Ainnocence Expands the Druggable Universe: Targeting Therapeutics without Structural Data

Ainnocence's generative AI platform supports the design of novel proteins and antibodies to improve the pace and precision of drug discovery

SAN FRANCISCO , CA, UNITED STATES, November 8, 2025 /EINPresswire.com/ -- [Ainnocence](#), a next-generation AI biotech company, today announced a major advance in biologics R&D: an AI-powered protein engineering platform capable of designing, screening and optimizing billions of protein and antibody variants in silico. This breakthrough expands the limits of the "druggable universe," enabling the development of next-generation biologics that can target complex, dynamic, or previously inaccessible disease pathways.

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> *Dr. Lurong Pan, CEO of Ainnocence*

Transforming Protein Engineering through AI

Traditional protein engineering relies on iterative mutagenesis, structural modeling, and experimental screening; a process limited to evaluating fewer than 10^8 variants and often requiring months or years to identify stable, functional candidates. Ainnocence's AI platform redefines this workflow by simulating natural evolution and molecular adaptation digitally, allowing researchers to explore 10^{10}–10^{12} sequence variants overnight.

By integrating generative modeling, sequence-based learning and multi-objective optimization, Ainnocence's system evaluates each protein for binding affinity, folding stability, solubility, expression efficiency, and immunogenicity simultaneously creating high-quality designs ready for experimental validation.

Key capabilities include:

• De novo protein design: Creation of novel scaffolds, enzymes, and cytokines with custom structures and functions.
• Antibody re-engineering: Enhanced affinity, specificity and developability against complex antigens.

• Therapeutic optimization: Improved stability, manufacturability, and safety profiles.
• High-throughput in silico screening: Reducing early discovery timelines from years to weeks.

Extending the Reach of the Druggable Universe

Conventional biologics discovery has long been limited to well-behaved targets with known structural properties. Ainnocence's AI platform removes these boundaries by identifying non-traditional binding interfaces, allosteric mechanisms, and conformational dynamics that are often overlooked in static modeling.

This capability enables precision design against intrinsically disordered proteins (IDPs), membrane-associated complexes, and multi-domain targets once considered "undruggable."

"We're using AI to think biology," said Dr. Lurong Pan, CEO of Ainnocence. "Our platform doesn't just model proteins it learns from nature's own design rules, allowing us to engineer molecules that can go where conventional discovery stops. This is how we expand the druggable universe."

From Virtual Design to Real-World Impact

Ainnocence's biologics platform is already being applied to the design of therapeutic antibodies, enzymes, and vaccine candidates, offering partners an accelerated route from computational design to preclinical validation. The company's integrated AI workflow significantly reduces R&D costs while enhancing the diversity, quality, and clinical potential of biologics candidates. By integrating virtual screening with AI-guided optimization, the company is reshaping biologics R&D reducing costs while increasing innovation and clinical potential.

Collaborate with Ainnocence

Ainnocence invites academic research teams and biopharma innovators to leverage its AI-powered biologics discovery platform for antibody engineering, de novo protein design, vaccine development and precision therapeutics.

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

About Ainnocence

Founded in 2021, Ainnocence is a next-generation biotech company whose self-evolving AI platform can virtually screen 10^{10} protein sequences or small-molecule candidates for multitarget and multi-objective optimization, optimizing multiple properties simultaneously to delivering high-probability leads faster, more efficiently and at lower cost.

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