

**CURRICULUM VITAE ABREVIADO (CVA)**

**Part A. PERSONAL INFORMATION**

First name	<b>Amalia</b>	Family name	<b>Roca Hernández</b>	
Gender (*)	<b>Female</b>	Birth date	<b>30/03/1978</b>	
ID number	<b>34834626E</b>	e-mail	<b>amaliaroca@ugr.es</b>	
URL Web	<ul style="list-style-type: none"> <li>• <a href="https://www.bio188.es/amalia-roca-hern%C3%A1ndez">https://www.bio188.es/amalia-roca-hern%C3%A1ndez</a></li> <li>• <a href="https://scholar.google.es/citations?user=viKTePEAAAAJ&amp;hl=en">https://scholar.google.es/citations?user=viKTePEAAAAJ&amp;hl=en</a></li> </ul>			
Open Researcher and Contributor ID (ORCID) (*)			<b>0000-0003-2332-3112</b>	

**A.1. Current position**

Position	Ramon y Cajal Researcher	Initial date	01/03/2021
Institution	University of Granada	Department/Center	Microbiology - Faculty of Pharmacy
Country	Spain	Teleph. number	+34 958249935
Key words	Plant-bacteria interactions, biocontrol, plant-growth, biopesticides, metagenomics, rhizoremediation, <i>Pseudomonas</i> , quorum sensing, quorum quenching, auxin signalling		

**A.2. Previous positions**

Period	Position/Institution/Country
2012-2021	Head & Scientific Director - Bio-Ilíberis R&D (Spain)
2009-2012	Torres Quevedo Research Associate contract - Bio-Ilíberis R&D (Spain)
2005-2009	Pre-doctoral Researcher - EEZ-CSIC (Spain)

**A.3. Education**

PhD, Licensed, Graduate	University/Country	Year
PhD in Agricultural biology and aquaculture	University of Granada (Spain)	2009
Masters in Agricultural biology & aquaculture	University of Granada (Spain)	2007
Degree in Agricultural Engineering	Polytechnic University of Cartagena (Spain)	2004

**Part B. CV SUMMARY**

Amalia Roca graduated in Agricultural Engineering in 2004 from the Polytechnic University of Cartagena, where she joined several Plant Science departments supported by different research grants. During her PhD (2005-2009; Granada University & EEZ-CSIC), she investigated the mechanisms used by plant-associated bacteria to tolerate and degrade toxic compounds. Her results highlighted the bacterial genetic plasticity to degrade recalcitrant toxic compounds, the complex regulatory networks that control biodegradation processes and the potential use of plant-associated bacteria in rhizoremediation strategies. In the final stages of her thesis, she co-founded the spin-off company "Bio-Ilíberis Research and Development" (BIRD), where she joined in 2009 through a Torres Quevedo contract and assuming the position of Head of the Agronomy Department (2009-2011). She subsequently held the position of Scientific Director at BIRD (2012-2021), leading a multidisciplinary team of up to 12 members and supervising multiple Master's and Bachelor's theses. Her research during this period focused on developing bio- and rhizo-remediation strategies for treating contaminated water and soil, as well as the development of bioformulations based on microorganisms for agricultural applications. In March 2021, she joined the BIO-188 Group (Department of Microbiology, University of Granada (UGR)) under a Ramón y Cajal contract, where she is currently developing her research focused on: (i) the development of innovative strategies for the biocontrol of phytopathogens; (ii) the characterization of the plant growth promoting properties of bacteria isolated from hypersaline environments; and (iii) the application of functional metagenomics for the isolation of enzymes of biotechnological interest. Since joining the UGR, Dr. Roca has lectured in several courses of the Pharmacy Degree and has supervised various Master's and Bachelor's theses. During her career, she participated in 23 research projects, including 13 national and international projects and contracts as principal investigator totalling a budget of around 1.4 M€. She collaborated with more than 80 researchers from countries like Germany, France, USA, among others. Her scientific productivity is reflected in 32 peer-reviewed international publications, including research articles in high impact journals such as *FEMS Microbiol Rev*, *Trends in Biotechnol*, *Environ Microbiol*, *Microb Biotechnol*, among others. She is also the inventor of 9 patents (four international, five Spanish). Five of these patents have been exploited successfully. The successful technological transfer of her research is also reflected in: (i) the development of 6 products based on microorganisms designed for agriculture and registered in the Spanish MAPA (4 "Measures of Phytosanitary Defence" (MDF) products; 2 biofertilizer products



of 4.4.03 type); and (ii) the development of 7 bio- and rhizo-remediation treatments for the restoration of contaminated water and soil. Her results have also been presented in prestigious national and international congresses, divulgation articles, press releases in newspapers and digital magazines, and interviews on TV & radio. She has (co-)organized different international workshops and national conferences, frequently serves as a reviewer for high-impact journals, and actively contributes as a project evaluator for the Spanish Research Agency. Additionally, she has authored several popular science articles and delivered outreach talks on her research.

## Part C. RELEVANT MERITS

### C.1. Selected publications related to the project (\*, last/corresponding author)

1. **Roca, A\***, Cabeo, M., Enguádanos, C., Martínez-Checa, F\*, Sampedro, I., Llamas, I. (2024) Potential of the quorum-quenching and plant-growth promoting halotolerant *Bacillus toyonensis* AAIEC1 as biocontrol agent. *Microb Biotechnol*. Accepted (22 January 2024).
2. **Roca, A\***, & Matilla, M. A\*. (2023). Microbial antibiotics take the lead in the fight against plant pathogens. *Microb Biotechnol* **16**: 28–33.
3. Krell, T., Gavira, J.A., **Roca, A.**, Matilla, M.A. (2023) The emerging role of auxins as bacterial signal molecules: Potential biotechnological applications. *Microb Biotechnol* **16**: 1611-1615.
4. Rico-Jiménez, M., **Roca, A.**, Krell, T., Matilla, M.A. (2022) A bacterial chemoreceptor that mediates chemotaxis to two different plant hormones. *Environ Microbiol* **24**: 3580-3597.
5. Pizarro-Tobias, P., Ramos, J. L., Duque, E., & **Roca, A\***. (2020). Plant growth-stimulating rhizobacteria capable of producing L-amino acids. *Environ Microbiol Rep* **12**: 667–671.
6. Udaondo, Z., Duque, E., Daddaoua, A., Caselles, C., **Roca, A.**, Pizarro-Tobias, P., Ramos, J. L. (2020). Developing robust protein analysis profiles to identify bacterial acid phosphatases in genomes and metagenomic libraries. *Environ Microbiol* **22**: 3561–3571.
7. Gómez-Lama Cabanás, C., Legarda, G., Ruano-Rosa, D., *et al.* (8/9) (2018) Indigenous *Pseudomonas* spp. strains from the olive (*Olea europaea* L.) rhizosphere as effective biocontrol agents against *Verticillium dahliae*: from the host roots to the bacterial genomes. *Front Microbiol* **9**: 277.
8. Ramos, J.L., Cuenca, M. del S., Molina-Santiago, C., Segura, A., Duque, E., Gómez-García, M.R., Udaondo, Z., **Roca, A\***. (2015) Mechanisms of solvent resistance mediated by interplay of cellular factors in *Pseudomonas putida*. *FEMS Microbiol Rev* **39**: 555-66.
9. Pizarro-Tobías, P., Fernández, M., Niqui, J. L., Solano, J., Duque, E., Ramos, J. L., & **Roca, A\*** (2015). Restoration of a Mediterranean forest after a fire: bioremediation and rhizoremediation field-scale trial. *Microb Biotechnol* **8**:77–92.
10. **Roca, A.**, Pizarro-Tobías, P., Udaondo, Z. *et al.* (1/10) (2013) Analysis of the plant growth-promoting properties encoded by the genome of the rhizobacterium *Pseudomonas putida* BIRD-1. *Environ Microbiol* **15**: 780-94.

### C.2. Congresses

1. **Roca, A.**, Cabeo, M., Enguádanos, C., Martínez-Checa, F., Sampedro, I., Llamas, I. XXIX Conference of the Spanish Society of Microbiology. Burgos (Spain). June 25-28, 2023. **Oral comm.**
2. Rico-Jiménez, M., Gavira, J.A., **Roca, A.**, Krell, T., Matilla, M.A. Gordon Research Conference on Sensory Transduction in Microorganisms. Ventura (USA). September 25-30, 2022. **Invited talk.**
3. Rico-Jiménez, M., **Roca, A.**, Krell, T., Matilla, M.A. XIII Meeting on Molecular Microbiology (SEM). Granada (Spain). September 7-9, 2022. **Oral communication.**
4. Krell, T., Rico-Jiménez, M., **Roca, A.**, Matilla, M.A. Cell-cell communication in bacteria: fundamental and applied aspects. Cambridge (UK). June 28-30, 2022. **Oral Communication.**
5. **Roca, A.**, Enguádanos, C., Catillo, I., Sampedro, I., Llamas, I. XVII Meeting on Extremophilic Microorganisms. Sevilla (Spain). March 30 - April 1, 2022. **Oral communication.**
6. Enguádanos, C., Roca, A., Calafat, J., Sampedro, I., Llamas, I. XXVIII Conference of the Spanish Society of Microbiology. On-line (Spain). June 25-July 2, 2021. **E-poster, MiP-SEM group prize.**
7. Gómez-Lama Cabanás, C., Legarda, G., Ruano-Rosa, D., Pizarro-Tobías, P., Valverde-Corredor, A., Niqui, J. L., Triviño, J. C., **Roca, A.**, Mercado-Blanco, J. XIX Congress of the Spanish Society of Phytopathology. Toledo (Spain). October 8-10, 2018. **Oral communication.**
8. Gómez-Lama Cabanás, C., Legarda, G., Ruano-Rosa, D., Pizarro-Tobías, P., Valverde-Corredor, A., Niqui, J. L., Triviño, J. C., **Roca, A.**, Mercado-Blanco, J. Soil Biodiversity and European Woody Agroecosystems, FP1305 Biolink Cost Action annual meeting. Granada (Spain). March 14-16, 2018. **Oral communication.**
9. Gómez-Lama Cabanás, C., Legarda, G., Ruano-Rosa, D., Pizarro-Tobías, P., Valverde-Corredor, A., Niqui, J. L., Triviño, J. C., **Roca, A.**, & Mercado-Blanco, J. XV Congress of the Mediterranean Phytopathological Union. Cordoba (Spain). June 20-23, 2017. **Oral communication.**



10. Roca, A. XXXVII Congress of the Spanish Society of Biochemistry and Molecular Biology, Granada (Spain). September 9-12, 2014. Oral communication.

**C.3. Research projects: (Total funding as PI: 1,125,000 €. Project title; Funding entity; Call; Role; Start-End date; Funding)**

1. Rhizobacteria & metagenomics for the development of biofertilizers and rhizoremediation treatments (Ref: RYC2019-026481-I); MINCIN; Ramon y Cajal 2019; **Role: PI**; 2021-2026; **308,600 €**.
2. Advanced toolbox for rapid and cost-effective functional metagenomic screening - microbiology meets microfluidics (Metafluidics) (Grant agreement ID: 685474); EU (H2020 programme); **Role: PI and WP leader**; 2016-2020; **460,000 €**.
3. Microbiological and metagenomic analysis of beneficial bacteria in agricultural crops (Ref: 1196/15); FEDER & Regional Ministry of Economy, Innovation, Science and Employment (AGR-677); Excellence Project - Government of Andalusia; **Role: PI**; 2015-2017; **35,000 €**.
4. Analysis service of parameters related to oxidative stress and DNA damage induced by atmospheric particulate matter (Ref: SE/15/14); MINECO & Regional Ministry of Economy, Innovation, Science and Employment - Excellence Project, Government of Andalusia; **Role: PI**; 2014-2016; **34,000 €**.
5. R&D&I service for the development of bioformulations of beneficial bacteria with high effectiveness against fungal diseases, such as olive verticilliosis (Ref: 309/14); MINECO; RECUPERA 2020; **Role: PI**; 2015-2016; **135,000 €**.
6. Marine Microbial Biodiversity, bioinformatics, biotechnology (Micro B3) (Grant agreement ID: 287589); EU (FP7-KBBE programme); **Role: PI**; 2012-2015; **152,400 €**.
7. Chemotaxis in soil bacteria: their involvement in the degradation of compounds toxic and root colonization (P09-RNM-4509); Reg. Govt. of Andalusia; R&D projects for public entities 2009; PI: T. Krell; **Role: researcher**; 2010-2014; **293,939 €**.
8. Simultaneous solubilization of insoluble nutrients in soils (4SU010472); IDEA Agency & Reg. Gov. of Andalusia; PI: J. L. Ramos; **Role: researcher**; 2009-2011; **203,620 €**.
9. The Microbial metagenome of the Iberian Peninsula (Ref: CSD 2007-00005); MINCIN; PI: M. Fernández & J. L. Ramos; **Role: researcher**; 2009-2013; **505,000 €**.
10. Bacterial Abiotic Cellular Stress & Survival Improvement Network (BACSIN) (Grant agreement ID: 211684); EU (FP7-KBBE programme); PI: M. Fernández; **Role: researcher**; 2009-2012; **292.872 €**.

**C.4. Contracts as Principal Investigator (Total funding as PI: 253,000 €; Contract title; Contracting entity; Research entity; Start-End date; Funding)**

1. Biofertilizer that contributes to a higher yield in the cultivation of poplar and eucalyptus species; Abengoa Research S.L.; Bio-Ilíberis R&D; 11.05.2015-31.12.2015; **39,000 €**.
2. Development of a microalgae prototype to measure the amount of arsenic in irrigation water and agricultural products (subcontracting associated with RECUPERA 2020 MINECO - 20134R057, Ref: 316/14); Arquimea S.L.; Bio-Ilíberis R&D; 18.05.2015-10.12.2015; **75,000 €**.
3. Mesocosms assays with burned soils (subcontracting associated with RECUPERA 2020 MINECO - 20134R067); EEZ-CSIC; Bio-Ilíberis R&D; 01.01.2015-31.11.2015; **24,000 €**.
4. Development of biofuels and bioremediation; Abengoa Research S.L.; Bio-Ilíberis R&D; 03.09.2012-31.03.2014; **95,000 €**.
5. Restoration project of the Taralpe mine (Malaga); Financiera y Minera S.A.; Bio-Ilíberis R&D; 2009-2011; **20,000 €**.

**C.5. Patents (Inventors, Owner; Title; Publication date; Patent type; Patent number)**

1. **Roca, A.**, Pizarro-Tobías, P.; Bio-Ilíberis R&D S.L.; Strains capable of producing plant growth stimulating compounds; 24.06.2020; European Patent; EP3670647A1.
2. **Roca, A.**, Pizarro-Tobías, P.; Bio-Ilíberis R&D S.L.; Plant growth promoting microorganism and enzymes for soil biogenic cycles; 03.06.2020; European Patent; EP3659440A1.
3. Gómez-García, M.R., Cuenca, M.D.S., Udaondo, Z., **Roca, A.**, Duque, E., Ramos, J.L.; Abengoa Research S.L.; Célula microbiana modificada genéticamente con tolerancia mejorada frente a alcoholes; 07.07.2017; Spanish patent; ES2579761B1.
4. Gómez-García, M.R., Cuenca, M.D.S., Udaondo, Z., **Roca, A.**, Duque, E., Ramos, J.L.; Abengoa Research S.L.; Bacteria modificada genéticamente deficiente en asimilación de alcoholes. 28.03.2017; Spanish patent; ES2573958A1.
5. Niqui, J.L., Cifuentes, S., **Roca, A.**, Solano, J. Bio-Ilíberis R&D S.L., Ingeniería y Economía del Transporte S.A.; Biological method for the degradation of complex mixtures of hydrocarbons in an aqueous phase. 12.09.2014; International patent PCT; WO 2014/135735A2.

6. **Roca, A.**; Bio-Ilíberis R&D S.L.; Microorganismo con capacidad para producir compuestos que inducen respuesta sistémica en plantas y sus aplicaciones como promotor del crecimiento vegetal; 02.02.2016; Spanish patent; ES2534626B1.

7. Niqui, J.L., Cifuentes, S., **Roca, A.**, Solano, J.; Bio-Ilíberis R&D S.L., Ingeniería y Economía del Transporte S.A.; Procedimiento biológico para la degradación de mezclas complejas de hidrocarburos en fase acuosa; 30.11.2015; Spanish patent; ES2491965B1.

8. **Roca, A.**, Solano, J.; Bio-Ilíberis R&D S.L.; Microorganisms capable of hydrolyzing lipids and the use thereof in water purification; 26.10.2012; International patent PCT; WO 2012/143591A1.

9. **Roca, A.**, Solano, J.; Bio-Ilíberis R&D S.L.; Microorganismos capaces de hidrolizar lípidos y su utilización en depuración de aguas; 19.08.2013; Spanish patent; ES2390743B1.

#### **C.6. Registration of products for the agricultural sector (MAPA registration number)**

- Registration of fertilizers group 4.4.03: FOSFOGEL<sup>®</sup> (F0003949/2030); BIRD-OR 500 (F0004261/2030).

- Registration of Measures of Phytosanitary Defence (MDF): SALIBIRD<sup>®</sup> (122/2013); AMINOBIRD<sup>®</sup> (272/2012); FUNGIKILLER<sup>®</sup> (291/2010); FOSFOGEL<sup>®</sup> (394/2009).

#### **C.7. Direction of doctoral thesis, master and final year projects**

- Master's Thesis (UGR Official Master's Degrees): Samuel Martín (2023-24); Luis Villanueva (2021-22); Carlos Enguñados (2020-21); Carlos García (2020-21).

- Master's Thesis (Pierre et Marie Curie Univ.; France): Flora Amill (2014-15).

- Bachelor's Thesis (UGR): Inmaculada Ramírez (2022-23); Ignacio García (2017-18); Carlos Peris (2012-13).

- Professional training practices (Public and Private entities): Elena M. Ferri (6 months; PhD); María del Sol Cuenca (12 months; PhD); María Hidalgo (3 months; technician); Inés Ballester (3 months; technician).

#### **C.8. Scientific committees and organization of R&D activities.**

- Committee member for the Masters in "Microbiology" (UGR; since 2021).

- Organising committee head of the XI Plant Microbiology meeting to be held in Granada in 2025.

- Chairwoman: XVII Meeting of Extremophilic Microorganisms (Sevilla, 2022); III Meeting in Microbiology of the Aquatic Environment of the Spanish Society of Microbiology (Granada, 2022).

- Organization member: XIII Meeting in Microbiology of the Aquatic Environment of the Spanish Society of Microbiology (Granada, 2022); International Workshop Micr'Omics for Biotech Applications (Madrid, 2015).

#### **C.9. Evaluation and reviewing tasks.**

- **Evaluator for National research agency:** "Generación de conocimiento", "Retos colaboración", "Retos investigación", "Personal Técnico de Apoyo".

- Member of the Editorial Committee for drafting of opinion articles in *Microbial Biotechnology*.

- **Peer-review (main journals):** *mSystems*, *Environ Microbiol*, *Microb Biotechnol*, *J Environ Manage*.

#### **C.10. Science Outreach.**

- Seminars in UGR Masters and Erasmus course BIOMED-TECH (Granada, 2013-2017, 2021-2023).

- Seminars & courses at SEAE and agricultural cooperatives (e.g. CASI, La caña, Grupo SUCA, etc).

- Outreach articles & press releases in: (i) the Journal of the Andalusian Cooperative Society; (ii) biweekly online journal F&H; (iii) online ecosector.es; (iv) www.ideal.es; (v) www.europapress.es; (vi) www.lavanguardia.com; (vii) Bionoticias – Fundación Descubre; (viii) www.citandalucia.com; (xix) www.larazon.es; (x) Outreach journal Andalucía Investiga; (xi) Newspapers: Granada hoy, La voz de Almería; (xii) Radio and TV interviews: Cadena SER, RNE, COPE, Canal Sur radio, Canal sur TV.

#### **C.11. Awards, memberships of scientific societies and other merits of interest.**

- First prize in the 8th Edition of the 50K Company Launching Program. Fundación San Telmo, Sevilla.

- Founding member of CSIC's spin-off company Bio-Ilíberis Research & Development S.L.

- Member of the Institute of Biotechnology of the UGR since July 2023.

- Member of Spanish Society for Microbiology (SEM-FEMS), since 2020.

- Positive evaluation by ANECA for the figures of PAD, PUP and PAD.

- Educational or pedagogical publications: "Manual de Biología para el Grado de Farmacia". Editorial Técnica Avicam. Fleming. 2022. ISBN: 978-84-19494-06-1.

- General teaching experience: professor in the Degree of Pharmacy at the UGR since 2021; subjects Microbiology I, Microbiology II and Biotechnology.