MINISTERIO DE CIENCIA, INNOVACIÓN Y UNIVERSIDADES

CURRICULUM VITAE (maximum 4 pages)

CV date	01-06-2021

Part A. PERSONAL INFORMATION

First and Family name	JULI PERETÓ MAGRANER		
ID number	20776408W	Age	62
Researcher numbers	Researcher ID	G-5969-2015	
	Orcid code	0000-0002-5756-1517	

A.1. Current position

Name of University/Institution	Universitat de València (UVEG)		
Department	Institute for Integrative Systems Biology I2SysBio (UVEG-CSIC)		
Address and Country	C. José Beltrán 2, 46980 Paterna, SPAIN		
Phone number	963543666	E-mail	pereto@uv.es
Current position	Catedrático Universidad	From	2018
UNESCO codes	230219, 241407, 241501, 2419		
Keywords	metabolism, symbiosis, systems & synthetic biology, bioprospection		

A.2. Education

PhD	University	Year
Chemistry/Biochemistry	Valencia	1988

A.3. JCR articles, h Index, thesis supervised…

64 articles in JCR (45 articles in Q1 journals).
Total citations (Publons): 2.291 (based on 77 documents), annual mean (2016-2020): 199
h-index: 22 (Publons), 29 (Google Scholar)
4 “sexenios” of research (last one 2011-2017).
4 supervised PhD theses (defenses: 2013, 2017, 2019, 2021), 3 PhD theses in progress.

Part B. CV SUMMARY *(max. 3500 characters, including spaces)*

My research career up to the first postdoctoral stay (Plant Science Institute, U. Pennsylvania, 1988-89) focused on plant biochemistry. In 1991 I started my activity on evolutionary aspects of biochemistry (with the Biophysics group of the UCM led by F. Montero and F. Morán). After my second postdoctoral stay (CRG, Barcelona; U. Paris XI, 2003-04) I joined the Evolutionary Genetics group, Cavanilles Institute of Biodiversity and Evolutionary Biology (UV) led by A. Latorre and A. Moya. During 12 years at this institute my research focused on comparative genomics studies of insect endosymbionts, metabolic evolution, minimal genome analysis, synthetic biology, computational analysis of metabolic networks and origin of life. I co-authored the minimal genome proposal (Gil et al. 2004, Microbiol Mol Biol Rev, 68:518), my most cited article (603 citations). All this research has been funded mainly by projects of the National Plan (PI A. Latorre), the regional government (PI A. Moya) and EU (TARPOL, ST-FLOW). Within my work on symbiosis, I have co-directed the PhD thesis of R. Patiño (Jul. 2013). Two National Plan projects (2009, 2012) were coordinated with F. Montero's group (UCM) and I actively participated in the development of methods of analysis of metabolic networks and applications to the study of metabolic complementation in bacterial consortia – 2 PhD thesis co-directed: M. Ponce de León (Jan. 2017), and J. Calle (Nov. 2019). I have also carried out applied research, eg, analysis of metabolic diversity in the gut of phytophagous insects (PROFIT project with Lifesequencing SL); evolutionary analysis of human metabolic pathways (collaboration: Institut de Biologia Evolutiva, CSIC-UPF, and with SRI International, Menlo Park, CA); consultancy on microbial metabolism of industrial interest (confidentiality contract with ADM-Biópolis); bioprospection of new microbial ecosystems (IVACE and ADM-Biópolis). Together with S. Elena (CSIC), I co-authored the scientific report for the new Institute for Integrative Systems Biology (I^2SysBio, UVEG-CSIC) with the participation of biotechnology companies (CSIC-UVEG agreement signed, March 2016). Within the framework of this new institute (which I co-directed, 2016-2020) I belong to the Biotechnology and Synthetic Biology group (uv.es/biosynbio) and I am co-PI with M. Porcar of the Plan Estatal project "Seth: Exploitation of environmental bacteria adapted to water scarcity for the engineering of solid phase bioprocesses" (2019-2022), PI of the project “BactGem: Genomic-scale metabolic

models and bacterial reverse ecology: application to bacteria of economic interest" (with ADM-Biopolis support), co-director of an Industrial-PhD thesis (K. Tanner, Feb. 2021), supervisor of three ongoing PhD theses (E. Molina, A. Arévalo, P. Corbín), and member of the EU projects BioRobooST (2018-2021), MIPLACE (2020-2022) and Micro4Biogas (2021-2024). I am also coordinator of IBER-XYFAS (Red Iberoamericana para la vigilancia de *Xylella fastidiosa*, CYTED 2019-23). At I^{2}SysBio I develop my scientific interests in the field of metabolic and evolutionary studies of microorganisms, in basic (consortia, evolution) as well as applied aspects (identification of new metabolisms, predictive modelling, synthetic biology). As far as my teaching activity is concerned, I would like to point out that I introduced in the UVEG School of Biology the teaching on the origin and early evolution of life and I was a pioneer in teaching biochemistry and metabolism with an evolutionary approach.

Part C. RELEVANT MERITS

C.1. Publications (including books)

Peretó J. Transmetabolism: the non-conformist approach to biotechnology. Microb Biotechnol. 2021; 14(1):41-44.

Lazcano A, Peretó J. Prokaryotic symbiotic consortia and the origin of nucleated cells: A critical review of Lynn Margulis hypothesis. Biosystems. 2021; 204:104408.

Molina-Menor E, Gimeno-Valero H, Pascual J, Peretó J, Porcar M. High culturable bacterial diversity from a European desert: The Tabernas Desert. Front Microbiol. 2021; 11:583120.

Tanner K, Molina-Menor E, Latorre-Pérez A, Vidal-Verdú À, Vilanova C, Peretó J, Porcar M. Extremophilic microbial communities on photovoltaic panel surfaces: a two-year study. Microb Biotechnol. 2020; 13(6):1819-1830.

Tanner K, Mancuso CP, Peretó J, Khalil AS, Vilanova C, Pascual J. *Sphingomonas solaris* sp. nov., isolated from a solar panel in Boston, Massachusetts. Int J Syst Evol Microbiol. 2020; 70(3):1814-1821.

Peretó J. Crystals and the debates on the nature, recognition and origin of life: Comment on "Mineral self-organization on a lifeless planet" by J.M. García-Ruiz et al. Phys Life Rev. 2020; 34-35:86-88.

Molina-Menor E, Gimeno-Valero H, Pascual J, Peretó J, Porcar M. *Kineococcus vitellinus* sp. nov., *Kineococcus indalonis* sp. nov. and *Kineococcus siccus* sp. nov., Isolated Nearby the Tabernas Desert (Almería, Spain). Microorganisms. 2020; 8(10):1547.

Domínguez M, Peretó J, Porcar M. The rose and the name: the unresolved debate on biotechnological terms. Microb Biotechnol. 2020; 13(2):305-310.

Molina-Menor E, Tanner K, Vidal-Verdú À, Peretó J, Porcar M. Microbial communities of the Mediterranean rocky shore: ecology and biotechnological potential of the sea-land transition. Microb Biotechnol. 2019; 12(6):1359-1370.

Dobon B, Montanucci L, Peretó J, Bertranpetit J, Laayouni H. Gene connectivity and enzyme evolution in the human metabolic network. Biology direct, 2019; 14(1):17.

Mariscal C, Barahona A, Aubert-Kato N, (…) Peretó J, Virgo N, Witkowski O, Cleaves JH 2nd. Hidden Concepts in the History and Philosophy of Origins-of-Life Studies: a Workshop Report. Orig Life Evol Biosph. 2019 Aug 9.

Tanner K, Martorell P, Genovés S, Ramón D, Zacarías L, Rodrigo MJ, Peretó J, Porcar M. Bioprospecting the solar panel microbiome: high-throughput screening for antioxidant bacteria in a Caenorhabditis elegans model. Front Microbiol 2019 10:986.

Peretó J. Prebiotic chemistry that led to life. In: Handbook of Astrobiology (V. Kolb, ed.), ch. 5.1, p. 219-233. CRC Press (2019).

Muñoz-Velasco I, García-Ferris C, Hernandez-Morales R, Lazcano A, Peretó J, Becerra A. Methanogenesis on Early Stages of Life: Ancient but Not Primordial. Orig Life Evol Biosph. 2018; 48(4):407-420.

Montanucci L, Laayouni H, Dobon B, Keys KL, Bertranpetit J, Peretó J. Influence of pathway topology and functional class on the molecular evolution of human metabolic genes. PLoS One. 2018; 13(12):e0208782.

Porcar M, Peretó J. Creating life and the media: translations and echoes. Life Sci Soc Policy. 2018; 14(1):19.

Tanner K, Martí JM, Belliure J, Fernández-Méndez M, Molina-Menor E, Peretó J, Porcar M. Polar solar panels: Arctic and Antarctic microbiomes display similar taxonomic profiles. Environ. Microbiol. Rep. 2018; 10:75-79.

Ponce-de-León, M, Tamarit D, Calle-Espinosa J, Mori M, Latorre A, Montero F, Peretó J. Determinism and contingency shape metabolic complementation in an endosymbiotic consortium. Front. Microbiol. 2017; 8:2290.

Lazcano A, Peretó J. On the origin of mitosing cells: A historical appraisal of Lynn Margulis endosymbiotic theory. J Theor Biol. 2017; 434:80-87.

Abendroth C, Simeonov C, Peretó J, Antúnez O, Gavidia R, Luschnig O, Porcar M. From grass to gas: microbiome dynamics of grass biomass acidification under mesophilic and thermophilic temperatures. Biotechnol. Biofuel. 2017; 10:171.

C.2. Research projects and grants

1. MICRO4BIOGAS: Natural and Synthetic Microbial Communities for Sustainable Production of Optimised Biogas. CE, Grant Agreement n. 101000470 (H2020); 14 partners. June 2021 - May 2025; PI: M. Porcar; global budget: 5.7 M€.

2. MIPLACE: Microbial integration of plastics in the circular economy ERA-COBIOTECH (H2020). Ref. PCI2019-111845-2; 5 partners. 2020-23. PI J. Jiménez (Imperial College). 149.714 €.

3. RTI2018-095584-B-C41. SETH: Explotación de bacterias ambientales adaptadas a la escasez de agua para la ingeniería de bioprocesos en fase sólida. PI: **J. Peretó** and M. Porcar. Partners: CSIC (CNB, CIB), U. León. MICINU/AEI/FEDER. 2019-21. Global budget: 470.000 €. Biotecnology and Synthetic Biology group, I^{2}SysBio: 90.000 €.

4. BactGem: Genomic-scale metabolic models and bacterial reverse ecology: application to bacteria of economic interest. Proyecto Intramural (CSIC) Ref.PIE202020E120. IP: **J. Peretó.** 2020-2022.

5. IBER-XYFAS: Red Iberoamericana para la vigilancia de la *Xylella fastidiosa*. CYTED. Ref. 119RT0569. N. de grupos y empresas: 32. N. de países: 10. Total investigadores: 140. Coordinador: **J. Peretó**. 2019-2022. Financiación: 115.000 €.

6. PROFERTILITY: Microbioma y bases moleculares para la mejora de la salud endometrial. Proyectos Estratégicos en Cooperación, Agència Valenciana de la Innovació 2018. Consorcio: Biópolis SL (coord), Igenomix SL, I2SysBio. Presupuesto global solicitado: 576.496,14 €. Subproyecto I2SysBio (**J. Peretó**, PI): 147.483,46 €.

7. BioRobooST: Fostering Synthetic Biology standardisation through international collaboration. CSA BIOTEC-01-2018 (H2020). 2018-21. No. of partners: 27. Coordination: UVEG (PI: M. Porcar). Global budget: 2.000.000 euros. Coordinator budget (Biotecnology and Synthetic Biology group, I^{2}SysBio): 500.000 €.

8. BIO2015-66960-C3-1-R. HELIOS: Resistencia a estrés y nuevos chasis biotecnológicos a partir de comunidades microbianas de hábitats con alta insolación. PI: M. Porcar and **J. Peretó**. Partners: UV, CSIC. MINECO/FEDER 2016-(sept.) 2019. Global budget 390.000 €.

C.3. Contracts

1. MICROBIOSOL: “Bioprospección, escrutinio e identificación en placas solares de microorganismos y metabolitos de interés biotecnológico”. IFIDUA/2015/10. Proyectos de I+D de Empresas en colaboración con universidades. Funding agency: IVACE, Generalitat Valenciana, to Biópolis SL (partner: UVEG). Budget: 98.750 euros (Biotechnology and Synthetic Biology group: 39.500 euros).

2. “Proyecto iGEM de Biología Sintética ST2OOL”. Sponsor: Biopolis SL. 2014. Budget: 3.000 euros. PI: M. Porcar, **J. Peretó**, M. Tortajada, D. Ramón.

3. “Proyecto iGEM de Biología Sintética WormBoys”. Sponsor: Biopolis SL. 2013. Budget: 3.000 euros. PI: M. Porcar, **J. Peretó**, M. Tortajada, D. Ramón.

4. Agreement UVEG-CSIC-Biópolis for I^{2}SysBio research support (since 2015). UVEG representative in the supervision committee.

C.4. Transfer activity

Founder of the biotechnology-based company “Darwin Bioprospecting Excellence SL”, (Scientific Park, UVEG).

C.5. Scientific collaborations

In 2016 I joined the group “Biotechnology and Synthetic Biology” (I^{2}SysBio). During 2004-2016 I was member of the “Evolutionary Genetics” group at Institut Cavanilles (UV) and I developed fruitful scientific cooperations with diverse groups.

–Biotecnology and Synthetic Biology (M. Porcar, Inst. Cavanilles, UVEG) and Biópolis SL (D. Ramón): Studies on microbial diversity, metabolic inference, synthetic biology, bioprospection.

–Unidad de Biofísica (UCM, Madrid). F. Montero: metabolic modeling, 2 finished PhD thesis).

–Inst. de Biologia Evolutiva (CSIC-UPF, Barcelona). J. Bertranpetit: Evolutionary analysis of human metabolic pathways. I. Ruiz-Trillo: Evolution of lysine biosynthesis.
–Dept. de Biología (Facultad de Ciencias, UNAM, México DF). A. Lazcano: Phylogenetic studies of carbon fixation pathways and methanogenesis; origins of life research.
–Dept. de Lógica y Filosofía de la Ciencia (EHU-UPV, San Sebastián). A. Moreno y K. Ruiz-Mirazo: Philosophical apporaches to life nature and origins.
–Dept. de Biología Molecular (U. Cantabria, Santander). F. de la Cruz: genome minimization.
–Dip. di Patologia Animale, Igiene e Sanità Pubblica Veterinaria (Università degli Studi di Milano, Italia). C. Bandi: Functional annotation and metabolic inference of the endosymbiont *Midichloria mitochondrii*.
–Dept. de Humanidades (UCH-CEU, Valencia). J. Català: history of ideas on the origin and synthesis of life.
–Unité d'Ecologie, Systematique et Evolution (Université Paris XI, Orsay, Francia). P. López-García, D. Moreira: Phylogenetic approaches to metabolic pathways evolution.

C.6. Teaching and outreach

–Tenured Professor (1991–2018), Full Professorship (2018) Dept. Biochemistry and Molecular Biology, UV.
–Teaching on 16 different topics at university level ("licenciaturas" Biology, Chemistry, Chemical Engineering, Biochemistry, Journalism, "grados" Biology, Biotechnology and Biochemistry and Biomedical Sciences) and 9 topics at postgraduate level.
–Since 2016, teaching "Computational Systems Biology" in the official Master degree "Bioinformatics" (UV).
–Supervisor and teacher in two PhD programs at UV: Biodiversity and Evolution; Biotechnology and Biomedicine.
–Scientific supervisor iGEM competiton (2007, 2009, 2012, 2013, 2014).
–Erasmus Project: "Erasmus Intensive Program: Origin, Evolution and Future of the Biosphere". PI: **J. Peretó**. 2012-14. Budget: 87.287,85 Euros. OAPEE, DG Enseñanza, Comisión Europea. Partners: Florencia, Pierre et Marie Curie, Bonn, Nottingham, País Vasco, Lieja, Luzern and Uppsala. Sponsored by ESA and ELGRA. Held at Banyuls Oceanographic Station (France).
–Outreach activity in the last 30 years: director of books series "Sin fronteras" (UV-Bromera; 1995-2004), 100+ articles in specialized journals and generalist media, activity in radio and television programs, coordination of exhibitions, audiovisual programs, organization of 60+ conference cycles and public debates, 150+ public lectures delivered, etc.

C.7. R+D activities organization, institutional responsabilities, memberships of scientific societies

–I^{2}SysBio (UVEG-CSIC), Co-director (since 2016).
–Secretary (2005-08), 2nd Vice-president (2011-14) of the International Society for the Study of the Origin of Life (ISSOL).
–ISSOL Fellow (elected in 2014).
–Member of the Spanish Society for Microbiology (SEM), and for Biochemistry and Molecular Biology (SEBBM), Institute of Catalan Studies (IEC).
–Cuarto Congreso de la Sociedad Española de Biología Evolutiva (Barcelona, 27-30 Nov., 2013). Scientific Committe member.
–Segundo Congreso de la Sociedad Española de Biología Evolutiva (Valencia, 30 Nov.-2 Dec., 2009). Organization Committe member.
–"Darwin2009.cat" project (IEC) Darwin Bicentennial celebration at UVEG. PI: J. Peretó. 2006-08. Budget: 26.000 Euros.

C.8. Academic and research management activities

–Co-director I^{2}SysBio (2016-2020). Vicerector of Research UVEG (1994-98) and Culture (1999-2002): management of research FEDER funding, coordination of new infrastructures (building for research institutes, research building in Botanic Garden, etc.), coordination and management in UVEG 5th centennial program (budget ca. 12 million euros).