

## **Dna Sequencing Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)**

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### **Report description:**

The DNA sequencing market was valued at approximately USD 10,409.54 million in 2021, and it is expected to reach USD 23,885.65 million by 2027, registering a CAGR of 18.61% during the forecast period (2022-2027).

The COVID-19 pandemic had a positive impact on the market studied, as it increased the demand for DNA sequencing technology in the development of therapeutics and diagnostics. For instance, in August 2020, the Helix COVID-19 NGS test was authorized by FDA under an Emergency Use Authorization (EUA) for use only by Helix Laboratory; it is an amplicon-based next-generation sequencing (NGS) test intended for the qualitative detection of nucleic acid from the SARS-CoV-2 in upper respiratory specimens from individuals suspected of COVID-19 infection. Hence, owing to the increasing DNA sequencing-based research and development activities in the development of diagnostic tools or effective therapeutics for COVID-19, the market is likely to continue its significant growth rate during the forecast period.

Certain factors driving the market growth include the rise in technological advancements in DNA sequencing, increasing application in clinical diagnosis and drug discovery, and growing investments in R&D. DNA sequencing has its applications in diagnostics, personalized medicine, biomarkers, forensics, reproductive health, and other applications. ] DNA sequencing technology holds great potential in the clinical research and development of cancer diagnostics and therapeutics. Recently, the next-generation sequencing (NGS) technology has demonstrated its capacity as a high-throughput and affordable approach to the identification and characterization of clinically actionable genetic variants across numerous genes at an exceptional speed in a single test. According to a research article by Hong-Yan Liu et al., published in the Scientific Reports Journal 2019, it has been estimated that 80% of rare diseases are genetic in origin, and thus, genome sequencing-based diagnosis offers a promising alternative for rare-disease management, which is expected to have a positive impact on the market. Therefore, the increasing application of DNA sequencing in clinical diagnosis and drug discovery is expected to drive the market growth over the forecast

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period.

The technological advancements in sequencing, from 2D sequencing in the 1970s to DNA sequencing, have come a long way. In recent years, platforms such as Illumina/ Solexa, ABI/ SOLiD, 454/Roche, and Helicos have provided unique prospects for high-throughput functional genomic research. Moreover, biologists and informatics experts have been focusing on the development of better genomes, one made possible by newer sequencing technologies, novel methods for locating sequences on chromosomes, and improved software for DNA sequencing.

In addition, the next-generation sequencing (NGS) technology has been gaining popularity as a routine clinical diagnostic test, particularly with the COVID-19 pandemic, which has had a positive impact on the market. Thus, the increasing advancements in DNA sequencing technologies are contributing to the growth of the market studied.

#### DNA Sequencing Market Trends

##### The Next-generation Sequencing Segment is Expected to Dominate the Market During the Forecasted Period

The next-generation sequencing segment is being driven by factors such as the increasing applications of NGS, speed, cost, accuracy, efficient replacement of traditional technologies, and drug discovery applications demanding NGS technology. The advantage of this technology is that it is significantly cheaper, quicker, and needs significantly lesser DNA, which helps in the overall growth of the segment.

With the COVID-19 pandemic, there has been an increase in the adoption of next-generation sequencing technology in the diagnostics of infections, owing to its high efficiency and accuracy. In June 2020, the FDA issued an emergency use authorization to Illumina Inc. for the product COVIDSeq Test, the first COVID-19 diagnostic test utilizing next-generation sequencing technology. The advantage of using a next-generation sequencing test is that it can generate information about the genomic sequence of the virus present in a sample along with detecting the presence of the virus in the sample. This genomic information can be used for research purposes, thus supporting the growth of the market.

There are various technological advancements in the field of medicine that are growing at a rapid pace and have led to the development of personalized medicine. There are a huge number of applications of next-generation sequencing in personalized medicine. In May 2020, the Swedish biotechnology company CARTANA launched an expanded range of In Situ Sequencing kits for high throughput single-cell gene expression mapping. In October 2020, Bio-Rad Laboratories Inc. announced the launch of the SEQuoia Complete Stranded RNA Library Prep Kit, a novel approach to RNA-Seq library preparation. Thus, the development of personalized medicine has opened many avenues for the application of NGS, which could accelerate the growth of the segment.

Along with the advantages of and increasing demand for this technology, the launches and advancements are huge boosters to the segment growth. For instance, Thermo Fisher Scientific launched its Ion Torrent Genexus System in November 2019, the first fully integrated, next-generation sequencing (NGS) platform featuring an automated specimen-to-report workflow that delivers results economically in a single day. Hence, owing to the above-mentioned factors, the segment is expected to grow during the forecast period.

##### North America Dominates the Market, and It is Expected to do the Same During the Forecast Period

North America dominated the market due to the increase in funding and support activities by the government and non-government entities, especially in the United States. The increasing adoption of advanced technologies and favorable support from the government and related policies are the primary driving factors for DNA sequencing in the country.

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With the rising COVID-19 pandemic, there has been a positive impact on the market growth. For instance, in April 2020, Genome Canada launched the Canadian COVID Genomics Network (CanCOGeN), a newly formed initiative backed by funding of USD 40 million. Led by Genome Canada, in partnership with the six regional Genome Centers, national and provincial public health labs, genome sequencing centers through CGEn, hospitals, universities, and the private sector, CanCOGeN will scale up genomics-based COVID-19 research in Canada.

There are also various government bodies, like the US-based National Human Genome Research Institute (NHGRI), that have been supporting research related to human genome sequencing while funding research related to the genome's structure, function, and role in health and disease. Moreover, these organizations support studies on the ethical, legal, and social implications of genome research.

In December 2020, Illumina Inc. and Harvard Pilgrim Health Care announced a risk-sharing agreement to make whole-genome sequencing (WGS) available to certain Harvard Pilgrim members, effective January 2021. The program will leverage WGS to support faster diagnoses of genetic diseases in children, potentially eliminating the long, costly diagnostic process experienced by many families, with the goal of improving patient outcomes. In February 2020, MGI, part of the global genomics leader BGI Group, announced the commercial availability of its sequencing instruments and reagent kits in the United States.

In November 2019, Thermo Fisher Scientific announced the launch of its Ion Torrent Genexus System, which is the first fully integrated, next-generation sequencing (NGS) platform featuring an automated specimen-to-report workflow that delivers results economically in a single day. Hence, owing to these factors, the DNA sequencing market is expected to be one of the largest in the future.

#### DNA Sequencing Market Competitor Analysis

The DNA sequencing market is highly competitive and consists of a few major players. Companies like Agilent Technologies Inc., Bio-Rad Laboratories Inc., Danaher Corporation, Eurofins Scientific, F. Hoffmann-La Roche, Illumina Inc., Merck KGaA, Pacific Biosciences of California Inc., PerkinElmer Inc., and Thermo Fisher Scientific Inc., among others, hold substantial shares in the DNA sequencing market. These companies are making efforts to address the rising consumer demand and are significantly investing in production, distribution, and total quality management for the expansion of their portfolios.

#### Additional Benefits:

- The market estimate (ME) sheet in Excel format
- 3 months of analyst support

#### **Table of Contents:**

##### 1 INTRODUCTION

###### 1.1 Study Deliverables

###### 1.2 Study Assumptions

###### 1.3 Scope of the Study

##### 2 RESEARCH METHODOLOGY

##### 3 EXECUTIVE SUMMARY

##### 4 MARKET DYNAMICS

###### 4.1 Market Overview

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- 4.2 Market Drivers
  - 4.2.1 Rise in Technological Advancements in DNA Sequencing
  - 4.2.2 Increasing Application in Clinical Diagnosis and Drug Discovery
  - 4.2.3 Growing Investments in R&D
- 4.3 Market Restraints
  - 4.3.1 Interpretation of Complex Data and Lack of Skilled Professionals
  - 4.3.2 Legal and Ethical Issues
- 4.4 Porter's Five Forces Analysis
  - 4.4.1 Threat of New Entrants
  - 4.4.2 Bargaining Power of Buyers/Consumers
  - 4.4.3 Bargaining Power of Suppliers
  - 4.4.4 Threat of Substitute Products
  - 4.4.5 Intensity of Competitive Rivalry

## 5 MARKET SEGMENTATION (Market Size by Value - USD million)

- 5.1 Product Type
  - 5.1.1 Instruments
  - 5.1.2 Consumables (Kits and Reagents)
  - 5.1.3 Other Product Types
- 5.2 Sequencing Type
  - 5.2.1 Sanger Sequencing
  - 5.2.2 Next-generation Sequencing
  - 5.2.3 Other Sequencing Types
- 5.3 Application
  - 5.3.1 Diagnostics
  - 5.3.2 Personalized Medicine
  - 5.3.3 Other Applications
- 5.4 End User
  - 5.4.1 Hospitals and Healthcare Organizations
  - 5.4.2 Academics and Research Institutions
  - 5.4.3 Pharmaceutical and Biotechnology Companies
  - 5.4.4 Other End Users
- 5.5 Geography
  - 5.5.1 North America
    - 5.5.1.1 United States
    - 5.5.1.2 Canada
    - 5.5.1.3 Mexico
  - 5.5.2 Europe
    - 5.5.2.1 Germany
    - 5.5.2.2 United Kingdom
    - 5.5.2.3 France
    - 5.5.2.4 Italy
    - 5.5.2.5 Spain
    - 5.5.2.6 Rest of Europe
  - 5.5.3 Asia-Pacific
    - 5.5.3.1 China
    - 5.5.3.2 Japan

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- 5.5.3.3 India
- 5.5.3.4 Australia
- 5.5.3.5 South Korea
- 5.5.3.6 Rest of Asia-Pacific
- 5.5.4 Middle-East
  - 5.5.4.1 GCC
  - 5.5.4.2 South Africa
  - 5.5.4.3 Rest of Middle-East
- 5.5.5 South America
  - 5.5.5.1 Brazil
  - 5.5.5.2 Argentina
  - 5.5.5.3 Rest of South America

## 6 COMPETITIVE LANDSCAPE

- 6.1 Company Profiles
  - 6.1.1 Agilent Technologies Inc.
  - 6.1.2 Bio-Rad Laboratories Inc.
  - 6.1.3 Danaher Corporation (Integrated DNA Technologies Inc.)
  - 6.1.4 F. Hoffmann-La Roche Ltd
  - 6.1.5 Illumina Inc.
  - 6.1.6 Merck KGaA
  - 6.1.7 PerkinElmer Inc.
  - 6.1.8 Thermo Fisher Scientific Inc.
  - 6.1.9 QIAGEN
  - 6.1.10 Macrogen Inc.
  - 6.1.11 Myriad Genetics Inc.
  - 6.1.12 Intrexon Bioinformatics Germany GmbH
  - 6.1.13 Eurofins Scientific
  - 6.1.14 Hamilton Thorne Biosciences
  - 6.1.15 Pacific Biosciences of California Inc.

## 7 MARKET OPPORTUNITIES AND FUTURE TRENDS

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