

2019

# Kostas Mathiopoulos

Curriculum Vitae



## **Kostas D. Mathiopoulos**

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### **Education**

1989-1990 Master in Public Health, Harvard School of Public Health, Boston, USA  
1983-1989 PhD, Molecular Biology, Tufts University, Boston, USA  
1978-1983 BSc, Chemistry, National University of Athens, Athens, Greece

### **Professional Experience**

2017-present Director, MSc Program “Advanced Experimental and Computational Biosciences”, Department of Biochemistry and Biotechnology, University of Thessaly, Larissa, Greece  
2016-present Department Head, Department of Biochemistry & Biotechnology, University of Thessaly, Larissa, Greece  
2015-present Biosafety and Laboratory Safety Officer, Department of Biochemistry & Biotechnology, University of Thessaly, Larissa, Greece  
2013-present Professor of Molecular Biology, Department of Biochemistry & Biotechnology, University of Thessaly, Larissa, Greece  
2009-2013 Associate Professor of Molecular Biology, Department of Biochemistry & Biotechnology, University of Thessaly, Larissa, Greece  
2006-2009 National Expert of the Greek Representation of the 7<sup>th</sup> European Framework Programme in the “Food, Agriculture and Fisheries and Biotechnology” sector  
2002-2009 Assistant Professor of Molecular Biology, Department of Biochemistry & Biotechnology, University of Thessaly, Larissa, Greece

### **Grants (last ten years)**

2018-2020 BioRoboost: Fostering Synthetic Biology standardisation through international collaboration. H2020-NMBP-TR-IND-2018-2020 / BIOTEC-01-2018 (CSA), Project ID210491758. PI of Greek participation. Budget: 65,000€.  
2018-2020 «Olive routes», Greek National research network on the olive tree. Coordinator of UThessaly contribution. Budget: 50,000€.  
2016-2019 National Infrastructures Program on Synthetic Biology: “OMIC-Engine”. Principal Investigator, Budget: 4,000,000€.  
2013-2015 IKYDA 2013, Programme for the promotion of the exchange and scientific cooperation between Greece and Germany. Principal Investigator. Travel budget only: 10,000€.  
2012-2015 Research Program “Excellence” (Aristeia) of the Greek Ministry of Education entitled: “Novel approaches to olive fly control: focus on olfactory and reproductive systems”. Principal Investigator. Budget: 350,000€.  
2012-2014 Interdisciplinary and Interuniversity Research Support Program of the Greek Ministry of Education “Thales” entitled: “Symbiotic bacteria and ‘omics’ technologies towards the development of novel and environment-friendly control methods on insect pests: the case of the Mediterranean fruit fly”. Participation as Principal Investigator of Collaborating Team. Budget: 74,750 €.  
2010-2013 Human Research Potential Support Programme “Herakleitos II” of the Greek Ministry of Education entitled: «Transcriptomics and Proteomics analysis of the most important olive

- pest, the insect *Bactrocera oleae*, with emphasis in sex-separation systems and insecticide resistance». Participation as Principal Investigator. Budget: 45,000€
- 2010-2012 Specialty Crops Block Grant Program from California Department of Food and Agriculture entitled: "Spinosad Resistance in California Olive Fruit Fly (*Bactrocera oleae*) Populations". Participation as Principal Investigator of Collaborating Team. Budget: 52,500 \$.
- 2006-2008 Bilateral Greece-Cyprus R&T Collaborative Programmes of the Greek General Secretariat of Research and Technology of the Ministry of Development on "Assessment of resistance of natural olive fly populations to the naturalyte insecticide spinosad as well as investigation of the underlying molecular mechanism of such resistance". Participation as Principal Investigator. Budget: 23,480€.
- 2005-2007 Research Potential Support Programme of the Greek General Secretariat of Research and Technology of the Ministry of Development on "Assessment of insecticide resistance in four insects of great economic importance (olive fly, green peach aphid, medfly and apple maggot fly), investigation of underlying resistance mechanisms and study of their bioecology. Participation as Principal Investigator of Collaborating Team. Budget: 180,000€.

## Teaching

- 2008 - today «Methods and Techniques», 1<sup>st</sup> Semester of Master's Diploma Program in «Molecular Biology Applications – Molecular Genetics, Molecular Markers», Department of Biochemistry and Biotechnology, U of Thessaly
- 2008 – today «Genetics», a two-semester course including Genetics, Physiology and Evolution at the senior students of the Natural Sciences Programme of the Open University of Greece
- 2007- today «Genetically Modified Organisms», 2<sup>nd</sup> Semester of Master's Diploma Program in «Biotechnology – Nutrition and Environment», Department of Biochemistry and Biotechnology, U of Thessaly
- 2007- today «Forensics» and «ancient DNA», 1<sup>st</sup> Semester of Master's Diploma Program in «Molecular Biology Applications – Molecular Genetics, Molecular Markers», Department of Biochemistry and Biotechnology, U of Thessaly
- 2003-today «Molecular Ecology», 8<sup>th</sup> Semester, Department of Biochemistry and Biotechnology, U of Thessaly
- 2002-today «Molecular Biology I», 4<sup>th</sup> Semester, Department of Biochemistry and Biotechnology, U of Thessaly
- 2002-today «Molecular Biology II», 5<sup>th</sup> Semester, Department of Biochemistry and Biotechnology, U of Thessaly

## Student supervision

- 2008 – today Supervision of 18 Master's theses in the Department of Biochemistry and Biotechnology, U of Thessaly
- 2004 – today Supervision of 6 PhD candidates in the Department of Biochemistry and Biotechnology, U of Thessaly
- 2003 – today Supervision of over 30 undergraduate students of the Department of Biochemistry and Biotechnology, U of Thessaly
- 1993 – today Member of several PhD candidate Evaluation Committees of various Universities in Greece and Italy

## Fellowships

- 1983-1989 National Science Foundation Fellowships Program, USA  
1989-1990 Harvard School of Public Health Fellowship, USA  
1990-1993 Fogarty International Fellowship (NIH, USA)  
1993-1995 Human Capital and Mobility Programme (European Union).

## Scientific Evaluation

- 2007 - today Manuscript reviewer on behalf of: *Genetica*, *Journal of Applied Entomology*, *International Journal of Pest Management*, *Molecular Phylogeny and Evolution*, *Molecular Ecology*, *PLoS One*, *Pesticide Biochemistry and Physiology*.  
2005 Proposal reviewer of the Greece-Bulgaria Bi-lateral Science and Technology Projects of the Greek General Secretariat of Research and Development  
1996-1998 Scientific Evaluator of proposals in the INCO Copernicus Programme, for the cooperation of developing countries with international organizations of the European Union  
2000- 2001 Scientific Reviewer for the Annals of Marie Curie Fellowship Association.

## Publishing / Editing

- 2017 Entire book editing: "Synthetic Biology, a primer" (Baldwin et al.), on behalf of Utopia Publishing  
2014 Chapter editing in the Greek translation of "Principles of Molecular Biology" (B.E. Tropp) on behalf of Academic Publications  
2013 Chapter editing in the Greek translation of "Evolution" (Barton et al.) on behalf of Utopia Publishing  
2011 Chapter editing in the Greek translation of "Molecular Biology of the Gene" (Watson et al.) on behalf of Utopia Publishing  
2011 Participation in the translation and chapter editing of the book "The Cell" (Cooper and Hausman), on behalf of Academic Publications  
2009 Participation in the translation of the book "Molecular Biology of the Gene" (Watson et al.), on behalf of Utopia Publishing.  
2007 Participation in the translation of the book "Recombinant DNA technology" (Watson et al.), on behalf of Academic Publications  
2002–today Writing and yearly editing and updating of the "Laboratory Manual" for the courses «Molecular Biology I» and «Molecular Biology II» for the 4th and 5th Semester students of the Department of Biochemistry and Biotechnology of the University of Thessaly

## Publications

### I. Monographies.

PhD Thesis: Identification of *Bacillus subtilis* genes expressed early during sporulation. Tufts University, Sackler School of Graduate Biomedical Sciences, May 1989.

### II. Book Chapters

1. Mathiopoulos K, Bouaré M, McConkey G and McCutchan T (1993) PCR detection of *Plasmodium* species in blood and mosquitoes, pp.462-467. *In*: DH Persing, TF Smith, FC Tunover, and TS White (eds), *Diagnostic Molecular Microbiology: Principles and Applications*. American Society for Microbiology, Washington DC. [ - , 6]

2. Mathiopoulos KD (1997) Constructing and screening cosmid libraries. *In* The Molecular Biology of Insect Disease Vectors: A Methods Manual. pp. 207-217. Eds JM Crampton, CB Beard and C Louis. Chapman & Hall, London, UK.
3. Mathiopoulos KD (1997) Constructing and screening cDNA libraries. *In* The Molecular Biology of Insect Disease Vectors: A Methods Manual. pp. 218-229. Eds JM Crampton, CB Beard and C Louis. Chapman & Hall, London, UK.
4. Mathiopoulos KD (2000) Malaria. *In* Encyclopedia of Microbiology, Volume 3, 2<sup>nd</sup> Edition, pp. 131-150. Academic Press.

### III. Peer reviewed articles

1. Mathiopoulos C and Sonenshein AL (1989) Identification of *Bacillus subtilis* genes expressed early during sporulation. *Mol. Microbiol.* 3: 1071-1081.
2. Mathiopoulos C, Mueller JP, Slack FJ, Murphy CG, Patankar S, Bukusoglu G and Sonenshein AL (1991) A *B. subtilis* dipeptide transport system expressed early during sporulation. *Mol. Microbiol.* 5: 1903-1913.
3. Slack FJ, Mueller JP, Strauch MA, Mathiopoulos C and Sonenshein AL (1991) Transcriptional regulation of a *B. subtilis* dipeptide transport operon. *Mol. Microbiol.* 5: 1915-1925.
4. Mueller JP, Mathiopoulos C, Slack FJ and Sonenshein AL (1991) Identification of *B. subtilis* adaptive response genes by subtractive differential hybridization. *Res Microbiol* 142: 805-813.
5. Mathiopoulos KD, and Lanzaro GC (1995) Distribution of genetic diversity in relation to chromosomal inversions in the malaria mosquito *Anopheles gambiae*. *J. Mol. Evol.* 40: 578-584.
6. Mathiopoulos KD, Powell JR and McCutchan TF (1995) An anchored restriction mapping approach applied to genetic analysis of the malaria vector complex *Anopheles gambiae*. *Mol. Biol. Evol.* 12: 103-112.
7. della Torre A, Favia G, Mariotti G, Coluzzi M and Mathiopoulos KD (1996) Physical map of the malaria vector *Anopheles gambiae*. *Genetics* 143: 1307-1311.
8. García BA, Caccone G, Mathiopoulos KD and Powell JR (1996) Inversion monophyly in African Anopheline malaria vectors. *Genetics* 143: 1313-1320.
9. Favia G, Mariotti G, Mathiopoulos KD and A della Torre (1996) Rapid non-radioactive differential display using Tth polymerase. *Trends Genet.* 12: 396-397.
10. Zakharkin SO, Gordadze AV, Korochkina SE, Mathiopoulos KD, della Torre A, Benes H (1997) Molecular cloning and expression of a hexamerin cDNA from the malaria mosquito, *Anopheles gambiae*. *Eur J Biochem* 246: 719-726.
11. Mathiopoulos KD, della Torre A, Predazzi V, Petrarca V and Coluzzi M (1998) Cloning of inversion breakpoints in the malaria mosquito *Anopheles arabiensis* unveils a transposable element at the breakpoint junction. *P Natl Acad Sci USA* 95: 12444-9.
12. Caccone A, García BA, Mathiopoulos KD, Min GS, Moriyama EN, Powell JR (1999) Characterization of the soluble guanylyl cyclase beta-subunit gene in the mosquito *Anopheles gambiae*. *Insect Mol Biol* 8: 23-30.
13. Mathiopoulos KD, della Torre A, Santolamazza F, Predazzi V, Petrarca V and Coluzzi M (1999) Are chromosomal inversions induced by transposable elements? A paradigm from the malaria mosquito *Anopheles gambiae*. *Parassitologia* 41: 119-123.
14. Ahmed A, Martín D, Manetti A, Han S-J, Lee W-J, Mathiopoulos KD, Müller H-M, Kafatos FC, Raikhel A and Brey PT (1999) Genomic structure and ecdyson regulation of the prophenoloxidase 1 gene in the malaria vector *Anopheles gambiae*. *P Natl Acad Sci USA* 96: 14795-14800.
15. D'Amelio S, Mathiopoulos KD, Santos CP, Pugachev ON, Webb SC, Picanço M and Paggi L (2000) Genetic markers in ribosomal DNA for the identification of members of the genus *Anisakis* (Nematoda:

- Ascaridoidea) defined by polymerase-chain-reaction-based restriction fragment length polymorphism. *Int J Parasitol* **30** (2): 223-226.
16. Snabel V, D'Amelio S, Mathiopoulos KD, Turcekova L, Dubinsky P (2000). Molecular evidence for the presence of a G7 genotype of *Echinococcus granulosus* in Slovakia. *J Helminthol* **74**: 177-181.
  17. D'Amelio S, Mathiopoulos KD, Brandonisio O, Lucarelli G, Doronzo F, Paggi L (1999). Diagnosis of a case of gastric anisakidosis by PCR-based restriction fragment length polymorphism analysis. *Parassitologia* **41**: 591-593.
  18. Stratikopoulos EE, Augustinos AA, Gariou-Papalexioy A, Zacharopoulou A and Mathiopoulos KD (2002). Identification and partial characterization of a new *Ceratitidis capitata* specific 44-bp centromeric repeat. *Chromosome Res* **9**: 287-295.
  19. Augustinos AA, Stratikopoulos EE, Zacharopoulou A and Mathiopoulos KD (2002). Polymorphic microsatellite markers in the olive fly, *Bactrocera oleae*. *Mol Ecol Notes* **2**: 278-280.
  20. Augustinos AA, Mamuris Z, Stratikopoulos EE, D'Amelio S, Zacharopoulou A and Mathiopoulos KD (2005). Microsatellite analysis of olive fly populations in the Mediterranean indicates a westward expansion of the species. *Genetica* **125**: 231-241.
  21. Skouras JP, Margaritopoulos JT, Seraphides NA, Ioannides IM, Kakani EG, Mathiopoulos KD and Tsitsipis JA (2007). Organophosphate resistance in olive fly, *Bactrocera oleae*, populations in Greece and Cyprus. *Pest Manag Sci* **63**: 42-48.
  22. Stratikopoulos EE, Augustinos AA, Petalas YG, Vrahatis MN, Mintzas A, Mathiopoulos KD and Zacharopoulou A\* (2008). An integrated genetic and cytogenetic map for the Mediterranean fruit fly, *Ceratitidis capitata*, based on microsatellite and morphological markers. *Genetica* **133**: 147-157.
  23. Kakani EG, Ioannides IM, Margaritopoulos JT, Seraphides NA, Skouras PJ, Tsitsipis JA, Mathiopoulos KD (2008). A small deletion in the olive fly acetylcholinesterase gene associated with high levels of organophosphate resistance. *Insect Biochem Mol Biol* **38**: 781-787.
  24. Zygouridis NE, Augustinos AA, Zalom FG and Mathiopoulos KD (2009). Analysis of Olive Fly Invasion in California Based on Microsatellite Markers. *Heredity* **102**: 402-412.
  25. Kakani EG and Mathiopoulos KD (2008). Organophosphate resistance-related mutations in the acetylcholinesterase gene of Tephritidae. *J Appl Entomol* **132**: 762-771.
  26. Augustinos AA, Stratikopoulos EE, Drosopoulou E, Kakani EG, Mavragani-Tsipidou P, Zacharopoulou A, Mathiopoulos KD (2008). Isolation and characterization of microsatellite markers from the olive fly, *Bactrocera oleae*, and their cross-species amplification in the Tephritidae family. *BMC Genomics* **9**(1): 618.
  27. Liakopoulos A, Neocleous C, Klapsa D, Kanellopoulou M, Spiliopoulou I, Mathiopoulos KD, Papafrangas E and Petinaki E (2009). A T2504A mutation in the 23S rRNA gene responsible for high-level resistance to linezolid of *Staphylococcus epidermidis*. *J Antimicrob Chemother* **64**(1): 206-207.
  28. Stratikopoulos EE, Augustinos AA, Pavlopoulos I, Economou K, Mintzas A, Mathiopoulos KD and Zacharopoulou A (2009). Isolation and characterization of microsatellite markers from the Mediterranean fruit fly, *Ceratitidis capitata*: cross-species amplification in other Tephritidae species reveals a varying degree of transferability. *Mol Genet Genomics* **282**(3): 283-306.
  29. Papagiannoulis A, Mathiopoulos KD, Mossialos D (2010). Molecular detection of the entomopathogenic bacterium *Pseudomonas entomophila* using PCR. *Lett Appl Microbiol* **50**(3): 241-245.
  30. Kakani EG, Zygouridis NE, Tsoumani K, Seraphides N, Zalom FG and Mathiopoulos KD (2010). Spinosad resistance development in wild olive fruit fly *Bactrocera oleae* (Diptera: Tephritidae) populations in California. *Pest Manag Sci* **66**(4):447-453.
  31. Tsoumani KT, Augustinos AA, Kakani EG, Drosopoulou E, Mavragani-Tsipidou P and Mathiopoulos KD (2011). Isolation, annotation and applications of expressed sequence tags from the olive fly, *Bactrocera oleae*. *Mol Genet Genomics* **285**: 33-45.

32. Kakani EG, Bon S, Massoulié J and Mathiopoulos KD (2011) Altered GPI modification of insect AChE improves tolerance to organophosphate insecticides. *Insect Biochem Mol Biol* 41: 150-158.
33. Vontas J, Hernández-Crespo P, Margaritopoulos JT, Ortego F, Feng H-T, Mathiopoulos KD, Hsu J-H (2011) Insecticide resistance in Tephritid flies. *Pestic Biochem Physiol* 100: 199-205.
34. Tsoumani KT and Mathiopoulos KD (2011) Genome size estimation with quantitative real-time PCR in two Tephritidae species: *Ceratitis capitata* and *Bactrocera oleae*. *J Appl Entomol* 136: 626-631.
35. Kakani EG, Trakala M, Drosopoulou E, Mavragani-Tsipidou P and Mathiopoulos KD (2012) Genomic structure, organization and localization of the acetylcholinesterase locus of the olive fruit fly, *Bactrocera oleae*. *Bull Entomol Res* 12: 1-12.
36. Zygouridis NE, Argov Y, Nemny-Lavy EE, Augustinos AA, Nestel D and Mathiopoulos KD\* (2013) Genetic changes during laboratory domestication of an olive fly SIT strain. *J Appl Entomol* 138: 423-432 (IF: 1.47).
37. Kakani EG, Sagri E, Omirou M, Ioannides IM and Mathiopoulos KD\* (2013) Detection and geographical distribution of the organophosphate resistance-associated  $\Delta 3Q$  ace mutation in the olive fly, *Bactrocera oleae* (Rossi). *Pest Manag Sci*. 2013 Apr 23. doi: 10.1002/ps.3564 (IF: 2.55).
38. Tsoumani KT, Drosopoulou E, Mavragani-Tsipidou P and Mathiopoulos KD\* (2013). Molecular characterization and chromosomal distribution of a species-specific centromeric satellite repeat from the olive fruit fly, *Bactrocera oleae* (Rossi). *PLoS One*. 2013 Nov 14;8(11):e79393 (IF: 3.53).
39. Sagri E, Reczko M, Gregoriou M-E, Tsoumani KT, Zygouridis NE, Zalom FG, Ragoussis J and Mathiopoulos KD\* (2014). Olive fly transcriptomics analysis implicates energy metabolism genes in spinosad resistance. *BMC Genomics* 2014, 15:714 (IF: 4.2).
40. Sagri E, Reczko M, Tsoumani KT, Gregoriou M-E, Harokopos V, Mavridou A-M, Tastsoglou S, Athanasiadis K, Ragoussis J and Mathiopoulos KD\* (2014). The molecular biology of the olive fly comes of age. *BMC Genet*. 2014;15 Suppl 2:S8. doi: 10.1186/1471-2156-15-S2-S8 (IF: 2.15).
41. Tsoumani KT, Drosopoulou E, Bourtzis K, Gariou-Papalexiou A, Mavragani-Tsipidou P, Zazahropoulou A and Mathiopoulos KD\* (2015). *Achilles*, a new transcriptionally active retrotransposon in the olive fruit fly, with Y chromosome preferential distribution. *PLoS One* 10(9):e0137050. doi: 10.1371/journal.pone.0137050 (IF: 3.53).
42. Sarrou S, Liakopoulos A, Tsoumani K, Sagri E, Mathiopoulos KD, Tzouveleakis LS, Miriagou V, Petinaki E (2015). Characterization of a novel *Isa(E)*- and *Inu(B)*-carrying structure located in the chromosome of a *Staphylococcus aureus* sequence type 398 strain. *Antimicrob Agents Chemother* 60(2): 1164-6. doi: 10.1128/AAC.01178-15 (IF: 4.61).
43. Papanicolaou A, Schetelig MF, Arensburger P, Atkinson PW, ... Mathiopoulos KD, ... Handler AM (2016). The whole genome sequence of the Mediterranean fruit fly, *Ceratitis capitata* (Wiedemann), reveals insights into the biology and adaptive evolution of a highly invasive pest species. *Genome Biol*. 2016; 17: 192. doi: 10.1186/s13059-016-1049-2. (IF: 11,313)
44. Sagri E, Koskinioti P, Gregoriou M-E, Tsoumani KT, Bassiakos YC and Mathiopoulos KD\*. Housekeeping in Tephritid insects: the best choice for expression analyses in the medfly and the olive fly. *Scientific Reports* 7:45634 (DOI: 10.1038/srep45634) (IF: 5,7).
45. Zacharopoulou A, Augustinos AA, Drosopoulou E, Tsoumani KT, Gariou-Papalexiou A, Franz G, Mathiopoulos KD, Bourtzis K & Mavragani-Tsipidou P (2017). A review of more than 30 years of cytogenetic studies of Tephritidae in support of sterile insect technique and global trade. *Entomologia Experimentalis et Applicata* 1–22. DOI: 10.1111/eea.12616 (IF: 1,162).
46. Gregoriou M-E, Reczko M, Tsoumani KT, **Mathiopoulos KD\*** (2018). Decoding the reproductive system of the olive fruit fly, *Bactrocera oleae*. bioRxiv 481523; doi: <https://doi.org/10.1101/481523> (and submitted to Proceedings of the Royal Society B).
47. Bayega A, Oikonomopoulos S, Zorbas E, Wang YC, Gregoriou M-E, Tsoumani KT, **Mathiopoulos KD**, Ragoussis J\* (2018). Transcriptome landscape of the developing olive fruit fly embryo delineated by Oxford Nanopore long-read RNA-Seq. bioRxiv 478172; doi: <https://doi.org/10.1101/478172> (and submitted to Genome Biology).

48. Djambazian H, Bayega A, Tsoumani KT, Sagri E, Gregoriou M-E, Giorda K, Tsiamis G, Bourtzis K, Oikonomopoulos S, Dewar K, Church D, **Mathiopoulos KD\***, Ragoussis J\* (2018). *De novo* genome assembly of the olive fruit fly (*Bactrocera oleae*) developed through a combination of linked-reads and long-read technologies. bioRxiv 505040; doi: <https://doi.org/10.1101/505040> (and submitted to Genome Biology).
49. Meccariello A, Salvemini M, Primo P, ... **Mathiopoulos KD**, ..., Papathanos PA\*, Robinson MD\* and Saccone G\* (2019). *Maleness-on-the-Y (MoY)* orchestrates male sex determination in major agricultural fruit fly pests. Science 27 Sep 2019; doi: 10.1126/science.aax1318.

## Congresses

Presentations in more than 85 International and National Congresses. Details available upon request.

## Foreign languages

Greek: mother tongue

English: fluent

Italian: fluent

Spanish: very good

French: good