ABSTRACT

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Title of diploma thesis: Effect of imatinib on selected mice microRNAs

Imatinib (IMB) belongs to low molecular weight tyrosine kinase inhibitors (TKI). One of the undesirable effects of IMB is cardiotoxicity. Early diagnosis of heart damage is important for improving human health. MicroRNAs (miRNAs) are intensively studied as potential early biomarkers of cardiac damage. They are not only intracellular but also circulating freely in the bloodstream. Plasma miRNAs are stable, resistant to repeated freezing and methods of their detection are very sensitive. In my diploma thesis I have studied changes in the expression of miRNAs in plasma in the IMB induced heart damage. I have analyzed circulating plasma miRNAs and also miRNA levels in mice hearts. Selected miRNAs were measured by quantitative real-time PCR (qPCR). Plasma Troponin T levels were also measured as classical biomarker of cardiotoxicity.

Troponin T levels in the IMB-treated plasma were very variable. This fact points to different responses of individuals to IMB. Changes in expression of observed miRNA in plasma affected by IMB were not significant. Statistically significant reduction in expression occurred only in the level of miR-205 in cardiac tissue. My results did not prove applicability of selected miRNAs due to non-significant differences. More extensive studies are required for using miRNA as biomarkers of IMB cardiotoxicity.