



# MOLECULAR BIOLOGY AND DIAGNOSTICS

MODX311 LECTURE AND LABORATORY

## TOPIC OUTLINE

1	Introduction to Molecular Biology and Diagnostics
2	DNA and RNA
3	Proper Usage of Micropipettes and Ph Meters
4	Quality Assurance in the Molecular Biology Lab
5	Reagent Preparation; Good Laboratory Practices

## INTRODUCTION TO MOLECULAR BIOLOGY AND DIAGNOSTICS

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### DIAGNOSTICS MOLECULAR BIOLOGY

- The integration of the knowledge and technology in molecular biology with clinical laboratory techniques
- A clinical reality with its roots deep inside the fundamental understanding of genome structure and cellular activities at the molecular level

### MOLECULAR BIOLOGY

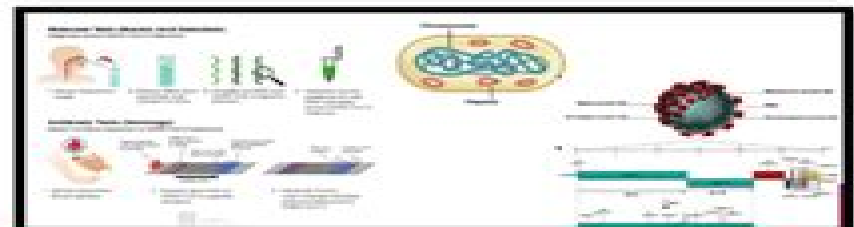
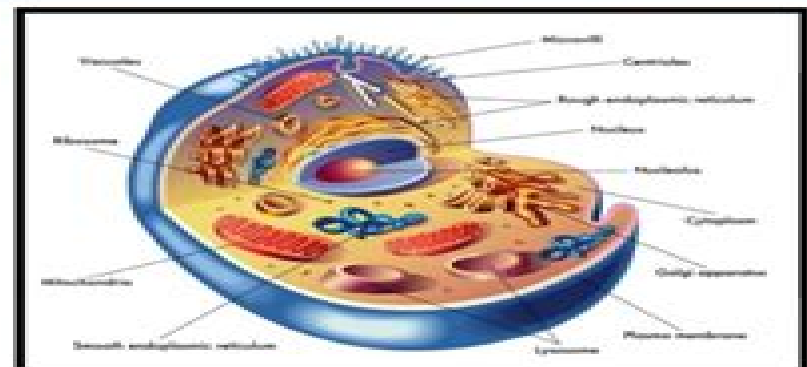
- Field of biology that studies the **composition, chemical and physical structure and interactions of cellular molecules** (e.g nucleic acids and proteins) that carry out the biological processes essential for the cell's functions and maintenance
- Goal:** to understand the molecular basis of biological activity in and between cells, including molecular synthesis, modification, mechanisms, and interactions

### The two main types of nucleic acids

- DNA and RNA.**
- Both DNA and RNA are made from nucleotides, each containing a: **five-carbon sugar backbone, a phosphate group, and a nitrogen base.**
- DNA provides the code for the cell's activities, while RNA converts that code into proteins to carry out cellular functions
- Deoxyribonucleic acid (DNA) and ribonucleic acid (RNA) are perhaps the most important molecules in cell biology, responsible for the storage and reading of genetic information that underpins all life.
- In the past few years, the field of molecular diagnosis has grown rapidly due to the **revolutionized developments and discoveries in the fields of molecular genetics and biotechnology**, and the need to provide diagnosis at the molecular level for all kinds of diseases.



### REVIEW OF CYTOLOGY AND GENETICS



# Study Guide For Diagnostic Molecular Biology

**CH Cherryholmes**



## **Study Guide For Diagnostic Molecular Biology:**

The book delves into Study Guide For Diagnostic Molecular Biology. Study Guide For Diagnostic Molecular Biology is a crucial topic that must be grasped by everyone, from students and scholars to the general public. This book will furnish comprehensive and in-depth insights into Study Guide For Diagnostic Molecular Biology, encompassing both the fundamentals and more intricate discussions.

1. This book is structured into several chapters, namely:
    - Chapter 1: Introduction to Study Guide For Diagnostic Molecular Biology
    - Chapter 2: Essential Elements of Study Guide For Diagnostic Molecular Biology
    - Chapter 3: Study Guide For Diagnostic Molecular Biology in Everyday Life
    - Chapter 4: Study Guide For Diagnostic Molecular Biology in Specific Contexts
    - Chapter 5: Conclusion
  2. In chapter 1, this book will provide an overview of Study Guide For Diagnostic Molecular Biology. The first chapter will explore what Study Guide For Diagnostic Molecular Biology is, why Study Guide For Diagnostic Molecular Biology is vital, and how to effectively learn about Study Guide For Diagnostic Molecular Biology.
  3. In chapter 2, this book will delve into the foundational concepts of Study Guide For Diagnostic Molecular Biology. The second chapter will elucidate the essential principles that need to be understood to grasp Study Guide For Diagnostic Molecular Biology in its entirety.
  4. In chapter 3, the author will examine the practical applications of Study Guide For Diagnostic Molecular Biology in daily life. This chapter will showcase real-world examples of how Study Guide For Diagnostic Molecular Biology can be effectively utilized in everyday scenarios.
  5. In chapter 4, the author will scrutinize the relevance of Study Guide For Diagnostic Molecular Biology in specific contexts. This chapter will explore how Study Guide For Diagnostic Molecular Biology is applied in specialized fields, such as education, business, and technology.
  6. In chapter 5, the author will draw a conclusion about Study Guide For Diagnostic Molecular Biology. The final chapter will summarize the key points that have been discussed throughout the book.
- The book is crafted in an easy-to-understand language and is complemented by engaging illustrations. It is highly recommended for anyone seeking to gain a comprehensive understanding of Study Guide For Diagnostic Molecular Biology.

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