

## Jury Member Report – Doctor of Philosophy thesis.

**Name of Candidate:** Aleksandra Strotskaya

**PhD Program:** Life Sciences

**Title of Thesis:** Effects of Targeting by the *Esherichia coli* I-E CRISPR-Cas System on Infection by Various Phages.


**Supervisor:** Professor Konstantin Severinov

**Chair of PhD defense Jury:** Professor Yuri Kotelevtsev

**Email:** [y.kotelevtsev@skoltech.ru](mailto:y.kotelevtsev@skoltech.ru)

**Date of Thesis Defense:** October 24, 2017

**Name of Reviewer:**

I confirm the absence of any conflict of interest	<b>Signature:</b>  <b>Date:</b> 24-09-2017
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*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

The thesis of Aleksandra Strotskaya is a high quality and interesting piece of work that is relevant in the current international CRISPR field. The main paper, where the activity of CRISPR Type I-E is tested on a variety of phages with different lifestyles is an interesting and novel piece of work, which may lay the foundation to further investigations. The methods range from classic (phage work) to contemporary (NGS sequencing). The main work has been published as a single piece in Nucleic Acids Research. The underlying method has been published separately in Methods in molecular biology. She has co-authored a paper in PNAS.

This reviewer will question the candidate about the different mechanisms of escape from CRISPR immunity. Furthermore we will discuss the differences between abortive infection and immunity, and the reasons for believing CRISPR may be the former. We will also discuss the absence and presence of spacers against the various phage classes.

#### **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*