UNIVERSITY OF CALIFORNIA

Office of the President
1111 Franklin St.
Oakland, CA 94607

universityofcalifornia.edu

July 16, 2021

The Honorable Diana DeGette
2111 Rayburn House Office Building
United States House of Representatives

The Honorable Fred Upton
2183 Rayburn House Office Building
United States House of Representatives

Dear Representatives DeGette and Upton:

On behalf of the University of California (UC), thank you for your ongoing leadership to support the research community throughout the COVID-19 response and recovery, including your introduction and support for the Research Investment to Spark the Economy or RISE Act, which would authorize federal investments in key science agencies to address the pandemic's impact on the research enterprise, especially early career researchers.

As one of the nation's leading recipients of federal funding in biosciences, the University of California (UC) plays a leading role in addressing societal challenges through research breakthroughs that can prevent, detect, and treat diseases such as Alzheimer's, diabetes, cancer, and emerging infectious diseases. The University appreciates your leadership in this important area and in seeking external stakeholder perspectives regarding the proposed Advanced Research Projects Agency for Health (ARPA-H).

The newly proposed ARPA-H would utilize federal funding to accelerate advances and transformative change, not incremental advances, in biomedical research and healthcare. It would be based on the U.S. Department of Defense's (DOD) Defense Advanced Research Projects Agency (DARPA) model of funding high-risk/high-payoff projects guided by the "Heilmeier Catechism[1]." This successful model at DOD is uniquely different from the current National Institutes of Health (NIH) funding model, which is successfully based on peer review. UC believes that both types of models are important to the federal government's support of funding for specific types of grants and projects.

UC recommends that ARPA-H be housed within the U.S. Department of Health and Human Services, rather than under the auspices of NIH. Locating ARPA-H outside of NIH would ensure their funding streams remain independent, cementing the concept that ARPA-H will supplement – not supplant – the important work of NIH institutes and centers, such as NCATS/CTSA. Locating ARPA-H at HHS would allow for the use of the

[1] https://www.darpa.mil/work-with-us/heilmeier-catechism

DARPA funding model to independently target and support high risk, time sensitive/critical projects that the NIH may not or cannot fund. UC supports the use of nimble cooperative agreements, grants, and contracts to initiate high risk/ high reward projects that may need to be funded quickly or would not be supported through other federal agency grant programs.

UC believes that HHS leadership should define broad, strategic areas, without dictating specific program directions or funding decisions, which will maintain and could expand the breadth of research topics covered under ARPA-H. Since this proposed funding model relies heavily on program manager input and expertise, UC encourages that ARPA-H take measures to ensure an environment of inclusiveness in providing federal funding to researchers from all backgrounds and institutions, similar to existing NIH programs that increase workforce diversity.

1) In calling for the creation of ARPA-H, President Biden has cited the success of the Defense Advanced Research Projects Agency (DARPA) and expressed his belief that ARPA-H should be similar. Please provide specific details on which aspects of DARPA ARPA-H should replicate and why this would lead to similar success.

UC recommends that HHS leadership should define broad, strategic areas, without dictating specific program directions or funding decisions, which will maintain the breadth of research topics covered under ARPA-H. UC agrees that program goals under ARPA-H should incorporate nimble cooperative agreements, grants, and contracts that will maintain optimal conditions, meanwhile encouraging flexibility. Further, program managers, like those at DARPA, should have the flexibility to provide seed funding and proof of concept funding, which typically range in the lower $100K funding range, for innovative ideas that are not directly tied to a solicitation. In addition, like DARPA, UC recommends that ARPA-H leadership and program managers should be term-limited and represent a diversity of backgrounds and expertise, in order to ensure fresh research ideas. These programs may also empower program managers to take risks and retain flexibility in funded projects, with input from outside experts to make the best possible funding decisions.

2) To ensure it has the biggest impact, on what activities or areas should ARPA-H focus? What activities or areas should ARPA-H avoid?

For ARPA-H funding to be uniquely impactful, UC recommends that it should take on significant global health threats that require innovative, transformative approaches and solutions to important research areas. Some of these threats include obesity, neurodegenerative disease, mental health, opioid addiction, diabetes, cancer, zoonotic diseases, and preventative medicine, as well as orphan and infectious diseases. ARPA-H should support systems-level research on some of these threats, such as zoonotic diseases, that require a holistic understanding of germ origination, forms of transmission, and whole-body response. Furthermore, the agency should support the corresponding challenges in big data acquisition, management, interpretation, and archiving. ARPA-H has the opportunity to support projects that integrate emerging tools, such as AI and quantum computing, to advance our understanding of disease and development of transformational therapeutics. UC encourages broadening from these topics to impact more research areas with ARPA-H funding, as well as taking measures to ensure that individuals from all socioeconomic classes can take advantage of it. UC also believes that collaboration with industry is critical for addressing these challenges. In order to distinguish

between the ARPA-H funding capabilities and what the NIH model can achieve, UC recommends that ARPA-H focus on the development of transformational therapeutics or disease prevention measures rather than the basic disease biology, funding out-of-the-box project areas that the NIH may not. This model may also facilitate the creation of programs that bring together basic scientists and those who will translate and market resulting technologies. On a broader level, UC also supports having an internal advisory group to evaluate these programs, as well as having an external advisory board of top-tier experts that can help ARPA-H coordinate with other agencies and the extramural community in guiding funding priorities.

3) Some assert ARPA-H's ability to operate independently and transparently will be essential to its success. Do you agree? If so, what is the best way to design ARPA-H in order to accomplish this?

UC recommends that independence for ARPA-H could be maintained through the Federal Reserve structure and funding model, which includes set, non-revocable tenures and wide discretion to re-allocate this funding. UC also believes that transparency is important for enhancing the credibility of ARPA-H, and for the agency to work in concert with other stakeholders and avoid any potential misunderstanding or mistrust of generated results.

4) How should ARPA-H relate to, and coordinate with, existing federal entities involved in health care-related research and regulation?

UC recommends that, for ARPA-H to operate most efficiently, there should be a high level of coordination between ARPA-H and other agencies. These agencies include NIH, Centers for Disease Control and Prevention (CDC), Biomedical Advanced Research and Development Authority (BARDA), Office of Assistant Secretary of Preparedness and Response (ASPR), Defense Threat Reduction Agency (DTRA), Defense Health Agency (DHA), Food and Drug Administration (FDA) and regulatory agencies which are critical to developing and advancing new biotechnologies to address these issues.

5) What is the best way to ensure ARPA-H has a mission, culture, organizational leadership, mode of operation, expectations, and success metrics that are different than the status quo?

UC recommends that ARPA-H leadership focus on three critical areas: people (to take risks and operate independently); processes (to drive innovation); and products (driven by clear problem statements). ARPA-H should adopt the culture of DARPA to sustain high levels of energy and creativity in its approaches to new ideas. The Heilmeier Catechism should be part of this culture to assess high-risk projects in an expedient manner. UC also believes that ARPA-H should consider other funding models, such as those adopted by the Howard Hughes Medical Institute, to enhance scientific management, or using the Federal Reserve structure allowing for political independence. ARPA-H should also take into account the timeline that it will take to evaluate the success of breakthrough projects resulting from this funding and design ways to support young early career investigators with programmatic investment in seed and smaller development grants that may eventually lead to larger grants.

6) How should ARPA-H work with the private sector?

In order to achieve higher societal impact on research and healthcare issues, UC recommends that ARPA-H be nimble enough to leverage the brainpower of industry through contracts and other mechanisms. Furthermore, for industry partnerships to be successful, ARPA-H will need to be creative in developing and implementing facile, ready-to-execute intellectual property terms and conditions and licensing agreements. Collaborations with the private sector can also support Small Business Innovation Research (SBIR) grants, Small Business Technology Transfer (STTR) grants and other entrepreneur programs, potentially through Broad Agency Announcements (BAAs) that encourage industry-university partnerships. UC also agrees that there should be a two-tiered program, where in the first phase an academic lab (or small biotech) may be funded by this mechanism, and they would advance to the second phase by partnering with a major player in the field.

7) What is the appropriate funding level for ARPA-H? How do we ensure ARPA-H funding does not come at the expense of traditional funding for the National Institutes of Health?

UC's research and healthcare experts agree that a large and robust budget is needed for ARPA-H, within which individual programs should have adequate financial resources. The current DARPA model would require a large amount of funding on a long-term basis, for example a program manager would have 4 active programs controls of about $60M per year. To avoid competition with NIH funding, ARPA-H could have mandatory no-year funding achieved through relevant legislation.

Sincerely,

Carrie Byington

Carrie L. Byington, MD
Executive Vice President
University of California Health

Theresa A Maldonado

Theresa A. Maldonado, Ph.D., P.E.
Vice President for Research & Innovation
UC Office of the President

cc: Associate Vice President for Federal Relations Chris Harrington