

## REVIEW

for final qualifying work of the student of SPbSU  
Slepchenkov Alexander Vasilyevich

"Development of a platform for the exposure of heterologous proteins on the surface of yeast cells"

The work, presented by Alexander Vasilyevich Slepchenkov, is devoted to the important topic of improving the yeast display method. This method is actively used in various areas of biotechnology and therefore its improvement is of considerable interest.

Master's work of Alexander Vasilyevich has a traditional structure and consists of standard sections. The "Literature Review" is written with great attention to detail and successfully reflects current theoretical and practical problems on the topic of the work. From this section it is clear that the author is well acquainted with literature and navigates freely within it. The writing style can be characterized as technical, which, of course, corresponds to the theme of the work. Although in general the work is easy to read, local stylistic blunders can be found (for example, the first sentence of the Introduction section).

The work was carried out at an adequate methodical level. Impressive is the large amount of work on the design of genetic constructs. In addition, the variety of methods used to detect reporter proteins also produces a pleasant impression. The description of methods is given in the section "Materials and Methods" in great detail and competently.

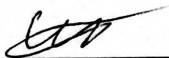
The "Results" section is written in detail and is accessible. It is obvious that the author has mastered all the methods used in the work and uses them freely. The author succeeded in establishing the localization of Pho5p proteins of *S. cerevisiae* and Pho1p *P. Pastoris* synthesized by *P. Pastoris*. Peculiar is the lack of positive data when trying to replicate the work done by Wang, Khasa and co-authors. Nevertheless, due to a detailed and thorough description of the process of creating plasmid constructs in the work, and also considering the successful examples of the creation of other plasmid constructs, given in this thesis, there is no doubt regarding the data presented by Alexander Vasilyevich. Peculiar is the data according to which the signal sequence Pho5p is necessary for the production of a functional protein. The author proposes an interesting hypothesis concerning the possible role of the Pho5p signal sequence in the protein synthesis. I hope that in the future the author will be able to experimentally test this hypothesis. The "Results" section made a solid and positive impression. Nevertheless, it is obvious that work on this direction can be continued, which is noted by the author himself. When reading this section, the following questions have arisen:

- 1) In your opinion, what could be the reason for the inconsistency of your results and the data of Wang, Khasa and co-authors?
- 2) Are there alternative hypotheses regarding the role of the signal sequence in the production of the functional protein Pho5p?
- 3) What is the connection between the choice of beta-galactosidase as a reporter protein and what alternative enzymes, considering the lack of activity of beta-galactosidase in the author's experiments, is planned to be used in the future?

Conclusions are formulated clearly and correspond to the tasks of the work.

In general, there is no doubt about the practical significance of Alexander Vasilyevich's work. The content of the work fully corresponds to the stated subject and successfully reveals it. Graduation qualification thesis of Alexander Vasilyevich fully meets the requirements for such work and, of course, deserves an evaluation of "EXCELLENT" and its author - the title of Master of Biology.

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Shavva Vladimir Stanislavovich