

AI Assisted Discovery of Disease Modifying Therapeutics for Alzheimer

Dharini Agnihotri¹, Sakshi Tripathi^{1*}, Priyanka Mishra^{1*}, Mohit Nigam², Neeraj Mishra²,
and Lalit Kumar Singh³

¹Department of Pharmaceutical Sciences, School of Pharmaceutical and Biological Sciences,
Harcourt Butler Technical University, Kanpur-208002, U.P., India

²Department of Biotechnology, School of Pharmaceutical & Biological Sciences,
Harcourt Butler Technical University, Kanpur-208002, U.P., India

³Department of Biochemical Engineering, School of Chemical Technology,
Harcourt Butler Technical University, Kanpur-208002, U.P., India

*Corresponding author

ABSTRACT

Alzheimer's disease is a progressive neurodegenerative disorder which results in Memory loss, cognitive decline, behavioural changes, it is one of the leading causes of Dementia worldwide. Factors contributing for the difficulties of developing effective drugs for the treatment, includes its complex nature and the high failure rates of clinical trials conducted. The emerging technologies i.e. artificial intelligence which has been recently Introduced into the field of drug discovery is providing powerful computational tools that Enable scientists to analyze large biochemical datasets. Several AI-based methods can be Applied in the process of drug discovery to identify potential drug targets, predict drug–target Interactions, design new therapeutic molecules, etc. Such as, AI can be used to optimize the Properties of a drug like bioavailability, that predicts the toxicity, improving the Pharmacokinetic profile of a drug. Thus, using AI to develop drugs can greatly reduce the Time and cost associated with the drug development process. When applied to the study of Alzheimer's, AI provides a means to understand the mechanisms that leads to the Development of this disease, to discover new biomarkers, and to develop personalized Treatment approaches. In development of novel drug therapies, the ability of AI to assist for Alzheimer's provides a unique opportunity to increase efficiency and optimize outcome of Clinical trials. This paper discusses the application of AI to the advancement of pharmaceutical research associated with the drug discovery process for Alzheimer's disease, and the potential future applications of AI to the treatment of neurodegenerative diseases.

Keywords: AI, Alzheimer's, Drug Discovery, Machine Learning, Personalized medicine

