

# New Techniques in Molecular Biology

Lakshmi Bhai\*

Department of Pharmacy, Jawaharlal Nehru Technological University, Hyderabad, Telangana, India

## Abstract

A branch of biology known as molecular biology studies how genes are translated into RNA, how that RNA is then translated into proteins, and how those proteins affect cellular function. Since around 1960, molecular biologists have created techniques to recognise, separate, and work with the molecules that make up cells, such as DNA, RNA, and proteins. One of the most crucial methods in molecular biology is the polymerase chain reaction (PCR), which essentially copies DNA. A single DNA sequence can be amplified into millions of DNA molecules using the PCR method. Additionally, DNA mutations or unique restriction enzyme sites can be introduced via PCR. Additionally, PCR is used to find out if a specific DNA fragment is present in a cDNA library. Reverse transcription PCR (RT-PCR), which amplifies RNA, and quantitative PCR (QPCR), which counts the amount of RNA or DNA present, are two different forms of PCR.

**Keywords:** Genome • Electrophoresis • Protein function

## Introduction

The study of biology at the molecular level is known as molecular biology. Genetics and biochemistry are two areas of biology and chemistry where the study intersects. Understanding the relationships between the many systems of a cell, such as the interactions between DNA, RNA, and protein production, as well as discovering how these interactions are regulated, is the main focus of molecular biology. Genetics and biochemistry are two areas of molecular biology that are particularly interconnected. Understanding how different cellular systems interact in terms of how DNA, RNA, and protein production work is a major field of molecular biology. There is little separation between these fields because the specific methods employed in molecular biology are intrinsic to the area but can also be integrated with techniques and ideas from genetics and biochemistry [1].

When the two disciplines are analysed separately, biochemistry, however, focuses on chemical substances and critical processes that occur in living things. Biochemists place a lot of emphasis on the structure, function, and role of biomolecules as well as the chemistry behind biological processes and the synthesis of biomolecules. Genetics is concerned with how genes affect living things. These effects are frequently studied using "knock-out" research, in which animal models are created so that some of their genes are missing compared to a "wild type" or typical phenotype [2].

The field of molecular biology studies the molecular mechanisms behind cellular functions as replication, transcription, and translation. Understanding how genes are translated into RNA and then into proteins is one approach to summarise the fundamentals of molecular biology. However, in light of recent research on the functions of RNA, this condensed picture is currently being reexamined and amended [3].

## Description

The expression cloning method aids in the understanding of protein

**\*Address for Correspondence:** Lakshmi Bhai, Department of Pharmacy, Jawaharlal Nehru Technological University, Hyderabad, Telangana, India, E-mail: bhai\_lucky@gmail.com

**Copyright:** © 2022 Bhai L. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

**Received:** 05 November, 2022; **Manuscript No:** jmhmp-23-87340; **Editor assigned:** 07 November, 2022, **PreQC No:** P-87340; **Reviewed:** 19 November, 2022, **QC No:** Q-87340; **Revised:** 26 November, 2022, **Manuscript No:** R-87340; **Published:** 01 December, 2022, **DOI:** 10.37421/2684-494X.2022.7.55

function. Using PCR, the DNA that codes for a certain protein is copied or cloned into an expression vector known as a plasmid. Either a bacterial cell or an animal cell receives the plasmid. This plasmid contains promoter elements that can increase the expression of the required protein, allowing for the subsequent analysis of its enzymatic activity. Another vital method in molecular biology is gel electrophoresis, which uses an electric field to split DNA, RNA, and proteins into different sizes as they pass over an agarose gel [4].

Southern, northern, western, and eastern blotting are examples of macromolecule blotting and probing procedures that are used to deposit DNA or RNA proteins onto a blotting membrane (typically following gel electrophoresis) in order to be stained or radioactively labelled and subsequently observed. A collection of DNA spots put on a solid surface, such as a microscope slide, are called DNA microarrays or DNA chips. These devices can be used to simultaneously measure the levels of protein expression for many different genes. Additionally, the method can be used to genotype a variety of different genomic areas [5].

## Conclusion

The blood of a host animal drives the immunity and development of a parasite in the first interspecies signalling route between an arthropod parasite and host. The study demonstrated that a protein from the mouse immune system binds to receptors on tick cell surfaces when ticks feed on the blood of mice infected with the bacteria *Borrelia burgdorferi*, which causes Lyme disease. This protein signals organs to develop more quickly and triggers an immune response before the bacteria can start to infect the tick.

## Acknowledgement

None.

## Conflict of Interest

None.

## References

1. Mendell, Jerry R., Chris Shilling, Nancy D. Leslie, and Kevin M. Flanigan, et al. "Evidence-based path to newborn screening for Duchenne muscular dystrophy." *Ann Neurol* 71 (2012): 304-313.
2. Monaco, Anthony P., Corlee J. Bertelson, Sabina Liechti-Gallati, and Hans Moser, et

- al. "An explanation for the phenotypic differences between patients bearing partial deletions of the DMD locus." *Genom* 2 (1988): 90-95.
3. García-Rodríguez, Raquel, Monika Hiller, Laura Jiménez-Gracia, and Zarah van der Pal, et al. "Premature termination codons in the DMD gene cause reduced local mRNA synthesis." *Proceed Nat Acad Sci* 117 (2020): 16456-16464.
4. Aartsma-Rus, Annemieke, Judith CT Van Deutekom, Ivo F Fokkema, and Gert-Jan B Van Ommen, et al. "Entries in the Leiden Duchenne muscular dystrophy mutation database: an overview of mutation types and paradoxical cases that confirm the reading-frame rule." *Muscle and Nerve: Off J Amer Asst Electrodiagnost Med* 34 (2006): 135-144.
5. Mercuri, Eugenio, Carsten G. Bönnemann, and Francesco Muntoni. "Muscular dystrophies." *The Lancet* 394 (2019): 2025-2038.

**How to cite this article:** Bhai, Lakshmi. "New Techniques in Molecular Biology." *J Mol Hist Med Phys* 7 (2022): 55.