

# Rosalind Franklin

- Used X-ray diffraction to develop images of DNA
- Did not receive the credit she deserved

Rosalind Franklin overcame some family resistance in order to attend a girl's school in London that taught physics and chemistry. Her father did not want her to attend college, but her mother and aunt supported her and she finally managed to enter Newnham College in Cambridge, England, when she was 28 years old. She graduated three years later, and began a graduate fellowship for a year. She quit in 1942 to take a job at the British Coal Utilization Research Association. Here she developed her fascination with microstructures, and this area of study was the basis of her doctoral research. She earned a Ph.D. in physical chemistry from Cambridge University in 1945.



For a time she worked at the Laboratoire Central des Services Chimiques de L'Etat, in Paris, where she learned X-ray diffraction techniques. In 1951, she returned to England as a research associate in John Randall's laboratory at King's College, London.

Randall gave Franklin responsibility for her DNA project, but another scientist, Maurice Wilkins, misunderstood her role, treating her more like an assistant than a peer or collaborator. This led to disagreement and distrust between the researchers. Eventually, Wilkins chose to show one of Franklin's crystallographic portraits of DNA to James Watson. At the time, Watson was working at a competing lab, also trying to develop a model of the structure of the DNA molecule. Watson had previously shown interest in Franklin's work, but had not earned her trust. Once Watson saw the image, he and his colleague, Francis Crick were able to construct a viable model, the double helix. They quickly published their work describing the model in the British journal *Nature*, and Franklin published her work as a supporting article in the same issue of the journal.

Franklin's contribution to the discovery has long been understated. She was the first to state that the sugar-phosphate backbone of DNA is on the outside of the molecule. This fact alone was critical to understanding the structure. Watson's accounts of the time portrayed Franklin as brooding and uncooperative. Yet, many others who knew her say otherwise.

Franklin went on to study viruses and published many papers on the structures of the tiny microorganisms. Four years after the DNA model was made public, Franklin died. Watson, Crick, and Wilkins received their Nobel Prizes for the now famous discovery in 1962. Since the Nobel Prize is not awarded posthumously, Franklin never received the lauded honor she truly deserved.

## Resources

<http://www.pbs.org/wgbh/aso/databank/entries/bofran.html>

<http://www.sdsc.edu/ScienceWomen/franklin.html>

[http://www.accessexcellence.org/RC/AB/BC/Rosalind\\_Franklin.html](http://www.accessexcellence.org/RC/AB/BC/Rosalind_Franklin.html)