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Synthetic Genomics Market Forecasts to 2034 – Global Analysis By Product (Adapters, DNA Template, Klenow Fragment, Modifying Enzymes, Primers and Other Products), Application, End User and By Geography

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Abstracts

According to Stratistics MRC, the Global Synthetic Genomics Market is accounted for $45.6 billion in 2026 and is expected to reach $135.7billion by 2034 growing at a CAGR of 14.6% during the forecast period. The rapidly growing field of synthetic biology, which involves the production and manipulation of genetic material, is included in the Synthetic Genomics Market. It involves the creation, building, and refinement of synthetic DNA sequences for a variety of applications, including the creation of genetically modified creatures, artificial cells, and tailored genetic circuits. Synthetic genomics is essential to drug development, gene therapy, and customized medicine in the field of medicine. It aids in the creation of genetically engineered crops with enhanced attributes in agriculture.

According to a data published by the World Economic Forum in September 2021, the advancements in the synthetic biology have a vast potential to manage the pandemic for the development of mRNA vaccine against virus.

Market Dynamics:

Driver:

Growing investments in research and development activities

As synthetic genomics develops rapidly, additional funding for research and

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development is needed to promote innovation and new technologies. These investments fund the examination of cutting-edge methods for DNA synthesis, gene editing, and other genetic material manipulation. Additionally, growing financial support for research initiatives is a result of both the public and private sectors recognizing the enormous potential of synthetic genomes in healthcare, agriculture, and industrial applications.

Restraint:

High costs of research and development

Due to the complexity of genetic engineering and the requirement for cutting-edge technologies, smaller businesses and research institutions consider it difficult to enter the market. Significant money is needed to create advanced gene editing tools, DNA synthesis techniques, and other critical technologies, which prevents numerous individuals from working in this field. However, companies' capacity to explore and innovate in synthetic genomics may be constrained by the significant initial investment and ongoing research and development costs.

Opportunity:

Rising demand for synthetic biology solutions

Synthetic genomics, a fundamental aspect of synthetic biology, contributes to the growing demand for innovative and adaptable biological solutions in a range of sectors. Customized biological systems are becoming more and more in demand as companies and educational institutions realize the enormous promise synthetic genomics has for creating and modifying genetic material. Applications for this demand are wide-ranging and include industrial biotechnology, healthcare, and agriculture. Moreover, with the use of synthetic genomics, biological organisms can be designed to do specific duties, such as creating bio-based materials for industrial processes, genetically modified crops with improved features, and medicinal treatments.

Threat:

Security and biosecurity concerns

Fears regarding the exploitation of synthetic genomics for malevolent terminates are triggered by the manipulation of genetic material and the potential production of

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synthetic creatures. To mitigate these worries, governments and regulatory agencies must impose stringent laws that prohibit illegal access to genetic technologies. Effective safety precautions are necessary due to the possibility of creating genetically modified organisms with malicious intent, such as bioweapons. However, companies in the synthetic genome market find it difficult to manage compliance requirements as a result of these worries, which also slow down the regulatory approval process and raise scrutiny.

Covid-19 Impact:

The relevance of cutting-edge genetic technologies for vaccine development, diagnostics, and treatment alternatives has been demonstrated by the global health crisis. The rapid development of mRNA vaccinations was made possible by synthetic genomics, demonstrating the technology's capacity to adapt rapidly to new infections. The pandemic managed to indirectly affect the market's growth trajectory by delaying research initiatives, reversing supply chains, and directing resources to urgent healthcare requirements. Funding limitations and economic uncertainty had an impact on the industry's smaller participants.

The DNA template segment is expected to be the largest during the forecast period

Due to its crucial significance in the accurate and effective synthesis of genetic material, the DNA template segment held the largest share in the synthetic genomics market. Researchers and biotechnologists can design and manufacture customized DNA sequences with previously unattainable speed and accuracy because of advancements in DNA synthesis technology, including automated DNA synthesis platforms and innovative approaches. Furthermore, the growing need for synthetic biology solutions for a variety of applications, such as gene therapy, drug discovery, and the generation of genetically modified livestock, is the factor that is causing this rise in the DNA template sector.

The organ transplantation segment is expected to have the highest CAGR during the forecast period

Because organ transplantation has a transformative effect on addressing the challenges associated with organ shortages, the segment is expected to grow profitably during the projected period. To address the issues associated with organ rejection and scarcity, synthetic genomics has emerged as a potentially efficient way of producing organs and tissues with improved compatibility. Additionally, the capacity to precisely modify organs

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genetically offers the possibility of customizing grafts for particular patients, reducing immunological reactions, and raising transplant success rates.

Region with largest share:

Over the course of the projected period, the Asia Pacific region had the largest share of the market due to the region's economies experiencing rapid industrialization and technological improvement, as well as the increasing awareness of the revolutionary potential of synthetic genomics across numerous sectors. Significant R&D investments have been made by nations like China, Japan, and India, creating an optimal environment for the development of synthetic genomics. Cutting-edge initiatives are being actively promoted by academic institutions, research organizations, and biotech corporations, which promote innovation and the creation of new applications.

Region with highest CAGR:

With an increasing focus on precision medicine and tailored healthcare, the Asia-Pacific area is experiencing profitable growth as a result of an increase in healthcare-related projects. Because it renders it feasible to customize genetic interventions, gene therapies, and diagnostic tools, synthetic genomics is essential to these initiatives. The use of synthetic genomics technology is being propelled by its potential to address regional health concerns and offer customized medicinal therapies. Moreover, governments in nations like Singapore and China are actively supporting efforts in the domains of synthetic biology and biotechnology, offering resources and infrastructure to support the advancement of these fields' research and development.

Key players in the market

Some of the key players in Synthetic Genomics market include Biocompare Inc , Boster Biological Technology, Eurofins Genomics, Genewiz, GenScript, Integrated DNA Technologies Inc, Synthetic Genomics Inc, Thermo Fisher Scientific Inc and Twist Bioscience .

Key Developments:

In October 2023, Global genomics solutions provider Integrated DNA Technologies (IDT), an operating company in the Life Sciences segment of Danaher Corporation announced the completion of its new Therapeutic Oligonucleotide Manufacturing facility in Coralville, Iowa. The milestone marks a significant achievement in the company’s

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35-year-history—its entrance into the therapeutics space—and enables IDT to manufacture products for research use through to current good manufacturing practice (cGMP) grade cell and gene therapy reagents to provide researchers with a single partner that can help them rapidly transition from the lab to therapeutic development.

In February 2023, Ultima Genomics, Inc., a developer of a revolutionary new ultra-high throughput sequencing architecture, announced a strategic collaboration with global genomics solutions provider Integrated DNA Technologies (IDT) to enable key next generation sequencing (NGS) applications on Ultima platforms.

In February 2023, Twist Bioscience announces technology early access of enhanced whole genome sequencing solution at AGBT. eWGS is a novel solution that enables researchers to obtain simultaneous low-pass whole genome data together with deep coverage of selected regions, in a high-throughput and cost-effective workflow.

Products Covered:

- Adapters
- DNA Template
- Klenow Fragment
- Modifying Enzymes
- Primers
- Other Products

Applications Covered:

- Bacterial Resistance
- DNA Printing
- Innovative Vaccines & Therapeutics
- Nutritional Proteins & Oils

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- Organ Transplantation
- Other Applications

End Users Covered:

- Academic Institutions
- Biotechnology Companies
- Contract Research Organizations
- Government Laboratories
- Pharmaceutical companies
- Other End Users

Regions Covered:

- North America
  - US
  - Canada
  - Mexico
- Europe
  - Germany
  - UK
  - Italy

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- France
- Spain
- Rest of Europe

Asia Pacific

- Japan
- China
- India
- Australia
- New Zealand
- South Korea
- Rest of Asia Pacific

South America

- Argentina
- Brazil
- Chile
- Rest of South America

Middle East & Africa

- Saudi Arabia
- UAE
- Qatar

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South Africa

Rest of Middle East & Africa

What our report offers:

Market share assessments for the regional and country-level segments

Strategic recommendations for the new entrants

Covers Market data for the years 2023, 2024, 2025, 2026, 2027, 2028, 2030, 2032 and 2034

Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)

Strategic recommendations in key business segments based on the market estimations

Competitive landscaping mapping the key common trends

Company profiling with detailed strategies, financials, and recent developments

Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

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Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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