Duke University
Durham
North Carolina 27708-0005

Office of the Provost

220 Allen Building
Box 90005
Telephone (919) 684-2631
Fax (919) 684-4421

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The Honorable Elizabeth Dole
United States Senate
SD-555 Dirksen Senate Office Building
Washington, DC 20510

Dear Senator Dole:

I write to thank you for your continued attention and dedication to matters of importance to the people of North Carolina and its collegial communities. Although the dust has barely settled on the FY 08 budget, we now turn our attention to the upcoming FY 09 budget and look forward to working with you on ensuring robust funding for the federal programs identified as institutional priorities listed below.

Basic research remains one of the most underinvested economic drivers of the nation's economy, a point bolstered by the most recent National Science Board report on Science and Engineering Indicators. Industry support for basic research continues to decline as focus and investments shift to applied and development programs. The federal government has long been a critical sponsor of foundational science, but its support has stagnated in recent years due to austere budgets.

The federal government provides more than 59 percent of funding for basic research, with research universities receiving about 56 percent of that funding. This data point highlights the symbiotic relationship between universities and the federal government, and emphasizes the challenges faced by universities, and the innovation pipeline, when the fiscal environment in Washington becomes both Spartan and unpredictable.

Despite many proclamations over the past few years about the importance of quality investments in peer-reviewed, competitively awarded basic research programs—particularly in the physical sciences—the funding situation has not improved. Although we appreciate the efforts of the Administration and Congress in recommending positive increases, support wanes during the end-game budget negotiations to the detriment of researchers and students working in laboratories across the nation. During the FY 09 budget cycle, my Duke colleagues and I look to you and members of our congressional delegation for leadership in reversing this trend. It is imperative not only for North Carolina's success in the global economy, but also for the nation's long-term economic strength.

The remainder of this letter outlines programs of great importance to Duke and the nation and we strongly urge you consider them as priorities during your communications with the Senate Appropriations Committee.

## Programs Under the Jurisdiction of the Labor, HHS, Education and Related Programs Subcommittee

National Institutes of Health: Between 1998 and 2003, Congress doubled the budget of the National Institutes of Health (NIH). That critical infusion of financial support for basic biomedical research has led to the completion of the human genome project; the deployment of powerful innovative research tools to open up new worlds of scientific possibility; and a potential transformation of medicine by effectively preventing, rather than just treating, many illnesses. However, in FY 2008, the President's budget calls for NIH to receive an unprecedented fifth consecutive flat or reduced budget—essentially wiping out all of the gains from the five-year doubling and returning NIH's ability to support biomedical research, in inflationary dollars, to 1998 funding levels.

In competition for limited NIH resources, scientists at every point along the academic research pipeline are feeling the destructive effects of this erosion of funding. The system is backlogged with proposals and too few are being funded, impeding scientific progress. The overall success rate for NIH research grant applications was 31 percent in 1999. Under the FY 09 budget, that rate is estimated to be around 18 percent. With less grant money to award, NIH reviewers are becoming more risk averse, looking to fund incremental steps rather than bold visions. As a result, researchers are changing the way they design experiments and write grant applications, shifting their focus from "what is possible?" to "what is fundable?" Because of the funding crisis, delays at the laboratory bench reduce the scope and pace of scientific discovery and, eventually, the rate at which medical advances improve health outcomes for all of us. This comes at a time when corporations have reduced their funding of basic research. Even though major research universities like Duke are providing start-up and bridge funding, many promising young investigators are struggling under tremendous financial pressures to keep their research alive. Increasing numbers are turning to other careers, putting a generation of scientific discovery at risk. A return to thoughtful and progressive funding for the NIH is critical to fix the broken pipeline and set the United States back on course as the world leader in biomedical research.

We urge you to fund the NIH at the highest level possible—at a rate that substantially exceeds the rate of biomedical research inflation, which is projected to be 3.5 percent for FY 2009.

NIH Salary Cap: As you consider the FY09 Labor-HHS appropriations bill, we bring to your attention an issue of particular importance that we appreciate Congress having addressed in previous appropriations. Specifically, we urge you to retain the salary cap imposed on extramural NIH researchers at Executive Level I of the pay scale, which equals $191,300 in 2008. Congress has recognized the importance of this issue by preserving the cap at Executive Level I in every appropriation since FY 2001.

The increased participation of physician-scientists is one of the most critical needs to strengthen clinical research. The extramural salary cap disproportionately affects physician investigators at academic medical centers and serves as a deterrent to their recruitment into research careers. Retaining the extramural salary cap at Executive Level I will allow our institutions to continue to attract and retain the best investigators in our research programs. In addition, maintaining the

salary cap at Executive Level I places extramural investigators on a level playing field with intramural NIH scientists, who are eligible for Executive Level I salaries under the Senior Biomedical Research Service.

Student Aid Programs: Ensuring access to a quality education for all qualified students regardless of financial need is a top priority for Duke. More than 40 percent of Duke undergraduates receive need-based financial aid and the institution has long operated under a need-blind admissions policy, where students are accepted regardless of their financial situation and the University commits to meet 100 percent of documented need. This commitment to access and affordability was further strengthened in 2005 with President Brodhead's announcement of the Financial Aid Initiative. This campaign is now closing in on its goal for $300 million endowment funds dedicated solely to financial aid. Due to the ongoing success of this initiative and the returns from our endowment, President Brodhead announced in December 2007 a new financial aid program targeted at students from lower- and middle-income families. In the fall of 2008, the University will eliminate parental contributions for families earning less than $60,000 per year. Financial aid packages to students from families earning less than $40,000 will not include loans, allowing them to graduate debt-free. Loans will be reduced for students from families earning $40,000 - $100,000 and capped for families earning more than $100,000.

In order to achieve our financial aid goals, we are increasing the investments from our endowment in financial aid by 22 percent next year when tuition will rise less than a quarter of that. Overall our financial aid investments for undergraduates will exceed $85 million and the average annual grant to eligible students will exceed $28,000. While we continue our efforts to make a Duke education affordable to low-income students, we cannot do it alone. The federal government has long been a critical partner in providing much needed aid for low- and middle-income students. As enrollments continue to grow to record levels, it is imperative to keep this partnership strong in order to keep the dream of a college education accessible to all students across the nation.

Pell Grants: The Pell Grant remains the foundation of need-based aid packages for financially disadvantaged students. In FY 07, more than 5.3 million students from families with incomes of $20,000 or less benefited from this program. During this same time frame, 600 Duke students—120 from North Carolina—received Pell Grants to help enable their education at Duke. The Administration's FY 2009 budget proposes a $69 increase to the maximum Pell Grant award for a total of $4,310. Although this discretionary funding would be coupled with a mandatory increase of $490, authorized in the College Cost Reduction and Access Act, the grand total of $4,800 falls short of the goals set by President Bush and the congressional leadership. As such, we urge increasing the maximum Pell Grant award to $5,100.

Supplemental Educational Opportunity Grants/Federal Work-Study: In its FY 09 budget request, the Administration has once again recommended the elimination of the Supplemental Educational Opportunity Grants (SEOG) program and has proposed flat funding the Federal Work-Study (FWS) program. These programs provide an important complement to Pell Grants by expanding funding options for students. In FY 2006-2007, 419 Duke undergraduates were supported by SEOG, and 1,787 by FWS. Recognizing the important role these programs play in

enhancing access and affordability, we urge the restoration of SEOG to $1 billion, and a $270 million increase for the work-study program to $1.25 billion.

Perkins Loans: Despite the recognition by Congress of the importance of this campus-based loan program and broad institutional support, President Bush has proposed, for the fourth year in a row, to eliminate the Perkins program. For more than 50 years, these low, fixed rate interest loans have helped millions of students attend the college of their choice. Its unique loan forgiveness component provides a greater societal good by encouraging students to pursue careers in public service, particularly in underserved areas. Congress has already underscored its support for the program through the reauthorization of the Higher Education Act. In the FY 09 budget cycle, we urge you to follow up this commitment by appropriating $100 million to the Capital Contribution portion of the program and increasing the loan forgiveness portion to a level of $120 million.

International Education: As we move into a more globally integrated society, the need for a well-versed global citizenry becomes imperative. Much of the international education infrastructure is supported through the Title VI programs of the Higher Education Act. These programs, funded through the Department of Education, support foreign language and area studies, thus providing the pipeline of investments for the international service pipeline. Duke is a national leader with six area studies centers, including Asian/Pacific Studies Institute, Center for International Business Education and Research, Center for International Studies, Center for Latin American and Caribbean Studies, Center for Slavic, Eurasian and East European Studies, and the North Carolina Center for South Asia Studies. Recognizing the importance of international education, the University uses institutional dollars to match the federal investment on a 10 to 1 basis, which allows for further development of curriculum and strengthen the centers and work of our faculty and students.

For FY 2009, the Administration has requested $110 million for international education programs, which would fund 471 Title VI grants to individual institutions, and provide direct support to nearly 1,010 individual scholars. Although we are encouraged by this slight increase, years of flat or declining budgets have eroded the nation's international education infrastructure at a time when our students are increasingly engaged in international programs of study. In order to strengthen our research capacity, training, and curriculum development in this important area, we encourage Congress to provide $137 million for Title VI programs in FY 09.

Library Programs: Libraries are a cornerstone of intellectual life for academic institutions through the nurturing and dissemination of new scholarship and its support of intellectual discovery by the university constituency and broader community alike. As research institutions transform, so too must research libraries evolve to remain a quality resource in this technologically driven environment, and federal support for libraries remains imperative in order to remain nimble in this dynamic setting. We urge your continued support for quality investments in federal programs supporting libraries, such as the Library Services and Technology Act, The Library of Congress and other federal libraries, the Federal Depository Library Program, and the Government Printing Office.

## Programs Under the Jurisdiction of the Defense Subcommittee

Defense Research, Development, Test and Evaluation (RDT&E): After years of declining budgets in real terms, the FY 2009 proposal for basic (6.1) research at the Department of Defense (DOD) is more than encouraging. We are delighted in the Department's recognition of the importance the role foundational science plays in its mission and its renewed effort to provide a more balanced research portfolio by shifting emphasis away from short-term development and deployment objectives. We owe much gratitude to Secretary Robert Gates, who requested a review of the research enterprise at the department, and to Under Secretary for Acquisitions, Logistics and Technology, John Young, who provided a thoughtful and comprehensive vision of the Department's S&T portfolio. I was so pleased by the recommendations made by Under Secretary Young that I made a personal visit to the Pentagon to express Duke's appreciation and offered our assistance in bringing this vision to fruition. During this visit, I was impressed by the thoughtful planning underway and, in particular, the thought-provoking proposal to infuse interdisciplinarity into DOD's research culture.

Universities have long played an instrumental role in helping the Department carry out its research mission. The DOD is the third largest federal sponsor of university-based research and nearly 50 percent of funding for 6.1 basic research goes to universities. In addition, the DOD is the primary federal sponsor of research in several disciplines, including mechanical and electrical engineering and materials sciences. Duke researchers are making path-breaking discoveries for the next generation of defense-related technologies, from revolutionizing prosthetics to new protocols in wound healing to the basic premise of an "invisibility cloak" against microwave and sound waves.

Given the important role the basic research accounts play in maintaining our defense superiority both on and off the battlefield, we strongly urge Congress to support the Administration's FY 09 request of $1.7 billion for basic research at the DOD, the first of what we hope will be a multi-year effort to strengthen this critical portion of the Department's research portfolio.

## Programs Under the Jurisdiction of the Energy and Water Subcommittee

Department of Energy Office of Science: If funded, the Administration's request of $4.7 billion for the Department of Energy's Office of Science will inject much needed investments into what has been a tenuous budget situation. Despite the substantive increases recommended both by the Administration and congressional committees during the past two budget cycles, the end-game appropriations process has proven to be detrimental to the competitive-based research programs supported through the Office of Science. The 2.6 percent increase (after removing increases attributed to earmarked funds) provided in the FY 08 omnibus appropriations package, coupled with the funding provided in the FY 07 Continuing Resolution, resulted in a three quarters of a billion dollar reduction from previously recommended funding amounts. Even more dire is the impact of the FY 08 budget to the programs and people supported by the Office of Science. It is estimated that the less than inflationary increase to the competitive programs will result in an immediate loss of 550 jobs at DOE-funded facilities. And this is occurring when the reality of

global energy demand is manifest and the need for innovation in energy production and environmental enhancements could not be more clear.

The Office of Science is the leading source of federal funds and facilities for research in the physical sciences, providing 42 percent of the federal investment in this field. It is the key federal sponsor in certain disciplines, including high energy and nuclear physics. The Office of Science also plays an important role in research conducted at Duke, including the support of the Triangle Universities Nuclear Laboratory (TUNL). TUNL, a collaboration between Duke, UNC-Chapel Hill, and North Carolina State University, continues to be a highly-successful center for low-energy experimental nuclear physics and was recently named by DOE as a Center of Excellence. In order to continue the work of researchers here at Duke and across the country, we strongly support the Administration's request for DOE's Office of Science in FY 2009.

**Programs Under the Jurisdiction of the Commerce, Justice, Science and Related Agencies Subcommittee**

National Science Foundation: The FY 2009 budget request for NSF recommends $6.85 billion, a 14 percent increase over FY 08. The NSF supports nearly 20 percent of basic research at universities across a wide range of disciplines. It is currently the second largest federal sponsor of research on Duke's campus, supporting both researchers investigating the newest breakthrough in their field as well as outreach efforts that increase enthusiasm for math and science programs at the K-12 level. The NSF is also a critical sponsor of research in the social sciences, and we remain concerned about recent attempts to pay for increases in the physical and biological sciences at the expense of the budget for the social and behavioral sciences. The social sciences provide key insights into complex societal problems and, along with research in the biological and physical sciences, provide a multidimensional view of both the root cause and potential solution to these issues.

As the FY 09 budget process moves forward, we urge your support of the Administration's request of $6.85 billion for the NSF and also request your support of a balanced research portfolio within the agency.

Photonics: North Carolina is fast becoming a leader in the field of photonics with positive implications for economic development in the region. Technologies in this emerging field, which explore the interaction of light with matter, are currently deployed in everyday products such as DVD players, missile guidance, and medical surgeries, with new advances beginning to take over electronics in many areas including biochemical and early cancer detection. The Fitzpatrick Institute of Photonics (FIP) at Duke is a key driver in the success of the photonics industry in North Carolina. Researchers at FIP live by the notion of "knowledge in the service of society" and have been at the forefront of both investigating the newest breakthroughs to translating these results into commercial success. With great promise on the horizon for revolutionary advances in communications, patient care, and sensor technologies, we urge your continued support for investments in photonics programs in the FY 09 budget.

National Nanotechnology Initiative: Another incredibly dynamic research area is nanotechnology, which seeks to understand and control matter at the nanometer-scale. The

multi-agency National Nanotechnology Initiative (NNI) includes support for activities by 10 federal agencies aimed at accelerating research, development, and deployment of this critical technology. Breakthroughs in this area include the creation of "smart" textiles for military and civilian applications, non-invasive diagnostic protocols and carbon nanotubes that have the potential of revolutionizing microelectronics and materials manufacturing. One question arising from this technological metamorphosis revolves around the impact these fabricated materials may have on society. A Duke research group led by Professor Mark Wiesner is investigating the interaction of nanotechnology and the environment. Specifically, this group seeks to understand how nanomaterials can increase sustainability, but also any residual, unintended consequences these materials may have on the environment and public health. The nation's innovative capacity relies on breakthroughs in frontier fields like nanotechnology. As such, we urge your support of the Administration's FY 09 request of $1.5 billion for the NNI.

Plant Genomics: Research in plant genomics continues to yield critical insights into the biological networks and processes in economically important crops. The NSF supports two critical programs in this research—the Plant Genome Research Program and Arabidopsis 2010. Professor Phil Benfey and his team at Duke are at the forefront of research in this area, investigating the genetic basis of root growth and how individual cell types respond to stimuli. This research has implications for the biofuel industry and crop maintenance in the developing world, as well as a broader understanding of the intricate and dynamic biological networks. In order to support this evolving field, we urge your support of the Administration's request for these programs for FY 09.

## Programs Under the Jurisdiction of the Subcommittee for Interior and Related Agencies

National Endowment for the Humanities: The Administration has requested $144.4 million in funding for the National Endowment for the Humanities (NEH) in FY 2009, a decrease of 0.2 percent from the FY 08 enacted level. The NEH remains the single most critical source of federal funding for the humanities. The seed money provided through peer-reviewed, competitive grants leverages millions of dollars in matching funds for programs dedicated to the education of our citizens, preservation of our past, and promotion of a global citizenry. Although we applaud the Administration's development and support of new initiatives, including *We the People* and *Digital Humanities Initiative*, we are concerned that focus on these programs and years of declining budgets have chipped away at the core research and education programs. In order to restore the operating capacity of the Endowment to its historic level and to allow for investments in both the core programs and new initiatives, we urge a total funding level of $177 million for the NEH in FY 09.

Environmental Protection Agency (EPA): The Environmental Protection Agency is the lead federal agency charged with the protection of the environment and human health. The research arm of the agency, the Office of Research and Development, identifies national areas of research and has created five research centers to carry out its mission in these priority areas. One important goal of the agency is the protection of vulnerable populations—particularly children. Through the National Center for Environmental Research, the EPA supports the Southern Center on Environmentally Driven Disparities in Birth Outcomes (SCEDDBO) located at Duke. This is

the first Children's Center established in the South, as well as the largest Center grant in EPA history. Under the direction of Professor Marie Lynn Miranda, SCEDDBO will study the various environmental, social, and economic factors unique to the South that contribute to health disparities in birth outcomes. The Center is a compliment to the already strong Children's Environmental Health Initiative underway at the Nicholas School of the Environment and Earth Sciences, which seeks to set forth a new paradigm in addressing children's environmental health issues. Given the critical role the EPA plays in addressing environmental and health issues for the nation, we urge substantial funding for competitively funded research programs at the agency for FY 09 and beyond.

We fully recognize the tough fiscal decisions that currently face Congress, but cannot emphasize enough the need to make competitively awarded research and education programs a national priority. We sit at a critical crossroads in terms of strengthening our economic security and global leadership, and look to you for leadership in accomplishing this task. Our staff stands ready to provide any additional information required during the budget debates ahead. Should you have any questions or concerns, please contact Chris Simmons in the Office of Federal Relations at 919/668-6270.

Although you will most certainly have many demands on your schedule in the coming year, I hope you will consider a visit to Duke during one of the many congressional recesses. It would give us great pleasure to show you the wonderful work our students and researchers are accomplishing with support from federally funded programs.

Sincerely,

Peter Lange
Provost

cc: Richard H. Brodhead
Victor Dzau, M.D.
James Siedow
David Jarmul
Melissa Vetterkind
John F. Burness
Tallman Trask III
John Simon
Chris Simmons
Paul Vick