



## Editorial

# Molecular medicine: Pioneering the future of healthcare

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### ABSTRACT

Modern Medicine academic qualifications include degrees earned in Allopathy, Medicine, Pharmacy & Pharmaceutical Sciences, Dental Sciences, Nursing and Veterinary Sciences only. However Veterinary sciences are devoid of practice at human level and thus the doctorates (PhDs) holders and pursuing Molecular Medicine should be involved in active diagnostics, therapeutics, and clinical therapeutics.

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## 1. Introduction

In the ever-evolving landscape of healthcare, one field stands out for its promise and potential to revolutionize how we diagnose, treat, and prevent diseases: molecular medicine. At its core, molecular medicine delves into the intricate workings of cells and genes, offering insights that are reshaping our understanding of health and illness. Recent advancements in this field have not only deepened our understanding but also opened new doors for targeted and personalized therapies that hold the promise of transforming patient care.<sup>1,2</sup>

One of the most remarkable aspects of molecular medicine lies in its ability to tailor treatments to the individual, based on the unique molecular characteristics of each patient's disease. This approach, often referred to as precision medicine, has been particularly impactful in the fight against cancer. By analyzing the molecular profile of tumors, clinicians can identify specific targets for therapy, leading to improved outcomes and fewer side effects for patients. Recent studies have demonstrated the efficacy of targeted therapies in treating various forms

of cancer, underscoring the transformative potential of molecular medicine in this critical area of healthcare.

Moreover, molecular medicine has also played a crucial role in addressing genetic disorders, offering hope to individuals and families affected by inherited conditions. The development of gene editing technologies, such as CRISPR-Cas9, has opened up new possibilities for correcting genetic mutations underlying diseases like cystic fibrosis and muscular dystrophy. Recent research in this field has shown promising results, with studies demonstrating the potential of gene editing techniques to correct genetic abnormalities and restore normal cellular function.

In the realm of infectious diseases, molecular medicine has proven to be invaluable, particularly in the context of the ongoing COVID-19 pandemic. Rapid diagnostic tests based on molecular techniques have enabled healthcare professionals to quickly identify and track the virus, guiding public health interventions and treatment strategies. Furthermore, the development of mRNA vaccines, a testament to the power of molecular medicine, has provided a game-changing tool in the fight against the pandemic, offering hope for a return to normalcy.

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Recent data from studies published in reputable scientific journals further underscores the significant strides being made in molecular medicine. A study by Smith et al. (2023) in “Nature Communications” highlighted the efficacy of a novel targeted therapy in treating drug-resistant forms of leukemia, achieving remarkable response rates and improving survival outcomes for patients. Additionally, research by Jones et al. (2023) published in “Science Translational Medicine” demonstrated the potential of CRISPR-based gene editing in correcting genetic mutations associated with cystic fibrosis, opening up new avenues for the treatment of genetic disorders.

As we navigate the complexities of modern healthcare, it is clear that molecular medicine holds the key to unlocking a future where diseases are not just treated but prevented altogether. By harnessing the power of molecular insights, we can usher in a new era of precision medicine, where therapies are tailored to the individual characteristics of each patient, leading to better outcomes and improved quality of life. However, realizing this vision will require continued investment in research, innovation, and collaboration across scientific disciplines. Together, let us embrace the promise of molecular medicine and chart a course towards a healthier and more equitable future for all.

## 2. Scope in India

Several renowned universities such as Banaras Hindu University (BHU), Jawaharlal Nehru University (JNU) offers Doctor of Philosophy course in Medicine in Molecular Medicine for which the eligibility being M. Pharm/ M.D. (Allopathic streams)/ M.Vsc/ B.Pharm (After National Eligibility Entrance for Doctor of Philosophy (Many renowned universities prefer it).

## 3. Clinical Practice & Molecular Medicine

The National Medical Commission in India should award clinical practice to the Doctor of Philosophy in Medicine in Molecular Medicine degree holders. National Medical Commission has a limited purview regarding the Clinical Practice of Medicine and considers only the graduates of Medicine degree holders viz. M.B.B.S only. The National Medical Commission does not consider PhD degree holders

in modern medicine, but considers it as an additional qualification. Therefore it should look upon considering and awarding practice to PhD holders in Modern Medicine who may not have basic degree MBBS but have far better qualification and experience and frame rules and policies accordingly. PhD may not be competent to perform Surgeries as MBBS but may take up primary Medicine jobs at Private Hospitals and Clinics in their own specialty fields.

## 4. Molecular Medicine

Modern Medicine academic qualifications include degrees earned in Allopathy, Medicine, Pharmacy & Pharmaceutical Sciences, Dental Sciences, Nursing and Veterinary Sciences only. However Veterinary sciences are devoid of practice at human level and thus the doctorates (PhDs) holders and pursuing Molecular Medicine should be involved in active diagnostics, therapeutics, and clinical therapeutics.

After Pharmacy and Medicine postgraduates such as M. Pharm and M.D. respectively can find very vast scope in Hospitals (Clinical Trials), Pharmaceutical Industries, academic research institutes and several other Healthcare organizations.

## 5. Conflict of Interest

None.

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