

Written Statement
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Subcommittee on Labor, Health and Human Services, Education and Related Agencies
Appropriations Committee
In Support of FY24 Appropriations for the National Institutes of Health

Chair Aderholt, Ranking Member DeLauro, and members of the Subcommittee, on behalf of the Society for Neuroscience (SfN), I am honored to present this testimony in support of robust appropriations for biomedical research at the National Institutes of Health (NIH). SfN urges you to provide at least \$50.924 billion, a \$3.465 billion increase over FY23, in funding for the NIH for FY24, including the full release of funding for the NIH Innovation Account for 21st Century Cures programs and \$740 million for the Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative. For researchers across the nation, the ability to make life-changing advancements in the field of neuroscience is contingent upon sustained federal funding.

One area of my lab's research at the Department of Anatomy and Neurobiology at the University of California-Irvine focuses on the biological processes that help repair the central nervous system, particularly the spinal cord. With key NIH funding, my lab discovered that modifying a critical cell growth pathway can revert neurons in adult brains to a youthful state, facilitating regeneration of the spinal cord after injury. Our research is now applying this principle to neurodegenerative disorders like Alzheimer's Disease by testing whether rejuvenated neurons will resist neurodegeneration. Basic research, like my own, provides understanding about the brain at a deep level, which paves the way for the development of novel therapeutics that will prevent and treat debilitating medical disorders. Continued progress depends on sustained federal funding at a level that at a minimum, keeps pace with inflation.

SfN believes strongly in the research continuum—a pipeline, in which basic science leads to clinical innovations, which leads to translational uses impacting the public’s health and reducing long-term medical costs. Basic science is the foundation upon which all health advances are built. To cure diseases, we need to understand them through fundamental discovery-based research. SfN is grateful to Congress for its investments in biomedical research and increases for NIH over the last eight years, but it is critical that funding is sustained to achieve the goals of these investments.

The Importance of the Research Continuum

NIH funding for basic research is not only critical for facilitating groundbreaking discoveries; it is essential for building our workforce of researchers at the bench. For the United States to remain the world leader in biomedical research, Congress must continue to provide funding to fuel discoveries as well as the economy. Neuroscientists use a wide range of experimental, animal, and human models not used elsewhere in the research pipeline. These opportunities create discoveries – sometimes unexpected discoveries – expanding knowledge of biological processes, often at the molecular level. This level of discovery reveals new targets for research to treat all kinds of brain disorders affecting millions of people in the United States and beyond.

NIH basic research funding is also a key economic driver of science in the United States through funding universities and research organizations across the country. Federal investments in scientific research fuel the nation’s pharmaceutical, biotechnology, and medical device industries. The private sector utilizes basic scientific discoveries funded through NIH to improve health and foster a sustainable trajectory for America’s research and development enterprise. Basic science generates the knowledge needed to uncover the mysteries behind human diseases,

which leads to private sector development of new treatments and therapeutics. Industry typically does not fund research on this important first step given the long-term path of basic science and pressure for shorter-term return on investments. Congressional investment in basic science is irreplaceable for development of drugs, biologics, devices, and other treatments for brain-related diseases and disorders.

For example, in September 2022, NIH and FDA launched the Critical Path for Rare Neurodegenerative Diseases (CP-RND)—a public-private partnership aimed at advancing the understanding of neurodegenerative diseases and fostering the development of treatments for amyotrophic lateral sclerosis (ALS) and other rare neurodegenerative diseases. Bringing together experts in this area, the goal of this partnership is to generate actionable solutions that can tangibly accelerate drug development for rare neurodegenerative diseases.

The BRAIN initiative is another example of NIH's success by developing remarkable technologies for the entire research community enabling discoveries across neuroscience and related scientific disciplines that would have previously been un-imaginable. By including funding in 21st Century Cures, Congress helped maintain the momentum of this endeavor, but these funds should not supplant appropriations for NIH. There is no substitute for robust, sustained, and predictable funding for NIH. SfN appreciates Congress' ongoing investment in the BRAIN Initiative and urges its full funding in FY24.

Scientists identify molecule that could help treat Parkinson's

NIH funded research has greatly advanced our understanding of Parkinson's disease, a movement disorder due to age-related neurodegeneration, which affects an increasing number of Americans each year. Recent work at the Vollum Institute at Oregon Health and Sciences University found that the neurotransmitter adenosine halts dopamine, which has implications for

Parkinson's disease given the role of dopamine in motor control. This discovery can help develop new treatments for Parkinson's disease that's caused by the loss of dopaminergic neurons. Discoveries regarding adenosine in Zhong and Mao labs used genetically modified mice, developed through support by two BRAIN initiative and three NINDS grants.

Congress & NIH Must Support Access to Models Necessary for Neuroscience Discovery

SfN urges the Committee to appropriate funding for biomedical research without restriction against the use of animal models. Adequate NIH funding is necessary to advance our understanding of the brain; however, full realization of this funding's promise requires appropriate access to research models, including non-human primates and other animal models. Animal research is highly regulated to ensure the ethical and responsible care and treatment of the animals. SfN and its members take their legal and ethical obligations related to this research very seriously. While SfN embraces the goal of the reduction, refinement, and eventual replacement of nonhuman primate models in biomedical research, much more research and time is needed before such a goal is attainable. Premature replacement of non-human primate and other animal models may delay or prevent the discovery of treatments and cures—not only for neurological diseases like Alzheimer's disease, addiction, and traumatic brain injury, but also for communicable diseases and countless other conditions. There are currently no viable alternatives available for studying biomedical systems that advance our understanding of the brain and nervous system; or when seeking treatments for diseases and disorders like depression, addiction, epilepsy, neurodevelopmental disorders like autism, neurodegenerative disorders, and post-traumatic stress disorders. SfN urges Congress to work with the NIH to ensure this important well-regulated research can continue.

Funding in Regular Order

SfN joins the biomedical research community supporting an increase in NIH funding to at least \$50.924 billion for existing NIH Institutes and Centers, a \$3.465 billion increase over FY23. Cuts to discretionary spending would have a devastating impact on medical research especially as the NIH caught up to its 2003 level of funding, when accounting for inflation, and would hurt the country's ability to maintain its international competitiveness in this space. Equally important as providing a reliable increase in funding for biomedical research is ensuring funding is approved before the end of the fiscal year. Continuing Resolutions have significant consequences on research, including restricting NIH's ability to fund new grants and to fully fund continuation grants. For some of our members, this means waiting for a final decision to be made on funding before knowing if their perfectly scored grant will be realized or operating a lab at a diminished capacity until appropriations are final, which can be devastating for trainees seeking to begin their careers. All the positive benefits research provides in this country are negatively impacted by these real time considerations. SfN strongly supports the appropriation of NIH funding in a timely manner, to avoid delays in approving new research grants or reductions in funding for already approved research funding.

SfN thanks the subcommittee for its continued support of biomedical research and looks forward to working with you to ensure the United States remains the global leader in neuroscience research and discovery. Collaboration among Congress, the NIH, and the scientific research community has created great benefits for not only the United States but also for people around the globe suffering from brain-related diseases and disorders. On behalf of the Society for Neuroscience, we urge you to continue your strong support of biomedical research.