

## **Biotechnology in Cancer Diagnostics and Therapy**

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### **Editorial**

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### **INTRODUCTION**

Cancer remains one of the leading causes of morbidity and mortality in India. Medical biotechnology has significantly contributed to cancer diagnostics and treatment, enabling earlier detection and targeted therapies [1].

#### **Diagnostic Innovations**

Molecular diagnostics such as PCR, next-generation sequencing (NGS), and liquid biopsies are increasingly used in India for detecting genetic mutations in cancers like breast, lung, and leukemia [2]. Immunohistochemistry and biomarkers further guide treatment choices.

#### **Therapeutic Advances**

Targeted therapies, including tyrosine kinase inhibitors and monoclonal antibodies, are revolutionizing cancer care. CAR-T cell therapy, though expensive, has shown remarkable outcomes in leukemia and lymphoma [3]. Biotechnology-based vaccines such as HPV vaccines are reducing cervical cancer burden in India [4].

### **CHALLENGES AND FUTURE**

High cost of therapies and limited access in rural India remain challenges. However, indigenous production of biosimilars and immunotherapies is making treatment more affordable [5]. Integration of AI and genomics promises personalized cancer care in the future.

### **CONCLUSION**

Biotechnology is reshaping cancer diagnosis and therapy in India. Expanding access to affordable technologies and therapies will be critical in reducing the cancer burden.

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