

Radiopharmaceutical Theranostics - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2024 - 2029)

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Abstracts

The Radiopharmaceutical Theranostics Market size is estimated at USD 2.49 billion in 2024, and is expected to reach USD 4.16 billion by 2029, growing at a CAGR of 10.79% during the forecast period (2024-2029).

The COVID-19 pandemic initially had a substantial impact on the radiopharmaceutical theranostics market. The pandemic caused delays and disruptions in ongoing and planned clinical trials of radiopharmaceuticals. Disruptions in the supply chain, including transportation restrictions and workforce challenges, affected production and availability. Laboratories and research facilities faced closure or reduced capacity during lockdowns, impacting ongoing research and development activities related to pharmaceuticals. Therefore, the pandemic negatively affected the clinical development of theranostics, as with many other therapies. However, post-COVID-19, there was a backlog of many elective surgery patients awaiting essential diagnostic imaging using radiopharmaceuticals, impacting the volume of procedures. Furthermore, with its role in early disease detection and personalized medicine, the pandemic emphasized the importance of preventive healthcare, leading to proactive health management. Innovations in imaging modalities and radiopharmaceutical development enhanced diagnostic accuracy and later contributed to more targeted and effective treatments.

Advancements in targeted cancer therapies significantly drive the radiopharmaceuticals theranostics market by enhancing precision in diagnosis and treatment. Theranostics applications in oncology gained importance in the management of remnant tumors using cancer-type specific biomarkers, such as SSTR2-positive or NET-positive neuroendocrine tumors, NIS-positive differentiated thyroid tumors, and PSMA-positive prostate cancer. For instance, radiolabeled PSMA-targeted agents, such as ¹⁷⁷Lu-

PSMA-617, enable both imaging and therapeutic applications. They help visualize prostate cancer lesions and deliver targeted radiation for therapeutic purposes. Radiolabeled HER2-targeted tracers, like 68Ga-HER2-targeted PET agents, allow non-invasive imaging for accurate diagnosis. These examples demonstrate how targeted cancer therapies, when combined with radiopharmaceuticals, enable theranostics applications, allowing for accurate diagnosis and personalized targeted treatment strategies.

Furthermore, several radiopharmaceuticals are routinely used in clinical practice, such as 68Ga/177Lu, and dozens are under (pre)clinical development. The evolving landscape of targeted cancer therapies continues to fuel innovation in the radiopharmaceuticals theranostics industry. For instance, in September 2022, the University of Texas MD Anderson Cancer Center and Radiopharm Theranostics launched Radiopharm Ventures LLC, a joint venture developed to innovate novel radiopharmaceutical therapeutic products for cancer.

In addition, the increasing demand for radiopharmaceutical theranostics drove innovation in the field, leading to more companies investing in research and development, resulting in a wider range of options under pipelines. For instance, in September 2022, SHINE Technologies, a next-generation fusion technology company, entered a clinical agreement to supply Radiopharm Theranostics with isotope non-carrier-added lutetium-177 (Lu-177). In June 2021, Bayer acquired Noria Therapeutics Inc. (Noria) and PSMA Therapeutics Inc. to obtain exclusive rights to a differentiated alpha radionuclide therapy based on actinium-225 and a small molecule targeting prostate-specific membrane antigen (PSMA). The acquisition broadens Bayer's existing oncology portfolio of targeted alpha therapies (TAT).

Therefore, the radiopharmaceutical theranostics market is propelled by a convergence of factors, including the rising prevalence of cancer leading to demand for advancements in targeted therapies providing precision in diagnosis and treatment, the growing demand for personalized medicine, and the expanding applications of theranostics across various oncological indications. While the radiopharmaceuticals theranostics market is poised for significant growth, challenges such as regulatory complexities, supply chain disruptions, and the intricate nature of developing and implementing theranostics approaches pose restraints. Navigating these hurdles will be crucial for realizing the full potential of radiopharmaceuticals theranostics in transforming cancer diagnosis and treatment.

Radiopharmaceutical Theranostics Market Trends

The Companion Diagnostic Radiopharmaceuticals Segment is Expected to Dominate the Radiopharmaceutical Theranostics Market During the Forecast Period

Companion diagnostic radiopharmaceuticals play a pivotal role in providing essential tools for precise imaging and accurate diagnosis of various medical conditions, particularly cancer, in the radiopharmaceutical theranostics market. Diagnostic radiopharmaceuticals find extensive use in oncology, cardiology, neurology, and beyond. They aid in early detection, staging, and monitoring of diseases, providing critical information for treatment planning.

Ongoing research and development efforts continually introduce new radiopharmaceutical tracers with enhanced specificity and sensitivity. For instance, the development of prostate-specific membrane antigen (PSMA) targeted tracers for prostate cancer imaging demonstrates the dynamic nature of the diagnostic radiopharmaceutical market. Furthermore, in May 2023, Radiopharm Theranostics announced that the US Food and Drug Administration (FDA) granted orphan drug designation to Ga68-Trivehexin (RAD 301) radiopharmaceutical technology for imaging of patients with pancreatic ductal adenocarcinoma (PDAC).

Diagnostic radiopharmaceuticals are extensively used in oncology for staging, monitoring treatment responses, and detecting cancer recurrence. Tracers such as 18F-FDG for metabolic imaging and 68Ga-DOTATATE for neuroendocrine tumors exemplify the diverse applications within the oncology domain, showcasing the versatility of this segment. Therefore, early and accurate diagnosis, foundation for therapeutic decision-making, and diverse clinical applications help diagnostic radiopharmaceuticals to lead in the radiopharmaceutical theranostics market.

North America is Expected to Dominate the Radiopharmaceutical Theranostics Market

North America's leadership in the radiopharmaceutical theranostics market is driven by a combination of advanced healthcare infrastructure, research excellence, high disease prevalence, regulatory support, strategic collaborations, and a commitment to adopting cutting-edge technologies in the healthcare sector. These factors collectively position the region as a frontrunner in shaping the future of theranostics solutions for precision medicine.

The companies in the radiopharmaceutical industry of North America often engage in strategic collaborations with research institutions and healthcare organizations to facilitate the development, production, and commercialization of theranostics products, contributing to market leadership. For instance, in May 2023, NUCLIDIUM and PharmaLogic Holdings announced a strategic collaboration aimed at the production and clinical supply of ^{61}Cu in the United States to accelerate the development of NUCLIDIUM's theranostic pipeline. By combining copper radiometals with highly specific cancer-targeting molecules, NUCLIDIUM's theranostic approach aims to offer innovative diagnostic and therapeutic treatments for patients suffering from a range of solid tumors. The partnership with PharmaLogic will provide NUCLIDIUM with a sustainable supply of ^{61}Cu in the United States for both its planned clinical trials and future commercialized products.

The US FDA plays a pivotal role in regulating and approving medical products, including radiopharmaceuticals. In May 2023, the FDA approved Posluma as an agent that can be used with PET imaging to identify PSMA-positive lesions in prostate cancer patients with suspected metastasis. In September 2023, Bracco Imaging's subsidiary Blue Earth Diagnostics received transitional pass-through payment status to Posluma for detecting prostate-specific membrane antigen (PSMA)-positive prostate cancer metastases from the US Centers for Medicare & Medicaid Services (CMS).

In conclusion, North American companies and research institutions have been at the forefront of developing advanced technology. Key product launches, a high concentration of market players, and manufacturers' presence in the United States are some of the factors driving the growth of the radiopharmaceutical theranostics market in the country. Therefore, owing to the aforementioned factors, the market is anticipated to expand in North America.

Radiopharmaceutical Theranostics Industry Overview

The radiopharmaceutical theranostics market is consolidated due to the presence of 4-5 major companies dominating it. Ongoing advancement efforts by major players such as Bayer AG, Cardinal Health, GE HealthCare, Jubilant Radiopharma, and Novartis AG for development, including the discovery of new tracers, ligands, and targeting agents, contribute to the market's consolidation. These companies continually explore novel approaches, resulting in a diverse array of radiopharmaceutical products.

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