

# OPINION

## SCIENCE IN SAN DIEGO

*The annual meeting of the American Association for the Advancement of Science, the nation's largest general scientific conference, runs today through Monday in San Diego. This is the second of three commentaries written by conference participants.*

# Investment pays local dividends

By Peter Agre and  
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The Obama administration released its proposed fiscal 2011 research and development budget February 1 and struck a hopeful note for the nation's economic future. Though essentially flat at \$147.7 billion – a mere 0.2 percent more than the level enacted by Congress for fiscal 2010 – the document includes bright spots for key science and technology programs, and for public research universities.

That's great news for regions like San Diego, where federal funding for science drives innovation and new private enterprise. As cries for spending cuts intensify and the draft budget moves through a gauntlet of House and Senate committees this spring, let's hope U.S. policymakers remember that federal research dollars pay big dividends locally.

With the University of California San Diego celebrating its 50th anniversary, it seems fitting to reflect on how America's federal R&D investment supports the local science community and stimulates economic growth in the region.

An independent economic analysis by CBRE Consulting of San Francisco offered unequivocal evidence of UC San Diego's importance to the regional and statewide economies: As of 2008, the university was responsible for 39,000 jobs and contributing more than \$7.2 billion annually in direct and indirect spending and personal income to the California economy, CBRE reported. In addition, companies launched by UC San Diego alumni and faculty – like former professor Irwin Jacobs, founder of Qualcomm, – were contributing more than \$37 billion and nearly 130,000 jobs to the state's economy every year.

San Diego County benefits in countless other ways, such as having access to new lifesaving therapeutic

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drugs and treatment options, seismic improvements to roadways, bridges, buildings and building codes and more energy-efficient building designs.

Just as UC San Diego helps to drive San Diego's economy, federal research funding, in turn, keeps universities moving forward. Nationwide, universities rely on federal funds to cover, on average, 60 percent of their R&D expenditures, according to National Science Foundation data. And as state budget woes persist, many universities – including UCSD, which has suffered more than \$100 million in state funding cuts over the past two years – rely more than ever on federal research dollars, including one-time stimulus funds.

Federal research investment benefits state taxpayers as well as young people preparing to find jobs. California needs that boost, too: The state's unemployment rate stood at 12.4 percent in December, compared with a national jobless rate of 10 percent. And while competing for jobs increasingly requires knowledge of core science concepts, the number of eighth-graders in California who met basic science-learning goals declined between 1996 and 2005. Fewer than 20 percent were considered to be proficient at science based on National Assessment of Educational Progress scores released last year.

Science offers hope for America's children, and our economic future. The San Diego-based scientific community – including UCSD, the Scripps Research Institute, the Salk Institute for Biological Studies, Sanford-

Burnham Medical Research Institute and many other internationally renowned scientific institutions – is particularly well positioned to lead that charge. After all, the Milken Institute has predicted that biotechnology will propel the next major science and technology boom, and San Diego sits at the center of that science-based field.

Let's be clear: The \$1.6 trillion budget deficit that the Obama administration has forecast for 2010 provokes serious concerns for all of us. But reacting to that problem by reducing America's investment in research and development would cause an even more significant deficit over the longer-term, by diminishing innovation and global competitiveness. Federally funded research drives advances in science and technology, and that creates new industries, new products and new wellsprings of prosperity in California.

The president's proposed 2010-2011 R&D budget would hold the line on an overall increase in federal nondiscretionary funding, but at the same time it would preserve and expand key science-focused programs related to the economy, the environment and clean energy. Importantly, the proposed R&D budget also would sustain steady, predictable growth of core fields, avoiding the boom-or-bust funding patterns that are so damaging to research progress.

As deliberations begin on Capitol Hill, we hope that policymakers will approve the R&D budget without delay. America – and California – can't afford to scrimp on research and development. Our economic future depends on it.

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