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Statement of Rep. Henry A. Waxman
Chairman, Committee on Energy and Commerce
"Effects of Developments in Synthetic Genomics"
May 27, 2010

The scope and depth of scientific research in America is unrivalled. As a result, we, and others around the world, live healthier lives and enjoy the many advantages of modern technology.

As policymakers, we want to foster promising discoveries, while ensuring that research is conducted and applied responsibly. To this end, it is our job to understand what the science does and does not entail. We need to separate splashy headlines and science-fiction scenarios from the reality of what scientists are doing and where their research might lead.

Last Thursday, we learned that researchers had taken a major step forward by synthesizing the entire set of genetic instructions for a bacteria and using it to "reprogram" another bacterial cell. Observers as diverse as the American Society for Microbiology and a Vatican City newspaper have noted the potential benefits of this research.

Today, we will learn more about this and other advances in synthetic biology – the science of constructing or adapting DNA, cells, and tissues. We will explore potential applications to improve health, protect the environment, and meet energy needs. We will also discuss the ethical implications and the need to responsibly manage risks.

Of course, this field didn't just spring up – scientists have been harnessing the power of DNA for decades. While most research involves one-celled organisms like bacteria or yeast, the results are far-reaching. For example, in 1982, the FDA approved human insulin from a gene inserted into yeast cells. Genetic engineering has been used to make human growth hormone, hepatitis vaccine, and other products. And as we'll hear, newer methods are already leading to important medical applications.

Synthetic biology also has the potential to reduce our dependence on oil and to address climate change. Research is underway to develop microbes that would produce oil, giving us a renewable fuel that could be used interchangeably with gasoline without creating more global warming pollution. Research could also lead to oil-eating microbes, an application that, as the Gulf spill unfortunately demonstrates, would be extremely useful.

The promise of synthetic biology does not diminish the importance of its being conducted and applied responsibly. As is true whenever science advances, we must weigh and manage the safety, health, and environmental risks posed by this evolving science. Fortunately, this assessment can build on existing regulatory frameworks. I'm pleased to see that President Obama has just asked his Bioethics Commission to conduct a thorough analysis of these issues.

I look forward to hearing more today from three leaders in the field of synthetic biology. Dr. Craig Venter, Dr. Jay Keasling, and Dr. Drew Endy will explain their work and its current, and potential, applications. Dr. Kaebnick of the Hastings Center will offer a framework for discussing the ethical questions related to synthetic biology – questions about risk, and also about fundamental beliefs about life. And I look forward, as always, to hearing from Dr. Fauci on NIH's role in synthetic biology and how the agency's current approach can adapt to advances in the science.