

## BOOK REVIEW

# Cracking life's code: the race to decipher DNA

The Least Likely Man: Marshall Nirenberg and the Discovery of the Genetic Code

Edited by: Franklin H Portugal

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*The Least Likely Man: Marshall Nirenberg and the Discovery of the Genetic Code* by A/Professor Franklin H Portugal of the Catholic University of America and published by MIT Press is primarily a tale about the little guy competing against established researchers, not in a quest for glory, just for solid scientific contribution. Marshall Nirenberg was one of those rare individuals with enough motivation and drive to accomplish one of the greatest advances in modern biological science, the solving of the genetic code. Franklin H Portugal takes us on a scientific adventure that will appeal to researchers of all eras—and to anyone who has ever cheered for the underdog.

This book chronicles Marshall's life and scientific milestones, which included sharing the 1968 Nobel Prize in Physiology or Medicine with Har Gobind Khorana and Robert W Holley for their 'interpretation of the genetic code and its function in protein synthesis'. His interest in science and nature first arose when Marshall and his family moved from frozen New York to the warmer climes of Orlando, FL, in January 1937, following his brush with a life-threatening disease at the age of nine. Marshall began his scientific career in an unremarkable fashion in the late 1940s, with varied undergraduate, doctoral and postdoctoral studies. During this time, the crystal structure of DNA was elucidated by the famous team of Crick, Watson and Franklin.

Despite these advances in the molecular basis of hereditary traits, a fundamental question remained unanswered: how can the four-letter DNA template lead to proteins composed of 20 different types of amino acids? Marshall dedicated himself to solving this riddle, and unwittingly placed himself in direct competition with some of the greatest scientific minds of the era. These included previous Nobel Prize winners Watson and Crick, who fully expected to be the first to identify the solution. He used his ingenuity and experiences derived from student and postgraduate work to innovate novel approaches to address this vital question. With these inventive techniques and a dedicated laboratory team, he surprised the scientific world by cracking the DNA code

before anyone else, which later resulted in the bestowal of the Nobel Prize.

Marshall's legacy is far greater than just his scientific output. His story is one of trial and error, failure and success, one which is familiar to every researcher. The most striking message in this fascinating book is to always remain open to new ideas. This determined approach was typified by a line from Marshall's personal notebooks where he exhorted himself to 'include every dog-brained idea you get. One might work'.

Franklin H Portugal's stimulating account of Marshall's life and research has been meticulously researched, with great care taken to accurately recount events and establish appropriate scenarios. Portugal was fortunate to have had access to the treasure trove of Marshall's notebooks, unveiling a remarkably detailed account of his achievements and thought processes. From this valuable resource, Portugal has recreated a vivid depiction of typical research conditions during the 50s and 60s, littering his book with details evoking the world climate existing at that time.

Portugal's motives for writing this book were manifold. Working in the Nirenberg lab from 1967 to 1970 had a major impact on his scientific career, such that he always followed Marshall's dictum of 'going after large and important problems regardless of the risks involved'. Marshall instilled a rigorously applied approach to scientific method in those who worked with him, and taught that efficient laboratory organization is indispensable to performing quality research. In addition, Franklin felt that Marshall's story would be both inspiring and instructive to young students: 'Marshall was not only a very fine scientist but a rather extraordinary person, both modest and unassuming ... there has always been a consistent impression that because of (this) persona, he has been repeatedly overlooked and his contributions diminished.'

In summary, this is an absorbing and oftentimes thrilling account of Marshall Nirenberg's journey to further the bounds of scientific knowledge during a time when the link between DNA, RNA and protein was elusive. An uplifting and inspiring book for both researchers and the general public alike.

## CONFLICT OF INTEREST

The author declares no conflict of interest.

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