

Bayer to Accelerate Drug Discovery with Google Cloud's High-Performance Compute Power

- *Bayer to speed up its in-silico research and development with Google Cloud's high-speed processors*
- *Collaboration aims to enable Bayer to run large quantum chemistry calculations at scale using Google Tensor Processing Units*

BERLIN and SUNNYVALE, Calif., Jan. 11, 2023 [/PRNewswire/](#) -- Bayer AG and Google Cloud today announced a collaboration to drive early drug discovery that will apply Google Cloud's Tensor Processing Units (TPUs), which are custom-developed accelerators designed to run cutting-edge machine learning models and computationally-intensive workloads, to help accelerate and scale Bayer's quantum chemistry calculations.

Bayer's research and development aims to speed up drug discovery with Google Cloud's high performance compute power.

The theory of quantum mechanics applied to computer-aided drug discovery enables the in-silico modeling of biological and chemical systems with high accuracy, and therefore has the potential to help identify novel drug candidates. The objectives of the collaboration are to accelerate and scale quantum chemistry calculations using Google Cloud's TPUs and to demonstrate fully quantum mechanical modeling of protein-ligand interactions. The results will determine the scientific and economic viability of large-scale density functional theory calculations for practical

applications.

"Bayer's aspiration to be among the leading innovators drives us to continue to invest in novel and disruptive technologies to solve complex problems," said Bijoy Sagar, chief information and digital transformation officer at Bayer AG. "Partnering with Google Cloud on TPU powered quantum chemistry complements our ambition to work with industry leaders and experts to quickly deliver on digital transformation."

"Accelerating drug discovery may be one of the most important applications for AI and high-performance computing in the healthcare industry," said Thomas Kurian, CEO of Google Cloud. "Bringing Bayer's powerful research and development capabilities together with our industry-leading infrastructure has the potential to unlock new discoveries—with greater accuracy and speed—helping to get new medicines to patients faster."

Increasing R&D efficiency to accelerate development of impactful medicines for patients in need is central to Bayer's innovation strategy.

"By combining Google Cloud's computing power with Bayer's leading expertise in drug discovery we intend to unleash the potential of large-scale quantum chemistry," said Marianne De Backer, Head of Strategy, Business Development & Licensing/Open Innovation and Member of the Executive Committee, Pharmaceuticals Division at Bayer AG. "Working with industry leaders and pioneers to leverage scientific advancements fueled by digital innovations is essential to the present and future of patient care."

About Bayer

Bayer is a global enterprise with core competencies in the life science fields of healthcare and nutrition. Its products and services are designed to help people and the planet thrive by supporting efforts to master the major challenges presented by a growing and aging global population. Bayer is committed to driving sustainable development and generating a positive impact with its businesses. At the same time, the Group aims to increase its earning power and create value through innovation and growth. The Bayer brand stands for trust, reliability and quality throughout the world. In fiscal 2021, the Group employed around 100,000 people and had sales of 44.1 billion euros. R&D expenses before special items amounted to 5.3 billion euros. For more information, go to www.bayer.com.

About Google Cloud

Google Cloud accelerates every organization's ability to digitally transform its business. We deliver enterprise-grade solutions that leverage Google's cutting-edge technology – all on the cleanest cloud in the industry. 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.

Forward-Looking Statements

This release may contain forward-looking statements based on current assumptions and forecasts made by Bayer management. Various known and unknown risks, uncertainties and other factors could lead to material differences between the actual future results, financial situation, development or performance of the company and the estimates given here. These factors include those discussed in Bayer's public reports which are

available on the Bayer website at www.bayer.com. The company assumes no liability whatsoever to update these forward-looking statements or to conform them to future events or developments.

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For further information: Bayer media contact: Dr. Imke Meyer, +49 173 5812933, Email: meyer.imke@googlemail.com; Google Cloud media contact: press@google.com

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