

Research roadblock: Is the sky really falling for St. Louis researchers?

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Gautam Dantas heads up a **Washington University** lab that is searching for solutions to problems such as how to deal with the rising prevalence of antibiotic resistance.

The Dantas Lab, which has 20 full-time employees, has received more than \$5 million in funding from the **National Institutes of Health** (NIH) in its seven-plus years in St. Louis. Dantas said without those federal grants, which account for more than half of the lab's support, the lab wouldn't exist.



DILIP VISHWANAT | SLBJ

Dantas and other members of the scientific community in the St. Louis region and nationwide are keeping a wary eye on a proposal from President **Donald Trump** to slash funding for the NIH by 18 percent — or about \$5.8 billion — in fiscal 2018. The administration also is calling for a \$1.2 billion cut from NIH's current fiscal 2017 budget.

“This could be the worst roadblock for research and science endeavors that the university has ever seen,” said Dantas, who is an associate professor of molecular microbiology and pathology and immunology at Washington University's School of Medicine and an associate professor of biomedical engineering at the School of Engineering and Applied Science. “Without hyperbole, I think it would mean the ending of a reasonable number of careers.”

Researchers, organizations and companies across the St. Louis region received more than \$443.8 million in funding from the NIH in 2016, with the lion's share of that amount — \$407 million — going to researchers at Washington University. But the grants also included smaller amounts to much smaller organizations, all the way down to a \$40,000 grant received by St. Charles-based Sci-Engi-Medco Solutions Inc., which is developing technology to improve the results of chemotherapy.

A cut to NIH funding would be particularly painful for St. Louis because of the region's increasing focus on biotechnology and life sciences research, said **Ken Olliff**, vice president for research at **Saint Louis University**. SLU received more than \$21.5 million in NIH funding in 2016.

"I think it will have an outsized impact on the St. Louis region," Olliff said. "Research funding is a really critical piece of the ecosystem here."

Dantas said the jobs of "tens of thousands" of people employed in Missouri either directly or indirectly because of NIH funding "will be washed out."

One of those whose research, and livelihood, depends on NIH funding is **Chengchang Charles Wu**, who, along with his wife, **Rosa Ye**, founded Intact Genomics at the Helix Center Biotech Incubator in St. Louis County in 2013. Intact Genomics focuses on research and services around DNA cloning and BAC (bacterial artificial chromosome) related technologies.

Wu said he and his wife poured all of their money into launching Intact Genomics, which now has six full-time employees and last year received \$1.1 million in NIH funding.

"We don't have the resources to do this research on our own," Wu said. "Our research, our discovery is dependent on these federal funds. Without the NIH, there would be no Intact Genomics."

Francis "Duke" Creighton said NIH funding "has been a lifeline" for **Pulse Therapeutics**, a St. Louis-based medical device maker that has developed magnet-based technology that can dissolve blood clots. Pulse, which was founded by Creighton in 2008, received \$748,265 in NIH funding last year.

Creighton, who also is a reviewer of grant applications for the NIH's Small Business Innovation Research (SBIR) program, said funding from the NIH allows companies to continue to focus on research without all the strings that come attached to funding from other sources, such as venture capital or other outside investors.

"The NIH funds are nondilutes, which allows you to perform basic research that serves as due diligence for investors," Creighton said. "But if you don't have the time to do that work, you are basically acting as a sales person promising results that you don't have the data to back up. The NIH funding mechanisms are critical."

Funding from the NIH provides support for the cutting-edge research that might not otherwise get funded, Washington University's Dantas said.

"The more pinched money is in any enterprise, the more safe and less innovative things get created because no one wants to fund high-risk ideas," he said. "But it's those high-risk ideas that have the best ultimate results."

Washington University consistently ranks among the top 20 institutions nationwide receiving the most funding from the NIH. And it is this status, Dantas said, that helps the

school continue to attract top researchers.

“We compete with the best institutions in the nation, even though we’re not in Boston or San Francisco, and we are able to attract the talent because we can hold up this card,” he said. “People see St. Louis as a place where a lot of great science is done, but that entire thing could come to a standstill.”

One particular program at Washington University that could be impacted is the ongoing research into Alzheimer’s disease. Dr. **John Morris**, who leads the university’s Alzheimer’s Disease Research Center, was recently highlighted in STAT News, talking about how the NIH cutbacks could slow progress against the disease. Morris said the proposed cuts could “seriously violate” the nature of long-term studies into the disease and its progression.

The proposed funding cuts have prompted alarm among the scientific community nationwide. The American Cancer Society has said the proposed cuts would set back cancer research nearly two decades and slow American medical innovation. Moody’s Investors Service said in a report issued late last month that Trump’s draft budget would be a credit negative for the U.S. higher education and not-for-profit sector, mainly due to the proposed cuts in NIH funding.

“The budget proposal signals reductions as well as potentially large shifts in the administration’s research funding priorities, including a material cut to biomedical research funding,” **Susan Fitzgerald**, a Moody’s associate managing director, said. One study, published in medical journal Lancet in 2006, found a collection of 28 trials that cost a total of \$335 million in NIH spending equated to a net benefit to society of \$15.2 billion.

However, researchers also are expressing some optimism that the administration’s budget proposal will not make it through Congress unchallenged.

“It seems like this administration has a certain amount of unpredictability about it, but what I feel good about is both Republicans and Democrats see the value of these NIH programs,” Creighton said.

SLU’s Olliff said research has shown direct correlations to investments in research and economic growth and that federal funding for research efforts has long had support from both political parties.

“I’m reasonably optimistic that NIH is going to come through relatively unscathed,” he said.

Proposed funding cuts add challenge to SLU's new focus on research

When **Ken Olliff** was appointed the new vice president of research at Saint Louis University last May, he was charged with expanding the university’s research during a time of uncertainty.

SLU has developed a five-year plan to double its research programs, with a goal to grow its annual sponsored research awards from the current level of about \$50 million to \$100 million in the five-year time period.

“I was hired as part of (SLU President) **Fred Pestello**’s plan to grow SLU into a great research university,” Olliff said. “This is a 200-year-old Jesuit university that is turning itself upside down, and he made the decision that research was one area he wanted to prioritize. I was hired to grow the scale of research.”

Improving the university’s research infrastructure, as well as attracting additional faculty with a track record of sponsored research, are goals included in SLU’s turnaround program, which the university is calling the Magis Operational Excellence Program. SLU has projected annual deficits of \$10 million to \$20 million through 2018 and beyond, and the Operational Excellence program is an outgrowth of the strategic planning process Pestello started after his arrival at SLU in 2014.

According to the program report, sponsored research at SLU has declined significantly over the last few years. While the university received \$40 million in federal government research grants and contracts in 2010, that fell to \$29 million in 2015, according to the report.

Olliff was brought on board to help turn those numbers around.

“SLU is making a making a major run at research,” Olliff said.

Olliff came to SLU from the University of Chicago, where he was associate vice president for program development. To help him advance SLU’s renewed focus on research, Olliff also recruited colleagues from Chicago to join his team at SLU, including **Matthew Christian**, who joined SLU as associate vice president for research and chief of staff. At the University of Chicago, Olliff and Christian were part of team that co-founded Arete, a research accelerator that supported faculty in building interdisciplinary research programs and pursuing federal and private funding. Olliff also recruited **Jasmin Patel**, who previously was the executive director of Arete, to join SLU as assistant vice president of research strategy.

However, months after Olliff came to SLU, a new administration moved into the White House, proposing dramatic cuts to the research funding provided by the National Institutes of Health.

“It makes our job more challenging,” Olliff said. “The uncertainty we’re living under right now makes it difficult to plan.”

NIH grants account for about 83 percent of the funding for biomedical research at SLU. The university received \$21.5 million in NIH funding in 2016.

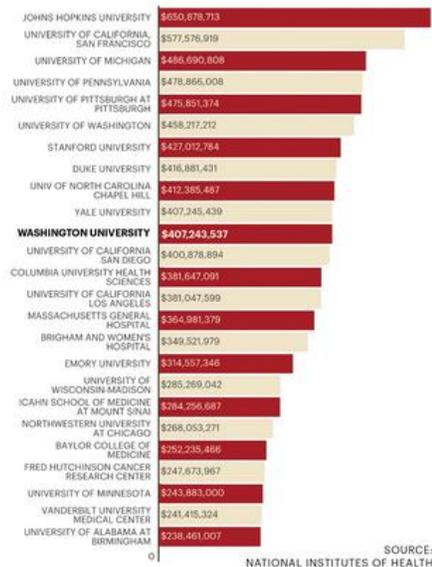
“It’s the bulk of our funding, so cuts would have a direct impact on our research efforts,” Olliff said.

This includes programs such as ongoing research into a possible vaccine for the Zika virus. Other research is focused on issues such as liver disease, cancer, autism and treating pain without the use of addictive opioid. An NIH-funded group at SLU also is doing drug discovery research for rare and neglected diseases.

“These aren’t abstract questions that don’t pertain to people’s lives,” Olliff said. “This is research into things like improving longevity and making it possible for people to live well into older age.”

NIH charts large

LARGEST NIH FUNDING RECIPIENTS IN 2016



ST. LOUIS 2016 NIH RECIPIENTS

ORGANIZATION	CITY	NO. OF GRANTS	AMOUNT
WASHINGTON UNIVERSITY	ST. LOUIS	878	\$407,243,537
SAINT LOUIS UNIVERSITY	ST. LOUIS	63	\$21,520,587
UNIVERSITY OF MISSOURI - ST. LOUIS	ST. LOUIS	9	\$1,868,750
APT THERAPEUTICS INC.	ST. LOUIS	3	\$1,492,357
INTACT GENOMICS INC.	ST. LOUIS	2	\$1,125,421
SOUTHERN ILLINOIS UNIV. AT EDWARDSVILLE	EDWARDSVILLE	4	\$894,333
PULSE THERAPEUTICS INC.	ST. LOUIS	1	\$748,265
WILLIAM D SHANNON CONSULTING LLC	ST. LOUIS	1	\$551,598
ISTO TECHNOLOGIES	ST. LOUIS	1	\$508,141
COFACTOR GENOMICS LLC	ST. LOUIS	1	\$490,910
MEDICAL GUIDANCE SYSTEMS LLC	ST. LOUIS	2	\$441,853
HEALTH COMMUNICATION IMPACT LLC	ST. LOUIS	1	\$420,783
NAWGEN LLC	ST. LOUIS	1	\$349,932
DONALD DANFORTH PLANT SCIENCE CENTER	ST. LOUIS	1	\$330,000
CONFLUENCE LIFE SCIENCES, LLC	ST. LOUIS	1	\$299,949
AUXAGEN INC.	ST. LOUIS	1	\$283,567
DOSEIMAGING LLC	FENTON	1	\$225,001
KYPHA INC.	ST. LOUIS	1	\$218,241
PROSTHETIC DESIGN INC.	ST. LOUIS	1	\$186,737
MEDIBEACON INC.	ST. LOUIS	1	\$181,504
MEDIOMICS LLC	ST. LOUIS	1	\$157,959
WEBSTER UNIVERSITY	ST. LOUIS	1	\$97,740
IACUC 101 SERIES	ST. LOUIS	1	\$62,911
SCI-ENGI-MEDCO SOLUTIONS INC.	ST. CHARLES	1	\$40,000

SOURCE: NATIONAL INSTITUTES OF HEALTH

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St. Louis Business Journal

