

Date: 01/07/2024

## Part A. PERSONAL INFORMATION

First name	M. Auxiliadora		
Family name	Prieto Jiménez		
Gender (*)	Female	Birth date (dd/mm/yyyy)	25/05/1967
Social Security, Passport, ID number		11803563D	
e-mail	auxi@cib.csic.es	URL Web: http://cib.csic.es/research/microbial-plant-biotechnology/polymer-biotechnology	
Open Researcher and Contributor ID (ORCID) (*)	ORCID 0000-0002-8038-1223 Scopus ID 57218626389		

### A.1. Current position

Position	Research Professor of Spanish National Research Council		
Initial date	17 Feb 2021		
Institution	Spanish National Research Council-CSIC		
Department/Center	Microbial & Plant Biotechn.	Centro de Investigaciones Biológicas-Margarita Salas	
Country	Spain	Teleph.	+34918373112; ext 442628
Key words	Biotechnology, bioeconomy, biopolymers, bioplastics, microbiology, materials		

### A.2. Previous positions (research activity interruptions, indicate total months)

Period	Position/Institution/Country/Interruption cause
19/12/2017-16/02/2021	Scientific Researcher (Investigadora Científica)(CSIC-Spain)
15/06/2005-18/12/2017	Staff Scientist (Científica Titular) (CSIC, Spain)
01/09/1998-14/06/2005	Tenure track Position (I3 and Ramón y Cajal) (CSIC-Spain)
01/09/1996- 31/08/1998	EMBO postdoctoral fellow-ETH Zürich, Switzerland

### A.3. Education

PhD, Licensed, Graduate	University/Country	Year
PhD-Pharmacy	University Complutense of Madrid	1995

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

M. Auxiliadora Prieto received her PhD in Pharmacy in the year 1995 from the Complutense University of Madrid. She was granted with two EMBO fellowships. First, at the Federal Institute of Biotechnology, Germany, in the group of Prof. Kenneth Timmis in an internship as PhD student. Then, as EMBO Postdoc fellow at the Institute of Biotechnology, ETH Zürich, Switzerland. Currently, she is Research Professor at the Spanish National Research Council (CSIC). She runs the Polymer Biotechnology group (POLYBIO) as part of the Biotechnology Department of the Biological Research Centre-Margarita Salas (CIB-CSIC). The group aims to explore and exploit the bacterial abilities for producing and degrading bio-based polymers with two different applications; as i) bioplastics, in order to contribute to global sustainability, and as ii) biomaterials for drug delivery systems and tissue engineering directed to the biomedical sector. In their projects the group applies tools of molecular biology and metabolic engineering, combined with new omics technologies and synthetic biology. Prof. Prieto has participated in, led and/or coordinated more than 20 national and 14 international projects devoted to fundamental and applied science in collaboration with industries for designing sustainable bioprocesses for industrial production of biopolymers. She has huge experience in microbial metabolism for the molecular characterization of pathways related to biosynthesis and biodegradation of biopolymers (more than 115 scientific publications in the field). She has private contracts with industries and is inventor of 14 families of patents. She has directed 7 Doctoral Theses during the last 10 years (plus 5 in progress), and many pre- and postdocs internships, Master Theses and graduated research works. At CSIC level, she is the coordinator of the Interdisciplinary Platform for Sustainable Plastics towards a Circular Economy (SusPlast) (<https://pti-susplast.csic.es>), which is integrated by twenty-one Institutes of CSIC and more than forty groups. It counts with multidisciplinary biotechnological researchers, dedicated to bioprospecting, biocatalysis, environmental microbiology, synthetic and systems biology plastics and bioplastics synthesis and biodegradation. She is currently co-founder of the spin-off Biodriven Technologies SL, and Editor of Microbial Biotechnology



(Wiley). She advises and holds executive positions in societies (e.g. SEBIOT, EFB) and in national and international committees on science strategy and for the transfer of science for public policy.

### **Part C. RELEVANT MERITS** (sorted by typology)

#### **C.1. Publications** (10 relevant publications among the most recent)

- Hernández-Herreros *et al.* and MA Prieto (2024). *Bioresource Technology*, 406,130972. <https://doi.org/10.1016/j.biortech.2024.130972>. IF: 9.7; D1.
- Hernández-Herreros *et al.* and MA Prieto (2024). *Water Research* 249, 120892. <https://doi.org/10.1016/j.watres.2023.120892>. IF: 11.4; D1.
- Manoli, MT *et al.* ...MA Prieto\* and Juan Nogales\* (2023) *Cell Reports*, 43(4) 113979. <https://doi.org/10.1016/j.celrep.2024.113979> IF: 7.5; Q1
- Blanco, *et al.* and M.A. Prieto (2023) *Int J Biol Macromol* 253, 126760. <https://doi.org/10.1016/j.ijbiomac.2023.126760> IF: 7.7; D1
- Godoy, *et al.* and MA Prieto (2023) *MSystems* 8 (6), e00702-23 <https://doi.org/10.1128/msystems.00702-23> IF: 5; Q1
- Blázquez, *et al.* and MA Prieto and Nogales J\* (2023) *Nucleic Acids Research* 51 (19), e98-e98. <https://doi.org/10.1093/nar/gkad758> IF: 16.6; D1
- Campano, *et al.* and MA Prieto (2022). *Int J Biol Macromol*, 223 (Pt A), 1495-1505. DOI: 10.1016/j.ijbiomac.2022.11.120. IF: 8.2; D1
- Manoli, MT, J Nogales and MA Prieto\* (2022). *mBio* 13 (1), e01794-21. <https://doi.org/10.1128/mbio.01794-21>. IF: 6.4; Q1
- Rodríguez, *et al.* and MA Prieto (2021) *Biotechnology for Biofuels* 22 (1), 1-16. DOI: 10.1186/s12934-023-02045-x. IF: 7.67; Q1
- Rivero-Buceta *et al.* and MA Prieto 2020. *Int J Biol Macromol*. 2020 162:1869-1879. DOI: 10.1016/j.ijbiomac.2020.07.289. IF: 6.95; D1

#### **C.2. Congress** (Selected invited and plenary lectures)

- “Wastes as feed-stocks for bio-based polymer production”. UNESCO course, satellite event of VII International Congress of Biomaterials. March 2018, Colegio San Gerónimo de La Habana, **Cuba. Invited speaker.**
- “Puzzling out the PHA machinery in the model bacterium *Pseudomonas putida* KT2440.” International Symposium on Biopolymers 2018 (ISBP 2018), 21-24/10/2018. Beijing, **China. Keynote Lecture** on 22nd of October, 2018.
- “Learning from microbial biotechnology, the key road towards a successful circularity of bioplastics” ISBP-2022, 18th International Symposium on BioPolymers; September 2022, Sion, **Switzerland. Plenary Lecture.**
- “Formulation of biohybrid materials with different functionalities through biotechnological approaches” ISBC-2022 - 5th international Symposium on Bacterial Cellulose; September 2022 Jena, **Germany. Key note speaker.**
- “Microbial cell factories for the production of novel bacterial polymers” IFPB-2022; 11th International Conference on Fiber & Polymer Biotechnology – November 2022, Graz, **Austria. Plenary Lecture**
- “Technologies to Generate Biohybrid Materials with Advanced Functional Properties” ICNF 2023 - 6th International Conference on Natural Fibers– June 2023. Funchal, Madeira, **Portugal. Plenary Lecture.**
- Participation to a conference Invited as **Discussion Leader at Gordon Research Conference** on "Silk Proteins and the Transition to Biotechnologies" Bryant University, Smithfield, RI, United States (July 9 - 14, 2023) Chair: David Kaplan.
- “Designing Biopolymers with Advanced Functional Properties” 11th European Symposium on Biopolymers (ESBP2023); September 2023. Brno, **Czech Republic. Key note Lecture**

### C.3. Research projects (10 selected)

- **ReBioCycle** – A new European blueprint for circular bioplastics upcycling solutions HORIZON-JU-CBE-2023-IA-04-No 101156032 PI-CIB-CSIC: MA Prieto. Duration: October 24 -September 2028; (374,285 €)
- **DECYPHER** – Decipher cytochrome P450 enzymes (CYPs) by digital tools to produce flavonoids and terpenoids HORIZON-CL6-2022-CIRCBIO-02-No 101081782-2. PI-CIB-CSIC: MA Prieto. Duration: Sept 2023-31/08/2027; (111.241,25 €)
- **AGRILOOP** – Pushing the frontier of circular agriculture by converting residues into novel economic, social and environmental opportunities HORIZON-CL6-2022-CIRCBIO-01-05 No 101081776. (In collaboration with China): PI-CSIC MA Prieto. Duration: Dec 2022-30/11/26; (208.533,75 €)
- **PROMICON** – Harnessing the power of nature through productive microbial consortia in biotechnology\_Measure, model, master. H2020-FNR-2020-2– No 101000733. Co-PI-CIB-CSIC: MA Prieto. Duration: 48 months 2021-31/05/2025; (subp. 70.000 €)
- **BIOCIR** – Waste revalorization towards bioplastics circularity: synthesis, degradation, upcycling and diversification of bacterial polyesters. PID2020-112766RB-C21. PI and coordinator: MA Prieto. Duration: 36 months 2021-31/08/2024; (subp 254.100€)
- **FERMENTA** –Bioprocess pilot plant for a circular economy. EQC2021-006941-P PI: MA Prieto. Duration: 36 months 2021\_30/06/2024; (800.000 €)
- **REVOLUZION** – Solving plastics sustainability through functional multi-purpose enZymes PLEC2021-008188. Coordinator: Kompuestos S.L. PI subp: MA Prieto. Duration: 36 months 2021-31/10/2024; (subp160.000 €)
- **MIX-UP** – MIXed plastics biodegradation and UPcycling using microbial communities H2020-NMBP-TR-IND-2018-2020)– No 870294 (In collaboration with China). PI-CSIC: MA Prieto Jiménez Duration: January 2020-30/06/2024; (subp. 260.432,88 €)
- **SINFONIA** – Synthetic biology-guided engineering of Pseudomonas putida for biofluorination. H2020-NMBP-BIO-2018.– No 814418. PI-CSIC: MA Prieto. Duration: 2019-31/08/2023; (419.578 €)
- **ENGICOIN** – Engineered microbial factories for CO2 exploitation in an integrated waste treatment platform. H2020-NMBP-BIO-2017; BIOTEC-05-2017, No 760994-2. PI-CSIC: MA. Prieto. 2017-December 2022; (613.613 €)

### C.4. Contracts, technological or transfer merits (selected examples)

- Contract: CSIC # 20242737. Duration: 13/03/2024- 12/03/2025. **R&D contract**: “Research and development of a novel compostable and microplastic-free raw material for single-use products.” PI & VOP STRATEGIES, SL. Spain (80.109 €)
- Contract: CSIC # 20227209. Duration: 21/09/2022- 20/09/2023. **R&D contract** “Bioplastics from livestock waste (ECOPLAST22)” ARQUIMEA AGROTECH S.L.U Spain (30.250 €)
- Contract: CSIC # 20202113. Duration: 12/07/2020-30/4/2022. **R&D contract** "Bioplastics from livestock waste and the investigation of microbial consortiums" ARQUIMEA AGROTECH S.L.U Spain (222.591,60 €)
- Contract CSIC # 20204900. Duration 05/11/2020-04/11/2021. **R&D contract** “Design and implementation of a bioprocess for the production of biological based polymers” ERCROS, Spain (194.174,6 €)
- **Donation Agreement** CSIC # 20210510. Duration 01/01/2021-11/09/2024. Queen Sofia Foundation-CSIC, Projects related to Sustainable plastic waste management through cutting-edge biotechnological approaches (180.000 €) Duration 2021-2024.
- Martínez et al. Cell autolysis system ..... P200923158/ES2370947/PCT/ES10/070858 Priority date: 23/12/2009. Date of publication: 26/12/2011. **Patent licensed** to BIOPOLIS S.L. Contract CSIC # 20100857 Duration: 15/07/2010-15/07/2030 (Resolved in 2019).
- Fernández Escapa et al..., System for improving the production of polyhydroxyalkanoates (bioplastic) (bioplástico).... ES201131846/WO2013072541 Priority Date: 16/11/2011 Granted



18/06/2014. **Patent licensed** to Biopolis S.L. Contract CSIC # 20130130 Duration: 10/12/2012-16/11/2031

- Martínez López et al., 2012. Fermentation process for the production of polyhydroxyalkanoates ..... P201231516. Priority date: 01/10/2012/PCT/ES2013/070674. Grant: 04.02.2015. **Licence option contract** with Bioplastech Ltd (Ireland). Contract CSIC#. 20131580. Duration: 01/01/2013-31/12/2013.
- Fernández Escapa et al., Synthesis of polyhydroxyalkanoates (PHA) with thioester groups...Granted: 12/02/2014. WO2012038572 A1. **Patent licensed** to Biopolis S.L. Patent extension: Extended: European patent N° EP2011787917 Granted; 22/02/2017; US13825447; CA2812726 CO13056599; BR112013006639. Contract # 20112080 Duration: 23/05/2011-21/09/2019 (Resolved).
- **Patent application:** Prieto et al. Recombination *Pseudomonas putida* strains for the production of polyhydroxyalkanoate. PCT/EP2020/08098/ EP19382964.5. Priority Date: 05/11/2019. WO2021089636. Publication date: 14.05. 2021
- **Patent application:** Prieto et al, Articles based on cellulose gels with improved barrier properties. EP22382584.5 Priority date: 17/06/2022. PCT/EP2023/066142 (15 June 2023). WO/2023/242352. Publication date: 21.12.2023.
- **Patent application:** Prieto et al. Chemically modified bacterial cellulose coreshell microparticles and their use for the encapsulation of bioactive elements EP22382844.3/ Priority date:12/09/2022; PCT/EP 2023/075050 (12 Sept 2023) WO/2024/056679. Publication date: 21.03.2024.
- She was **co-founder of the start-up** "Darwin Bioprospecting Excellence SL" (<http://darwinbioprospecting.com/>). NIF B98819501. Year 2016.
- **Co-founder of the start-up** "Biodriven Technologies SL" (<http://biodriventech.com/>). B72997091. Year 2023 (selected for COMTE-Innovation Program 2024, Fundación General CSIC)

#### **C.5. Other: Awards, Committees, assessment/consultancy reports (selected examples)**

**-International Award:** She was awarded in September 2022, Institute of Life Technologies, HES-SO Valais-Wallis, Suiza, with the first edition of the "Bernard Witholt Award" given as the scientist who had made an outstanding contribution in in the field of bacterial biopolymers, with the commitment towards the knowledge development.

- Membership of international scientific organisations and boards. She is currently Vice-President of the Spanish Society of Biotechnology and a member of the Executive-Board of the Biobased materials division of the European Federation of Biotechnology. She was a member of the Scientific Advisory Board of the CIB-CSIC (2020-2023). Currently is a member of the Scientific Advisory Board of I2SysBio-CSIC.
- Outreach and Management activities and others related to Scientific Assessment and Consultancy in Policy Making Programs: **In 2015-18** she served as scientific collaborator in topics related to synthetic biology and biotechnology at the Spanish State Research Agency. **Since 2018**, coordinator of Pti+Susplast (<https://pti-susplast.csic.es>). In **2020-21** was member of the Science Advice working group for EU Policy by European Academies (SAPEA), examining issues related to bioplastics and their degradation in open environment and composting plants <https://www.sapea.info/topics/biodegradability-of-plastics/>. Since **2023**, she is Technical Advisor of the CSIC for the Intergovernmental Negotiating Committee (INC) on plastic pollution in the framework of Resolution 5/14 of the United Nations Environment Assembly (UNEA-5.2) in collaboration with the Ministry for the Ecological Transition and the Demographic Challenge.

**2023** Coordinator of a report part of the Program Science for Policy-CSIC. Countless outreach contributions, examples: interview in Marchamos the Spanish Patent and Trademark Office-OEPM magazine (2020) n°70; <https://www.youtube.com/watch?v=TUIQfvnbd1M>  
<https://www.youtube.com/watch?v=teE49VG2y7k>