

Rosalind Franklin

By Caroline Gao

Rosalind Franklin, in all senses of the word, was a pioneer. Not only did she play a crucial role in the discovery of DNA's double helix structure, she also paved the way for future female scientists by being one of the first prominent women in science. Although certain parts of her career remain enshrouded in controversy, it is indisputable that Rosalind Franklin's work left an indelible impact in the worlds of both science and women's rights.

According to the San Diego Supercomputer Center's article "Rosalind Franklin: Pioneer Molecular Biologist," Rosalind was born on July 25, 1920, in London, England, to an affluent Jewish family. Growing up, she demonstrated exceptional abilities in math and science, and by the age of fifteen, she'd resolved to become a scientist. In 1938, she enrolled in Newnham College, Cambridge, and by 1941, she'd graduated from there with a bachelor's degree in physical chemistry. "The Rosalind Franklin Papers" from the U.S. National Library of Medicine state that she subsequently was employed by the British Coal Utilization Research Association (BCURA), where she conducted research that helped her obtain her Ph.D. from Cambridge University in 1945. She also made her first major contribution to science during her four years at BCURA by discovering molecular sieves (minuscule constrictions of the pores in coal).

Rosalind moved from Cambridge to Paris in 1946, and from 1947-1950, she worked at the Laboratoire Central des Services Chimiques de L'Etat. During that time, she learned and perfected x-ray crystallography techniques. (X-ray crystallography, or x-ray diffraction, is a method for determining the atomic and molecular structure of a crystal.) Afterward, she returned to London to be a research associate at King's College, where her job was to take and analyze x-ray diffraction pictures of DNA.

Almost immediately upon her arrival in 1951, Rosalind's personality and beliefs set her at odds with two of her new colleagues, a pair of male researchers named Maurice Wilkins and James Watson. Watson even wrote in his autobiography The Double Helix that "Rosy had to go or be put in her place...the best home for a feminist was in another person's," clearly indicating that he and Wilkins didn't get along well with Franklin. Nonetheless, Rosalind continued working at King's College. Over the course of the next two years, she came extremely close to discovering the true structure of DNA.

Then, in 1953, Wilkins showed Watson and Francis Crick (another scientist) an outstandingly clear crystallographic image of DNA Rosalind had taken; he did this without her knowledge or consent. It was only with the high clarity and detail of Rosalind's image that Wilkins, Watson, and Crick were finally able to realize that DNA had a double helix structure. Before releasing their findings to the public, though, Rosalind transferred to Birkbeck College. At her new workplace, she made numerous important insights about RNA viruses. She would've made even more, if only she hadn't been diagnosed with ovarian cancer in 1956. Amazingly, she

continued performing research even while battling her lethal disease, and she only ceased working a few weeks before her death on April 6, 1958.

Four years later, Wilkins, Watson, and Crick won a Nobel Prize for their findings on the structure of DNA. Nobel Prizes aren't awarded posthumously, so it can't be known whether Rosalind would've received it as well, but her absence from the podium was still painfully conspicuous. The fact that her work went largely unrecognized doesn't make it any less valuable, though. She left behind a legacy of priceless discoveries about the structures of DNA, coal, and viruses; she also revolutionized the way society views women. And even when encountered with adversities, whether it be privation of credit or terminal illness, she simply pushed forward with grace and determination. Let Rosalind Franklin, a true pioneer, inspire us all.

Sources Cited

Watson, James. *The Double Helix: A Personal Account of the Discovery of the Structure of DNA*. New York: Simon & Schuster, 1968. Web. 18 Nov. 2017.
