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PARP Inhibitor Biomarkers Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Product (Kits, Assays), By Services (BRCA 1 & 2 Testing, HRD Testing, HRR Testing, Others), By Application (Breast Cancer, Ovarian Cancer, Others), By Region & Competition, 2021-2031F

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Abstracts

The Global PARP Inhibitor Biomarkers Market is projected to expand from USD 942.14 Million in 2025 to USD 1563.61 Million by 2031, achieving a CAGR of 8.81%. These biomarkers, which encompass specific molecular indicators like BRCA mutations and homologous recombination deficiency status, are essential for identifying cancer patients who are likely to respond to poly (ADP-ribose) polymerase inhibitor treatments. The market's growth is primarily fueled by the advancing paradigm of precision medicine and the increasing number of regulatory approvals for companion diagnostics utilized in ovarian, breast, and prostate cancer care. This demand is further bolstered by the rising prevalence of these malignancies, which mandates rigorous diagnostic screening for effective treatment planning; for instance, the American Cancer Society expects approximately 313,780 new prostate cancer cases to be diagnosed in the United States in 2025, underscoring the significant need for accurate biomarker assessment to ensure optimal therapeutic management.

Despite this robust growth trajectory, the market encounters significant challenges stemming from the high costs and complex reimbursement structures associated with comprehensive genomic profiling. Inconsistent insurance coverage policies and varied regulatory requirements across different global healthcare systems can severely restrict patient access to necessary companion diagnostics. These economic and

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administrative hurdles have the potential to hinder the broader clinical adoption of biomarker testing and constrain the overall expansion of the sector, particularly in markets that are highly sensitive to price.

Market Driver

The increasing global prevalence of BRCA-associated cancers serves as a fundamental driver for the biomarker market, creating an urgent need for robust diagnostic screening to identify patients eligible for PARP inhibitor therapy. As the incidence of malignancies such as breast, ovarian, and pancreatic cancers continues to rise, the clinical imperative to detect germline and somatic mutations has intensified. This growing patient volume correlates directly with the utilization of companion diagnostics, as the identification of BRCA1/2 mutations is frequently a regulatory prerequisite for prescribing targeted therapies. According to the American Cancer Society's 'Cancer Facts & Figures 2024' report from January 2024, an estimated 310,720 new cases of invasive breast cancer were projected to be diagnosed in women in the United States, establishing a substantial baseline of patients requiring genomic evaluation for effective treatment planning.

Concurrently, the market is being accelerated by the growing clinical demand for Homologous Recombination Deficiency (HRD) stratification and comprehensive genomic profiling. Clinicians are increasingly transitioning from single-gene testing to broader panels that capture a wider array of genomic instability markers, a shift supported by advancements in Next-Generation Sequencing (NGS) technologies. This trend toward more extensive molecular characterization is evidenced by the rapid uptake of diagnostic services within the precision oncology sector. For instance, Myriad Genetics reported in February 2024 that its full-year testing volume grew by 35% year-over-year, highlighting the surge in diagnostic adoption. This strong demand is further illustrated by Guardant Health, which reported in February 2024 that it provided 172,900 tests to clinical customers in 2023, representing a 39% increase compared to the prior year.

Market Challenge

The substantial cost and reimbursement complexities linked to comprehensive genomic profiling present a formidable barrier to the growth of the Global PARP Inhibitor Biomarkers Market. These financial obstacles directly impede the widespread adoption of companion diagnostics, which are strictly required for prescribing PARP inhibitor therapies. When insurance policies deny coverage or impose significant out-of-pocket

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expenses, the clinical uptake of these critical tests often stagnates. Consequently, the pool of patients eligible for targeted therapies remains under-identified, which effectively limits the revenue potential for both diagnostic developers and pharmaceutical companies.

Furthermore, administrative inconsistencies across various healthcare systems exacerbate this challenge, preventing the sector from achieving its full potential in price-sensitive regions. This situation creates a disconnect between regulatory approval and actual patient access, as economic friction discourages healthcare providers from ordering necessary screens. According to a 2025 study highlighted by the American Society of Clinical Oncology, the molecular testing rate for advanced cancers remained at a suboptimal 35%, underscoring the persistent gap between clinical guidelines and actual utilization due to access barriers. Without consistent reimbursement pathways, the market struggles to convert the rising prevalence of malignancies into sustained economic expansion.

Market Trends

The market is currently experiencing a significant shift toward the use of liquid biopsy for non-invasive biomarker profiling and longitudinal monitoring. Clinicians are increasingly adopting circulating tumor DNA (ctDNA) analysis to address the limitations of tissue-based sampling, such as tumor heterogeneity and the invasive nature of repeat biopsies. This method facilitates real-time tracking of Minimal Residual Disease (MRD) and the early detection of resistance mechanisms, both of which are critical for optimizing PARP inhibitor regimens. The rapid adoption of these blood-based diagnostics is reflected in industrial performance metrics; according to Natera's February 2025 financial results, the company processed approximately 528,200 oncology tests in 2024, a substantial 54.9% increase compared to the prior year, underscoring the surging demand for non-invasive molecular monitoring.

Simultaneously, the integration of artificial intelligence is revolutionizing genomic variant interpretation to manage the complexity of large-scale sequencing data. As diagnostic panels expand to include comprehensive homologous recombination repair (HRR) genes, laboratories face a bottleneck in classifying Variants of Uncertain Significance (VUS). AI-driven platforms are now being deployed to automate variant curation, improve classification accuracy, and accelerate turnaround times for critical treatment decisions. This digital transformation enables decentralized testing networks to scale their precision medicine capabilities efficiently. As evidence of this trend, SOPHiA GENETICS reported in March 2025 that it performed a record 352,000 analyses

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globally on its data-driven medicine platform in 2024, reflecting an 11% year-over-year volume growth driven by the adoption of these advanced analytical tools.

Key Market Players

Myriad Genetics, Inc.

Ambry Genetics

Thermo Fisher Scientific, Inc.

Illumina, Inc.

CENTOGENE N.V.

Amoy Diagnostics Co., Ltd.

Invitae Corporation

NeoGenomics Laboratories

QIAGEN N.V.

Agilent Technologies, Inc.

Report Scope

In this report, the Global PARP Inhibitor Biomarkers Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

PARP Inhibitor Biomarkers Market, By Product

Kits

Assays

PARP Inhibitor Biomarkers Market, By Services

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- BRCA 1 & 2 Testing
- HRD Testing
- HRR Testing
- Others

PARP Inhibitor Biomarkers Market, By Application

- Breast Cancer
- Ovarian Cancer
- Others

PARP Inhibitor Biomarkers Market, By Region

- North America
  - United States
  - Canada
  - Mexico
- Europe
  - France
  - United Kingdom
  - Italy
  - Germany
  - Spain

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- Asia Pacific
  - China
  - India
  - Japan
  - Australia
  - South Korea
- South America
  - Brazil
  - Argentina
  - Colombia
- Middle East & Africa
  - South Africa
  - Saudi Arabia
  - UAE

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global PARP Inhibitor Biomarkers Market.

Available Customizations:

Global PARP Inhibitor Biomarkers 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:

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Company Information

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

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