This statement is submitted to the House Appropriations Subcommittee on Commerce, Justice, Science and Related Agencies.

The American Physiological Society
Statement on FY 2009 Funding
For the National Science Foundation and NASA

The American Physiological Society (APS) thanks the Subcommittee for its commitment to scientific research at the National Science Foundation (NSF) and the National Aeronautics and Space Administration (NASA). Scientific research plays an important role in technological innovation and economic development and therefore is critical to the future of our nation. The APS recognizes that the NSF has benefited from recent budget increases, but is disappointed that the agency has fallen behind the budget levels endorsed by Congress and the Administration in the America COMPETES Act passed in 2007. The APS recommends that the NSF be funded at the authorized level of $7.33 billion in Fiscal Year (FY) 2009, which will keep the agency on track to double its budget over the next several years. While the overall budget for NASA continues to grow, the APS remains concerned about the lack of consistent funding for research into the effects of spaceflight on humans. The APS recommends that funding for NASA’s Human Research Program (HRP) be reinvigorated with increased funds in FY 2009.

The APS is a professional society dedicated to fostering research and education as well as the dissemination of scientific knowledge concerning how the organs and systems of the body work. The Society was founded in 1887 and now has more than 10,000 members who do research and teach at public and private research institutions across the country, including colleges, universities, medical and veterinary schools. Many of our members conduct physiology research that is supported by funds allocated through the NSF and NASA. In this testimony, the APS offers its recommendations for FY 2009 funding for both agencies.

 NSF

The basic science initiatives funded by the NSF are driven by the most fundamental principles of scientific inquiry. Although at times NSF-funded research may seem to be exploring questions that lack immediate practical application, we have learned again and again that the relevance of the knowledge gained becomes apparent over time. The NSF provides support for approximately 20% of federally funded basic science and is the major source of support for non-medical biology research, including integrative, comparative, and evolutionary biology, as well as interdisciplinary biological research. The majority of the funding NSF provides is awarded through competitive, merit-based peer review, which ensures that the best possible projects are supported. NSF has an excellent record of accomplishment in terms of funding research endeavors that have produced results with far-reaching potential. Listed below are just a few of NSF’s most recent advances in biological research.¹
Scientists have developed computational methods to catalog genes involved in memory and learning.

Research into the molecular characteristics of degenerative neurological diseases such as Alzheimer’s, Parkinson’s and the human version of Mad Cow disease has revealed similar molecular pathology underlying all three diseases.

Novel imaging techniques have been developed that could aid in the earlier diagnosis of pancreatic cancer, a disease that is especially deadly due to delayed detection.

Studies of abnormally developed frogs led to the discovery that nutrient runoff from agriculture fuels parasitic infections that lead to developmental deformities in amphibians.

Researchers studying flatworms (planaria) found that the connections between cells play a role in regulating how adult stem cells contribute to injury repair.

In addition to funding innovative research in labs around the country, the NSF also fosters the next generation of scientists through education programs. The APS has benefited from this support which allows us to provide training opportunities and career development activities to enhance the participation of underrepresented minorities in science. The APS was recognized for its efforts in 2003 with a Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring (PAESMEM), funding for which was provided by NSF and was reinvested in our education programs. We believe that NSF is uniquely suited to administer science education programs of the highest quality, and we recommend that Congress continue to provide federal funds for science education through the NSF.

Passage of the America COMPETES Act showed that Congress is committed to fostering the NSF not only through increased appropriations, but also through explicit support for the agency’s respected education programs. We thank Congress for the passage of the America COMPETES Act and join the Federation of American Societies for Experimental Biology (FASEB) in recommending that the NSF be funded at the full authorized level of $7.33 billion in FY 2009.

NASA

The Human Research Program (HRP) at NASA conducts 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 health problems 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 development of countermeasures. Given NASA’s current focus on manned space exploration, it is critical that resources be devoted to research into the health effects of prolonged space flight. NASA is the only agency whose mission includes addressing the biomedical challenges of manned space exploration. Over the years, the amount of money available for conducting this kind of research
at NASA has dwindled, and this year the budget request for the Human Research Program stands at only $151.9 million. The cuts are especially troubling given the Administration’s commitment to returning humans to space. NASA and the National Institutes of Health signed a memorandum of understanding in 2007 that provides a framework for the two agencies to work together and move health research forward. While the agreement does not involve any funding obligations, we are hopeful that the agencies will develop plans to take advantage of the opportunities for collaboration. The APS joins FASEB in applauding Congress’ call in the FY 2008 Omnibus bill for NASA to “establish and ongoing relationship” with the National Academies for the purpose of “independent project review.” Independent review will help ensure that resources are appropriately directed towards critical research programs.

The APS urges Congress and NASA to increase support for peer-reviewed research into the health risks of long-term space flight and development of appropriate countermeasures at a rate that meets or exceeds the biomedical research and development price index (BRDPI).