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HHMI Helps Physicians Launch Careers in Research

The first few years as a junior faculty member at an academic medical center can make or break a physician who wants a career in biomedical research. Two reasons why new faculty physicians abandon plans for research careers are lack of flexible funding to accommodate the needs of new labs and lack of time to actually do research.

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- Peter J. Bruns

In fact, focus groups of young physicians—all of them alumni of training programs run by the Howard Hughes Medical Institute (HHMI)—have identified the first few years as a junior faculty member as the most critical stage in a physician-scientist's career.

HHMI responded to these challenges by creating the Physician-Scientist Early Career Award program. It will provide \$150,000 over three years to promising physician-scientists in their early years as tenure-track faculty at academic medical centers. The money must be used for direct research expenses, and the recipients' institutions must agree to let the young physician-scientists spend at least 70 percent of their time doing research.

HHMI named the first 13 awardees today. Many of them have already made impressive, original contributions to research in a variety of fields.

Vamsi Mootha, for example, is a clinician-researcher who uses large data-set, computer-based technologies such as genomics and proteomics to understand human disease. He used these tools to identify the gene and mutation associated with Leigh syndrome, a rare genetic disorder found in French Canada. Mootha, an assistant professor of medicine and systems biology at Harvard Medical School and the Center for Human Genetic Research at Massachusetts General Hospital, has been named a MacArthur Foundation fellow for his pioneering work in mitochondrial biology, identifying the

genes underlying mitochondrial function in healthy and diseased cells. Mitochondria are the cellular structures responsible for energy metabolism.

Kimberly Stegmaier, an assistant professor of pediatric oncology at the Dana-Farber Cancer Institute, has done pioneering work with HHMI investigator Todd Golub, using gene chips to screen large numbers of molecules for potential usefulness as cancer drugs. Earlier this year, she and Golub used a novel screening method they developed to sort through 1,700 chemicals, finding 13 compounds that altered the gene profiles of cancerous cells in acute myeloid leukemia. One of those compounds is already in clinical trials at Dana Farber.

And Atul Butte, an assistant professor of medical informatics and pediatrics at Stanford University School of Medicine, combines a passion for computers with M.D.-Ph.D. training in medical endocrinology and bioinformatics. His research goal is to solve the genomic puzzle of type 2 diabetes. More than 30 types of high-throughput measurement and experimental techniques and more than 75 human diseases that have been studied using microarrays make it difficult to integrate all the data and figure out how it can be used to prevent or treat disease. Butte is developing novel computational techniques for analyzing and comparing large amounts of differing data. He co-authored one of the first books on microarray analysis, titled *Microarrays for an Integrative Genomics*.

"We feel that the Early Career Awards program is one of the best investments we could make in the future of biomedical research," said William Galey, director of HHMI's graduate science education and medical research training programs. "There is a pressing need to recruit talented physicians to careers in medical research, to help translate basic science discoveries into new medical therapies for patients. We hope that these competitive grants will enable some of the most promising M.D.s and M.D.-Ph.D.s to make a successful transition from mentored training to independent junior faculty research positions at academic medical centers."

HHMI already supports two programs to recruit future physician-scientists: the HHMI-NIH Research Scholars Program, which enables medical or dental students to spend a year doing research in laboratories at the National Institutes of Health (NIH), and the HHMI Research Training Fellowships for Medical Students, which allows medical or dental students to conduct full-time research at any academic institution in the United States except the NIH.

HHMI established the Early Career Awards to encourage alumni of these HHMI programs to continue to pursue their interest in research once they accept academic positions. Only alumni of HHMI's medical and dental student research training programs are eligible to apply.

“We want to make sure that these talented young physicians, who have already shown exceptional promise in the research lab and in the clinic, are not lost from the ranks of research scientists,” explained Peter J. Bruns, HHMI vice president of grants and special programs.

HHMI received nearly 50 applications for the first awards. A panel of leading physician-scientists reviewed the applications, evaluating the applicant's ability and promise for a research career as a physician-scientist. They considered the quality and quantity of formal research training, the commitment of the applicant's research institution, the quality of the research environment, the applicant's commitment to pursuing a biomedical research

career, and the quality of the proposed research plan.

The three-year awards support individuals who have obtained full-time, tenure-track faculty positions at biomedical research institutions. The grants may not be used to replace or supplement salaries, or research expenses that would otherwise be supported by the institution.

HHMI's 2006 Early Career awardees are: