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## New play tells the story of Rosalind Franklin, the woman behind DNA's double helix

By Coco Ballantyne



The Fountain Theatre in Hollywood California this month will begin running *Photograph 51*, a play about the human drama driving one of the most important discoveries of 20th century biology – the illumination of DNA's double helix structure. The play focuses on the role of British biophysicist Rosalind Franklin in the discovery. Many argue that her contribution, which went largely unnoticed, was so crucial that she deserved to, at the least, share the Nobel Prize in Physiology or Medicine for uncovering it that was instead snagged by geneticist James Watson and biophysicists Francis Crick and Maurice Wilkins.

*Photograph 51* begins in 1951 when Franklin first arrives at King's College in London from the Laboratoire Central des Services Chimiques de l'Etat in Paris to study the structure of biological molecules. It's right around the time that Watson and Crick are trying to construct a model of DNA at Cambridge University, says director Simon Levy. Franklin's character, Levy says, is "very self-assertive and determined, a work-ethic driven woman trying to establish herself in what was then a very male-dominated world." She works alongside Maurice Wilkins, Levy says, "a brilliant scientist but sort of socially inept [who] has difficulty dealing with her strength and her spirit."

The play traces the string of events leading up to the 1953 discovery of the DNA double helix, including the key moment when Wilkins – without Franklin's knowledge or permission – shows Watson the famous "photograph" 51, "an image of DNA that Franklin had captured using a technique called x-ray diffraction (To the average person, photograph 51 looks somewhat like a striped letter "X," but to Watson's trained eye, it revealed the molecule's twisted ladder shape.)

According to Levy, Wilkins's character does this because he's impressed with Franklin's work. Watson, longing to be the one who discovers the "secret of life," shows the image to Crick and together they construct their Nobel Prize-winning DNA model based on it, eventually becoming superstars in the scientific community and giving Franklin little credit for her contributions. The play concludes in 1958 with Franklin's death at age 37 from ovarian cancer. She never married or had kids and would receive little recognition for her contribution to the DNA model for which Watson, Crick and Wilkins would share a Nobel four years later.

Did Franklin understand the importance of her contributions? Did she have regrets about her involvement in the double helix saga? Was she partly responsible for not getting recognition, or was she simply a victim cast aside by the boys club? These are some of the questions the play attempts to answer, Levy says.

"Watson, Crick and Wilkins could certainly have done more to acknowledge her, especially in accepting the Nobel," says playwright Anna Ziegler, who based the play on a variety of sources, including Brenda Maddox's biography *Rosalind Franklin: The Dark Lady of DNA* and James Watson's *The Double Helix*. In a sense, they did steal her work, Ziegler says, but she adds that Franklin may also have been partly to blame because she was not particularly interested in collaboration. "My take on Rosalind Franklin's character, and what I find so juicy, fascinating and sad about her," Ziegler says, "has to do with her own tragic flaws--her inability or refusal to form useful working relationships with certain people."

Rosalind Franklin's story is not that of a wronged heroine, London-based journalist and Franklin-biographer Maddox tells *ScientificAmerican.com*. In fact, Franklin was never particularly interested in studying DNA, Maddox says, noting that she left King's College in 1953 to study viruses at Birkbeck College in London -- before Watson and Crick even constructed their DNA model -- and her career studying viruses was much more important to her. "Up until she was dying, her papers were being published everywhere," Maddox says, adding that Franklin never lived to see the other scientists basking in their Nobel glory anyway and, even if she had, the Nobel Foundation does not award the prize posthumously.

*Photograph 51* won the 2008 STAGE International Script Competition, an award given by The Professional Artists Lab and the California NanoSystems Institute at the University of California at Santa Barbara to plays that deal with science. The judges of the competition include not only Pulitzer-Prize winning playwrights but Nobel laureate scientists (Watson, 80, was not one of them!).

The play runs one hour and 40 minutes and will be playing Thursday through Saturday at 8 P.M. and Sundays at 2pm from March 21 through May 3.

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