

OPENING STATEMENT

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

The Science and Ethics of Genetically Engineered Human DNA
Research & Technology Subcommittee Hearing

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Thank you Chairwoman Comstock for holding this hearing on the science and ethics of new gene editing technologies. I want to thank all the witnesses for being here this afternoon and I look forward to hearing your testimony.

Although we are talking about gene editing technologies that are very new, it is important to mention that humans have been altering the genomes of species through selective breeding for thousands of years. Since the 1970s, it has been possible to directly manipulate DNA, which led to a biotechnology revolution and significant economic growth. Then we had the Human Genome Project to sequence the human genome that was coordinated by the Department of Energy and the National Institutes of Health. The full human genome was sequenced in 2003, opening up whole new possibilities for diagnosing and treating diseases. One such pathway led to the invention of the CRISPR technology.

Thanks to new gene editing technologies, which include CRISPR, we are able to add, remove, and replace DNA bases. They can be thought of as “search and replace” tools for DNA. They are incredibly powerful technologies that have the potential to transform the health care, energy, and agricultural sectors. Although new, these technologies were the outgrowth of decades of fundamental research, some of which was supported by the National Science Foundation. We are here today because a Chinese research group recently published a paper in which they used these technologies to try to modify human embryos. That paper highlights scientific and ethical issues with these technologies, especially if they are being used to modify human germline cells as opposed to adult somatic cells.

I look forward to hearing about the science behind these technologies as well as how the United States can be a leader in addressing the safety and ethical concerns associated with them. I understand that the National Academies has launched a major initiative around human gene editing technologies. In the 1970s, the National Academies played a similar role dealing with the then-new biotechnologies and I look forward to hearing more about what they are planning to do concerning these new gene editing technologies. I also look forward to hearing about some of the potential non-human applications.

Now I would like to yield my remaining time to my colleague from Illinois, Mr. Foster, who is very interested in this topic and helped organize today’s hearing.