

NIH director warns that US research funding is falling behind, calls for new focus on innovation

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NIH Director Francis Collins joins University of Maryland School of Medicine Dean E. Albert Reece at the School's First Annual Festival of Science. Credit: UM School of Medicine

The United States may be losing ground as the leader in biomedical research and within the next five years will be second to China in the funds it spends for R&D, according to Francis Collins, M.D., Ph.D,

director of the National Institutes of Health.

Collins, speaking at a Festival of Science at the University of Maryland School of Medicine, said research funding flattened out in 2003. With Congress unable to settle on a budget for the past three years—and with sequestration of funding potentially doubling next year—the US, once the unchallenged leader in research, is losing ground while several other countries are increasing their R&D spending.

"All of us are hopeful that the panel led by [Senators] Patty Murray and Paul Ryan will come up with a compromise that will let at least the sequester go away," he said.

Collins was the keynote speaker at a conference that kicked off University of Maryland School of Medicine's Accelerating Innovation and Discovery in Medicine (ACCEL-Med) program in which the medical school asked a panel of world-famous scientists to act as advisors and consultants on where the School's research efforts should be.

The five advisors included Nobel laureate Carol Greider of Johns Hopkins Medical Institution; Rita Caldwell of the University of Maryland at College Park; Philip Needleman, former president of the St. Louis Science Center; Ralph Snyderman, chancellor emeritus at Duke University; and Elias Zerhouni, president of global R&D at Sanofi Pharmaceutical and Collins' predecessor at NIH.

Three groups of medical school researchers presented what their departments were working on, and the panel, sitting on tables to the side, made initial comments on the presentations. The presenters came from the Institute for Genomic Sciences, the department of pharmacology and the department of surgery.

Collins emphasized the economic benefits of the research as well as medical impact on human health, pointing out that the cuts to research budgets, particularly at NIH, were "shortsighted."

Collins, one of the leaders in the effort that led to the mapping of the human genome, used genomic research as an example. He said the project may have produced 400,000 jobs directly and 7 million indirectly, and generated \$965 billion in economic growth.

Starting in 2012, funding for [biomedical research](#) has declined 20 percent even before sequestration. But in the years early in the decade, when funding doubled, facilities were built around the country and an increasing number of young scientists were trained, he said.

The result now is that more scientists and labs are asking for grants at the same time the funding for grants has declined. Once, Collins said, NIH could grant 25-35 percent of projects. Now it is down to 15 percent. Only one out of seven grants now is funded.

"You could say we are still the largest supporter of science in the world, and you would be right—but only barely," he said.

University of Maryland School of Medicine Dean E. Albert Reece, M.D., Ph.D., M.B.A., said one of the purposes of the meeting and the new program was to make sure what money came in was spent in the best way.

"The purpose of Accel-Med is to increase the pace and scope of clinical and basic science research that will impact and improve human health and well-being."

"Advances do not come by accident or from serendipity," he said. What he hoped it would lead to was innovation and discovery.

"We have asked some of the best minds in the world to help us direct our endeavor, to tell us what we should be thinking about."

The presentations included:

- Institute for Genomic Sciences—Projects included the use of genomic sequencing of the microbiome, the complex community of organisms that live in association with humans; the microbiomes in the vagina, and tracking diseases in human populations through history via genome sequencing.
- Pharmacology—Research included both cancer drugs and why the body often learns to resist the treatments, and drugs used in brain science.
- Surgery—discussed the 72-hour operation in 2012 that gave a young gunshot victim a transplanted face and the role of vascularized bone in transplants; the advances in pediatric cardiac surgery using stem cells; basic research in hyperparathyroidism and the work uncovering its cause, and other advances in artificial hearts and lungs.

Provided by University of Maryland

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