

## Jury Member Report – Doctor of Philosophy thesis.

**Name of Candidate:** Julia Piskunova

**PhD Program:** Life Sciences

**Title of Thesis:** Structural and Functional Analysis of Ribosomally Synthesized and Post-Translationally Modified Microcins from *Escherichia coli*.

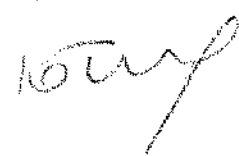
**Supervisor:** Professor Konstantin Severinov

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

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

**Date of Thesis Defense:** October 27, 2017

**Name of Reviewer:**

<p>I confirm the absence of any conflict of interest</p> <p>(Alternatively, Reviewer can formulate a possible conflict)</p>	<p><b>Signature:</b></p>  <p><b>Date:</b> 22-09-2017</p>
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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 thesis of Julia Piskunova is well written and contains original experiments describing structural and functional analysis of two microcins in relation to the phenomenon of persistence, or survival of specific population of bacterial cells under the pressure of antibiotic selection. It is rather short with experimental part squeezed in 20 pages.
- The relevancy of the topic of dissertation work to its actual content.  
Thesis consists of two independent studies. The first part is devoted to functional analysis of peptide antibiotic microcin C and contains original experiments uncovering toxin antitoxin relations and mechanisms of persistence. The second part is devoted to

Structural/functional relations of microcin B. These parts are completely independent. It makes difficult to present a joint abstract, which in the present form does not reflect the main findings of the thesis.

- The relevancy of the methods used in the dissertation  
The methods are relevant and demonstrate wide range of skills in experimental molecular biology of prokaryotes.
- The scientific significance of the results obtained and their compliance with the international level and current state of the art  
Results obtained in both parts are novel and contain clear scientific value.

- The relevance of the obtained results to applications (if applicable)

The study does not support possible medicinal value of micromicin C and rather suggests that it won't be developed into clinically useful antibiotic, as it increases persistence of the bacteria.

- The quality of publications  
Only one paper was published in the specialist journal (Molecular microbiology) with impact factor 4. Second paper is submitted, but has not been accepted yet.
- The summary of issues to be addressed before/during the thesis defense  
The thesis is assembled around two papers, one published and one submitted, to satisfy the requirements of at least two publications on the subject of the thesis. However, these two papers are not sufficiently linked logically. I can't recommend the thesis for defense, before more research has been done supposedly on part 1, which is more advanced. In this case part 2 should be excluded. One more publication on the subject will be required.

#### 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