

Creating Jobs, Saving Lives, Fueling the Economy

When public money is spent on scientific research there is a tremendous return on investment. Research creates jobs directly – for the principal investigators, research teams, lab technicians, materials and equipment manufacturers and others who help support the work – and indirectly, through innovations that lead to new technologies, new industries, new companies and new jobs. University-based scientific research also provides a training ground, educating the next generation of scientists, engineers, doctors, teachers and entrepreneurs. And scientific research leads to the types of discoveries that have a significant impact on society – like finding cures for deadly diseases, developing technologies that can make us more energy independent, creating new tools to enhance our security. Some examples of this extraordinary return on investment:

Fueling economic growth. More than half of our economic growth in the United States since World War II can be traced to science-driven technological innovation. The seed corn for this innovation has been scientific research conducted at universities and supported by the federal government through agencies such as the Department of Defense, Department of Energy, National Science Foundation, National Institutes of Health and NASA.

Creating new companies and jobs. Thousands of American companies of all sizes have gotten their start from federally funded basic scientific research. A report by [The Science Coalition](#) tells the stories of 100 such examples that collectively employ well over 100,000 people and have annual revenues approaching \$100 billion. These companies include Google, Genentech, SAS, Cisco, Sun Microsystems, A123 Systems and iRobot.

Saving lives and saving money. There is important research being done today to look at the causes and cures for some of our most chronic and costly diseases that will yield transformative discoveries and will lead the way to a healthier and more productive future. Just think about the medicines and medical technologies that we take for granted today – vaccines, the MRI, anti-clotting drugs and statins – these were the realm of science fiction 50 years ago.

New Technologies. New Companies.



TomoTherapy



THE UNIVERSITY
WISCONSIN
MADISON

[TomoTherapy Incorporated](#), based in Madison, Wisconsin, began with a \$250,000 grant from the National Institutes of Health's National Cancer Institute to two researchers at the University of Wisconsin-Madison. The grant helped support their research, enabling the development of TomoTherapy's core technology: a highly advanced radiation therapy system that targets cancerous tumors while minimizing exposure and damage to surrounding tissue. Each year the technology is used to improve the outcomes of tens of thousands of difficult to treat cancer patients worldwide. Today, TomoTherapy employs 600 people.

Saving Lives. Saving Money.

Carnegie Mellon

In late 2010, a man in St. Louis and a woman in New Hampshire received the first kidney transplants made possible through a new national program of the [Organ Procurement and Transplantation Network](#) (OPTN) that uses a Carnegie Mellon University computer algorithm to match transplant candidates with living donors. Since demand for donor organs far exceeds supply, programs such as this that increase the efficiency of exchanges through computerized donor matching can make a tremendous difference. The National Science Foundation helped to support the work of the computer science team at Carnegie Mellon.

Protecting our troops and enhancing our security. Scientific research has been essential to developing the equipment and technologies that make our military the best equipped in the world today. Basic scientific research funded by the Department of Defense and its agencies, including the Defense Advanced Research Agency (DARPA), the Air Force, Army, Marine Corps and the Navy, has contributed to the development of GPS, night vision goggles, interceptor body armor, meals ready-to-eat, and gaming and simulation technology that prepares soldiers for their missions.

Ensuring our continued international competitiveness.

Leaders of emerging economies such as China, India and the countries of Eastern Europe recognize the value of investments in scientific research and education, and are spending billions of dollars to develop and support their own research infrastructure. Our continued investments in these areas will ensure America's innovative leadership in an increasingly competitive world.



Competing Globally

[Suniva](#), a manufacturer of solar technology based in Norcross, Georgia, was founded based on basic research conducted at Georgia Tech and supported by the U.S. Department of Energy. Suniva's technology, which is making solar-generated electricity cost-competitive with fossil fuels, is so sought after that the company is sold out well into 2011, with exports to Europe and Asia accounting for more than 80 percent of its sales. In 2010, Suniva's solar cells were [honored](#) as the world's best commercially applied innovation.