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Evogene and Google Cloud unveil first-of-its-kind foundation model for generative molecule design

11 June 2025 | News

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Evogene Ltd , a leading computational biology company, announced the completion of version 1.0 of its generative AI foundation model for small molecule design, developed in collaboration with Google Cloud. This first-in-class model powers ChemPass AI, Evogeneâ??s platform for small molecule discovery and optimization, and represents a major leap forward in life-science R&D.

The model addresses a critical bottleneck in both pharmaceutical and agricultural product development: the ability to design novel small molecules that meet multiple complex criteriaâ??such as efficacy, safety, stability, and patentabilityâ??simultaneously. Traditional methods typically handle these challenges in sequence, limiting innovation and IP potential. In contrast, Evogeneâ??s model enables multi-parameter optimization from the start.

Trained on a vast dataset of 38 billion molecular structures using Google Cloudâ??s advanced AI infrastructure, the model has demonstrated approximately 90 per cent precision in generating synthesizable, effective, and patentable moleculesâ??compared to ~29 per cent using conventional GPT-based models.

"Completing our foundation model is a major milestone," said Ofer Haviv, President and CEO of Evogene. "It empowers ChemPass AI to create entirely novel, IP-rich molecules, helping to reduce late-stage failures in pharma and bring more effective, sustainable ag-chemicals to market."

Boaz Maoz, Managing Director of Google Cloud Israel, added: "Evogeneâ??s innovation showcases the powerful synergy between deep scientific expertise and advanced AI infrastructure. Weâ??re excited to support their work in reshaping drug and ag-chemical discovery."

Looking ahead, version 2.0 of the model is already in development, with enhanced flexibility for tailoring molecule design to specific therapeutic or agricultural contexts. It will improve ChemPass AIâ??s ability to balance real-world constraintsâ??like toxicity, regulatory fit, and cost-effectivenessâ??making it even more valuable for industry adoption.

Evogene is actively engaging with partners in both pharma and ag-tech sectors to integrate ChemPass AI into next-generation product pipelines.