Global In Silico Clinical Trials - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)

Market Report | 2025-04-28 | 119 pages | Mordor Intelligence

AVAILABLE LICENSES:

- Single User License $4750.00
- Team License (1-7 Users) $5250.00
- Site License $6500.00
- Corporate License $8750.00

Report description:

The Global In Silico Clinical Trials Market size is estimated at USD 3.88 billion in 2025, and is expected to reach USD 5.41 billion by 2030, at a CAGR of 6.89% during the forecast period (2025-2030).

The unanticipated spread of COVID-19 significantly influences the in silico clinical trials market. Even though the news article "Why 2020 Saw The Steady Rise Of In Silico Trials", published in January 2021, explains that as COVID-19-related constraints continue to cause chaos in the clinical research environment, big pharma companies are increasingly turning to in silico or virtual clinical trials to help companies continue their product development efforts. Before evaluating their drug prospects in humans, companies can use advanced computational modeling and simulation tools to test them in "virtual patients." Additionally, since the in silico studies are based on computer simulations, they are unaffected by the ongoing COVID-19-related travel and social distancing restrictions that have hampered many traditional trials.

Furthermore, the proper understanding of drug efficacy and safety, the growing prevalence of numerous diseases, and the cost-effectiveness of in silico clinical trials make the in silico market grow. The article "In silico imaging clinical trials: cheaper, faster, better, safer, and more scalable," published in the Trial journal in 2021, reveals the tremendous advantages offered by in silico clinical trials, such as adjustable variability, unlimited samples, no patient risk, and less burden. These advantages, in turn, lead to high demand for in silico clinical trial market.

Furthermore, market players are engaged in marketing tactics such as mergers and acquisitions and product launches. For instance, in July 2021, Kiromic Biopharma, Inc., a pioneer in Immuno oncology cellular therapy for solid tumors, acquired InSilico Solutions. Kiromic will integrate a team of bioinformatics and AI professionals in-house as part of this deal, extending its lead in the race for AI technology that can identify the best biomarkers for cutting-edge immunotherapeutics like CAR-T cell treatment.

Increased understanding of the benefits of in silico clinical trials has led the market to develop exponentially over the ages. The webcast published by the United States Food and Drug Administration under the title "The VICTRE trial: an in-silico replica of a clinical trial for evaluating digital breast tomosynthesis as a replacement for full-field digital mammography" on March 2021 explains the simulated Virtual Imaging Clinical Trial for Regulatory Evaluation (VICTRE trial) compared digital mammography and digital breast tomosynthesis using computer-simulated imaging of 2,986 in silico patients (an advanced type of mammography that generates three-dimensional images of the breasts using a low-dose x-ray system and computer reconstructions). All breast sizes and lesion types showed an improved lesion detection performance favoring tomosynthesis. The improved tomosynthesis performance was in line with findings from a comparison trial including real patients and radiologists.

As a result of the reasons outlined, the explored market is anticipated to grow throughout the analysis period. However, since human subjects are not involved, the results are based on an approximation that can restrain market growth in silico clinical trials.

In Silico Clinical Trials Market Trends

Oncology Therapeutic Area is Expected to Witness a Significant Growth Over the Forecast Period

Regular cancer clinical trials are mostly at a high cost and have a significant risk of causing harm to patients. The demand for cancer in silico clinical trials is mostly driven by these considerations. Furthermore, technological advancements such as using artificial intelligence (AI) in cancer computer simulation studies to improve medication knowledge, safety, and efficacy are boosting the market's growth.

As per the news published in In silico Medicine in 2022, they announced they had completed experimental validation of AI-designed compounds with the requisite features and have nominated a preclinical candidate (PCC) for anti-cancer therapeutics targeting ubiquitin-specific protease 1 (USP1), a known synthetic lethality target. Synthetic lethality, a well-established genetic technique to exploit vulnerabilities in tumor cells to trigger tumor cell death while sparing normal cells, is a potential field of cancer therapy. When used against a wide spectrum of tumor lineages, Insilico's preclinical candidate molecule showed promising results. In vitro studies revealed that the chemical has a substantial antiproliferative effect in breast cancer gene mutant (BRCA) tumor cells with high selectivity.

The article published in MedRxiv journal under the heading "In silico cancer immunotherapy trials uncovers the consequences of therapy-specific response patterns for clinical trial design and outcome" in 2021 explains the advantages of cancer immunotherapy coupled with in silico trials. In the study, they point out that, for immuno-oncology, in silico studies have major implications. They offer a cost-effective way to check the validity of the biological assumptions that underpin immunotherapy trials and aid in their design. It can also be used as a teaching tool that can help scientists in training understand design principles, resulting in better designs and higher success rates in future immunotherapy studies.

As a result of the stated factors, the oncology therapeutic area segment is expected to develop significantly throughout the forecast period.

North America is Expected to Grow the In Silico Clinical Trials Market

North America had the majority share in the in silico clinical trials market in 2021. The emergence of this region can be attributed to an increase in understanding of the benefits of in silico trials and reduced side effects that have been raised from human trials.

Key product releases, cost-effectiveness, and the presence of manufacturers in the country are all factors that have contributed to the growth of the in silico clinical trials market. According to the press release on May 2021, Massachusetts-based GNS

Healthcare, an artificial intelligence organization that produces in silico patients that simulate therapeutic intervention on a patient-by-patient basis, announced that they are planning to develop and launch Gemini, which is an in silico Patient for Prostate Cancer. This in silico patient was created in collaboration with Tempus and is powered by clinico-genomic data, including whole-exome sequencing (tumor/normal match), RNAseq, patient treatment history, current treatments like Enzalutamide, Abiraterone, Docetaxel, Cabazitaxel, Sipuleucel-T, and Pembrolizumab, as well as related lines of treatment and mortality.

Moreover, according to the report published by the United States Food and Drug Administration on January 2022, describe that In silico clinical trials employing Computational Modeling and Simulation (CM&S), in which a device is evaluated on a cohort of virtual patients, are encouraged by the United States Food and Drug Administration and are expected to replace or augment clinical studies. However, the use of Computational Modeling and Simulation to support regulatory filings is hampered by a lack of or contradictory information on their reliability. The analyzed market is expected to grow in the North American region due to the factors mentioned above.

In Silico Clinical Trials Industry Overview

The in silico clinical trial market is moderately competitive and consists of several major players. The competitive landscape includes an analysis of a few international and local companies that hold market shares and are well known. Include Novadiscovery, Insilico Medicine, Inc., GNS Healthcare, InSilicoTrials Technologies, and Immunetrics Inc., among others.

Additional Benefits:

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

Table of Contents:

5 MARKET SEGMENTATION (Market Size by Value - USD million)
5.1 By Therapeutic Area
5.1.1 Oncology
5.1.2 Infectious Disease
5.1.3 Cardiology
5.1.4 Neurology
5.1.5 Diabetes
5.1.6 Other Therapeutic Areas
5.2 By Industry
5.2.1 Medical Devices
5.2.2 Pharmaceutical
5.3 By Phase
5.3.1 Phase I
5.3.2 Phase II
5.3.3 Phase III
5.3.4 Phase IV
5.4 Geography
5.4.1 North America
5.4.1.1 United States
5.4.1.2 Canada
5.4.1.3 Mexico
5.4.2 Europe
5.4.2.1 Germany
5.4.2.2 United Kingdom
5.4.2.3 France
5.4.2.4 Italy
5.4.2.5 Spain
5.4.2.6 Rest of Europe
5.4.3 Asia-Pacific
5.4.3.1 China
5.4.3.2 Japan
5.4.3.3 India
5.4.3.4 Australia
5.4.3.5 South Korea
5.4.3.6 Rest of Asia-Pacific
5.4.4 Middle-East and Africa
5.4.4.1 GCC
5.4.4.2 South Africa
5.4.4.3 Rest of Middle-East and Africa
5.4.5 South America
5.4.5.1 Brazil
5.4.5.2 Argentina
5.4.5.3 Rest of South America

6 COMPETITIVE LANDSCAPE
6.1 Company Profiles
6.1.1 Novadiscovery

Global In Silico Clinical Trials - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)

Market Report | 2025-04-28 | 119 pages | Mordor Intelligence

To place an Order with Scotts International:

- - Print this form
- - Complete the relevant blank fields and sign
- - Send as a scanned email to support@scotts-international.com

ORDER FORM:

Select license	License	Price
	Single User License	$4750.00
	Team License (1-7 Users)	$5250.00
	Site License	$6500.00
	Corporate License	$8750.00
	VAT	
	Total	

*Please circle the relevant license option. For any questions please contact support@scotts-international.com or 0048 603 394 346.

** VAT will be added at 23% for Polish based companies, individuals and EU based companies who are unable to provide a valid EU Vat Numbers.

Email*		Phone*	
First Name*		Last Name*	
Job title*			
Company Name*		EU Vat / Tax ID / NIP number*	
Address*		City*	
Zip Code*		Country*	
		Date	2025-05-10
		Signature