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HHMI Professors Bring Rigor, Excitement of Research to Undergraduate Classrooms

Twenty leading researchers received \$1 million each from Howard Hughes Medical Institute (HHMI) to bring the creativity they have shown in the lab to the undergraduate classroom. Teaching undergraduates tends to be undervalued at research universities, says Peter J. Bruns, vice president for grants and special programs at HHMI. "We want the HHMI Professors to demonstrate that active, productive scientists can be effective teachers too." Bruns, a leading geneticist from Cornell University, taught undergraduates throughout his research career.

In 2001, HHMI invited 84 research universities to nominate faculty members who were outstanding research scientists who also valued teaching undergraduates. A panel of scientists and educators reviewed 150 nominees' proposals and in 2002 selected 20 HHMI Professors at 19 universities in 13 states. All are tenured faculty members. They include nine women and three members of minority groups.

Some are focusing on attracting more women and minorities into science; others want undergraduates to understand the increasingly interdisciplinary nature of science and its rapidly emerging new fields. Some are providing early research experiences, and others are developing new high-tech teaching tools. For example:

Jo Handelsman, a plant pathology professor at the University of Wisconsin-Madison, has created HHMI Teaching Fellows, a program for graduate students in biology to learn to be effective teachers. Darcy Kelley, a biologist at Columbia University, thinks every college freshman should be exposed to the great ideas of science and the way that scientists think. She has created a course called Frontiers in Science, with lectures by leading scientists and discussion sections led by graduate students, on topics such as the origins of life and how the brain works. Hilary Godwin, a chemistry professor at Northwestern University, wants to see more minorities in science, where only one percent of the faculty in the top 50 chemistry departments is African American or Hispanic. She established a Minority Success in Science program that includes a research project assessing lead levels in soil in the Chicago area, a focus of Godwin's own research. Isiah Warner, an analytical chemist at Louisiana State University, also is focusing

on mentoring minorities. An African American, Warner has developed a "mentoring ladder" reaching back into the secondary schools, where he says minorities often don't get the preparation they need for college science. Rebecca Richards-Kortum, a biomedical engineering professor at the University of Texas at Austin, introduces undergraduates to the interdisciplinary nature of 21st century engineering. Physiologists, biomedical engineers, biomathematicians and physician-scientists collaborate on new courses for engineering majors and non-majors, exploring experimental medicine, human research and imaging technologies.