

The Code Breaker by Walter Isaacson

Discussion Guide

October 6 | Mary S. Stern Lecture with Walter Isaacson | Tickets \$5 | CHPL.org/stern

1. Isaacson writes how as a sixth-grader growing up in Hilo, Hawaii, Jennifer Doudna read a copy of *The Double Helix*, James Watson's account of how he and Francis Crick discovered the spiral-staircase structure of DNA in 1953, which inspired her to become a scientist.

Has any book had a similar life-changing effect on you?

2. When Doudna was in high school, her guidance counselor told her, "Girls don't do science." But Doudna persisted, going on to earn a PhD from Harvard. Barred from the male-dominated club that was sequencing DNA for the Human Genome Project, she decided to partner with two women to study RNA.

How did Rosalind Franklin influence Jennifer Doudna? Why was it more difficult for women to be scientists when Doudna was growing up? How are things different today?

3. In 2012, Jennifer Doudna and her team at UC Berkeley started racing a scientist named Feng Zhang and his team at MIT and Harvard to see who could be the first to use CRISPR to edit human DNA. Their competition led to breakthroughs, but also to rivalry and dueling patent applications, each trying to prove who knew what first.

How do you feel about the competitive nature of science as discussed in the book?

4. The word "collaboration" appears almost 80 times in the text of *The Code Breaker*. Isaacson focuses on Jennifer Doudna, but he also introduces and pays tribute to the work of many other scientists whose accomplishments made gene editing possible.

Did any of these scientists stand out to you in particular? Could you see another book being written about one of them?

5. When the coronavirus pandemic struck, Doudna and Zhang paused their competition and started working together to figure out how they could use their expertise to detect—and defeat—COVID-19.

Do you think if people had a greater understanding of CRISPR and RNA they would have been more or less resistant to the COVID-19 vaccine? Why or why not?

6. Isaacson says the luminaries he has written about—from Doudna to da Vinci, Albert Einstein to Steve Jobs—never lost their childlike sense of curiosity and wonder.

Do you think Isaacson did a good job explaining heredity, gene editing, and the scientific developments that led to the discovery of CRISPR biotechnology in a way that made it easy for non-scientists to understand?

7. Isaacson touches on some of the most promising applications of CRISPR, such as treating single-gene diseases like sickle cell anemia and Tay-Sachs disease.

Should we edit our genes to make us less susceptible to physical diseases and viruses? What about autism, bipolar disorder, or depression? What do you think the most impactful benefits of CRISPR will be? What are the risks?

8. Isaacson says that after Doudna cracked the gene-editing code, she had a nightmare in which Adolf Hitler expressed interest in using her technology. Doudna realized it wasn't enough to create powerful technology--she had to find a way to allow CRISPR to fulfill its potential while preventing it from being misused.

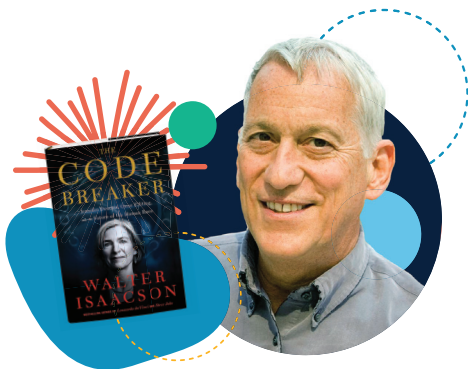
Do you think parents should be able to choose attributes like hair and eye color, muscle mass, or height to create "designer babies"? What are some other moral and ethical ramifications that could arise from DNA editing?

9. CRISPR raises some uncomfortable questions about what it might do to the diversity of our society.

If wealthier parents had access to expensive gene editing technology first, do you think that could worsen the inequality issues we are already dealing with today by literally encoding inequality into our society through heredity?

10. CRISPR technology advancements are being used in plants and animals as well as humans, such as editing mosquitos to reduce the spread of malaria and editing agriculture to withstand climate change.

What are some benefits and concerns regarding non-human genetic modifications?



About the Author **Walter Isaacson**

Walter Isaacson is a Professor of History at Tulane and an advisory partner at Perella Weinberg, a financial services firm based in New York City. He is the past CEO of the Aspen Institute, where he is now a Distinguished Fellow, and has been the chairman of CNN and the editor of TIME magazine.



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