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SURVEY

A review of deep learning algorithms for modeling drug interactions

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Abstract

The interactions between therapeutics and their targets are an important part of the drug development process. To counter the cost, time and accuracy related issues, novel and efficient DL algorithms are required. These approaches have proven successful in quickly identifying and predicting possible drug interactions. Here, we examine computational strategies for predicting drug interactions in the context of drug development, focusing on artificial intelligence-based approaches. We start by providing a succinct overview of deep learning in drug development and drug interactions. Next, we review and evaluate AI-based methods used to forecast Drug–Target Interactions, drug–drug interactions, drug–disease interactions, and ploy-pharmacy side effects, including both sequential and graph-based modern DL algorithms. Lastly, we examine databases with their brief description and sources that are frequently utilized to research drug interactions.