Reviewer's report

Title: Use of multiple methods for genotyping of Fusarium solani during an outbreak of contact lens associated fungal keratitis in Singapore

Version: 1 Date: 13 February 2008

Reviewer: David Fredricks

Reviewer's report:

Roland Jureen and colleagues describe their efforts to assess the genetic diversity of Fusarium isolates linked to contaminated contact lens solution and fungal keratitis. Their aim was to determine if infections were caused by a point source outbreak as demonstrated by genetic relatedness among the isolates. They also sought to compare the discriminatory power of three typing methods, AFLP, Rep-PCR, and ERIC-PCR. The investigators provide evidence that the Fusarium isolates from cases of keratitis in Singapore and from contact lens solution were genetically dissimilar, suggesting that the outbreak was not caused by point source contamination of the contact lens solution. This information is useful from a public health perspective because it implicates improper handling of contact lens solution by individuals as the cause of the outbreak, rather than contamination during production, though the later cannot be completely ruled out. In comparing the different typing approaches, the authors note that AFLP was the most discriminatory, whereas ERIC-PCR was least discriminatory and in fact appeared not to be useful. Rep-PCR was intermediate in its ability to distinguish among Fusarium isolates, but was easier to perform.

Discretionary:

1. It would be most helpful to the reader to provide some perspective on the time and expense of each typing methods, and the equipment required. For instance, if Rep-PCR is significantly cheaper and requires less effort, then the informed reader might adopt this approach.

2. A flow chart describing the different methods and the principles behind the 3 typing schemes would be most informative.

Minor essential:

1. What was the reproducibility of each typing method? The authors state that five isolates were run in triplicate using AFLP generating similarities of > 95%. This seems to be a substantial degree of variability for replicate samples, and raises the concern that some of the "discriminatory" power of AFLP derives from the fact that there is substantial background noise, rather than from true genetic differences among isolates. It is recognized that the definition of an AFLP group was deemed > 90% similar by AFLP. This topic deserves more detailed discussion in a section on limitations. What was the variability in each approach, and how does this impact the conclusions?
What next?: Accept after minor essential revisions

Level of interest: An article of importance in its field

Quality of written English: Acceptable

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