

## Using EPG to examine dengue virus transmission in a mouse model

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Alternating current electropenetrography (EPG) is a promising tool for examining changes in bite behaviors of mosquitoes during pathogen transmission. However, it is unclear how well the technology translates from previously published feedings on human hands to more helpful research animal models of arboviral infection. To investigate these questions, we performed two phases of experiments: one focusing on applicability of EPG in a mouse model and the second focusing on dengue virus (DENV) associated changes in biting behavior of *Aedes aegypti*. This vector-pathogen system was chosen for investigation because *Ae. aegypti*-borne DENV results in significant morbidity and mortality around the world. Additionally, behavioral changes in DENV-infected *Ae. aegypti* are thought to contribute to the spread of this virus. To investigate these questions, CD1 mice and IFN- $\alpha\beta$  receptor-deficient mice with DENV-2 (S-14635) were used to determine the feasibility and utility of EPG for arbovirus research. After establishing the safety and efficacy of EPG recordings with *Ae. aegypti* on a mouse host, EPG recordings were made of *Ae. aegypti* feeding on anesthetized mice under three conditions: mosquito/mouse uninfected, DENV-infected mosquito/uninfected mouse, and uninfected mosquito/DENV-infected mouse. The purpose of this talk is (1) to compare the settings needed to obtain quality EPG data in a mouse model under biocontainment conditions and (2) to discuss statistically significant changes in biting behaviors associated with DENV infection in the mosquito and mouse hosts.