Gene editing and frontiers in genetic technologies: Innovations, impacts, and implications

A Congressional briefing
Organized by the Personal Genetics Education Project (pgEd), Harvard Medical School
In cooperation with the offices of Congresswoman Louise M. Slaughter and Senator Elizabeth Warren

November 17, 2015 (12:00 – 1:30 p.m.)
Rayburn House Office Building, The Gold Room, Room 2168
RSVP online or call 617-432-1797; view program online
(Lunch will be provided)

Rapid advances in genomic sequencing, gene editing (CRISPR), and DNA nanotechnology are posing opportunities and challenges for medicine, agriculture, computing, law, and policy. The briefing will begin with a report on a new generation of prenatal tests that analyze fetal DNA from a sample of a pregnant woman’s blood and are rapidly entering clinical care. Next, we will focus on the CRISPR technology for editing the genetic information in living cells. The speakers will explore the future potential for CRISPR to treat genetic disease, improve crops, spread malaria resistance, and address organ donation. Finally, we will highlight developments in DNA nanotechnology and prospects for using DNA as a tool to fight cancer and store information. A panel of pioneering scientists will discuss the promises of these emerging technologies as well as the ethical questions surrounding their safe and fair integration into society.

Panelists:

Diana Bianchi, MD, Executive Director, Mother Infant Research Institute; Vice Chair for Research and Academic Affairs, Department of Pediatrics; Attending Geneticist and Neonatologist; Natalie V. Zucker Professor, Tufts University School of Medicine

Jennifer Doudna, PhD, Investigator, Howard Hughes Medical Institute; Professor, Departments of Molecular & Cell Biology and Chemistry, University of California, Berkeley

George Church, PhD, Professor, Harvard Medical School and MIT; Director, NIH Center of Excellence in Genomic Science; Director, Personal Genome Project

Program:

12:00 Welcome and opening remarks from pgEd
12:10 Frontiers in genetic technology
   Genomic Sequencing and the Transformation of Prenatal Care (Bianchi)
   The CRISPR-Cas Genome Engineering Revolution (Doudna)
   Gene-drives for Malaria, Pigs for Transplants, DNA for Data Archiving & Nanorobots for Cancer (Church)
1:10 Round table discussion with panelists
1:30 Conclusion

This briefing will be the fourth in a series from the Personal Genetics Education Project (pgEd.org). The mission of pgEd is to raise awareness of personal genetics and make that awareness equally accessible across all segments of society regardless of socioeconomic, educational, ethnic, religious, or cultural background. Its goal is to instill the confidence in individuals to ask questions, make informed decisions, and respect the opinions of others.

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