Special Issue

Recent Advances in Drug Delivery Using AI and Machine Learning

Message from the Guest Editors

The evolving landscape of drug delivery has seen significant advancements with the emergence of nanoparticle-based systems, offering improved solubility, stability, and targeted therapeutic action. However, traditional development approaches often face challenges, such as inefficient drug loading, unpredictable release kinetics, and off-target effects. Integrating artificial intelligence (AI) and machine learning (ML) into nanoparticle-based drug delivery has the potential to overcome these limitations by enabling precise formulation design, optimizing nanoparticle properties, and personalizing drug release strategies. In this Special Issue, we invite researchers to submit original research articles, reviews, and short communications focusing on AI- and ML-integrated nanoparticle-based drug delivery systems. Contributions exploring predictive modeling of nanoparticle interactions, optimization of carrier design, AI-guided formulation strategies, and novel applications of computational tools in nanomedicine are particularly welcome.

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