

## Emmanouil Ladoukakis Curriculum Vitae

### Personal Information

Name and Surname: Emmanuel Ladoukakis

Address: Biology Department, University of Crete, Voutes University Campus 700 13 Iraklio, Greece

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### Education/Professional training/job appointments

**1991-1995:** BSc in Biology. Biology Department. Aristotelian University of Thessaloniki.

**1995-1998:** MSc in Marine Biology. Biology Department, University of Crete.

**1998-2001:** PhD in the Department of Biology, University of Crete.

**2003** : Postdoc at University of Crete (Prof. Zouros' lab)

**2003- 2007:** Postdoctoral research at Sussex University (UK) with Adam Eyre-Walker

**29 Aug. -3 Sept 2004:** Summer School in Bioinformatics British Computer Society and Univ. of Exeter, UK).

**2005-2006:** Temporal Lecturer at Sussex University (UK).

**2007- 2012:** Lecturer at the Department of Biology, University of Crete (Greece)

**2012-2020** : Assist. Prof. at the Department of Biology, University of Crete (Greece)

**2020-** : Assoc. Prof. at the Department of Biology, University of Crete (Greece) (elected)

### Research interests

Evolutionary theory, evolution of mtDNA, mito-nuclear interactions, ecological and microbial genetics, microbial community structure, evolution of languages.

### Awards and Fellowships

**1996-1998:** Scholarship of Bodosakis' Foundation

**1998-1999:** Scholarship of the University of Crete

**1999-2001:** Scholarship of the Institute of Marine Biology of Crete

**2003** : Scholarship from Greek State Scholarship's Foundation

**Nov-Dec 2003:** Scholarship from Sussex University for post-doctoral research.

**2004-2006:** Marie Curie Fellowship (Human Resources and Mobility) for post-doctoral research at the Centre for the Study of Evolution and School of Life Sciences, Sussex University.

**2015** : Fulbright grantee

### Funded Research Projects

**1999-2001:** Participation in the scientific coordination of the following scientific projects:

a) "Molecular and structural analysis of doubly uniparental of mitochondrial DNA inheritance in genus *Mytilus* (Bivalvia: Mytilidae). (Financial source: GSRT- total budget 50.000.000 drc)

b) "Study of genetic diversity of loggerhead turtle (*Caretta caretta*) populations" (Financial source: ARCHELON- total budget 5.000.000 drc)

**2004-2006:** "A bioinformatic investigation of the mutation process using genomic data" Financial source: Marie Curie Intra-European Fellowship, EU. In collaboration with Prof. Adam Eyre-Walker (Centre for the Study of Evolution and University of Sussex) (total budget: 161,314 euros)

**2009-2012:** PREVENT ESCAPE: Financial Source 7th FP. (local budget: 40.000 Euros).

**2013-2015:** HYPOXIA: National grants for Excellency II (budget 415.000 Euros)

**2015:** KALLIPOS: write an academic textbook (budget: 10.000)

**2017-2019:** EuroXanth: Integrating science on Xanthomonadaceae for integrated plant disease management in Europe. COST action.

**2018-2020:** The effect of natural selection on mtDNA heteroplasmy. Research Committee of the University of Crete (budget:10.000 euros).

**2018-2020:** Using tools from Evolutionary Biology to reveal relationships among languages. Research Committee

of the University of Crete (In collaboration with Prof. E. Anagnostopoulou (PI), budget:20.000 euros).

**2019-2023:** Modeling Glossogeny. Using biological tools in the study of genetic and areal stability of morpho-syntactic parameters. ELIDEK (In collaboration with Prof. E. Anagnostopoulou (PI))

**2020-2022:** Response, Resilience and Recovery of Microbial and Plankton Community to Climate-induced recurrent pulse tDOC disturbance in freshwater lakes: mesocosms study TUBITAK (Turkey) (participant. PI: Meriem Beklioglu, METU, Ankara)

### **Significant research achievements**

**2018:** Invited speaker in Aegean Seminars for Computational Ecology and Evolution

**2015:** Sabbatical at Brown University, USA

**2014:** Invited speaker at Kent University, UK

**2013:** Invited speaker in «Recent insights in mitochondrial evolution applied to health and ageing». 8-12 July, Leiden, Holland

**2013:** Invitation to Bogazici University (Dr. Bilgin's lab). 27 June-4 July 2013.

**2012:** Invited Speaker in Population and Evolutionary Genetics Symposium. 9-12 May 2012, Belgrade, Serbia

**2011:** Invited Speaker in Institute for Biomedical Technologies (National Research Council) and University of Bari, Bari, Italy.

**2011:** Invitation in University of Bonn (Prof. Kunz' Lab).

**2010:** Invitation in University of Bonn (Prof. Kunz' Lab).

**2009:** Invitation in Sussex University (Prof. Eyre-Walker's lab).

### **Publications**

#### **Books**

1. "Bioinformatics. Opportunities and Perspectives" (in Greek). Tomaras, **Ladoukakis**, Kossida. (2008). Editor. Kossida. Biomedical Research Foundation, Academy of Athens.
2. Genetics: from genes to genomes. Hartwell, Hood, Goldberg, Reynolds, Silver. (2014) Translation to Greek. Editors: C. Delidakis, G. Garinis, E. Komitopoulou, **E. Ladoukakis**. Publisher: Utopia.
3. Fundamentals of Evolutionary Biology. **E. Ladoukakis** (e-book) (2015). SEAB. GR
4. Evolution, D. Futuyma, M. Kirkpatrick (4<sup>th</sup> ed). Sinauer. Participation in translation to Greek. Publisher: Utopia (in progress).

#### **List of most significant paper publications**

- E. D. Ladoukakis, D. Michelioudakis and E. Anagnostopoulou (2022) Toward an evolutionary framework for language variation and change. BioEssays (published online <https://doi.org/10.1002/bies.202100216>).
- A. Gogas, G. P. Laliotis, E. Ladoukakis and V. Trachana (2021) Chemical composition and antioxidant profile of snails (*Cornu aspersum aspersum*) fed diets with different protein sources under intensive rearing conditions J. Anim. Feed Sci. **30(4)**:391–398
- M-E Parakatselaki and E. D. Ladoukakis (2021) mtDNA Heteroplasmy: Origin, Detection, Significance, and Evolutionary Consequences. Life **11**:633 (<https://doi.org/10.3390/life11070633>)
- E-S Polovina, M-E Parakatselaki and **E. D. Ladoukakis** (2020) Paternal leakage of mitochondrial DNA and maternal inheritance of heteroplasmy in *Drosophila* hybrids. Sci. Rep. **10**: 2599.
- E-S Polovina, E. Kourkouni, C. S. Tsigenopoulos, P. Sanchez-Jerez and **E. D. Ladoukakis** (2020) Genetic structuring in farmed and wild Gilthead seabream and European seabass in the Mediterranean Sea: implementations for detection of escapees. Aquat. Living Resour. **33**:7
- Ladoukakis ED.** and Zouros E. (2017) Evolution and inheritance of animal mitochondrial DNA: rules and exceptions J of Biol Res (Thessal) **24**:2.
- S. Fodelianakis, A. Moustakas, N. Papageorgiou, O. Manoli, I. Tsikopoulou, G. Michoud, D. Daffonchio, I. Karakassis, **E. D. Ladoukakis** (2016) Modified niche optima and breadths explain the historical contingency

- of bacterial community responses to eutrophication in coastal sediments. *Mol. Ecol.* **26(7)**:2006-2018.
- Annie Machordom, Rafael Araujo, Carlos Toledo, Eleftherios Zouros and **Emmanuel D. Ladoukakis** (2015) Female-dependent transmission of paternal mtDNA is a shared feature of bivalve species with doubly uniparental inheritance (DUI) of mitochondrial DNA. *J. Zool. System. Evol. Res.* **53(3)**:200-204.
- Maria Eleni Parakatselaki, Carlos Saavedra and **Emmanuel D. Ladoukakis** (2015) Searching for doubly uniparental inheritance of mtDNA in the apple snail *Pomacea diffusa*. *Mitochondrial DNA.* **28**:1-3.
- Panagiotis F. Sarris, **Emmanuel D. Ladoukakis**, Nickolas J. Panopoulos, and Effie V. Scoulica. (2014). A Phage Tail-Derived Element with Wide Distribution among Both Prokaryotic Domains: A Comparative Genomic and Phylogenetic Study. *Genome Biol Evol* 6:1739-1747.
- Emmanouil Dokianakis and **Emmanuel D. Ladoukakis** (2014). Different degree of paternal mtDNA leakage between male and female progeny in interspecific *Drosophila* crosses. *Ecol. Evol.* 4: 2633-2641.
- Fodelianakis S., Papageorgiou N., Pitta P., Kasapidis P., Karakassis I. and **E.D. Ladoukakis** (2014). The Pattern of Change in the Abundances of Specific Bacterioplankton Groups Is Consistent across Different Nutrient-Enriched Habitats in Crete. *App. Environ. Microb.* **80**: 3784-3792.
- Stelios Fodelianakis, Nafsika Papageorgiou, Ioannis Karakassis and **Emmanuel D. Ladoukakis** (2014). Community structure changes in sediment bacterial communities along an organic enrichment gradient associated with fish farming. *Ann. Microb.* <http://dx.doi.org/10.1007/s13213-014-0865-4>
- S. Fodelianakis, P. Kassapidis, V. Pitta, I. Karakassis, **E. D. Ladoukakis** (2014). Phosphate addition has minimal short-term effects on bacterioplankton community structure of the P-starved Eastern Mediterranean. *Aquatic Microbiology Ecology* **72**:98-104.
- Jonci N. Wolff, **Emmanuel D. Ladoukakis**, José A. Enríquez, Damian K. Dowling. (2014) Mitonuclear interactions – evolutionary consequences over multiple biological scales. *Phil. Trans. R. Soc. B.* 369: 20130443
- Pablo Arechavala-Lopez, Damian Fernandez-Jover, Kenneth D. Black, **Emmanuel Ladoukakis**, Just T. Bayle-Sempere, Pablo Sanchez-Jerez and Tim Dempster. (2013) Differentiating the wild or farmed origin of Mediterranean fish: a review of tools for sea bream and sea bass. *Rev. Aquacult.* **4**:1-21.
- Emmanuel Ladoukakis**, Vini Pereira, Emile Magny, Adam Eyre-Walker and Juan Pablo Couso (2011). Hundreds of putatively functional small Open Reading Frames in *Drosophila*. *Genome Biology* **12(11)**:R118.
- Emmanuel D. Ladoukakis**, Ioannis Theologidis, George C. Rodakis and Eleftherios Zouros (2011). Homologous recombination between highly diverged mitochondrial sequences: examples from maternally and paternally transmitted genomes. *Molecular Biology and Evolution* **28(6)**: 1847-1859.
- Hodgkinson A, **Ladoukakis E**, Eyre-Walker A. (2009) Cryptic Variation in the Human Mutation Rate. *PLoS Biology* **7**: 226-232.
- Ladoukakis ED**, Eyre-Walker A (2008) The excess of small inverted repeats in prokaryotes. *Journal of Molecular Evolution* **67**: 291-300.
- Ladoukakis ED** and A. Eyre-Walker. (2007) Sequence directed mutagenesis in eukaryotes. *Journal of Molecular Evolution* **64**: 1-3.
- Ladoukakis E.D.**, Lefort F., Sotiri P., Bacu A., Kongjika E. and Roubtrakis-Angelakis K. (2005) Genetic characterization of Albanian grapevine cultivars by microsatellite markers. *J Int Sci Vigne Vin* **39**:109-119.
- Tsaousis A., Martin D., **Ladoukakis ED.**, Posada D. and E. Zouros (2005). Widespread recombination in published animal mtDNA sequences. *Molecular Biology and Evolution* **22**:925-933.
- Ladoukakis E.D.** and A. Eyre-Walker (2004). Direct evidence of recombination in human mitochondrial DNA. *Heredity* **93**:321. Invited comments on a Science paper.
- Rokas A, **E.D. Ladoukakis** and E. Zouros (2003). Animal mitochondrial DNA recombination revisited. *Trends in Ecology and Evolution* **18**: 411-417.
- Ladoukakis E.D.**, C. Saavedra A. Magoulas and E. Zouros. (2002). Mitochondrial DNA variation in a species with two mitochondrial genomes: the case of *Mytilus galloprovincialis* from the Atlantic, the Mediterranean and the Black Sea. *Molecular Ecology* **11**: 755-769.
- Ladoukakis E.D.** and E. Zouros. (2001). Recombination in Animal mitochondrial DNA: evidence from published sequences. *Molecular Biology and Evolution* **18**: 2127-2131.
- Ladoukakis E.D.** and E. Zouros. (2001). Direct evidence for homologous recombination in the mussel *Mytilus*

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*galloprovincialis* mitochondrial DNA. *Molecular Biology and Evolution* **18**: 1168-1175.