

CURRICULUM VITAE

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CV date			21/01/2025
Part A. PERSONAL INFORMATION			
First name	Esteban		
Family name	Martínez García		
Gender (*)	Male	Birth date:	28/10/1974
ID number	25168226Q		
e-mail	emartinez@cnb.csic.es		URL Web
Open Researcher and Contributor ID (ORCID) (*)	ORCID: 0000-0001-8475-7286		Researcher ID: AAX-8977-2020

(*) Mandatory

A.1. Current position

Position	Senior Staff Scientist (Personal laboral fijo doctor)		
Initial date	01-02-2022		
Institution	Consejo Superior de Investigaciones Científicas (CSIC)		
Department/Center	National Center for Biotechnology (CNB)		
Country	Spain	Teleph. number	638038376
Keywords	Synthetic Biology, Biotechnology, Environmental Microbiology, Genetic tools		

A.2. Previous positions

Period	Position / Institution / Country
2013-2021	Research Associate (Doctor FC1) / National Center for Biotechnology (CNB, CSIC) / Spain
2008-2012	Postdoctoral Researcher (TS-G1) / National Center for Biotechnology (CNB, CSIC) / Spain
2006-2007	Postdoctoral Researcher / FAS Center for Systems Biology, Harvard University / EEUU
2003-2006	Postdoctoral Researcher / Microbial & Molecular Genetics, Harvard Medical School / EEUU
2001-2002	Postdoctoral Researcher / Complutense University of Madrid / Spain
1998-2000	PhD student / Complutense University of Madrid / Spain

A.3. Education

PhD, Licensed, Graduate	University / Country	Year
Ph.D. in Biology	Complutense University of Madrid / Spain	2001
Postgraduate Course in Education (CAP)	Complutense University of Madrid / Spain	1999
B.Sc. in Biology	Complutense University of Madrid / Spain	1997

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

Bachelor in Biological Sciences, Biotechnology (1997) at Complutense University of Madrid (UCM). PhD in Biological Sciences at UCM (2001). Doctoral Thesis: *rpoS* gene and GASP

behavior in enterobacteria. Directors: **Dr. Antonio Tormo** and **Dra. Juana María Navarro-Llorens**. Qualification: *Sobresaliente cum laude*.

Postdoctoral Researcher (2001-2002) in the laboratory of **Dr. Julián Perera** (UCM) to characterize metabolic pathways for the degradation of phenylacetic acid in *Pseudomonas putida*.

Postdoctoral Researcher (2003–2006), in the laboratory of **Dr. Roberto Kolter** in the Department of Microbial and Molecular Genetics, Harvard Medical School (USA). Investigating the ecological influences on genome evolution of the pathogenic bacteria *Pseudomonas aeruginosa*.

Postdoctoral Researcher (2006-2007), in the laboratory of **Dr. Kevin Foster** at the Faculty of Arts and Science Center for Systems Biology, Harvard University (USA). During this period, I took advantage of the knowledge acquired in my previous postdoc with Dr. Kolter, to characterize genes responsible for the social interactions when between different strains of *P. aeruginosa* get in close contact.

Postdoctoral Researcher (2008-2012), in the laboratory of **Dr. Víctor de Lorenzo** at the National Center for Biotechnology (CNB, CSIC) working on Synthetic Biology and its applications to solve environmental problems.

Research Associate (Doctor FC1) (2013-2022), within the group of Dr. Víctor de Lorenzo at CNB. Working for the development and standardization of genetic tools (SEVA) and in the construction of optimized and improved bacterial chassis of *Pseudomonas putida* for various biotechnological applications.

Senior Staff Scientist (Laboral fijo) (since 2022), within the group of Dr. Víctor de Lorenzo at CNB. Working on Synthetic biology to re-program bacterial adhesion.

Research summary a total of **62** publications: 45 research papers, 8 review papers and 9 book chapters. Of these, 25 as first author and 13 as senior author. These publications accumulate a total of **5.666** citations (Google Scholar).

h = 32 e i₁₀ = 48 (Google Scholar). Link a [Google Scholar](#).

In addition, a total of 29 oral presentations and 21 posters presented in international and national conferences and workshops.

Teaching experience.

Coach of the **practical course**: “*Microbiología Sintética 2.0: creando sistemas biológicos de novo*”. September 11th – September 22nd. Instituto de Investigaciones Biológicas Clemente Estable. Montevideo, Uruguay. 2023.

Lectures in multiple Master courses of the UCM (since 2016), UAM (from 2008 to 2012), and UIMP-CSIC (2022, 2023 and 2025).

Lecture for Biotechnology degree students at Universidad de Zaragoza 2022, 2023 and in 2024.

Outreaching activities.

Participant of the 4 ESO+Empresa program of the Community of Madrid in 2022 and 2023 at CNB. Mentor at the IES San Isidoro de Sevilla in Madrid for the II edition of the “Tu experimento en un Globo Sonda”.

Lecture: “**La Biología sintética como palanca de cambio del siglo XXI**”. XVIII Science week. November 15th 2018. Casa de Aragón, Madrid, Spain.

Evaluation activities.

Reviewer of scientific manuscripts for multiple journals. Reviewer of projects for Spain Argentina; United Nations University Programme of Biotechnology in Latin America and the Caribbean (UNU-BIOLAC); programa IDEA² Global MIT linQ. Member of the selection committee for scientific candidates for the Novo Nordisk Foundation Center for Biosustainability at Denmark Technical University. 2021. Co-evaluator of 4 Master Theses and within the Theses committee of two PhD students. Evaluator of the 2024 Call for Research Assistants and Laboratory Technicians of the Comunidad Madrid.

Other Merits.

Management and maintenance of the SEVA plasmid collection (<http://seva-plasmids.com>). Member of the “**Engineering committee**” for iGEM in 2021. Member of the Spanish Society of Biochemistry and Molecular Biology (SEBBM). **Coorganizer** of the Workshop Advances in

Molecular Biology by Young Researcher abroad. National Center for Biotechnology, Madrid 2022, 2023 and 2024.

Part C. LIST OF MOST RELEVANT MERITS

C.1. Publications (*most relevants since 2019*)

Research papers:

1. **Martínez-García, E.**, Fraile, S., Algar E., *et al* and de Lorenzo V (CA). (1/22). (2023). SEVA 4.0: an update of the Standard European Vector Architecture database for advanced analysis and programming of bacterial phenotypes. *Nucleic Acids Research*. 51(D1). D1558-1567. DOI: 10.1093/nar/gkac1059. (56 citations).
2. Fraile, S., Briones M., Revenga-Parra, M., de Lorenzo, V. (CA), Lorenzo, E. and **Martínez-García, E.** (6/6). (2021). Engineering tropism of *Pseudomonas putida* towards target surfaces through ectopic display of recombinant nanobodies. *ACS Synthetic Biology*. 10, 2049-2059. DOI: 10.1021/acssynbio.1c00227. (12 citations).
3. Apura, P., de Lorenzo, V., Arraiano C.M., **Martínez-García, E.** (CA)* and Viegas S.C. (CA)*. (4/5). (2021). Ribonucleases control distinct traits of *Pseudomonas putida* lifestyle. *Environmental Microbiology*. 23(1): 174-189. DOI: 10.1111/1462-2920.15291. (6 citations). *: Both corresponding authors.
4. Espeso, D.R., **Martínez-García, E.** and de Lorenzo, V. (CA). (2/3). (2021). Quantitative assessment of morphological traits of planktonic bacterial aggregates. *Water Research*. 188. DOI: 10.1016/j.watres.2020.116468. (5 citations).
5. **Martínez-García, E.**, Fraile, S., Rodríguez Espeso, D., Vecchiotti, D., Bertoni, G., and de Lorenzo, V. (CA). (1/6). (2020). Naked bacterium: emerging properties of a surfome-streamlined *Pseudomonas putida* strain. *ACS Synthetic Biology* 9, 2477-2492. DOI: 10.1021/acssynbio.0c00272. (28 citations).
6. Algar, E., Al-Ramahi Y., de Lorenzo V. (CA) and **Martínez-García, E.** (4/4). (2020). Environmental performance of *Pseudomonas putida* with a uracylated genome. *ChemBioChem*. DOI: 10.1002/cbic.202000330. (4 citations).
7. Ting, S.Y*, **Martínez-García, E***, Huang S. *et al* and Mougous J.D. (CA). (2/14). (2020). Targeted depletion of bacteria from mixed populations by programmable adhesion with antagonistic competitor cells. *Cell Host & Microbe*. 28, 1-9. DOI: 10.1016/j.chom.2020.05.006. * Both authors contributed equally. (71 citations).
8. Aparicio, T., Nyerges A., **Martínez-García, E.** and de Lorenzo, V. (CA). (2020). (3/4). High-efficiency multi-site genomic editing (HEMSE) of *Pseudomonas putida* through thermoinducible ssDNA recombineering. *iScience*. 23(3). DOI: 10.1101/851576. (38 citations).
9. Aparicio, T. A., de Lorenzo, V. (CA) and **Martínez-García, E.** (3/3). (2019). CRISPR/Cas9-enhances ssDNA recombineering for *Pseudomonas putida*. *Microbial Biotechnology*. 12(5): 1076-1089. DOI: 10.1111/1751-7915.13453. (39 citations).
10. Aparicio, T., de Lorenzo V. (CA), and **Martínez-García, E.** (3/3). (2019). Improved thermotolerance of genome-reduced *Pseudomonas putida* EM42 enables effective functioning of the P_l/cl857 system. *Biotechnology Journal*. 14: 1800483. DOI: 10.1002/biot.201800483. (30 citations).

Review papers:

1. **Martínez-García, E.**, and de Lorenzo V. (CA). (1/2). (2024). *Pseudomonas putida* as a synthetic chassis and a metabolic engineering platform. *Current Opinion in Biotechnology*. Vol 85: 103025. DOI: 10.1016/j.copbio.2023.103025. (24 citations).
2. **Martínez-García, E.**, and de Lorenzo V. (CA). (1/2). (2019). *Pseudomonas putida* in the quest of programmable chemistry. *Current Opinion in Biotechnology*. Vol 59: 111-121. DOI: 10.1016/j.copbio.2019.03.012. (46 citations).

Book chapters:

1. Fraile, S. Veiga E., de Lorenzo, V. (CA) and **Martínez-García, E.** (4/4). (2023). Programming bacterial adhesion to functionalized surfaces through cellular display of recombinant

nanobodies. *Biofilms. Methods in Microbiology*. Vol 53, pp: 123-141. DOI: 10.1016/bs.mim.2023.05.001. (1 citations).

2. Aparicio T., de Lorenzo V. (CA) and **Martínez-García, E.** (3/3). (2022). High-Efficiency Multi-Site Genomic Editing (HEMSE) made easy. *Recombineering: Methods and Protocols. Methods in Molecular Biology*. Vol 2479, pp: 37-52. DOI: 10.1007/978-1-0716-2233-9_4. (0 citations).

3. Aparicio T., de Lorenzo V. (CA) and **Martínez-García, E.** (3/3). (2020). A broad host range plasmid-based roadmap for ssDNA-based recombineering in Gram-negative bacteria. *Horizontal Gene Transfer. Methods in Molecular Biology*. Vol 2075, pp: 383-398. DOI: 10.1007/978-1-4939-9877-7_27. (10 citations).

C.2. Congress (selection since 2019):

Invited oral conferences:

1. *Leveraging the SEVA platform of genetic tools for environmental bacteria*. Metabolic Engineering of Microbial Systems Workshop: Synthetic Biology for Sustainable Future. IIT Bombay. Mumbai, India. **2025**.

2. *Genome editing of Pseudomonas putida for programming new phenotypes*. Metabolic Engineering of Microbial Systems Workshop: Synthetic Biology for Sustainable Future. IIT Bombay. Mumbai, India. **2025**.

3. *SynBio tools to engineer complex phenotypes in bacteria*. *Symposium "Diferentes Enfoques en Investigación en Bacterias"*. UNAM-Instituto de Investigaciones Biomédicas. Ciudad de Mexico, Mexico. **2024**.

4. *Standardization of Genetic Tools*. European Society of Applied Biocatalysis (ESAB) webinar on Standardization in Synthetic Biology. *online*. **2024**.

5. *Engineering complex traits in environmental bacteria*. The Center for Biological Research (CIB; CSIC). Madrid, Spain. **2023**.

6. *Genetic tools for spatial assembly of bacterial communities*. Mini-workshop Emerging issues of microbial communities. CNB-Warwick. Centro Nacional de Biotecnología. Madrid, Spain. **2023**.

7. *SynBio tools to engineer complex phenotypes in bacteria*. iGEM jamboree meetup. University of Medicine. Zaragoza, Spain. **2021**.

8. *SynBio tools to (re)-program complex phenotypes in bacteria*. Diploma Seminar for undergraduate microbiology students. Masaryk University. Brno.Czech Republic. *Online*. **2020**

9. *SynBio tools to re-program the Microbiome*. Colloquium on Systems and Synthetic Biology: Mapping, understanding and engineering the microbiome. National Center for Biotechnology (CNB; CSIC). Madrid, Spain. **2020**.

10. *From ssDNA recombineering to SynBio applications in Pseudomonas putida*. 17th Pseudomonas International Conference. Kuala Lumpur, Malaysia. **2019**.

C.3. Research projects

Optimización evolutiva de multiobjetivos en sistemas vivos (202420E024). Proyecto Intramural Especial. 2024-2026. 425.418,57 €. **Principal Investigator: Esteban Martínez García**.

C.4. Contracts, technological or transfer merits

International patent application: [Targeted depletion of bacteria from mixed populations through programmable cell-cell adhesion](#). (PCT/US2021/017866; 12/02/2021). USA-CSIC. Inventors: Víctor de Lorenzo (CSIC-20%), **Esteban Martínez García (CSIC-20%)**, See-Yeun Ting (University of Washington-20%), Snow Brook Peterson (University of Washington-20%) y Joseph Mougous (University of Washington-20%).