



### Candidate for the position of Assistant Professor / Assistant Entomologist in the area of Genetics/Genomics of Arthropod Vectors of Human Diseases: Luciano V. Cosme, PhD

Associate Research Scientist  
Yale University

Department of Ecology and Evolutionary Biology

**Date:** Monday, March 18, 2024  
**Time:** 10:15 am - 11:15 am  
**Format:** In-Person Seminar & Virtual Access  
**Location:** Genomics Auditorium, Room 1102A  
**Zoom:** 983 6120 0167  
**Passcode:** 818719

**Title:**  
“Aedes genomics: Implications for vector control”

#### **Abstract:**

I will delve into the genetic underpinnings of critical traits in Aedes mosquitoes, crucial vectors for arboviruses such as dengue, Zika, and chikungunya. Focusing on Aedes aegypti and Aedes albopictus, I explore the genetic mechanisms driving adaptation, insecticide resistance, and vector competence, with implications for controlling their populations and mitigating disease spread. I will present three projects: a Genome-Wide Association Study (GWAS) identifying genetic markers associated with photoperiodic diapause in Ae. albopictus, crucial for understanding seasonal adaptations and habitat expansion; a GWAS unraveling the genetic basis of pyrethroid insecticide resistance in Ae. aegypti, addressing a significant challenge in vector control; and a GWAS investigating dengue vector competence in Ae. aegypti, aiming to predict and mitigate disease transmission. These studies illuminate the potential of genomic tools in identifying targets for novel control strategies, ultimately contributing to more effective, sustainable vector control measures. My findings underscore the importance of a genomic approach in understanding vector biology and developing innovative control methods, paving the way for a new era in vector management.