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(57) Abstract :
INTELLIGENT PREDICTIVE ANALYTICS FRAMEWORK FOR ACCELERATED DRUG DISCOVERY AND DEVELOPMENT THROUGH ADAPTIVE AI OPTIMIZATION TECHNIQUES ABSTRACT The present invention introduces an Intelligent Predictive Analytics Framework for accelerating drug discovery and development through adaptive artificial intelligence (AI) optimization techniques. This framework leverages a comprehensive analysis of biological and chemical data, including genomic, proteomic, and metabolomic information, to generate predictive models that inform drug candidate selection. Utilizing reinforcement learning and iterative simulations, the framework optimizes the identification of high-potential drug candidates while continuously refining models based on real-time experimental feedback. It integrates cloud-based computing for enhanced scalability and quantum computing techniques to expedite molecular modeling. A user-friendly interface facilitates interactive exploration of model outputs, while ethical AI guidelines ensure responsible usage. By incorporating external data sources for a holistic view and enabling collaboration among multidisciplinary teams, this framework significantly enhances the efficiency, safety, and efficacy of the drug development process, ultimately leading to innovative therapeutic solutions.

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