

Collaborations Pharmaceuticals, Inc., Partners with Bausch + Lomb to Publish Research on Advancing AI Drug Development

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[Collaborations Pharmaceuticals, Inc.](#) (CPI) has partnered with [Bausch + Lomb](#) to build and validate an array of artificial intelligence (AI) machine learning models with the goal of identifying new oral drugs that could reach the eye. The resulting paper, "MegaEye: Applying multiple machine learning approaches to identify oral compounds with ocular bioactivity," was recently published in [Artificial Intelligence in the Life Sciences](#).

Oral administration of drugs to treat eye diseases has often failed in clinical trials. The ability of a molecule to reach a specific target in the eye is largely determined by whether its

physicochemical properties permit passage across the various ocular barriers that are relevant to the route of administration and the target location. CPI has been working with Bausch + Lomb to curate various public data for generating several computational models and a large language model called MegaEye, which was built to streamline the molecule repurposing and discovery process for ocular indications.

CPI identified over 100 oral drugs that could potentially be used for treating eye diseases, which were not previously widely known. CPI also used its models to search a very large natural product database to find potential repurposing candidates.

"Topical application is considered the easiest and safest route for delivering drugs to the eye, but oral dosing represents a non-invasive method that does not require sterile conditions and does not have compliance issues. Our work with Bausch + Lomb can help discover new molecules that



Mega eye logo

could represent future research projects for various eye diseases. We also illustrate how published data can be carefully curated and used to build these AI models, which represents a new opportunity for eye research," commented Sean Ekins, PhD., CEO of CPI.

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