

Francis Crick Cosmic Codebreaker

Renegade Genius Who Unlocked Life's Greatest Galactic Mystery

An Encounter with James Watson

A significant turning point in Francis Crick's life occurred when he met James Watson, a young American biologist who had traveled to Cambridge to study DNA. Watson, only 23 years old at the time, was ambitious and eager to uncover the mysteries of genetics. He was an extroverted and impulsive individual, while Crick, being older, was more systematic and inclined toward abstract theorizing. Their personalities could not have been more different. However, they shared a common objective: understanding the molecular basis of heredity.

Watson found inspiration in Erwin Schrödinger's book *What Is Life?*, which fueled his belief that DNA held the key to understanding inheritance. It did not take long for Crick and Watson to form a partnership that would change the course of scientific research. Despite their occasional personality clashes, they complemented each other well. Crick's background in ray crystallography balanced Watson's expertise in genetics and biology. This combination of skills created an unlikely but highly effective team.

A sense of competition and urgency drove their collaboration, especially since several other prominent scientists, including Linus Pauling from the United States, were also racing to determine the structure of DNA. Crick and Watson knew that to achieve their breakthrough, they needed to act quickly and decisively. Their work became an all-consuming quest, and they spent countless hours discussing theories, analyzing data, and testing hypotheses.

The Struggle to Determine the Structure of DNA

When the early 1950s rolled around, the field of molecular biology was experiencing a period of tremendous competition as researchers from all over the world attempted to discover the structure of DNA. The subject was rife with speculation, and several research organizations were rapidly advancing in their fields. The most formidable adversaries of Crick and Watson were Linus Pauling, a Nobel laureate renowned for his pioneering work in chemistry, and Rosalind Franklin, a gifted crystallographer employed at King's College London. Franklin's work is particularly important to the success of Crick and Watson. The X-ray diffraction images of DNA that she had made were of extremely high quality, revealing important insights into the structure of DNA.

On the other hand, the relationship between Crick, Watson, and Franklin took a lot of work. At the same time as Franklin was extremely protective of her data, she deeply mistrusted Watson, whom she considered irresponsible and unprofessional. On the other hand, Watson and Crick were irritated by what they perceived as Franklin's refusal to share her findings with them. In the future, this tension would give rise to ethical concerns over collaboration and credit's role in discoveries. Crick and Watson gathered crucial information from Franklin's work, allegedly from Maurice Wilkins, including an image known as Photo 51. This image suggested the helical structure of DNA.

Watson and Crick sat for an [interview](#) long after Rosalind's death from ovarian cancer and talked at length about her.



**Rosalind Franklin
with Photo 51**

Crick said that although Rosalind proved to be a particularly good experimentalist, she needed to be more insightful about the theoretical understanding of molecules like DNA, having worked previously on coal. Watson said she knew she had “blown it” after having the data for a year and achieving no progress as to the structure of DNA. If she had reached out to people like Crick, she would have been much more likely to have participated in the groundbreaking discovery.

Crick mentioned that, in those days dominated by the Church of England, female researchers did not dine with their male colleagues. They undoubtedly missed out because of these barriers to communication regarding research projects. He also said he harbored no prejudice against women in science.

In the early 1950s, the field of molecular biology was marked by intense competition as researchers worldwide raced to uncover the structure of DNA. Speculation was rampant, and various research organizations made significant advancements in their respective areas. Among the most formidable competitors to Francis Crick and James Watson were Linus Pauling, a Nobel laureate known for his groundbreaking work in chemistry, and Rosalind Franklin, an accomplished crystallographer employed at King's College London. Franklin's contributions would prove crucial to the success of Crick and Watson.

Her X-ray diffraction images of DNA were of exceptionally high quality, providing important insights into its structure. However, the relationship between Crick, Watson, and Franklin needed help. Franklin was very protective of her data and deeply mistrusted Watson, whom she viewed as irresponsible and unprofessional. Meanwhile, Watson and Crick were frustrated by what they perceived as Franklin's reluctance to share her findings with them. This tension would later raise ethical questions about the roles of collaboration and credit in scientific discovery.



Crick and Watson obtained vital information from Franklin's work, allegedly through Maurice Wilkins, including the famous image known as Photo 51. This image strongly suggested that DNA had a helical structure!



Maurice Wilkins

The achievement was remarkable, especially considering the existing tensions between the team members. A crucial piece of the puzzle was revealed in a photograph taken by Franklin, which was handed to Watson without her knowledge. Equipped with this added information, Crick and Watson immediately began constructing a model of DNA that incorporated all the available evidence. This breakthrough led to the famous declaration that they had "discovered the secret of life," represented in the double helix diagram.

In early 1953, after months of trial and error, Watson and Crick successfully developed a DNA model that aligned with the existing data. Their findings demonstrated that DNA is structured as a double helix, with two strands twisted around each other in a way reminiscent of a spiral staircase. This arrangement allowed the two DNA strands to separate and serve as templates for creating new DNA molecules, explaining how genetic information can be stored and copied. An ecstatic feeling enveloped them when they realized they had unveiled the secret of life.