Scientists take the temperature of dengue fever risk

October 5 2017

Credit: Tommaso Chiodo

When disease-bearing mosquitoes expand into new habitats, public health officials should test the ability of new arrivals to transmit viruses at a variety of temperatures, a new Yale-led study suggests.

Scientists have known that temperature plays a key role in transmission

of viruses such as dengue by the mosquito species Aedes aegypti, which has expanded its range in the United States over the past decade. The genetic makeup of different mosquito populations can affect its ability to transmit the virus.

The new study, published Oct. 4 in *Proceedings of the Royal Society B* shows that temperature, is a key variable in the ability of two genetically distinct populations of Aedes aegypti from Vietnam to become infected with dengue.

"How temperature affects a mosquito's response to the virus, depends upon its genetics," said Andrea Gloria-Soria, associate research scientist of ecology and evolutionary biology and first author of the study. For instance, it is possible that a population of mosquitoes introduced to temperate New England from Rio de Janeiro, Brazil may represent a bigger danger of a dengue outbreak than a population arriving from Texas, she said.

More information: A. Gloria-Soria et al. Infection rate of Aedes aegypti mosquitoes with dengue virus depends on the interaction between temperature and mosquito genotype, *Proceedings of the Royal Society B: Biological Sciences* (2017). DOI: 10.1098/rspb.2017.1506

Provided by Yale University