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Submitted via email to: NIHModernization@help.senate.gov

November 3, 2023

The Honorable Bill Cassidy
U.S. Senate
Committee on Health, Education, Labor and Pensions
Washington, D.C. 20510

RE: Senate HELP Committee letter, dated September 29, 2023, seeking input on modernizing NIH

Dear Ranking Member Cassidy:

Thank you for the opportunity to comment on your request for input on the structure, programs, and processes of the National Institutes of Health (NIH) to increase the pace of science and to organize the agency for success. We have enclosed responses to some of the questions posed.

The University of California (UC) is the largest single recipient of funding from NIH. With more than 800 research centers, institutes, laboratories, and programs spanning ten campuses, six academic health centers, three affiliate national laboratories, the state's nature reserve system and agriculture extension program – UC conducts nearly 9 percent of all federally-funded academic research and development in the United States. In fiscal year (FY) 2022, UC faculty were awarded nearly $2.6 billion in total NIH research funding, making the NIH UC's largest research sponsor. The storied history of biomedical advancements at UC includes the first radiation treatment for cancer, the first flu vaccine, the discovery of the role of LDL and HDL cholesterol in heart disease, the discovery of vitamin K's role in newborn health, the first open heart surgery, the invention of tissue-type tests that enabled organ transplants, the invention of modern gene editing and much more. Of UC's 70 Nobel laureates since 1934, more than 20 were in physiology and other fields that contributed significantly to the advancement of biomedicine.

The collaboration between the National Institutes of Health, research universities, and academic health centers has been at the core of every significant public health gain of the last century. For example, the overall age-adjusted death rates for all cancers in the U.S. dropped 31% from 1991 to 2018.[1] That decline can be directly linked to NIH funded work in prevention, early detection, and treatment. Much of that progress can be traced through the history of UC research. UCSF's Harold Varmus and Michael Bishop received their Nobel prizes for discovering how malignant tumors

[1] National Institutes of Health (NIH), Impact of NIH Research: Cancer. https://www.nih.gov/about-nih/what-we-do/impact-nih-research/improving-health/cancer

mutate, UC Berkeley's Mary-Claire King identified the gene responsible for hereditary breast cancer and UCLA's Dennis Slamon developed the revolutionary breast cancer drug Herceptin. Numerous other discoveries – big and small -- by NIH-funded faculty at UC and around the country play into the U.S.'s success against cancer. A recent study in JAMA Health Forum showed that NIH funding contributed to 99.4% (354 of 356) of all drugs approved by the Food and Drug Administration (FDA) between 2010 and 2019.[2]

In addition to scientific progress, NIH research funding supports US global scientific competitiveness in the bioeconomy – it also leads directly to jobs and investments at home. According to a study by United for Medical Research, NIH awards directly supported over 568,000 jobs and over $96 billion in economic activity nationwide in FY 2022– or $2.64 of economic activity for every $1 of research funding.

I. Overarching Questions:

Senators wishing to consider NIH modernization should place their highest priority on preserving the core elements of the agency that have contributed so impressively to advancing science, spurring our economy, creating new cures and treatments, and bringing hope to patients across the US and around the world.

A. Organizational Structure and Funding Mechanisms of NIH

NIH is the central hub of the vast and complex US biomedical research enterprise. In FY 2022, NIH awarded more than $33.3 billion in funding to maintain 58,000 extramural grants that support more than 300,000 researchers.[3] *Dramatic changes to the structure and funding mechanisms of the agency can have unintended consequences that are felt widely.* We ask that you consider incremental changes and that you support the role of NIH leadership in resolving challenges faced by the biomedical research community. Untested changes should be piloted before being implemented across the entire extramural research portfolio. On issues of significant concern and complexity, Congress should consider mandating studies that allow the scientific community, NIH leadership and policymakers to work collaboratively on developing solutions rather than setting in place legal mandates that cannot be altered later to meet the community's needs. Senators wishing to create a nimble NIH must be careful of crafting laws that address today's challenges but may inhibit the agency's response to future problems.

NIH is most successful in its mission when it encourages as-broad-as-possible participation from the scientific community – welcoming the best and most creative ideas from the nation's brightest minds. The central innovation of NIH – and the federal R&D infrastructure – has been fostering a

[2] Cleary, E; Jackson, M.; Zhou, E. & Ledley, F. (2023 April). Comparison of Research Spending on New Drug Approvals by the National Institutes of Health vs the Pharmaceutical Industry, 2010-2019. doi:10.1001/jamahealthforum.2023.0511.

[3] Lauer, M. (2023, March 1). FY2022 By the Numbers: Extramural Grant Investments in Research. https://nexus.od.nih.gov/all/2023/03/01/fy-2022-by-the-numbers-extramural-grant-investments-in-research/#:~:text=NIH%20supported%201%2C576%20additional%20new,throughout%20the%20U.S.%20and%20internationally

free market of ideas where the scientific community has a central role in both putting forward their best approaches to scientific exploration and determining which ideas merit funding. Broad participation in that marketplace and a diversity of perspectives and methods are the best drivers of scientific advancement. We ask that you make sure any NIH reform proposals are carefully vetted to enhance that approach to science.

II. Extramural Research Program:

A. Supporting Early Career Scientists and Their Retention

Congress should continue to focus attention on improving the career pipeline of early career scientists. The R01 is the leading NIH research grant and a prerequisite to a career as an independent investigator. According to the NIH, the average age of receiving the first R01 grant in 2020 was 44 (46 for medical doctors). When evaluating their future in science young researchers must account for the prospect of working for more than a decade before being able to fully determine their own scientific direction. The lag between education and independence can make a career in biomedical research less appealing than other pathways. Although the NIH has made significant strides in improving funding rates for early-stage investigators through programs like the Next Generation Researchers Initiative, the agency needs additional support and resources to address these concerns.

Financial pressures also contributed to the challenges of early career scientists. Congress should encourage NIH to offer more robust annual increases to the stipend limits for National Research Service Award (NRSA) post-doctoral fellowships. In recent years, the allowable maximum stipends have not kept up with inflation – meaning many postdoctoral scholars across the country face a shrinking real-value of their income, while they contend with rising prices of food, housing, and other necessities. Congress should also consider adding a geographic cost of living adjustment for postdoctoral researchers on training grants.

B. Institutional Development Award

Congress should reform the IDeA program to improve the program's geographic distribution. The Institutional Development Award (IDeA) program is intended to broaden the geographical distribution of NIH funding – a critical mission for Congress and the agency to support. However, the program's current focus on states with low historical levels of NIH funding carves out research-capable institutions in rural and underserved communities across the country. A set of eligibility criteria that focused on supporting institutions early in the development of biomedical research infrastructure, institutions with low success rates, or institutions in counties with low levels of NIH funding would broaden access to the program's resources and better align the program with the goals of supporting the participation of small and underserved institutions in the biomedical research community.

C. Administrative Burden

Universities and individual scientists are required to devote significant time and energy to meeting the regulatory burdens and reporting requirements that come with federal grants. In many areas – such as human subject protection – these regulations provide important assurances that stakeholders in research are treated fairly and that the federal government's interests are being served. However, the proliferation of research regulations and reporting requirements diverts resources from conducting science. Congress should carefully monitor the regulatory burden on scientists and should curtail and remove unnecessary and duplicative regulation.

The Senate HELP Committee has a strong tradition of closely examining the regulatory burden on research institutions. Former Chairman Lamar Alexander referred to a "jungle of red tape" facing US universities and led several efforts to examine regulatory reform holistically.[4] According to the Federal Demonstration Partnership, faculty report spending as much as 42% of their time on administrative tasks – many of which are related to the reporting burden.[5]

The National Academies of Science (NAS) concluded that in order to optimize the nation's investment in academic research, "the regulatory regime governing federally funded academic research should be critically reexamined and recalibrated." NAS proposed an active public-private forum and a designated official within government to foster a more effective conception, development, and harmonization of research policies." [6] In the 21st Century Cures Act, Congress authorized the creation of the Research Policy Board at the Office of Management and Budget (OMB) to respond to these concerns and harmonize research regulations. However, successive presidential administrations failed to constitute the board or appoint board members. The Research Policy Board authorization expired in 2021. **Congress should re-establish the Research Policy Board to coordinate the harmonization of regulatory requirements from NIH and other research-funding agencies.**

We appreciate the long-standing, bipartisan recognition from Congress that facilities and administrative (F&A) costs represent reimbursement for the real costs of conducting research at universities and academic health centers. Without these funds faculty would lack the labs, utilities, and shared services required to conduct research. Universities would be unable to provide the administrative oversight required by the federal government in biosafety, human subject protection, research animal care and use, export control, conflict of interest, cybersecurity and other areas. F&A costs follow OMB's accounting principles and are audited for accuracy. Institutions' F&A rates are subject to negotiation with the Department of Health and Human Services. The administrative portion of F&A costs are capped at 26 percent of the direct cost of a research grant

[4] Alexander, L. (2015, February 24). Alexander: Bipartisan Report Finding Colleges in a Jungle of Red Tape Shows "Sloppy, Inefficient Government that Wastes Money, Hurts Students, Discourages Productivity and Impedes Research. https://www.help.senate.gov/chair/newsroom/press/alexander-bipartisan-report-finding-colleges-in-a-jungle-of-red-tape-shows-sloppy-inefficient-government-that-wastes-money-hurts-students-discourages-productivity-and-impedes-research

[5] Schneider, S; Ness, K.; Rockwell, S.; Shaver, K.; Brutkiewicz, R. 2012 Faculty Workload Survey. https://sites.nationalacademies.org/cs/groups/pgasite/documents/webpage/pga_087667.pdf

[6] National Academies of Sciences, Engineering, and Medicine. 2016. Optimizing the Nation's Investment in Academic Research: A New Regulatory Framework for the 21st Century. Doi: 10.17226/21824.

award. F&A costs recovered by research institutions have remained flat for over 30 years, obligating the share of institutional support that universities provide to support research to increase. The share of institutional funds that colleges and universities provide to support research has grown 24 percent since 2015. For smaller campuses and community-based institutions the burden of taking on more costs because of insufficient reimbursement presents a formidable barrier to participating in biomedical research. *Senators wishing to examine F&A costs should start with a goal of ensuring that rates accurately reflect the true costs of research.* ***As universities strive to keep pace with the increased regulatory and reporting requirements, we urge Congress to take action to raise or eliminate the 26% cap on administration costs charged to federal awards.***

III. Intramural Research Program:

Last year, during the discussion of FDA user fee reauthorization, the University of California strongly endorsed the need for greater diversity in industry-funded clinical trials. Specifically, we highlighted the National Academies of Science report *Improving Representation in Clinical Trials and Research*, which calls for the FDA to require study sponsors to submit a detailed recruitment plan as early as possible in the clinical research process. Starting sponsors on the path to diverse trials early in the process is the best way to incentivize inclusion for NIH-funded trials as well. We appreciate the continued efforts of the NIH – including increased outreach and engagement with underrepresented communities through programs such as Community Engagement Alliance (CEAL), Community Partnership to Advance Science for Society (ComPASS) and Clinical and Translation Science Awards (CTAS) – to similarly improve diversity of clinical trial participants.

IV. Statutory Structure and Functions:

The Common Fund has generally been successful in meeting its goal to "catalyze discovery across all biomedical research" by funding projects and programs that do not clearly fit within one of NIH's existing institutes and centers. To further this goal, the NIH should consider developing a pathway for funded programs that reach the end of the Common Fund lifecycle but have demonstrated successes and for which there is an ongoing need.

V. Improving Transparency and Oversight:

While oversight and compliance are essential to enhancing program integrity and preventing fraud, waste, and abuse, excessive compliance and regulatory requirements can also exert undue burden on grantees and institutions in ways that outweigh the benefits provided by heightened transparency. It should be noted that increased administrative costs associated with compliance and other regulations have been the largest contributor to the increase in universities' share of supporting research on their campuses. Increasing audits and other oversight mechanisms would have an overall negative effect on the conduct of research across universities.

VI. Other Issues:

A. Diversity of People and Ideas

Every American has a stake in getting the best and most productive research from the US investment in NIH. Improving participation of under-represented groups produces better research by increasing the breadth of ideas and promoting novel approaches to complex problems. Numerous studies indicate that diversity in the STEM workforce is beneficial for teamwork and problem solving – two central features of the modern research environment. Not only are diverse teams associated with better problem solving, but studies have also shown that the diversity of problem solvers has a greater impact than individual ability. [7] [8] [9] Creating a diverse, equitable, and inclusive workforce and research enterprise will result in more creative teams and approaches to research that are critical to maximizing research innovation and excellence, eliminating health disparities, and achieving health equity. ***Congress should expand programs that support the hiring, retention, mentoring, and professional development of historically excluded groups.*** *Congress should continue to encourage NIH institutes and centers to fund research on health disparities. Finally, NIH could consider piloting peer review scoring that uses diversity of the investigator team a scorable criterion.*

Just as a variety of perspectives improves scientific discovery, a variety of methods improves opportunities for breakthroughs as well. While we support developing alternatives to the use of animals and fetal tissue in biomedical research, there are currently no adequate replacements for either. This research is heavily regulated and has been integral to developing treatments, cures and vaccines for a variety of conditions and diseases.

The University sincerely appreciates the opportunity to submit a response to the request for information and looks forward to continuing to work with you in this important endeavor to modernize the NIH. If you have any questions, please contact Kent Springfield at (202) 993-8810 or kent.springfield@ucdc.edu.

Sincerely,

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[7] Hong, L. and Page, S. (2004, November 8). Groups of diverse problem solvers can outperform groups of high-ability problem solvers. https://doi.org/10.1073/pnas.0403723101

[8] Rock, H. & Grant, H. (2016, November 4). Why Diverse Teams are Smarter. https://hbr.org/2016/11/why-diverse-teams-are-smarter

[9] Wiley, Z.; Hanna, J.; Kobaaidze, K.; Franks, N. (2023, March 21). Team Science: Advancing Women and Black, Indigenous, and other People of Color on the Pathway of Conducting Clinical Research. https://doi.org/10.1177/20499361231159501