

CV Date	30/01/2023
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Part A. PERSONAL INFORMATION

First Name	Valentín Hornillos		
Family Name	Valentín Hornillos		
Sex	Male	Date of Birth	27/11/1978
ID number Social Security, Passport	04207454H		
URL Web			
Email Address	vhornillos@us.es		
Open Researcher and Contributor ID (ORCID)	0000-0002-6181-9146		

A.1. Current position

Job Title	Investigador Ramón y Cajal		
Starting date	2019		
Institution	Universidad de Sevilla		
Department / Centre	Síntesis Estereoselectiva / Facultad de Química		
Country		Phone Number	
Keywords	Catalysis		

A.2. Previous positions (Research Career breaks included)

Period	Job Title / Name of Employer / Country
2018 - 2019	Adjudicatario de un contrato por la Universidad de Sevilla, dentro del VI Plan Propio de Investigación y Transferencia, línea de actuación IV.2 Atracción de Talento. Investigadores con alto potencial / Universidad de Sevilla / Spain
2015 - 2017	Senior Research. Andalucía Talent Hub fellowship recipient / Consejo Superior de Investigaciones Científicas / Spain

A.3. Education

Degree/Master/PhD	University / Country	Year
Doctor en Química Orgánica	Universidad Complutense de Madrid / Spain	2009
Diploma de estudios avanzados de Doctorado	Universidad de Castilla-La Mancha / Spain	2004
Licenciado en Ciencias Químicas	Universidad de Castilla-La Mancha / Spain	2002

Part B. CV SUMMARY

Dr. Hornillos has been successfully working in projects belonging to many different areas, including organometallic chemistry, development of synthetic methodologies, ligand design, fluorescent labelling and, particularly valuable is his knowledge, in asymmetric catalysis and cross-coupling chemistry. His research career started at the UCLM (2002-2004) working in the synthesis of metallodendrimers based on N-heterocyclic carbenes and pincer complexes and their applications in catalysis. (6 publications). In 2004, after getting a PFI, Valentín move to the IQFR, CSIC in Madrid, to carry out his PhD studies which consisted of the design and synthesis of complex lipid drugs incorporating reactive and fluorescent groups while preserving their therapeutic activity. Dr Hornillos came across many challenging synthetic approaches and got insight into the theoretical aspects of fluorescence spectroscopy resulting in 14 publications (1 as corresponding author) and 1 patent. He also spent 5 months at Novartis in Vienna (1 publication). After obtaining his PhD (2009, Excellent cum Laude), Valentín moved with a fellowship from MEC to the group of Prof. Ben L. Feringa in Groningen, where he work in the field of asymmetric metal-catalysis, in particular allylic substitution, conjugate addition, borylation and cross-coupling reactions. Among the main achievements he developed the

first Cu-catalyzed enantioselective coupling between two allyl groups (JACS, 2013), the first asymmetric synthesis of phosphine boronates (ACIE, 2015) or a Pd-catalyzed cross-coupling method (Nat. Commun. 2016). In 2013 he became senior researcher at the University of Groningen where he supervised 3 PhD and 3 Master students, resulting in 5 publications as corresponding author (ACS Catal., Org Lett., Chem. Eur. J., Nat. Commun., and ACIE). In 2015, Valentín secured a highly competitive international fellowship at the postdoctoral level: Talent Hub Fellowship (two years, IP, 152. 685 €) and in December 2015 he moved to the IIQ (CSIC) in Seville. In May 2018, Dr. Hornillos was awarded with a Ramon y Cajal contract at US, where he is performing research on asymmetric catalysis and supervising 4 PhDs (10 publications in international top journals, being IP in 8 of them, 1 book chapter, 1 defended PhD in 2019). Moreover, he has secured funding (40 000 €, IP) from the US.

Valentín has participated in 14 projects (4 international), has been granted with 6 fellowships including a FPI predoctoral grant, MEC postdoctoral grant, a Talent Hub Fellowship and Ramón y Cajal. His research career is supported by 59 publications in international top journals including 1 Nat. Commun., 1 Nat. Protoc., 1 Nat Cell Death and Disease, 3 JACS, 4 ACIE, 3 Chem. Sci., 3 ACS Catal., -6 Chem. Eur. J., 5 Org. Lett., 4 Chem. Commun. etc., in 19 of them as first author and in 14 of them as corresponding author. He is also author of 1 review (Chem. Eur. J.), 1 tutorial review (Chem Soc Rev), 2 book chapters and 1 patent which has been exploited by BIOFTALMIK. According to SCOPUS and WOS, he has an h-index of 25 and has been cited 1431. During his scientific career, he presented 37 communications, 26 international, 15 held orally (2 invited). Valentín has been examiner of 2 thesis and has teaching experience of 456 hours. Valentín has also been reviewer of Org. Lett. (18), ACS Catalysis (5), ACIE (5), Nat. Commun. (5), JOC (2), Molecules (2). He has evaluated 3 projects for ANECA and 1 ANR (France).

Part C. RELEVANT ACCOMPLISHMENTS

C.1. Most important publications in national or international peer-reviewed journals, books and conferences

AC: corresponding author. (n° x / n° y): position / total authors. If applicable, indicate the number of citations

- 1 Scientific paper.** Patricia Rodríguez-Salamanca; Gonzalo de Gonzalo; José A. Carmona; Joaquín López-Serrano; Javier Iglesias- Sigüenza; Rosario Fernández; José M. Lassaletta; Valentín Hornillos. 2022. Biocatalytic Atroposelective Synthesis of Axially Chiral N-Arylindoles via Dynamic Kinetic Resolution ACS Catalysis. American Chemical Society Publications. 13-1, pp.659-664.
- 2 Scientific paper.** Liher Prieto; Verónica Rodríguez; Jose L. Vicario; Efraim Reyes; Valentín Hornillos. 2022. Enantioselective transannular reactions by palladium-catalysed conjugate addition of aryl boronic acids Chemical Communications. The Royal Society of Chemistry. 58, pp.6514-6517. <https://doi.org/10.1039/D2CC01642G>
- 3 Scientific paper.** Patricia Rodríguez-Salamanca; Rocío Martín-de la Calle; Verónica Rodríguez; Pedro Merino; Rosario Fernández; José M. Lassaletta; Valentín Hornillos. 2021. Asymmetric synthesis of dibenzo[b,d]azepines by Cu-catalyzed reductive or borylative cyclization Chemical Science. The Royal Society of Chemistry. 12, pp.15291-15297. <https://doi.org/doi.org/10.1039/D1SC04980A>
- 4 Scientific paper.** José A. Carmona; Carlos Rodríguez-Franco; Joaquín López-Serrano; Abel Ros; Javier Iglesias-Sigüenza; Rosario Fernández; José M. Lassaletta; Valentín Hornillos. 2021. Atroposelective Transfer Hydrogenation of Biaryl Aminals via Dynamic Kinetic Resolution. Synthesis of Axially Chiral Diamines ACS Catalysis. American Chemical Society Publications. 11-7, pp.4117-4124.
- 5 Scientific paper.** J. A. Carmona; V. Hornillos; P. Ramírez-López; A. Ros; J. Iglesias-Sigüenza; E. Gomez-Bengoia; R. Fernández; J. M. Lassaletta. 2018. Dynamic Kinetic Asymmetric Heck Reaction for the Simultaneous Generation of Central and Axial Chirality Journal of the American Chemical Society. American Chemical Society Publications. 140, pp.11067-11075.

- 6 **Scientific paper.** V. Hornillos; J. A. Carmona; A. Ros; J. Iglesias-Sigüenza; López-Serrano, J; R. Fernández; J. M. Lassaletta. 2018. Dynamic Kinetic Resolution of Heterobiaryl Ketones by Zinc?Catalyzed Asymmetric Hydrosilylation *Angewandte Chemie International Edition*. Wiley. 57, pp.3777-3781.
- 7 **Scientific paper.** E. B. Pinxterhuis; M. Giannerini; V. Hornillos; B. L. Feringa. 2016. Fast, greener and scalable direct coupling of organolithium compounds with no additional solvents *Nature communications*. Nature. 7-Article number: 1169.
- 8 **Scientific paper.** V. Hornillos; C. Vila; E. Otten; B. L. Feringa. 2015. Catalytic Asymmetric Synthesis of Phosphine Boronates *Angewandte Chemie International Edition*. Wiley. 54-27, pp.7867-7871.
- 9 **Scientific paper.** V. Hornillos; M. Pérez; M. Fañanas-Mastral; B. L. Feringa. 2013. Copper-Catalyzed Enantioselective Allyl-Allyl Cross-Coupling *Journal of the American Chemical Society*. American Chemical Society Publications. 135, pp.2140-2143.
- 10 **Review.** José A. Carmona; Carlos Rodríguez-Franco; Rosario Fernández; Valentín Hornillos; José M. Lassaletta. 2021. Atroposelective transformation of axially chiral (hetero)biaryls. From desymmetrization to modern resolution strategies *Chemical Society Reviews*. The Royal Society of Chemistry. 50, pp.2968-2983.

C.2. Conferences and meetings

- 1 Valentín Hornillos. Catalytic Asymmetric synthesis of Axially Chiral Diamines by Reductive Amination and DKR. XXXVII Biental RSEQ 2019. Universidad del País Vasco, San Sebastián. 2019. Spain. Participatory - oral communication. Conference.
- 2 Valentín Hornillos. Enantioselective synthesis of heterobiaryls by resolution techniques. 7th Spanish Asymmetric Catalysis Network Symposium. Universidad del País Vasco, San Sebastián. 2018. Spain. Participatory - invited/keynote talk. Conference.
- 3 Valentín Hornillos. Enantioselective synthesis of heterobiaryls by resolution techniques. Feringa Academic Alumni Symposium. University of Groningen. 2017. Holland. Participatory - invited/keynote talk. Conference.
- 4 Valentín Hornillos; Abel Ros; Pedro Ramírez-López; Javier Iglesias-Sigüenza; Rosario Fernández; José M. Lassaletta. Synthesis of Axially Chiral Heterobiaryl Alkynes via Dynamic Kinetic Asymmetric Alkynylation. 254th American Chemical Society National Meeting & Exposition. American Chemical Society. 2017. United States of America. Participatory - oral communication. Conference.
- 5 Valentín Hornillos; Carlos Vila; Edwin Otten; Ben L. Feringa. Catalytic Asymmetric Synthesis of Phosphine Boronates. XXVI Reunión Biental de Química Orgánica. Universidad de Huelva. 2016. Spain. Participatory - oral communication. Conference.
- 6 Valentín Hornillos; Massimo Giannerini; Carlos Vila; Martín Fañanas Mastral; Ben L. Feringa. Direct Catalytic Cross-Coupling of Organolithium Compounds. 19th European Symposium of Organic Chemistry (ESOC 2015). Universidade de Lisboa. 2015. Portugal. Participatory - oral communication. Conference.
- 7 Valentín Hornillos; Massimo Giannerini; Carlos Vila; Martín Fañanas Mastral; Ben L. Feringa. Direct Catalytic Cross-Coupling of Organolithium Compounds. 8TH CARLA WINTER SCHOOL 2015. CaRLa, joint research laboratory of BASF and University of Heidelberg. 2015. Germany. Participatory - oral communication. Conference.
- 8 Valentín Hornillos; Massimo Giannerini; Carlos Vila; Martín Fañanas Mastral; Ben L. Feringa. Direct catalytic cross-coupling of organolithium compounds. 248th ACS National Meeting & Exposition. American Chemical Society. 2014. United States of America. Participatory - oral communication. Conference.
- 9 Valentín Hornillos; Manuel Pérez; Martín Fañanas Mastral; Ben L. Feringa. Cu-Catalyzed Enantioselective Allyl-Allyl Cross Coupling. XV Netherlands Catalysis and Chemistry Conferences (NCCC). NWO-CW, KNCV, FWO, DZA, NIOK, NRSCC, VIRAN. 2014. Holland. Participatory - oral communication. Conference.
- 10 Valentín Hornillos; Manuel Pérez; Martín Fañanas Mastral; Ben L. Feringa. Cu-Catalyzed Enantioselective Allyl-Allyl Cross Coupling. X Simposio de Investigadores Jóvenes. Real Sociedad Española de Química. 2013. Spain. Participatory - oral communication. Conference.

C.3. Research projects and contracts

- 1 Project.** Catalizadores, Ligandos, Métodos y Reactivos para Síntesis Orgánica Selectiva (PID2019-106358GB-C22). Ministerio de Ciencia e Innovación. Valentin Hornillos. (Universidad de Sevilla). 01/06/2020-31/05/2023. 177.870 €. Team member.
- 2 Project.** Weak Lewis pair interactions as a racemization strategy: A Dynamic Kinetic Resolution approach towards axially chiral (hetero)biaryls. Junta de Andalucía. Valentin Hornillos. (Universidad de Sevilla). 01/02/2020-30/04/2022. 30.000 €. Principal investigator. IP
- 3 Project.** Síntesis Catalítica y Enantioselectiva de Compuestos con Quiralidad Axial y Central Mediante Técnicas de Resolución Cinética Dinámica. University of Seville. Valentin Hornillos. (Universidad de Sevilla). 01/04/2018-31/03/2019. 40.000 €. Principal investigator. Principal investigator
- 4 Project.** CTQ2016-76908-C2-1-P, Red ORFEO-CINQA "Centro de Innovación en Química Avanzada". Ministerio de Economía y Competitividad. Miguel Angel Sierra. (Instituto de investigaciones químicas (IIQ, CSIC)). 01/01/2017-01/01/2019. 41.500 €. Team member. Researcher
- 5 Project.** Gravitation program 024.601035. Ministry of Education Culture and Science. Ben. L. Feringa. (Stratingh Institute for Chemistry, University of Groningen). 01/02/2013-01/06/2018. Team member. Researcher
- 6 Project.** Grant Agreement nº 291780, Enantioselective synthesis of heterobiaryls by resolution techniques. Ministry of Economy, Innovation, Science and Employment of the Junta de Andalucía and the European Union's Seventh Framework Program, Marie Skłodowska-Curie actions. Valentin Hornillos. (Instituto de investigaciones químicas (IIQ, CSIC)). 01/10/2015-30/09/2017. 152.685 €. Principal investigator. Principal investigator
- 7 Project.** Asymmetric Catalysis. The Royal Netherlands Academy of Arts and Sciences (KNAW). Ben L. Feringa. (Stratingh Institute for Chemistry, University of Groningen). 01/01/2010-31/12/2015. Team member. Researcher
- 8 Project.** Advanced Green Gas Technology Development, Phase 2 (EDGaR). Gas Consulting and Services; University of Groningen; Energy research Centre of the Netherland (ECN). B.L. Feringa. (Stratingh Institute for Chemistry, University of Groningen). 01/01/2011-31/12/2014. Co-ordinator. Researcher
- 9 Project.** Diseño, síntesis y caracterización de análogos fluorescentes de fosfocolinas. Proyecto Intramural de Frontera (PIF-200680F0171). Ulises Acuña. (Consejo Superior de Investigaciones Científicas). 01/01/2007-31/12/2009. Team member. Researcher. Síntesis de análogos fluorescentes de los compuestos bioactivos.
- 10 Project.** Éter-lípidos fluorescentes con actividad anti-leishmania o antineoplásica. Síntesis y aplicaciones en biomedicina. Proyecto BQU 2003-04413. Dirección General de Investigación Científica y Técnica. BQU2003-04413. Ulises Acuña. (Consejo Superior de Investigaciones Científicas). 01/01/2003-31/12/2006. Team member. Researcher. Síntesis de análogos fluorescentes y reactivos de los compuestos bioactivos Miltefosina y Edelfosina

C.4. Activities of technology / knowledge transfer and results exploitation

A. U. Acuña; F. Amat-Guerri; E. Carrillo; V. Hornillos; S. Marcos; J. M. Requejo; L. I. Rivas; J. M. Saugar; C. del Águila; J. Merayo. P200800951. Compuestos fluorescentes para diagnóstico de infecciones. Procedimiento de obtención y sus aplicaciones (Fluorescent compounds for infection diagnosis. Synthesis and applications). Spain. 04/04/2008. C.S.I.C. (85%), University of Valladolid (15%) and University San Pablo CEU (5%). BIOFTALMIK, S.L.