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"INNOVATING HEALTHCARE: HOW ARTIFICIAL INTELLIGENCE DRIVES PHARMACEUTICAL BREAKTHROUGHS"

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ABSTRACT :

Artificial intelligence (AI) is dramatically reshaping pharmaceutical research by accelerating drug discovery, enhancing development methods, and enabling cost-effective solutions for human health. By integrating AI across various stages—including target identification, formulation, and clinical testing—the pharmaceutical sector is able to manage large datasets, simulate biological responses, and accurately predict drug interactions. Advanced machine learning models optimize solid dosage form development, allowing researchers to forecast pharmacokinetic properties and assess safety profiles faster and with greater precision.AI-driven approaches, such as deep learning and neural networks, are revolutionizing the design and testing of therapeutic candidates. They enable virtual screening of chemical libraries, rapid identification of disease biomarkers, and even the repurposing of existing medications for new therapeutic uses. The synergy of AI and 3D printing further opens pathways for customized dosage forms, supporting patient-specific treatment strategies. In healthcare, AI powers advanced diagnostic tools, digital therapy applications, and the prediction of epidemic outbreaks, helping clinicians and researchers respond more effectively to global health challenges.Continuous innovation in AI is redefining conventional research processes and advancing the emergence of precision medicine. By combining powerful algorithms and data-driven methods, the pharmaceutical industry is set to deliver safer, more effective, and individualized therapies. As AI technology progresses, it promises to elevate productivity and drive future solutions for drug development and personalized care.

KEY WORDS :

Artificial Intelligence , Drug Discovery , Machine Learning , Personalized Medicine , 3D Printing