**What is DNA and who discovered it**

Quite often we hear in everyday conversations phrases like: “He has the lie in his DNA” or “He got his father’s DNA” or “All these mutated foods we eat will change our DNA”. But do we know what this DNA is and what exactly it does? First of all, the term DNA is an English acronym. The full scientific term is deoxyribonucleic acid (Deoxyribo- Nucleic Acid/ DNA) and is rendered in Greek as deoxyribonucleic acid. It is a molecule found in almost all cells of an organism and through it most of organisms, including humans, pass on their characteristics to the next generations. In particular, it is the genetic material that contains the genetic information in specific parts of it, the genes. This information defines all the structural and functional characteristics of an organization.

The amount of DNA in any organism is constant, it is the same in all types of cells in an organism and is not changed by changes in the environment. It is hereditary material and for this reason the information it contains is transmitted through the process of reproduction from adult organisms to their offspring. Regarding its structure, it consists of simpler compounds called nucleotides, which join together and form polynucleotide chains. After joining two polynucleotide chains, a double-stranded molecule or double helix results. The double has a stable backbone made up of various molecules. Inside this skeleton are the nitrogenous bases. Specifically, to create the double-stranded molecule, the nitrogenous bases join together with strong hydrogen bonds. The two pairs of nitrogenous bases show complementarity, that is, the sequence of one chain determines the sequence of the other. The bases join together, resulting in adenine joining thymine and guanine joining cytosine.

But how did the research begin and who contributed to uncovering the “secrets” of DNA? Let’s take a look back in time to find out. Frederich Miercher (Swiss biochemist) was the one who first became involved in DNA research at the end of the 19th century. Nevertheless, it took at least a century for the structure of DNA to be discovered. Later, in 1953 through the research of James Watson, Francis Crick, Maurice Wilkins and Rosalind Franklin, the term DNA became clearer. With methodical and systematic research, the British biophysicist Rosalind Franklin managed to achieve the crystallization of a DNA molecule and through X-ray imaging, she showed that DNA has a repeating helical form. This discovery helped to understand the structure of DNA, which was later completed by Watson and Crick. Franklin’s contribution was so important, yet it was not recognized as much as it should have been. The reason was that at that time society was male-dominated, there were no equal opportunities between the sexes and the field of scientific research was dominated by discrimination against women (she could not even go to the university’s funeral home where she did her research). Rosalind Franklin herself is referred to as a “forgotten heroine” and is an icon for female scientists. Although Rosalind’s research was as important as that of Watson and Crick, her name was not even mentioned when their paper was published, in which they described the double helical structure of DNA and all credit was given to the above scientists (they were awarded in 1962 the Nobel Prize in Medicine).

The discovery of the structure of DNA was one of the most important achievements of that time. It took many centuries and the contribution of many different scientists over the years to reach its completion. Rosalind Franklin, died at the age of just 38 of cancer and had the misfortune of living at a time when women scientists were considered inferior to men. Her case shows the injustices that can exist in the scientific field too, since the credit for a scientific discovery is given to the scientist who will be the first to publish the results of his research or sometimes the scientists who worked hard and methodically for the specific research are not recognized.

SOURCES:

<http://ebooks.edu.gr/ebooks/v/html/8547/2210/Biologia_B-G-Gymnasiou_html-empl/>

<http://ebooks.edu.gr/ebooks/v/html/8547/2726/Biologia-T2_G-Lykeiou-ThSp-SpYg_html-empl/>

[Wikipedia**DNA**](https://el.wikipedia.org/wiki/DNA)​

<https://www.genome.gov/about-genomics/fact-sheets/Deoxyribonucleic-Acid-Fact-Sheet>

<https://medlineplus.gov/genetics/understanding/basics/dna/>

<https://en.wikipedia.org/wiki/Rosalind_Franklin>