+357 96 030922
info@marketpublishers.com

In Silico Clinical Trials Market Forecasts to 2030 – Global Analysis By Type (Preclinical Trials, Clinical Trials, Post-Market Trials, Regulatory Compliance Trials, Disease Modeling Trials and Other Types), Simulation Type, Therapeutic, Technology, Application, End User and By Geography

https://marketpublishers.com/r/IEA73D9EC2B4EN.html
Date: January 2025
Pages: 150
Price: US$ 4,150.00 (Single User License)
ID: IEA73D9EC2B4EN

Abstracts

According to Stratistics MRC, the Global In Silico Clinical Trials Market is accounted for $3.6 billion in 2024 and is expected to reach $5.8 billion by 200 growing at a CAGR of 8.4% during the forecast period. In silico clinical trials are the use of computer simulations and modeling to replicate human biology and predict the effects of medical interventions. These virtual trials use vast amounts of patient data, biological models, and computational algorithms to simulate how drugs, therapies, or devices would perform in real-world clinical settings. By replacing or reducing the need for traditional in vivo trials, in silico trials offer a faster, cost-effective, and ethical alternative for evaluating the safety and efficacy of treatments before clinical implementation.

According to the European Medicines Agency #- #European Union, in the EU / EEA, more than 4,000 clinical trials are authorised each year, of which 60% of clinical trials are sponsored by the pharma industry and 40% by non-commercial sponsors. As per the Clinical Trials Registry India (CTRI), India approved over 100 global clinical trials in 2021, the highest since 2013.

Market Dynamics:

Driver:

+357 96 030922
info@marketpublishers.com

Growing demand for safer drugs

The growing demand for safer drugs in the market is driven by the need for more efficient, cost-effective, and ethical drug development processes. In silico trials, using advanced computational models, offer a safer alternative to traditional clinical trials by predicting drug efficacy, toxicity, and patient responses before real-world testing. This approach accelerates drug approval, reduces risks, and minimizes the reliance on animal and human testing, aligning with regulatory and public health goals.

Restraint:

Limited availability of high-quality data

The limited availability of high-quality data in the market hampers the accuracy and reliability of predictive models. Inadequate or biased data can lead to flawed simulations, resulting in incorrect predictions about drug efficacy, safety, or patient responses. This undermines the potential of in silico trials to replace traditional methods, slowing down drug development, increasing risks, and potentially leading to delayed or failed regulatory approvals for new treatments.

Opportunity:

Advances in computational modeling and AI

Advances in computational modeling and AI are revolutionizing market by enhancing the accuracy and efficiency of drug development. AI algorithms analyze vast datasets to predict drug interactions, patient responses, and potential side effects. Improved computational models simulate complex biological systems, reducing reliance on traditional trials. These innovations enable faster, more precise drug testing, optimizing clinical outcomes and safety while lowering costs and accelerating time-to-market for new treatments.

Threat:

Regulatory and ethical uncertainty

Regulatory and ethical uncertainty in the market poses a significant challenge to widespread adoption. The lack of clear guidelines on the use of computational models in drug testing can delay approval processes and increase compliance risks.

+357 96 030922
info@marketpublishers.com

Additionally, ethical concerns about data privacy, patient consent, and model transparency may hinder trust in these technologies, slowing progress and limiting their potential to replace traditional clinical trial methods effectively.

Covid-19 Impact:

The COVID-19 pandemic accelerated the adoption of In Silico Clinical Trials by highlighting the need for faster, more efficient drug development methods. With traditional trials facing disruptions, computational models became crucial for rapid drug testing and vaccine development. The pandemic emphasized the benefits of virtual simulations in reducing trial timelines, costs, and reliance on physical interactions, driving further investment and innovation in the market.

The preclinical trials segment is expected to be the largest during the forecast period

The preclinical trials segment is expected to account for the largest market share during the projection period. These virtual trials enable researchers to predict drug efficacy, safety, and pharmacokinetics, helping to identify potential risks, side effects, and optimal dosages. By utilizing AI, machine learning, and other predictive technologies, in silico preclinical trials reduce the cost, time, and ethical concerns associated with traditional animal and human studies, accelerating drug development and improving success rates.

The machine learning segment is expected to have the highest CAGR during the forecast period

The machine learning segment is expected to have the highest CAGR during the extrapolated period. These algorithms process vast datasets to predict patient responses, identify optimal dosing strategies, and simulate trial outcomes, significantly reducing the time. This technology also enhances decision-making, improves trial accuracy, and supports personalized medicine. As a result, ML is becoming a crucial tool in accelerating drug development and advancing more efficient, data-driven clinical research methodologies.

Region with largest share:

North America region is projected to account for the largest market share during the forecast period driven by advancements in computational modeling, artificial intelligence, and big data analytics. These virtual simulations are revolutionizing drug

+357 96 030922
info@marketpublishers.com

development by enhancing efficiency, reducing costs, and minimizing risks. Key factors such as increasing regulatory acceptance, a rising demand for personalized medicine, and a growing focus on precision healthcare contribute to the market's expansion in the region.

Region with highest CAGR:

Asia Pacific is expected to register the highest growth rate over the forecast period driven by advancements in computational models. Artificial Intelligence (AI), Machine Learning (ML), and Big Data are being increasingly integrated into the in silico clinical trials market. These technologies enable better prediction models, improve trial accuracy, and reduce development costs. Additionally, the rise in biotech startups, along with government support for digital transformation in healthcare, is helping the market grow.

Key players in the market

Some of the key players in In Silico Clinical Trials market include Novadiscovery, Dassault Systemes, GNS Healthcare, Clarivate, Evotec, Abzena Ltd., PerkinElmer Inc., Schrodinger, Inc., Selvita, Tracxn Technologies, WuXi AppTec, Hoffmann#- #La Roche, Mars, PYC Therapeutics and Immatics.

Key Developments:

In October 2024, Dassault Systemes announced the availability of the world’s first guide for the medical device industry that outlines how to use virtual twins to accelerate clinical trials. The in silico clinical trial “ENRICHMENT Playbook” marks a significant advancement in the integration of virtual twins into the regulatory process in response to needs for improved patient safety, regulatory compliance, and pace of innovation.

In July 2024, Clarivate Plc announced the launch of its new OFF-X platform. It delivers critical drug and target safety information to proactively identify risks. Integrated with Cortellis Drug Discovery Intelligence™, OFF-X™ provides a comprehensive, one-stop resource for drug safety information, streamlining processes, increasing efficiencies and delivering a competitive advantage.

Types Covered:

- Preclinical Trials

+357 96 030922
info@marketpublishers.com

- Clinical Trials
- Post-Market Trials
- Regulatory Compliance Trials
- Disease Modeling Trials
- Other Types

Simulation Types Covered:

- Physiological Simulations
- Toxicology Simulations
- Disease Models
- Population-Based Simulations
- Virtual Patient Simulations

Therapeutics Covered:

- Oncology
- Infectious Disease
- Cardiology
- Neurology
- Diabetes
- Other Therapeutics

+357 96 030922
info@marketpublishers.com

Technologies Covered:

- Computational Biology
- Artificial Intelligence
- Machine Learning
- Systems Biology
- Other Technologies

Applications Covered:

- Drug Discovery and Development
- Medical Device Development
- Digital Health Technologies
- Personalized Medicine
- Other Applications

End Users Covered:

- Pharmaceutical and Biotechnology Companies
- Academic Institutions
- Contract Research Organizations (CROs)
- Regulatory Authorities
- Other End Users

+357 96 030922
info@marketpublishers.com

Regions Covered:

- North America
  - US
  - Canada
  - Mexico
- Europe
  - Germany
  - UK
  - Italy
  - France
  - Spain
  - Rest of Europe
- Asia Pacific
  - Japan
  - China
  - India
  - Australia
  - New Zealand
  - South Korea
  - Rest of Asia Pacific

+357 96 030922
info@marketpublishers.com

South America

Argentina

Brazil

Chile

Rest of South America

Middle East & Africa

Saudi Arabia

UAE

Qatar

South Africa

Rest of Middle East & Africa

What our report offers:
- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2022, 2023, 2024, 2026, and 2030
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free

+357 96 030922
info@marketpublishers.com

customization options:

- Company Profiling
  - Comprehensive profiling of additional market players (up to 3)
  - SWOT Analysis of key players (up to 3)
- Regional Segmentation
  - Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)
- Competitive Benchmarking
  - Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

+357 96 030922
info@marketpublishers.com

Contents

1 EXECUTIVE SUMMARY

2 PREFACE

2.1 Abstract
2.2 Stake Holders
2.3 Research Scope
2.4 Research Methodology
  2.4.1 Data Mining
  2.4.2 Data Analysis
  2.4.3 Data Validation
  2.4.4 Research Approach
2.5 Research Sources
  2.5.1 Primary Research Sources
  2.5.2 Secondary Research Sources
  2.5.3 Assumptions

3 MARKET TREND ANALYSIS

3.1 Introduction
3.2 Drivers
3.3 Restraints
3.4 Opportunities
3.5 Threats
3.6 Technology Analysis
3.7 Application Analysis
3.8 End User Analysis
3.9 Emerging Markets
3.10 Impact of Covid-19

4 PORTERS FIVE FORCE ANALYSIS

4.1 Bargaining power of suppliers
4.2 Bargaining power of buyers
4.3 Threat of substitutes
4.4 Threat of new entrants
4.5 Competitive rivalry

+357 96 030922
info@marketpublishers.com

5 GLOBAL IN SILICO CLINICAL TRIALS MARKET, BY TYPE

5.1 Introduction
5.2 Preclinical Trials
5.3 Clinical Trials
5.4 Post-Market Trials
5.5 Regulatory Compliance Trials
5.6 Disease Modeling Trials
5.7 Other Types

6 GLOBAL IN SILICO CLINICAL TRIALS MARKET, BY SIMULATION TYPE

6.1 Introduction
6.2 Physiological Simulations
6.3 Toxicology Simulations
6.4 Disease Models
6.5 Population-Based Simulations
6.6 Virtual Patient Simulations

7 GLOBAL IN SILICO CLINICAL TRIALS MARKET, BY THERAPEUTIC

7.1 Introduction
7.2 Oncology
7.3 Infectious Disease
7.4 Cardiology
7.5 Neurology
7.6 Diabetes
7.7 Other Therapeutics

8 GLOBAL IN SILICO CLINICAL TRIALS MARKET, BY TECHNOLOGY

8.1 Introduction
8.2 Computational Biology
8.3 Artificial Intelligence
8.4 Machine Learning
8.5 Systems Biology
8.6 Other Technologies

+357 96 030922
info@marketpublishers.com

9 GLOBAL IN SILICO CLINICAL TRIALS MARKET, BY APPLICATION

9.1 Introduction
9.2 Drug Discovery and Development
9.3 Medical Device Development
9.4 Digital Health Technologies
9.5 Personalized Medicine
9.6 Other Applications

10 GLOBAL IN SILICO CLINICAL TRIALS MARKET, BY END USER

10.1 Introduction
10.2 Pharmaceutical and Biotechnology Companies
10.3 Academic Institutions
10.4 Contract Research Organizations (CROs)
10.5 Regulatory Authorities
10.6 Other End Users

11 GLOBAL IN SILICO CLINICAL TRIALS MARKET, BY GEOGRAPHY

11.1 Introduction
11.2 North America
  11.2.1 US
  11.2.2 Canada
  11.2.3 Mexico
11.3 Europe
  11.3.1 Germany
  11.3.2 UK
  11.3.3 Italy
  11.3.4 France
  11.3.5 Spain
  11.3.6 Rest of Europe
11.4 Asia Pacific
  11.4.1 Japan
  11.4.2 China
  11.4.3 India
  11.4.4 Australia
  11.4.5 New Zealand
  11.4.6 South Korea

+357 96 030922
info@marketpublishers.com

11.4.7 Rest of Asia Pacific
11.5 South America
11.5.1 Argentina
11.5.2 Brazil
11.5.3 Chile
11.5.4 Rest of South America
11.6 Middle East & Africa
11.6.1 Saudi Arabia
11.6.2 UAE
11.6.3 Qatar
11.6.4 South Africa
11.6.5 Rest of Middle East & Africa

12 KEY DEVELOPMENTS

12.1 Agreements, Partnerships, Collaborations and Joint Ventures
12.2 Acquisitions & Mergers
12.3 New Product Launch
12.4 Expansions
12.5 Other Key Strategies

13 COMPANY PROFILING

13.1 Novadiscovery
13.2 Dassault Systemes
13.3 GNS Healthcare
13.4 Clarivate
13.5 Evotec
13.6 Abzena Ltd.
13.7 PerkinElmer Inc.
13.8 Schrodinger, Inc.
13.9 Selvita
13.10 Tracxn Technologies
13.11 WuXi AppTec
13.12 Hoffmann- La Roche
13.13 Mars
13.14 PYC Therapeutics
13.15 Immatics

+357 96 030922
info@marketpublishers.com

List Of Tables

LIST OF TABLES

Table 1 Global In Silico Clinical Trials Market Outlook, By Region (2022-2030) ($MN)
Table 2 Global In Silico Clinical Trials Market Outlook, By Type (2022-2030) ($MN)
Table 3 Global In Silico Clinical Trials Market Outlook, By Preclinical Trials (2022-2030) ($MN)
Table 4 Global In Silico Clinical Trials Market Outlook, By Clinical Trials (2022-2030) ($MN)
Table 5 Global In Silico Clinical Trials Market Outlook, By Post-Market Trials (2022-2030) ($MN)
Table 6 Global In Silico Clinical Trials Market Outlook, By Regulatory Compliance Trials (2022-2030) ($MN)
Table 7 Global In Silico Clinical Trials Market Outlook, By Disease Modeling Trials (2022-2030) ($MN)
Table 8 Global In Silico Clinical Trials Market Outlook, By Other Types (2022-2030) ($MN)
Table 9 Global In Silico Clinical Trials Market Outlook, By Simulation Type (2022-2030) ($MN)
Table 10 Global In Silico Clinical Trials Market Outlook, By Physiological Simulations (2022-2030) ($MN)
Table 11 Global In Silico Clinical Trials Market Outlook, By Toxicology Simulations (2022-2030) ($MN)
Table 12 Global In Silico Clinical Trials Market Outlook, By Disease Models (2022-2030) ($MN)
Table 13 Global In Silico Clinical Trials Market Outlook, By Population-Based Simulations (2022-2030) ($MN)
Table 14 Global In Silico Clinical Trials Market Outlook, By Virtual Patient Simulations (2022-2030) ($MN)
Table 15 Global In Silico Clinical Trials Market Outlook, By Therapeutic (2022-2030) ($MN)
Table 16 Global In Silico Clinical Trials Market Outlook, By Oncology (2022-2030) ($MN)
Table 17 Global In Silico Clinical Trials Market Outlook, By Infectious Disease (2022-2030) ($MN)
Table 18 Global In Silico Clinical Trials Market Outlook, By Cardiology (2022-2030) ($MN)
Table 19 Global In Silico Clinical Trials Market Outlook, By Neurology (2022-2030)

+357 96 030922
info@marketpublishers.com

($MN)
Table 20 Global In Silico Clinical Trials Market Outlook, By Diabetes (2022-2030) ($MN)
Table 21 Global In Silico Clinical Trials Market Outlook, By Other Therapeutics (2022-2030) ($MN)
Table 22 Global In Silico Clinical Trials Market Outlook, By Technology (2022-2030) ($MN)
Table 23 Global In Silico Clinical Trials Market Outlook, By Computational Biology (2022-2030) ($MN)
Table 24 Global In Silico Clinical Trials Market Outlook, By Artificial Intelligence (2022-2030) ($MN)
Table 25 Global In Silico Clinical Trials Market Outlook, By Machine Learning (2022-2030) ($MN)
Table 26 Global In Silico Clinical Trials Market Outlook, By Systems Biology (2022-2030) ($MN)
Table 27 Global In Silico Clinical Trials Market Outlook, By Other Technologies (2022-2030) ($MN)
Table 28 Global In Silico Clinical Trials Market Outlook, By Application (2022-2030) ($MN)
Table 29 Global In Silico Clinical Trials Market Outlook, By Drug Discovery and Development (2022-2030) ($MN)
Table 30 Global In Silico Clinical Trials Market Outlook, By Medical Device Development (2022-2030) ($MN)
Table 31 Global In Silico Clinical Trials Market Outlook, By Digital Health Technologies (2022-2030) ($MN)
Table 32 Global In Silico Clinical Trials Market Outlook, By Personalized Medicine (2022-2030) ($MN)
Table 33 Global In Silico Clinical Trials Market Outlook, By Other Applications (2022-2030) ($MN)
Table 34 Global In Silico Clinical Trials Market Outlook, By End User (2022-2030) ($MN)
Table 35 Global In Silico Clinical Trials Market Outlook, By Pharmaceutical and Biotechnology Companies (2022-2030) ($MN)
Table 36 Global In Silico Clinical Trials Market Outlook, By Academic Institutions (2022-2030) ($MN)
Table 37 Global In Silico Clinical Trials Market Outlook, By Contract Research Organizations (CROs) (2022-2030) ($MN)
Table 38 Global In Silico Clinical Trials Market Outlook, By Regulatory Authorities (2022-2030) ($MN)
Table 39 Global In Silico Clinical Trials Market Outlook, By Other End Users

+357 96 030922
info@marketpublishers.com

(2022-2030) ($MN)

Note: Tables for North America, Europe, APAC, South America, and Middle East & Africa Regions are also represented in the same manner as above.

+357 96 030922
info@marketpublishers.com

I would like to order

Product name: In Silico Clinical Trials Market Forecasts to 2030 – Global Analysis By Type (Preclinical Trials, Clinical Trials, Post-Market Trials, Regulatory Compliance Trials, Disease Modeling Trials and Other Types), Simulation Type, Therapeutic, Technology, Application, End User and By Geography

Product link: https://marketpublishers.com/r/IEA73D9EC2B4EN.html

Price: US$ 4,150.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:
info@marketpublishers.com

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page https://marketpublishers.com/r/IEA73D9EC2B4EN.html