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Mother Nature decided that four serotypes of the dengue virus was not enough, so she threw number five our way.

Nikos Vasilakis, PhD of the University of Texas Medical Branch in Galveston announced the findings at a recent conference in Bangkok. Scientists collected samples during a 2007 dengue outbreak in Malaysia. Their research showed a dengue virus serotype distinct from the four previously discovered virus serotypes. According to a [report by CIDRAP](#), Vasilakis states that this

particular serotype is responsible for only one outbreak in humans, thus far. However, the virus serotype itself has probably been circulating in Malaysian and Indonesian jungles for tens of thousand of years. This is the first dengue serotype to have been discovered in fifty years.

The [four dengue serotypes](#) are creatively referred to as DENV-1, DENV-2, DENV-3, and DENV-4. While they are all closely related to each other, infection with one serotype only offers limited and temporary immunity against other serotypes. In fact, multiple infections with different types of dengue increase the risk of severe dengue infections such as dengue hemorrhagic fever and dengue shock syndrome.

According to the CDC, these four serotypes originated in monkeys and jumped to humans in tropic and sub tropic regions over a century ago. Dengue is transmitted by the *Aedes aegypti* and the *Aedes albopictus* mosquitoes. Symptoms usually begin between four and seven days after the infected mosquito bite. Leora Feldstein, currently an epidemiology PhD student at University of Washington, contracted dengue in 2006, while living abroad in Cameroon:

“I experienced a high fever, severe bone and joint pain, a terrible headache and I bled from my gums. The acute symptoms lasted about seven days but I endured joint pain and fatigue for the next four months. The severity and duration of my symptoms and how weak I became afterward was frightening and unlike any illness I had suffered from before.”

Dengue is also known as “[breakbone fever](#)” because of the intense joint and bone pain caused by the infection. About 40 percent of the world is currently at risk for dengue. This wasn’t always the case. Only forty years ago, according to the [WHO](#), there were only nine countries worldwide that experienced severe dengue epidemics. Today, the WHO estimates between 50 and 100 million dengue infections every year, and dengue is endemic in over 100 countries worldwide.

There is no vaccine or specific treatment for dengue. Prevention is currently the best method of dengue control. The WHO lists [several recommendations](#) to prevent dengue infection, among them: using screen doors and insecticides, wearing long sleeves and pants while outside, and destroying habitats in which mosquitoes prefer to lay eggs (such as areas that collect water outside).

So what does the discovery of DENV-5 mean? There are several vaccines in development, but only five in the clinical stages of development. These vaccines attempt to protect against the four dengue serotypes. Adding a fifth serotype could complicate vaccine development.

This fifth serotype belongs to the [“sylvatic” cycle](#), meaning that it circulates primarily in non-human primates. Other serotypes of dengue have human cycles, meaning that they transmitted between humans. As Ian McKay clarifies in his blog, [“Virology Down Under,”](#) humans can be infected with sylvatic dengue viruses, but there have been no sustained epidemics.

In his [piece for Science](#), Dennis Normile tries to remain positive by suggesting that this new discovery “could shed light on where the pathogen came from and whether it is evolving into a greater threat.”

Sources:

“Researchers identify fifth dengue subtype” Lisa Schnirring, CIDRAP. <http://www.cidrap.umn.edu/news-perspective/2013/10/researchers-identify-fifth-dengue-subtype>

“First New Dengue Virus Type in 50 Years” Dennis Normile, Science. <http://news.sciencemag.org/health/2013/10/first-new-dengue-virus-type-50-years>

“DENV-5: virus from the jungle comes to humans?” Ian McKay, Virology Down Under. <http://virologydownunder.blogspot.com.au/2013/10/denv-5->

[virus-from-jungle-comes-to-humans.html](#)

“Fever from the forest: prospects for the continued emergence of sylvatic dengue virus and its impact on public health” N. Vasilakis et al. Nat Rev Microbiol. 2011 June 13; 9(7): 532–541.

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3321645/>

<http://www.cdc.gov/dengue/epidemiology/index.html>

<http://www.who.int/mediacentre/factsheets/fs117/en/index.html>

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