



CURRICULUM VITAE (CVA)
IMPORTANT – The Curriculum Vitae cannot exceed 4 pages. Instructions to fill this document are available in the website.

Part A. PERSONAL INFORMATION		CV date	02/02/2022
First name	Sara		
Family name	Masachis Gelo		
Gender (*)	Female	Date of Birth (dd/mm/yyyy)	
Social Security, Passport, ID number			
e-mail	masachis@hotmail.com		
Open Researcher and Contributor ID (ORCID) (*)	https://orcid.org/0000-0001-9968-0103		

(*) Mandatory

A.1. Current position

Position	Postdoctoral Researcher		
Initial date	01/05/2022		
Institution	University of Córdoba		
Department/Centre	Dept. Genetics	Fusarium Lab	
Country	Spain	Phone number	
Keywords	fungi, yeast, bacteria, plants, RNA biology, RNA biochemistry, transcriptional regulation, translation, small proteins, signalling, RNAi, small RNAs, inter-organism interactions		

A.2. Previous positions (research activity interruptions)

Period	Position/Institution/Country/Cause of the interruption
2021-2022	Postdoc, Max Planck Institute (MPI) for Heart and Lung Research, Bad Nauheim, Germany
2019-2021	Postdoc, Dept. Genetics, Ludwig-Maximilians-University (LMU), Munich, Germany
2018-2019	Postdoc, Dept. Microbiology, Ludwig-Maximilians-University (LMU), Munich, Germany
2017	Visiting fellow (1 month), Institute for Molecular Infection Biology, Würzburg, Germany (MC-ITN secondment)
2015-2018	PhD Student, Marie Curie Fellow, Université de Bordeaux/INSERM, France
2014-2015	Master student, Dept. Genetics, Universidad de Córdoba
2012-2014	Undergraduate internship student, Dept. Genetics, Universidad de Córdoba

A.3. Education

PhD, Graduate Degree	University/Country	Year
BSc in Biology	Universidad de Córdoba	2014
MSc in Molecular Biology	Universidad de Córdoba	2015
PhD in Biochemistry	Université de Bordeaux/INSERM, France	2018



Part B. CV SUMMARY (max. 5000 characters, including spaces)

1. Scientific contributions

- 2011-2015: BSc/MSc work, Di Pietro Lab: Masachis et al., Nature Microbiology, 2016 (impact factor 17.745). Collaboration with G. Felix (University of Tübingen, Germany) & T.A. Richards (University of Exeter, UK). Proposes a ground-breaking mechanism by which fungal pathogens mimic plant alkalizing peptides to increase their infectious potential and evade host immunity.
- 2015-2018: PhD at Université de Bordeaux, France, as early stage researcher (ESR) within the MSCA-ITN Network METARNA: 4 open access publications (3 of them as first author) in high impact journals (eLIFE, 8.14; Microbiology Spectrum, 7,171; Nucleic Acids Research, 16.971).
- Additional publication from PhD in preparation: "Post-transcriptional inactivation of type I toxin-antitoxin systems *via* exonucleolytic degradation of protective hairpins". Investigated the role of secondary RNA structures in gene expression using the human pathogen *Helicobacter pilori* as a model. Potential in drug development applications (e.g., alternatives to traditional antibiotics).
- 2018-2019: Postdoctoral stay at the Microbiology Dept. of LMU Munich, Germany, Prof. Kai Papenfort group. Develop "a new concept for antibiotics". Using *Vibrio cholerae* as a model, we aimed not only at understanding how bacteria communicate (e.g., *quorum sensing*), but also at identifying ways to become actively involved on that communication. Collaboration with Prof. Dr. Bonnie L. Bassler (Princeton University, EEUU). The fruits of this work are still to come as the field is in early developmental stages, but it has remarkable potential.
- 2019-2021: Postdoctoral stay at the Genetics Dept. of LMU Munich, Lab of Dr. Macarena Marin. Internationally funded project by the German Research Foundation (DFG) and the French Agence Nationale de la Recherche (ANR) coordinated by Dr. Joëlle Fournier (University of Toulouse, France). Live-microcopy techniques to study spatial-temporal dynamics of plant-rhizobia interaction. Expanding knowledge on inter-organism interactions.
- 2021-present: Postdoctoral stay, Prof. Didier Stainier group, MPI for Heart and Lung Research, Bad Nauheim, Germany. Investigate a novel mechanism of genetic compensation using yeast as a model. State-of-the-art knowledge in the field of eukaryotic RNA biology and its potential application in personalized therapeutics.

2. Collaborations with industry

- Training course "Industrial product and process development in industry". University of Delft, Netherlands, 2017.
- Workshop on "Science-based entrepreneurship". Technical University of Denmark (DTU), 2017.
- Close collaboration with the start-up Novaptech. Design and optimization of RNA aptamers as molecular diagnostic tools. Bordeaux, France, 2015-2016.

3. Mentoring of young scientists

- Supervision of 1 PhD student, MPI for Heart and Lung Research, Bad Nauheim. 2021-2022.
- Supervision of 2 PhD and 2 MSc students, LMU, Munich. 2018-2021.
- Supervision of 2 MSc and 3 BSc students, University of Bordeaux, France. 2015-2018.

4. Others

• Competitive grants and awards

1. **Marie-Curie Innovative Training Network (ITN) PhD Fellowship (METARNA)**. University of Bordeaux, France. EU-H2020 MSCA Grant agreement 642738. Participation: ESR funded by the network. 2015-2018.
2. **Master Extraordinary Award**. University of Cordoba. 2014-2015.
3. **Beca de Colaboracion**. MEC, Spain. Funding MSc thesis project. 2000 €. 2014-2015.
4. **Bachelor Extraordinary Award, Biology BSc**. University of Cordoba. 2010-2014.
5. **Beca de Iniciacion a la Investigacion**. University of Cordoba. Funding BSc thesis project. 3500 €. 2012-2014.
6. **Beca de Iniciacion a la Investigacion en Microbiologia**. XII Congreso Nacional de Micología. UPV/EHU. 2014.

• International training

1. Certification Course on Laboratory Animals -Function A, D and C*- CORE Modules (FELASA) and general topics listed in 2010/63/EU (EU) and TierSchVersV (D) (13 h), **MPI for Heart and Lung Research & Fortbildungen-Rhein-Main**, Germany, 2021.
2. Certification Course on Laboratory Animals -Function A, D and C*- ZEBRAFISH Module (4.5 h theory + 4 h hands-on), **MPI for Heart and Lung Research & Fortbildungen-Rhein-Main**, Germany, 2021.



3. Marie Curie Training Workshop: Scientific writing (10 h), **University of Copenhagen**, Copenhagen, Denmark, 2017.
4. Marie Curie Intense PhD-course: Science-Based Entrepreneurship (5 ECTS \approx 125 h), **DTU**, Denmark, 2017.
5. Marie Curie Training Workshop: Advanced light microscopy (25 h), **University of Groningen**, Netherlands, 2017.
6. Marie Curie Training Workshop: Industrial product and process development/working in Industry (25 h), **University of Delft**, Netherlands, 2017.
7. Workshop: Creation and funding of a research project (6 h), **University of Bordeaux**, France, 2016.
8. Workshop: Acquisition, analysis and image treatment with Metamorph (18 h), **University of Bordeaux**, Bordeaux, France, 2016.
9. Workshop: Introduction to Research in Microbiology (25 h), **UPV/EHU**, Spanish Microbiology Society (SEM), Bilbao, Spain. 2014.

Part C. RELEVANT MERITS

C.1. Publications

- Total publications in Web of Science (Publons): **4**
 - Sum of times cited (Publons): **167**
 - Average citations per item (Publons): **41.8**
 - Average citations per year during the last 5 years (Publons): **23.1**
 - h Index (Publons): **3**
1. **Masachis S**, Tourasse NJ, Arnion H, Chabas S, Boissier F, Darfeuille F. Post-transcriptional inactivation of type I toxin-antitoxin systems via exonucleolytic degradation of protective hairpins (*in preparation*).
 2. **Masachis S**, Tourasse NJ, Lays C, Faucher M, Chabas S, Iost I, Heuillard P, Darfeuille F (2019). A genetic selection of toxicity suppressors reveals functional metastable structures embedded in a toxin- encoding mRNA. **eLIFE** 8:e47549. DOI: 10.7554/eLIFE.47549.
 3. **Masachis S**, Tourasse NJ, Chabas S, Bouchez O, Darfeuille F (2018) FASBACT-Seq: Functional Analysis of BACterial Toxin-antitoxin systems by deep-sequencing. **Methods in Enzymology: High-Density Sequencing Applications in Microbial Molecular Genetics**, Vol. 612. Edited by A.J. Carpoussis. <https://doi.org/10.1016/bs.mie.2018.08.033>.
 4. **Masachis S**, Darfeuille F (2018) Type I toxin-antitoxin systems: regulating toxin expression via Shine- Dalgarno sequestration and small RNA binding. **Microbiology Spectr.** 6(4). doi:10.1128/microbiolspec.RWR-0030-2018.
 5. Arnion H, Korkut DN, **Masachis Gelo S**, Chabas S, Reignier J, Iost I, Darfeuille F (2017) Mechanistic insights into type I toxin-antitoxin systems in *Helicobacter pylori*: the importance of mRNA folding in controlling toxin expression. **Nucleic Acids Research** 5;45(8):4782-4795.
 6. **Masachis S**, Segorbe D, Turrà D, Leon-Ruiz M, Fürst U, El Ghalid M, Leonard G, López-Berges MS, Richards TA, Felix G, Di Pietro (2016) A fungal pathogen secretes plant alkalizing peptides to increase infection. **Nature Microbiology** 11;1(6):16043.

C.2. Congresses (10 most relevant)

* Presenter underlined

1. **Masachis S**, Tourasse NJ, Arnion H, Boissier F, Chabas S, Darfeuille F. Post-transcriptional inactivation of toxin-antitoxin systems via exonucleolytic degradation of protective hairpins. Poster presentation. 5th Meeting Regulating with RNA in Bacteria and Archaea. Seville, Spain. March 19-23, 2018.
2. **Masachis S**, Tourasse NJ, Chabas S, Iost I, Darfeuille F. Towards the functional analysis of toxin-antitoxin systems in Bacteria: FasBacT. Poster presentation. New Approaches and Concepts in Microbiology Symposium. Heidelberg, Germany. June 27-30, 2017.
3. **Masachis S**, Tourasse NJ, Chabas S, Darfeuille F. Towards the functional analysis of toxin-antitoxin systems in Bacteria: FasBacT. Invited Speaker. RNA Club. Bordeaux, France. June 8-9, 2017.
4. **Masachis S**, Tourasse NJ, Chabas S, Darfeuille F. Towards the functional analysis of toxin-antitoxin systems in Bacteria: FasBacT. Poster presentation. Journée Scientifique de l'Ecole Doctorale. Bordeaux, France. April 12, 2017.
5. **Masachis S**, Tourasse NJ, Chabas S, Darfeuille F. Towards the functional analysis of toxin-antitoxin systems in Bacteria: FasBacT. Invited Speaker. Young Scientist Symposium. Bordeaux, France. May 18-19, 2017.



6. **Masachis S**, Turrà D, El Ghalid M, Felix G, Richards TA, Di Pietro A. Fusarium Rapid ALkalinization Factor (f-ralf) encodes a secreted virulence effector acquired by horizontal gene transfer from plants. Poster presentation. 28th Fungal Genetics Conference. Pacific Grove, CA, USA. March 17-22, 2015.

C.3. Research projects

1. ERC-2015-AdG-694455. ZMOD-Blood Vessel Development and Homeostasis: Identification and Functional Analysis of Genetic Modifiers. **European Research Council, ERC Advanced Grant**. 2016-2021. 2.500.000 €. Participation: Collaborator.
2. MA 7269/3-1. Live-Switch: Live-tracking rhizobial switch from rhizosphere to plant-confined colonization modes. **German Research Foundation**. 2020-2023. 111,500 €. Participation: Collaborator.
3. PARASYG-2017. **Pyrazine Signalling** in Commensal and Pathogenic Bacteria. **European Research Council, ERC Starting Grant**. 2018-2019. Participation: Collaborator.
4. MSCA-ITN-642738. **Marie-Curie Innovative Training Network (ITN) (METARNA)**. University of Bordeaux/INSERM, Bordeaux, France. Financial backer: EU H2020 under the Marie Skłodowska-Curie Grant agreement N°642738. 2015-2018. Participation: Early Stage Researcher.
5. ANR-12-BSV6-0007-asSUPYCO. Studying Toxin-Antitoxin (TA) systems. **Agence Nationale de la Recherche**. 2015-2018. Participation: Collaborator.
6. BIO2013-47870-R. Genomic and molecular adaptation to the pathogenic lifestyle in *Fusarium oxysporum*. **Spanish Ministry of Science & Innovation**. 2014-2017. 370.000 €. Collaborator.
7. BIO2010-15505. Receptors, regulators and effectors of morphogenesis and pathogenesis in fungi. **Spanish Ministry of Science & Innovation**. 2011-2013. 399.300 €. Participation: Intern student.

C.4. Technology/Knowledge transfer

- **Technology/Industry**

1. During my PhD, as part of the MSCA-ITN network, I received training in **industrial product and process development**. University of Delft, Netherlands, 2017.
2. Participation in an intense (125 h long) **science-based entrepreneurship** course at the Technical University of Denmark (DTU), 2017.
3. As a PhD student, I closely collaborated with Jean Jacques Toulmé, founder of the start-up Novaptech *Think Aptamer*, working on designing RNA aptaswitches able to detect different cell metabolites and give a visual output (light/fluorescence). **Molecular diagnostics**. Bordeaux, France, 2015-2016.

- **Scientific outreach**

1. Organizer of an **RNA biology conference** at the Institut Européen de Chimie et Biologie (IECB) in the frame of my PhD thesis defense to give the opportunity to my local colleagues at the University of Bordeaux and the INSERM to attend talks and discuss with the top researchers of international renown that formed part of my thesis committee. **IECB, Bordeaux**, France, 2018.
2. Organizer, together with the other Early Stage Researchers of the MSCA-ITN METARNA, of an **open conference** with invited speakers with the aim of scientific divulgation of our PhD work and possible applications. **The Francis Crick Institute, London**, 2018.
3. Development and maintenance, together with the other Early Stage Researchers of the MSCA-ITN METARNA, of a **WordPress webpage** and a **Twitter** and a **Facebook** account aimed at scientific outreach and dissemination of our science and life as PhD students and scientists.
4. After completing my master studies and publishing the work “A fungal pathogen secretes plant alkalinizing peptides to increase infection” in Nature Microbiology in 2016, I was interviewed for the **University of Cordoba newspaper**. This was a great opportunity to disseminate and share the science performed at that time in the lab of Antonio Di Pietro at University of Cordoba. 2016.
5. As a bachelor and master student, I participated on the ‘**Jornadas de Paseos por la Ciencia**’ organized by the University of Cordoba. It’s a science fair on the streets that has become on the recent years a cultural and educational reference of the city of Cordoba. 2012-2015.