Reviewer’s report

**Title:** The siRNA targeted to mdr1b in vivo sensitizes murine lymphosarcoma to chemotherapy

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**Reviewer:** Alla Stavrovskaya

**Reviewer’s report:**

The paper of Olga Patutina et al. entitled “The siRNA targeted to mdr1b in vivo sensitizes murine lymphosarcoma to chemotherapy” is dedicated to the problem of reversal of multidrug resistance of tumor cells. This is an important problem and is well defined by the authors. The methods applied in the study are appropriate. It must be mentioned that the siRNA targeted to mdr1b gene is not very specific: it affected also mRNA of mdr1a gene. It is known that siRNAs are able to selectively target a particular allele that differs from another by as little as a single nucleotide (Y. Dorsett, T. Tuschl, Nature Reviews Drug Discovery, 2004, 2, 318-329). Nevertheless, siRNA used by the authors diminished drug resistance both in vitro and in vivo. Thus, this siRNA was effective and the main problem of the study was solved. As far as siRNA to mdr1b gene affected mRNAs of both genes (mdr1a and mdr1b) it would be better to change paper’s title and mention mdr1a in the title. Similar corrections must be done in the abstract and all other parts of the paper. It is reasonable to write more (probably in the introduction) about mdr la and mdr lb proteins and their role in multidrug resistance of mouse tumors. It is necessary to use contemporary names for ABC transporters (or at least mention them). For example an official symbol of the gene mdr1b is now Abcb1b. The names of all genes must be written in Italics.

Almost all data presented in the paper are sound. The only exception is the data in Fig. 1B. Why the quantity of mdr1a mRNA increased under influence of 200 nM of siRNA? Was this increase revealed in several experiments? What this means? The answers on these questions have to be discussed in the paper.

Some references have to be renewed. In particular, references 2,3,4 and citations of the papers where the results of the application of siRNAs targeted to MDR genes are presented.

My comments belong to the category “Minor Essential Revisions”. I recommend this paper for publication.

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Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests.