



## Scope of Biomedical Science and Research Development

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### INTRODUCTION

The field of study known as biomedical science or biomedicine focuses on health-related applications of biology and chemistry. Life sciences, physiological sciences, and bioengineering are the three main areas of specialization in this broad field. The majority of careers in biomedical science are research and lab-based, with the goal of expanding our understanding of medicine. Even though the biomedical revolution has been extremely fruitful and has made significant advancements in the medical field, there is still room for improvement. Gene therapy, in which a defective gene is identified and a functional copy is introduced to treat the disease, is one area that is currently in development. This would be most useful for conditions with a single gene, like Duchene Muscular Dystrophy or cystic fibrosis. This treatment may be the key to curing many diseases that were previously incurable if it is successful.

### DESCRIPTION

Today, the study of disease pathology and treatment after the fact is the primary focus of biomedicine. Integrating predictive and preventative measures is a potential further development for biomedicine in the future. This would entail determining which people are most likely to be afflicted with a disease and devising strategies to avert its onset [1]. A novel molecular medicine-based approach could be revolutionary because current preventative healthcare primarily relies on lifestyle changes. There is a lot of career potential in the field of biomedical sciences, which is highly sought after. After completing their bachelor's degree in the field, students can use their skills and talents to help advance medicine or even lead it. Management, research, laboratory work, consulting, and education are all examples of careers in this field. Graduates in biomedical science have excellent career prospects in India and abroad [2]. In order to support these aspirants in their pursuit of science

that has the potential to improve the health care system, pharmaceutical companies, government organizations, forensics departments, veterinary laboratories, and a wide variety of other work options are made available to them. In conclusion, the medical field has transformed into an evidence-based system that is now effectively inseparable from scientific research [3]. Initially, the medical field was based on beliefs. It is almost certain that new technologies and methods will bring with them medical therapies and treatments that are more specialized, personalized, and hopefully effective than ever before. This is because many scientific fields are still rapidly developing. The foundation of modern laboratory diagnostics and health care is biomedicine [4].

### CONCLUSION

It involves numerous technological and scientific methods from *in vitro* diagnostics to *in vitro* fertilization, from the understanding of molecular interactions to the study of carcinogenesis, from a Single Nucleotide Polymorphism (SNP) to gene therapy, and from the molecular mechanisms of cystic fibrosis to the HIV virus's population dynamics. Based on molecular biology, biomedicine combines all aspects of developing molecular medicine into the large-scale structural and functional relationships of the human genome, transcriptase, proteome, physiome, and metabolite, specifically with the goal of developing new technologies for diagnosis, treatment, and prediction. Due to the breadth of this field, graduates have numerous opportunities to specialize early on in their education and numerous career options. It is a discipline that is very "real-world." With tangible results, biomedical scientists frequently make headlines for their innovations in their fields. You might 3D-print a heart, grow embryos for *in vitro* fertilization, or discover a novel cancer treatment as a biomedical scientist. The field of biomedicine is where biology, chemistry, and changing the world come

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together.

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## CONFLICT OF INTEREST

The author's declared that they have no conflict of interest.

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