CURRICULUM VITAE

Name: Amalia Anthousi
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Academic records

-2020-now: PhD candidate in Molecular Entomology, Department of Biology, University of Crete (UoC), Greece

-2013-2015: M.Sc. in Protein Biotechnology, Departments of Biology and Chemistry, University of Crete, Greece. Grade: 9,13/10

-2007-2013: B.Sc. in Biology (section of Bio-molecular Science and Biotechnology), University of Crete, Greece. Grade: 6,44/10

Research Experience

-May 2019-April 2020: Research Technician, Grade 5 – Liverpool School of tropical Medicine (LSTM), Vector Biology Department

Project title_1: Development of a functional genetic toolkit in *An.funestus*

Project title_2: Investigating the evolution of voltage-gated sodium channel gene mutations in *An.gambiae* using CRISPR/CAS9

Project title_3: Comparison of insecticide susceptibility in transgenic F_Ac(PMB)1 *Anopheles coluzii* with non-transgenic siblings

- In collaboration, with Liverpool Insect Testing Establishment (LITE) on behalf of Target Malaria consortium.

Line Manager/Supervisor: Dr. Tony Nolan-LSTM

-September 2018-April 2019: Research Technician, Grade 4 – LSTM, Vector Biology Department

Project title_1: Targeted disruption of the steroid hormone inactivation pathway in *Anopheline* mosquitoes for malaria control

Project title_2: *In vivo* characterization of mosquito resistance to volatile insecticides

Project title_3: Prospective liability of IVC-5743 and related compounds to metabolic resistance in *An.gambiae*

Line Manager/Supervisor: Dr. Gareth Lycett-LSTM

-November 2016-August 2018: Insectary Technician (Research Technician) – LSTM, Vector Biology Department

Project title_1: Characterizing the role of SAP2 in insecticide resistance by the use of transgenic SAP2 over-expressing *Anopheles gambiae* mosquitoes

Other projects : Get involved in a series of projects regarding the *in vivo* functional analysis of genes associated with insecticide resistance by the use of genetically modified *Anopheles gambiae* mosquitoes

Line manager/Supervisor: Dr. Gareth Lycett- LSTM

-January 2016-April 2016: 3 months Erasmus traineeship

Project title: Genome modification of *Anopheles gambiae* using CRISPR/Cas9

Advisor: Dr. Gareth Lycett-LSTM

-October 2014-November 2015: M.Sc Thesis

Project title: Characterization of the CYP4G sub-family of the P450's from *Anopheles gambiae* and *Drosophila melanogaster*

Advisor: Prof. John Vontas- Institute of Molecular Biology and Biotechnology (IMBB),Heraklion Crete

-June 2014-September 2014: 3 months lab rotation
Project title: Immunolocalization of detoxification enzymes in the main malaria vector *Anopheles gambiae*
Advisor: Prof. John Vontas-IMBB
-March 2014-May 2014: 3 months lab rotation
Project title: Study of the bioreactivity of iron magnetic nanoparticles
Advisor: Prof. Irene Athanassakis-University of Crete (UoC)
-October 2012-September 2013: Diploma thesis
Project title: Study of the effect of soluble MHC II molecules isolated from sub-populations of T-cells from Balb/c mice during pregnancy.
Advisor: Prof. Irene Athanassakis-UoC

Technical skills/expertise

Insect rearing (Drosophila, *An.gambiae, An.funestus, Aedes albopictus, Aedes aegypti* mosquitoes and transgenic *An.gambiae* strains)
Mosquito embryo micro-injections (*An.gambiae and An.funestus*) and establishment of transgenic lines.
Insecticide resistance phenotypic characterization (WHO tube bioassays, tarsal contact assays, Volatile bioassays)
Design and generation of CRISPR/Cas9 and UAS-GAL4 constructs

General molecular biology techniques :
Cloning (including Gibson assembly and Golden Gate Cloning) DNA/RNA extractions, PCR, cDNA synthesis, RT-qPCR etc), Protein analysis (SDS-PAGE, Western plot, Lowry and Bradford methods), RNAi/dsRNA preparation,
FACs and mammalian cell cultures,
Immuno-histo-chemistry, Fluorescent and Confocal microscopy

Publications

-2020: Rosemary Lees, Hanafy M. Ismail, Rhiannon Logan, Rachel Davies, **Amalia Anthousi**, Adriana Adolfi, Gareth J. Lycett, & Mark J.I. Paine, Complex 1 inhibitors are susceptible to metabolic cross-resistance by mosquito pyrethroid-metabolising P450s, (in preparation for submission at Scientific Reports)
-2020: Strain specific alterations of the microbiome in *Ae.aegypti* in response to sugar type, (in preparation)
-2019: Victoria A. Ingham, **Amalia Anthousi**, Vassilis Douris, Nicholas J. Harding, Gareth Lycett, Marion Morris, John Vontas & Hilary Ranson, (2020) A sensory appendage protein protects malaria vectors from pyrethroids (Nature, doi: 10.1038/s41586-019-1864-1)
-2019: Adriana Adolfi, Beth Poulton, **Amalia Anthousi**, Stephanie Macilwee, Hilary Ranson, and Gareth J. Lycett (2019) Functional genetic validation of key genes conferring insecticide resistance in the major African malaria vector, *Anopheles gambiae* (PNAS, doi: 10.1073/pnas.1914633116)
-2018: Kostopoulou A, Brintakis K, Fragogeorgi E, **Anthousi A**, Manna L, Begin-Colin S, Billotey C, Ranella A, Loudos G, Athanassakis I, Lappas A, (2018) Iron Oxide Colloidal Nanoclusters as Theranostic Vehicles and Their Interactions at the Cellular Level (Nanomaterials, doi: 10.3390/nano8050315)
-2018: Adolfi, A. et al., 2018. Multi-tissue GAL4-mediated gene expression in all Anopheles gambiae life stages using an endogenous polyubiquitin promoter. *Insect Biochemistry and Molecular Biology*, 96, pp.1–9 (doi: 10.1016/J.IBMB.2018.03.005). Acknowledgement of contribution.

-2016: Vasileia Balabanidou , Anastasia Kambouraki, Marina MacLean, Gary J. Blomquist, Claus Tittiger, M Patricia Juárez, Sergio J Mijailovsky, George Chalepakis, **Amalia Anthousi**, Amy Lynd, Sanou Antoine, Janet Hemingway, Hilary Ranson, Gareth Lycett, John Vontas, (2016) Cytochrome P450s associated with insecticide resistance catalyse cuticular hydrocarbon production in *Anopheles gambiae* (PNAS, doi: 10.1073/pnas.1608295113)

Conferences

-2019: Adolfi A., **Anthousi A.**, Colman F. and Lycett G., **Oral presentation:** Analysis of P450 based metabolic resistance to volatile pyrethroids and repurposed complex I insecticides in *Anopheles gambiae*, EMBO Conference "Molecular and population biology of mosquitoes and other disease vectors: vector and disease control", Kolymbari Greece, 22-26 July 2019

-2019: Anthousi A. et al., Understanding the genetic basis of *Anopheles funestus* traits using novel transgenic technologies for biological and chemical control against malaria, 2nd Anti-VeC Annual UK Meeting, London, 20-21 June 2019

-2018: Victoria A. Ingham, **Amalia Anthousi**, Vassilis Douris, Gareth Lycett, Marion Morris, John Vontas & Hilary Ranson, **Oral presentation**: Chemosensation: a new insecticide resistance mechanism in *Anopheles gambiae sI*, Ento'18, Royal Entomological Society, Edge Hill University, UK, 28-31 August 2018

-2017: S.Macilwee, A. Adolfi, A. Lynd, **A.Anthousi** and G. Lycett, "Rapid" gain of function analysis in Anopheles gambiae, EMBO Conference "Molecular and population biology of mosquitoes and other disease vectors: vector and disease control", Kolymbari Greece, 24-28 July 2017

-2015: Grigoraki L., … , **Anthousi A.**, et al., **Oral Presentation:** Molecular characterization of insecticide resistance in mosquito - disease vectors, 16th Hellenic Conference of Entomology, Heraklion, Greece, 20-23 October 2015

-2015: Balabanidou V., **Anthousi A**, et al., The 4G cytochrome P450's in the malaria mosquito *Anopheles gambiae*: a potential role in insecticide resistance by altering cuticle structure, 16th Hellenic Conference of Entomology, Heraklion, Greece, 20-23 October 2015

-2015: Balabanidou V., **Anthousi A.**, et al., The 4G cytochrome P450's in the malaria mosquito *Anopheles gambiae*: a potential role in insecticide resistance by altering cuticle structure, EMBO Conference "Molecular and Population Biology of Mosquitoes and Other Disease Vectors: From Basic Vector Biology to Disease Control", Kolymbari Greece, 24-29 July 2015

-2014: Anthousi A., **…** , Athanassakis I., **Oral presentation:** Soluble MHC II antigens isolated from syngeneically pregnant mice promote cellular immunity, 11th Conference of the European Society for Reproductive Immunology, Budapest, Hungary, 30 March- 1 April 2014

-2013: Bakela K., Grigoriou M., **Anthousi A.**, Petroulakis P., Gizeli E., Athanassakis I.**, Oral presentation:** Immune regulation through soluble MHC II molecules targeting CD4C T-cells, 9th Hellenic Immunology Conference, Greek Society of Immunology, Athens, Greece, 12-14 December 2013

Fellowships

-June 2019: Travel bursary, 2nd Anti-VeC Annual UK Meeting, Imperial College, London, 20-21 June 2019

-January 2016-April 2016: Erasmus International Exchange Program Fellowship, LSTM, Liverpool, United Kingdom

-December 2014-May 2015: Postgraduate studentship, THALIS- FORTH, 'Development of informatics Systems and molecular diagnostic tool for the support and improvement of chemical control of the major enemies of the Greek Agriculture' (Foundation for Research and Technology, Hellas, FORTH - Institute of Molecular Biology and Biotechnology, Acronym MIS: 380264)

-October 2007: Computer purchase funding by the Greek Ministry of Education, Research and Religious Affairs, as a reward to the top 15 students entering in the Department of Biology, University of Crete

Teaching experience

-May 2017-now: Lab and Insectary supervision of 1 Bachelor thesis, 3 M.Sc thesis, 2 PhD, 2 visiting post-graduate student and 1 Research Scientist, LSTM

-August 2017- December 2017: Insectary supervision of 1 PhD student (collaborator, University of Liverpool), LSTM

-January 2015-May 2015: Lab assistant in the undergraduate research subject: General Methods for the Identification and Analysis of Biological Macromolecules, University of Crete

-September 2014-June 2015: Lab assistance of 1 undergraduate Diploma thesis, University of Crete

-**September 2014-December 2014:** Lab. assistant in the undergraduate research subject: General Methods of Cellular and Genetic Analysis, University of Crete

Personal skills

-Foreign languages: English B2 level

- University of Cambridge, December 2003
- Greek Ministry of National Education and Religious Affairs, February 2004

-IT skills: Proficiency Diploma

- University of Cambridge, August 2008