ABSTRACT

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Title of rigorous thesis: Study of the effect of roscovitine and its derivatives on the expression of drugs transporters *in vitro*

In this study we aimed to evaluate interactions of selected inhibitors of cyclin-dependent kinases (CDKi) with efflux transporters ABCB1 (P-glycoprotein, P-gp, MDR1) and ABCG2 (breast cancer resistance protein, BCRP) in cell line LS174T derived from human adenocarcinoma of colon. Among the selected compounds belong roskovitin and its derivates designed as BA-12 and BP-14. Previous studies demonstrated that these substances inhibit both mentioned transporters and therefore increase the effect of simultaneously administrated cytotoxic drugs. Since the drug interactions on the level of transporters can arise from induction of their corresponding genes, the aim of this work was to extend the current knowledge on mentioned derivates of roskovitin in terms of possible affection of *ABCB1* and *ABCG2* expression. Enhanced expression could promote developement of multidrug resistance (MDR). Results of this work obtained with qRT-PCR method show that neither BA-12 nor BP-14 increase expression of *ABCB1* and *ABCG2* mRNA in LS174T cells after 24 or 48 hours-long exposition. This fact suggests that in the case these novel compounds would be introduced into the therapy, they could fully utilize their ability of overcoming MDR through modulation of efflux transporters, without inducing their expression