

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

Date of Thesis Defense: October 27, 2017

Name of Reviewer: Satish K. Nair

<p>I confirm the absence of any conflict of interest</p> <p>(Alternatively, Reviewer can formulate a possible conflict)</p>	<p>Signature:</p> <p>October 15, 2017</p> <p>Date: DD-MM-YYYY</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 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 focus of this thesis work is on two classes of ribosomally synthesized and post-translationally modified peptide (RiPP) antibiotic microcin C. The first half of the thesis shows that microcin C can induce persistence, which can be of major relevance in antibiotic use. The second half of the thesis carries out analysis of the protease that processes a variant congener of microcin C to yield the active drug.

The topic of the dissertation is relevant to the content, and to the methods utilized. The work has resulted in one publication in a high level journal and a second manuscript that has been submitted to JACS and is currently in revision. The quality of the first publication is excellent and, extrapolating from the content, the second manuscript is also likely to be of high impact.

There are only a few minor points to be addressed (mostly of the editorial kind).

Few minor edits:

Page 16- define what “stable” refers to.

Page 18: please change abbreviation of glutamyl tRNA synthetase to GluRS (as is common use).

Page 28: in BCD synthases, cyclization and dehydration are concerted. Change to ‘cyclodehydration’.

Minor typographical errors:

Page 9 (“...which renders a resistant by ...”). Page 16 (“...Toxin ans antitoxin...”). Page 20 “... it causes prevents ...”). Page 61 (“...part of peptide containing no the site ...”). Page 61 “...ambiquity...”.

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