

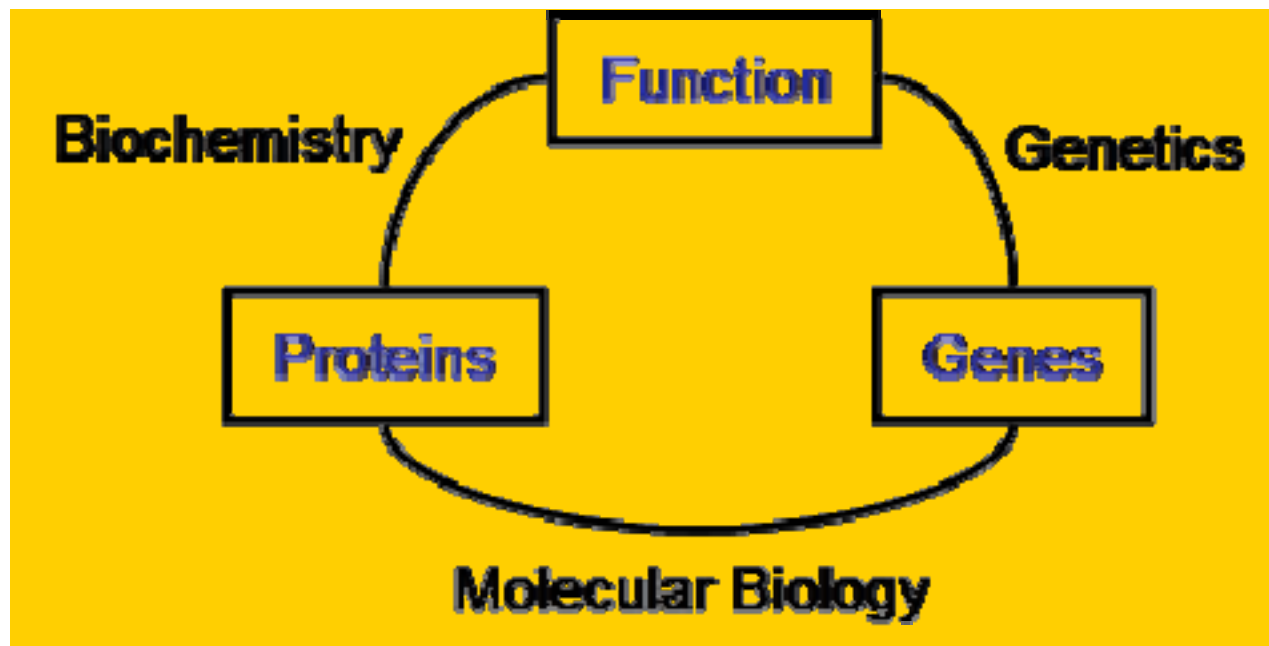


Welcome to Molecular Biology

The term molecular biology was coined in 1983 by Warren Weaver, the director of the natural sciences program at the Rockefeller Foundation.

What is Molecular Biology?

Molecular biology is the study of biology at a molecular level. The field overlaps with other areas of biology and chemistry, particularly genetics and biochemistry.

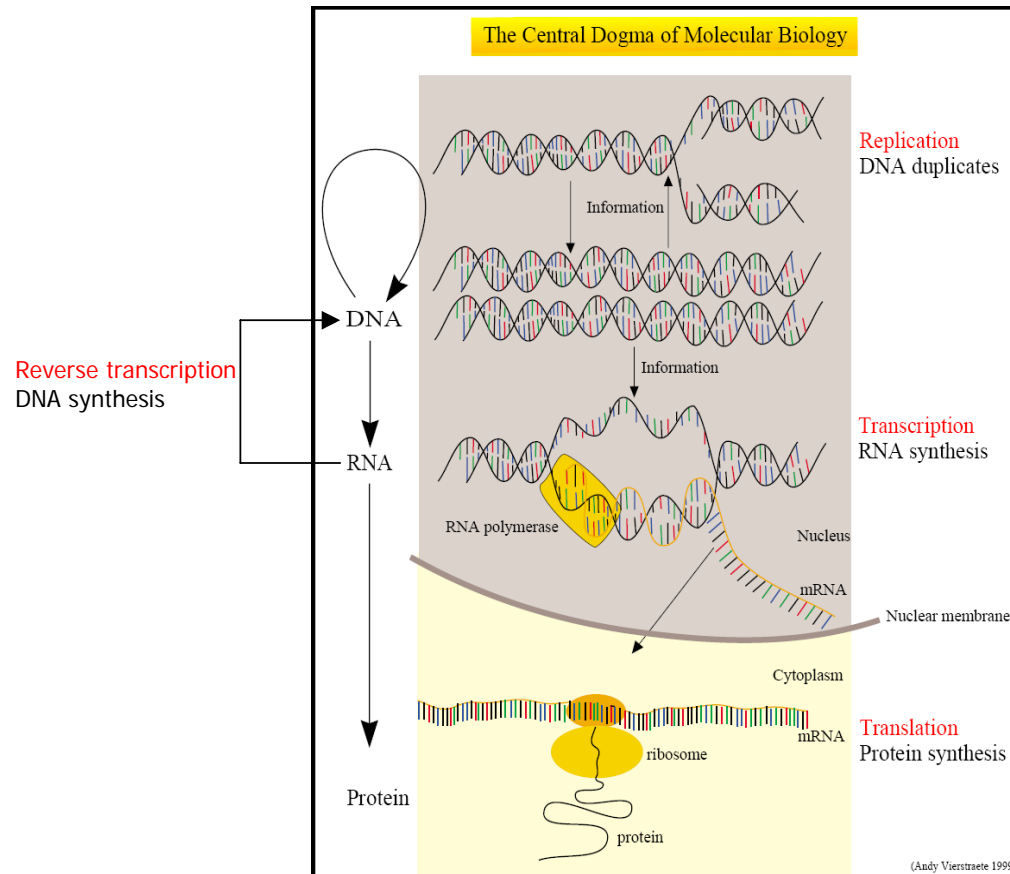




Goals of Molecular Biology

- 1) to generate a complete description of the structure, function, and interrelationships of the cell's macromolecules.
- 2) to understand the interactions between the various systems of a cell, including the interrelationship of DNA, RNA and protein synthesis and learning how these interactions are regulated.

Central Dogma



Central dogma:

Sequences of nucleic acid can be perpetuated and interconverted by **replication, transcription, and reverse transcription**, but **translation** from nucleic acid to protein is unidirectional, because nucleic acid sequences cannot be retrieved from protein sequences.



Key Terms

1. **Replication** : a double stranded DNA is duplicated to give two identical copies. This process perpetuates the genetic information.
2. **Transcription** : a DNA segment is read and transcribed into a single-stranded RNA with complementary sequence.
3. **Translation** : the (m)RNA sequence is translated into a sequence of amino acids as the protein is formed.
4. **Reverse transcription** is synthesis of DNA on a template of RNA. It is accomplished by the enzyme reverse transcriptase.



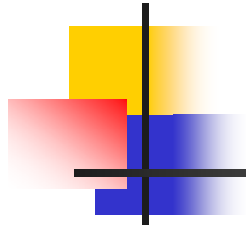
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- CHAPTER 7 Regulation of Gene Activity in Prokaryotes**
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References

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How to learn molecular biology?

Why teach molecular biology bilingually?



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