Reviewer's report

Title: Phage lysin to control the overgrowth of normal flora in processed sputum samples for the rapid and sensitive detection of Mycobacterium tuberculosis by luciferase reporter phage assay

Version: 3 Date: 14 November 2012

Reviewer: Howard Takiff

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GENERAL COMMENTS:
The form of the article is improved, and most of the questions have been resolved, but the thrust of the article has changed from being about the use of phage lysins to reduce contamination to proposing the use of the luciferase phage, with phage lysins, as a technique to diagnose TB. The luciferase phage was never really proposed as a means of diagnosing TB, but rather for detecting drug resistance. In any case, its inventors have now moved on to working with GFP phages, which are much more sensitive.

The manuscript might be interesting if it compared the use of phage lysins to PANTA or to no antibiotics for the ability to reduce contamination, but there are no head-to-head comparisons described that would validate the use of lysins in place of PANTA either for BACTEC or with phage methods. There is no way to judge the value of the lysins in preventing contamination. What then is the value of the manuscript? What new data is it providing? It is not a convincing demonstration of the value of the luciferase phage as a diagnostic tool.

SPECIFIC COMMENTS:

Minor Changes:
1. Background "When supplemented, phage lysins...WOULDN'T THIS BE PHAGE, AS LYSINS WOULDN'T FORM LYSOGENS."
2. Methods: Luciferase reporter phage; The phage was propagated to get A high titer or to get high titerS
3. Methods: “the LJ slopes were randomized” What does “randomized” mean in this context?
4. Methods: “incubated at 37 C in STATIC condition” MAYBE WITHOUT AGITATION WOULD BE BETTER, OR AS A STANDING CULTURE.
5. Results: It is unusual that there were many more samples positive by smear than by culture. Can this be explained? Were the patients new, or on treatment for several months? If the patients were newly diagnosed, shouldn’t the phage assay be compared to the smear results for Sensitivity?
6. End of discussion: “The cost-effectiveness of the assay is highly DEPENDENT
upon the ....”

Level of interest: An article of limited interest

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