

Drug Discovery Informatics - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts 2019 - 2029

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Report description:

The drug discovery informatics market is anticipated to register a CAGR of 10.6% during the forecast period.

Amid the COVID-19 pandemic, countries' health systems were heavily invested in research and development to combat the virus. Research groups worldwide set about identifying small-molecule drugs for the treatment of COVID-19. Thus, information technology-supported drug discovery and design were widely employed in the COVID-19 drug development. For instance, as per the article published in March 2022 in PubMed, a 694 amino acid (aa) multiepitope vaccine was created using a proposed artificial intelligence (AI)-based vaccine discovery facility. This vaccine was able to fight SARS-CoV-2 viral infection with good antigenicity, population coverage, and good physicochemical properties and structures. It offered great potential for the next stage of COVID-19 vaccine design with actual clinical trials. Thus, such AI-related drug development significantly impacted the growth of the studied market during the pandemic and is expected to witness notable growth in the coming years.

Factors driving the market growth include high R&D expenditure by pharmaceutical and biotechnology companies for drug discovery and development and increasing technological advancement in data mining and analytics. In February 2022, UK-based Automata Labs raised USD 50 million to automate the lab research process. Similarly, in July 2021, Strateos raised USD 56 million for further improving its SmartLab platform and its remote robotized, automated technology, available to preclinical researchers across the globe. Also, in March 2022, ArrePath, a drug discovery startup, raised USD 20 million in a seed funding round. The Boehringer Ingelheim Venture Fund, Insight Partners, and Innospark Ventures led it. The investment will support the company's machine learning-based drug discovery platform, which focuses on developing new anti-infective drugs to combat antimicrobial resistance. Rising investment in research and development is expected to drive market growth over the forecast period.

Moreover, increasing technological advancement in drug discovery platforms is expected to grow the market over the forecast

period. For instance, in October 2021, PyTorch launched a machine-learning drug discovery platform, TorchDrug, to accelerate drug discovery research. This library is open-sourced and can be installed through PIP if PyTorch and torch-scatter are installed. Also, strategic expansion by the key regional players to increase their presence is expected to contribute to market growth. For instance, in February 2023, Insilico Medicine opened its Insilico Medicine Generative Artificial Intelligence and Quantum Computing Research and Development Center in Abu Dhabi, the region's largest Al-powered biotechnology research center.

Thus, due to the increasing research and development investment coupled with strategic activities by the key players, the studied market is expected to witness significant growth over the forecast period. However, high pricing and setup costs for informatics software are expected to restrain the market's growth during the forecast period.

Drug Discovery Informatics Market Trends

Pharmaceutical and Biotechnology Companies Segment is Expected to Witness Growth Over the Forecast Period

Pharmaceutical companies heavily rely on this informatics software for pre-clinical research and development, target identification, compound screening, lead identification, and streamlining their drug discovery process. It is a major factor driving this segment's growth. Informatics analysis in drug discovery accelerates drug target identification and drug candidate screening and refinement, facilitates the characterization of side effects, and predicts drug resistance. Researchers and the pharmaceutical industry can use data mining software for drug discovery to gain access to all relevant and up-to-date data generated by the scientific community.

The pharmaceutical companies segment is expected to witness significant growth in the studied market owing to factors such as increased research and development activities by the key players utilizing technological support and a rise in investments and strategic activities by the companies for drug discovery. For instance, in January 2022, PostEra, a biotechnology company specializing in machine learning for pre-clinical drug discovery, expanded the company's existing strategic collaboration with Pfizer. The expanded multi-target research program established an AI Lab where PostEra and Pfizer jointly advance multiple drug discovery programs with an initial focus on oncology and COVID-19 antiviral therapeutics. The AI Lab leverages novel machine learning for medicinal chemistry built upon Pfizer's data and PostEra's pioneering innovations in generative chemistry and synthesis-aware design.

Pharma players adopt various strategies to bolster the use of drug discovery informatics in drug discovery, drug design, and drug development. For instance, in April 2022, Iktos, a company specializing in Artificial Intelligence (AI) for new drug design, and Teijin Pharma Limited, the core company of the Teijin Group's healthcare business that provides comprehensive healthcare services to improve the quality of life, reported a strategic collaboration agreement in Artificial Intelligence for small molecules drug discovery. Similarly, in January 2022, Shanghai Fosun Pharmaceutical (Fosun Pharma), a China-based healthcare group, and Insilico Medicine, a US-based artificial intelligence (AI)-driven drug discovery and development company, entered into a collaboration agreement to advance the discovery and development of drugs targeting different targets globally using AI technology.

Therefore, due to the increased strategic activities by pharmaceutical companies for drug discovery, the studied segment is expected to witness significant market growth over the forecast period.

North America Anticipated to Hold a Significant Market Share Over the Forecast Period

North America is expected to hold a significant market share due to the increasing research and development activities on drug discovery and technological advancements in data mining and analytics. It helped the growth of the drug discovery informatics market in the country. For instance, in August 2022, Sanofi partnered with Atomwise in a drug design deal worth potentially up to

USD 1.2 billion. The contract, for which Sanofi paid USD 20 million upfront, focused on using the AtomNet platform to research small molecules for up to five drug targets selected by Sanofi.

Also, an increase in investments in research and development in the North American region is positively impacting the market growth. For instance, according to a report published in December 2022 by the Pharmaceutical Research and Manufacturers of America (PhRMA), PhRMA members alone invested hundreds of billions of dollars over the years in research and development (R&D), including a record USD 102 billion in 2021. In addition, regional companies are concentrating their efforts on joint ventures, launches, and research collaborations, which will help the market grow in the coming years. For instance, in February 2022, Cyclica launched Perturba Therapeutics, a University of Toronto spin-out focusing on Al-enabled oncology drug design. Perturba is taking this challenge on by integrating Cyclica's comprehensive Al-augmented proteome-wide drug design technology with two first-in-class live cell-based assays from the Stagljar Lab. Thus, research collaboration for drug discovery creates significant demand for drug discovery informatics anticipated to boost the market.

Thus, owing to the increase in investments and strategic activities by the key players in drug discovery development with the support of informatics, the North American region is expected to witness significant market growth over the forecast period.

Drug Discovery Informatics Industry Overview

The drug discovery informatics market is competitive and consists of a few major players. The key players increasingly collaborate with other companies, research institutes, and clinical research organizations to promote rapid drug development. Some of the major players in the market are Infosys, IBM, and PerkinElmer, Io Informatics, among others.

Additional Benefits:

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

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