

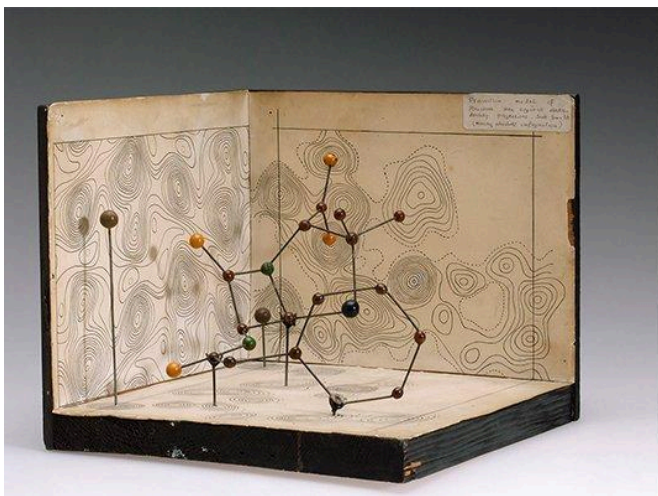
Dorothy Hodgkin – From Insulin Structure to Nobel Laureate

If you think about it, very few names stand as strongly in the chronicles of scientific history as Dorothy Hodgkin's. From discovering the structure of penicillin and insulin to becoming the third woman to win a Nobel Prize during the 20th century, Dorothy Hodgkin has one of the greatest influences on science and society, and it is still being felt today in the halls of history.

Despite the hardships of WW2 (1939-1945) including millions of people being evacuated from their cities and towns and adjusting to separation from family and friends, Dorothy Hodgkin still managed to solve the structure of penicillin, a life-saving drug that revolutionized medicine and saved countless lives.

Then again during 1969 was when she made a pivotal contribution to science as she uncovered the molecular structure of insulin, a milestone achievement that forever changed the landscape of medicine.

Penicillin, a vital drug that is widely used today, helps to treat infections caused by bacteria. It works by killing bacteria or preventing their growth. It treats infections like meningitis (inflammation of the tissues surrounding the brain and spinal cord), pneumonia (infection in your lungs caused by bacteria), and various other infections. Since penicillin provides the foundation for the invention of many other medicines, its disappearance would likewise make the problem of antibiotic resistance worse. As mentioned before Hodgkin and her colleagues overcame the difficulties brought on by the war, using cutting-edge X-ray crystallography methods to determine the antibiotic's molecular structure.



Their work established the groundwork for the large manufacture and extensive application of penicillin as a life-saving medication by offering significant insights into the chemical makeup and arrangement of penicillin molecules. Hodgkin's contributions throughout this turbulent time demonstrate her steadfast commitment to scientific research and her significant influence on the development of medical history. Their work established the groundwork for the large manufacture and extensive application of penicillin as a

life-saving medication by offering significant insights into the chemical makeup and arrangement of penicillin molecules.

Dorothy Hodgkin is also sometimes called the mother of X-ray crystallography as during the late 1930s she rose to prominence as a pioneer in the application of X-ray crystallography. This unwavering effort and commitment helped her become persevering and led her to discover penicillin by careful crystallizing penicillin molecules and X-ray diffraction examination. She was able to take exact images of the molecular configuration inside the penicillin crystal lattice due to this approach. Hodgkin was able to determine the spatial arrangement of atoms within the molecule by examining the diffraction patterns formed by the X-rays when they interacted with the crystalline penicillin.

The molecular structure of insulin was revealed by Dorothy Hodgkin's pioneering work in the middle of the 20th century, which revolutionized our knowledge of this important hormone. Hodgkin and her colleagues used X-ray crystallography to carefully examine insulin crystals to determine the three-dimensional configuration of atoms in the molecule. Their groundbreaking work revealed a sophisticated molecular structure made up of two polypeptide chains joined by disulfide bonds to produce a unique globular shape. Hodgkin's study offered previously unheard-of insights into the role of insulin in controlling blood sugar levels by mapping the exact locations of atoms inside the hormone. In addition to laying the foundation for improvements in the treatment of diabetes, this historic accomplishment won Hodgkin the 1964 Nobel Prize in Chemistry, solidifying her reputation as a pioneer in the field of structural biology.

The crowning achievement of Dorothy Hodgkin's remarkable career and a turning point for the scientific world came when she was awarded the 1964 Nobel Prize in Chemistry. Acknowledged for her innovative efforts in utilizing X-ray crystallography to ascertain the configurations of intricate molecules, Hodgkin's achievements were heralded as revolutionary within the domains of biology and chemistry. Her painstaking investigation and creative approach not only helped to solve the mystery surrounding compounds like insulin and penicillin, but they also cleared the path for several developments in pharmacology and medicine.

Hodgkin's Nobel Prize represented a victory for women in STEM professions, confirming their ability for greatness and invention on a worldwide scale, beyond the scientific honors. Being the third woman to win the Chemistry Nobel Prize, Hodgkin's accomplishments broke down boundaries and dispelled preconceptions in the traditionally male-dominated field of academia, inspiring aspirant female scientists all over the world. In addition to recognizing Hodgkin's extraordinary accomplishments, the Nobel Prize signaled the beginning of a new period of diversity and inclusion in scientific study, guaranteeing that her legacy would live on as a source of inspiration for future generations.

