

Ainnocence Demonstrates Breakthrough AI Technology for Rapid Pandemic Response

SAN FRANCISCO, CA, UNITED STATES, January 29, 2025 /EINPresswire.com/ -- [Ainnocence](#) has achieved significant milestones in applying artificial intelligence to accelerate antibody discovery for pandemic preparedness, demonstrating unprecedented speed and efficiency in developing broadly neutralizing antibodies against multiple viral strains.

Revolutionary Success in Predicting Future-Resistant Antibodies

In a groundbreaking 2021-2022 [project](#), Ainnocence's AI platform designed 50 antibodies capable of targeting approximately 1,300 COVID viral strains. Laboratory validation at Southern Research in the USA confirmed that 25 of these antibodies demonstrated effective binding at nanomolar potency levels against two of the current representative strains at that time, with 10 showing direct neutralization effects in viral experiments.

Most remarkably, 7 of these AI-designed antibodies successfully bound to newly emerged strains that appeared after the computational design phase, with one antibody demonstrating effective neutralization against these future variants while "current" approved antibody treatment were ineffective at that time. This achievement validates the platform's capability to predict and prepare for viral mutations before they emerge in nature.

Rapid Development Success with International Partnership

In a 2023-2024 collaboration with a leading Research Institute in the Netherlands, Ainnocence's AI engine successfully designed over 150 fully expressed antibodies. The project identified multiple broadly neutralizing antibodies showing nanomolar potency against various strains in cell biology experiments. Detail of the project is under confidentiality.

Revolutionary Speed and Efficiency

These projects showcase the extraordinary efficiency of Ainnocence's AI platform:

- Computational design completed in approximately one week with low computational cost
- Virtual screening of billions of candidates without relying on antigen and antibody 3D structure
- Only 50-150 antibodies required for wet lab testing with extremely low cost
- Complete integration of design and testing within one month

Advancing Beyond Traditional Methods

This innovative approach represents a paradigm shift in antibody discovery, offering significant advantages over conventional methods:

Traditional antibody discovery methods face several key limitations:

- Animal immunization requires months of development time and may not generate antibodies that are directly translatable to human therapeutics
- B-cell culture methods are labor-intensive and limited by the natural immune response of donors
- Phage display libraries, while powerful, can be restricted in their diversity and require multiple rounds of screening

In contrast, Ainnocence's AI-powered platform:

- Reduces discovery timeline from months to weeks
- Eliminates the ethical considerations and species-translation challenges of animal testing
- Enables direct optimization for human therapeutic properties
- Screens a vastly larger theoretical space of antibody sequences
- Predicts effectiveness against future viral variants
- Significantly reduces the number of laboratory experiments needed
- Cuts both time and cost of therapeutic antibody development

Critical Need for Rapid Pandemic Response

The global health landscape faces an unprecedented challenge: the increasing frequency and unpredictability of viral outbreaks. Climate change, urbanization, and increased global mobility have created conditions where new pathogens can emerge and spread rapidly across continents. Recent years have demonstrated that traditional response timelines of 12-18 months for therapeutic development are inadequate for effectively containing emerging threats.

The need for rapid, adaptable response mechanisms has never been more critical. Experts warn that the next pandemic could emerge at any time, potentially from a completely novel pathogen or a dramatically mutated variant of known viruses. The ability to develop effective therapeutics within weeks rather than months could be the difference between contained outbreaks and global health crises.

"Our AI platform's ability to predict effective antibodies against future viral strains represents a significant advancement in pandemic preparedness," said Dr. Lurong Pan, founder and CEO of Ainnocence and recipient of the 2020 Merck Pandemic Preparedness Innovation Award. "This technology could dramatically reduce the time and resources needed to develop therapeutic responses to emerging viral threats. In a world where the next pandemic could emerge at any moment, having the capability to rapidly design and validate therapeutic antibodies is not just an

advancement – it's a necessity for global health security."

About Ainnocence Inc.

Ainnocence is a next-generation biotech company that uses advanced AI-driven platforms to accelerate drug discovery and molecular design. The company's self-evolving AI platform delivers lightning-fast virtual screening and multi-objective optimization for complex therapeutic modalities, providing transformative solutions in diagnostics and synthetic biology, and beyond. For more information, visit www.ainnocence.com or [leave us a message](#).

For media inquiries:

info@ainnocence.com

[linkedin.com/company/ainnocence](https://www.linkedin.com/company/ainnocence)

Lurong Pan, PhD

Ainnocence Inc

+1 205-249-7424

service@ainnocence.com

This press release can be viewed online at: <https://www.einpresswire.com/article/781441209>

EIN Presswire's priority is source transparency. We do not allow opaque clients, and our editors try to be careful about weeding out false and misleading content. As a user, if you see something we have missed, please do bring it to our attention. Your help is welcome. EIN Presswire, Everyone's Internet News Presswire™, tries to define some of the boundaries that are reasonable in today's world. Please see our Editorial Guidelines for more information.

© 1995-2025 Newsmatics Inc. All Right Reserved.