

## Peer Review Report

# Review Report on Phages as potential life-saving therapeutic option in the treatment of multidrug-resistant urinary tract infections

Mini Review, Acta Biochim. Pol.

Reviewer: Bozena Nejman-Falenczyk

Submitted on: 02 Jan 2025

Article DOI: 10.3389/abp.2025.14264

### EVALUATION

#### Q 1 Please summarize the main theme of the mini review

This paper raises a very important issue, indicating bacteriophages as a hope in the fight against drug-resistant bacteria, which are particularly numerous in urinary tract infections. The manuscript is very well written and contains current information and examples of the use of phages in the treatment of UTIs. It is a very valuable collection of interesting examples of the treatment of patients with urinary infections using phages. Importantly, these examples indicate the great potential of phages in the therapy of UTIs. In addition, the authors rightly point out the challenges that await phage therapy.

#### Q 2 Please highlight the limitations and strengths.

Apart from a few minor comments, which I list below, I have no major reservations.

Line 115 - change "prophage" to „prophage state"

Line 121 - please change to "In turn, a decrease in the phage titer can be observed when killing bacteria" and explain what you mean by writing "decrease". Normally as a result of the destruction of bacterial cells, the number of phage particles increases. Did you mean that the phages are removed from the body?

Line 131-133 - there is no need to write the words Methicilin, Vancomycin, and Extended with the capital first letter

Line 147 - please change "continued" to "was continued"

Line 155 - better "search for" against "search to"?

Line 165 - please change "team" to "teams"

Lines 163- 174, please indicate the agent applied in the described dual-layered coating system for catheters- was it phages?

Line 182 please change "which contribute" to "that contribute"

Line 183 please change "highlights" to "highlight"

Line 185 please change "treatment" to "treatments"

Line 208 please change "ESBL producing" to "ESBL-producing"

Line 221 - please remove "done"

Line 228 - I would add "the" before "nephrectomy"

Line 253 - Were these observations noticed after phage administration? It is not clear from the text.

Line 259, better "the potential of phages"

Line 295, better " a negative"

Line 305 - better "diseases"

Line 305 - better "increase" than "increasing" in his sentence

Figure 1 - please leave only panel A and transform panel B in the table. In panel A please change lysis to "lysis of the bacterial cell" to highlight the role of phages in destroying bacteria. In panel B ( after transforming to a table), please add the challenges accompanying phage therapy in the second column, e.g., host range limitations, virulence factor and resistance genes transduction, contaminations of phage preparations, immune reactions, low approval, society's skepticism, safety concerns, non-standard therapy, to less clinical trials, etc.

You describe most of the challenges that await phage therapy in the text, so you just need to collect them in a table. In turn in the advantages column, I would add synergism with antibiotics as the reports you cite confirm it.

---

**Q 3** Does the review include a balanced, comprehensive and critical view of the research area?

yes

---

**Check List**

---

**Q 4** Is the English language of sufficient quality?

Yes.

---

**Q 5** Is the quality of the figure and/or table satisfactory?

Yes.

---

**Q 6** Does this manuscript refer only to published data? (unpublished or original data is not allowed for this article type)

Yes.

---

**Q 7** Does the manuscript cover the topic in an objective and analytical manner?

Yes.

---

**Q 8** Does the reference list cover the relevant literature adequately and in an unbiased manner?

Yes.

---

**Q 9** Does the manuscript include recent developments?

Yes.

---

**Q 10** Does the review add new insights to the scholarly literature with respect to previously published reviews?

Yes.

**Q 11** Please provide your detailed review report to the editor and authors (including any comments on the Q4 Check List):

This paper raises a very important issue, indicating bacteriophages as a hope in the fight against drug-resistant bacteria, which are particularly numerous in urinary tract infections. The manuscript is very well written and contains current information and examples of the use of phages in the treatment of UTIs. It is a very valuable collection of interesting examples of the treatment of patients with urinary infections using phages. Importantly, these examples indicate the great potential of phages in the therapy of UTIs. In addition, the authors rightly point out the challenges that await phage therapy. Apart from a few minor comments, which I list below, I have no major reservations.

Line 115 – change “prophage” to „prophage state”

Line 121 – please change to “In turn, a decrease in the phage titer can be observed when killing bacteria” and explain what you mean by writing “decrease”. Normally as a result of the destruction of bacterial cells, the number of phage particles increases. Did you mean that the phages are removed from the body?

Line 131–133 – there is no need to write the words Methicilin, Vancomycin, and Extended with the capital first letter

Line 147 – please change “continued” to “was continued”

Line 155 – better “search for” against “search to”?

Line 165 – please change “team” to “teams”

Lines 163– 174, please indicate the agent applied in the described dual-layered coating system for catheters– was it phages?

Line 182 please change “which contribute” to “that contribute”

Line 183 please change “highlights” to “highlight”

Line 185 please change “treatment” to “treatments”

Line 208 please change “ESBL producing” to “ESBL–producing”

Line 221 – please remove “done”

Line 228 – I would add “the” before “nephrectomy”

Line 253 – Were these observations noticed after phage administration? It is not clear from the text.

Line 259, better “the potential of phages”

Line 295, better “ a negative”

Line 305 – better “diseases”

Line 305 – better “increase” than “increasing” in his sentence

Figure 1 – please leave only panel A and transform panel B in the table. In panel A please change lysis to “lysis of the bacterial cell” to highlight the role of phages in destroying bacteria. In panel B ( after transforming to a table), please add the challenges accompanying phage therapy in the second column, e.g., host range limitations, virulence factor and resistance genes transduction, contaminations of phage preparations, immune reactions, low approval, society's skepticism, safety concerns, non–standard therapy, to less clinical trials, etc. You describe most of the challenges that await phage therapy in the text, so you just need to collect them in a table. In turn in the advantages column, I would add synergism with antibiotics as the reports you cite confirm it.

**QUALITY ASSESSMENT**

**Q 12** Quality of generalization and summary



**Q 13** Significance to the field



**Q 14** Interest to a general audience



**Q 15** Quality of writing

