THE SCIENCE COALITION

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The Honorable Cory Gardner
Committee on Commerce, Science
and Transportation
United States Senate
Washington, DC 20510

The Honorable Gary Peters
Committee on Commerce, Science
and Transportation
United States Senate
Washington, DC 20510

Dear Senators Gardner and Peters:

We appreciate the opportunity to provide input to the Committee on Commerce, Science and Transportation as it considers reauthorization of the COMPETES Act. The Science Coalition is an organization of more than 60 of the nation's leading public and private research universities dedicated to sustaining the federal government's investment in basic scientific research as a means to stimulate the economy, spur innovation and drive America's global competitiveness. As the authorizing vehicle for the National Science Foundation, the National Institutes of Standards and Technology, the Department of Energy's Office of Science, and the Advanced Research Projects Agency-Energy, the COMPETES Act serves a vital role in enhancing and sustaining America's scientific and technological leadership.

You have asked for input on a series of questions; we have focused our comments on topics related to the following two questions:

- How can the federal government best structure, coordinate, and/or prioritize its R&D investment portfolio to provide predictability for research initiatives, facilitate the discovery of new knowledge, drive lasting economic growth, and address critical emerging challenges?

- How can the results and value of federally-funded research be better communicated across the research community and to the private sector and general population?

Facilitating the discovery of new knowledge, driving lasting economic growth and addressing critical emerging challenges requires strong and sustainable federal funding for basic scientific research.

Basic research *is* the nation's innovation pipeline. More than half of U.S. economic growth since World War II can be traced to science-driven technological innovation. The computer industry, Internet, and smartphones, the biomedical revolution with its continuing flow of vaccines and lifesaving drugs, the advance of diagnostics such as the MRI, and most of the advanced technologies that enabled our men and women in uniform to be the world's most effective fighting force, all had their start in federally funded scientific research.

The initial COMPETES legislation, passed with broad bipartisan support in 2007 and reauthorized in 2010, responded to a looming crisis in America's ability to maintain our competitive edge in the innovation economy. That threat continues today. While America has held our federal research funding flat for the past decade, economic competitors such as China and South Korea have been boosting theirs. Investing in scientific research leads to discoveries that fuel domestic industries and create jobs. While other countries work to create an innovation dividend, we risk creating an American innovation deficit. **It is essential that any reauthorization of COMPETES maintain the original vision of this legislation – to ensure America's innovation leadership – and provide strong, sustainable authorization levels over several years for the science agencies under its purview.**

Moreover, the federal government's long-held approach of leaving to scientific experts the decisions about which research is funded with federal dollars has served the nation very well. As the Golden Goose Award and other efforts have highlighted, even the oddest-sounding science can produce unexpected discoveries with tremendous societal benefits. For example, a federally funded study in which scientists massaged baby rats led to a critical change in how premature babies are cared for, saving thousands of lives and billions of dollars in health care costs. Another study to create an algorithm for arranging happy marriages ultimately led to the national kidney exchange and lotteries that enhance public school choice. Even a study to test the ability of children to resist a marshmallow, has had enormous and unexpected impact on our understanding of human development, self-control, education and the complexity of human behavior. Had these studies not been conducted because they seemed odd or frivolous – or not in the national interest – their extraordinary societal and economic benefits that we enjoy today would have been lost.

Communicating the value of federally funded scientific research involves helping people see the connection between research and the things we value as a society – e.g., health and well-being, a strong economy, leaving a better world for future generations, etc.

The Science Coalition works to raise awareness of the value of the federal government's investment in basic scientific research. Our communications, targeted to the media, the public and members of Congress and staff, aim to illustrate both the proven results of such research as well as its potential. Two of our signature communication initiatives are described below:

Our Sparking Economic Growth reports illustrate one way in which federally funded research supports the economy: the creation of companies. Released in 2010 and 2013, each report identifies 100 companies that are here today as a result of federal research funding that occurred years, and in many cases, decades ago. These research-based companies employ thousands of people, contribute to their local economies and the U.S. tax base, and are bringing to market transformative innovations in energy, medicine, defense and advanced technology.

Denver-based Mersive and Michigan-based ThermoAnalytics are examples of the virtuous cycle of federally funded university research. Mersive, which makes advanced visual display systems, is the outgrowth of academic research at the University of Kentucky funded by NSF, DARPA, and DHS in the early 2000s. ThermoAnalytics is a spinout of Michigan Technological University with more than 60 employees and operations in the United States and Europe.

A year ago, the Science Coalition launched an initiative – Science 2034 – to ask scientists how well-funded scientific research might change our lives and our world in the next 20 years. From major advances in energy and computer science, to a better understanding of the brain that will lead to new treatments for diseases

from mental illness to Alzheimer's, and from new ways to manage water, energy and food, to the impact that the next generation atomic clock will have on virtually all aspects of our lives, the forecasts on Science 2034 are evidence that federally funded researchers are tackling some of today's – and tomorrow's – greatest challenges.

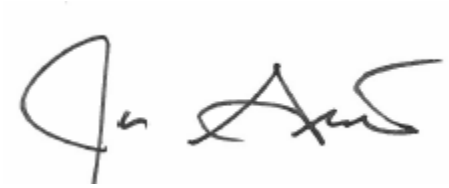
Six of our Science 2034 researchers came to Washington in June to participate in congressional staff briefings attended by over 130 staffers, one of which was sponsored by the Committee on Commerce, Science and Transportation. They provided their audience a window to the future by describing what will be possible in their field of work within the next two decades. By doing so, they helped bridge the gap between today and tomorrow, bringing to life the fact that it is the research being enabled today through federal funding that will affect what's possible tomorrow. (A podcast from the House-side briefing is available here.)

Fiscal restraint and investments in basic scientific research are both important to building a better America.

We recognize the current challenge faced by Congress. It is important that we get federal spending and deficits under control. But this should be done in a smart way that reduces spending *and* ensures the money we continue to spend helps to build a better America for our children and grandchildren. Placing a high priority on investments in areas such as scientific research makes sense because of the significant long-term return on those investments. The discoveries and innovations that come from federally funded scientific research create jobs, help our economy, save lives, and improve Americans' quality of life. Recommitting to and sustaining strong investments in this research now will ensure a stronger America in the future. We appreciate your leadership and that of the Committee to look at ways to make federal spending on basic scientific research a top priority.

Sincerely,

Amanda J. Arnold
Texas A&M University
Science Coalition President



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