RNA Reimagined: Harnessing AI to Unlock mRNA and siRNA Therapies

Ainnocence introduces an AI-native RNA engineering platform built to accelerate the next wave of programmable genetic medicines.

SAN FRANCISCO , CALIFORNIA, UNITED STATES, November 21, 2025 /EINPresswire.com/ -- Ainnocence, a next-generation AI biotech company, announces its advanced RNA and nucleic acid design platform, a breakthrough system that uses generative AI and large-scale molecular simulation to accelerate the discovery and optimization of mRNA, siRNA, ASOs, aptamers and programmable RNA constructs.

> When you can evaluate millions of RNA sequences in silico before stepping into the lab, the entire development process changes"
>
> *Dr. Lurong Pan, CEO of Ainnocence*

This new platform expands the company's multispecies drug engineering ecosystem and pushes the boundaries of what is possible in nucleic acid therapeutics, enabling safer, more stable and more precisely targeted RNA medicines.

Reengineering RNA with Machine Intelligence

RNA drug development has long been limited by challenges in sequence design, immune activation, durability, and delivery compatibility. Ainnocence's AI platform addresses these pain points by evaluating millions to billions of RNA sequences in silico, learning from evolutionary patterns, biophysical rules, and large experimental datasets.

The result is a rational, sequence-first design process that identifies optimal combinations of potency, translation efficiency, immunogenicity, and manufacturability.

SenseAI's RNA Design Engine advances several critical areas for therapeutic success:

• Computational mRNA engineering that optimizes codons, UTRs, motifs, and expression outcomes for improved efficiency, stability, and controlled immune signaling.
• siRNA, ASO and aptamers engineering with precision tuning of guide sequence efficacy, off-target minimization and enhanced likelihood of cellular entry.

• Delivery-aware sequence modeling informed by compatibility with LNPs and emerging delivery systems.
• Ultrafast in silico screening compressing years of RNA iteration into days through large-scale generative exploration.

Ainnocence's SenseAI Platform for AI-driven, sequence-based RNA and nucleic acid engineering, enabling rapid in silico design, sequence optimization and predictive modeling.

An Integrated AI Ecosystem for Nucleic Acid Therapeutics

The RNA platform is built on the same computational backbone powering Ainnocence's small-molecule, biologics, and cell-gene therapy solutions. Cross-modality prediction enables multi-target, multi-format design for partners pursuing mRNA vaccines, sequence-based gene regulators, RNA-encoded biologics, and next-generation therapeutic libraries.

"When you can evaluate millions of RNA sequences in silico before stepping into the lab, the entire development process changes" said Dr. Lurong Pan, CEO of Ainnocence. "RNA is programmable by nature. Ainnocence's AI platform makes this possible, enabling sequence-first design of RNA therapeutics that are safer, more stable and more targeted than anything achievable with traditional methods."

Partner With Ainnocence

Ainnocence welcomes collaborations with academic research teams and biopharma organizations seeking to accelerate discovery in mRNA vaccines, siRNA/ASO therapeutics, aptamer development, RNA delivery and nucleic acid engineering.

For collaboration opportunities, contact service@ainnocence.com or visit www.ainnocence.com.

About Ainnocence

Founded in 2021 and headquartered in California, Ainnocence is a next-generation biotechnology company harnessing the power of AI to revolutionize drug discovery and synthetic biology. Its sequence-first, self-evolving AI platform can virtually screen up to 10^{10} protein sequences, antibody variants, or small-molecule candidates in hours, enabling simultaneous multi-target and multi-objective optimization. By dramatically reducing R&D timelines and costs

while increasing the probability of success, Ainnocence empowers pharmaceutical, biotech, and industrial partners to pursue ambitious and previously unattainable therapeutic and biomolecular innovations. The company’s AI technology spans small molecules, biologics, RNA therapeutics, and cell and gene therapies, accelerating the discovery of life-saving medicines and sustainable biomolecules alike.

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