ABSTRACT

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Title of diploma thesis: **Interactions of new compounds with constitutive androstane receptor**

Nuclear receptors (NRs) are ligand-activated transcription factors that regulate the expression of genes involved in a broad range of biological processes.

Pregnan X receptor (PXR) and constitutive androstane receptor (CAR) are members of the orphan NR subfamily, that were originally defined as xenobiotic sensors regulating the expression of drug-metabolizing enzymes in order to protect the body from toxic chemicals.

Alteration in CAR function may impact not only pharmacokinetics, efficacy, and toxicity of drugs but also endocrine homeostasis, energy metabolism, and cell proliferation.

The aim of this study was to verified interactions of newly synthesized compounds with human CAR. Using the methods of gene-reporter assay and two-hybrid assay we tested 40 agents in various concentrations in HepG2 and LS174T cell lines.

As the direct ligands of hCAR with significant transcriptional activity we have identified two substances, namely 2 - (3-methoxyphenyl)quinazoline-4-thiol, resp. -ol used in concentration of 10 μM.

In the future, the results of this study may lead to finding other specific ligands, to identify the chemical structure responsible for this effect, and finally understanding the function of CAR receptor in the human organism.