***eLife’s* transparent reporting form**

We encourage authors to provide detailed information *within their submission* to facilitate the interpretation and replication of experiments. Authors can upload supporting documentation to indicate the use of appropriate reporting guidelines for health-related research (see [EQUATOR Network](http://www.equator-network.org/%20)), life science research (see the [BioSharing Information Resource](https://biosharing.org/%22%20%5Ct%20%22_blank)), or the [ARRIVE guidelines](http://www.plosbiology.org/article/info%3Adoi/10.1371/journal.pbio.1000412) for reporting work involving animal research. Where applicable, authors should refer to any relevant reporting standards documents in this form.

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**Sample-size estimation**

* You should state whether an appropriate sample size was computed when the study was being designed
* You should state the statistical method of sample size computation and any required assumptions
* If no explicit power analysis was used, you should describe how you decided what sample (replicate) size (number) to use

Please outline where this information can be found within the submission (e.g., sections or figure legends), or explain why this information doesn’t apply to your submission:

This study was entirely based on convenience sampling and what local mosquito and vector control partners provided samples that could be collected and used for research purposes during fall 2017 mosquito surveillance season.

**Replicates**

* You should report how often each experiment was performed
* You should include a definition of biological versus technical replication
* The data obtained should be provided and sufficient information should be provided to indicate the number of independent biological and/or technical replicates
* If you encountered any outliers, you should describe how these were handled
* Criteria for exclusion/inclusion of data should be clearly stated
* High-throughput sequence data should be uploaded before submission, with a private link for reviewers provided (these are available from both GEO and ArrayExpress)

Please outline where this information can be found within the submission (e.g., sections or figure legends), or explain why this information doesn’t apply to your submission:

All samples utilized in this study correspond to unique, wild-caught mosquitoes. An overview of the specimens included in the study the first paragraph of the results section. Collection methods are outlined in “Mosquito collection” section of the Materials and Methods. A detailed description of the individual wild-caught mosquitoes included in this study (mosquito genus and species, sex, collection date, collection location, etc) is provided in fig1\_sd1\_sample\_demographics.xslx. All raw sequence data and processed genomes associated with the project have been deposited in NCBI Bioproject PRJNA605178. An outline of the sequence analysis pipeline, including filtering of mosquito host, low quality, low complexity, and potential non-specific contaminating sequences is provided in the Materials and Methods section of the manuscript. Existing code used to perform the sequence analysis described in the manuscript is cited; custom code used for this study is available on Github at <https://github.com/czbiohub/california-mosquito-study>. Derived data (including all contigs) and supplementary data are available on Figshare at dx.doi.org/10.6084/m9.figshare.11832999.

**Statistical reporting**

* Statistical analysis methods should be described and justified
* Raw data should be presented in figures whenever informative to do so (typically when N per group is less than 10)
* For each experiment, you should identify the statistical tests used, exact values of N, definitions of center, methods of multiple test correction, and dispersion and precision measures (e.g., mean, median, SD, SEM, confidence intervals; and, for the major substantive results, a measure of effect size (e.g., Pearson's r, Cohen's d)
* Report exact p-values wherever possible alongside the summary statistics and 95% confidence intervals. These should be reported for all key questions and not only when the p-value is less than 0.05.

Please outline where this information can be found within the submission (e.g., sections or figure legends), or explain why this information doesn’t apply to your submission:

Details related to statistical analyses performed in this study are summarized in the Materials and Methods section.

(For large datasets, or papers with a very large number of statistical tests, you may upload a single table file with tests, Ns, etc., with reference to sections in the manuscript.)

**Group allocation**

* Indicate how samples were allocated into experimental groups (in the case of clinical studies, please specify allocation to treatment method); if randomization was used, please also state if restricted randomization was applied
* Indicate if masking was used during group allocation, data collection and/or data analysis

Please outline where this information can be found within the submission (e.g., sections or figure legends), or explain why this information doesn’t apply to your submission:

Not applicable for this study.

**Additional data files (“source data”)**

* We encourage you to upload relevant additional data files, such as numerical data that are represented as a graph in a figure, or as a summary table
* Where provided, these should be in the most useful format, and they can be uploaded as “Source data” files linked to a main figure or table
* Include model definition files including the full list of parameters used
* Include code used for data analysis (e.g., R, MatLab)
* Avoid stating that data files are “available upon request”

Please indicate the figures or tables for which source data files have been provided:

Source data files for all the figures and tables of the manuscript are provided and cited in the manuscript. Raw sequence data (and viral genomes) have been deposited to NCBI Bioproject PRJNA605178. Existing code used to perform the sequence analysis described in the manuscript is cited; custom code developed for this study is available on Github at <https://github.com/czbiohub/california-mosquito-study>. Derived data (including all contigs) and supplementary data are available on Figshare at dx.doi.org/10.6084/m9.figshare.11832999.