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U.S. Medical Research Gets \$600 Million From Institute: Hughes Supplements Gap As Government Funds Lag

By Philip Rucker

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One of the world's largest private philanthropies will announce today a \$600 million initiative to fund risky but potentially lifesaving medical research by 56 of America's top scientists.

The Howard Hughes Medical Institute is expanding its flagship investigators program to nurture a new class of scientists. By endowing scientists' research over many years, the institute hopes they will make major discoveries in a variety of fields, including genetics and biology.

The scientists, chosen from more than 1,000 applicants, said they want to answer such ambitious questions as how global climate change affects the spread of cholera, malaria and other infectious diseases and whether doctors can apply the engineering behind the building of airplanes and computers to the human immune system.

The initiative comes as scientists are sounding alarms about a slump in federal research funding since 2003, saying it has starved potentially groundbreaking research projects of cash and could jeopardize the country's dominance in science against growing competition in Europe and China.

Private philanthropies -- led by the Chevy Chase-based nonprofit organization founded by Howard R. Hughes, the late aviator, engineer and film producer -- are helping fill this gap by lavishing money on research that many grantmakers would consider too risky but that could produce the greatest breakthroughs.

"We identify the best people and then free them up to do what they want to do and to be flexible and change directions and follow their noses into new fields," Hughes Institute President Thomas R. Cech said.

Just as the Bill and Melinda Gates Foundation is showering grants on programs to improve U.S. education and global health, the Hughes Institute is trying to foster long-term advances in medicine.

"Today's medicine is the beneficiary of scientific inquiry that took place decades ago," Cech said. "Our goal in funding the basic biomedical sciences is to lay the groundwork for the medical discoveries that will take place 20, 30, 40 years from now."

The 42 men and 14 women who will be named Hughes investigators today come from 31 universities and research institutions across the country, including Johns Hopkins University in Baltimore. They will continue to work at their institutions but will become employees of the Hughes Institute, joining about 300 Hughes investigators.

One new investigator is Mercedes Pascual, who was born in Uruguay, grew up in Argentina and Brazil and now has a lab at the University of Michigan. She is trying to determine how global climate change affects outbreaks of infectious diseases.

Pascual wants to build a mathematical model to help scientists identify when and how cholera, malaria and other diseases might balloon into epidemics, enabling public health agencies to prepare for, or even preempt, deadly outbreaks.

But Pascual's research is uncertain. She could toil for years without developing the model. The work is so risky, she said, that she probably would not receive grants from other sources, including the federal government's National Institutes of Health.

Aware of the potential of her model, the Hughes Institute is banking on Pascual to deliver it.

"There is a tremendous freedom in terms of time to focus on the research, time for creativity, time to pursue whatever area you think is important," Pascual said.

By giving standards, the Hughes Institute's \$600 million initiative is an unusually large investment. The institute, with an endowment estimated at \$18.7 billion, is the country's largest private supporter of biomedical research.

But by far, the largest source of scientific research funding is the federal government. The NIH administers more than \$28 billion in research grants each year. Congress nearly doubled the NIH budget between 1998 and 2003 to capitalize on new lines of research opened by the Human Genome Project.

Since the doubling, though, the NIH's budget has remained flat, and the cost of research has increased. This has created angst among scientists across the country who fear the funding slump is threatening prospects for breakthroughs.

"That's an enormous cutback in our nation's investment in tomorrow's medicine," Cech said. "We're mortgaging our future by not funding this research now."

The American Academy of Arts and Sciences is planning to release a major report June 3 calling on more funding for high-risk biomedical research, said Leslie C. Berlowitz, the academy's chief executive.

"No matter what the size of the pie, more emphasis, or a larger percentage of the pie, has to be invested in the next generation of scientists and high-risk, high-reward science if we're going to maintain America's competitiveness," Berlowitz said.

Without an increase in federal research funding, some leaders in the scientific community say, the United States' dominance could be threatened.

"Globally, the U.S. is still dominant in terms of biomedical research, but that share of the first-rank research is eroding, partially because our funding is eroding but also because other nations are ramping up their biomedical research capabilities," said Kei Koizumi, a policy analyst at the American Association for the Advancement of Science.

NIH Director Elias A. Zerhouni said the number of research ideas outweighs the number of grants the NIH can award. But, he said, the NIH is investing in programs to fund research by promising but unproven young scientists.

"Science is moving very fast," Zerhouni said. "In my view, the greatest risk in our science over the long run relative to the competition is that we stop taking risks."

Although philanthropy is no substitute for federal funding, Zerhouni said, it has a role in funding research. He called the Hughes Institute's investigator program a model and said it is "absolutely critical."

James J. Collins, a systems biologist at Boston University, is a newly named Hughes investigator. He is trying to determine how cells and their components are assembled, how they interact and what shapes their behavior.

Collins said that it could take years to answer these questions and that funding for such broad research has been hard to attain.

"Too many researchers are focused on getting enough productivity demonstrated to get the grant renewed, as opposed to putting your head down and going after the long-term problems," Collins said.