

PERSONAL INFORMATION

Martina Franchini



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Sex Female | Date of birth 16/06/1992 | Nationality Italian

WORK EXPERIENCE

From May 2022

Post-doctoral Researcher on the project “Green microalgae for polyhydroxybutyrate (PHB) production (BIOpolGREEN)”

BIGEA department, Ravenna _University of Bologna

Referees: Dr. Laura Pezzolesi, Prof. Rossella Pistocchi

- Algae-based PHB production was investigated in the Chlorophyta *Desmodesmus communis* grown under a two-phase nutritional cultivation mode, i.e. phototrophic growth phase (PGP) and mixotrophic stress phase (MSP). To better characterise the mechanism of PHB production in this specific context, the bacterial community associated to *D. communis* was also investigated to better clarify its contribution to the PHB accumulation process. An identification of the main bacterial strains present in this PHB-inducing system was performed at different time points of the algal mixotrophic growth, in order to assess the dynamics of the bacterial community and evaluate whether and which specific strains are selected by these growth conditions. This was performed both at a molecular level (metabarcoding analysis with Nanopore MinION sequencing) and through isolation on agarised media (serial dilution and plating) and subsequent 16S identification.

Research Area: Applied Environmental Biology

From November 2022 to December 2022

Post-doctoral Researcher on the project “Green microalgae for polyhydroxybutyrate (PHB) production (BIOpolGREEN)”

BIGEA department, Ravenna _University of Bologna

Referees: Dr. Laura Pezzolesi, Prof. Rossella Pistocchi

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Research Area: Applied Environmental Biology

From February 2022 to October 2022

BBSRC Post-Doctoral Research Fellow on Gene-drive system application for efficient chloroplast transformation

Plant Sciences School – University of Nottingham

Referees: Dr. Katalin Kovacs, Prof. Rupert G. Fray

- Main aim of the project was the development of novel plants and plastid transformation vectors that will facilitate efficient transgene integration and drive the spread of the introduced DNA through the plastid population using the CRISPR-Cas9 system as a gene drive system. Delivery

of such vectors into plants chloroplasts is achieved through Gene Gun system. High efficiency production of homoplasmic transgenic lines could lead to high throughput production of ectopic molecules in chloroplasts (molecular factories) for industrial scale production. In this frame, I have also been collaborating with a research group that focuses on dinoflagellate mutagenesis in order to transfer reciprocal molecular knowledge and approaches to respective research projects. During this period I have been co-supervisor of an undergraduate project student.

Research Area: Plant Molecular Engineering

From December 2021 to February 2022

Senior Technician on Tropic Safe Project for detection of Phytoplasmas in coconut

Plant Sciences School – University of Nottingham

Referee: Prof. Matthew Dickinson

- The project aims to address economically important insect-borne phytoplasma-associated diseases of perennial crops (palm, citrus and grapevine) grown in tropical and subtropical areas. My contribution was to evaluate the validity of a diagnostic protocol for phytoplasma detection in coconut trunk borings from the Ghana region of Africa. The protocol involved the use of Loop-mediated isothermal AMPLification (LAMP). Thanks to LAMP equipment transportability, validation of this method would help to bring the diagnostic process directly on field.

Research Area: Plant Pathology diagnostic

From April 2021 to October 2021

Post-Doctoral Research Associate on Gene-drive system application for efficient chloroplast transformation

Plant Sciences School – University of Nottingham

Referees: Dr. Katalin Kovacs, Prof. Rupert G. Fray

- Main aim of the project was the development of novel plants and plastid transformation vectors that will facilitate efficient transgene integration and drive the spread of the introduced DNA through the plastid population using the CRISPR-Cas9 system as a gene drive system. Delivery of such vectors into plants chloroplasts is achieved through Gene Gun system. High efficiency production of homoplasmic transgenic lines could lead to high throughput production of ectopic molecules in chloroplasts (molecular factories) for industrial scale production.

Research Area: Plant Molecular Engineering

From October 2017 to April 2021

(MSCA-ITN-EID) INTERFUTURE PhD in Plant- Microbial Interactions

Plant Sciences School – University of Nottingham

Azotic Technologies Ltd. – Nottingham

Fondazione Edmund Mach – S. Michele all' Adige

Referees: Prof. Rupert G. Fray, Prof. Phil Hill, Prof Michele Perazzoli

- Research project studying the nitrogen fixing bacterium *Gluconacetobacter diazotrophicus* (Gd), able to colonise a wide range of crops and stimulate plant growth. Understanding the mechanisms that lie behind these interactions was the main aim of this project, in order to enhance the efficacy of this microorganism as biofertiliser. Plant microbial interactions were investigated through both phenotypical assessment and molecular techniques (RNA sequencing) in a hydroponic growth system.

Research Area: Plant-Microbial Interactions

From April to June 2017

Erasmus Plus Traineeship in Biochemical Engineering and Environmental Biotechnology (BEEB) Laboratory on characterisation of marine bacterial communities of plastic degraders.

Environmental Engineering Department – Technical University of Crete

Referees: Prof. N. Kalogerakis, PhD E. Syranidou

- qPCR quantification of AlkB gene expression in plastic-degrader aerobic bacterial consortium isolated from marine water in different conditions: different types of plastics (PE and PS) were incubated with bacteria for varying time periods.

Research Area Microbial Bioremediation

EDUCATION AND TRAINING

From January 2016 to March 2017

Traineeship in Environmental Microbiology Laboratory

Biotechnology and Pharmacy Department – University of Bologna.

Referees: prof. D. Zannoni, prof. R. Borghese.

Collaboration with CNR Bologna. Referee: Dott. M. Brucale

- Tellurium Nanoparticles isolation as a product of reduction of the toxic ion tellurite and their characterization in order to evaluate their chemical and physical properties of biophysical interest and applications.

Research Area Microbial Bioremediation

From March to September 2015

Traineeship in Microbiology Laboratory

S. Orsola Polyclinic – Bologna. Referee: Prof.ssa P. Dal Monte.

Cooperation with School of Agriculture – Università di Bologna. Referente: Prof.ssa D. Di Gioia.

- Development of a protocol for isolation and analysis of bacterial biodiversity in human microbiome with the employment of MALDI-TOF spectrometry for the identification of isolated bacterial strains.

Research Area Applied microbiology

From October 2017 to April 2021

(MSCA-ITN-EID) INTERFUTURE PhD in Plant- Microbial Interactions

University of Nottingham

From October 2015 to March 2017

Master's degree in Molecular and Cellular Biology

Grade awarded: 110L/110

Alma Mater Studiorum Bologna

From October 2012 to October 2015

Bachelor's degree in Biological Sciences

Grade awarded: 108/110

Alma Mater Studiorum Bologna

PERSONAL SKILLS

Mother tongue Italian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C2	C2	C2	C2	C2
IELTS Certificate					

Communication skills

- Very good communication skills gained during collaborations between several departments and working groups from very different research fields. Erasmus plus, PhD and Post-Doc experiences allowed me to improve my communications skills in other languages and acquire a more international and aware approach.

Organisational / managerial skills

- Leadership (have been responsible for the training and coordination of bachelor’s degree students during my lab work experience)
- Very good organizational skills of lab work and routine activities, both personal and others.
- Independent and critical thinking, work planning and organisation.
- Team working skills gained thanks to the highly interdisciplinary nature of most of the projects I have worked on.

Digital competence

SELF-ASSESSMENT				
Information processing	Communication	Content creation	Safety	Problem solving
Proficient	Proficient	Independent	Proficient	Proficient

- good command of office suite (word processor, spread sheet, presentation software)
- good command of photo editing softwares
- good command of sequencing data elaboration softwares (Epi2Me)

Driving licence B

ADDITIONAL INFORMATION

Publications

- Syranidou, E., Karkanorachaki, K., Amorotti, F., Franchini, M., Repouskou, E., Kaliva, M., Vamvakaki, M., Kolvenbach, B., Fava, F., Corvini, P., Kalogerakis, N., Biodegradation of weathered polystyrene films in seawater microcosms. Sci Rep 7, 17991 (2017). <https://doi.org/10.1038/s41598-017-18366-y>
- Borghese R, Malferrari M, Brucale M, Ortolani L, Franchini M, Rapino S, Borsetti F, Zannoni D. Structural and electrochemical characterization of lawsone-dependent production of tellurium-metal nanoprecipitates by photosynthetic cells of *Rhodobacter capsulatus*. Bioelectrochemistry. 2020; 133:107456. doi:10.1016/j.bioelechem.2020.107456

Conferences and Seminars

- Attendance to University of Nottingham PGR Symposium 2018. Winner of 2nd place prize for best oral presentation.
- PhD course “Post Genomics and Bioinformatics” at University of Nottingham, May 2018, Introductory course on Partek use and data manipulation from transcriptomic analyses.
- Awarded “BBSRC Seeding Award_Transforming Food Production” Funding for PhD Research, October 2018.
- PhD course “Microsoft Word: Creating and Managing Long Documents” at University of Nottingham, November 2018.
- PhD course “Microsoft Excel: Using as a Database” at University of Nottingham, August 2018.
- PhD course “Introduction to Quantitative Research” at University of Nottingham, March-April 2019.
- INTERFUTURE Winter School “Bioactive Volatile Organic Compounds: multitrophic interactions from genes to field application” at Fondazione Edmund Mach, San Michele all'Adige (TN), Italy, January 2018, one week series of seminars.
- INTERFUTURE Summer School “Acquired and induced disease resistance in plants at University of Reims”, France, September 2018, one week series of seminars on acquired and induced resistance.
- Attendance to international conference “Future IPM 3.0” organised by Fondazione Edmund Mach, San Michele all'Adige (TN), Italy, 16-20 October 2017.
- Attendance to scientific conference “BSPP Presidential Meeting 2018, what lies within: imaging plant microbe interactions” by British Society of Plant Pathology, Warwick, UK, 10-11 December 2018.
- Attendance to scientific conference: “13th International Conference on Microbial Interactions & Microbial Ecology”, Conference Series Ilc LTD, Rome, Italy, 19-20 July 2018.
- Seminar “Hormonal control and evolution of branching forms in mosses”, University of Nottingham, 3 October 2018.
- Seminar by Sir E. Southern “New improved Legume Crops for Africa” at University of Nottingham, 6 April 2018.
- Winter School “Use of microbial signals to control plant disease” at Fondazione Edmund Mach, San Michele all'Adige (TN), Italy, February 2019.
- PhD course “Tools for successful dissemination of results” at Fondazione Edmund Mach, San Michele all'Adige (TN), Italy, 11 February 2019.
- PhD day at Fondazione Edmund Mach, San Michele all'Adige (TN), Italy, 15 February 2019.
- Field Trial days at BiPa/Belchim – “PhD students meet the stakeholders”, Bi-PA, DCM, Biobest Londerzeel, Grobbendonk, Belgium, 17-21 June 2019.
- INTERFUTURE Summer School “Bioproducts Registration and Industrial Production”, Bi-PA, DCM, Biobest, Londerzeel, Grobbendonk, Belgium, 17-21 June 2019.
- Summer School “Biofertilisers and sustainable alternatives” and “Microbial ecology and community ecology of MOs”, Newcastle University and University of Nottingham, UK, 4-14 Sep 2019.
- Scientific conference “6th Midlands Molecular Microbiology Meeting (M4)”, Nottingham University, UK, 9-10 September 2019.
- Scientific conference “MiCROPe International Symposium”, AIT Austrian Institute of Technology, AT Vienna, Austria, 2-5 December 2019. Poster presentation and flash talk.
- INTERFUTURE Winter School “Career Opportunities, IP Establishment and protection, Soft Skills”, InoQ and Fondazione Edmund Mach, Schnega and San Michele AA, Germany/Italy, 21-25 January 2019.
- Attendance to EPSO Plant Science Seminar “Plants and Microbiomes”, University of Nottingham, 17 March 2022.
- Attendance and flash talk presentation at scientific conference “Plastid Preview” at John Innes Centre, Norwich, UK, 1-2 September 2022. Winner of 3rd place for Best Poster Prize.
- Attendance to “BIODIV Ravenna 2023_ Cohabit with biodiversity in the earth-sea interface”, Ravenna, Italy, 18-19 September 2023.
- Participation in the hosting of “European Researcher Night 2023”, Ravenna, Italy, 29 September 2023.
- Attendance and poster presentation at “10th National Workshop of Green Chemistry Group – Sustainable Chemistry”, Florence, 6 October 2023
- Attendance and oral presentation at scientific annual meeting of the Phycological Group from Italian Botanical Society, Naples, Italy, 27-28 October 2023.
- Attendance to Decade Collaborative Centre for Coastal Resilience Workshop “Sharing best practices in the sustainable management of coastal environments”, Bologna, Italy, 12 December 2023

