

Mosquito vector research using molecular and genetic tools: insecticide resistance, pathogen transmission and sensory biology

Over 80% of the world's population is at risk of contracting vector-borne diseases, the majority of which are transmitted by mosquitoes. Controlling mosquito vectors remains the most effective strategy for preventing these diseases.

In this talk, I will discuss the growing problem of insecticide resistance and our work on elucidating the underlying molecular mechanisms, their effect size, combined interactions, and geographical spread. I will also present our research on insecticide-based spatial repellents, focusing on their entomological mode of action and performance in the presence of insecticide resistance.

Lastly, I will outline my research interests in how insecticides can impact critical physiological and sensory mechanisms in mosquitoes that determine their ability to transmit pathogens.



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**WEDNESDAY
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14:00
Seminar Room
"Al. Payatakis"

I am a vector molecular biologist studying mosquito insecticide resistance and physiology to improve vector control strategies. I obtained my PhD from the University of Crete, where I investigated the molecular basis of organophosphate resistance in the tiger mosquito *Aedes albopictus*, and completed a research secondment at the Institute of Evolutionary Sciences of Montpellier focused on the evolution and spread of an esterase-based resistance mechanism.

In 2017, I joined the Liverpool School of Tropical Medicine as a postdoctoral researcher, studying cuticle biosynthesis in *Anopheles gambiae* and its role in insecticide resistance and mosquito physiology. Since 2023, I have been a staff scientist at the Institute of Molecular Biology and Biotechnology, working on functional genetics in insect vectors related to insecticide resistance and other key traits determining their vectorial capacity.

