

CURRICULUM VITAE ABREVIADO (CVA)

Part A. PERSONAL INFORMATION

First name	Rosario		
Family name	Fernández		
Gender (*)	Female	Birth date (dd/mm/yyyy)	
Social Security, Passport, ID number			
e-mail	ffernan@us.es	URL Web	
Open Researcher and Contributor ID (ORCID) (*)	0000-0002-1755-1525		

A.1. Current position

Position	Full Professor		
Initial date	23/05/2008		
Institution	Universidad de Sevilla		
Department/Center	Departamento de Química Orgánica. Facultad de Química		
Country	España	Teleph. number	954551518
Key words	New synthetic methodologies. Enantioselective synthesis. Asymmetric catalysis. Organocatalysis. Hydrazones. N-Heterocyclic carbenes. Cross-coupling reactions. C-H activation.		

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

Period	Position/Institution/Country/Interruption cause
1987-2008	Permanent Associate Professor of Chemistry, Universidad de Sevilla;
2008-present	Catedrático (Full Professor), Universidad de Sevilla

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Licensed in Chemistry	Universidad de Sevilla (Spain)	1975-80
Ph.D. Chemistry	Universidad de Sevilla (Spain)	1981-85
Postdoctoral Fellow	Universidad de Sevilla (Spain)	1985-86
Postdoctoral Fellow	Université de Paris Sud, Orsay, France	1986-87

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

Rosario Fernández studied chemistry at the University of Seville and completed her Doctoral Thesis (1985) under the supervision of Prof. Antonio Gómez Sánchez at the same University. She was a NATO postdoctoral fellow at the University of Paris-Sud (Orsay, France) in the laboratory of Prof. Serge David from 1986-1987. In 1987 she returned to the University of Seville, where she was promoted to Associate Professor. In 2008 she became Full Professor at the same University.

Since 1991 she has developed her career in the field of stereoselective synthesis, acting uninterruptedly as a Researcher Responsible for National and International Projects, as well as Projects of Excellence of the Junta de Andalucía. She is also the researcher in charge of the Research Group of Excellence of the Junta de Andalucía "Stereoselective synthesis" since its creation in 1997.

In the recent years the main objective of her research has focused on the field of enantioselective catalysis, with particular emphasis on three fundamental lines: 1. Development of new enantioselective catalytic processes of C-C bond forming reactions using hydrazones as reagents or as ligands. 2. Design, synthesis and evaluation of new chiral ligands based on N-heterocyclic carbenes. 3. Study of new cross-coupling reactions and C-H activation reactions. 4. Atroposelective synthesis of axially chiral (hetero)biaryls. The results obtained in this research have been collected in 136 publications, most of them in journals or very high level within the area [117 original articles (among them 12 J. Am. Chem. Soc., 6 Angew. Chem. Int. Ed., 4 ACS Catal., 4 Adv. Synth. Catal, 1 Green Chemistry, 1 Chem. Sci, 8 Chem. Commun., 6 Org. Lett., 11 Chem. Eur. J., 9 J. Org. Chem.), 10 review articles (2 Chem. Soc. Rev.), 7 book chapters and 4 patents] (h=40).



The research carried out has led to joint publications resulting from collaborations with BayerCropScience GmbH (Germany), and with different national and international groups: Dieter Enders, Aachen (Germany); John M. Brown, Oxford, United Kingdom; Alfredo Ricci, Bologna (Italy); Jerome Lacour, Geneva, Switzerland; José M^a Lassaletta, Sevilla (Spain); José Luis Mascareñas, Santiago de Compostela (Spain); Pedro J. Pérez, Huelva (Spain); Uwe Pischel, Huelva (Spain); Enrique Gómez Bengoa, Donosti (Spain), Pedro Merino, Zaragoza (Spain), Israel Fernández (Madrid). She has also participated in European Projects (Research Training Networks, COST; Marie Curie Training Site), in the Asymmetric Catalysis Network of Excellence (CASI) and in the Orfeo-Cinqa Network of Excellence, Center for Innovation in Advanced Chemistry.

On the other hand, 30 Doctoral Theses have been defended under her supervision, 14 of them from 2013, and 4 are now under development. At present most of the graduate doctors occupy positions of relevance in the academy [1 Full Professor (Universität Göttingen), 6 PTU (Seville, Huelva, Zaragoza), 1 Senior Scientist CSIC (Seville), 3 postdoctoral fellows (Seville, Wisconsin, Aachen)], in industry [Senior Researchers: Synartro (Stockholm), Charmwood Molecular (Nottingham), Lhasa Limited (Leeds), Mercadem (Amsterdam); Process managers: SIDRA (Oviedo) UTE Termosolar (Morón de la Frontera)], or in secondary education (7 Teachers). She has supervised more than 20 postdoctoral students.

She has given 46 invited conferences in national and international congresses, universities, research centers and companies, 30 of them from 2013.

In terms of research management tasks, she has been Coordinator for Organic Chemistry in the National Agency for Evaluation and Prospective (ANEP) in the area of Chemistry for 4 years (2008-2012, Basic Chemistry Programme for MINECO's State Research Plan 2008-2012) and was Coordinator of the Chemistry area for the I+D+I Chemistry Programme of the Dirección de Evaluación y Acreditación de la Agencia Andaluza del Conocimiento (Junta de Andalucía) from 2011 to 2016. Since May 2018, she is a member of the Spanish Research Agency of the Ministry of Economy, Industry and Competitiveness in the area Chemistry and since June 2022 Member of the Panel of Expert Evaluators of the Dirección de Evaluación y Acreditación de la Agencia Andaluza del Conocimiento (DEVA-AAC) (3 years).

As for the experience in organizing R & D activities, she has been a member of the Organizing Committee and Chairwoman of the 7th Spanish Portuguese Organic Chemistry Symposium, held in Seville in July 2015, and member of numerous scientific committees of national and international congresses.

Since January 2023 she is member of the Editorial Advisory Board of European Journal of Organic Chemistry.

On the other hand, she was President of the Territorial Section of Western Andalusia of the Royal Spanish Society of Chemistry since July 2012 until July 2022. Since June 2022 she is President of the Specialized Group of Organic Chemistry of the Spanish Royal Society of Chemistry.

Concerning honors and awards, in June 2011 she was elected Member of the Royal Sevillian Academy of Sciences (first woman). In March 2019 she received the Award for Research Excellence granted by the Spanish Royal Society of Chemistry, and in September 2019 the FAMA Award of the University of Seville to the research trajectory. The group also received the Research Award Bruker-University of Seville in 2015, 2018 and 2022.

Part C. RELEVANT MERITS (sorted by typology)

C.1. Publications

1. E. Matador, J. Iglesias-Sigüenza, D. Monge, P. Merino, R. Fernández, J. M. Lassaletta "Enantio- and Diastereoselective Nucleophilic Addition of *N*-*tert*-Butyl Hydrazones to Isoquinolinium Ions through Anion-Binding Catalysis" *Angew. Chem. Int. Ed.* **2021**, *60*,5096-5101. Hot paper. Highlight: *Synfacts* **2021**, *17*, 0210
2. A. Carmona, C. Rodríguez-Franco, R. Fernández, V. Hornillos, J. M. Lassaletta "Atroposelective Transformation of Axially Chiral (Hetero)Biaryls. From Desymmetrization to Modern Dynamization Strategies" *Chem. Soc. Rev.* **2021**, *50*, 2968-2983.
3. P. García-Fernández, J. Iglesias-Sigüenza, P. Rivero-Jerez, E. Díez, E. Gómez-Bengoa, R. Fernández, J. M. Lassaletta "Au(I)-Catalyzed Hydroalkynylation of Haloalkynes" *J. Am. Chem. Soc.* **2020**, *142*, 16082–16089. Highlight: *Synfacts* **2020**, *16*(11), 1320. *Organic Chemistry Portal* **2021** <https://www.organic-chemistry.org/abstracts/lit7/531.shtm>



4. I. Varela, H. Faustino, E. Díez, J. Iglesias-Sigüenza, F. Grande-Carmona, R. Fernández, J.M. Lassaletta, J. Mascareñas, F. López “Gold(I)-Catalyzed Enantioselective [2+2+2] Cycloadditions. An Expedient Entry to Enantioenriched Tetrahydropyran Scaffolds” *ACS Catal.* **2017**, *7*, 2397-2402.
5. J. Francos, F. Grande-Carmona, H. Faustino, J. Iglesias-Sigüenza, E. Díez, I. Alonso, R. Fernández, J.M. Lassaletta, F. Lopez, J.L.E. Mascareñas, “Axially Chiral Triazolisoquinolin-3-ylidene Ligands in Gold(I)-Catalyzed Asymmetric Intermolecular (4 + 2) Cycloadditions of Allenamides and Dienes” *J. Am. Chem. Soc.* **2012**, *134*, 14322-14325. Highlight: Synfacts 2012, 8(12), 1334
6. A. Ros, R. López-Rodríguez, B. Estepa, E. Álvarez, R. Fernández, J. M. Lassaletta, “Hydrazone as the Directing Group for Ir-Catalyzed Arene Diborylations and Sequential Functionalizations” *J. Am. Chem. Soc.* **2012**, *134*, 4573-4576.
7. A. Crespo-Peña, D. Monge, E. Martín-Zamora, E. Álvarez, R. Fernández, J. M. Lassaletta, “Asymmetric Formal Carbonyl-ene Reactions of Formaldehyde t-Butyl Hydrazone with α -Keto Esters: Dual Activation by Bis-urea Catalysts” *J. Am. Chem. Soc.* **2012**, *134*, 12912-12915. Highlight: Synfacts 2012, 8(10), 1148
8. A. Ros, B. Estepa, R. López-Rodríguez, E. Álvarez, R. Fernández, J. M. Lassaletta, “Use of Hemilabile N,N Ligands in Nitrogen-Directed Iridium-Catalyzed Borylations of Arenes” *Angew. Chem. Int. Ed.* **2011**, *50*, 11724-11728.
9. A. Bermejo, A. Ros, R. Fernández, J. M. Lassaletta, “C2-Symmetric bis-Hydrazones as Ligands in the Asymmetric Suzuki-Miyaura Cross-Coupling” *J. Am. Chem. Soc.* **2008**, *130*, 15798-15799. Highlight: Organic Chemistry Portal: <http://www.organic-chemistry.org/abstracts/lit2/351.shtm>
10. M. Alcarazo, S. J. Roseblade, A. R. Cowley, R. Fernández, J. M. Brown, and J. M. Lassaletta “Imidazo[1,5-a]pyridine: A Versatile Architecture for Stable N-Heterocyclic Carbenes” *J. Am. Chem. Soc.* **2005**, *127*, 3290- 3291.

C.2. Congress

- “Development of New Catalytic Systems. Applications in Asymmetric Catalysis” **Invited lecture**. “Barluenga Lectureship 2022”, Oviedo (Spain), 2022
- “Hydrazone-Based Reagents and Ligands: A Structural Game in Asymmetric Catalysis” **Invited lecture**. 33rd Latin American Congress of Chemistry (CLAQ 33), La Habana (Cuba), 2018.
- “Sistemas catalíticos y reactivos de nueva generación para síntesis asimétrica” **Plenary lecture**. XXI Semana Científica “Antonio González”, Tenerife (España), 2017.
- “Hydrazone-based Reagents and Ligands: A Structural Game in Asymmetric Catalysis” **Invited lecture**. German-Spanish Symposium on Frontiers in Chemistry, Tarragona (España), 2017
- “Hydrazone-based reagents and ligands: A Structural Game in Asymmetric Catalysis” **Invited lecture**. EMN Meeting on Catalysis, Dubrovnik (Croacia), 2017.
- “Hydrazones: Singular Reagents and Ligands in Asymmetric Catalysis” **Invited lecture**. 6th EUCHEMS Chemistry Congress, Sevilla (España), 2016.
- “Hydrazones: Singular Reagents and Ligands in Asymmetric Catalysis” **Invited lecture**. XXVI Reunión Bienal del Grupo de Química Orgánica de la Real Sociedad Española de Química, Huelva (España), 2016
- “Hydrazones as Key Reagents and Ligands for Novel Applications in Asymmetric Catalysis” **Invited lecture**. 7th International Conference on Drug Discovery and Therapy, Sharjah (Emiratos Árabes Unidos), 2016
- “Hydrazones as Key Reagents and Ligands for Novel Applications in Asymmetric Catalysis” **Invited lecture**. International Conference on Nascent Developments in Chemical Sciences: Opportunities for Academia-Industry Collaboration (NDCS-2015), Pilani (India), 2015.
- “New generation catalytic systems and reagents for asymmetric Synthesis” **Plenary lecture**. 4th Brazil-Spain Workshop on Organic Chemistry, Donostia (España), 2014
- “Hydrazones: Singular Reagents and Ligands in Homogeneous Catalysis” **Plenary lecture**. 4th Spanish Moroccan Symposium on Organic Chemistry, Almería (España), 2012.
- “Hydrazones as Singular Reagents and Ligands in Homogeneous Catalysis” **Plenary lecture**. 6th Spanish Portuguese Japanese Organic Chemistry Symposium, Lisboa (Portugal), 2012



“Catalizadores y Ligandos "a medida". Del diseño racional a las soluciones en Catálisis Asimétrica” **Plenary lecture**. XV Semana Científica Antonio González, La Laguna (España), 2011.

“N,N-Dialquilhidrazonas y Carbenos N-Heterocíclicos en Síntesis Asimétrica” **Invited lecture**. XXII Reunión Bial de Química Orgánica, Tarragona (España), 2008.

C.3. Research projects.

1. P18-FR-644. “Diseño racional de catalizadores quirales avanzados orientado a aplicaciones en catálisis enantioselectiva” Funding entity: Junta de Andalucía. Duration: 1/1/2020 to 31-12-2022. Amount: 119.500,00€. **PI: Dra. Rosario Fernández**

2. PID2019-106358GB-C22. “Catalysts, ligands, methods & reagents for selective organic synthesis” Funding entity: MICIN. Duration: 1-6-2020 to 31-5-2023. Amount: 177.870,00€. **PI: Dra. Rosario Fernández.**

3. US-1262867. “Diseño Racional de Catalizadores Quirales Avanzados Orientado a Aplicaciones en Catálisis Enantioselectiva”. Funding entity: Junta de Andalucía. Duration: 01/02/2020 to 31/01/2022. Amount: 80.000,00 €. **PI: Dra. Rosario Fernández.**

4. P18-FR-3531. “Doble Resolución Cinética Dinámica Como Estrategia Para la Síntesis de Derivados de Quinap y Map”. Funding entity: Junta de Andalucía. Duration: 1/1/2020 to 31/12/2022. Amount: 149.400,00€. IP: Dr. José M^a Lassaletta Simon. **Researcher.**

5. CTQ2016-76908-C2-2-P. “Desarrollo y Diversificación de Sistemas Catalíticos Innovadores. Aplicaciones en Catálisis Asimétrica” Funding entity: Ministerio de Economía y Competitividad. Duration: 01/01/2017 to 31/12/2020. Amount: 121.000,00 €. **PI: Dra. Rosario Fernández.**

6. CTQ2013-48164-C2-2-P. “Sistemas catalíticos y reactivos de nueva generación para aplicaciones en síntesis asimétrica”. Funding entity: Ministerio de Economía y Competitividad. Duration: 01/01/2014 to 31/12/2016. Amount: 122.000,00€. **PI: Dra. Rosario Fernández**

7. CTQ2010-14974/BQU. “Nuevas Estrategias en Catálisis Enantioselectiva: Síntesis de Ligandos Quirales Basados en Hidrazonas y Desarrollo de Reacciones de Formación de Enlaces C-C Y C-X. Funding entity: Ministerio de Ciencia e Innovación. Duration: 1/1/2011 to 31/9/2014. Amount: 170.000,00€. **PI: Dra. Rosario Fernández**

8. EXC/2009/FQM 4537. “Estrategias innovadoras en catálisis asimétrica. Aplicaciones a la síntesis de compuestos de alto valor añadido”. Funding entity: Junta de Andalucía. Duration: 2010 to 2015. Amount: 293.939,68 €. **PI: Dra. Rosario Fernández**

9. CTQ2007-60244/BQU. “Organocatálisis enantioselectiva. Nuevas aplicaciones de N,N-dialquilhidrazonas en síntesis orgánica” Funding entity: Ministerio de Educación y Ciencia. Duration: 1/10/2007 to 30/9/2010. Amount: 161.000,00€. **PI: Dra. Rosario Fernández**

10. EXC/2005/FQM 658 “Diseño y aplicaciones de nuevos catalizadores basados en hidrazonas y carbenos N-dialquilamino heterocíclicos quirales” Funding entity: Junta de Andalucía. Duration: 2006 to 2009. Amount: 138.600,00€. **PI: Dra. Rosario Fernández**

C.4. Contracts, technological or transfer merits. Patents

1. A. Gómez Sánchez, B. Marco Stifel y R. Fernández Fernández (Nº 500331) “Procedimiento de obtención de derivados de 3-aril-5-metilpirroles a partir de ω-nitroestireno y compuestos β dicarbonílicos. Priority country: Spain. Date: 1981. Entity: Consejo Superior de Investigaciones

2. J.M. Lassaletta, A. Ros Laó, R. López Rodríguez, R. Fernández Fernández, B. Estepa Sánchez (Nº 201230260) “Derivado 2,6-diborilado de areno y su obtención mediante diborilación orto-dirigida”. Priority country: Spain. Date: 2012. Entities: Consejo Superior de Investigaciones and Universidad de Sevilla.

3. J.M. Lassaletta, A.M. Crespo-Peña, D. Monge, R. Fernández, E. Martín-Zamora (Nº 201230770). “Procedimiento de obtención de un azocompuesto o nitrosoderivado enantioméricamente puro o enriquecido mediante reacción hetero-carbonil-énica” Priority country: Spain. Date: 2012. Entities: Consejo Superior de Investigaciones and Universidad de Sevilla.

4. J.M. Lassaletta, A. Ros Laó, R. Fernández Fernández, B. Estepa Sánchez, P. Ramírez López (Nº P201331068) “Procedimiento de síntesis de compuestos heterobiarílicos con quiralidad axial, compuestos obtenidos y uso” Priority country: Spain. Date: 2013. Entities: Consejo Superior de Investigaciones and Universidad de Sevilla.