OPENING STATEMENT

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Subcommittee on Research & Technology
Committee on Science, Space, and Technology

Research & Technology Subcommittee Hearing
"Policies to Spur Innovative Medical Breakthroughs from Laboratories to Patients"

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Thank you Chairman Bucshon for holding this hearing on policies to spur medical breakthroughs. I want to thank all the witnesses for being here today. I look forward to your testimony.

Innovation, whether in biomedical research or elsewhere, is about an ecosystem that is more than the sum of its parts. Federal agencies, universities and research institutions, entrepreneurs, and the private sector all have important roles to play. That's why I'm glad we have witnesses from across these sectors here to testify today.

In May, we held a hearing in this subcommittee on innovation prize competitions where we heard testimony about the need for a kidney prize to facilitate the development of more effective treatments for kidney disease and end-stage renal failure. Innovation prizes, as well as other forms of pre-commercial support such as proof-of-concept funding and programs like NSF's innovation Corps which recently announced a collaboration with NIH, could hold great promise for future biomedical breakthroughs. I hope that our panel can comment on these and other potential mechanisms for supporting technology transfer from the lab to the marketplace.

And of course it bears repeating that our ability to innovate will be greatly limited without growing investments in the basic research that generates these technologies.

The emerging field of engineering biology has grown out of the decades-old field of genetic engineering. In the 1800s, Gregor Mendel established many of the rules of heredity that became the foundation of modern genetics by studying pea plants. But even before Mendel, farmers knew that by crossbreeding animals and plants you could favor certain traits. Since the 1970's scientists have been using more advanced tools to directly insert new genes or delete genes from plant and microbial genomes.

Engineering biology is the next step in this field, and is being accelerated by the development of technologies such as DNA sequencing—which has gone from taking years and costing billions of dollars to taking just days and costing a few thousands of dollars. That truly is amazing. We are already starting to see commercial applications from engineering biology. I look forward to hearing more about how Dr. Keasling and his research group were able to engineer a microorganism to produce a life-saving anti-malarial drug that is now being produced on a large scale by a pharmaceutical company. I also look forward to learning about other potential

applications from engineering biology research, including energy, agriculture, chemicals, and manufacturing.

Since this emerging field could have significant economic benefit for the United States, it is important that we make the necessary federal investments in both the foundational research and across the potential application areas.

Several of agencies under this Committee's jurisdiction have significant programs in engineering biology. The Department of Energy has one of the largest programs focused on bioenergy. The National Science Foundation is investing more in this area, both in individual research awards and through their support of an engineering research center at Berkeley. NASA and NIST also have programs in this area. And of course NIH and the Department of Agriculture are significant players in this research. The nation would benefit not just from increased investment at individual agencies but also from coordination of federal efforts under some kind of plan or strategy.

Other countries have identified this area specifically as an important area to make investments in. The European Union's Europe 2020 Strategy calls out this field as a key element and has developed a strategy and an action plan for investment. I am concerned that if the United States does not take the necessary steps, we will lose our leadership position in this field.

We should also ensure that we are facilitating public-private partnerships. Given the potential commercial applications across nearly all sectors of our economy, there is a need to engage and encourage private sector collaboration at a pre-competitive level. And finally we must pay careful attention to issues of human and environmental safety and ethics when it comes to engineering biology research, including by supporting research on those topics.

I look forward to all of the witness testimony and the Q&A, and I thank you all for being here today. I yield back the balance of my time.