Do-It-Yourself PCR:

Serotyping Dengue Viruses in *Aedes* Mosquitoes Within El Salvador

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Vector-borne illnesses are common throughout tropical and subtropical regions worldwide. Dengue virus (DENV) is transmitted by *Aedes aegypti* mosquitoes and consists of 4 distinct serotypes (DENV1-4). Annually, over 100 million people get infected with DENV worldwide, but Dengue is particularly difficult to manage as getting infected with a heterologous serotype is more likely to result in severe disease. Active monitoring of *Aedes* mosquitoes is vital to maintaining public health safety, however, sociopolitical issues stemming from the civil war in El Salvador (1972-1992) have impeded the establishment of a robust mosquito surveillance program for Dengue. Due to fiscal restrictions, it is also costly to ship the necessary kits to use molecular typing techniques to detect DENV in field-caught *Aedes* mosquitoes. We sought to design a cost-effective, PCR-based serotyping protocol for implementation in El Salvador. The semi-nested PCR assay we are developing has two stages: the first PCR tests for the presence of DENV from *Aedes* mosquito homogenates, while the second PCR identifies the DENV serotypes present in DENV-positive mosquito samples. This “kit-free” protocol will enable researchers in El Salvador to determine which DENV serotypes are circulating in *Aedes* mosquitoes throughout the year. Adding this layer of disease surveillance to existing programs will help lower the rate of Dengue incidence in El Salvador, empowering local government efforts to actively monitor the disease more effectively. This protocol can be similarly implemented in other Latin American countries where Dengue is becoming a growing concern due to rising global temperatures stemming from climate change.