

In Silico Drug Discovery Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, 2017-2027 Segmented By Component (Software, Software-as-a-Service, Consultancy-as-a-Service), By Workflow (Discovery, Pre-Clinical Tests, Clinical Trials), By Software Type (Molecular Modeling & De Novo Drug Design Software, Pharmacophore Modeling Software), By Technology (Artificial Intelligence, Graphics Processing Unit, Others), By Therapeutic Area (Human Immunodeficiency Virus (HIV), Infectious Diseases, Metabolic Disorders, Oncology Disorders, Others), By End User (Biotechnology & Pharmaceutical Companies, Contract Research Organizations, Academic & Research Organizations, Others), By Company and By Region

<https://marketpublishers.com/r/IF794D24A737EN.html>

Date: August 2023

Pages: 117

Price: US\$ 4,900.00 (Single User License)

ID: IF794D24A737EN

Abstracts

The global in silico drug discovery market is anticipated to observe impressive growth during the forecast period 2023-2027. The major factors include growing incidences of various diseases, rising use of cloud-based applications, and extensive development in technology, which are curbing the market's growth. Nowadays, in silico methodologies are becoming an essential part of the drug discovery process. This is primarily because of the impact on the whole drug development trajectory, identifying and discovering new potential drugs with a substantial reduction in cost and time. The other factors

supporting the market's growth are the extensive research and development, prevalence of various diseases, large number of clinical trials, rising emphasis on reduction in medical errors and readmission rates, various investments, the growing number of collaborations between companies, and rise in the volume of drug discovery data.

Rising Adoption of Cloud-Based Applications

The increasing use of cloud applications is fueling the growth of the in-silico drug discovery market. Cloud computing gives access to pharmaceutical researchers to use virtually infinite computational resources, permitting them to scale up or down their computing environment. Cloud computing has not only enhanced overall productivity but also minimized the chances of clinical failure. For instance, in 2020, researchers at the University of Bristol alleged to have used cloud-based solutions to successfully interpret the structure of a potential preventive intervention called ADDomer.

Technological Advancements Support the Market

Rapid technological advancements in the field of computational biology are bolstering the growth of the in-silico drug discovery market globally. Computational techniques are quite effective in the development of novel pharmaceutical compounds. The advancement in technologies is simplifying the various steps in sequencing, due to which the results obtained are faster and more accurate. For instance, in 2021, Pfizer Inc. and Amazon Web Services (AWS) have approved to work together on developing novel cloud-based technologies that could modernize how new medications are studied, manufactured, and disseminated for clinical trials. Similarly, in 2022, Insilico Medicine and the University of Zurich collaborated to leverage Insilico's dynamic AI technology to discover new cystinosis treatments.

Increasing Investments and Collaborations

Heavy investments in drug discovery and development with rising occurrences of various diseases are propelling the growth of the market. For instance, in 2021, as per a report published by the Pharmaceutical Research and Manufacturers of America (PhRMA), biopharmaceutical companies invested more than a trillion dollars in R&D in the last ten years, including a record year in 2020, when PhRMA member industries alone invested approximately 91 billion USD. Furthermore, the increasing number of partnerships that AI start-ups have with leading research centers may offer an alternative metric. For instance, in 2019, as a part of a \$33 million partnership with GSK

that commenced in 2017, Exscientia delivered a lead molecule targeted at the treatment of chronic obstructive pulmonary disease.

Market Segmentation

The global in silico drug discovery market is segmented into components, workflow, software type, technology, therapeutic area, end user, and company. Based on components, the market is divided into software, software-as-a-service, and consultancy-as-a-service. Based on workflow, the market is divided into discovery, pre-clinical tests, and clinical trials. Based on the discovery, the market is further segmented into target identification, target validation, and lead discovery. Based on software type, the market is segmented into molecular modeling & de novo drug design software and pharmacophore modeling software. Based on technology, the market is segmented into artificial intelligence, graphics processing unit, and others. Based on therapeutic area, the market is segmented into human immunodeficiency virus (HIV), infectious diseases, metabolic disorders, oncology disorders, and others. Based on end users, the market is divided into biotechnology & pharmaceutical companies, contract research organizations, academic & research organizations, and others. In terms of country, the United States is expected to be a lucrative market in the forecast period due to the extensive technology development in the country.

Market Players

Aragen Life Sciences Pvt. Ltd. (GVK Biosciences Pvt. Ltd.), Curia Global, Inc. (Albany Molecular Research Inc.), Charles River Laboratories International, Inc., Chemical Computing Group ULC. (CCG), Collaborative Drug Discovery Inc. (CDD), e-therapeutics plc., Dassault Systèmes SE, Insilico Medicine, Inc., Numerate, Inc., and Schrödinger, Inc. are some of the leading companies operating in the market.

Report Scope:

In this report, global in silico drug discovery market has been segmented into the following categories, in addition to the industry trends, which have also been detailed below:

In Silico Drug Discovery Market, By Component:

Software

Software-as-a-Service

Consultancy-as-a-Service

In Silico Drug Discovery Market, By Workflow:

Discovery

Target Identification

Target Validation

Lead Discovery

Pre-Clinical Tests

Clinical Trials

In Silico Drug Discovery Market, By Software Type:

Molecular Modeling & De Novo Drug Design Software

Pharmacophore Modeling Software

In Silico Drug Discovery Market, By Technology:

Artificial Intelligence

Graphics Processing Unit

Others

In Silico Drug Discovery Market, By Therapeutic Area:

Human Immunodeficiency Virus (HIV)

Infectious Diseases

Metabolic Disorders

Oncology Disorders

Others

In Silico Drug Discovery Market, By End User:

Biotechnology & Pharmaceutical Companies

Contract Research Organizations

Academic & Research Organizations

Others

In Silico Drug Discovery Market, By Region:

North America

United States

Canada

Mexico

Asia-Pacific

China

India

Japan

Australia

South Korea

Europe & CIS

Germany

France

United Kingdom

Spain

Italy

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 Global In Silico Drug Discovery Market

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

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