Dr. Martha Valiadi

Curriculum Vitae

Senior Research Associate / EU project co-ordinator
Institute for Molecular Biology and Biotechnology
Foundation for Research and Technology Hellas, Heraklion, Crete, Greece

Nationality: Greek
Date of birth: 7th March 1984
Email: martha_valiadi@imbb.forth.gr ; martha.valiadi@gmail.com

EDUCATION

01.09.2007 – 21.11.2011	**PhD in Ocean and Earth Science**. Ocean and Earth Science, University of Southampton, UK. Thesis: '*Bioluminescence in dinoflagellates – diversity, molecular phylogeny and field ecology*' (Prof. D. Iglesias-Rodriguez group).
01.09.2002 – 01.07.2007	**Master in Oceanography**. School of Ocean and Earth Science, University of Southampton, UK. (Combined MSc and BSc; 4 years + 1 year work experience at HCMR Athens; Grade Upper Second Class). Masters dissertation in year 4: '*Impact of protist prey selectivity on the community composition of marine bacterioplankton*" (Prof. M. Zubkov group). Bachelor dissertation in year 3: '*Export production and heterotrophic bacterial abundance under natural iron fertilization in the Southern Ocean*' (Prof. R. Sanders and Prof. M. Zubkov group).

PROFESSIONAL EXPERIENCE

Since 01.09.2021	**Senior Research Associate / EU project co-ordinator.** *IMBB-FORTH, Heraklion, Greece. Biosensors Group (Prof. Electra Gizeli)* **Co-ordinator** - HE project AquaBioSens "On Site Biological Sensing For Aquatic Pollutants And Biohazards". **Work package leader** "Ecogenomics" - H2020 project TechOceanS "Technologies for Ocean Sensing" (2020-2024)".
11.03.2019-31.08.2020	**Postdoctoral Researcher**. *Living Systems Institute, University of Exeter, UK.* Genomic manipulation of phytoplankton by viruses – linking effects of infection on genome architecture, transcriptome and metabolome. (Dr. A. Monier group).
16.10.2018 – 10.03.2019	Self-employed. Part-time proofreading and editing of scientific papers.
04.07.2016 – 16.10.2018	Senior Research and Development Scientist (commercial, part-time 80%). *myBinxHealth, Wiltshire, UK.* Assay development for point of care molecular detection of sexually transmitted pathogens in humans; prototype biosensor systems – multiplex rapid qRT-PCR, sequencing and bioinformatics, project and team management.
14.07.2014 – 03.07.2016	Postdoctoral Researcher. *Centre for Hybrid Biodevices, University of Southampton, UK.* Molecular assay development on digital microfluidic chips – sample processing and isothermal DNA amplification to quantify antibiotic resistant bacteria in human samples (Prof. H. Morgan group).

12.04.2014 – 11.07.2014	Research technician (part-time 50%). *Wessex Regional Genetics Laboratory, Salisbury District Hospital, UK.* Development of high throughput targeted genome sequencing technologies (Illumina panels) in cancer diagnostics
11.2013 – 01.2014	Postdoctoral Researcher. *Leibniz Institute for Freshwater Ecology and Inland Fisheries, Germany.* 'Studies on the methane paradox in lakes' – methanogenic potential of cyanobacteria-Archaea syntrophy; biochemical experiments and genome sequencing (Prof. H-P. Grossart group)
02.2013 – 10.2013	Postdoctoral Researcher. *Max Planck Institute for Evolutionary Biology, Ploen, Germany.* 'Functional genomics of eco-evolutionary feedback dynamics in plankton communities' – Linking rapid evolution of phytoplankton predator defence to ecological predator-prey dynamics, using genomics and transcriptomics approaches (Prof. L. Becks group).
04.2012 – 01.2013	Maternity leave
02.2012 – 03.2012	Postdoctoral Researcher (part-time 50%). *National Oceanography Centre, UK.* Development of biosensor assays to detect harmful phytoplankton using isothermal RNA amplification (Prof. M. Mowlem group).
10.2011 – 01.2012	Postdoctoral research technician. *School of Ocean and Earth Science, University of Southampton.* Physiological responses of calcifying phytoplankton to ocean acidification (Prof. D. Iglesias-Rodriguez group).
09.2004 – 05.2005	Volunteer Researcher. *Hellenic Centre for Marine Research, Athens, Greece.* Seasonal microzooplankton taxonomic diversity and ecology in the Thermaikos Gulf, Greece (Dr. Antonia Giannakourou group)

PUBLICATIONS

Journal articles

1. **Martha Valiadi**, Keith Harrison, Yann Loe-Mie, Bryony Williams, Dyan Ankrett, Nicholas Smirnoff, Adam Monier (2025) Insulated Outlier Chromosomes Drive Metabolic and Evolutionary Innovation in Minimal Eukaryotic Algae. BioRxiv doi: 2025.04. 21.649811 (for submission to *Nature Microbiology*)
2. Hartle-Mougiou K, Gubili C, Xanthopoulou P, Kasapidis P, **Valiadi M*** and Gizeli E* (* shared senior authorship) (2024) Development of a quantitative colorimetric LAMP assay for fast and targeted molecular detection of the invasive lionfish *Pterois miles* from environmental DNA. *Frontiers in Marine Science* 11.
3. JP Bernardes, U John, N Woltermann, **M Valiadi**, RJ Hermann, L Becks (2021) The evolution of convex trade-offs enables the transition towards multicellularity. *Nature Communications* 12 (1), p 1-9.
4. Y Timsit, M Lescot, **M Valiadi**, F Not (2021) Bioluminescence and Photoreception in Unicellular Organisms: Light-Signalling in a Bio-Communication Perspective. *International Journal of Molecular Sciences* 22 (21), 11311.
5. **Valiadi M,** de Rond T, Amorim A, Gittins JR, Gubili C, Moore B, Iglesias-Rodriguez MD and Latz MI (2019) Molecular and biochemical basis for the loss of bioluminescence in the marine dinoflagellate *Noctiluca scintillans* along the west coast of the USA. *Limnology and Oceanography*.

6. Kalsi S, **Valiadi M**, Turner C, Sutton M and Morgan H (2019) Sample pre-concentration on a digital microfluidic platform for rapid AMR detection in urine. *Lab on a chip* 19: 168-177.
7. **Valiadi M**, Kalsi S, Turner C, Sutton M and Morgan H (2016) Simple and rapid sample preparation for the molecular detection of antibiotic resistant bacteria in human urine. *Biomedical Microdevices* 18(1).
8. Kalsi S, **Valiadi M,** Watson R, Tsaloglou M-N, Parry-Jones L, Jacobs A, Watson R, Turner C, Amos R, Hadwen B, Buse J, Brown C, Sutton M and Morgan H (2015) Rapid and sensitive detection of antibiotic resistance on a programmable digital microfluidic platform. *Lab on a Chip* 15, 3065-3075.
9. **Valiadi M**, Painter SC, Allen JT and Iglesias-Rodriguez MD, (2014) Molecular detection of bioluminescent dinoflagellates in surface waters of the Patagonian Shelf during early austral summer 2008. *PlosOne* 9(6): e98849.
10. Koch H, Frickel J, **Valiadi M** and Becks L (2014) Why rapid, adaptive evolution matters for community dynamics. *Frontiers in Ecology and Evolution,* 2: 17.
11. **Valiadi M** and Iglesias-Rodriguez MD (2013) Understanding bioluminescence in dinoflagellates – how far have we come? *Microorganisms* 1: 3-25 (invited contribution).
12. **Valiadi M** and Iglesias-Rodriguez MD, 2013) Diversity of the luciferin binding protein gene in bioluminescent dinoflagellates – Insights from a new gene in *Noctiluca scintillans* and sequences from gonyaulacoid genera. *Journal of Eukaryotic Microbiology* 61 (2): 134-145.
13. **Valiadi M,** Iglesias-Rodriguez MD and Amorim A (2012) Distribution and genetic diversity of the luciferase gene within marine dinoflagellates. *Journal of Phycology* 48: 826-836.

Book chapters, conference proceedings and monographs

14. **Valiadi M,** Marcinko CLJ, Loukas CM and Iglesias-Rodriguez MD. (2016) 'Bioluminescent microalgae', in Tsaloglou MN (ed) Microalgae – Current Research and Applications. Caister Academic Press (invited contribution).
15. Morgan H, Kalsi S, **Valiadi M,** Zeimpekis I, Hu C, Kai S and Ashburn P. (2015) From smartphones to diagnostics: Low-cost electronics for programmable digital microfluidics and sensing. 19th International Conference on Miniaturized Systems for Chemistry and Life Sciences, 254-256.
16. **Valiadi M** (2011) Bioluminescence in dinoflagellates – Diversity, molecular phylogeny and field ecology, PhD Thesis, University of Southampton, 149pp.

Manuscripts in preparation

17. **Valiadi M**, Hartle-Mougiou K, Ferrante M, Montresor M, Gizeli E. Quantification of toxic diatoms *Pseudonitzchia multistriata* via colorimetric LAMP of the domoic acid gene. In preparation for *Harmful Algae.*

CONFERENCES

1. **Valiadi M**, Hartle-Mougiou K, Gubili C, Ferrante M, Montresor, M (2023) Novel molecular sensor systems for fast and low-cost *in situ* detection of marine organisms. ASLO Aquatic Sciences Meeting, Palma de Mallorca, Spain.
2. Harrison K, **Valiadi M**, Loe-Mie Y, Moore K, (2023) Viral manipulation of the chromatin and transcriptome of the eukaryotic picophytoplankton *Ostreococcus tauri.* ASLO Aquatic Sciences Meeting, Palma de Mallorca, Spain.
3. **Valiadi M**, Kalsi S, Sutton M, Turner C, Morgan H. (2015) Rapid and sensitive isothermal DNA amplification on a digital microfluidic device for the detection of antibiotic resistant bacteria. 6th Congress of European Microbiologists, Maastricht, Netherlands.
4. Koch H, **Valiadi M**, Becks L (2014) Evolution of sex in *Chlamydomonas* as a response to grazing. 16th International Conference on the Cell and Molecular Biology of *Chlamydomonas*, Pacific Grove, California, USA.
5. Tsaloglou MN, Purcell D, **Valiadi M**, Iglesias-Rodriguez MD, Smythe-Wright D and Mowlem M (2012) Detection of key phytoplankton groups in aquatic environments using nucleic acid sequence-based amplification. 15th Biennial Challenger Conference for Marine Science, Norwich, UK.
6. **Valiadi M**, Marcinko CLJ, Painter SC, Allen JT, Balch WM & Iglesias-Rodriguez M D (2011) Distribution of bioluminescent dinoflagellates at the Patagonian Shelf during austral summer 2008. American Society for Limnology and Oceanography, Aquatic Sciences Meeting, San Juan, Puerto Rico, USA (oral presentation).
7. **Valiadi M**, Amorim A & Iglesias-Rodriguez M D (2010) Detection and genetic diversity of the luciferase gene in marine dinoflagellates. 14th International Conference on Harmful Algae, Crete, Greece.

RESEARCH FUNDING AWARDED

2023	Co-ordinator (with prof. Gizeli). IMBB-FORTH. "AquaBioSens - On Site Biological Sensing For Aquatic Pollutants And Biohazards". HORIZON-CL6-2023-ZEROPOLLUTION-01. (ca **€1M**)
2019	Co-lead investigator (WP lead with Prof. Electra Gizeli). IMBB-FORTH. "TechOceanS - Technologies for Ocean Sensing". H2020-RIA-BG07. (Ca. €**750k**)
2016	Principal Investigator. University of Southampton UK (grant returned due to new job in industry). 'Development of a point-of-care assay for the molecular detection and characterisation of multiple antibiotic resistant infection in humans'. Engineering and Physical Sciences Research Council **(£18k**). (Grant not taken up due to job change).
2015	Co-supervisor of PhD studentship; PI Dr. Charlotte Marcinko. 'Effects of light to inhibit or enhance dinoflagellate bioluminescence' (suitable candidate not found). University of Southampton and Defence Science and Technology Laboratory **(£45k**). (Grant not taken up as suitable candidate was not found).

RESEARCH AT SEA

December 2008	COPAS (Coccolithophores of the Patagonian Shelf) expedition on board the R/V Roger Revelle (Scripps Institution of Oceanography, California, USA) – one month from Uruguay to Chile for studies on phytoplankton molecular diversity, to link phytoplankton population structure to large scale dynamic ocean provinces.
April 2007	Extended Ellett Line expedition on board the RRS Discovery (National marine Facilities, UK) - one week from Scotland to Iceland, for studies on phytoplankton molecular diversity.

PROFESSIONAL ACTIVITIES

2013 to present	Reviewer for journals: Aquatic Biology, Journal of Photochemistry and Photobiology, Journal of Experimental Marine Biology and Ecology, Journal of Phycology, Biomedical Microdevices, Microorganisms, Water, International Journal of Public Health, Environmental Science and Techology.
01/09/2019 – 31/08/2020	Equality and Diversity Committee of the Biology department, representative for Postdoctoral Researchers.
Since 2020	Member of the review board for the International Journal for Environmental research and Public Health (MDPI Publishing).
2017	External examiner for PhD thesis of Aniina Le Tortorec, Bioluminescence of toxic dinoflagellates in the Baltic Sea – from genes to models. University of Helsinki, Finland.
2013	Member of the PhD student selection committee for the International Max Planck Research School for Evolutionary biology.

TRAINING COURSES

January 2023	"Laboratory Leadership for Group Leaders", EMBO Training Courses (3 days online course)
April 2013	"Evolutionary Genomics", Max Planck Institute for Evolutionary Biology, Germany – Programming in Perl, genomics and transcriptomics (5 days course).
January 2009	"Postgraduate Research Training", University of Southampton – Research skills: Oral presentations, reporting and publishing, people management and self-management (5 days course).
November 2008	"Real-Time PCR" Applied Biosystems Ltd, UK - primer design, assay design, quality controls (1 day workshop).

PARTICIPATION IN INDUSTRIAL INNOVATION – INTERSECTORAL KNOWLEDGE EXCHANGE

2016-2018	As a senior industry R&D scientist at myBinxHealth Ltd: collaboration with University of Bath (UK) and Kings College London (UK) to validate biosensor assay for the detection of infectious bacteria in patients as part of CE/FDA-marking process (projects co-funded by Innovate UK).
2014-2016	As a postdoctoral researcher at University of Southampton, Centre for Hybrid Biodevices: collaboration with Sharp Labs Europe and Public Health England to create a molecular biosensor for detection of antibiotic resistance in humans (funded by National Institute for Health Research).
2007-2011	During PhD at University of Southampton: collaboration with the Defence Science and Technology Laboratory (part-funding) and Chelsea Technologies Ltd. for cross-calibration of approaches used by academics and the military to monitor global ocean bioluminescence. This led to an analysis of historical global datasets to monitor long-term ecosystem changes (confidential data of the UK hydrographic office).

STUDENT SUPERVISION

2025	Natalia Kontaxi, BSc thesis, "Development of isothermal amplification by qcLAMP for the quantification of live *E. coli* in water samples.
2024	Giannis Markopoulos, MSc thesis, "Development of isothermal amplification by qRT-RPA for quantification of toxin-producing genes in dinoflagellates.
2022	Stavroula Oikiadi, BSc thesis, "Development of qcLAMP for the quantification of toxigenic algae.
2021 - present	Katherine Hartle-Mougiou, PhD candidate, 'Development of an *in situ* molecular biosensor platform for the detection of marine invasive species', IMBB-FORTH and University of Crete, Greece.
2010	Christos Moritz Loukas, MRes thesis, 'Future of dinoflagellates under ocean acidification', University of Southampton, UK.
2010	Sam Lew, MSc thesis, 'On the cellular bioluminescence of *Lingulodinium polyedrum* and *Pyrocystis lunula* (Dinophyta): the circadian rhythm of scintillons, luciferin and bioluminescence yield', University of Southampton, UK.
2009	Christos Moritz Loukas, BSc thesis, 'The early effects of light-induced reactive oxygen species (ROS) on the physiology and gametogenesis of the marine dinoflagellate *Lingulodinium polyedrum*', University of Southampton, UK.
2008	Iain Dickson, MSc thesis, 'Bioluminescent organelle changes in four species of dinoflagellates using confocal laser scanning microscopy', University of Southampton, UK.