

# Molecular Cell Biology and its potential Implications for Therapy

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## Abstract

Molecular biology is the department of biology that seeks to recognize the molecular foundation of organic life in and among cells, together with molecular synthesis, modification, mechanisms, and interactions. It has a look at the chemical and bodily shape of organic macromolecules referred to as molecular biology. Molecular biology turned into first defined as a technique targeted at the underpinnings of organic phenomena - uncovering the systems of organic molecules in addition to their interactions, and the way those interactions give an explanation for observations of classical biology. In 1945 the time period molecular biology turned into utilized by physicist William Astbury. The improvement with inside the area of molecular biology passed off very past due as to recognize that the complicated device or wonderful technique might be made in easy manner of expertise with the aid of using the usage of microorganism and bacteriophages this organism yields facts approximately fundamental organic method extra effectively than animal mobile.

**Keywords:** Clinical • DNA • Therapy • Molecular Biology

## Introduction

Molecular biology sits on the intersection of biochemistry and genetics; as those clinical disciplines emerged and developed with inside the twentieth century, it have become clear that they each sought to decide the molecular mechanisms which underlie critical mobile functions. Advances in molecular biology had been intently associated with the improvement of recent technology and their optimization. Molecular biology has been elucidated with the aid of using the paintings of many scientists, and hence the records of the sphere rely upon on an expertise of those scientists and their experiments. It all starts off evolved with the phenomenon of transformation with inside the microorganism, in 1928, Frederick Griffith, located a phenomenon of transformation from one bacterium to different [1]. At that time, he could not give an explanation for the phenomenon of transformation. Later in 1944, 3 scientists Oswald Avery, Colin Macleod and Maclyn McCarty, established the complete phenomenon of transformation with inside the microorganism. After, years in 1930, molecular biology turned into set up as an respectable department of science. But the time period "Molecular Biology" wasn't coined till 1938 and that turned into finished with the aid of using the scientist Warren Weaver, who turned into running because the director of Natural sciences at Rockefeller Foundation. From the subsequent test it turned into concluded that DNA is the fundamental genetic cloth which induced the genetic changes [2]. Basic composition of the DNA turned into recognized that it incorporates 4 bases referred to as - Adenine, Guanine, Thymine and Cytosine. So, at the bases of the chemical composition and the X-ray crystallography, finished with the aid of using Maurice Wilkins and Rosalind Franklin the DNA shape turned into proposed with the aid of using James Watson and Francis Crick [3]. But, earlier than the Watson and Crick proposed the DNA shape, in 1950 Austrian born scientist Erwin Chargaff, proposed the theory / rule [today known as- Chargaff's rule], which said that the range of Adenine and Thymine and Guanine and Cytosine are in same proportion. The Chargaff's rule "Chargaff's rule said that DNA from any species of any organism need to have a 1:1 stoichiometric ratio of purine and pyrimidines and, extra specifically, that the quantity of guanine

need to be same to cytosine and the quantity of adenine need to be same to thymine [4]. This sample is observed in each strands of the DNA". The area of genetics arose as a try to recognize the molecular mechanisms of genetic inheritance and the shape of a gene. Gregor Mendel pioneered these paintings in 1866, whilst he first wrote the legal guidelines of genetic inheritance primarily based totally on his research of mating crosses in pea flora. One such regulation of genetic inheritance is the regulation of segregation, which states that diploid people with alleles for a specific gene will by skip any such alleles to their offspring. Because of his crucial paintings, the have a look at of genetic inheritance is generally known as Mendelian genetics. A predominant milestone in molecular biology turned into the invention of the shape of DNA. These paintings started in 1869 with the aid of using Friedrich Miescher, a Swiss biochemist who first proposed a shape referred to as nuclein, which we now understand to be deoxyribonucleic acid, or DNA. He found this specific substance with the aid of using reading the additives of pus-stuffed bandages, and noting the specific residences of the "phosphorus-containing substances." Another first-rate contributor to the DNA version turned into Phoebus Levene, who proposed the "polynucleotide version" of DNA in 1919 because of his biochemical experiments on yeast. In 1950, Erwin Chargaff increased at the paintings of Levene and elucidated some crucial residences of nucleic acids: first, the series of nucleic acids varies throughout species. Second, the overall awareness of purines (adenine and guanine) is constantly same to the overall awareness of pyrimidines (cytosine and thymine). This is now referred to as Chargaff's rule [5]. In 1953, James Watson and Francis Crick posted the double helical shape of DNA, the usage of the X-ray crystallography paintings finished with the aid of using Rosalind Franklin and Maurice Wilkins. Watson and Crick defined the shape of DNA and conjectured approximately the consequences of this specific shape for feasible mechanisms of DNA replication J. D. Watson and F. H. C. Crick had been provided Nobel Prize in 1962, at the side of Maurice Wilkins, for presenting a version of the shape of DNA. As time byskip with the aid of using, in 1964 K. A. Marcker and Frederick Sanger found a unusual aminoacyl-tRNA in E.coli, referred to as N-formyl-methionyl - tRNA and defined that this molecule play a function in unique mechanism of the chain elongation. He turned into provided 2d Nobel Prize for coming across whole series of 5, four hundred nucleotides of unmarried stranded DNA of  $\phi$  174 bacteriophages.

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