Reviewer’s report

Title: Carbapenemase-producing Pseudomonas aeruginosa from Central Greece: molecular epidemiology and genetic analysis of class I integrons

Version: 2 Date: 23 August 2013

Reviewer: Liang Chen

Reviewer’s report:

Liakopoulos et al. characterized 80 VIM-producing Pseudomonas aeruginosa strains isolated from central Greece in 2011. Revealing the association between VIM-producing P. aeruginosa clones and several integrons underscores the ongoing molecular evolution of VIM carbapenemase in Greece. I have some minor comments as below,

1. Line 77-79: a sudden increase by carbapenem-resistant P. aeruginosa was observed in 2011. Is the increase due to the increase of VIM-producers or other mechanisms? It is noticeable that only 28% carbapenem-resistant P. aeruginosa were VIM producers. What is the main carbapenem-resistant mechanism in 2010, in comparison with 2011?

2. Line 91: CLSI 2011 was used in this study and the breakpoint for carbapenem is >=16 mg/L. However, the breakpoint was adjusted as >=8 mg/L after CLSI 2012. What’s the prevalence of carbapenem-resistant P. aeruginosa if the new breakpoint is applied?

3. Line 104: Which blaOXA genes were tested?

4. Line 130, Line 171-172: The authors indicated that they checked the infection and colonization records. How many isolates were from infections or colonizations? Are there any associations between them (infections or colonizations) and P. aeruginosa clones or integron types?

5. Line 146: Please check the numbers. There are 284 carbapenem-resistant isolates, and 80 of them are VIM positive. There should be 204 isolates that are VIM negative.

6. Line 147: They are negative for other beta-lactamase genes or only carbapenemase genes?

7. Line 154: 16 mg/L is intermediate for ceftazidime.

8. Line 163-170,215-223: The authors tentatively explained the reason of the monthly distribution for VIM-4 producers but not for VIM-2 producers. What are the causes for the seasonal changes for VIM-2 producers?

9. Line 179: Is the high mortality rate (50%) from this study or some others? The authors need make it clear or add additional data.

10. Page 10: A figure of the integron structures will be helpful for presenting the results.
11. Line 203-204: Similar to comment 8.
12. Line 219-221: The authors should be more cautious for the explanation of the spread of VIM-4 producers between the internal medicine and the urology unit. Did the authors isolate the same VIM-4 producers from nursing staff or equipments?

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests