HHMI
HOWARD HUGHES MEDICAL INSTITUTE

RESEARCH NEWS

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Medical, Dental, Veterinary Students Awarded Research Grants

Medical, dental and, for the first time, veterinary students will get a chance to conduct biomedical research full time for a year, as part of a $4 million initiative by the Howard Hughes Medical Institute (HHMI).

Two programs will give 110 talented students from across the country the opportunity to combine their interests in biomedical research and medicine by spending a year in the lab. These students will one day be on the front lines between biomedical research and the public, said Peter J. Bruns, HHMI's vice president for grants and special programs. We want them to have a strong background in research and then pursue it as a career.

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Researchers who bridge the gap between clinical medicine and basic science are in a unique position to exploit our knowledge of the human genome and other recent advances to make discoveries that will improve human health. Despite the unprecedented opportunity for translating basic science discoveries into clinical treatments, the number of students who actually pursue careers that bridge the lab and the clinic has remained flat. The range of possible research areas is immense; newly emerging areas include creating new technologies for biomedical imaging, identifying and using markers of disease progression, finding new molecular targets for agents that could be used as therapies, and understanding of the basic biological processes that cause human disease.

This year, 42 students—from 26 medical schools, three veterinary schools, one dental school, and one osteopathic school—will participate in the HHMI-NIH Research Scholars Program, which brings top medical students to the National Institutes of Health campus to participate in hands-on biomedical research. Students in this program are also known as Cloister

Scholars because they live in apartments and dormitory-style rooms at a refurbished cloister on the NIH campus in Bethesda, Md., during their training. They visit several NIH labs before choosing the research project they will pursue with an NIH mentor.

In a separate program, 68 students—from 26 medical schools and one dental school—will receive Research Training Fellowships for Medical Students, which allow students to implement a research plan and work at a lab anywhere in the U.S. except the NIH campus in Bethesda. These students submit a plan to conduct work in a specific lab with a mentor they have chosen. Most Medical Fellows do research at their home institution, but nine have chosen to work at another research center.

For the first time, veterinary students were among those invited to apply for both programs, and four veterinary students from three schools were chosen as Cloister Scholars. We are acknowledging the biological and scientific relationship between animals and humans, Bruns said. Veterinarians play an important role in the future of biomedical research.

Veterinary students bring a unique approach to biomedical research that complements that of physician-scientists, said Chand Khanna, a veterinarian and pediatric cancer researcher at the National Cancer Institute. Veterinary students receive training across species and training that embraces diversity in biology, said Khanna, who is one of few veterinarians working in the NIH. This results in students who are comfortable moving not only between different species but between different models and different questions.

Khanna has mentored students in the HHMI-NIH program before and knows the enthusiasm for research that is sparked during their time in the lab. The importance of what HHMI is doing is recognizing that different perspective of veterinary students and providing opportunities for them to learn early on how a vet's perspective is valued in medicine, he said.

This is the 24th year that HHMI has provided support for students to work in research labs. Most students in the two medical student research programs have completed at least two years of medical, dental, or veterinary school before they take the time off for research. This allows the students to view research through a medical prism, Bruns said. Though most of the students already have an interest in research, this experience allows them to confirm whether they want research to play a large role in their future career.

For the 2008-2009 year, 337 students from 98 medical, dental, and veterinary schools applied for 110 positions in the two programs. The applications were reviewed by panels of outside researchers and NIH scientists.

HHMI has developed a variety of programs aimed at increasing the pipeline of researchers who conduct fundamental research in biology and translate their discoveries into improved treatment for patients. In addition to the Cloister Scholars and Medical Fellows programs, the Institute also supports the careers of promising translational researchers through its Early Career Physician-Scientists program. Another program, the Med into Grad initiative,

trains graduate students pursuing a Ph.D. in the biomedical sciences in the basics of clinical medicine so they can recognize and address research problems of importance to the advancement of medicine. Top physician-scientists have also joined the ranks of HHMI Investigators.

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The Howard Hughes Medical Institute, a non-profit medical research organization that ranks as one of the nation's largest philanthropies, plays a powerful role in advancing biomedical research and science education in the U.S. Since the mid-1980s, HHMI has made investments of more than $10 billion for the support, training, and education of the nation's most creative and promising scientists. The Institute commits almost $700 million a year for research and distributes more than $80 million in grant support for science education.

The HHMI grants program emphasizes initiatives with the power to transform graduate, undergraduate, and precollege education in the life sciences. HHMI has challenged graduate schools to change their training programs in order to shorten the time it takes to translate basic science discoveries into new medical treatments and, in partnership with the National Institutes of Health, supports a parallel initiative to encourage interdisciplinary graduate studies. It also funds International Research Scholars, promising scientists from outside the United States who are making significant contributions to understanding basic biological processes or disease mechanisms but whose careers are still developing.

HHMI's flagship program in biomedical research rests on the conviction that scientists of exceptional talent, commitment, and imagination will make fundamental biological discoveries for the betterment of human health if they receive the resources, time, and freedom to pursue challenging questions. The institute's more than 300 investigators, selected through rigorous national competitions, include 12 Nobel Prize winners and 124 members of the National Academy of Sciences. Hughes laboratories, found at 64 distinguished U.S. universities, research institutes, medical schools, and affiliated hospitals, employ hundreds of post docs and provide training opportunities for more than 1,000 graduate students each year.

The Janelia Farm Research Campus in Ashburn, Va., further extends HHMI's commitment to research and discovery. Janelia Farm scientists probe fundamental biomedical questions best addressed through a collaborative, interdisciplinary culture. The initial research focus is the identification of the general principles that govern how information is processed by neuronal circuits and development of imaging technologies and other computational methods for image analysis. Researchers at Janelia Farm—including its most senior group leaders—engage in active bench science and work in small teams that cross disciplinary boundaries that bring chemists, physicists, computational scientists, and engineers into close collaboration with biologists.

HHMI has an endowment of approximately $18.7 billion. Its headquarters are located in Chevy Chase, Maryland, just outside Washington, D.C.