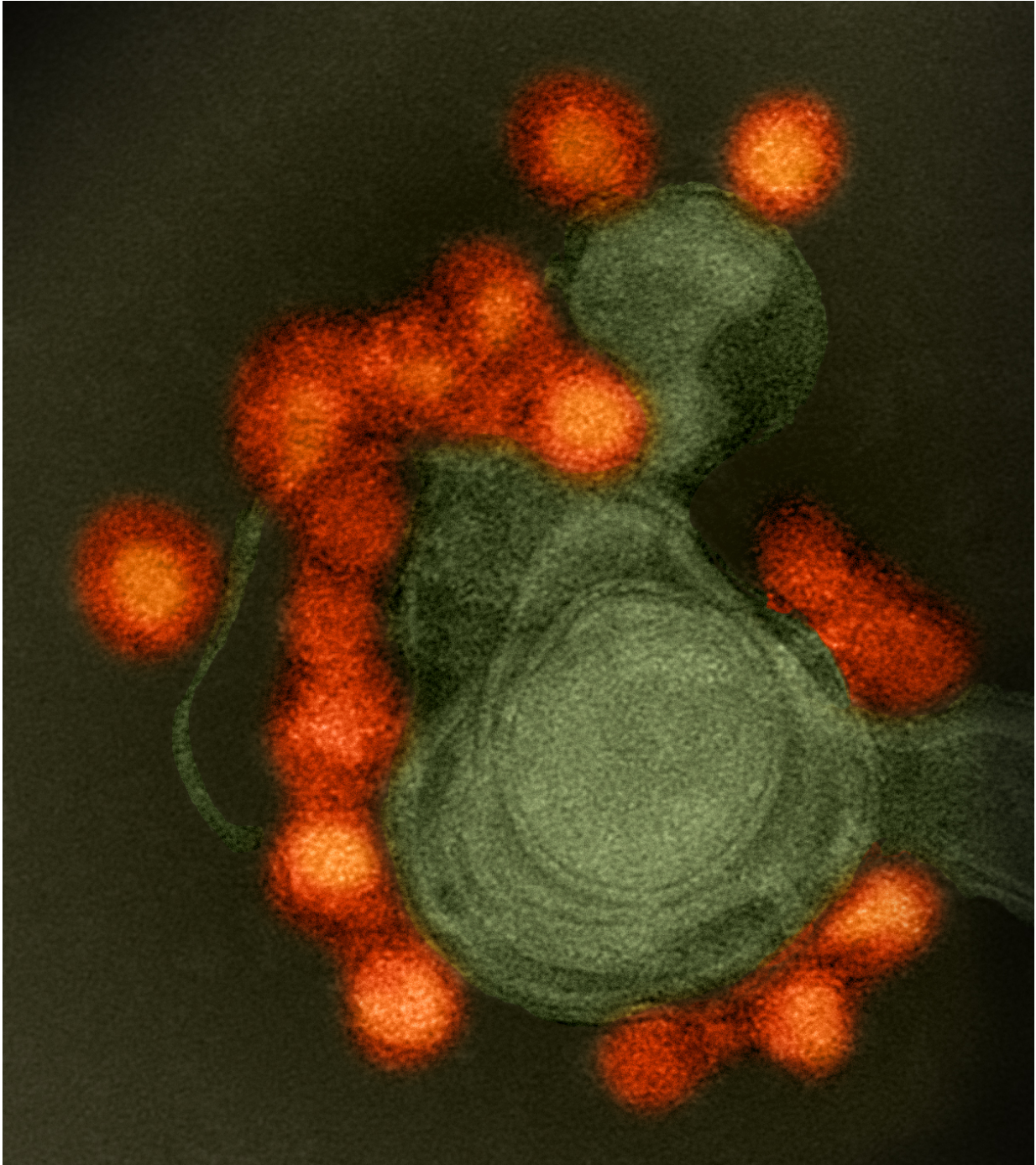


Florida researchers develop cheap, fast test for Zika, but widespread use may be years away

June 12 2017, by Amelia Cheatham, Orlando Sentinel



Transmission electron microscope image of negative-stained, Fortaleza-strain Zika virus (red), isolated from a microcephaly case in Brazil. The virus is associated with cellular membranes in the center. Credit: NIAID

Florida researchers have developed a new device for detecting the Zika virus quickly and cheaply - although it might take years for it to come to market.

Called the "Diagnoskeeter," the portable, low-cost testing kit processes samples in 30 minutes and is "meant to (test for) all the families of the Zika virus," said co-creator Ozlem Yaren, of the Foundation for Applied Molecular Evolution in Alachua.

Current diagnostic tests for Zika take weeks to process, and the new device is "an important step forward," said Sapna Deo, associate professor and graduate program director in the Department of Biochemistry and Molecular Biology at the University of Miami.

"Having these point-of-care devices will be really useful to get quick results because you wouldn't want to wait six to eight weeks to know if you have an infection," she said.

The Diagnoskeeter must get the Food and Drug Administration's approval before it's made available to the public. This could take years, said co-creator Steven Benner.

Once the Diagnoskeeter hits commercial shelves, it will cost between \$2 and \$5, Yaren and Benner said. Although users will need a new tube to test each biological sample, the device itself is reusable.

Yaren and Benner worked with international researchers and University of Florida entomologist Barry Alto on the project. Their findings were published in the journal BMC Infectious Diseases.

The test screens human urine and plasma, as well as crushed mosquitoes, for the viruses. Researchers say their device is also portable and simple to use.

"It could be (used) in (a) small infirmary or an airport, places that they don't have a complex instrumentation system," Yaren said.

The team eventually plans to provide the device free of charge to public health agencies. Benner hopes private citizens will be able to purchase kits through direct online marketing and retailers like The Home Depot.

Researchers have tested the Diagnoskeeter in the United States, China, India and Saudi Arabia and are in talks with the Brazilian government to deploy the device there.

Yaren hopes it will help public health authorities quickly identify and respond to Zika outbreaks through controlling mosquito populations. She says the device is "not just about detection, but it's also (about) prevention."

"I'm very lucky to have a project that comes to me that I have always wanted to do," Yaren said, noting her desire to bring "a cheaper version of things" to an "expensive" U.S. health care market.

The Zika virus drew international attention in May 2015, when Brazilian authorities confirmed its spread to the Americas.

Soon after, it arrived in the continental U.S. via travelers and by mid-year last year, it started to spread among local mosquitoes in the Miami-Dade area, the start of several months of local transmission.

Typically spread by infected Aedes mosquitoes, the Zika virus is also circulated through sexual activity and from pregnant women to their fetuses.

According to the Centers for Disease Control and Prevention, 80 percent of people infected with Zika display no symptoms of the disease. Others

may experience headaches, fever, muscle and joint pain, rash and conjunctivitis, the center says. Extreme cases may cause neurological problems, according to the World Health Organization.

No Zika advisories are in effect for Florida counties. However, the Florida Department of Health has recorded 190 diagnosed cases in 2017. Benner predicts the state will continue seeing cases of Zika and similar tropical illnesses as tourists and residents arrive from infected areas.

"Zika is just the latest of these infectious agents to have shown up in Florida," he said. "It won't be the last."

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