Reviewer's report

Title: Aedes aegypti from temperate regions of South America are highly competent to transmit dengue virus.

Version: 1 Date: 10 October 2013

Reviewer: Cheong Huat Tan

Reviewer's report:

#1 General Comments
This paper describes the potential of Ae. aegypti collected from Argentina and Uruguay to transmit dengue virus. An important approach used by the group is the use of field-derived mosquitoes rather than using long-established laboratory colonies. However, the obvious shortcoming of the study is the use of DENV2 strains that was isolated in Thailand in 1974, rather than using current virus found circulating in these countries or in South America. It diminishes the value of the current study. Another shortcoming is that authors did not include data on midgut infection, especially when Transmission Rate (TR) in this study is defined as the “proportion of mosquitoes having infectious saliva among mosquitoes able to ensure viral dissemination beyond the midgut barrier”. Unless the authors assumed that all mosquitoes that fed on the infectious bloodmeals are able to established midgut infection, and negative results from head squash means failure of DENV to establish beyond the midgut. Unfortunately, this assumption does not take in consideration the midgut infection barrier that may limit or prevent the establishment of virus in mosquito’s midgut. This reviewer is concerned that TR in this study maybe underestimated. Furthermore, in this reviewer’s opinion the Dissemination Efficiency should correspond to the proportion of mosquitoes with virus detected in head among infected mosquitoes (positive midguts), rather than just relying on mosquitoes examined. Given the nature of the mosquito populations used in the current study, there is a possibility that the DENV strains used may fail to establish any infection in some of the mosquitoes. Should this be the case; the DE results obtained from this study can be misleading.

#3 Major Essential Revisions
a. The objective of comparing head squash + IFA with head squash + C6/36 inoculation + IFA should be stated and discussed
b. Data on TE and TR for head squash + IFA should be included in the analysis, if salivation for head squash + IFA was performed. If not, please indicate why salivation was not performed.

#2 Minor Essential Revisions
a. The authors should review the data entered in Tables 1, 2 and S1. The (20) for TR (Tables 1 and 2) or CC (Table S1) of BUE strain at 21 dpi does not tally with
the 78.8 for DE of the similar strain at the same time point. If (20) is accurate, then DE should be 62.5 instead of 78.8

b. The author should include in the methodology how the head squash + IFA was performed.

c. Page 6, line 11 – the use of “first semester” is vague. Please use a more general term or be specific

d. Page 6, line 17 – “…Ae. aegypti were sorted”. This reviewer assume that other species of mosquitoes also laid eggs in the ovitrap? If yes, what are the other species?

e. Please mention how the F1 eggs were collected.

f. Please indicate the duration of the infectious blood feeding?

Level of interest: An article of importance in its field

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

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

'I declare that I have no competing interests