

## **ABSTRACT**

Charles University in Prague

Faculty of Pharmacy in Hradec Králové

Department of Pharmacology & Toxicology

Student: Michal Čečrle

Supervisor: Prof. PharmDr. Petr Pávek, Ph.D.

Title of diploma thesis: Introduction of cellular NF- $\kappa$ B model

NF- $\kappa$ B is the most important transcription factor involved in cell signaling of inflammatory processes. It participates in the inflammatory reaction in the distinct compartments of the living organism. As a transcription factor, it controls the gene expression of many genes, especially cytokines (tumor necrosis factor alfa, interleukins: IL-1 $\beta$ , IL-2, IL-6, IL-12; chemokines etc.).

NF- $\kappa$ B is also a key factor in the activation of monocytes and macrophages

In this diploma thesis I focused on the role of NF- $\kappa$ B in the monocyte cell line THP-1. This line is an important model of human macrophages in which the THP-1 line can be differentiated. Using available literature, I summarized all the available knowledge on this issue. At the same time, I conducted several experiments on NF- $\kappa$ B activation in the THP-1 line as a potential model in the research and development of therapeutic intervention in NF- $\kappa$ B signaling to suppress inflammation.