

India Oncology NGS Market By Technology (Whole Genome Sequencing, Whole Exome Sequencing, Targeted & Gene Panel Sequencing), By Application (Diagnostics and Screening, Companion Diagnostics, Other Diagnostics), By Region, Competition, Forecast & Opportunities, 2020-2030F

Market Report | 2024-09-06 | 87 pages | TechSci Research

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Report description:

India Oncology NGS Market was valued at USD 22.01 million in 2024 and is anticipated to reach USD 33.45 Million by 2030, with a CAGR of 7.89% during forecast period. The India Oncology NGS (Next-Generation Sequencing) Market is a rapidly evolving segment of the country's healthcare industry, marked by the intersection of cutting-edge genomic technologies and the critical need for advanced cancer diagnostics and treatments. This market encompasses the application of NGS techniques in the field of oncology, primarily for the profiling of cancer genomes, identifying mutations, and guiding personalized therapeutic interventions. In recent years, the India Oncology NGS Market has experienced significant growth due to several key factors. First and foremost, the rising incidence of cancer in India, attributed to various factors such as lifestyle changes, pollution, and an aging population, has created a pressing demand for more precise and efficient cancer diagnosis and treatment methods. Next-Generation Sequencing offers an unprecedented level of genomic insights, enabling oncologists to tailor treatment strategies based on an individual's genetic makeup.

Increased awareness of the potential benefits of NGS in oncology, coupled with government initiatives and healthcare investments, has fostered a favorable environment for market expansion. The emergence of private sector players, diagnostic laboratories, and collaborations between research institutions and pharmaceutical companies has driven technological advancements and the availability of NGS-based cancer diagnostic tests across the country.

The India Oncology NGS Market is characterized by a wide range of applications, including mutation profiling, liquid biopsy, and minimal residual disease monitoring, to name a few. As precision medicine gains momentum, NGS is playing a pivotal role in helping oncologists choose the most effective therapies for patients, reducing the trial-and-error approach often associated with cancer treatment.

Key Market Drivers

Rising Incidence of Cancer

The rising incidence of cancer in India is undeniably one of the primary drivers behind the booming India Oncology Next-Generation Sequencing (NGS) market. Over the past few decades, the country has witnessed a significant surge in cancer cases, creating an urgent need for advanced diagnostic and treatment strategies. Multiple factors contribute to this escalating cancer burden, including lifestyle changes, increased pollution levels, and an aging population.

According to the World Cancer Research Fund, India is projected to experience an annual increase of approximately 12% in cancer cases, and cancer is on track to become the leading cause of mortality in the country. These alarming statistics underline the pressing demand for more sophisticated and efficient tools to detect and combat cancer effectively.

NGS technology has emerged as a critical solution to address this challenge. By enabling comprehensive genomic profiling of cancer patients, NGS empowers healthcare providers to gain a deeper understanding of the genetic underpinnings of the disease. This not only allows for early and accurate cancer diagnosis but also facilitates the identification of specific genetic mutations and alterations within tumors.

The ability to personalize treatment approaches based on a patient's unique genetic profile is a game-changer in cancer care. This approach, known as precision medicine, helps oncologists select the most appropriate and targeted therapies, improving treatment efficacy and minimizing side effects. The rising incidence of cancer underscores the importance of implementing precision medicine, further driving the demand for NGS technologies in the Indian healthcare system.

Advancements in NGS Technology

Advancements in Next-Generation Sequencing (NGS) technology have been a pivotal driver in propelling the India Oncology NGS Market to new heights. These technological innovations have not only made NGS more accessible and cost-effective but have also significantly improved its accuracy, speed, and versatility, which are vital in the field of oncology.

One of the most notable advancements in NGS technology is the development of high-throughput sequencing platforms. These platforms can process a large volume of genetic data in a relatively short time, making it feasible to analyze numerous samples simultaneously. In the context of oncology, this means faster and more efficient genomic profiling of cancer patients, allowing healthcare providers to make timely decisions regarding diagnosis and treatment. The speed at which NGS can generate results is particularly critical in cancer cases, where timely intervention can be life-saving.

The advancements in NGS technology have led to cost reductions, making it more accessible to a broader segment of the Indian population. The decreasing cost of sequencing has made it economically viable for diagnostic laboratories, research institutions, and even smaller healthcare facilities to adopt NGS technology. This democratization of NGS has expanded its reach and led to a wider adoption in the field of oncology.

Another significant advancement is the development of user-friendly and streamlined NGS workflows. These innovations have simplified the process of genomic sequencing and data analysis, making it more accessible to laboratories with varying levels of expertise. With more intuitive software interfaces and reduced hands-on requirements, NGS has become a practical tool for a broader range of healthcare professionals. This has enabled the efficient integration of NGS into routine clinical practice, including oncology.

Moreover, the accuracy of NGS technology has improved significantly. Reduced error rates in sequencing and data analysis have enhanced the reliability of NGS results. In the context of oncology, where the identification of specific genetic mutations and alterations in tumors is crucial for personalized treatment, this heightened accuracy is a game-changer. Healthcare providers can now trust NGS results to guide them in selecting the most appropriate targeted therapies and treatment strategies for individual cancer patients.

Key Market Challenges

High Costs and Limited Accessibility

The India Oncology NGS (Next-Generation Sequencing) Market holds immense promise in revolutionizing cancer diagnosis and treatment. However, a significant hurdle that has impeded its widespread adoption is the high costs associated with NGS technology and the resulting limited accessibility. The expense of NGS-based services creates disparities in access to advanced cancer diagnostics and personalized treatments, affecting the equitable provision of healthcare services across the country.

NGS is a sophisticated and resource-intensive technology, involving expensive equipment, specialized laboratories, and skilled

personnel. While advancements have made NGS more cost-effective over the years, it still remains relatively expensive, particularly when compared to conventional diagnostic methods. As a result, many patients, especially those in underprivileged or rural areas, face financial barriers to accessing NGS-based cancer diagnostics and therapies.

The lack of accessibility is further exacerbated by the concentration of advanced healthcare facilities in urban and metropolitan areas. Many rural regions in India lack the necessary infrastructure and expertise to offer NGS services. This geographical disparity in healthcare access means that patients in remote areas often have limited or no access to NGS technology, despite the potential benefits it offers in terms of early and accurate cancer diagnosis and personalized treatment.

Insurance coverage in India presents another challenge. While a significant portion of the Indian population relies on public and private health insurance, many insurance providers do not include NGS-based tests and treatments in their coverage, or they may have limited reimbursement policies. This places a substantial financial burden on patients who are already grappling with the high costs of cancer care, which can be financially crippling for many families.

Lack of Standardization

The India Oncology NGS (Next-Generation Sequencing) Market has been marked by remarkable advancements in genomics and the promise of personalized cancer care. However, a significant obstacle that hinders the full realization of its potential is the lack of standardization. Without standardized protocols and guidelines for NGS in oncology, variability in methodologies and data analysis can lead to inconsistencies in results, affecting the reliability and comparability of NGS-based tests.

NGS technology encompasses a diverse array of platforms, reagents, and workflows, often tailored to specific laboratory settings and research purposes. This inherent flexibility is advantageous in many respects but also poses challenges, particularly in the context of clinical diagnostics. The lack of standardized procedures can result in variability in the quality and accuracy of NGS-based tests, making it challenging to ensure consistent and reproducible results across different laboratories and institutions. Standardization is crucial in oncology, where the stakes are high, and the accuracy of diagnostic and treatment decisions can have a profound impact on patient outcomes. Without standardized procedures, oncologists and other healthcare providers may face difficulties in interpreting NGS results and confidently basing treatment decisions on them. Inconsistent methodologies can lead to confusion and uncertainty in the clinical setting, reducing trust in NGS as a reliable tool in oncology.

Key Market Trends

Promising Clinical Trials and Drug Development

One of the most significant trends propelling the India Oncology NGS (Next-Generation Sequencing) Market is the promising landscape of clinical trials and drug development. NGS technology has become a driving force in these domains, contributing to the advancement of cancer research, the development of targeted therapies, and the expansion of clinical trials that offer new hope to cancer patients.

NGS technology's ability to identify specific genetic mutations and alterations within tumors has transformed the way clinical trials are conducted in the field of oncology. By precisely characterizing the genetic profiles of patients and their tumors, NGS allows researchers to select suitable patient populations for clinical trials, ensuring that the treatments are more likely to be effective. This targeted approach not only enhances the chances of success in clinical trials but also reduces the exposure of patients to potentially ineffective treatments, minimizing unnecessary side effects and costs.

Moreover, NGS enables the discovery of therapeutic targets and biomarkers, facilitating the development of highly specific and personalized cancer therapies. This trend has redefined drug development by shifting the focus from traditional one-size-fits-all treatments to precisely tailored approaches. In India, this transformation is particularly promising, as it means that cancer patients have access to treatments that are more effective and have fewer side effects.

As a result of these developments, the landscape of clinical trials in India has evolved significantly. More trials are now designed to target specific genetic alterations, allowing for the evaluation of novel therapeutic agents and regimens. The integration of NGS technology into clinical trial design and patient selection has expedited the development of breakthrough therapies that have the potential to revolutionize cancer care in the country.

Diverse Applications of NGS in Oncology

The diverse applications of Next-Generation Sequencing (NGS) technology in oncology have been instrumental in propelling the India Oncology NGS Market to new heights. NGS is not limited to a singular purpose; rather, it offers a versatile set of tools that can be applied in various facets of cancer diagnosis, treatment, and research, making it an invaluable asset in the fight against

cancer.

NGS's adaptability in oncology is evident through its multitude of applications, including mutation profiling, liquid biopsy, minimal residual disease monitoring, and the identification of therapeutic targets. Mutation profiling allows healthcare providers to comprehensively analyze the genetic alterations in a patient's tumor, helping them select the most suitable treatment options. This approach is particularly essential in the era of precision medicine, where therapies are tailored to the specific genetic makeup of the patient and their cancer.

Liquid biopsy is another groundbreaking application of NGS that allows for the non-invasive detection of cancer-related genetic alterations in blood or other bodily fluids. It enables early cancer detection, monitoring of disease progression, and the assessment of treatment response, all without the need for invasive procedures. This minimizes patient discomfort and contributes to early intervention.

NGS also plays a crucial role in minimal residual disease monitoring, allowing healthcare providers to detect and track the presence of residual cancer cells after treatment. This is vital in assessing the effectiveness of therapy, predicting relapses, and making informed decisions regarding ongoing treatment strategies.

Identifying therapeutic targets is yet another application where NGS shines. By analyzing the genetic profile of a patient's tumor, NGS can pinpoint specific genetic alterations that can be targeted with precision therapies, such as targeted inhibitors or immunotherapies. This application ensures that cancer patients receive the most effective and individualized treatments available.

Segmental Insights

Technology Insights

Based on the Technology, Whole Exome Sequencing (WES) emerged as the dominant segment in the market for India Oncology NGS Market in 2024. WES is highly relevant in the context of oncology. It captures the genetic alterations within the exons of the genes, where many cancer-related mutations are concentrated. This focused approach is particularly valuable in identifying actionable mutations and therapeutic targets specific to cancer, making it the preferred choice for cancer genomic profiling. Whole Genome Sequencing (WGS) offers a complete genomic analysis, including both coding and non-coding regions, but it is substantially more expensive and generates a vast amount of data. In contrast, WES provides a cost-effective alternative, concentrating on the most biologically relevant portions of the genome. This cost-efficiency makes it a practical choice for widespread adoption in the India Oncology NGS Market, where cost considerations are significant.

Regional Insights

North region emerged as the dominated in the India Oncology NGS Market in 2024, holding the largest market share. The northern region of India, which includes major cities like Delhi, NCR (National Capital Region), and Chandigarh, boasts advanced healthcare infrastructure and facilities. The northern region is renowned for hosting some of India's most prestigious healthcare institutions, including All India Institute of Medical Sciences (AIIMS) in Delhi and Post Graduate Institute of Medical Education and Research (PGIMER) in Chandigarh. These institutions are at the forefront of research and clinical practice in oncology, and they have played a pivotal role in driving the adoption of NGS for cancer diagnosis and personalized treatment.

Key Market Players

- Illumina, Inc
- Genotypic Technology Pvt Ltd
- Tecan Trading AG
- Xcelris Genomics
- Eurofins Scientific Inc.
- Sayre Therapeutics
- Redcliffe Lifesciences
- Partek Inc.
- Bio-Rad Laboratories, Inc.
- Myriad Genetics

Report Scope:

In this report, the India Oncology NGS Market has been segmented into the following categories, in addition to the industry trends

which have also been detailed below:

□ India Oncology NGS Market, By Technology:

- o Whole Genome Sequencing
- o Whole Exome Sequencing
- o Targeted & Gene Panel Sequencing

□ India Oncology NGS Market, By Application:

- o Diagnostics and Screening
- o Companion Diagnostics
- o Other Diagnostics

□ India Oncology NGS Market, By Region:

- o North
- o East
- o West
- o South

Competitive Landscape

Company Profiles: Detailed analysis of the major companies presents in the India Oncology NGS Market.

Available Customizations:

India Oncology NGS Market report with the given market data, TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

□ Detailed analysis and profiling of additional market players (up to five).

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