

Molecular biology and molecular diagnostics

[Health & Medicine](#)



**ASSIGN
BUSTER**

Molecular Biology and Molecular Diagnostics

Introduction

The popularity of Health tips magazines is on the rise. The magazines are increasingly being appreciated because of their role of providing useful health information on various topics (Allison, 2009, p. 45). What is more, the magazines offer information on the most recent advances in molecular biology research, the most effective health practices, and beauty tips for (aging) women. Health tips magazines also address emotional, mental, fitness-related, dietary, and physical environment issues. The main topics discussed in health magazines include disease management, fitness, beauty, diet, well being, and nutritional implications. The magazines are always aimed at the general public, therefore the language employed is standard and can be comprehended by any age group, individual. This paper aims at exploring the form and nature of molecular biology with particular interest in understanding the interactions between the distinct systems of a cell. The paper will look at the interaction between RNA, DNA, protein biosynthesis, and how the interaction can be used in the diagnosis of a named disease. Molecular biology is concerned with the development, structure, and function of macromolecules critical to life (Carson, Miller, and Witherow, 2012, p. 19). The field digs deeper to explore the role of macromolecules in cell replication and how genetic information is transmitted from one stage of life to another. Basically, molecular microbiology aims at analyzing how the DNA can be manipulated in order to mutate or sequence it. A mutat3d DNA is usually inserted into the genome of a living being to offer some mutation effects caused by the phenomenon. Of late, there has been an increase in the study of molecules (Carson, Miller, and Witherow, 2012, p. 59). The studies have <https://assignbuster.com/molecular-biology-and-molecular-diagnostics/>

either been direct or indirect in their approach to the study of molecules.

Direct studies have focused on the interactions of molecules (cell biology and developmental biology). Other indirect studies have focused on inferring historical attributes of species/masses (populations).

Molecular Diagnostics

Molecular diagnostics is a method that is employed to assess biological markers in an individual's genetic code (in the genome and proteome). This aspect of cellular microbiology focuses on how the cells of individuals express their genes in the form of proteins. Molecular biology is applied in medical testing to monitor and diagnose diseases, identify risks, and decide on the kind of therapies that will achieve the maximum results (Clark, 2010, 170). Molecular biology has contributed in the detection and characterization in the management of disease causing micro-organisms. Consequently, the endeavors have led to a revolutionizing diagnostic microbiology and has formed a critical part of routine specimen processing (Allison, 2009, p 101). Polymerase Chain Reaction (PCR) methods have facilitated progress in the field through allowing early and rapid detection of micro-organisms which were difficult to detect. PCR has reinforced the work of traditional microbiological techniques which complicated the detection of micro-organisms making it hard or impossible to detect them. Moreover, rapid detection through molecular techniques has been made feasible for pathogen with public health value. Molecular diagnostics have enabled molecular techniques to progress beyond the identification stage. It has gone further to enable the detection of anti-microbial genes with a high resistance level (Clark, 2010, 199). This has enabled the availing of public health information like strain characterization through genotyping.

<https://assignbuster.com/molecular-biology-and-molecular-diagnostics/>

Molecular diagnostics have allowed the treatment of particular micro-organisms through viral resistance detection, as well as viral load testing. This has facilitated the monitoring of responses to anti-viral treatments. the monitoring of viral RNA or DNA has become the standard treatment for various chronic illnesses (Clark, 2010, 178). The measurement of viral load is performed by branched chain DNA signal, competitive PCR systems, or real time PCR. Such advancements have facilitated the management of certain diseases. For instance, HIV viral load testing forms a crucial part of the management of the HIV infection. In this light, this paper has achieved its aim of showing how an aspect of molecular biology is used in the diagnosis or the identification of individuals.

Reference List

Top of Form

Top of Form

Bottom of Form

Top of Form

Bottom of Form

Top of Form

Top of Form

Bottom of Form

Bottom of Form

Allison, L. A., 2009. *Fundamental Molecular Biology*. Chichester, John Wiley & Sons

Carson, S., Miller, H. B., & Witherow, D. S., 2012. *Molecular Biology Techniques: A Classroom Laboratory Manual*. Oxford, Academic Press.

Clark, D. P., 2010. *Molecular Biology*. Amsterdam, Apcell.

<https://assignbuster.com/molecular-biology-and-molecular-diagnostics/>

Elliott, D., & Lodomery, M., 2011. *Molecular Biology of RNA*. Oxford, Oxford University Press.

Morange, M., & Cobb, M., 2000. *A History of Molecular Biology*. Cambridge, Harvard Univ. Press.