

Ginkgo Bioworks and Google Cloud Partner to Build Next Generation AI Platform for Biological Engineering and Biosecurity

Ginkgo and Google Cloud enter strategic five-year cloud and AI partnership

Ginkgo to pioneer new large language models for biological engineering applications, powered by Google Cloud's Vertex AI platform

Ginkgo intends to make Google its primary cloud services provider, benefiting from access to next-generation computational infrastructure and AI technologies

Partnership to include funding from Google Cloud to enable Ginkgo's development of foundation models and fine-tuned applications

BOSTON, Mass. and SUNNYVALE, Calif. - Aug. 29, 2023 - Ginkgo Bioworks (NYSE: DNA, "Ginkgo"), which is building the leading platform for cell programming and biosecurity, and Google Cloud today announced a five-year strategic cloud and AI partnership, intended to enable Ginkgo to develop and deploy AI tools for biology and biosecurity.

Under the strategic partnership, Ginkgo will work to develop new, state-of-the-art large language models (LLMs) running on Google Cloud's [Vertex AI](#) platform across genomics, protein function, and synthetic biology, helping Ginkgo's customers accelerate innovation and discovery in fields as diverse as drug discovery, agriculture, industrial manufacturing, and biosecurity. Ginkgo intends to make Google Cloud its primary cloud services provider, significantly increasing its next-generation cloud computing resources, positioning Ginkgo and its customers well as the need for cloud computing expands. In addition, Google Cloud will provide funding to help Ginkgo achieve certain milestones over the next three years. The commitment underscores Google Cloud's support in advancing foundation models in the life sciences sector and selection of Ginkgo as its key partner in the development of this ecosystem.

"We believe that by partnering with Google Cloud, Ginkgo can supercharge our mission to make biology easier to engineer," said Jason Kelly, co-founder and CEO of Ginkgo Bioworks. "The most pressing challenges of our generation require biological solutions, and we must figure out how to better leverage our collective capabilities and move faster. With Ginkgo's automated Foundry to generate large scale biological data, Google Cloud's computing horsepower, and Google's AI expertise, I can't think of a better partner to scale AI solutions in biological engineering."

Ginkgo operates as a horizontal biological engineering and biosecurity platform, working to accelerate and de-risk scientific R&D projects for customers across industries. As of the most recent quarter, Ginkgo had over 100 active R&D programs on its platform with customers as diverse as Bayer, Biogen, Merck, Novo Nordisk, Sumitomo Chemical, and Syngenta. Ginkgo also has a long history of collaborating with government partners, including the Defense Advanced Research Projects Agency (DARPA) and the Intelligence Advanced Research Projects Activity (IARPA) on a number of national security priorities including sustainable manufacturing. Its biosecurity business unit, Concentric by Ginkgo, played a central role in the US response to COVID-19 and is working with the US Centers for Disease Control (CDC) and a growing list of international governments to develop biosecurity infrastructure, including pathogen detection and response.

Ginkgo has spent more than a decade developing its Foundry, which leverages extensive proprietary software and automation tools to scale and drive down the cost of research and data generation in the biotechnology sector. Ginkgo's Codebase includes over 2 billion unique protein sequences as well as a massive collection of diverse experimentally derived functional assay data. These data assets are well suited for training both

foundation models and fine-tuned applications. Through this partnership, Ginkgo plans to build a number of interconnected models for both internal use on customer programs and external release on Google Cloud Marketplace. Ginkgo anticipates its first model to be a foundation model for proteins. Once this foundation model has been successfully developed, it is expected to set the stage for a number of applications, including generative protein design, protein sequence optimization, and class specific protein functional engineering that could have broad commercial potential across therapeutics, small molecule production, gene therapy capsid engineering, and more.

“Google Cloud sees significant potential in the synergy between AI and biotechnology, and the transformative impact it can have on the world,” said Thomas Kurian, CEO of Google Cloud. “Our strategic partnership with Ginkgo is a first-of-its-kind for Google Cloud, underscoring our confidence that Ginkgo will play a critical and pioneering role in the life sciences space, leveraging AI to reshape humanity’s understanding of biology.”

Ginkgo and Google Cloud anticipate fueling a number of new Ginkgo offerings and initiatives through the collaboration, including:

- **Large language models for biological engineering:** Ginkgo plans to leverage Google Cloud’s Vertex AI platform and Ginkgo’s expansive Codebase to build and train novel foundation and task-specific models for core biological engineering challenges, supported by [Google Cloud Consulting](#).
- **Advanced infrastructure:** Ginkgo’s commitment to utilize Google Cloud’s platform will give Ginkgo strategic access to Google Cloud’s next-generation compute infrastructure, including Tensor Processing Units (TPUs), to create new models. Google Cloud TPUs are specialized hardware that accelerate machine learning workloads at scale and are optimized for training large and complex deep learning models efficiently and cost effectively.
- **Generative AI enterprise search:** With a vast and growing Codebase of labeled and unlabeled data, Ginkgo sees immense potential in piloting tools like Google Cloud’s Enterprise Search technology to better identify useful and relevant data from prior experimentation and academic literature when launching new programs.
- **Development of improved central data repositories:** Given Ginkgo’s breadth and scale, Ginkgo measures and retains a much broader and more comprehensive set of data than is typical for biotechnology companies, which are traditionally siloed within a specific therapeutic area. Ginkgo will explore Google Cloud’s BigQuery technology and its ability to securely analyze data, share analyses, stream data, and make it available to query.
- **Public data aggregation and exchange:** While Ginkgo will maintain its proprietary database, there is significant need for better public databases and tools. Ginkgo intends to leverage its work across industries and with government partners to collect and organize databases for public use. As an early example and as part of their ongoing biosecurity work, Ginkgo is now the largest private contributor of SARS-CoV-2 genetic sequences to the Global Initiative on Sharing All Influenza Data (GISAID) in the United States and has been expanding its pathogen surveillance programs globally.

Ginkgo selected Google Cloud’s Vertex AI platform based on several factors, including the platform’s ability to scale cost effectively and handle heavy duty workloads while still understanding nuances in data. In addition, Ginkgo believes the platform offers high levels of security and control over Ginkgo’s proprietary data and intellectual property, which is critical in this industry.

Ginkgo and Google Cloud plan to further discuss their partnership and the opportunities they represent at [Google Cloud Next](#), being held at the Moscone Center in San Francisco, CA from August 29 - 31, 2023.

About Google Cloud

Google Cloud accelerates every organization’s ability to digitally transform its business and industry. We deliver enterprise-grade solutions that leverage Google’s cutting-edge technology, and tools that help developers build more sustainably. Customers in more than 200 countries and territories turn to Google Cloud as their trusted partner to enable growth and solve their most critical business problems.

About Ginkgo Bioworks

Ginkgo Bioworks is the leading horizontal platform for cell programming, providing flexible, end-to-end services that solve challenges for organizations across diverse markets, from food and agriculture to pharmaceuticals to industrial and specialty chemicals. Ginkgo’s biosecurity and public health unit, Concentric by Ginkgo, is building global infrastructure for biosecurity to empower governments, communities, and public health leaders to prevent, detect, and respond to a wide variety of biological threats. For more information, visit ginkgobioworks.com and concentricbyginkgo.com, read our [blog](#), or follow us on social media channels such as X (formerly known as Twitter) (@[Ginkgo](#) and @[ConcentricByGBW](#)), Instagram (@[GinkgoBioworks](#) and @[ConcentricByGinkgo](#)), Threads (@[GinkgoBioworks](#)) or [LinkedIn](#).

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