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A Review on Machine Learning-Driven Target Identification and Validation in Accelerating Drug Discovery

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Abstract: *Machine learning has emerged as a transformative technology in modern drug discovery, enabling rapid identification and validation of therapeutic targets with improved accuracy and reduced development timelines. This review examines the role of ML algorithms including supervised, unsupervised, and deep learning models in analyzing complex biological data, predicting drug–target interactions, and validating target relevance through integrative computational frameworks. A synthesis of applications, challenges, and future prospects is presented, supported by a comparative table and relevant computational formulae.*

Keywords: Machine Learning, Target Identification, Target Validation