

FROST & SULLIVAN

VERISIM LIFE

2022
COMPETITIVE
STRATEGY
LEADER

*NORTH AMERICAN ARTIFICIAL
INTELLIGENCE-ENABLED PRECLINICAL
DEVELOPMENT INDUSTRY*

Best Practices Criteria for World-Class Performance

Frost & Sullivan applies a rigorous analytical process to evaluate multiple nominees for each award category before determining the final award recipient. The process involves a detailed evaluation of best practices criteria across two dimensions for each nominated company. VeriSIM Life excels in many of the criteria in the artificial intelligence-enabled preclinical development space.

| AWARD CRITERIA | |
|-----------------------------|-------------------------------|
| <i>Strategy Innovation</i> | <i>Customer Impact</i> |
| Strategy Effectiveness | Price/Performance Value |
| Strategy Execution | Customer Purchase Experience |
| Competitive Differentiation | Customer Ownership Experience |
| Executive Team Alignment | Customer Service Experience |
| Stakeholder Integration | Brand Equity |

Artificial Intelligence in Drug Discovery and Development Insights

Artificial intelligence (AI)-driven solutions to enable drug discovery and development are experiencing continuous growth within the pharmaceutical industry. Until final approval, drug discovery involves a long, complex, and high-risk process, usually taking 10 to 15 years at an average cost of \$2.8 billion. Still, between 80% and 90% of new drugs fail. Drug discovery and innovation prices have risen due to investment loss at late-stage clinical attrition, a strict regulatory system for obtaining approval, and the rising costs of clinical trials. To meet these challenges, pharmaceutical (pharma) and biotechnology (biotech) companies must innovate and adopt new technologies to improve productivity, reduce costs, and ensure sustainability.¹

As AI becomes a promising technology for drug discovery, it still faces skepticism. Also, AI’s safety and efficacy are still up for debate as it dynamically harnesses enormous volumes of genomic, biomarker, phenotypic, electronic record, and care delivery data from across health systems.²

Founded in 2017 and headquartered in San Francisco, California, VeriSIM Life eliminates waste and inaccuracy when converting drug candidates to clinical trials. The company utilizes multidisciplinary, AI-driven quantitative methodologies that forecast patient outcomes.

¹ [Enhancing preclinical drug discovery with artificial intelligence - ScienceDirect](#), accessed September 2022

² [Artificial Intelligence in Clinical Decision Support: Challenges for Evaluating AI and Practical Implications - PubMed \(nih.gov\)](#), accessed September 2022

BIOiSIM™, the company's drug discovery and development decision engine, predicts the probability of a drug candidate to treat or cure illnesses or diseases. Its Translational Index™ capability scores the likelihood of success, which allows smarter decision-making about which therapeutic molecules to eliminate, or select, for further research. Instead of trial-and-error experimentation, VeriSIM Life applies computational sciences. This machine learning (ML)-driven approach pre-flights advancements in medicine without extra trials or animal testing, allowing more patients to receive proper care and accelerating its partners' research findings.³

Aligning Technology with Vision

VeriSIM Life's core mission is to increase human life expectancy through intelligence-driven biosystem simulations and to personalize patient treatment. The company provides insights to pharma, biotech, academia, and research institutions. It conducts risk-sharing collaborations to develop promising drugs, paving the preclinical development roadmap with AI.

VeriSIM Life aims to help accelerate the translation process (translation of molecules and candidates into approved safe therapies) and make it more efficient. The company's fundamental core platform design is to integrate with what customers do rather than disrupt them.⁴

First-in-class 'Virtual Drug Development Engine'

BIOiSIM™ is a bio-simulation platform integrated with AI and ML tools. The computational platform predicts how a molecule will behave in a human subject through translation. It harnesses inputs from different drug development stages to anticipate outcomes. **BIOiSIM™** identifies blind allies and reduces risk without requiring complete patient or drug data. Despite incomplete data, the platform's AI engine still gets enough information to make better decisions, saving time.

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***- Natalia Casanovas,
Best Practices Research Analyst***

Safety and efficacy data for drug validation through only computational models were unattainable until recently. In September 2022, the passing of the FDA Modernization Act 2.0⁵ empowered drug sponsors to use alternative methods to animal testing. Finally, harnessing the latest scientific and technological advancements to drive innovation curbed the centuries-old animal experimentation controversy.

Still, understanding and predicting molecules' effects in human-relevant models is necessary for safer, more effective drugs. A pioneer in the space, VeriSIM Life integrates animal models into its bio-simulation system. Drawing from comprehensive existing databases, it accelerates preclinical development, lowering costs and risks while bringing potentially life-saving drugs to market faster.

³ <https://www.verisimlife.com/about-us>, accessed September 2022

⁴ VeriSIM Life Interview with Frost & Sullivan, September 2022

⁵ <https://www.congress.gov/bill/117th-congress/house-bill/2565?q=%7B%22search%22%3A%5B%22H.R.+1%22%5D%7D&r=33&s=1>, accessed November 2022.

BIOiSIM™ effectively leverages data from a data lake that incorporates datasets from publicly available and partnership sources, resulting in structure-related data for more than 3 million compounds, over 5000 unique animal and human validations, and physiological parameters on 196 different subject populations (specie, gender, strain, sub-strain, etc). The platform also incorporates validated synthetic data to evolve molecule reaction predictions, across different modalities, increasing overall accuracy.

The company's delivery of its technology and services further cater to client requirements. For customers seeking access to the BIOiSIM platform in a fee-for-service manner, VeriSIM Life offers its suite of tools as a service (SaaS) with engagement from its scientific professionals to achieve more successful translational and clinical trial outcomes. On the other hand, its Partnership offerings allow organizations to co-develop new drugs using **BIOiSIM™** and, hence, predict translation and reduce research and development (R&D) costs. These risk-sharing collaborations lower the risk of selecting new drug candidates and condense the development time for promising drugs.

A Comprehensive Approach to Customers' Needs

VeriSIM Life taps into available growth opportunities by leveraging its technology platform and customer reach. The company also understands the need of patients waiting for a specific drug and operates in that context.

From an industry perspective, VeriSIM Life strategically engages with customers, mainly small to mid-biotech, to bring novel therapies to market. Small biotech companies frequently drive innovation in

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Best Practices Research Analyst*

biopharmaceutical drug development, contributing to a large share of the novel therapy pipeline. However, a lengthy approval and review process can make or break their therapeutic efforts, boosting collaborations with organizations that can take drug candidates to market.⁶

The company helps clients identify compounds with higher probabilities of success early in the process. It then uses suitable models to support regulations and demonstrate the safety and efficacy of the therapies coming to market. VeriSIM Life's framework is specific to the desired output, enabling quick and customized model development.

Other benefits include:

- Training on diverse data across human and animal species
- Constant addition of new functionality and applicability domain expansion
- Multiple routes of administration
- Conclusions extraction from complex and convoluted data
- Avoiding the pursuit of dead-end drug candidates
- Reducing conventional testing expense by millions of dollars
- Shearing years in unnecessary R&D, and faster IND status achievement.

⁶ [Supporting Drug Product Innovation Through Small Biotech Companies - Drug Discovery and Development \(drugdiscoverytrends.com\)](#), accessed September 2022

These benefits result from the company's self-learning model in a cloud-based platform capable of generating predictions in seconds.

VeriSIM Life uses client feedback and a hybrid delivery approach that combines professional services and software-as-a-service (SaaS). Customers use the SaaS platform to access the portal and upload their insights. On the professional services side, the company gets real-time feedback by engaging in projects with customers to guide its product roadmap, continuously evolving its platform to maintain its innovative edge.

VeriSIM Life is proud to have satisfied customers advancing drug development worldwide. It recently announced collaborations with the Mayo Clinic⁷ and Total Brain⁸, the acquisition of Molomics Biotech, and a grant from the National Institute on Drug Abuse, part of the National Institutes of Health.⁹

The collaborations will explore the company's combined approach full potential to develop best-in-class drug candidates to serve patients' unmet needs, accelerate drug development, reduce costs, and minimize failed drug discovery for neurological diseases.

"We are excited to join the team at VeriSIM Life and infuse an already powerful translational prediction platform with our unique and highly complementary discovery technology. Our early collaboration has achieved promising initial results, and we believe the best is yet to come."

- Dr. Jascha Blobel, CEO of Molomics¹⁰

PulmoSIM Therapeutics, VeriSIM Life's wholly owned subsidiary, identifies suitable candidates for rare and progressive respiratory diseases to improve patient outcomes and quality of life. It also leverages **BIOiSIM™** to bridge the translational gap between preclinical and clinical research.

Frost & Sullivan believes that VeriSIM Life is uniquely prepared for today's demands and exceptionally positioned for tomorrow's needs. The company's clear strategic vision and execution underpin its partner-of-choice status and sustainable growth for years to come.

Maintaining Innovative Edge through a Blend of Technology and Science

VeriSIM Life has acquired customers in North America, Europe, and Asia-Pacific (Australia and Japan). The company provides exceptional customer service through its dedicated team of success experts that bring support, address needs, and expand projects. With an ultimate blend of technology and science experts, such as biologists, software engineers, algorithm designers, and AI/ML experts, VeriSIM Life ensures the platform addresses evolving market needs.

The company's customer resources, including case studies, white papers, publications, blogs, and videos, provide essential industry information while promoting its platform. Additionally, its transparent, scientifically-supported business model builds confidence in existing and potential customers.¹¹

⁷ [VeriSIM Life Enters into Collaboration Agreement with Mayo Clinic to Jointly Advance Drug Discovery and Development Programs | VeriSIM](#), accessed September 2022

⁸ [VeriSIM Life and Total Brain Announce Strategic Collaboration Agreement Applying AI to Develop New Drugs for Neurological Disorders | Business Wire](#), accessed September 2022

⁹ <https://www.verisimlife.com/press-events/nih-grant-for-substance-use-disorder-drug-discovery-and-development>, accessed September 2022

¹⁰ [VeriSIM Life Announces Acquisition of Molomics Biotech | Business Wire](#), accessed September 2022

¹¹ [VeriSIM Testimonials | VeriSIM \(verisimlife.com\)](#), accessed September 2022

“We have worked with VeriSIM Life on several projects over the past 9 months and have been very pleased with our interactions and output. The team is not only very easy to work with but has also developed sophisticated models and analyses with the same level of passion and excitement as if we were all part of the same organization.”

- Executive at Locus Biosciences

“I personally like the artificial intelligence applied to drug discovery, and have seen many companies working in the space, you are serving a niche need which is drug development. Combination of physiological knowledge with mechanistic models can solve a lot of pressing issues pharma industry is facing right now such as unnecessary preclinical experiments, trial-and-error methodologies and translatability of current simulation solutions especially in the field of large molecules. I was skeptical though during my early conversations but gained confidence over time as I came to know more about your approach and framework.”

- Director at Janssen

Since its inception, VeriSIM Life’s sterling reputation and customer-centric framework have led to its coveted preferred partner status. It constantly adds new customers to its established base.

The company understands the importance of investing in therapy effectiveness from an asset perspective to demonstrate its technology’s reliability. Its focus is investing in early-stage development followed by out-licensing rights to pharma and biotech companies instead of establishing itself as a digital biotech company, managing its clinical research. VeriSIM Life’s primary goal is to construct a scalable platform to take advantage of the most significant market opportunities.

Frost & Sullivan believes the company is well-positioned to drive the AI-enabled preclinical development space into its next growth phase, capturing market share and sustaining its leadership in the coming years.

Conclusion

Frost & Sullivan believes that innovation and growth opportunities drive future success; many factors contribute, yet having a competitive strategy is critical. VeriSIM Life understands this core concept and is leading the artificial intelligence (AI)-enabled preclinical development market due to its focused machine learning (ML)-driven approach. This path allows pre-flight advancements in medicine, reducing the need for repetitive trials and animal testing, thereby striving to outpace competitors.

The company’s strategy allows partners to achieve reliable research results faster through its computational platform, **BIOiSIM™**. The platform enables predicting how a molecule will behave in a human subject through the translation process. Its generalization and scalability design ensures adaptability.

VeriSIM Life develops and implements a hybrid, tailored customer service approach: professional services and software-as-a-service. With a strong customer-centric approach, the company secures its position as a trusted partner, especially amongst small to mid-tier pharma and biopharma players.

For its strong overall performance, VeriSIM Life earns Frost & Sullivan’s 2022 North American Competitive Strategy Leadership Award in the artificial intelligence-enabled preclinical development market.

What You Need to Know about the Competitive Strategy Leadership Recognition

Frost & Sullivan's Competitive Strategy Leadership Award recognizes the company with a stand-out approach to achieving top-line growth and a superior customer experience.

Best Practices Award Analysis

For the Competitive Strategy Leadership Award, Frost & Sullivan analysts independently evaluated the criteria listed below.

Strategy Innovation

Strategy Effectiveness: Effective strategy balances short-term performance needs with long-term aspirations and overall company vision

Strategy Execution: Company strategy utilizes Best Practices to support consistent and efficient processes

Competitive Differentiation: Solutions or products articulate and display unique competitive advantages

Executive Team Alignment: Executive team focuses on staying ahead of key competitors via a unified execution of its organization's mission, vision, and strategy

Stakeholder Integration: Company strategy reflects the needs or circumstances of all industry stakeholders, including competitors, customers, investors, and employees

Customer Impact

Price/Performance Value: Products or services provide the best value for the price compared to similar market offerings

Customer Purchase Experience: Quality of the purchase experience assures customers that they are buying the optimal solution for addressing their unique needs and constraints

Customer Ownership Experience: Customers proudly own the company's product or service and have a positive experience throughout the life of the product or service

Customer Service Experience: Customer service is accessible, fast, stress-free, and high quality

Brand Equity: Customers perceive the brand positively and exhibit high brand loyalty

