



CURRICULUM VITAE ABREVIADO (CVA)

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

Part A. PERSONAL INFORMATION

First name	Pablo		
Family name	Ballester		
Gender (*)	masculine	Birth date (dd/mm/yyyy)	21/10/1959
Social Security, Passport, ID number	42985233G		
e-mail	pballester@iciq.es	URL Web	https://www.iciq.org/research/research_group/prof-pau-ballester/
Open Researcher and Contributor ID (ORCID) (*)	<u>0000-0001-8377-6610</u>		

(*) Mandatory

A.1. Current position

Position	ICREA Research Professor and ICIQ Group Leader		
Initial date	1/09/2004		
Institution	Catalan Institution of Research and Advanced Studies (ICREA) and Institute of Chemical Research of Catalonia (ICIQ)		
Department/Center	n.a.		
Country	Spain	Teleph. number	+34647254978
Key words	Supramolecular Chemistry, Host-guest, Molecular Recognition		

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

Period	Position/Institution/Country/Interruption cause
2002-2003	Research Associate Professor/TSRI/USA. Sabbatical
1994-1995	Visiting Scientists/Cubist Pharmaceuticals Inc./USA. Leave.
1991-2004	Associate Professor/University of the Balearic Islands/Spain
1991	Assistant Professor/University of the Balearic Islands/Spain
1988-1990	Postdoctoral Associate/MIT and University of Pittsburgh/USA
1987-1988	Postdoctoral Associate/ University of the Balearic Islands/Spain
1986-1987	Postdoctoral Associate/ University of Pittsburgh/USA
1983-1986	MEC FPI Fellow/ University of the Balearic Islands/Spain

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
B.Sc. (Licenciado)	University of the Balearic Islands/Spain	1981
M.Sc (Grado de Licenciatura)	University of the Balearic Islands/Spain	1982
D.Sc.(Doctor)	University of the Balearic Islands/Spain	1986

(Include all the necessary rows)

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

Pablo Ballester studied Chemistry at the University of the Balearic Islands (UIB) where he completed the PhD in 1986 under the supervision of Prof. R. Mestres. In 1987, he was post-doctoral Associate with Prof. J. Rebek Jr. at the U. of Pittsburgh (PITT). In 1988, after a post-doctoral stay at UIB with Prof. J.M. Saá he returned to PITT. In 1989, he moved to MIT with the Rebek's group. From 1991 to 2003, he held the positions of **Assistant and Associate Professor** at UIB, served as Secretary of the Chemistry Department, Vice-dean of the Faculty of Sciences and Head of Studies of Chemistry. In 2003, he enjoyed a sabbatical at TSRI (USA) with the rank of Research Associate Professor. In 2004, he got an **ICREA Research Professorship** and joined ICIQ as **Group Leader**.

The Ballester group received **scientific international recognition**, as one of the world leaders in the synthesis of **aryl-extended and super-extended calix[4]pyrrole** containers/receptors,



and the study of their self-assembly processes and multiple applications (sensing, catalysis and transport). Prof. Ballester is co-author of more than **270 scientific articles** published in high-impact journals receiving **> 12000 citations**. The scientific relevance and interest of the obtained research results allowed raising funding in local (e.g. BIST and ICIQ calls), regional (e.g. SGR) and national competitive calls as PI. Internationally, from 2018 to 2022, Prof. Ballester was the **scientific coordinator** and one of the PIs of the **MSCA ITN NOAH**. Currently, he is one of the PIs of the **COST Action CA22131 LUCES** and the **MSCA Staff-Exchange project 101131120-ENRICH**. In 2023, Prof. Ballester submitted a new coordinated DN proposal (**HORIZON-MSCA-2023-DN-01 SURE**) on supramolecular recognition and sensing with a consortium composed of 7 European Academic institutions (i.e. ICIQ (Coordinator), INSTM, KTH, URV, UniBonn, IOCB, NUIM), and one industrial beneficiary (i.e. Boston Scientific). The proposal is currently under evaluation.

Prof. Ballester network of **academic collaborators** includes: Profs. C. Hunter (U. of Cambridge), J. Rebek (Scripps), M. Nissinen and K. Helttunen (U. of Jyväskylä), R. Sekiya and T. Haino (Hiroshima U.), Y. Cohen (U. of Tel Aviv), Yang Yu (U. of Shanghai), E. Dalcanale (U. of Parma), E. A. Kataev (U. Erlangen Nurnberg), **at international level**, and Profs. L. Rodriguez (UB), U. Pischel (UHU), M. Palacín (IRB), A. Merkoçi (ICN2), Frontera and Costa (UIB) **at national level**. **Local collaborations** involve Profs. C. O'Sullivan, F. Andrade and E. Llobet (URV), K. Villa, M. G. Suero, E. Palomares, A. Echavarren, J.R. Galán, C. Bo, F. Maseras (ICIQ).

Prof. Ballester has trained and mentored many national and international students, as well as doctoral research associates. In the last 5 years (**2018-2023**), he supervised **7** post-doctoral associates, **19** visiting students (national and international), **17** PhD students and **2** MSc students, hosted **6** international professors during sabbatical leaves and promoted **11** students to the PhD degree. He was PI in **10** grants HHRR (CSC China, INPhINIT "la Caixa", MSCA-IF, Cofund, Beatriu de Pinós etc.). PhD students educated in the group occupy relevant positions in industry and academy both in national and international institutions, others are in their initial postdoctoral stages. Visit <http://group.ballester.me/> for details.

Prof Ballester lectured Master classes and summer courses in different Spanish and European universities (e.g. URV, UIB, UV, UM, USC, FUB, UVA, U. Jyväskylä). He actively participates in **research outreach programs** directed to the society and in science dissemination programs (e.g. NOAH Lab, Crazy about Chemistry, European Researchers' Night). From 2018 to 2002, he was member of the EurJOC **International Advisory Board**. Since 2019, he sits in the **External Advisory Board** (EAB) of the Institute of Advanced Chemistry of Catalonia (IQAC), a CSIC research center in Barcelona. Regularly, he collaborates as **reviewer** of research proposals for national and international funding organizations (e.g. ERC, F.R.S-FNRS etc.) and **referee** for multiple journals (visit ORCID for details).

Prof. Ballester is co-inventor of three patents, one of them licensed to the company CreatSens Health S.L. Companies worldwide demonstrated interest in the sensing technologies developed by the group (i.e. Boston Scientific). Prof. Ballester also collaborated/consulted with diverse chemical companies (e.g. CreatSens Health S.L; Henkel, Dr. Esteve, Venus Remedies Limited, Cubist etc.) and was co-director of an Industrial PhD (COVESTRO, Germany).

He is the recipient of the **2012 Janssen Cilag Organic Chemistry Prize** awarded by the RSEQ. In 2021, he was elected **Member of the European Academy of Sciences** <https://www.eurasc.org/>. In 2022, he was distinguished as **Chemistry Europe Fellow 2020/2021**, the highest honor given by Chemistry Europe, for his outstanding achievements and contributions <https://www.chemistryviews.org/fellows/>. He has been Visiting Professor at TSRI (2003) and at the University of Strasbourg (2014). He served as **ICIQ Vice-Director** for BIST affairs (2016-2018). He is a member of the **ICIQ Academic Committee** since its establishment. In 2018, he was appointed **Scientific Collaborator of the Spanish Agency for Research** (AEI) occupying this position at the present time.

Part C. RELEVANT MERITS (sorted by typology)

C.1. Publications (see instructions)

1. **Authors:** Mirabella, C. F. M.; Aragay, G.; Ballester, P. **Year:** 2023. **Title:** Influence of the solvent in the self-assembly and binding properties of [1+1] tetra-imine bis-calix[4]pyrrole cages. **Journal:** *Chem. Sci.* 14, 186-195. DOI: 10.1039/D2SC05311J



- 2. Authors:** Escobar, L.; Sun, Q.; Ballester, P. **Year:** 2023. **Title:** Aryl-Extended and Super Aryl-Extended Calix[4]pyrroles: Design, Synthesis, and Applications. **Journal:** *Acc. Chem. Res.* 56, 500-513. DOI: 10.1021/acs.accounts.2c00839
- 3. Authors:** Tobajas-Curiel, G.; Sun, Q. Q.; Sanders, J. K. M.; Ballester, P.; Hunter, C. A. **Year:** 2023. **Title:** Substituent effects on aromatic interactions in water. **Journal:** *Chem. Sci.* 14, 6226-6236. DOI: 10.1039/d3sc01027a
- 4. Authors:** Sun, Q.; Escobar, L.; Ballester, P. **Year:** 2022. **Title:** Dinuclear Metallobridged Super Aryl-Extended Calix[4]pyrrole Cavitand. **Journal:** *Angew. Chem., Int. Ed.* 61, e202202140. DOI: 10.1002/anie.202202140
- 5. Authors:** Sun, Q.; Escobar, L.; de Jong, J.; Ballester, P. **Year:** 2022. **Title:** Self-assembly of a water-soluble endohedrally functionalized coordination cage including polar guests. **Journal:** *Chem. Sci.* 12, 13469-13476. DOI: 10.1039/D1SC03751J
- 6. Authors:** Yang, J.-M.; Chen, Y.-Q.; Yu, Y.; Ballester, P.; Rebek, J. **Year:** 2021. **Title:** Rigidified Cavitand Hosts in Water: Bent Guests, Shape Selectivity, and Encapsulation. **Journal:** *J. Am. Chem. Soc.* 143, 19517-19524. DOI: 10.1021/jacs.1c09226
- 7. Authors:** Escobar, L.; Ballester, P. **Year:** 2021. **Title:** Molecular Recognition in Water Using Macrocyclic Synthetic Receptors. **Journal:** *Chem. Rev.* 121, 2445-2514. DOI: 10.1021/acs.chemrev.0c00522
- 8. Authors:** Sun, Q.; Escobar, L.; Ballester, P. **Year:** 2021. **Title:** Hydrolysis of Aliphatic Bis-isocyanides in the Presence of a Polar Super Aryl-Extended Calix[4]pyrrole Container. **Journal:** *Angew. Chem., Int. Ed.* 60, 10359-10365. DOI: 10.1002/anie.202101499
- 9. Authors:** Martínez-Crespo, L.; Sun-Wang, J. L.; Sierra, A. F.; Aragay, G.; Errasti-Murugarren, E.; Bartoccioni, P.; Palacín, M.; Ballester, P. **Year:** 2020. **Title:** Facilitated Diffusion of Proline across Membranes of Liposomes and Living Cells by a Calix[4]pyrrole Cavitand. **Journal:** *Chem* 6, 3054-3070. DOI: 10.1016/j.chempr.2020.08.018
- 10. Authors:** Sierra, A. F.; Hernández-Alonso, D.; Romero, M. A.; González-Delgado, J. A.; Pischel, U.; Ballester, P. **Year:** 2020. **Title:** Optical Supramolecular Sensing of Creatinine. **Journal:** *J. Am. Chem. Soc.* 142, 4276-4284. DOI: 10.1021/jacs.9b12071

C.2. Congress, indicating the modality of their participation (invited conference, oral presentation, poster)

- 1. Invited Lecture.** P Ballester. **2023 Joint Conference on Calixarenes and Cucurbiturils.** "Mediation of 1,3-dipolar cycloaddition reaction in the cavity of a [4 + 2] octa-imine calix[4]pyrrole capsule". Tel Aviv, Israel, 16-21/07/2023.
- 2. Invited Lecture.** P Ballester. **The 16th International Conference on Calixarenes;** "Supramolecular Sensing of Creatinine". New Orleans, Louisiana, USA. 14-17/07/2022.
- 3. Invited Lecture.** P Ballester. **Biennial Meeting of the Royal Spanish Society of Chemistry (RSEQ).** Symposium S11; "Metallic Cages and Cavitands Featuring Polar Interiors". Granada, Spain. 27-30/06/2022.
- 4. Invited Lecture.** P Ballester. **ISMSC 2022;** "Mono-nuclear Metallic Cages and Di-nuclear Cavitands Featuring Polar Interiors". Eugene, Oregon, USA. 23/6/2022.
- 5. Invited Lecture.** P Ballester. **Nanoscience Days 2021 (#NSDays2021)** "Self-assembly of Mono-metallic Nano-Cages Featuring Two Different Polar Binding Sites". Jyväskylä, Finland. 6/10/2021.
- 6. Invited Lecture.** P Ballester. **Chemistry as Innovating Science** "Transmembrane transports using Aryl-extended Calix[4]pyrrole carriers". <https://online.nwochains.nl/>, Netherlands. 9/12/2020.
- 7. Invited Lecture.** P Ballester. **Symposium on Supramolecular Chemistry in Celebration of Professor Julius Rebek 75th Birthday** "Water-Soluble Aryl-extended and Super-Aryl-extended calix[4]pyrrole". Shanghai, China. 18/10/2019.
- 8. Invited Lecture.** P Ballester. **15th International Conference on Calixarenes (Calix-2019)** "Synthesis and Binding Properties of Water-Soluble Aryl-extended and Super-Aryl-extended Calix[4]pyrroles". Cassis, France. 10/06/2019.
- 9. Invited Lecture.** P Ballester. **Suprachem 2019** "A Mono-Metallic Pd(II)-Cage Featuring Two Different Polar Binding Sites". Würzburg, Germany. 24-26/02/2019.
- 10. Invited Lecture.** P Ballester. **International Conference on Coordination Chemistry, ICC 2018** "Assembly of capsules with polar interiors". Sendai, Japan. 1/08/2018.



C.3. Research projects

1. **Contribution:** Principal Investigator. **Institution:** ICIQ. **Title:** Molecular Containers with Polar Cavities and Versatile Functions (COMPOFUN). **Reference:** PID2020-114020GB-100. **Dates:** 2021-2024. **Funding Agency:** MICINN Proyectos I+D+i – Generación Conocimiento. **Amount granted:** 217.800€.
2. **Contribution:** Principal Investigator. **Coordinator:** Roberta Pinalli. **Institutions:** ICIQ, UniPr, UNIPD, KIT, Sfect, UNC, ULA, UH, UVic, EPI, EIN. **Title:** Molecular receptors enrich methylated and acetylated peptides for ultra-sensitive proteomics to explore the hidden modified proteome in disease (ENRICH). **Reference:** HORIZON-MSCA-2022-SE GA101131120. **Dates:** 2024-2027. **Funding Agency:** EU. **Amount granted:** 1.545.600€ (335.920€ allocated to ICIQ).
3. **Contribution:** Principal Investigator. **Institution:** ICIQ. **Title:** Chloroplast-mimetic dendrimersome: toward artificial photosynthesis (DendriPhotoSomes). **Reference:** BIST Ignite programme. **Dates:** 2024-2024. **BIST.** 20.000€. **Institution:** ICIQ
4. **Contribution:** Principal Investigator. **Institution:** ICIQ. **Title:** Suport als Grups de Recerca Consolidats de Catalunya. **Reference:** 2021SGR00851. **Dates:** 2022-2024. **Funding Agency:** AGAUR Generalitat de Catalunya. **Amount granted:** 40.000€.
5. **Contribution:** Researcher. **Principal Investigator:** Gemma Aragay. **Institution:** ICIQ. **Title:** Real-time sensing of diagnostically-relevant biomarkers in urine for the monitoring of acute kidney injury (MAKI-2). **Dates:** 2022-2023. **Funding Agency:** BIST. **Amount granted:** 50.000€.
6. **Contribution:** Principal Investigator. **Institution:** ICIQ. **Title:** SEnsing of diagnostically-relevant biomarkers for monitoring RENAI function (SERENA). **Dates:** 2022. **Funding Agency:** ICIQ. **Amount:** 50.000€.
7. **Contribution:** Principal Investigator of an ICIQ Research Group. **Institution:** ICIQ. **Coordinator:** Dr. Victor de la Peña (IMDEA Energy)- **Title:** Solar Catalysis for a Renewable Energy Future (SOL-Future). **Reference:** PLEC2021-007906 **Dates:** 2021-2024. **Funding Agency:** MICINN Proyectos de I+D+i en líneas estratégicas.
8. **Contribution:** Principal Investigator. **Institution:** ICIQ. **Title:** Molecular and Supramolecular Containers based on aryl-extended and super arylextended calix[4]pyrroles: Fundamental Studies and Applications (CALIXCONTAINERS). **Reference:** CTQ2017-84319-P. **Dates:** 2018-2020. **Funding Agency:** MINECO (Proyectos I+D). **Amount granted:** 194.810€.
9. **Contribution:** Scientific Coordinator and Principal Investigator. **Institution:** ICIQ. **Title:** Network of Functional Molecular Containers with Controlled Switchable Abilities (NOAH) **Reference:** H2020-MSCA-ITN-2017-765297. **Dates:** 2018-2022. **Funding Agency:** EU. **Amount granted:** 2.525.640€.
10. **Contribution:** Principal Investigator. **Institution:** ICIQ. **Title:** Suport als Grups de Recerca Consolidats de Catalunya. **Reference:** 2017SGR1123. **Dates:** 2017-2020. **Funding Agency:** AGAUR Generalitat de Catalunya. **Amount granted:** 44.480€.

C.4. Contracts, technological or transfer merits

Licenses:

1. **Inventors/authors/obtainers:** P. Blondeau; T. Aquino; L. Adriaenssens; F. Andrade; F.X. Rius; P. Ballester. **Reference:** EP15382007. **Title:** Calixpyrrole compounds and creatinine-selective electrodes comprising them. **Priority country:** European Union. **Date:** 19.01.2015 to date. **Holding institution:** ICIQ/URV. **Company exploiting the patent:** Creatsens Health S.L. URV spinoff <https://renalyse.com/>

Contracts:

2. **Consultant:** Pablo Ballester. **Title:** Master Service Agreement for Consultancy. **Date:** 16.01.2021 to date. **Company:** Venus Remedies Limited.

Industrial PhD

3. **Student:** Quentin Bouvier. 16/12/2021. **Title:** Encapsulation of reactive components for polyurethane synthesis. **Co-supervisor:** Dr. S. Eiden (COVESTRO, Germany)