FROST & SULLIVAN

QURIS-AI
RECEIVES THE 2023
TECHNOLOGY INNOVATION
LEADERSHIP AWARD

*Identified as best in class in the Global
AI-based drug safety prediction 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. Quris-AI excels in many of the criteria in the artificial intelligence-based drug safety prediction space.

AWARD CRITERIA

Technology Leverage	Business Impact
Commitment to Innovation	Financial Performance
Commitment to Creativity	Customer Acquisition
Stage Gate Efficiency	Operational Efficiency
Commercialization Success	Growth Potential
Application Diversity	Human Capital

Artificial Intelligence-based Drug Safety Prediction Market Overview

Traditional pharmaceutical (pharma) drug discovery approaches face declining success rates for new molecules. Conventional methods rely on limited data sources and rule-based computational techniques, which prove inefficient as biological networks and drug-target interactions become increasingly complex. Properly predicting drug candidates' safety and efficacy accurately in humans is quite challenging. Artificial intelligence (AI) holds great potential in transforming drug discovery by identifying disease-specific therapeutic targets based on gene-disease associations and improving process agility. Nonetheless, several commercial AI-based technologies fail to predict clinical safety and efficacy. Frost & Sullivan points out that these inadequacies result in costly clinical trial failures, emphasizing the urgency for market participants to find the right balance between data, AI, and computational competencies to enhance their prediction capabilities.

An outstanding 92% of drugs pass tests on animals but fail in clinical trials.[1] One-third of these failures are due to safety concerns.[2] The December 2022 Food and Drug Association (FDA) Modernization Act 2.0 regulatory shift upended 84 years of formal requirements for animal testing in drug development.

[1] Anne Harding, "More Compounds Failing Phase I," The Scientist Magazine®, August 5, 2004, https://www.the-scientist.com/news-analysis/more-compounds-failing-phase-i-49707.
[2] Sydney Lupkin, "One-Third of New Drugs Had Safety Problems after FDA Approval," NPR, May 9, 2017, https://www.npr.org/sections/health-shots/2017/05/09/527575055/one-third-of-new-drugs-had-safety-problems-after-fda-approval.

As a result, a new set of drivers and restraints emerged in the pharma industry. While animal testing is no longer mandated, the regulatory environment encourages pharma companies to explore alternative technologies, such as AI, patient-on-chip, and stem cell-based methods, signaling a fundamental change in the industry's approach to drug safety prediction and a push toward innovative solutions. Frost & Sullivan analysts monitor how Quris-AI uniquely leverages its technology to meet market needs. The company is well-positioned to capitalize on new growth opportunities, cementing its leadership in the AI-enabled drug safety prediction space.

Creativity and Innovation Fuel Technology Leadership

Founded in 2020 and headquartered in Tel Aviv, Israel, Quris-AI is an AI-enabled predictive services provider. The company has developed a game-changing bio-AI clinical prediction platform that utilizes cutting-edge AI technology to improve drug development. This platform not only aims to deliver better drug safety prediction and explainability but also enables pharma companies to launch safer drugs more swiftly. Additionally, it empowers wellness consumers to make informed, safer choices. This platform revolutionizes the pharma industry by accurately predicting drug safety and efficacy and reducing reliance on animal testing, establishing Quris-AI as the industry leader. In 2022, Frost & Sullivan recognized the company for its innovative technology, strong intellectual property portfolio, and high growth potential and remains impressed with its continued innovation and sustained leadership.

The Technology

Quris-AI's bio-AI clinical prediction platform integrates AI with patient-on-chip and stem cell technology, enabling the testing of thousands of known safe and unsafe drugs on miniaturized patients-on-a-chip. This automated, high-throughput system incorporates next-generation nanosensors for continuous monitoring of organ responses to drugs.

Notably, the platform simulates the human body's reactions to novel molecules, reducing reliance on animal testing and contributing to ethical considerations in pre-clinical experimentation. The company holds a robust intellectual property portfolio with 29 granted and pending patents, offering a competitive advantage.[3] Moreover, the platform's scalability allows for cost-effective, large-scale experiments.

Quris-AI's technology has demonstrated significant benefits by successfully collaborating with Merck KGaA, validating its bio-AI approach. In a blinded study on liver toxicity prediction, Quris-AI outperformed all other known methodologies, including pure AI and organ-on-a-chip techniques, and proved significantly less expensive.

Addressing Industry Needs

In a landscape dominated by traditional and often inaccurate animal testing, Quris-AI stands out as the only company in the world dedicated to enhancing safety prediction using advanced AI technology integrated with 'patient-on-chip' biology, reducing reliance on outdated animal testing. The FDA Modernization Act 2.0 highlighted the need for improving safety prediction, and Quris-AI quickly garnered

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[3] Interview with Quris-AI, 7th September 2023.

attention from top pharma companies. Central to Quris-AI's future ventures and direction is its business roadmap, firmly built on two foundational pillars: pharma and wellness.

Multiple innovative companies are operating in the niche of AI in the drug discovery space, such as DeepMind, Generate, Insitro, Recursion, Valo, and XtalPi. Unlike other AI-pharma solutions that focus on drug discovery (screening, lead selection, optimization, and in-vitro testing) but do not predict safety, Quris-AI creates its niche within the niche by offering a platform that better indicates which drug candidates will safely work on humans. Quris-AI's patient-on-chip biology forecasts a drug's safety, thereby gauging its likelihood of success in clinical trials. This predictive capability helps pharma companies sidestep the substantial expenses associated with unsuccessful clinical trials.

Moreover, the company recognizes the pressing need for patient diversity in drug development, an issue that critically needs to be addressed. With the FDA now requiring patient diversification, Quris-AI's platform's genomic diversity capabilities give it a competitive edge. The strategic move allows pharma companies to develop drugs that cater to a broader range of patients, a critical step toward more effective clinical trials and safer drug development.

Additionally, Quris-AI empowers pharma companies to conduct innovative clinical trials on a chip, offering unprecedented insights into drug interactions, reducing safety risks, and, ultimately, enhancing drug development outcomes. The company actively addresses unmet needs through these visionary initiatives, advancing pharma research and driving positive industry change.

Fostering Innovation

Quris-AI encourages its employees to dream big, experiment, and embrace a culture of sharing and intergroup dialogue to promote innovative company culture. Its office layout bolsters collaboration between diverse teams, bridging the gap between biology, AI, machine learning, robotics, and nanosensors. This one-of-a-kind environment celebrates failures as learning opportunities and values creativity, fostering an atmosphere conducive to innovation.

Quris-AI prioritizes intergroup integration to enable rapid testing and refinements in collaboration with multiple teams before presenting them to customers, thus ensuring stage-gate efficiency. It maintains a tight dialogue with pharma companies, actively listening to their needs and aligning its technology to customer feedback. In addition, the company employs seasoned leaders and experts with scientific and pharma backgrounds, including Nobel Laureate Professor Aaron Ciechanover, co-founder of Moderna and former FDA Science Board Chairman Robert Langer, former Pfizer Chief Executive Officer (CEO) Henry McKinnell, former Biogen CEO Michel Vounatsos; and former Merck & Co. Regional President Yossi Ben Amram. These leaders play crucial roles in bridging the gap between innovation and market fit, ensuring that Quris-AI's solutions meet industry requirements effectively.

Frost & Sullivan recognizes the company's proactive endeavors to align with client and market demands by nurturing an innovative culture under the guidance of seasoned leadership.

Technology Versatility and Brand Equity Lead to Commercial Success

Quris-AI's technology exhibits remarkable versatility, finding application in various product lines, with particular emphasis on oncology, rare diseases, and the blood-brain barrier. However, the technology's

most rapid growth and adoption lie in generating clinical trial successes and reducing animal testing reliance.

The company has strategically fine-tuned its approach to target three distinct revenue streams, encompassing pharma and non-pharma domains. Within the pharma sector, Quris-AI provides safety and efficacy services focusing on drug safety. Moreover, the platform's adaptability allows it to extend its capabilities to encompass drug efficacy, enabling robust drug pipeline development.

Beyond the pharma industry, Quris-AI is making significant strides in personalized safety, expanding its reach and impact. The company's commitment to pursuing these revenue streams with dedication and vigor yields promising results.

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- Ojaswi Rana
Best Practices Research Analyst

Moreover, Quris-AI benefits from its high industry visibility, consistently garnering attention and recognition from leading publications. Its leadership position and groundbreaking innovations have earned it a place in prime outlets, such as New York Stock Exchange television interviews, further enhancing its brand recognition and appeal to potential customers.

The company has made notable commercialization progress since its inception. It anticipates substantial revenue growth by the end of 2023, followed by a tenfold increase in the subsequent year and a doubling of revenue the year after.[4] Quris-AI is actively engaged in discussions with most of the top 20 pharma companies.

As the pharma industry continues to experience explosive growth in AI, the company is well-positioned to capitalize on its groundbreaking approach to drug safety prediction, potentially achieving a valuation on par with other prominent AI pharma companies.

Strategic Practices Position Quris-AI for Future Success

In December 2022, Quris-AI secured $9 million in seed funding, bolstering its total fundraising to an impressive $37 million.[5] Moreover, it is in the process of raising a substantial $100 million in an A round of funding.[6] This ambitious endeavor highlights the interest and unwavering support from investors, indicating the company's growth potential.

In January 2023, Quris-AI partnered with Mohamed bin Zayed University of Artificial Intelligence to create a state-of-the-art bio-AI center in Abu Dhabi, the United Arab Emirates. This collaboration advances the development of personalized medications tailored to the diverse populations of the Middle East and North Africa region, thus expanding Quris-AI's global footprint. Similarly, it is also planning to enter the United States, Europe, the Pacific Rim, and Singapore.

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[4] Interview with Quris-AI, 7th September 2023.
[5] Mike Wheatley, "AI-Powered Pharmaceutical Drug Testing Startup Quris Technologies Raises $9M in Funding," SiliconANGLE, December 20, 2022, https://siliconangle.com/2022/12/20/ai-powered-pharmaceutical-drug-testing-startup-quris-technologies-raises-9m-funding/.
[6] Claire Rychlewski, "Quris Eyeing Up To $100m In New Funds," Axios, January 4, 2023, https://www.axios.com/pro/health-tech-deals/2023/01/04/quris-eyeing-up-to-100m-in-new-funds.

Customer Acquisition and the Roadmap Ahead

Quris-AI caters to two distinct customer segments: pharma companies and individual drug safety (IDS) customers. The company has successfully established its dominance in a specific yet critical niche in the pharma sector. Its reputation has attracted pharma companies proactively seeking to collaborate. Additionally, Quris-AI leverages its leadership team's extensive network of highly experienced executives to foster relationships with industry leaders.

The company also partners with premium wellness clinics, operating on a business-to-business-to-consumer model on the IDS front to extend its platform's benefits. Consumers can subscribe to this service, provide a blood sample, and have their miniature human organs on a chip grown for personalized drug safety assessments. This offering enhances drug safety for individuals and addresses the crucial challenge of genomic diversity.

> *"Frost & Sullivan believes that Quris-AI's clear vision and technological innovation strategically position it at the forefront of the AI-based drug safety prediction market."*
>
> ***- Ojaswi Rana***
> ***Best Practices Research Analyst***

By democratizing IDS, Quris-AI can generate a valuable resource of induced pluripotent stem cells derived from consumers' blood samples. This strategic approach ensures a solid foundation for the service, with plans to expand to larger healthcare organizations as the initiative grows. The reception from premium wellness clinics has been overwhelmingly positive, indicating the potential for broader adoption.

Quris-AI is strategically advancing its commercialization efforts by translating its technical excellence into compelling commercial offerings. This transformative approach includes the introduction of three new products:

- **Safe Ranking**, geared towards the early stages of drug development, focuses on hit-to-lead and lead identification.
- **Safe IND** empowers pharma companies to enhance the pre-investigational new drug (IND) process by selecting the most promising molecule for clinical trials.
- **Safe Clinical** leverages the platform's capabilities to facilitate clinical trial-on-a-chip. This unique approach allows testing drugs on diverse patients represented by multiple organs-on-a-chip, acknowledging the significant variability in individual patient responses.

Frost & Sullivan believes that Quris-AI's clear vision and technological innovation strategically position it at the forefront of the AI-based drug safety prediction market.

Conclusion

Technology is a critical success factor for the artificial intelligence (AI)-based drug safety prediction market. Yet with many options available, market stakeholders need to leverage the most appropriate and best technology-based solutions to optimize their market impact. With its proprietary platform, Quris-AI delivers accurate drug safety prediction, cost-effective solutions, and ethical and diverse drug testing. Frost & Sullivan analysts conclude that Quris-AI clearly stands out from other competitors based on its commitment to innovation and creativity while achieving commercial success. Its high visibility and recognition are testaments to its commercial achievements and industry acceptance. Quris-AI's substantial revenue growth and global market expansion pave the way for the future.

With its strong overall performance, Quris-AI earns the 2023 Frost & Sullivan Global Technology Innovation Leadership Award in the AI-based drug safety prediction market.

What You Need to Know about the Technology Innovation Leadership Recognition

Frost & Sullivan's Technology Innovation Leadership Award recognizes the company that has introduced the best underlying technology for achieving remarkable product and customer success while driving future business value.

Best Practices Award Analysis

For the Technology Innovation Leadership Award, Frost & Sullivan analysts independently evaluated the criteria listed below.

Technology Leverage

Commitment to Innovation: Continuous emerging technology adoption and creation enables new product development and enhances product performance

Commitment to Creativity: Company leverages technology advancements to push the limits of form and function in the pursuit of white space innovation

Stage Gate Efficiency: Technology adoption enhances the stage gate process for launching new products and solutions

Commercialization Success: Company displays a proven track record of taking new technologies to market with a high success rate

Application Diversity: Company develops and/or integrates technology that serves multiple applications and multiple environments

Business Impact

Financial Performance: Strong overall financial performance is achieved in terms of revenues, revenue growth, operating margin, and other key financial metrics

Customer Acquisition: Customer-facing processes support efficient and consistent new customer acquisition while enhancing customer retention

Operational Efficiency: Company staff performs assigned tasks productively, quickly, and to a high-quality standard

Growth Potential: Growth is fostered by a strong customer focus that strengthens the brand and reinforces customer loyalty

Human Capital: Commitment to quality and to customers characterize the company culture, which in turn enhances employee morale and retention

About Frost & Sullivan

Frost & Sullivan is the Growth Pipeline Company™. We power our clients to a future shaped by growth. Our Growth Pipeline as a Service™ provides the CEO and the CEO's growth team with a continuous and rigorous platform of growth opportunities, ensuring long-term success. To achieve positive outcomes, our team leverages over 60 years of experience, coaching organizations of all types and sizes across 6 continents with our proven best practices. To power your Growth Pipeline future, visit Frost & Sullivan at http://www.frost.com.

The Growth Pipeline Engine™

Frost & Sullivan's proprietary model to systematically create ongoing growth opportunities and strategies for our clients is fuelled by the Innovation Generator™.

Learn more.

Key Impacts:

- **Growth Pipeline:** *Continuous Flow of Growth Opportunities*
- **Growth Strategies:** *Proven Best Practices*
- **Innovation Culture:** *Optimized Customer Experience*
- **ROI & Margin:** *Implementation Excellence*
- **Transformational Growth:** *Industry Leadership*

The Innovation Generator™

Our 6 analytical perspectives are crucial in capturing the broadest range of innovative growth opportunities, most of which occur at the points of these perspectives.

Analytical Perspectives:

- **Mega Trend (MT)**
- **Business Model (BM)**
- **Technology (TE)**
- **Industries (IN)**
- **Customer (CU)**
- **Geographies (GE)**