

CV EVGENIA (JENNY) KOUKARA

EDUCATION

July 2021- today: PhD student, Plant and Environmental Biotechnology Laboratory, Department of Biochemistry and Biotechnology, University of Thessaly. Title: Mapping the role of triterpenes in *Lotus japonicus*-endophyte interactions supervised by Prof. Kalliope Papadopoulou

October 2019-July 2021: Master's degree "Advanced Experimental and Computational Biosciences", Department of Biochemistry and Biotechnology, University of Thessaly, Master thesis: Genome editing in *L. japonicus* using CRISPR/Cas9 technology, Grade 9,36/10

September 2015-July 2019: Bachelor's degree from the Department of Biochemistry and Biotechnology, University of Thessaly, Grade 8,04/10

RESEARCH EXPERIENCE

June 2023: 1-month visit at Alain Goossens' laboratory, VIB-UGent center for Plant Systems Biology, Technologiepark 719052 Zwijnaarde. Use of Limited Proteolysis-coupled Mass spectrometry (LiP-MS) to identify protein partners of triterpenes (β -amyrin, lupeol, betulinic acid) in *L. japonicus* hairy roots after rhizobial inoculation

September 2021- December 2022, March 2023-November 2023: participation in "Intomed" by evaluating the role of small RNAs, peptides and their combination with microbial strains in defence in tomato and olive plants, participation in data analysis and presentation of results.

July 2021- today: PhD program, investigating the role of specific biosynthetic pathways in the interaction of *L. japonicus* with rhizobia. It involves studying the transcriptomic response of triterpene biosynthetic genes and nodulation-related genes under plant-rhizobia interaction, generation of mutant plants using CRISPR/Cas9 technology and recording phenotypic changes, identifying putative signaling proteins interacting with triterpenes.

March 2021- August 2021: participation "TriForc" by generating CRISPR/Cas9 constructs that target triterpene biosynthetic genes (having been identified during this program)

July 2019- July 2021: Laboratory of Plant and Environmental Biotechnology, University of Thessaly. Development of a CRISPR/Cas9 system optimised for use in model legume *L. japonicus*, research leader Prof. Kalliope Papadopoulou

TEACHING EXPERIENCE

Winter semester 2021-2025: participated in practical laboratory courses as part of the course "Plant Biotechnology", 4^o year, run by Prof. Kalliope K Papadopoulou and Prof. Daniela Tsikou. Lecture: the CRISPR/Cas9 technology as tool for genome editing in plants

Winter semester 2023-2025: participated in course "Plant Biotechnology", 4^o year, run by Prof. Kalliope K Papadopoulou/ Lecture: Simple and advanced cloning techniques

Winter semester 2023-2024: participated in course "Genome editing and biotechnological applications" of postgraduate program "Biotechnology- Food and Environmental Quality", run by Prof. Kalliope K Papadopoulou and Prof. Daniela Tsikou. Lecture: the CRISPR/Cas9 technology as tool for genome editing in plants

SKILLS

- Molecular cloning (classical techniques, Gateway® technology, Golden Gate/Braid DNA assembly method)
- CRISPR/Cas9 design and mutation analysis
- Bacterial plasmid isolation, plant genomic DNA and RNA isolation
- PCR, colony PCR, qPCR
- Creation of competent cells and transformation (chemical and electroporation)
- Agrotransformation of *L. japonicus* and *N. benthamiana* plants
- Molecular docking
- Microscopy (stereoscope, fluorescent microscope)

FOREIGN LANGUAGES

English (Certificate of Proficiency in English from the University of Michigan)

PUBLICATIONS

Vletsos, P, Koukara, J, Papadopoulou, K. K. (2025). Chapter: *Rhizobium rhizogenes*-mediated hairy root transformation protocol for *Lotus japonicus* and other legumes. In *Metabolic Gene Clusters, Methods in Molecular Biology, Springer Nature*

Koukara J, Papadopoulou KK. (2023) Advances in plant synthetic biology approaches to control expression of gene circuits. *Biochemical and Biophysical Research Communications*, 654, 55-61, <https://doi.org/10.1016/j.bbrc.2023.02.061>

CONFERENCES

- 5th AAB PlantEd congress: Agricultural Biotechnology in the era of genome editing, 30 October- 01 November 2024, Samsun, Turkey. Oral talk: Investigating the role of *Lotus japonicus* β-amyrin synthase in nodulation
- 10th international conference of Mikrobiokosmos “all microbes for a sustainable future”, 30 November- 02 December 2023, Larissa, Greece
Poster presentation: Symbiotic interactions in the model legume *Lotus japonicus*: Mutation analysis of the SHAGGY-like LjLSK1 kinase gene and phenotypic analysis of nodulation
- VIB conference “Translational Research in Crops” June 22-23 2023, Ghent, Belgium
Poster presentation: The role of triterpene biosynthetic genes in beneficial interactions of *Lotus japonicus*

SUMMER SCHOOLS/SEMINARS: PARTICIPATION

- PlantEd COST Action CA18111 “Genome Editing in Plants”:3rd WG1 PlantEd Training School, June 5-8 2023, The John Innes Centre, Norwich Research Park, Norwich, UK
- INTOMED training course: Small RNA-mediated plant protection, April 18-19 2023, Department of Biochemistry and Biotechnology, Larissa, Greece
- CEPLAS/IPK summer school 2022: Translational Plant Biodiversity Research, May 9-13, 2022, Kloster Steinfeld, Kall-Steinfeld, Germany
Poster presentation: Development of a CRISPR/Cas9 system to study interactions of *Lotus japonicus* with beneficial microbes

SUMMER SCHOOLS/SEMINARS: ORGANIZATION

- INTOMED training course: Small RNA-mediated plant protection, April 18-19 2023, Department of Biochemistry and Biotechnology, Larissa, Greece
- Participated in organization and material preparation for practicals