

Sequestration will take big bite from medical research funding

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Research into cancer, Alzheimer's disease and influenza may lose crucial funding even as scientists say they are on the cusp of medical breakthroughs.

Deep [federal budget](#) cuts, known as [sequestration](#), could lead to diminished funding for medical and scientific research, making some scientists question whether they should stay in the United States.

If the cuts continue, scientists said, the United States could see promising graduate students going to countries investing heavily in scientific research.

With the human genome sequenced and fast computers at their fingertips, scientists say that research is moving more quickly than ever before. Which means the reduction in federal funding comes at a particularly bad time.

"It is a paradoxical thing that we are both at a time of remarkable and almost unprecedented scientific opportunity, and we're also at a time in the United States of unprecedented threats to the momentum of scientific progress," said Francis Collins, director of the National Institutes of Health.

Sequestration, which went into effect March 1 after Congress failed to reach a budget compromise, cuts \$85 billion across government departments, agencies and programs.

The NIH, which will lose \$1.6 billion of its \$30 billion budget through the sequester, is the world's largest supporter of [biomedical research](#), funding \$2 billion in programs at the University of California system alone.

The scientists' concerns come as labor organizes rallies across the country against the sequestration. Early this week, [government employees](#) gathered outside the San Diego Naval Base to speak out against cuts that will lead to massive furloughs.

There's an economic incentive for investing in biomedical research, Collins said. NIH-funded discoveries contribute to the nation's booming biomedical industry, a sector that exports \$90 billion a year in goods and services annually and employs a million citizens.

The government's \$4 billion investment in the Human Genome Project, for example, helped create \$796 billion in economic growth from 2000 to 2010, the NIH estimated. More generally, every \$1 of NIH funding generates \$2.20 in economic growth, the government said.

Schools such as those in the UC system already are feeling the pinch. Many federal government grants started to slow a few months ago when administrators realized they might be facing budget cuts, said Gary Falle, the UC system's associate vice president for federal government relations.

"We know there's going to be a significant negative impact," he said.

UC Irvine receives \$100 million to \$150 million from the NIH. The money is used to fund stem cell, diabetes and Alzheimer's studies, including the campus' Institute for Memory Impairments and Neurological Disorders. It's looking at a reduction of 5 percent to 7 percent.

"That cut is going to mean a lot to us," said John Hemminger, vice chancellor for research at the campus.

Johns Hopkins University is expecting \$40 million in funding cuts from the NIH this year. That means that labs that employ 10 to 20 people will now have to cut a few workers, said Scott Zeger, vice provost for research at Johns Hopkins.

Grants also are shrinking from other sequester-affected agencies, including NASA and the Defense Department. Those cuts come at a time when the pace of research should be speeding up rather than slowing down, he said.

"There's a realization that we are at this breakthrough moment, and the worst thing America can be doing is creating uncertainty about our commitment to bioscience," Zeger said.

Still, some argue that the cuts to the NIH will make the agency look more closely at how it spends its money, making it more efficient.

In a commentary on a conservative Heritage Foundation blog, students T. Elliot Gaiser and Jason Lloyd pointed out that the NIH funds "non-vital" projects, including research into how golfers perform better when they use their imagination and a study showing male fruit flies are more attracted to younger fruit flies than to older ones.

"Before warning about the potential delay of 'vital' research projects, President Obama should lead in ensuring that agencies such as the NIH use taxpayer dollars in ways that benefit the public good," they wrote.

Scientists said it was not just the pace of research that would be affected. One of their biggest worries is the message these cuts are sending to young scientists just beginning their careers.

Those graduates are the ones most likely to lose their jobs, and they will find it difficult to get grants for research. If they leave the U.S. or go into another field, scientific progress could be set back years.

"America is in a leadership position here, and we have people from around the world, graduate students and postdocs, coming to make their careers," Zeger said. "But what the sequester is doing is creating uncertainty in the future. They're wondering whether America is the right place to do work."

These young scientists and their research will "drive the economies of the coming century," Zeger said.

As the U.S. cuts its funding for science research, countries such as Dubai, Brazil, India and China are increasing theirs. Even countries such as Germany and Britain, which are facing budget problems of their own, are increasing their research funding, NIH's Collins said.

Graduate students who come to the U.S. from other countries to do research are already seeing what happens when the U.S. cuts its science budgets. The chances of getting a grant from the NIH have dropped from 1 in 3 to 1 in 6 since 2003, Collins said. The sequester will make that number drop even more.

Collins worried that young scientists, seeing this, will decide to embark on a new career or will leave the U.S. for somewhere that research dollars are flowing.

"I worry deeply that we are putting an entire generation of scientists at risk by the very significant difficulty they see in obtaining support," Collins said.

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