



## Supplementary Materials for

### **Modeling the impact on virus transmission of *Wolbachia*-mediated blocking of dengue virus infection of *Aedes aegypti***

Neil M. Ferguson,\* Duong Thi Hue Kien, Hannah Clapham, Ricardo Aguas, Vu Tuan Trung, Tran Nguyen Bich Chau, Jean Popovici, Peter A. Ryan, Scott L. O'Neill, Elizabeth A. McGraw, Vo Thi Long, Le Thi Dui, Hoa L. Nguyen, Nguyen Van Vinh Chau, Bridget Wills, Cameron P. Simmons

\*Corresponding author. E-mail: neil.ferguson@imperial.ac.uk

Published 18 March 2015, *Sci. Transl. Med.* **7**, 279ra37 (2015)  
DOI: 10.1126/scitranslmed.3010370

#### **This PDF file includes:**

Table S1. Study population characteristics.  
Table S2. List of primers and probes used.  
Fig. S1. Human DENV viremia kinetics.

#### **Other Supplementary Material for this manuscript includes the following:**

(available at [www.sciencetranslationalmedicine.org/cgi/content/full/7/279/279ra37/DC1](http://www.sciencetranslationalmedicine.org/cgi/content/full/7/279/279ra37/DC1))

Supplementary data (Microsoft Excel format): Mosquito biting study data.

**Supplementary Table 1. Study population characteristics.**

<b>Variables</b>	<b>Cairn wildtype vs. wMel (n=42)</b>	<b>Cairn wildtype vs. wMelpop (n=27)</b>
Median age (IQR), years	22 (13-31)	25 (21-29)
Sex (n,%)		
Male	17 (40)	17 (63)
Female	25 (60)	10 (37)
Serotype (n,%)		
DENV1	7 (43)	7 (26)
DENV2	5 (17)	14 (52)
DENV3	3 (12)	5 (18)
DENV4	6 (28)	1 (4)
Median (IQR) log <sub>10</sub> viremia, copies/ml of plasma	7.7 (6.7-8.5)	8.2 (7.2-9.1)
Median (IQR) log <sub>10</sub> viremia by serotype, copies/ml of plasma		
DENV1	7.9 (7.7-8.5)	9.1 (8.2-10.1)
DENV2	7.1 (6.1-8.6)	8.0 (7.5-8.9)
DENV3	7.4 (6.1-8.8)	7.3 (7.2-8.3)
DENV4	7.0 (5.4-8.6)	6.6 (6.6-6.6)*

\* only 1 patient in this group

IQR: Inter quartile range

**Supplementary Table 2. List of primers and probes used.**

Target	Primer/probe name	Sequence
<b>wMel in WD0513</b>	TM513_F	CAAATTGCTCTTGTCTGTGG
	TM513_R	GGGTGTTAAGCAGAGTTACGG
	TM513	Cy5- TGAAATGGAAAAATTGGCGAGGTGTAGG-BHQ3
<b>DENV-1</b>	DENV-1-F	ATCCATGCCCAACCAAT
	DENV-1-R	TGTGGGTTTTGTCTCCATC
	DENV-1-Probe	FAM-TCAGTGTGGAATAGGGTTTGGATAGAGGAA-BHQ1
<b>DENV-2</b>	DENV-2-F	TCCATACACGCCAAACATGAA
	DENV-2-R	GGGATTTCTCCCATGATTCC
	DENV-2-Probe	FAM-AGGGTGTGGATTTCGAGAAAACCCATGG-BHQ1
<b>DENV-3</b>	DENV-3-F	TTTCTGCTCCCACCACTTC
	DENV-3-R	CCATCCYGCTCCTTGAGA
	DENV-3-Probe	Cyan500-AAGAAAGTTGGTAGTTCCTGCAGACCCCA-BHQ1
<b>DENV-4</b>	DENV-4-F	GYGTGGTGAAGCCYCTRGAT
	DENV-4-R	AGTGARCGCCATCCTTCAT
	DENV-4-Probe	Cyan500-ACTTCCCTCCTTYTTGAACGACATGGGA-BHQ1
<b>Equine arteritis virus (internal control)</b>	EAV-F	CATCTCTTGCTTTGCTCCTTAG
	EAV-R	AGCCGCACCTTCACATTG
	EAV-Probe	Cy5-CGCGCTCGCTGTCAGAACAACATTATTGCCACAGCGCG-BHQ3

## Supplementary Figure 1

**Human DENV viremia kinetics.** Multiple irregular colored lines show daily serial measurements of DENV RNA copies/ml of plasma from ambulatory and hospitalized human dengue cases (from reference 12). Bold red line shows posterior mean estimate of fit of biphasic model (equation 2 in text) to these virological data, and grey shaded area the 95<sup>th</sup> percentiles of the model's predicted distribution of human viral titers at the corresponding time point. A-D show results for DENV1-4 respectively. Median estimates and 95% credible intervals for model parameters are shown inset on each plot. The last model parameter,  $\sigma$ , was fitted as common to all 4 serotypes, and had estimated value 1.41 (1.34, 1.47).

