CURRICULUM VITAE (CVA)

CV date	01/02/2024

Part A. PERSONAL INFORMATION

First name	Pedro		
Family name	Lozano	Rodríguez	
Gender (*)		Birth date (dd/mm/yyyy)	
ID number			
e-mail	plozanor@um.es	URL Web: http://www.um.es/sustainablechemistry	
ORCID (*)	0000-0001-6043-3893	Researcher ID: E-8606-2011	

(*) Mandatory

A.1. Current position

Position	Full Professor (CU)	Initial date	12 / 05 / 2004
Institution	UNIVERSIDAD DE MURCIA		
Department/Center	Biochem. & Biol. Molec. "B"	Faculty of Chemistry	
Country	SPAIN	Teleph. number	+34669505547
Key words	Green Chemistry, Applied Biocatalysis, Ionic Liquids, Supercritical		

A.2. Previous positions (research activity interuptions, art. 14.2.b))

Period	Position/Institution/Country/Interruption cause
2024 - …	President of the Green Chemistry Division - RSEQ
2014-2022	Dean of the Faculty of Chemistry. University of Murcia
2019	Visiting Professor (1 month)/Univ. Fed. Rio Grande Soul Porto Alegre / Brasil
2013	Visiting Professor (1 month) / Univ. Bordeaux-1 / France
1994-2004	Lecturer (TU) / Fac. Chemistry University of Murcia / Spain / Promotion
1996-2014	Vice-Dean / Fac. Chemistry / Univiversity of Murcia / Promotion
1992-1994	Post-Doc Fellow / Fac. Chemistry / Univ. of Murcia / Spain / Promotion
1990-1991	Post-Doc Fellow / Centre Transfert Biotechnology INSA-Toulouse /France
1986-1989	PhD Fellow / Fac. Chemistry University of Murcia / Spain

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Licensed in Sciences (Chemical Section)	Murcia / Spain	1984
PhD in Sciences (Chemical Section)	Murcia / Spain	1988

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

B.1. Brief description - Scientific achievements

Scientific career deeply linked to the combination of biocatalysts with engineering systems for the development of clearly innovative, sustainable and industrially applicable processes. During the last 20 years my scientific contributions have been pioneering in the development of biocatalytic processes in neoteric solvents, with three main outstanding scientific contributions of my research, as follows:

a) In 2001, the "super-stabilising" effect provided by hydrophobic ILs to enzymes (*Lozano et al. Over-stabilization of CALB by ILs in ester synthesis. Biotechnol. Lett. 2001, 23, 1529-1533*), a concept demonstrated in *Lozano et al. Understanding structure-stability relationships of CALB in ILs. Biomacromolecules, 2005, 6, 1457-1464* (IF: 6.813; Citations: 267).

b) In 2002, the development of a new concept of a continuous green biocatalytic reactor based on the combination of ILs and $scCO_2$ (*P. Lozano et al. Continuous green biocatalytic processes using ILs and $scCO_2$. Chem. Commun. 2002, 692-693*). Paper praised by Philip Ball, Editor of Nature, in "*Enzymes find pastures greener*", *Nature Science Update* (April 23, 2002; http://www.nature.com/nsu/020415/020415-3.html), as well as by the subsequent developments with supported ILs, as cover page journals *ChemSusChem* (2012, 5, 790-798), and *Green Chem*. (2015, 17, 2693–2713).

c) In 2012, the sponge-like behaviour of ILs permits the development of sustainable processes based on the integration of selective transformations with pure products separation by a straightforward procedure (Cover page, *Green Chem*. 2012, 14, 3026-3033). This paper was praised by Stephen K Ritter, Editor of C&EN, in the article: *Ionic Liquid Serves Up Natural Flavors* (Chemical & Engineering News, 91(4), January 28, 2013, 34-35; http://cen.acs.org/articles/91/i4/Ionic-Liquid-Serves-Natural-Flavors.html). Further developments in this field allows us to coin the term "Sponge-Like ILs (*Energ. Environ. Sci*. 2013, 6, 1328-1338), opening a new door for the clean synthesis

A personal profile of Pedro Lozano (see *Meet our authors*, *Green Chemistry Blog*-RSC-UK*)*: http://blogs.rsc.org/gc/2012/04/23/meet-our-authors-pedro-lozano/

B2. Scores in research activities / Quality indicators

- CNAI Ressearch Sexennium: 6 (1987-1992; 1993-1998; 1999 - 2004; 2005-2010; 2011-2016, 2017-2022).
- CNAI Transfert Sexennium: 1 (1997-2002)

PhD supervised (last: 5 years): 4

Overall scientific production (WOS):	*Research Period 2018-2023 (Last 5 years)*
H-Index: 37	Q1 Publications 2018-2023: 21 of 25 (84%)
Total Q1 publications: 78 of 122 (63.9%)	Citaciones 2016-2020: 1896
Total citations: 4784	Average citations per publication: 36

Research Impact (*J. P. A. Ioannidis, K. W. Boyack, Jeroen Baas. 2021. Updated science-wide author databases of standardized citation indicators. Elsevier BV*

(see https://elsevier.digitalcommonsdata.com/datasets/btchxktzyw/3):

See List S6 (Evaluates the scientific production of the author's entire research career, until 2020).

Name: Lozano, Pedro Evaluated Field 1: Biotechnology Evaluated Field 2: Organic Chemistry Evaluated Field 3: Enabling & Strategic Technologies	Position in the best field: 331 *Total researchers in this field (Top 2% worldwide): 50343 * Unique member of the UMU in this list.

B3. Awards and Recognitions:

2003. 7th European Award on Enzyme Technology. IQS-. Barcelona Spain

2015. Gold Medal of the Region of Murcia -- Dean of the Faculty of Chemistry.

2016 -…. Fellow of the Royal Society of Chemistry (UK).

2017. Construction of the world's largest Periodic Table on the façade of the faculty. https://www.chemistryworld.com/news/the-worlds-biggest-periodic-table-probably/3007512.article.

2020. ANQUE National Award (National Association of Chemists of Spain)

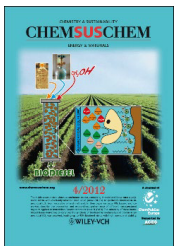
B.4. Congress Organisation - Chairman:

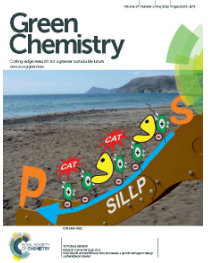
1. BIOTEC– *Spanish Congress on Biotechnology*. SEBIOT. 200 people. Murcia, 18-21 June, 2017.
2. International Symposium "*Setting their Table: Women and the Periodic Table of Elements*". 150 people. IUPAC – EuChemS. Murcia, 11-13 Feb. 2019
3. *III Spanish Symposium on Biocatalysis*. SEBIOT. 50 people. Murcia, 25-27 Nov. 2021.
4. *International Workshop on Sustainable Chemistry*. 150 people. Cartagena, 8-12, 2023

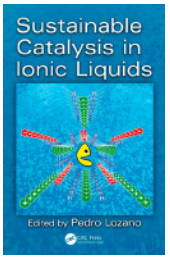
Part C. RELEVANT MERITS *(sorted by typology)*

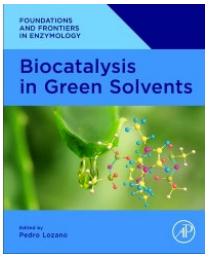
C.1. Representative publications for last 5 years

1. R. Salas, R. Villa, S. Cano, E. Garcia-Verdugo and P. Lozano. Biocatalytic hydrolysis of di-urethane model compounds in ionic liquid reaction media. *Catal. Tod*. **2024**, 430, Art Nº 114516
2. P. Lozano and E. García-Verdugo. From green to circular chemistry paved by biocatalysis. *Green Chemistry*. **2023**, 25, 7041-7057.
3. S. Nieto, J.M. Bernal, R. Villa, E. Garcia-Verdugo, A. Donaire and P. Lozano. Sustainable Setups for the Biocatalytic Production and Scale-Up of Panthenyl Monoacyl Esters under Solvent-Free Conditions. *ACS Sustain. Chem. Eng*. **2023**, 11, 5737-5747. (Cover Page April 2023).
4. P. Migowski, P. Lozano and J. Dupont. Imidazolium based ionic liquid-phase green catalytic reactions. *Green Chem*. **2023**, 25, 1237-1260.
5. S, Nieto, R. Villa, A. Donaire, P. Lozano. Ultrasound-assisted enzymatic synthesis of xylitol fatty acid esters in solvent-free conditions. *Ultrason. Sonochem*., **2021**, Art. Nº 105606.
6. R. Villa, R. Porcar, S. Nieto, A. Donaire, E. Garcia-Verdugo, S. V. Luis and P. Lozano. Sustainable chemo-enzymatic synthesis of glycerol carbonate (meth)acrylate from glycidol and carbon dioxide enabled by ionic liquid technologies. *Green Chem*. **2021**, 23, 4191-4200.
7. R. Porcar, I. Lavandera, P. Lozano, B. Altava, S.V. Luis, V. Gotor-Fernandez, E. García-Verdugo. Supported ionic liquids-like phases as efficient solid ionic solvents for the immobilisation of alcohol dehydrogenases towards the development of stereoselective bioreductions. *Green Chem*. **2021**, 23, 5609-5617.
8. D. Valverde, R. Porcar, P. Lozano, E. García-Verdugo, S.V. Luis. Multifunctional polymers based on ILs and rose Bengal fragments for the conversion of CO_2 to carbonates. *ACS Sustain. Chem. Eng*. **2021**, 9, 2309-2318. (Cover Page February, 2021).
9. R. Villa, E. Alvarez, S. Nieto, A. Donaire, E. Garcia-Verdugo, S. V. Luis and P. Lozano. Chemo-enzymatic production of omega-3 monoacylglycerides using sponge-like ionic liquids and supercritical carbon dioxide. *Green Chem*., **2020**, 22, 5701-5710.









10 Villa, E. Alvarez, R. Porcar, E Garcia-Verdugo, S. V. Luis and P. Lozano. Ionic liquids as an enabling tool to integrate reaction and separation processes. *Green Chem*., **2019**, 21, 6527-6544

C.2. Books edition

1. *Biocatalysis in Green Solvents*. (Ed. P. Lozano). Academic Press-ELSEVIER. London. **2022**. ISBN: 9780323913065
2. *Sustainable Catalysis in Ionic Liquids.* (Ed. P. Lozano). CRC Press Taylor & Francis. **2018**. ISBN 9781138553705 - CAT# K43280
3. *Environmentally Friendly Syntheses Using Ionic Liquids* (J. Dupont, T. Itoh, P. Lozano, S. Malhotra, Eds). Taylor & Francis. **2014**. ISBN: 1466579765, 9781466579767

C.3. Book chapters

1. P. Lozano, R. Villa, S. Nieto, A. Donaire and E. Garcia-Verdugo. Clean biocatalysis in sponge-like ionic liquids. In *Biocatalysis in Green Solvents*. (Ed. P. Lozano). Chapter 6. Pp.155-182. Academic Press-Elsevier. London. **2022**. ISBN: 9780323913065
2. S. Nieto, R. Villa, A. Donaire and P. Lozano. Nonconventional biocatalysis: from organic solvents to green solvents. In *Biocatalysis in Green Solvents*. (Ed. P. Lozano). Chapter 2. Pp. 23-56. Academic Press-Elsevier. London. **2022**. ISBN: 9780323913065
3. R. Villa, A. Donaire, S. Nieto, E. Garcia-Verdugo and P. Lozano. Biocatalytic processes in ionic liquids and supercritical carbon dioxide biphasic systems. In *Biocatalysis in Green Solvents*. (Ed. P. Lozano). Chapter 14. Pp. 403-434. Academic Press-Elsevier. London. **2022**. ISBN: 9780323913065
4. E. Garcia-Verdugo, R.Porcar, S.V. Luis and P. Lozano. Green biotransformations under flow conditions. In *Flow Chemistry: Integrated Approaches for Practical Applications* (S.V. Luis & E. Garcia-Verdugo, Eds.). Chapter 2. pp. 50-85. RSC. **2019**. ISBN: 978-1-78801-498-4.

C.4. Principal Investigator (IP) in Research Project.

1. **2022-2025**. Nuevas herramientas en química verde para el desarrollo de procesos (bio)catalíticos sostenibles de valorización del CO2 y la obtención compuestos de alto valor añadido. PID2021-124695OB-C21. AEI/MICINN/FEDER. 145.200,00€.
2. **2022-2024**. Tecnologías (bio)catalíticas verdes en líquidos iónicos para la economía circular de los desechos de espuma de poliuretano de la industria de colchones. TED2021-129626B-C21. AEI/ MICINN/MRR NextGeneration. 310.500,00€
3. **2022-2024**. Tecnologías biocatalíticas verdes para la producción de nuevos cosmecéuticos. PDC2022-133313-C21. AEI/ MICINN/FEDER. 80.500,00€
4. **2023-2025**. Nuevos procesos (bio)catalíticos sostenibles para captura de CO2 y obtención de cosmecéuticos. 21884/PI/22. Fundación SENECA Región de Murcia. 94.400,00€
5. **2019-2021**. Nuevos procesos multi-catalíticos verdes basados en la tecnología de los líquidos iónicos: Desde las materias primas sencillas hasta los químicos con valor añadido. MICINN/FEDER. RTI2018-098233-B-C21. 113.861,00 €
6. **2019-2022**. Procesos (Bio)catalíticos sostenibles en líquidos iónicos y su aplicación a la industria cosmética y farmacéutica. Fundación Seneca. Región de Murcia. Ref. 20790/PI/18. 88.560,00 €.
7. **2016-2018**. Procesos quimio-enzimáticos sostenibles de interés industrial en líquidos iónicos tipo esponja y fluidos supercríticos. MINECO/FEDER. Ref. CTQ2015-67927-R. 204.000 €.
8. **2015-2018**. Procesos quimio-enzimáticos basados en la química verde: Aplicaciones para la obtención de biocombustibles de 2º generación y la valorización de glicerol. Fundación Seneca. Región de Murcia. Ref. 19278/PI/14. 73.304 €.

C.5. Principal Investigator (IP) in Research Contracts with Companies.

1. 2021-2022. Sintesis enzimática de nuevos ésteres multifuncionales derivados del ácido cinámico para cosmética. TAHE Productos Cosméticos S.L. – CDTI. 22.000 €

2. 2021-2022. Desarrollo desoluciones biotecnológicas para la gestión ecosostenible de subproductos y residuos generados en la industria de espumas de poliuretano, BIOEMERGER. Centro Tecnológico del Mueble y la Madera-Ris3Mur. 70.000 €
3. 2013-2014. Desarrollo de nuevas estrategias de tinción capilar por modificación química de proteínas. TAHE Productos Cosméticos SL – CDTI. 137.000€.

C.6. Patents

1. P. Lozano, R. Villa, R. Salas. E. Garcia-Verdugo, M. Macia. Procedimiento de despolimerización del poliuretano.Patents PCT/ES2023/070452. WO 2024/013423 A1. 18 / Enero / 2024
2. J. L. Serrano, Francisco M. Ortuño, M.I. Pascual, W. Miloua, P. Lozano. Procedimiento para la detección de ácido acético mediante la utilización de paladaciclos dinucleares. PCT/ES2022/070601
3. P. Lozano, T. de Diego, J.L Iborra, M. Vaultier. Use of ionic liquids for implementing a process for the preparation of biodiesel. Patents EP20080291101 20081121; EP20090755915 20091120; WO 2010057996; 2012-US 8,470,565 B2. US Patent 8,470,565 B2. European Patent Nº 2347000
4. P. Lozano, E. Alvarez, J.M. Bernal, S. Nieto, C. Gomez, A. Donaire. Method for enzymatic synthesis of monoesters of polyhydroxylated compounds. Applicants: Universidad de Murcia (Spain). Refs: ES2735636A1; WO2019243656A1.

C.7. Oral Presentation in International Congress (last 5 years).

1. Ionic liquid technology as a green enabling tool for the chemo-enzymatic synthesis of cyclic glycerol carbonates from glycidol and CO2. International Symposium on Green Chemistry. La Rochelle (France). 16-20 May 2022.
2. From Green Chemistry to "Dream" Chemistry: A path under construction. Iberoamerican Meeting on Ionic Liquids (IMIL2021). July 1-3, 2015. Santiago. (Chile).
3. Clean biocatalytic processes in ionic liquids and supercritical fluids. 6th *International Congress on Green Process Engineering*. Toulouse (Francia) 3-6 Junio 2018.
4. Sustainable chemical processes in ILs and $scCO_2$ by integration of synthesis and pure product separation steps. *6th EuCheMS Chemistry Congress*. Sevilla 11-15 Septiembre 2016.
5. More on green chemical processes in Sponge-Like ILs: The case clean production of monoacyl-glycerols. 8th Green Solvents Conference - DECHEMA. Kiel (Germany) 16-19 Oct. 2016.

C.8. Advisory Board in International Congress

1. International Advisory Board. *4th Int. Cong. Green Process Engineering GPE 2014*. 300 people. Toulouse (Francia) 3-6 June 2018.
2. International Advisory Board. *7th Green Solvent Conference*. Dresden. Germany. Oct. 19-22, 2014
3. International Advisory Board. *6th Green Solvent Conference*. 200 people. 2012 Boppard. Germany. October 8-11, 2012
4. International Advisory Board. *3th Int. Cong. Green Process Eng. GPE 2011*. 200 people. Kuala Lumpur. Malaysia. December 6-8, 2011.

C9. Institutional responsabilities

1. 1996 – 2014 Vice-Dean in Biochemistry. Faculty of Chemistry. University of Murcia
2. 2014 – 2021 Dean of the Faculty of Chemistry. University of Murcia
3. 2008 – 2021 Member of the Cloister of the University of Murcia.
4. 2008 - 2012 President of the Spanish Conference of Heads of Biochemistry and Biotechnology Degrees in Spanish Universities.

C10. Membership of Journal Editorial Board / Referee

1. 2019 - Editorial Board, *Molecules (*Green Chemistry Section). MDPI.
2. 2014 – …Editorial Board, *Mini-Reviews in Organic Chemistry*. Bentham Science.
3. 2012 – …Regional Editor, *Current Green Chemistry* – Bentham Science.
4. 2009 – …Senior Reviewer, *Green Chemistry*. RSC. UK
4. 2009- ….Member of the ANR Expert Comitee (*Agence Nationale de Recherche* (ANR). Chimie Durable Committee (CD2I). Ministere de la Science. Republique Française.
5. 2004 - Usual Referee for the following Top-Journals: *Green Chem.; ACS Sustain. Chem. Eng.; ChemSusChem, Chem. Commun.*; *Bioresour. Technol.*; *Catal. Commun.*; *J. Supercrit. Fluids*.

C11 Membership of Scientific Societies

1. 2015 - Royal Society of Chemistry (UK). Member (2015-2016); Fellow (2016-…..)
2. 2015 - Spanish Royal Society of Chemistry (RSEQ). Member. Vice-President Murcia Section 2022
3. 2004 - American Chemical Society (USA). Member.
4. 2001 - European Federation on Biotechnology (EFB). Member of the European Board
5. 1987 - Spanish Society on Biotechnology (SEBIOT). Member of the Spanish Board
6. 1985 - National Association of Chemists of Spain (ANQUE). Member