Title: High-throughput Multiplexed xMAP Luminex Array Panel for Detection of Twenty TWO Medically Important Mosquito-borne Arboviruses based on Innovations in Synthetic Biology

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Highlights

- We developed and evaluated a single-tube high-throughput xMAP Luminex assay panel based on PCR amplification that detects 22 mosquito-borne arboviruses relevant to public health in the U.S.
- To develop this panel we employed our innovative strategy based on the unnatural DNA base pairs (SAMRS and AEGIS) that exhibit high fidelity and efficiency in PCR and Luminex microarray hybridization technology.
- The panel is potent to differentiate between many closely-related viruses from the genera Flavivirus, Alphavirus and Orthobunyavirus as dengue, West Nile and Japanese encephalitis, or the California serological group viruses.
- The performance and the sensitivity of the panel have been evaluated with full genomic dengue virus serotypes and laboratory infected mosquitoes.