

Artificial Intelligence in Pharmaceutical Products Development

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Abstract: The abstract highlights the transformative role of Artificial Intelligence (AI) in drug discovery, covering key aspects such as de novo drug design, synthesis planning, and the future implications of AI in pharmaceutical research. It begins by emphasizing AI's significant impact on drug discovery, particularly in applications like virtual screening and drug design. The survey provides a detailed overview of drug discovery, focusing on molecular property prediction and molecule generation. It explores essential components like data resources and benchmark platforms. The chronological organization of AI techniques showcases the historical evolution of AI in drug discovery. The abstract further discusses AI's applications in the pharmaceutical lifecycle, manufacturing, and post-market surveillance. It concludes by projecting the future role of AI in drug discovery, emphasizing precision medicine, personalized experiences, and collaborative efforts between AI and human researchers.

Keywords: Artificial intelligence, Quantitative Structure-Property Relationship, De novo drug design, Predictive modeling

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