



University of Colorado  
Boulder

August 2, 2024

The Honorable Diana DeGette  
U.S. House of Representatives  
2111 Rayburn House Office Building  
Washington, DC 20515

The Honorable Larry Bucshon, MD  
U.S. House of Representatives  
2313 Rayburn House Office Building  
Washington, DC 20515

Dear Representatives DeGette and Bucshon,

On behalf of the University of Colorado Boulder (CU Boulder), we appreciate the opportunity to respond to your request for information regarding the upcoming Cures Act 2.0 legislation.

CU Boulder is a world-class, public research university and is a hub for cutting-edge biosciences research. Our researchers aim to understand processes underlying behavior, function, disease and health at the molecular, cellular, and whole-systems levels to develop interventions that improve human health. With more than 650 faculty and students involved in interdisciplinary bioscience research, CU Boulder is home to a dynamic scientific ecosystem that is training the next generation of scientists. Our BioFrontiers Institute stands out as an interdisciplinary center, bringing together experts from various fields such as biochemistry, computational biology, and regenerative medicine. Research spans key areas including degenerative and infectious diseases, cancer therapies, cardiovascular disease, while focusing on translating discoveries into practical health applications. Over the past two decades, biosciences have been the primary driver of commercialization at CU Boulder, leading to over 90 biotech startups originating from the university.

In addition, over the past three years, CU Boulder and the University of Colorado Anschutz Medical Campus (CU Anschutz) have taken intentional steps to facilitate powerful collaborative research partnerships among scientists, engineers and physicians, including a robust intercampus research infrastructure. Today, hundreds of researchers and clinicians are actively engaged in intercampus collaborative translational research on human health. With the support of the University of Colorado System, our two campuses fund an internal seed grant program, allowing collaborative teams to work together, conduct experiments and gather pilot data that positions them for success in pursuing extramural funding.

We commend your leadership in driving the Next Generation Cures Act and encourage you to consider the following feedback.

- **Climate and Health.** NIH has made climate change and human health research a priority over the past several years, revitalizing its Climate Change and Health initiative, issuing a Strategic Framework, and releasing new opportunities such as the P20 Exploratory Grants for Climate Change and Health Research Center Development. While Congress has increased the funding provided for the initiative from \$10 million in FY 2021 to \$40 million in FY 2023, resources for these efforts have not reached the \$110 million proposed by the House and Senate Appropriations Committees in FY 2022 and remain a limiting factor for NIH's efforts. New Cures legislation should provide mandatory funding to the NIH to greatly expand its Climate Change and Health initiative

efforts, including additional P20 center awards, increased support for graduate training and early career awards to develop a research workforce of environmental-biomedical interdisciplinary scholars, and new funding opportunities through the NIH Common Fund to coordinate various ICs to fund new research topics relating to climate and health.

- **Artificial Intelligence and Machine Learning.** NIH investments in AI/ML and data science have focused on developing the research workforce and preparing high-quality, research-ready biomedical datasets. While these efforts have helped advance the agency's efforts in AI/ML, NIH still lags behind other agencies in fully funding research *within* these topics. Research efforts from individual ICs are not coordinated and vary in size, scope, and number. NIH has acknowledged the need for continued investment and attention paid to this area, as evidenced by the launch of a new Working Group on AI at the recent NIH Advisory Committee to the Director meeting. Dedicated funding through the Common Fund would allow NIH to develop and implement a more comprehensive strategy for funding AI/ML research across disease types, as well as fund development of platform technologies and other research resources that will accelerate the pace of research in this space.

Moreover, ML has broad potential to not only revolutionize clinical outcome predictions, but also to explore and leverage massive existing and future datasets to accelerate basic science and applied research. To realize that potential, Congress should ensure that support for ML-driven research at NIH is broad and not restricted to clinical prediction applications alone. NIH should also make substantial investments in ML workforce development while strengthening career paths for those already using ML in NIH-supported areas by supporting data science and machine learning training grants that specifically target computer science trainees, while also supporting long-term collaborations between existing clinical researchers and ML experts.

- **Mental Health and Wellness.** The nation continues to face a mental health crisis, particularly in the aftermath of the COVID-19 pandemic. As the U.S. Surgeon General has noted, the crisis has hit youth and adolescents particularly hard and been exacerbated by loneliness and social isolation across all age groups. Additionally, escalating substance use problems and disorders, which are common mechanisms people employ to handle mental health challenges, often create a cycle of exacerbated difficulties. While NIMH and other ICs at NIH are already funding a robust portfolio of research on neuroscience, behavioral science, epidemiology, and interventions aimed at addressing mental illness, greater support is needed for research on wellbeing and proactive mental health services. Research on wellbeing can help promote thriving and reduce onset of mental health challenges among children, adults, families, and communities. Future Cures legislation should include support for a comprehensive mental health research initiative that addresses wellbeing and proactive interventions along with continued support for research into substance abuse and mental illness epidemiology, services, and treatment.
- **Bioengineering Education and Training.** ARPA-H has spurred new and critical investment into interdisciplinary areas of research connecting biomedical science, health sciences, engineering, computer science, behavioral science, and more. To fully realize the promise of ARPA-H and similar interdisciplinary efforts from NIH, investment into education and training of research scholars at the intersections between fields is needed. New Cures legislation should support new mechanisms and funding for institutions of higher education to create or expand true interdisciplinary education and

research training opportunities at the undergraduate, graduate, post-doctoral, and early-career stages. This can include supplemental funding for existing ARPA-H awardees to incorporate hands-on experiential learning curricula into ongoing projects. By creating a robust supply of scientists trained simultaneously in biomedical and computer science and/or engineering, ARPA-H can develop the very scholars needed to staff the agency, propose new projects, and bring new inventions and discoveries to market.

- **Quantum Science and Technology Applications to Human Health Research.** Applications of quantum science and technology to human health research hold great promise for rapidly advancing diagnostics and treatment of disease. To date, NIH has launched several grant programs to explore the application of quantum mechanics in human health, focusing on quantum sensing technologies to revolutionize biomedical imaging, diagnostics, and therapeutic development. Key initiatives, such as the Quantum Information Science Initiative and specific research and SBIR/STTR NOSIs, aim to harness quantum sensing for improved disease detection and monitoring, offering support for various research phases from feasibility to commercialization. However, increased NIH funding in this area, in alignment with the National Quantum Initiative, is needed to accelerate quantum research and development for significant advancements in human health. By bolstering these programs, NIH can help bridge the gap between emerging quantum technologies and practical biomedical applications, promising profound improvements in healthcare outcomes and disease management.
- **Strengthening ARPA-H.** In March 2024, CU Boulder, in partnership with CU Anschutz and Colorado State University, received an ARPA-H award aiming to find a cure for osteoarthritis – which impacts more than 32 million people – in five years. Other CU Boulder investigators have formed collaborative interdisciplinary teams with partners across the United States to submit innovative proposals focused on precision surgical interventions for cancer, personalized regenerative medicine for organ failure, application of AI to improve human clinical trials, and solutions to critical health issues that impact women. ARPA-H is effective not only because its funding programs address the most urgent challenges in human health, but the model itself encourages scientists, engineers and physicians to expand their thinking about what is possible, which serves to catalyze interdisciplinary teaming and accelerate discovery. We encourage Congress to maintain ARPA-H’s independence. It is critical to ensure the agency continues to fund ambitious projects that would not be supported by other agencies.

Once again, thank you for this opportunity to provide feedback on Cures 2.0. As the Next Generation Cures legislation advances, we stand ready to work with you on this important legislation. If you have any follow-up questions or need more details, please contact Heather Bene, Associate Vice President of Federal Relations, at [heather.bene@cu.edu](mailto:heather.bene@cu.edu) or 202.763.4467.

Sincerely,  
DocuSigned by:

*Massimo Ruzzene*

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Vice Chancellor for Research & Innovation,  
And Dean of the Institutes

cc: Senator Michael Bennet  
Senator John Hickenlooper

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