Curriculum Vitae

Personal Information:

First Name:	Vasileia
Family Name:	Balabanidou
Gender*:*	Female
Marital Status:	Married, 2 children
Nationality:	Greek
Present Position:	Postdoctoral Associate Institute of Molecular Biology and Biotechnology (IMBB) Foundation for Research and Technology - Hellas (FORTH)
Address:	IMBB-FORTH, N. Plastira 100, Vassilika Vouton, P.O. Box 1385, Heraklion 70013, Crete, Greece Phone: +30 2810 391148 eMail: balaban@imbb.forth.gr

Education:

- **PhD:** 2005-2009, Department of Biology, University of Crete/Institute of Molecular Biology and Biotechnology (IMBB/ITE), Greece
  Name of PhD Supervisor: Anastassios Economou
  Title of Dissertation: Study of the type III secretion system from Enteropathogenic *E. coli*
- **M.Sc.: :** 2003-2005, Department of Biology, University of Crete/Institute of Molecular Biology and Biotechnology (IMBB/ITE), Greece
  Name of PhD Supervisor: K. Tokatlidis
  Title of Dissertation: Study of oxidative folding of small Tims during biogenesis of mitochondria

Current Position: 2016-Today, DMC-MALVEC (H2020), Post-Doctoral Researcher in the Laboratory of Pests and disease control (Scientific Supervisor, John Vontas), Institute of Molecular Biology and Biotechnology (IMBB-FORTH/ITE), Greece

Previous Positions: 2011-2015, AvecNet (FP7)/Impoving insecticide delivery: Identification of the major attrition points in delivery of insecticides to the target sides, Post-Doctoral Researcher in the Laboratory of Molecular Entomology (Scientific Supervisor, John Vontas), Biology Department, University of Crete, Greece

Fellowships/Prizes/Awards (if applicable):

- IKY Fellowship (ESPA 2014-2020) for Post Doctoral Researchers (First Call, 2017)
- ELIDEK funding (1η Προκήρυξη Ερευνητικών Έργων ΕΛΙΔΕΚ για την ενίσχυση Μεταδιδακτόρων) (Ranking: 3rd out of 350 applications in Agricultular Sciences, Total score: 91%)

Supervision of graduate students and postdoctoral fellows:

Number of students: 5, for 1 year during their master thesis, University of Crete

postdocs: 1, for 6 months, Institute of Molecular Biology and Biotechnology

Major Collaborations:

- Name of collaborator: Maria Klapa, Head of the Metabolic engineering and systems biology lab, FORTH/ICE-HT (comparative metabolic profiling of mosquito populations, publication in preparation)
- Name of collaborator: Pr Hilary Ranson and Dr Gareth Lycett, duration: 4 years, Host Institution: Liverpool School of Tropical Medicine (LSTM), Research Project: Impoving insecticide delivery: Identification of the major attrition points in delivery of insecticides to the target sides, Role in the project: Post-Doctoral Researcher
- Name of collaborator: Pr. Patricia Juarez, duration: 2 years, Host Institution: Instituto de Investigaciones Bioquimicas de La Plata (CONICET, CCT La Plata-UNLP), Research Topic: Quantitative and Qualitative analysis of Cuticular Hydrocarbons from the epicuticle of *Anopheles gambiae.*
- Name of collaborator: Pr. George Chalepakis, duration: 6 months, Host Institution: Department of Biology, University of Greece, Electron microscopy laboratory, Research Topic: measure the thickness of the mosquito leg cuticle by Trasmission Electron Microscopy, Role in the project: Post-Doctoral Researche*r*
- Name of collaborator: Gary J. Bloomquist, duration: 6 months, Host Institution: University of Nevada, Reno, Research Topic: Express P450's fused with their reductase, CPR, in insect cell lines
- Name of collaborator: Thomas Van Leeuwen, duration: 6 months, Host Institution: University of Ghent, Belgium, Research Topic: Immuno-localization of P450's in mites
- Name of collaborator: G. Frankel, duration: 1 month, Host Institution: Imperial College, Research Topic: Infect HeLa cells with Enteropathogenic *E. coli*, Role in the project: PhD student

Profile

I completed my PhD studies in the group of Tassos Economou (protein secretion systems in bacteria) in IMBB, acquiring a strong backround in the study of proteins. Noteworthy, during this period, I used several proteomic approaches to study bacterial complexes, in the Proteomic Facility of IMBB (ProFI). Next, I joined the Molecular Entomology group (group leader: Prof. John Vontas) and I had the opportunity to collaborate with the world's experts in the field of Insecticide Resistance (Supervisors: John Vontas, Hilary Ranson and Gareth Lycett from the Liverpool School of Tropical Medicine). My scientific interests focused on the role of cytochrome P450's in

conferring insecticide resistance, by altering cuticular structure in *Anopheles gambiae* resistant populations, that exhibit a mult-resistant profile. An impressive array of approaches was developed, including penetration rate of insecticide and leg thickness measurements, bioassays and immunolocalization techniques, to unravel the molecular basis of cuticular resistance. This work was published in the leading journal, PNAS (Balabanidou V., *etal*, 2016, PNAs), followed by a commentary paper in the same Journal (Mosquitoes boost body armor to resist insecticide attack, Chris Bass and Christopher M. Jones, August 2016, PNAS).

Relevant Publications:

1. *A horizontally transferred cyanase gene in the spider mite Tetranychus urticae is involved in cyanate metabolism and is differentially expressed upon host plant change***.** Nicky Wybouw, **V Balabanidou**, DJ Ballhorn, Wannes Dermauw, Mike Grbić, John Vontas, Thomas Van Leeuwen
   Insect Biochemistry and Molecular Biology (2012) 42: 881-889
2. *A Potential Role for Cytochrome P450s in Conferring Insecticide Resistance in Anopheles Gambiae by Altering Cuticule Structure*. **Balabanidou V**., et al.,
   Pathogens and Global Health, 2013. 107(8): p. 435-435.
3. *Dissecting the organ specificity of insecticide resistant candidates in Anopheles Gambiae*. Ingham VA1, Jones CM, Pignatelli P, **Balabanidou V**, Vontas J, Wagstaff SC, Moore JD, Ranson H.
   BMC Genomics (2014) Nov 25;15:1018. doi: 10.1186/1471-2164-15-1018.
4. *Functional and immunohistochemical characterization of CCEae3a, a carboxylesterase associated with temephos resistance in the major arbovirus vectors Aedes aegypti and Ae. albopictus.* Grigoraki L, **Balabanidou V**, Meristoudis C, Miridakis A, Ranson H, Swevers L, Vontas J.
   Insect Biochemistry and Molecular Biology (2016) Jul; 74: 61-7. doi:10.1016/j.ibmb.2016.05.007.
5. *Cytochrome P450 associated with insecticide resistance catalyses cuticular hydrocarbon production in Anopheles gambiae*
   Vasileia Balabanidou, Anastasia Kampouraki, Marina MacLean, Gary J. Blomquist, Claus Tittiger, M Patricia Juárez, Sergio J Mijailovsky, Georges Chalepakis, Amalia Anthousi, Amy Lynd, Sanou Antoine, Janet Hemingway, Hilary Ranson, Gareth Lycett, John Vontas
   Proc Natl Acad Sci U S A, 2016. 113(33): p. 9268-9273.
6. *Contributions of cuticle permeability and enzyme detoxification to pyrethroid resistance in the major malaria vector Anopheles gambiae*. Yahouédo GA, Chandre F, Rossignol M, Ginibre C, **Balabanidou** V, Mendez NGA, Pigeon O, Vontas J, Cornelie S.
   Sci Rep. 2018 *(1):6137*
7. *The Anopheles gambiae ATP-binding cassette transporter family: phylogenetic analysis and tissue localization provide clues on function and role in insecticide resistance*. Pignatelli P, Ingham VA, **Balabanidou** V, Vontas J, Lycett G, Ranson H.
   Insect Mol Biol. 2018 *(1):110-12*
8. *Insect cuticle: a critical determinant of insecticide resistance*. **Vasileia Balabanidou,** Linda Grigoraki, John Vontas.
   Current Opinion in Insect Science, 2018 *(27): 68-74*

Publications:

9. *Erv1 mediates the Mia40-dependent protein import pathway and provides a functional link to the respiratory chain by shuttling electrons to cytochrome c*. Scott Allen, **Vassilia Balabanidou**, Dionisia P. Sideris, Thomas Lisowsky and KostasTokatlidis
J. Mol. Biol. (2005) *353: 937-944*

10. *Structural instability tuning as a regulatory mechanism in protein-protein interactions.* Chen L, **Balabanidou V**, Remeta D.P, Minetti C.A.S.A., Portaliou A.G, Economou A, Kalodimos C.G.
Molecular Cell (2011) *44:734-44.*

11. *Hierarchical protein targeting and secretion is controlled by an affinity switch in the type III secretion system of enteropathogenic Escherichia coli.* Portaliou AG, Tsolis KC, Loos MS, **Balabanidou V**, Rayo J, Tsirigotaki A, Crepin VF, Frankel G, Kalodimos CG, Karamanou S, Economou A**.**
EMBO J (2017) *23:3517-3531*

Relevant Presentations:

- Participation to the mini-***Symposium of Proteomics***, IMBB, FORTH, 2009, Crete
- Oral presentation in the ***Mosquito Kolymbari meeting*** (EMBO, 2013)
- Poster presentation (The 4G cytochrome P450s in the malaria mosquito *Anopheles gambiae*: a potential role in insecticide resistance by altering cuticle structure) in the ***Mosquito Kolymbari meeting*** (EMBO, 2015)
- Poster presentation in the 16th ***Panhellenic Entomological Congress*** (2015)
- Poster presentation (Cytochrome P450s with intriguing localization catalyse cuticular hydrocarbon production associated with insecticide resistance in the malaria mosquito *Anopheles gambiae*) in ***IMBB/Retreat*** (2016)
- Oral presentation (Invited speaker) in the ***AvecNet***, end meeting, 2016
- Poster presentation (in the ***Mosquito Kolymbari meeting*** (EMBO, 2017)

Foreign Languages

1996 Certificat de la langue française

1995 Lower in English (University of Cambridge)