

Abstract

Polzerová, I: Use of kinase modulation in the Alzheimer's disease pathogenesis. Diploma thesis, Charles University in Prague, Faculty of Pharmacy in Hradec Králové, Department of Pharmaceutical Botany and Ecology, Hradec Králové 2016, 91 p.

Data used in this Diploma Thesis have been taken from foreigner scientific literary sources. It provides the summary of the not yet explored natural compounds from marine organisms with kinase inhibitory activity.

The first chapter Alzheimer's disease describes a characteristic of the disease, its etiopathogenesis, risk factors and currently available treatment. At the beginning of the second chapter are mentioned new perspective approaches to treatment of Alzheimer's disease. Most of this chapter deals with kinases as potential therapeutic targets in the treatment of Alzheimer's disease. In the chapter, physiologic and pathophysiologic functions of GSK-3 β and CK-1 δ are described in the organism, and also, other kinases are mentioned which are involved in the pathogenesis of the disease. Next part dedicates analytical methods suitable for testing activity and inhibition of kinases *in vitro* and *in silico*, also deals with summary of the synthetic kinase inhibitors and characterizes an their properties. In this chapter is also described main part of this work – the whole summary of the not yet explored natural products from marine organisms with kinase inhibitory activity. This part is structured according the mechanism of inhibition of natural inhibitors. For compounds, which exhibit good bioavailability and which seem to be of potentially interesting for the treatment of Alzheimer's disease, the effectivity is compared using values of the half maximal inhibitory concentration IC₅₀. There is also evaluated the current state of scientific research of natural inhibitory compounds.

Key words: Alzheimer's disease, natural products, kinases (GSK-3 β a casein kinase-1 δ)