



AgPlenus launches novel AI model for predicting Antifungal potency, expanding ChemPass AI for Ag capabilities

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New AI model enables ChemPass AI for Ag to identify and prioritize antifungal molecules with a higher probability of biological success at early discovery stages



AgPlenus Ltd., a company developing novel, sustainable crop protection products and a subsidiary of Evogene Ltd., today announced the launch of its Antifungal Potency Predictor (APP). This new machine learning model predicts the antifungal potency of small molecules directly from their chemical structures, expanding the capabilities of Evogene's ChemPass AI for Ag platform by forecasting biological efficacy prior to chemical synthesis and fungal assay validation.

The global fungicide market is estimated at approximately \$221 billion annually. Fungal diseases cause significant crop loss worldwide, resulting in tens of billions of dollars in economic damage each year and posing a growing threat to global food security. Concurrently, the widespread and repetitive use of existing fungicides has accelerated the emergence of resistant fungal pathogens, diminishing the long-term efficacy of many commercial products. As resistance continues to spread, the agriculture industry faces an urgent need for novel fungicides with innovative modes of action (MoAs) and distinct chemical structures.

The APP model, developed using advanced machine learning algorithms trained on AgPlenus' proprietary curated datasets, represents a significant milestone in the company's AI-driven fungicide discovery capabilities. Building upon the proven success of the ChemPass AI for Ag platform in identifying novel crop protection targets and generating molecules with high target-protein affinity, the new model further extends these capabilities to predict the small molecule activity within the fungus itself.

By forecasting antifungal potency during the earliest discovery phases, the model enables highly informed decision-making prior to chemical synthesis and biological testing. This approach significantly reduces the number of molecules requiring experimental evaluation, focusing resources on candidates with the highest probability of downstream development success and accelerating the discovery of next-generation fungicides.

The launch of the APP model is expected to support and advance AgPlenus' internal fungicide pipeline, which includes promising targets such as APTF-1. This target is designed to combat devastating global crop diseases, including Septoria Wheat Blotch. Additionally, the model is expected to contribute to planned pipeline expansions targeting other critical pathogens, such as Botrytis and Fusarium.

Beyond its immediate application in accelerating current and future product development, the APP model lays the groundwork for additional predictive AI models that AgPlenus and Evogene plan to co-develop, aiming to forecast other critical biological attributes throughout the crop protection discovery process.

Dr. Dan J. Gelvan, CEO of AgPlenus, commented: "In 2025, we demonstrated the power of the ChemPass AI for Ag platform to identify novel target proteins capable of overcoming resistance, as well as novel active small molecules combating devastating crop diseases like Septoria Wheat Blotch. Today, we are taking another major step forward with the launch of our Antifungal Potency Predictor. By enabling us to forecast antifungal potency directly from molecular structure, prior to chemical synthesis, the APP model allows us to identify and prioritize high-quality candidates at the earliest stages of discovery. I am excited to see this breakthrough model integrated into ChemPass AI for Ag, further strengthening our ability to advance current and future product development programs."