

## Jury Member Report – Doctor of Philosophy thesis.

**Name of Candidate:** Olga Musharova

**PhD Program:** Life Sciences

**Title of Thesis:** Investigation of DNA-binding specificity of Cas1-Cas2 CRISPR adaptation complex in *E.coli*.


**Supervisor:** Professor Konstantin Severinov

**Chair of PhD defense Jury:** Professor Philipp Khaitovich

**Email:** [p.khaitovich@skoltech.ru](mailto:p.khaitovich@skoltech.ru)

**Date of Thesis Defense:** October 17, 2017

**Name of Reviewer:**

I confirm the absence of any conflict of interest	<b>Signature:</b>
(Alternatively, Reviewer can formulate a possible conflict)	
	<b>Date: 12-09-2017</b>

*The purpose of this report is to obtain an independent review from the members of PhD defense Jury before the thesis defense. The members of PhD defense Jury are asked to forward a completed copy of this report to the Chair of the Jury at least 30 days prior the thesis defense. The Reviewers are asked to bring a copy of the completed report to the thesis defense and to discuss the contents of each report with each other before the thesis defense.*

*If the reviewers have any queries about the thesis which they wish to raise in advance, please contact the Chair of the Jury.*

### Reviewer's Report

Reviewers report should contain the following items:

- Brief evaluation of the thesis quality and overall structure of the dissertation.
- The relevancy of the topic of dissertation work to its actual content
- The relevancy of the methods used in the dissertation
- The scientific significance of the results obtained and their compliance with the international level and current state of the art
- The relevance of the obtained results to applications (if applicable)
- The quality of publications

- The summary of issues to be addressed before/during the thesis defense

Olga Musharova's thesis focuses on detailed investigation of CRISPR mechanism in E. Coli with a specific focus on target identification for the main CRISPR Cas1-Cas2 protein complex, Cas3 nuclease. The thesis is clearly written and includes a comprehensive background review, as well as detailed description of experimental procedures and their results, as well as discussion parts summarizing the finding and proposing a model of primed adaptation by the E. Coli CRISPR-Cas system.

It is clear that the student conducted a lot of good experimental research work during her PhD. The topic of dissertation is clearly relevant to the content and the results add substantially to the existing body of knowledge, the fact partially reflected by an excellent publication authored by the student in NAR, as well as her publications as co-author. I actually have an impression that some of the work the student has done and published was not included in the thesis, which is a pity, if true. In any case, in my view, presented work is already sufficient to warrant excellent thesis evaluation.

#### **Provisional Recommendation**

*I recommend that the candidate should defend the thesis by means of a formal thesis defense*

*I recommend that the candidate should defend the thesis by means of a formal thesis defense only after appropriate changes would be introduced in candidate's thesis according to the recommendations of the present report*

*The thesis is not acceptable and I recommend that the candidate be exempt from the formal thesis defense*