

## **Abstract**

Parkinson's disease is a complex neurodegenerative disease with a significant burden on individuals as well as on society. Currently, there are only symptom-relieving treatments available to treat this disease. Recent findings confirm that neuroinflammation plays a key role in the pathophysiology of neurodegenerative diseases in general. Therefore, modulation of various neuroinflammatory mechanisms offers promising therapeutic approaches also to causally influence the progression of Parkinson's disease. Based on current knowledge, this bachelor's thesis summarizes therapeutic strategies in Parkinson's disease consisting in specific modulations of the neuroinflammatory process. The thesis is focused especially on topic of influencing the microglial activity through various pro-inflammatory signaling pathways involving relevant receptors, enzymes and transcription factors. As modulators of neuroinflammation, not only newly developed molecules are presented, but also substances known for a long time. However, the promising evidence regarding the mentioned ways of intervention in neuroinflammation is obtained mainly in experimental models so far. For this reason, critical evaluation of the conducted studies is necessary due to real applicability of their findings in clinical practice.

**Key words:** Parkinson's disease, neuroinflammation, treatment, microglia,  $\alpha$ -synuclein, dopamine