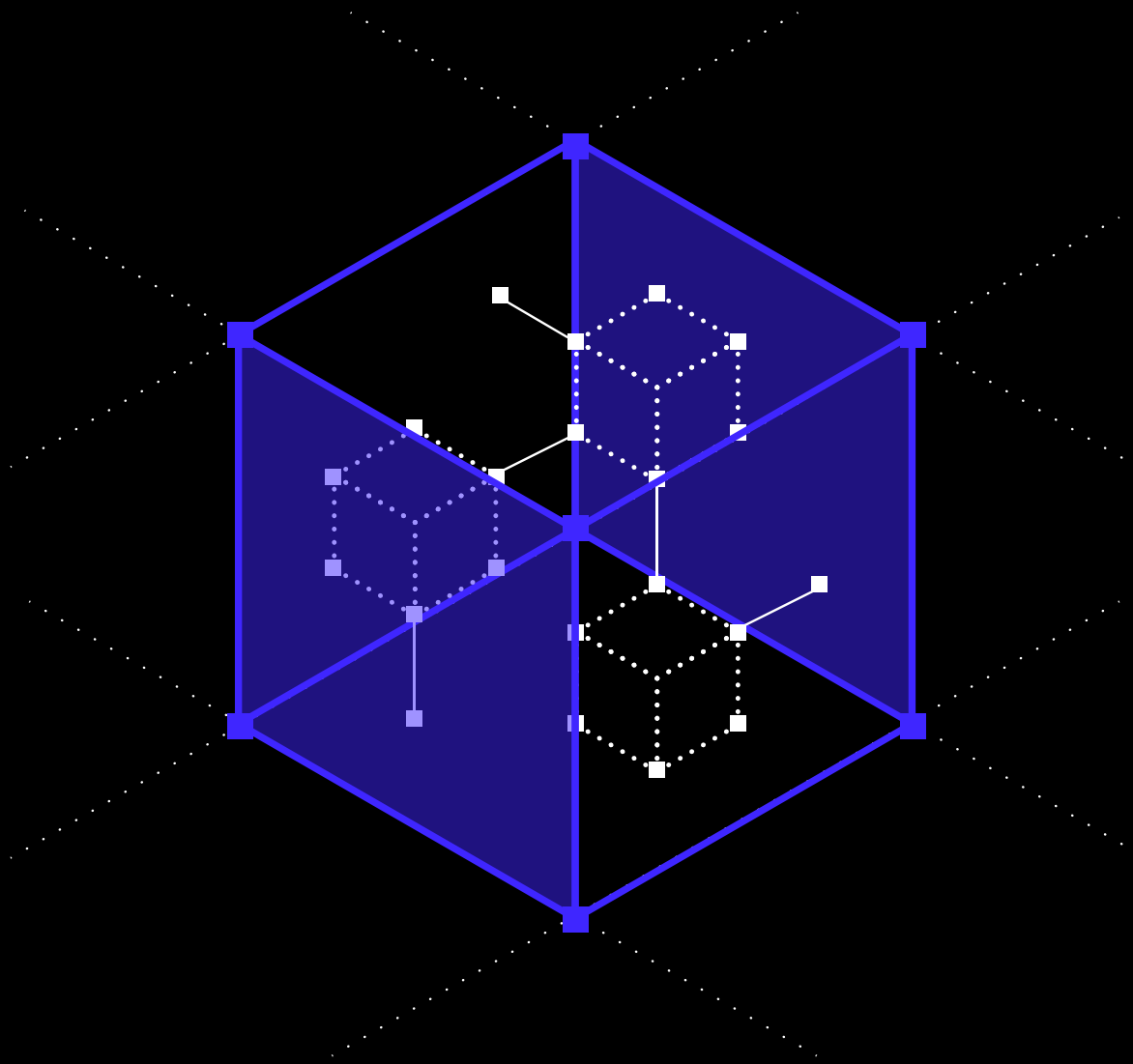


Targeting Complex Diseases with AI

How Genesis Therapeutics Scaled AI-Driven Drug Discovery with Lambda

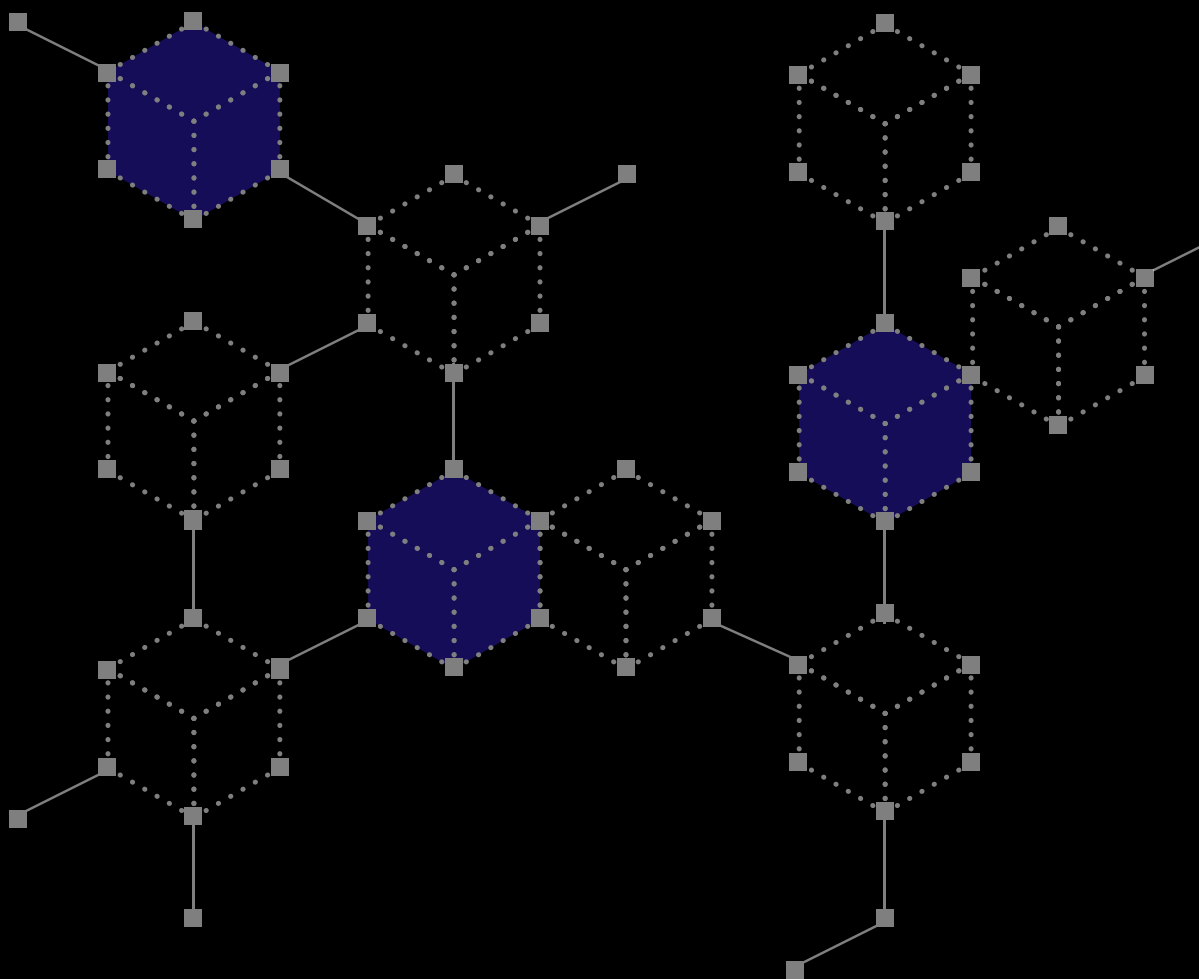


Overview

Genesis Therapeutics is at the forefront of AI-driven drug discovery, leveraging diffusion models, LLMs, and physical ML simulation together in a single platform to create next-generation protein-based therapeutics. Their mission is to accelerate the identification of treatments for complex diseases, particularly targeting “undruggable” proteins—proteins that are currently too large or intricate to be targeted effectively.

However, as Genesis expanded its research, they encountered the same bottleneck other AI innovators face: their models required exponentially more processing power to analyze and predict protein interactions, leading to long training times and slow iteration cycles.

To scale their research and accelerate discoveries, Genesis partnered with Lambda, leveraging high-performance computing to dramatically reduce training times, improve model accuracy, and push the boundaries of AI-driven drug discovery.



Challenge

Overcoming Compute Limits in Molecular AI

Genesis had already made significant progress in AI-driven small molecule drug discovery, across several internal oncology and immunology drug programs. Yet, as their research expanded to harder-to-drug targets and more intricate protein-ligand structures, the sheer computational demand began to surpass their available resources.

Key Challenges:

+ Slow Model Training

As datasets grew, model training times **increased from weeks to months**, impacting Genesis' ability to quickly iterate and refine their research.

"We hit a natural limit where training models took months. We needed results in a week or less to maintain the pace of our research."

-Wojtek Swiderski,
Director of Software Engineering,
Genesis Therapeutics

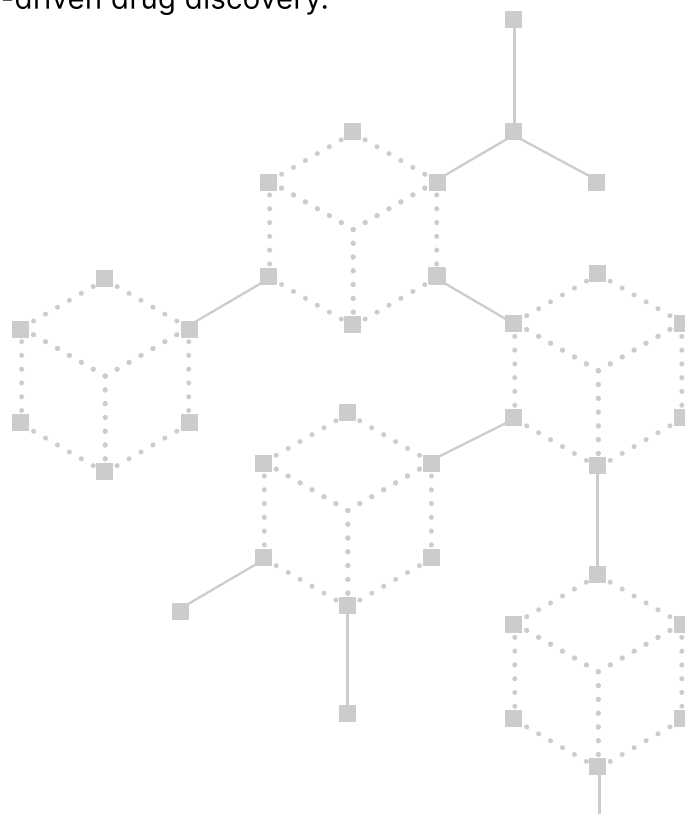
+ Scalability Issues

Their existing computational resources weren't suited to **larger datasets**, which are important for new, more complex protein targets.

Genesis needed a **scalable, high-performance AI cloud** that could keep up with the demands of AI-driven drug discovery.

+ Networking Bottlenecks

Even with high-end GPUs, slow network speeds prevented efficient utilization of hardware resources.



Solution

Accelerating AI Drug Discovery at Scale with Lambda

To process **billions of molecular candidates and simulate complex protein binding** at scale, Genesis needed an infrastructure partner that could keep pace with their cutting-edge AI models.

Using **Lambda's 1-Click Clusters**, Genesis could quickly spin up powerful NVIDIA H100 GPU clusters to train their next-gen models—all without long-term contracts or infrastructure overhead.

How Lambda Helped

+ 3X Faster Training Times

By leveraging Lambda's high-performance NVIDIA GPU clusters and NVIDIA Quantum-2 InfiniBand networking, Genesis reduced model training times from **months to just a week**, enabling faster iteration and discovery.

+ Flexible Scaling Without Lock-In → Lambda's 1-Click Cluster (1CC)

allowed Genesis to **spin up NVIDIA GPU clusters** without being tied to rigid contracts, ensuring they only paid for what they used.

+ Expert AI Support

Unlike traditional cloud providers, Lambda's **deep AI expertise** provided Genesis with hands-on technical support, helping them refine their internal code and improve system efficiency.

"Not only does Lambda solve problems, but they explain their solutions in a way that helps us improve our internal processes. It's been an invaluable learning experience."

-Wojtek Swiderski

Results

Faster AI Breakthroughs & Scalable Drug Discovery

With Lambda, Genesis unlocked the computational power needed to take their research to the next level without all of the hassle and complexity of typical GPU infrastructures.

Key Challenges:

+ 3x Faster Model Training

AI models that previously took **months** to train now complete in **a week or less**.

+ Scalable AI Research

Genesis can now process **larger datasets** and train more advanced models, accelerating research on proteins once considered undruggable.

+ Improved AI Model Accuracy

Higher computational power enables more precise simulations, **enhancing drug discovery potential**.

+ Reduced Infrastructure Complexity

With Lambda handling AI infrastructure, Genesis can focus on research rather than managing cloud resources.

What's Next?

Genesis is continuing to enhance their models, creating the most advanced molecular AI platform in the field. With **Lambda's scalable compute power**, they're pushing the boundaries of AI-driven drug discovery.

"This field is so complex that AI might understand it better than humans. Our challenge is to build models that can take us beyond our current limits—Lambda is helping us get there."

-Wojtek Swiderski

