



**Prof. Michal Hocek, Ph.D., DSc.**  
Head of Research Team in Bioorganic and Medicinal Chemistry

## Supervisor's evaluation and report on PhD thesis

### Novel modified nucleosides with antiviral or cytostatic activity

author: **Anna Tokarenko**

**Anna Tokarenko** performed her PhD research project under my supervision from 2011 till 2018. Then she left my group to do research at the Charles University but the writing up and submission of her thesis was delayed until 2020. She was working on two projects dealing with the design and synthesis of modified nucleosides with potential antiviral or cytostatic activity. In the first part, she developed the synthesis of diverse phenyl or pyridyl C-nucleosides bearing 2'-methylribose, which were designed as analogues of antiviral drug sofosbuvir. The synthesis was very difficult and she had to overcome problems with stereoselectivity and orthogonal protection groups. She managed to synthesize all target compounds but unfortunately they did not show any significant antiviral effect. She also synthesized triphosphates for the study of inhibition of viral polymerases. The first part was published in *Eur. J. Org. Chem.* In the second part, she developed the synthesis of pyrrolo-fused 7-deazapurine ribonucleosides which exerted potent cytostatic activity in submicromolar concentrations and she also prepared some nucleotides as standards for the study of the cell metabolism of the nucleosides. The second part was first patented and then published in prestigious *J. Med. Chem.*

Anna is a smart and skillful chemist. She was able to work quite independently. Unfortunately, after she left my group it took her almost 2 years to write up and submit the thesis. Despite the delay, she fulfilled all the requirements for the PhD title and I recommend her thesis for defense and further proceeding to be awarded the PhD degree.

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Prof. Ing. Michal Hocek, CSc., DSc.