

***Wolbachia* Bacteria for *Zika* Virus Prevention**

Zika virus is an infectious disease transmitted from mosquitoes to humans causing *Zika* fever, similar to the epidemic dengue fever. The virus causes fever, red eyes, joint pain, headache, rash, and in some extreme cases, paralysis and birth defects. This virus currently has no vaccine and is transmitted through interchange of bodily fluids and infected *Aedes aegypti* and *Aedes albopictus* mosquito bites. This virus is prevalent in Florida, with a subtropical climate suitable for the habitation of mosquitoes contracted of the virus. Over the past year, *Zika* has steadily grown to become an international epidemic, affecting 783 cases and around 76 deaths, while also causing countless deformities in babies (the mother having transmitted the virus to the offspring). However, past research and studies have highlighted a possible solution for the outbreak and spread of this virus, involving the bacteria *Wolbachia pipientis* (the *WMel* strain) infecting the mosquito, causing viral resistance to *Zika* and other mosquito-borne viruses thus preventing the spread of several illness including not only *Zika*, but dengue fever, West Nile virus, and Chikungunya virus. Because of the no longer hospitable surroundings for these pathogens, mosquitoes no longer have the ability to spread these diseases through bites. In addition, the *Wolbachia* bacteria is maternally transmitted to offspring, and decreases biting behavior in infected mosquitoes. We plan to model the spread of *Zika* with the *Wolbachia* method and without (control) the method to examine the effects on human infectivity.