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miRNA Sequencing and Assay Market Forecasts to 2030 – Global Analysis By Product Type (miRNA Analysis Software, miRNA Sequencing Services and Other Product Types), miRNA Type, Sample Type, Technology, Application, End User and By Geography

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Abstracts

According to Stratistics MRC, the Global miRNA Sequencing and Assay Market is accounted for $397.5 million in 2024 and is expected to reach $886.4 million by 2030 growing at a CAGR of 14.3% during the forecast period. miRNA sequencing is a high-throughput technique used to analyze microRNA (miRNA) expression profiles in a biological sample. It involves isolating and sequencing small RNA molecules to identify and quantify miRNAs, providing insights into gene regulation and cellular processes. miRNA assays are experimental methods to measure the abundance or activity of miRNAs, often using technologies like qRT-PCR, microarrays, or next-generation sequencing. These tools help in understanding the role of miRNAs in diseases, development, and cellular responses.

According to an article published in the National Center for Biotechnology Information (NCBI), in July 2021, early-stage diagnosis of COVID-19 may be identified with 99.9% accuracy by measuring miRNA (miR-195-5p, miR-23a-3p, and miR-423-5p).

Market Dynamics:

Driver:

Growing demand for personalized medicine

The growing demand for personalized medicine is driving the market, as miRNAs play a

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crucial role in gene regulation and disease mechanisms. By providing insights into individual genetic profiles, miRNA analysis enables targeted therapies and precision treatments. This shift towards personalized medicine fosters advancements in diagnostics, drug development, and patient-specific care, increasing the adoption of miRNA sequencing technologies for tailored healthcare solutions.

Restraint:

Complex data analysis

Complex data analysis in the market poses challenges such as high computational costs, the need for advanced bioinformatics expertise, and potential errors in data interpretation. These complexities can lead to inconsistencies, reduced reproducibility, and difficulties in extracting meaningful biological insights. As a result, it can slow down the adoption of miRNA-based diagnostics and therapies, hindering progress in personalized medicine and clinical applications.

Opportunity:

Increasing prevalence of chronic diseases

The increasing prevalence of chronic diseases is fueling the market, as miRNAs are involved in the regulation of various pathways associated with diseases like cancer, diabetes, and cardiovascular conditions. miRNA analysis helps in early diagnosis, monitoring disease progression, and developing personalized treatment plans. This rising demand for precise diagnostics and therapeutic strategies is driving the growth of miRNA sequencing technologies in chronic disease management and research.

Threat:

High cost of sequencing and analysis

The high cost of sequencing and analysis in the market limits accessibility, especially for smaller research labs and healthcare settings. This financial barrier hinders widespread adoption and implementation of miRNA-based diagnostics and therapies. Additionally, the expense can slow down the pace of research and innovation, delaying potential breakthroughs in personalized medicine and reducing opportunities for improving patient outcomes across various diseases.

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Covid-19 Impact:

The COVID-19 pandemic disrupted the market by delaying research projects, limiting laboratory access, and diverting resources toward immediate pandemic-related needs. This caused setbacks in ongoing studies and hindered the development of miRNA-based diagnostics and treatments. However, the pandemic also highlighted the importance of rapid, precise diagnostics, accelerating interest in miRNA technologies for viral infection detection and personalized therapeutic approaches in future global health crises.

The autoimmune disease segment is expected to be the largest during the forecast period

The autoimmune disease segment is expected to account for the largest market share during the forecast period. miRNAs are being studied as potential biomarkers for autoimmune disorders like lupus, and multiple sclerosis. miRNA profiling aids in understanding disease mechanisms, identifying therapeutic targets, and developing early diagnostic tools. As research advances, miRNA-based assays are expected to play a key role in the personalized treatment of autoimmune diseases, enhancing diagnostic accuracy and therapeutic efficacy.

The pharmaceutical and biotechnology companies segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the pharmaceutical and biotechnology companies segment is predicted to witness the highest growth rate. miRNAs play a crucial role in gene regulation, and their expression profiles can reveal insights into various diseases, including cancer and neurological disorders. Advances in sequencing technologies enable high-throughput analysis of miRNA expression, offering potential for novel therapeutic approaches and improving patient-specific treatment strategies in the pharmaceutical market.

Region with largest share:

During the forecast period, the North America region is expected to hold the largest market share driven by advanced healthcare infrastructureand a strong focus on personalized medicine. The region benefits from widespread adoption of miRNA technologies in both academic and clinical settings, with ongoing advancements in cancer research, infectious diseases, and genetic disorders. Government funding, along

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with collaborations between biotech companies and research institutions, further supports the market's expansion.

Region with highest CAGR:

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR. There is a growing investment in miRNA-based research, particularly in understanding their role in gene regulation, disease mechanisms, and therapeutic applications. Additionally, The shift toward personalized and precision medicine is boosting the demand for miRNA sequencing, as miRNAs can offer valuable insights into individual genetic profiles and disease susceptibility.

Key players in the market

Some of the key players in miRNA Sequencing and Assay market include Illumina, Inc., Thermo Fisher Scientific, Inc., Qiagen N.V., Agilent Technologies, Inc., Macrogen, Inc., Bio-Rad Laboratories, Inc., Takara Bio, Inc., Exiqon A/S, Zymo Research Corporation, New England Biolabs, Inc., Roche Diagnostics, Promega Corporation, Luminex Corporation, Boster Biological Technology, and Bioo Scientific.

Key Developments:

In November 2024, QIAGEN announced the launch of two new tools for designing and ordering custom solutions that can be used to support microbial analysis of bacterial, fungal and viral targets. hese new tools enable researchers to customize their assays and panels for use on the QIAcuity digital PCR system as well as on any third-party next-generation sequencing (NGS) system.

In September 2024, QIAGEN announced an important milestone with the launch of 100 new assays for its digital PCR (dPCR) platform QIAcuity for use in the study of cancer, inherited genetic disorders, infectious disease surveillance, and food and environmental monitoring.

Product Types Covered:

- miRNA Analysis Software
- miRNA Sequencing Services

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Other Product Types

miRNA Types Covered:

Conserved miRNAs

Non-Conserved miRNAs

OncomiRs

Developmental miRNAs

Sample Types Covered:

Blood/Serum/Plasma

Tissue Samples

Urine and Saliva

Cell Lines

Technologies Covered:

Sequencing

Nanopore Sequencing

Sanger Sequencing.

Single Molecule Real-time (SMRT) Sequencing

Applications Covered:

Cancer

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- Polyglutamine Diseases
- Cardiovascular Diseases
- Schizophrenia
- Autoimmune Disease
- Infectious Diseases
- Neurological Disorders
- Other Applications

End Users Covered:

- Academic and Research Institutes
- Pharmaceutical and Biotechnology Companies
- Hospitals and Diagnostic Laboratories
- Contract Research Organizations (CROs)
- Other End Users

Regions Covered:

- North America
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  - Canada
  - Mexico

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- Europe
  - Germany
  - UK
  - Italy
  - 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

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- Middle East & Africa
  - Saudi Arabia
  - UAE
  - Qatar
  - 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 2022, 2023, 2024, 2026, and 2030
- 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)
- Regional Segmentation

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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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Note: Tables for North America, Europe, APAC, South America, and Middle East & Africa Regions are also represented in the same manner as above.

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