

# **Computational Biology Market Report by Application (Cellular and Biological Simulation, Drug Discovery and Disease Modelling, Preclinical Drug Development, Clinical Trials, Human Body Simulation Software), Services (In-House, Contract), End Use (Academics, Pharmaceutical Industry, Commercial), and Region 2023-2028**

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## **Abstracts**

The global computational biology market size reached US\$ 4.7 Billion in 2022. Looking forward, IMARC Group expects the market to reach US\$ 15.24 Billion by 2028, exhibiting a growth rate (CAGR) of 21.66% during 2022-2028.

Computational biology, also known as bioinformatics, is the interdisciplinary branch of science that uses math, statistics and computer science for understanding and modeling the structures and processes of life. It involves various aspects of biology, such as genetics, evolution, cell biology, and biochemistry. The process uses computational techniques, including algorithms, to represent and simulate biological systems and interpret experimental data on a large scale. Computational biology also helps understand the treatment for diseases and cellular function by creating a database of biological information from amino-acid sequences, nucleotides, and macromolecular structures. Nowadays, computational biology has become an essential part of biological research projects, including the human genome project, protein data banks and genomic databases.

Computational Biology Market Trends:

The global computational biology market is primarily driven by the rising number of clinical studies in the field of pharmacogenomics. This has helped increase the

understanding of the diverse biological makeup of the patient population, biological pathways, and the genomes underpinning them. As a result, there is a high demand for computational biology solutions, as they help reduce the overall time needed for drug discovery and various other scientific experiments. The process also aids the visualization of tools to simulate advanced drug-drug interactions. In addition to this, the growing demand for computational biology in epi-genomics, proteomics, and meta-genomics to undertint protein structures and interactions is also propelling the market growth. Furthermore, various technological advancements in drug development and disease modeling, along with increasing investments by private and government organizations in research and development (R&D) activities, are also anticipated to provide a positive thrust to the market in the near future.

#### Key Market Segmentation:

IMARC Group provides an analysis of the key trends in each sub-segment of the global computational biology market report, along with forecasts at the global, regional and country level from 2023-2028. Our report has categorized the market based on application, services and end use.

#### Breakup by Application:

- Cellular and Biological Simulation
- Computational Genomics
- Computational Proteomics
- Pharmacogenomics
- Others
- Drug Discovery and Disease Modelling
- Target Identification
- Target Validation
- Lead Discovery
- Lead Optimization
- Preclinical Drug Development
- Pharmacokinetics
- Pharmacodynamics
- Clinical Trials
- Phase I
- Phase II
- Phase III
- Human Body Simulation Software

**Breakup by Services:**

In-house  
Contract

**Breakup by End Use:**

Academics  
Pharmaceutical Industry  
Commercial

**Breakup by Region:**

North America  
United States  
Canada  
Asia-Pacific  
China  
Japan  
India  
South Korea  
Australia  
Indonesia  
Others  
Europe  
Germany  
France  
United Kingdom  
Italy  
Spain  
Russia  
Others  
Latin America  
Brazil  
Mexico  
Others  
Middle East and Africa

**Competitive Landscape:**

The competitive landscape of the industry has also been examined along with the profiles of the key players being Certara, Chemical Computing Group ULC, Compugen Ltd, Dassault Systèmes, Genedata AG, Insilico Biotechnology AG, Instem plc, Nimbus Therapeutics LLC, Schrödinger Inc. and Simulations Plus Inc.

#### Key Questions Answered in This Report

1. What was the size of the global computational biology market in 2022?
2. What is the expected growth rate of the global computational biology market during 2023-2028?
3. What are the key factors driving the global computational biology market?
4. What has been the impact of COVID-19 on the global computational biology market?
5. What is the breakup of the global computational biology market based on the application?
6. What is the breakup of the global computational biology market based on the services?
7. What is the breakup of the global computational biology market based on the end use?
8. What are the key regions in the global computational biology market?
9. Who are the key players/companies in the global computational biology market?

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