

Curriculum Vitae

PERSONAL DATA

Name: Luis

Surname: Escobar González

Date of birth: 08/02/1992

ORCID: 0000-0003-0392-8245

ResearcherID: I-8060-2017

CURRENT POSITION

- **Junior Group Leader**, Institute of Chemical Research of Catalonia (ICIQ), 2024-present.

PREVIOUS POSITIONS

- **Postdoctoral Researcher**, Group of Prof. Christopher A. Hunter, University of Cambridge, 2023-2024.
- **Postdoctoral Researcher**, Group of Prof. Thomas Carell, Ludwig Maximilian University (LMU) of Munich, 2020-2022.

EDUCATION

- **PhD**, Group of Prof. Pablo Ballester, Institute of Chemical Research of Catalonia (ICIQ), 2015-2019.
- **Visiting PhD Student**, Group of Prof. Jonathan L. Sessler, The University of Texas (UT) at Austin, 2017.
- **Master Degree in Synthesis, Catalysis and Molecular Design**, University of Rovira and Virgili (URV) and Institute of Chemical Research of Catalonia (ICIQ), 2014-2015.
- **Bachelor Degree in Chemistry**, University of Castilla-La Mancha (UCLM), 2010-2014.

RESEARCH PROJECTS AS PRINCIPAL INVESTIGATOR

1. "Functional Nucleic Acid-Peptide Nanostructures Assembled by Host-Guest Systems for Nanotechnology Applications", La Caixa Foundation (Postdoctoral Junior Leader fellowship Incoming Call 2024), LCF/BQ/PI24/12040019, Institute of Chemical Research of Catalonia (ICIQ), Dr. Luis Escobar, 2024-2027, 297.900 euros.

COLLABORATION IN RESEARCH PROJECTS AS PHD STUDENT AND POSTDOC

1. "Recognition-Encoded Synthetic Information Molecules", European Research Council (Horizon 2020, ERC-2020-ADG), No. 101018984, University of Cambridge, Prof. Christopher A. Hunter, 2023-2024, 2.499.850 euros.
2. "The Chemical Basis of RNA Epigenetics", European Research Council (Horizon 2020, ERC-2016-ADG), No. 741912, Ludwig Maximilian University (LMU) of Munich, Prof. Thomas Carell, 2020-2022, 2.486.375 euros.
3. "Chemical Studies to Elucidate the Evolution of the Ribosome", Volkswagen Foundation (Life - A fresh scientific approach to the basic principles of life), EvoRib, Ludwig Maximilian University (LMU) of Munich, Prof. Thomas Carell, 2020-2022, 1.092.000 euros.

4. "Molecular and Supramolecular Containers Based on Aryl-Extended and Super Aryl-Extended Calix[4]pyrroles: Fundamental Studies and Applications", Ministerio de Ciencia, Innovación y Universidades (Proyectos I+D, Excelencia, 2017), CTQ2017-84319-P, Institute of Chemical Research of Catalonia (ICIQ), Prof. Pablo Ballester, 2018-2019, 194.810 euros.
5. "Receptors and Synthetic Sensors for the Supramolecular Recognition of Organic Molecules with Low Molecular Weight Related with the Health", Ministerio de Economía y Competitividad (Proyectos I+D+I, 2014), CTQ2014-56295-R, Institute of Chemical Research of Catalonia (ICIQ), Prof. Pablo Ballester, 2015-2017, 206.910 euros.

FELLOWSHIPS AND GRANTS

1. La Caixa Postdoctoral Junior Leader fellowship (LCF/BQ/PI24/12040019), La Caixa Foundation, 01/09/2024-31/08/2027.
2. Humboldt Research fellowship for Postdoctoral Researchers (ESP 1214218 HFST-P), Alexander von Humboldt Foundation (AvH), 01/10/2020-30/09/2022.
3. Scientific congress allowance, Sección de Castilla-La Mancha (STCLM) of the Real Sociedad Española de Química (RSEQ), 26/05/2019-30/05/2019.
4. Scientific congress allowance, Jóvenes Investigadores Químicos (JIQ) of the Real Sociedad Española de Química (RSEQ), 08/07/2018-13/07/2018.
5. Research internship (EST16/00211), Ministerio de Educación, Cultura y Deportes (MECD, Spanish Government), 01/07/2017-30/09/2017.
6. PhD fellowship (FPU14/01016), Ministerio de Educación, Cultura y Deportes (MECD, Spanish Government), 13/10/2015-12/10/2019.
7. Master fellowship, Institute of Chemical Research of Catalonia (ICIQ), 01/10/2014-29/07/2015.
8. Collaboration research fellowship, Ministerio de Educación, Cultura y Deportes (MECD, Spanish Government), 01/10/2013-29/05/2014.
9. Summer research fellowship, La Caixa Foundation, 01/07/2013-13/09/2013.
10. Bachelor fellowships, Ministerio de Educación, Cultura y Deportes (MECD, Spanish Government), 2010-2011; 2011-2012; 2012-2013; 2013-2014.

PUBLICATIONS

‡ First author/s; * Corresponding author/s; Candidate is underlined.

1. "Sequence-Selective Pulldown of Recognition-Encoded Melamine Oligomers Using Covalent Capture on a Solid Support", Escobar, L.‡; Sun, D.‡; Hunter, C. A.* *Chem. Commun.* **2024**, *submitted*.
2. "Covalent Linkages Used in Prebiotic Chemistry for RNA-Templated Amino Acid Transfer and Peptide Synthesis", Escobar, L.‡* *ChemSystemsChem* **2024**, DOI: 10.1002/syst.202400030.
3. "RNA-Templated Peptide Bond Formation Promotes L-Homochirality", Węgrzyn, E.‡; Mejdrová, I.‡; Müller, F. M.; Nainyté, M.; Escobar, L.*; Carell, T.* *Angew. Chem., Int. Ed.* **2024**, 63, e202319235.
4. "Loading of Amino Acids onto RNA in a Putative RNA-Peptide World" (Hot Paper), Singer, J. N.‡; Müller, F. M.‡; Węgrzyn, E.; Hölzl, C.; Hurmiz, H.; Liu, C.; Escobar, L.*; Carell, T.* *Angew. Chem., Int. Ed.* **2023**, 62, e202302360.

5. "Aryl-Extended and Super Aryl-Extended Calix[4]pyrroles: Design, Synthesis and Applications", [Escobar, L.†*](#); Sun, Q.*; Ballester, P.* *Acc. Chem. Res.* **2023**, *56*, 500-513.
6. "A Prebiotically Plausible Scenario of an RNA-Peptide World", Müller, F.†; [Escobar, L.†](#); Xu, F.; Węgrzyn, E.; Nainytė, M.; Amatov, T.; Chan, C.-Y.; Pichler, A.; Carell, T.* *Nature* **2022**, *605*, 279-284.
7. "A Di-Nuclear Metallobridged Super Aryl-Extended Calix[4]pyrrole Cavitand", Sun, Q.†; [Escobar, L.](#); Ballester, P.* *Angew. Chem., Int. Ed.* **2022**, *61*, e202202140.
8. "Self-Assembly of a Water-Soluble Endohedrally Functionalized Coordination Cage Including Polar Guests", Sun, Q.†; [Escobar, L.*](#); de Jong, J.; Ballester, P.* *Chem. Sci.* **2021**, *12*, 13469-13476.
9. "Hydrolysis of Aliphatic *Bis*-isonitriles in the Presence of a Polar Super Aryl-Extended Calix[4]pyrrole Container", Sun, Q.†; [Escobar, L.†](#); Ballester, P.* *Angew. Chem., Int. Ed.* **2021**, *60*, 10359-10365.
10. "Molecular Recognition in Water Using Macrocyclic Synthetic Receptors", [Escobar, L.†](#); Ballester, P.* *Chem. Rev.* **2021**, *121*, 2445-2514.
11. "Kinetic Stabilities and Exchange Dynamics of Water-Soluble Bis-Formamide Caviplexes Studied Using Diffusion-Ordered NMR Spectroscopy (DOSY)" (Hot Paper), [Escobar, L.†](#); Li, Y.-S.; Cohen, Y.*; Yu, Y.*; Rebek, J.*; Ballester, P.* *Chem. Eur. J.* **2020**, *26*, 8220-8225.
12. "Relative Hydrophilicities of *Cis* and *Trans* Formamides", Li, Y.-S.†; [Escobar, L.†](#); Zhu, Y.-J.†; Cohen, Y.; Ballester, P.*; Rebek, J.*; Yu, Y.* *Proc. Natl. Acad. Sci. U. S. A.* **2019**, *116*, 19815-19820.
13. "Guest Exchange Mechanisms in Mono-Metallic Pd(II)/Pt(II)-Cages Based on a Tetra-Pyridyl Calix[4]pyrrole Ligand", [Escobar, L.†](#); Escudero-Adán, E. C.; Ballester, P.* *Angew. Chem., Int. Ed.* **2019**, *58*, 16105-16109.
14. "Quantification of the Hydrophobic Effect Using Water-Soluble Super Aryl-Extended Calix[4]pyrroles" (Hot Article; Inside Front Cover), [Escobar, L.†](#); Ballester, P.* *Org. Chem. Front.* **2019**, *6*, 1738-1748.
15. "A Mono-Metallic Pd(II)-Cage Featuring Two Different Polar Binding Sites", [Escobar, L.†](#); Villarón, D.; Escudero-Adán, E. C.; Ballester, P.* *Chem. Commun.* **2019**, *55*, 604-607.
16. "Conformational Selectivity and High-Affinity Binding in the Complexation of *N*-Phenyl Amides in Water by a Phenyl Extended Calix[4]pyrrole" (Hot Article; Outside Back Cover), [Escobar, L.†](#); Díaz-Moscoso, A.; Ballester, P.* *Chem. Sci.* **2018**, *9*, 7186-7192.
17. "2-(4'-Pyridyl-*N*-oxide)-Substituted Hemithioindigos as Photoresponsive Guests for a Super Aryl-Extended Calix[4]pyrrole Receptor" (Cover Feature), Moncelsi, G.†; [Escobar, L.](#); Dube, H.*; Ballester, P.* *Chem. Asian. J.* **2018**, *13*, 1632-1639.
18. "Synthesis and Binding Studies of a Tetra- α Aryl-Extended Photo-Responsive Calix[4]pyrrole Receptor Bearing *meso*-Alkyl Substituents" (Very Important Paper; Front Cover), [Escobar, L.†](#); Arroyave, F. A.; Ballester, P.* *Eur. J. Org. Chem.* **2018**, 1097-1106.
19. "Self-Assembly of Di-NHC-Gold-Adorned Corannulenes on C60" (Hot Paper), Mejuto, C.†; [Escobar, L.](#); Guisado-Barrios, G.; Ballester, P.; Gusev, D.*; Peris, E.* *Chem. Eur. J.* **2017**, *23*, 10644-10651.
20. "Stereoselective Synthesis of Lower and Upper Rim Functionalized Tetra- α Isomers of Calix[4]pyrroles", Díaz-Moscoso, A.†; Hernández-Alonso, D.; [Escobar, L.](#); Arroyave, F. A.; Ballester, P.* *Org. Lett.* **2017**, *19*, 226-229.
21. "Super Aryl-Extended Calix[4]pyrroles: Synthesis, Binding Studies, and Attempts To Gain Water Solubility", [Escobar, L.†](#); Aragay, G.; Ballester, P.* *Chem. Eur. J.* **2016**, *22*, 13682-13689.

INVITED TALKS AND CONGRESSES

1. Invited talk: "A Prebiotic Model for the Origin of Ribosomal Translation", Escobar, L. XIX Simposio de Investigadores Jóvenes, University of Murcia, Murcia (Spain), 2023.
2. Invited talk: "RNA-Peptide Conjugates: A Prebiotic Model for the Origin of Translation", Escobar, L. Institute of Chemical Research of Catalonia (ICIQ), Tarragona (Spain), 2023.
3. Invited talk: "Artificial and Natural Self-Assembled Systems", Escobar, L. University of Barcelona (UB), Barcelona (Spain), 2023.
4. Poster: "A Prebiotically Plausible Scenario of an RNA-Peptide World", Escobar, L.; Müller, F.; Xu, F.; Węgrzyn, E.; Nainytė, M.; Amatov, T.; Chan, C.-Y.; Pichler, A.; Carell, T. XXXVIII Reunión Bienal de la Real Sociedad Española de Química (RSEQ), Granada (Spain), 2022.
5. Poster: "A Prebiotically Plausible Model for the Transition of the RNA World into an RNA-Peptide World", Escobar, L.; Müller, F.; Xu, F.; Węgrzyn, E.; Nainytė, M.; Amatov, T.; Chan, C.-Y.; Pichler, A.; Carell, T. Molecular Origins of Life, Munich (Germany), 2021.
6. Poster: "Mono-Metallic Pd(II) and Pt(II) Cages Featuring Two Different Polar Binding Sites", Escobar, L.; Villarón, D.; Escudero-Adán, E. C.; Ballester, P. XXXVII Reunión Bienal de la Real Sociedad Española de Química (RSEQ), San Sebastián (Spain), 2019.
7. Poster: "Quantification of the Hydrophobic Effect Using Water-Soluble Super Aryl-Extended Calix[4]pyrroles", Escobar, L.; Aragay, G.; Ballester, P. NOAH School-Supramolecular Chemistry Day, Tarragona (Spain), 2019.
8. Oral presentation: "Reactivity of Encapsulated Guests by Synthetic Receptors in Water", Escobar, L.; Ballester, P. ICIQ-INTECAT School, Montbrió del Camp (Spain), 2018.
9. Poster: "Water Soluble Molecular Containers Based on Super Aryl-Extended Calix[4]pyrroles", Escobar, L.; Aragay, G.; Ballester, P. International Symposium on Macrocyclic and Supramolecular Chemistry (ISMSC), Québec (Canada), 2018.
10. Oral presentation: "Molecular Containers Based on Super Aryl-Extended Calix[4]pyrroles", Escobar, L.; Aragay, G.; Ballester, P. ICIQ II PhD Day, Tarragona (Spain), 2018.
11. Oral presentation: "Water Soluble Receptors Based on Super Aryl-Extended Calix[4]pyrroles", Escobar, L.; Ballester, P. XIII Simposio de Investigadores Jóvenes, University of La Rioja, Logroño (Spain), 2016.
12. Poster: "Water Soluble Receptors Based on Super Aryl-Extended Calix[4]pyrroles", Escobar, L.; Ballester, P. ICREA Conference on Functional Nanocontainers, Tarragona (Spain), 2016.
13. Poster: "Synthesis and Binding Studies of Super Aryl-Extended Calix[4]pyrroles", Escobar, L.; Aragay, G.; Ballester, P. XII Simposio de Investigadores Jóvenes, Barcelona (Spain), 2015.

TEACHING AND CO-SUPERVISION OF STUDENTS

1. Co-supervision: Part III thesis (Daniel Sun), University of Cambridge, 4 months, 2023-2024.
2. Co-supervision: Bachelor summer project (Salvatore Nigrelli), University of Cambridge, 2 months, 2023.
3. Co-supervision: Bachelor thesis (Erik Rabi), Ludwig Maximilian University (LMU) of Munich, 3 months, 2021-2022.
4. Co-supervision: Master project (Jorn de Jong), Institute of Chemical Research of Catalonia (ICIQ), 3 months, 2019.
5. Co-supervision: Master thesis (David Villarón), Institute of Chemical Research of Catalonia (ICIQ), 7 months, 2018.

6. Co-supervision: Master project (Sven van Vliet), Institute of Chemical Research of Catalonia (ICIQ), 3 months, 2017.
7. Teaching: General Chemistry for undergraduate students, University of Rovira and Virgili (URV), 126 hours, 2017-2018.

OUTREACH ACTIVITIES AND BLOG PUBLICATIONS

1. Outreach activity: Preparation and teaching of Nuclear Magnetic Resonance (NMR) and Infrared (IR) spectroscopies to high-school students (age 16-17), University of Cambridge, 2023.
2. Outreach activity: Preparation and teaching of origin of life theories to high-school students (age 16-17), Ludwig Maximilian University (LMU) of Munich, 2022.
3. Blog publication: "How the First Life-Forms on Earth Could Have Spawned from Something not Alive", [Escobar, L.](#); Müller, F. Syfy Wire website (American news), 2022.
4. Blog publication: "The RNA-Peptide World", [Escobar, L.](#); Müller, F. Chemistry Community blog from Springer Nature, 2022.
5. Blog publication: "Dynamics of Cavitated Complexes Studied", [Escobar, L.](#); Li, Y.-S.; Cohen, Y.; Yu, Y.; Rebek, J.; Ballester, P. ChemistryViews magazine from Chemistry Europe, 2020.

AWARDS

1. Emerging talent in Systems Chemistry by the journal *ChemSystemsChem* from Wiley.
2. Postdoctoral research award, Real Sociedad Española de Química (RSEQ), 2023.
3. Extraordinary PhD award in Chemical Science and Technology, University of Rovira and Virgili (URV) and Institute of Chemical Research of Catalonia (ICIQ), 2021.
4. Recognition of the PhD in Chemistry, Sociedad Catalana de Química (SCQ), 2020.
5. Extraordinary Bachelor award in Chemistry, University of Castilla-La Mancha (UCLM), 2014.
6. Gold medal in the national Chemistry Olympiad, Asociación Nacional de Químicos e Ingenieros Químicos de España (ANQUE) and Real Sociedad Española de Química (RSEQ), Sevilla (Spain), 2010.
7. First prize in the regional Chemistry Olympiad, University of Castilla-La Mancha (UCLM), Ciudad Real (Spain), 2010.

OTHER INFORMATION

- Poster judge in the Chemistry Showcase Week at the University of Cambridge, 2023.
- Research associate at Emmanuel College in Cambridge, 2023-2024.
- Positive evaluation for Profesor Ayudante Doctor (2019-12267) of the Agencia Nacional de Evaluación de la Calidad y Acreditación (ANECA), 2019.
- Associate member of the Royal Society of Chemistry (RSC), 2017-2023.
- Member of the Real Sociedad Española de Química (RSEQ), 2013-present.
- Member of the Grupo de Investigadores Jóvenes (JIQ), 2015-present.