ABSTRACT

Charles University in Prague
Faculty of Pharmacy Hradec Králové
Department of Pharmaceutical Chemistry and Drug Control
Student: Kateřina Babková
Supervisor: Assoc. Prof. Veronika Opletalová, Ph. D.
Specialized supervisor: Janne Weisell, Ph. D.
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Prostate cancer is the most prevalent type of solid malignant tumour among men and the second highest cause of cancer related mortality of men after lung cancer. Every year the number of new cases is growing. To prevent this disease it is important to think about a healthy lifestyle and not to underestimate regular health checks because prevention and early diagnosis can bring better therapy results.

Among others, prostate cancer can be diagnosed from urine samples. Increased levels of polyamines are the sign that something is wrong. Polyamines are ubiquitous in living mammalian cell, their metabolic pathways are still not clarified in depth but if a problem appears in their metabolism (for example enzyme overproducing, higher levels of any polyamine metabolite) it won´t mean anything good.

The aim of my work was to synthesize natural polyamines and their analogues which are produced by microorganism causing urinal infections of patients. Their metabolic end product can affect the urine results (false positive). Another use of my prepared compounds can be as future standards for olfactory measuring of urine samples.

Beyond preparing microorganism´s metabolism end products, I also synthesized their deuterated analogues because they are used as internal standards for liquid chromatography (LC) coupled to tandem mass spectrometry (MS/MS) to minimalize mistakes and inaccuracies.