates.

Says Wienhausen: "We want the students who enter here as science majors to stay science majors. And we especially want them to graduate with a competitive GPA for application to post-graduate school."

The objectives associated with the HHMI grant are part of an institution-wide effort at UCSD to serve as a resource for science education enhancement to all San Diego County schools.

UCSD's most recent HHMI grant will also make it possible for the university to work with an additional target high school in Southeast San Diego, bringing to four the number of high schools UCSD is assisting in science student and science teacher enhancement. In addition, the award will allow for perfection of a sophisticated computer-based instructional aid (originally developed at UCSD through HHMI funds) that prepares students for work in the wet laboratory by exposing them to certain simulated conditions, instruments and materials beforehand.

Here's a brief look at how HHMI grants are being used in three core areas at UCSD:

Science Outreach Programs with Targeted Schools. UCSD currently works with three Southeast San Diego high schools -- Lincoln, Morse and Madison -- in assisting students and teachers in science-related matters. The grant funds a UCSD outreach counselor who acts as a liaison between the university and the schools. The recent HHMI award will make it possible for Crawford High School in Southeast San Diego to be added as a participating school.

Students can attend UCSD-sponsored science camps in the summer in embryology, physics and chemistry; receive counseling in science fair projects; work as research apprentices side by side with UCSD graduate and post-doctoral researchers; learn how to research various scientific topics in UCSD libraries, and discover first-hand what college life is all about from UCSD science undergraduates. Science teachers at targeted schools can take advantage of UCSD-sponsored training in up-to-date science instruction and classroom techniques.

Undergraduate Science Enrichment. "Ideally we would very much like to see the high school students we've formed a relationship with at our target schools to enroll in college, hopefully at UCSD as science majors," says Wienhausen. If they do decide to come to UCSD to earn a science degree, a very active undergraduate support mechanism designed to address their academic and social needs is available to them. "Our goal is to maintain a continual relationship of follow-up, encouragement and learning with them," Wienhausen stresses.

One hundred new science undergraduates are accepted in this support program each year, which includes the service of an in-house counselor for the students and intensive summer research fellowships. The program currently has 400 participants.

Curriculum Development. "Our goal in this area is to better prepare students for the research lab and to improve their ability to learn," says Wienhausen. One such instructional tool (developed by UCSD through HHMI funds) is the Interactive Lab Manual, a CD-ROM-based computer program which allows students to learn about the terms, principles and techniques of laboratory experiments through electronic simulation before students enter the lab. Recent HHMI funds will be used to make this system available via the Web so students can access it from their dormitory or home.

Says Joseph G. Perpich, HHMI's vice president for grants and special programs: "Young people are getting to work on research projects in areas such as molecular, cell and computational biology, and they're using the latest technology in both the laboratory and the classroom ... it's essential that undergraduate education keep pace."

The Howard Hughes Medical Institute, based in Chevy Chase, MD, is a medical research organization whose principal purpose is the conduct of biomedical research. It employs scientists in cell biology, genetics, immunology, neuroscience and structural biology. More than 330 Hughes investigators conduct medical research in HHMI laboratories at 72 outstanding academic medical centers and universities nationwide. Through its

complementary grants program, HHMI supports science education in the United States and a select group of researchers abroad.

NOTE: For more information on the HHMI grant awards program, please contact website address www.hhmi.org/undergrad98.

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