The American Physiological Society
Statement on FY 2014 Funding
For the National Science Foundation and NASA

The American Physiological Society (APS) thanks you for your sustained support of science at the NSF and NASA. The APS is a professional society, numbering nearly 11,000 members, dedicated to fostering research and education as well as the dissemination of scientific knowledge concerning how the organs and systems of the body function. In this letter we offer our recommendations for FY 2014 funding levels for these two agencies.

- The APS urges you to fund the FY 2014 NSF budget at a net level of $7.4 billion to prevent further erosion of program capacity.
- The APS urges you to restore cuts to NASA’s life sciences research budgets and to increase funding for the Human Research Program.

The APS recognizes that the economic challenges facing the country demand that government resources be used judiciously. NSF and NASA support scientific research and technology development programs that are critical to the future technological excellence and economic stability of the United States. Federal investment in research is critically important because breakthroughs in basic and translational research are the foundation for new technologies that help patients, fuel our economy, and provide jobs.

NSF funds outstanding research and education programs

NSF provides support for approximately 20% of federally funded basic science and is the major source of support (68%) for non-medical biology research, including integrative, comparative, and evolutionary biology, as well as interdisciplinary biological research. The majority of the NSF funding is awarded through competitive, merit-based peer review, ensuring that the best possible projects are supported. NSF has an excellent record of accomplishment in terms of funding research that produces results with far-reaching potential. It has been shown time and time again that the knowledge gained through basic biological research is the foundation for more applied studies that lead to improvements in the lives of ecosystems, animals, and humans.

In addition to funding innovative research in labs around the country, the NSF education programs foster the next generation of scientists. The APS is proud to have
partnered with NSF in programs to provide training opportunities and career development activities to enhance the participation of underrepresented minorities in science. The APS was recognized for these efforts in 2003 with a Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring (PAESMEM), funding for which was provided by NSF. We believe that NSF is uniquely suited to foster science education programs of the highest quality, and we recommend that Congress continue to provide federal funds for science education through the NSF.

The APS joins the Federation of American Societies for Experimental Biology (FASEB) to recommend that the NSF be funded at a level of $7.4 billion in FY 2014 so that it can support a sustainable research program that follows a funding trajectory reflecting the level authorized in the America COMPETES Act.

**Support for Life Sciences Research should be increased at NASA**

NASA sponsors research across a broad range of the basic and applied life sciences, including gravitational biology, biomedical research and the Human Research Program (HRP). The gravitational biology and biomedical research programs explore fundamental scientific questions through research carried out both on Earth and aboard the International Space Station, which provides an environment for the conduct of experiments in space. The HRP at NASA conducts unique research and develops countermeasures with the goal of enabling safe and productive human space exploration.

During prolonged space flight, the physiological changes that occur due to microgravity, increased exposure to radiation, confined living quarters, and alterations in eating and sleeping patterns can lead to debilitating conditions and reduced ability to perform tasks. APS scientists are actively engaged in research that explores the physiological basis of these problems with the goal of contributing to the identification of therapeutic targets and development of countermeasures. The knowledge gained from this research is not only relevant to humans traveling in space, but is also directly applicable to human health on Earth. For example, some of the muscle and bone changes observed in astronauts after prolonged space flight are similar to those seen in patients confined to bed rest during periods of critical illness as well as during the process of aging.

NASA is the only agency whose mission addresses the biomedical challenges of manned space exploration. Over the past several years, the amount of money available for conducting this kind of research at NASA has dwindled. The overall number of
projects and investigators supported by NASA through the HRP, National Space Biomedical Research Institute and Exploration and Technology Development program has decreased markedly (https://taskbook.nasaprs.com/Publication/). In the past, appropriations legislation specified funding levels for biomedical research and gravitational biology, but recent internal reorganizations at NASA have made it difficult to understand how much money is being spent on these programs from year to year. The APS recommends that funding streams for these important fundamental research programs be clearly identified and tracked within the NASA budget. The APS also recommends restoration of cuts to peer-reviewed life sciences research.

As highlighted above, investment in the basic sciences is critical to our nation’s technological and economic future. The APS urges you to make every effort to provide these agencies with increased funding for FY 2014.

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