

## Curriculum Vitae – Linda Grigoraki

### Contact Details :

E-mail: [Linta.Grigoraki@lstm.liverpool.ac.uk](mailto:Linta.Grigoraki@lstm.liverpool.ac.uk)

Phone number: +30-6939396088

### **Current position:**

Sir Henry Wellcome Trust Postdoctoral Fellow. Liverpool School of Tropical Medicine, Vector Department. Liverpool UK

### **Education:**

**B.Sc** (September 2007-July 2011) in Biology. Department of Biology, University of Crete, Greece. Grade 8,91 (ranked among the top 4% of students)

**M.Sc** (September 2011-November 2013) in Molecular Biology and Biomedicine. Department of Biology, University of Crete, Greece.

**PhD** (November 2013-July 2017) in the Laboratory of Molecular Entomology. Department of Biology, University of Crete, Greece under the supervision of Prof. John Vontas.

- Part of the thesis was performed at the University of Montpellier (Institut des Sciences de l'Évolution Montpellier) in the lab of Dr. Mylene Weill.

PhD thesis: "Molecular characterization of temephos resistance in the major dengue and chikungunya vector *Ae. albopictus*"

### **Employment History:**

**09.2019 – present** **Sir Henry Wellcome Trust Postdoctoral fellow.** Department of Vector Biology, Liverpool School of Tropical Medicine, United Kingdom. Project: "Formation of the outer surface of the mosquito cuticle and its role in determining the fitness of African malaria vectors". Sponsored by Prof. Hilary Ranson (LSTM), Prof. Flaminia Catteruccia (Harvard T.H. Chan School of Public Health) and Dr. Ralf Nauen (Bayer, Crop Science Division).

**10.2017 – 09.2019** **Post Doc Research Associate.** Department of Vector Biology, Liverpool School of Tropical Medicine, United Kingdom. Project: "Delineating the cuticular hydrocarbon biosynthesis pathway in the malaria vector *An. gambiae*". PI: Hilary Ranson

**08.2017 – 10.2017** **Post Doc Research Associate.** Department of Biology University of Crete, Greece. Project: "Analysis of insecticide resistance in *An. gambiae* from Mali". PI: John Vontas.

### **Funding:**

**Sir Henry Wellcome Trust fellowship** for the project "Formation of the outer surface of the mosquito cuticle and its role in determining the fitness of African malaria vectors", 2019-2023 (300,000 GBP)

**Director's Catalyst Fund**, LSTM (pump-priming award for the project: "Delineating the cuticular hydrocarbon biosynthesis pathway in the malaria vector *An. gambiae*", 2018-2019 (48,000 GBP).

### **Participation in collaborative grant applications:**

- Co-Investigator in MRC (Medical Research Council)/UKRI (United Kingdom) submitted project (2021): A Functional Analysis of Resistance to Pyrethroid Insecticides in the malaria vector *Anopheles gambiae*.
- Co-Investigator in DFG (Deutsche Forschungsgemeinschaft-Germany) submitted project (2021): *P. falciparum* development in the natural host: Analysis of vector-parasite interactions on a single-cell level.

### **Achievements /Awards:**

- Ranked first in the State examinations for the admission to the Biology Department of the University of Crete and received a Honorary Award from the Greek State Scholarship Foundation, 2007.
- Scholarship from the Foundation of Research and Technology (FORTH-IMBB, Heraklion, Crete) for M.Sc studies, 2011-2012.
- Scholarship from the Greek State Scholarship Foundation (IKY) for M.Sc studies, 2012-2013.
- Award from the Greek entomological society for research in the areas of entomology, acarology and nematology, 2016-2017.
- Award from the University of Crete (Michail and Maria Mannasaki foundation) for work of outstanding merit during the PhD thesis, 2016-2017.

### **Memberships and Reviewing activities:**

- I am serving as reviewer for journals including: Nature Scientific Reports, Plos Neglected Tropical Diseases, Plos One, Acta Tropica, BMC Genomics, Pesticide Biochemistry and Physiology, Parasitology.
- Guest editor for the special issue of Pest and Resistance, 2020 published in the Current Opinion in insect science journal.
- External examiner for a PhD student at Edge Hill University, U.K.
- Member of the “ANTI-VeC” network.

### **Teaching:**

- I thoroughly enjoy teaching and have supervised the project of 4 students during their MSc studies and of 2 students during their PhD.
- I organised a series of “Molecular Biology meetings” in 2020 to teach technicians in the group the background of commonly used lab techniques.
- I have completed a course recognised by the Staff and Educational Development Association (SEDA) to enhance my teaching skills (LSTM, 2019).

### **Publications:**

1. Jessica Williams, Ruth Cowlshaw, Antoine Sanou, Hilary Ranson and **Linda Grigoraki**. Determining the contribution of the *An. gambiae* voltage gated sodium channel mutation V402L in insecticide resistance and its associated fitness costs. (Pest Management Science submitted)

2. Iris Wagner, **Linda Grigoraki**, Peter Enevoldson, Michael Clarkson, Sam Jones, Jane L Hurst, Robert J Beynon and Hilary Ranson. Rapid identification of mosquito species, sex and age by mass spectrometric analysis. (In preparation)
3. **Grigoraki L**, Cowlshaw R, Nolan T, Donnelly M, Lycett G, Ranson H. CRISPR/Cas9 modified *An. gambiae* carrying *kdr* mutation L1014F functionally validate its contribution in insecticide resistance and combined effect with metabolic enzymes. **PLoS Genet.** 2021;17(7):e1009556.
4. Poulton BC, Colman F, Anthousi A, **Grigoraki L**, Adolphi A, Lynd A, et al. Using the GAL4-UAS System for Functional Genetics in *Anopheles gambiae*. *J Vis Exp.* 2021(170).
5. **Grigoraki L**, Grau-Bove X, Carrington Yates H, Lycett GJ, Ranson H. Isolation and transcriptomic analysis of *Anopheles gambiae* oenocytes enables the delineation of hydrocarbon biosynthesis. **Elife.** 2020;9.
6. Bajda S, **Grigoraki L**. Integrated pest management: Novel tools, remaining challenges, and intriguing non-target effects. **Curr Opin Insect Sci.** 2020;39:iii-v.
7. Balaska S, Fotakis EA, Kioulos I, **Grigoraki L**, Mpellou S, Chaskopoulou A, et al. Bioassay and molecular monitoring of insecticide resistance status in *Aedes albopictus* populations from Greece, to support evidence-based vector control. **Parasit Vectors.** 2020;13(1):328.
8. Fotakis EA, Mastrantonio V, **Grigoraki L**, Porretta D, Puggioli A, Chaskopoulou A, et al. Identification and detection of a novel point mutation in the Chitin Synthase gene of *Culex pipiens* associated with diflubenzuron resistance. **PLoS Negl Trop Dis.** 2020;14(5):e0008284.
9. Wei P, Demaeght P, De Schutter K, **Grigoraki L**, Labropoulou V, Riga M, et al. Overexpression of an alternative allele of carboxyl/choline esterase 4 (CCE04) of *Tetranychus urticae* is associated with high levels of resistance to the keto-enol acaricide spiropdiclofen. **Pest Manag Sci.** 2020;76(3):1142-53.
10. Vontas J, **Grigoraki L**, Morgan J, Tsakireli D, Fuseini G, Segura L, et al. Rapid selection of a pyrethroid metabolic enzyme CYP9K1 by operational malaria control activities. **P Natl Acad Sci USA.** 2018;115(18):4619-24.
11. Balabanidou V, **Grigoraki L** and Vontas J. (2018) Insect cuticle: a critical determinant of insecticide resistance. **Current Opinion in Insect science** (27) <https://doi.org/10.1016/j.cois.2018.03.001>
12. **Grigoraki L**, Puggioli A, Mavridis K, Douris V, Monatanary M, Bellini R and Vontas J. (2017) Striking diflubenzuron resistance in *Culex pipiens*, the prime vector of West Nile Virus. **Scientific Reports** 15;7(1):11699. doi: 10.1038/s41598-017-12103-1.
13. **Grigoraki L**, Pipini D, Labbé P, Chaskopoulou A, Weill M, and Vontas J. (2017). Carboxylesterase gene amplifications associated with insecticide resistance in *Aedes albopictus*: Geographical distribution and evolutionary origin. **PLoS Neglected Tropical Diseases**, 11(4), e0005533. [hiip://doi.org/10.1371/journal.pntd.0005533](https://doi.org/10.1371/journal.pntd.0005533)
14. Seixas G, **Grigoraki L**, Weetman D, Vicente J. L., Silva A. C., Pinto J., Sousa C. A. (2017). Insecticide resistance is mediated by multiple mechanisms in recently introduced *Aedes aegypti* from Madeira Island (Portugal). **PLoS Neglected Tropical Diseases**, 11(7), e0005799. [hiip://doi.org/10.1371/journal.pntd.0005799](https://doi.org/10.1371/journal.pntd.0005799)
15. Fotakis E.A., Chaskopoulou A, **Grigoraki L**, Tsiamantas A, Kounadi S, Georgiou L, and Vontas J. (2017). Analysis of population structure and insecticide resistance in mosquitoes of the genus *Culex*, *Anopheles* and *Aedes* from different environments of Greece with a history of mosquito borne disease transmission. **Acta Tropica**, 174. <https://doi.org/10.1016/j.actatropica.2017.06.005>
16. **Grigoraki L**, Balabanidou V, Meristoudis C, Miridakis A, Ranson H, Swevers L, Vontas J (2016) Functional and immunohistochemical characterization of CCEae3a, a carboxylesterase associated with temephos resistance in the major arbovirus vectors *Aedes aegypti* and *Ae. albopictus*. **Insect Biochem Mol Biol** ;74:61-7. doi: 10.1016/j.ibmb.2016.05.007

17. **Grigoraki L**, Lagnel J, Kioulos I, Kampouraki A, Morou E, Labbé P, Weill M, Vontas J (2015) Transcriptome Profiling and Genetic Study Reveal Amplified Carboxylesterase Genes Implicated in Temephos Resistance, in the Asian Tiger Mosquito *Aedes albopictus*. **PLoS Negl Trop Dis** 9(5):e0003771. doi:10.1371/journal.pntd.0003771

## Conference Presentations:

- EMBO conference: Molecular and Population Biology of Mosquitoes and Other Disease Vectors: vector and disease Control, 22-26 July 2019, Kolymbari Greece. Oral presentation: Characterization of the cuticular hydrocarbon biosynthetic pathway in the malaria vector *Anopheles gambiae*.
- Meeting of the Royal Entomological Society, 2018, Edge Hill University UK. Oral presentation: Characterization of the cuticular hydrocarbon biosynthetic pathway in the malaria vector *Anopheles gambiae*.
- EMBO conference: Molecular and Population Biology of Mosquitoes and Other Disease Vectors: vector and disease Control, 24-28 July 2017, Kolymbari Greece. Oral presentation: Chitin synthase mutations in *Culex* cause striking resistance to diflubenzuron, one of the most effective larvicides.
- 16th Panhellenic Conference of the Entomological society. 20-23 October 2015, Heraklion Crete, Greece. Oral presentation: Molecular characterization of insecticide resistance in mosquitoes.
- 250<sup>th</sup> American Chemical Society National Meeting and Exposition, Current Advances and Challenges in Arthropod Vector Control, 16-20 August 2015, Boston USA. Oral presentation: Identifying the molecular basis of insecticide resistance in mosquito vectors and agricultural pests.
- EMBO conference: Molecular and Population Biology of Mosquitoes and Other Disease Vectors: From Basic Vector Biology to Disease Control, 24-29 July 2015, Kolymbari Greece. Oral presentation: Functional analysis and geographical distribution of amplified carboxylesterase genes associated with organophosphate resistance in *Aedes albopictus*.
- 19th Conference of European Society for Vector Ecology 13-17 October 2014, Thessaloniki Greece. Poster: Molecular characterization of temephos resistance in the major dengue and chikungunya vector *Aedes albopictus*.
- Seventh International Symposium on Molecular Insect Science, 13-16 July 2014 Amsterdam, The Netherlands. Oral presentation: Molecular characterization of temephos resistance in *Aedes albopictus*.
- EMBO conference: Molecular and Population Biology of Mosquitoes and Other Disease Vectors: From Basic Vector Biology to Disease Control, 15-19 July 2013, Kolymbari Greece. Oral presentation: Molecular characterization of temephos resistance in *Aedes albopictus*.

