

# Dimitrios – Georgios **Kontopoulos**

EMBO POSTDOCTORAL FELLOW

LOEWE Centre for Translational Biodiversity Genomics & Senckenberg Research Institute, Frankfurt, Germany

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I am a quantitative biologist. My research mainly focuses on understanding **how environmental changes affect biological systems (from molecules to ecosystems) over ecological or evolutionary timescales**. I approach this goal using a diverse set of approaches, including meta-analyses of empirical datasets, eco- and bioinformatics, and phylogenetic comparative methods.

## Research appointments and internships

- **EMBO Postdoctoral Fellow at Prof. Michael Hiller's group**, LOEWE Centre for Translational Biodiversity Genomics, Senckenberg Research Institute, Frankfurt, Germany **Mar. 2022 - Present**
- **Postdoctoral researcher at Prof. Michael Hiller's group**, LOEWE Centre for Translational Biodiversity Genomics, Senckenberg Research Institute, Frankfurt, Germany **May 2021 - Feb. 2022**
- **Visiting researcher**, Imperial College London, Silwood Park, Ascot, United Kingdom **Dec. 2019 - Apr. 2021**
- **Research assistant at Dr. Samraat Pawar's group**, Imperial College London, Silwood Park, Ascot, United Kingdom **Oct. 2015 - Sep. 2016**  
**Nov. 2014 - May 2015**
- **Postgraduate intern at Dr. Sofia Kossida's group**, Bioinformatics and Medical Informatics Lab of the Biomedical Research Foundation of the Academy of Athens, Athens, Greece. **Nov. 2012 - Sep. 2013**
- **Summer intern at Prof. Marie-Paule Lefranc's group**, Laboratoire d'ImmunoGénétique Moléculaire of the Institut de Génétique Humaine, Montpellier, France. **May - June 2013**
- **Summer intern at Prof. Zissis Mamuris' group**, Laboratory of Genetics, Comparative and Evolutionary Biology of the Department of Biochemistry and Biotechnology of the University of Thessaly, Larissa, Greece. **July 2011**
- **Intern at Dr. George Skavdis' group**, Laboratory of Molecular Regulation of the Department of Molecular Biology and Genetics of the Democritus University of Thrace, Alexandroupolis, Greece. **Mar. - May 2010**

## Education

- **Imperial College London**, Silwood Park, Ascot, United Kingdom **Oct. 2015 - Dec. 2019**  
**PhD:** "Limits to thermal adaptation in ectotherms"
- **Imperial College London**, Silwood Park, Ascot, United Kingdom **Sep. 2013 - Sep. 2014**  
**MRes Biodiversity Informatics and Genomics**, graduated with Distinction.  
**Thesis:** "Phylogenetic constraints and environmental drivers of thermal adaptation among the phytoplankton"
- **Democritus University of Thrace**, Alexandroupolis, Greece **Sep. 2008 - Oct. 2012**  
**BSc Molecular Biology and Genetics**, graduated with 7.46/10 ("Very Well").  
**Thesis:** "Pinda: a gene duplication detection program"

## Publications

Peer-reviewed († stands for equal contribution)

- 11 Kordas, R.L., Pawar, S., **Kontopoulos, D.-G.**, Woodward, G., and O'Gorman, E.J. (2022) [Metabolic plasticity can amplify ecosystem responses to global warming](#). *Nature Communications*. 13:2161.
- 10 **Kontopoulos, D.-G.**, Smith, T.P., Barraclough, T.G., & Pawar, S. (2020) [Adaptive evolution shapes the present-day distribution of the thermal sensitivity of population growth rate](#). *PLOS Biology*. 18(10):e3000894. **[Top Cited Article 2020-2021 in Evolution]**
- 9 **Kontopoulos, D.-G.**, van Sebille, E., Lange, M., Yvon-Durocher, G., Barraclough, T.G., & Pawar, S. (2020) [Phytoplankton thermal responses adapt in the absence of hard thermodynamic constraints](#). *Evolution*. 74(4):775-790.

- 8 García-Carreras, B., Sal, S., Padfield, D., **Kontopoulos, D.-G.**, Bestion, E., Schaum, C.-E., Yvon-Durocher, G., & Pawar, S. (2018) [Role of carbon allocation efficiency in the temperature dependence of autotroph growth rates](#). *Proceedings of the National Academy of Sciences*. 115(31):E7361-E7368.
- 7 Kumbhar, R., Vidal-Eychenié, S., **Kontopoulos, D.-G.**, Larroque, M., Larroque, C., Basbous, J., Kossida, S., Ribeyre, C., & Constantinou, A. (2018) [Recruitment of ubiquitin-activating enzyme UBA1 to DNA by poly\(ADP-ribose\) promotes ATR signalling](#). *Life Science Alliance*. 1(3):e201800096.
- 6 **Kontopoulos, D.-G.**, García-Carreras, B., Sal, S., Smith, T.P., & Pawar, S. (2018) [Use and misuse of temperature normalisation in meta-analyses of thermal responses of biological traits](#). *PeerJ*. 6:e4363.
- 5 **Kontopoulos, D.-G.**, Kontopoulou, T., Ho, H.-C., & García-Carreras, B. (2017) [Towards a theoretically informed policy against a rakghoul plague outbreak](#). *The Medical Journal of Australia*. 207(11):490-494. **[Third place in the 2017 Christmas Competition of the Medical Journal of Australia]**
- 4 **Kontopoulos, D.-G.**, Vlachakis, D., Tsiliki, G., & Kossida, S. (2016) [Structuprint: a scalable and extensible tool for two-dimensional representation of protein surfaces](#). *BMC Structural Biology*. 16:4.
- 3 Kontopoulou, T.<sup>†</sup>, **Kontopoulos, D.-G.**<sup>†</sup>, Vaidakis, E., & Mousoulis, G.P. (2015) [Adult Kawasaki disease in a European patient: a case report and review of the literature](#). *Journal of Medical Case Reports*. 9(1):75.
- 2 Vlachakis, D., **Kontopoulos, D.-G.**, & Kossida, S. (2013) [Space Constrained Homology Modelling: the paradigm of the RNA-dependent RNA polymerase of dengue \(type II\) virus](#). *Computational and Mathematical Methods in Medicine*. 2013:108910.
- 1 **Kontopoulos, D.-G.** & Glykos, N.M. (2013) [Pinda: a web service for detection and analysis of intraspecies gene duplication events](#). *Computer Methods and Programs in Biomedicine*. 111(3):711-714.

### Preprints

- 2 Smith, T.P., Mombrikotb, S., Ransome, E., **Kontopoulos, D.-G.**, Pawar, S., & Bell, T. [Latent functional diversity may accelerate microbial community responses to environmental fluctuations](#). *bioRxiv*.
- 1 **Kontopoulos, D.-G.**, Patmanidis, I., Barraclough, T.G., & Pawar, S. [Higher temperatures worsen the effects of mutations on protein stability](#). *bioRxiv*.

## Fellowships, scholarships, and awards

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|---|-----------------------|
| 4 EMBO Postdoctoral Fellowship.   | Mar. 2022 - Feb. 2024 |
| 3 Travel award from the <b>Department of Life Sciences, Imperial College London</b> for attending the 2017 Congress of the European Society for Evolutionary Biology in Groningen, the Netherlands. | May 2017              |
| 2 Science and Solutions for a Changing Planet Doctoral Training Partnership scholarship from the <b>Natural Environment Research Council</b> .  | Oct. 2015 - Apr. 2019 |
| 1 Scholarship for 2013-2014 postgraduate education abroad (1st cycle) from the <b>Greek State Scholarships Foundation (IKY)</b> .   | Dec. 2013             |

## Research skills

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### Comparative evolutionary analysis

Phylogeny reconstruction and timetree estimation, fitting various models of trait (co-)evolution, genome alignment.

### Thermal ecophysiology

Fitting thermal performance curve equations to biological trait vs temperature datasets, handling datasets of environmental variables, some experience in mathematical modelling of population dynamics.

### Bioinformatics

Analysis of sequence conservation, Gene Ontology term enrichment, homology modelling, protein structure comparisons, molecular dynamics simulations.

## Data science

Bayesian statistics, machine learning, dimensionality reduction, clustering, some experience in analysis of compositional datasets.

## Programming

Perl (extensive experience), R (extensive experience), LaTeX (very good experience), Python 2/3 (good experience), SQL (good experience), Common Lisp (basic experience), C (basic experience), and Shell (basic experience). Version control using Git, some experience in web development.

## Operating Systems

Comfortable with any major Operating System, including GNU/Linux distributions (e.g., Debian, Gentoo), and macOS.

## Conference presentations

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### Oral presentations (<sup>†</sup> stands for presenting author)

- 7 **Kontopoulos, D.-G.<sup>†</sup>**, van Sebille, E., Lange, M., Yvon-Durocher, G., Barraclough, T.G., & Pawar, S. (2018) Non-random adaptive evolution of the thermal sensitivity of growth rate among phytoplankton. *Gordon Research Seminar on Unifying Ecology Across Scales, Biddeford, ME, United States of America, 21-22 July*.
- 6 **Kontopoulos, D.-G.<sup>†</sup>**, van Sebille, E., Lange, M., Yvon-Durocher, G., & Pawar, S. (2018) Trait correlations vs environmental drivers in the evolution of phytoplankton thermal responses. *65th Annual Meeting of the Ecological Society of Japan, Sapporo, Japan, 14-18 March*.
- 5 **Kontopoulos, D.-G.<sup>†</sup>**, Yvon-Durocher G., & Pawar, S. (2017) Niche convergence in the macroevolution of the thermal sensitivity of phytoplankton growth rate. *2017 Congress of the European Society for Evolutionary Biology, Groningen, the Netherlands, 20-25 August*.
- 4 **Kontopoulos, D.-G.<sup>†</sup>**, Yvon-Durocher, G., & Pawar, S. (2016) Deep-time macroevolution of thermal sensitivity of growth rate among phytoplankton. *Annual Meeting of the British Ecological Society, Liverpool, United Kingdom, 11-14 December*.
- 3 **Kontopoulos, D.-G.<sup>†</sup>**, Yvon-Durocher, G., Chen, B., Thomas, M. K. & Pawar S. (2014) Γενικά μοτίβα θερμικής προσαρμογής μεταξύ των ειδών του φυτοπλαγκτού [General patterns of thermal adaptation among phytoplankton]. *7th National Congress of the Hellenic Ecological Society, Mytilene, Greece, 9-12 October*.
- 2 Vlachakis, D., Tsiliki, G., Kondos, D., **Kontopoulos, D.-G.**, Feidakis, C., & Kossida, S.<sup>†</sup> (2013) Applied bioinformatics in the structural post-genomic era. *Farm Animal Proteomics 2013: 3rd meeting of COST Action FA1002, Košice, Slovakia, 25-25 April*.
- 1 **Kontopoulos, D.-G.<sup>†</sup>** & Glykos, N.M. (2012) Pinda: a web service for detection and analysis of intraspecies gene duplications. *7th Conference of the Hellenic Society for Computational Biology and Bioinformatics, Heraklion, Greece, 4-6 October*.

### Poster presentations (<sup>†</sup> stands for presenting author)

- 4 **Kontopoulos, D.-G.<sup>†</sup>**, Patmanidis, I., Barraclough, T.G., & Pawar, S. (2018) Nonsynonymous mutations are more detrimental at high temperatures; a prokaryote-wide study of adenylate kinases. *Gordon Research Conference on Unifying Ecology Across Scales, Biddeford, ME, United States of America, 22-27 July*.
- 3 **Kontopoulos, D.-G.**, Papageorgiou, L., & Vlachakis, D.<sup>†</sup> (2017) PenDrugOn: A fully automated platform for designing antibody drug conjugates. *12th Conference of the Hellenic Society for Computational Biology and Bioinformatics, Athens, Greece, 11-13 October*.
- 2 Vlachakis, D., Tsiliki, G., Kondos, D., **Kontopoulos, D.-G.**, Feidakis, C., & Kossida, S.<sup>†</sup> (2013) Applied bioinformatics in the structural post-genomic era. *Farm Animal Proteomics 2013: 3rd meeting of COST Action FA1002, Košice, Slovakia, 25-25 April*.
- 1 **Kontopoulos, D.-G.<sup>†</sup>** & Glykos, N.M. (2012) Pinda: a web service for detection and analysis of intraspecies gene duplications. *7th Conference of the Hellenic Society for Computational Biology and Bioinformatics, Heraklion, Greece, 4-6 October*.

## Teaching experience

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### As a course demonstrator

- **Further Topics in Statistics** 2015-18  
MSc/MRes “Ecology, Evolution and Conservation”, Imperial College London
- **Intro to UNIX and Linux** 2017  
MSc/MRes “Computational Methods in Ecology and Evolution” and “Quantitative and Modelling Skills in Ecology and Evolution” Centre for Doctoral Training, Imperial College London
- **Statistics** 2014-15  
BSc “Biological Sciences”, year 1, Imperial College London
- **Biological Computing in Python II** 2014  
MSc/MRes “Computational Methods in Ecology and Evolution”, Imperial College London
- **Computational Biostatistics** 2014  
BSc “Biological Sciences”, year 2, Imperial College London

### As a course tutor

- **MSc/MRes “Computational Methods in Ecology and Evolution”**, Imperial College London 2014-15

### As a workshop presenter

- **“How to generate topological constraints using the Open Tree of Life”** 30 March 2017  
Silwood Computer Skillz Workshop, Imperial College London

## Service

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Manuscript reviewer for *Functional Ecology*, *Scientific Reports*, and *Systematic Biology*.

## Language skills

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- Proficient knowledge in **English** (IELTS Academic band score of 8 (10th March 2012), Cambridge Proficiency, Michigan Proficiency, Pearson Test of English General Level 5).
- Proficient knowledge in **French** (Diplôme de Langue et Littérature Françaises 2ème degré Paris-Sorbonne C2, Certificat d’État hellénique de Connaissance des Langues niveau C1).
- Basic knowledge in **German** (Zertifikat Deutsch).

## Additional information

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**Nationality:** Greek

**Member of Scientific Societies:** [Society for the Study of Evolution](#), [Ecological Society of America](#), [Panhellenic Association of Biologists](#).

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