



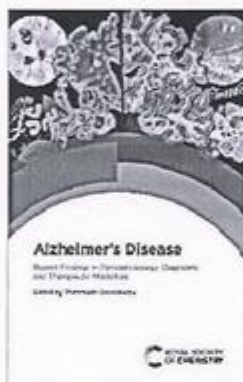
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### Alzheimer's Disease: Recent Findings in Pathophysiology, Diagnostic and Therapeutic Modalities

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BOOK CHAPTER

## Chapter 18: Computational Development of Alzheimer's Therapeutics and Diagnostics

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Alzheimer's disease (AD) is one of the most devastating diseases that affects the human brain. Currently, there are no potent therapeutic treatments available except for a few FDA approved drugs that are used for treating the symptoms associated with the disease. For diagnostics, there are only a few tracers available for amyloid and tau imaging. With the use of state-of-the-art computational approaches, the development of novel diagnostics and therapeutics will enable a larger success rate. In this chapter, we cover various aspects of AD including biomarkers, drug targets and computational methods available for developing therapeutics as well as diagnostic strategies. We also briefly review the progress made with the use of computers. The chapter covers the following vital targets of relevance in AD: amyloid and tau fibrils,  $\beta$ -secretase,  $\gamma$ -secretase, acetylcholinesterase, butyrylcholinesterase, muscarinic acetylcholine receptors, nicotinic acetylcholine receptors, monoamine oxidases A and B.

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