



Molecular biology

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Abstract:

Molecular biology is that the branch of biology that concerns the molecular basis of biological activity in and between cells, including molecular synthesis, modification, mechanisms and interactions. The central dogma of biology describes the method during which DNA is transcribed into RNA, and then translated into protein.

Keywords: Biology, DNA, Genetic

Introduction:

William Asbury described biology in 1961 in Nature, as: not such a lot a way as an approach, an approach from the point of view of the so-called basic sciences with the leading idea of searching below the large-scale manifestations of classical biology for the corresponding molecular plan. it's concerned particularly with the sorts of biological molecules and is predominantly three-dimensional and structural which doesn't mean, however, that it's merely a refinement of morphology. It must at an equivalent time discuss genesis and performance. Some clinical research and medical therapies arising from biology are covered under gene therapy whereas the utilization of biology or molecular cell biology in medicine is now mentioned as molecular medicine. biology also plays important role in understanding formations, actions, and regulations of varied parts of cells which may be wont to efficiently target new drugs, diagnose disease, and understand the physiology of the cell. While biology was established as a politician branch of science within the 1930s, the term wasn't coined until 1938 by Warren Weaver. At the time, Weaver was the director of Natural Sciences for the Rockefeller Foundation and believed that biology was close to undergo significant change thanks to recent advancements in technology like X-ray crystallography. Molecular biology arose as an effort to answer the questions regarding the mechanisms of

genetic inheritance and therefore the structure of a gene. In 1953, Watson and Crick published the double helical structure of DNA courtesy of the X-ray crystallography work done by Rosalind Franklin and Wilkins. Watson and Crick described the structure of DNA and therefore the interactions within the molecule. This publication jump-started research into biology and increased interest within the subject.

Relationship to other biological sciences:

The following list describes a viewpoint on the interdisciplinary relationships between biology and other related fields. Molecular biology is that the study of the molecular underpinnings of the processes of replication, transcription, translation, and cell function. Biochemistry is that the study of the chemical substances and vital processes occurring in living organisms. Biochemists focus heavily on the role, function, and structure of biomolecules like proteins, lipids, carbohydrates and nucleic acids. Genetics is that the study of how genetic differences affect organisms. Genetics attempts to predict how mutations, individual genes and genetic interactions can affect the expression of a phenotype.

Techniques of biology

One of the foremost basic techniques of biology to review protein function is molecular cloning. during this technique, DNA coding for a protein of interest is cloned using polymerase chain reaction (PCR), and/or restriction enzymes into a plasmid (expression vector). A vector has 3 distinctive features: an origin of replication, a multiple cloning site (MCS), and a selective marker usually antibiotic resistance. Located upstream of the multiple cloning site are the promoter regions and therefore the transcription start site which regulate the expression of cloned gene. This plasmid is often inserted into either bacterial or animal cells.