

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	Carmen		
Family name	Ortiz Mellet		
Gender (*)	Female	Birth date (dd/mm/yyyy)	
Social Security, Passport, ID number			
e-mail	mellet@us.es	URL Web	
Open Researcher and Contributor ID (ORCID) (*)		0000-0002-7676-7721	

(*) Mandatory

A.1. Current position

Position	Professor of Organic Chemistry		
Initial date	2009		
Institution	University of Seville		
Department/Center	Organic Chemistry	<u>Faculty of Chemistry</u>	
Country	Spain	Teleph. number	+34 954 559806
Key words	carbohydrates; iminosugars; glycomimetics; supramolecular chemistry; immunomodulation; biological chemistry		

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

Period	Position/Institution/Country/Interruption cause
2009-now	Professor /University of Seville/Spain
1987/2009	Tenured Professor/ University of Seville/Spain

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
PhD in Chemistry	University of Seville/ Spain	1984

(Include all the necessary rows)

Total number of citations / Average n° of citations during last five years: 8370/ 586

JCR articles: 284

h-index: 52 (Scopus).

Thesis supervised: 23 (+ 4 in preparation).

Six-year research periods acknowledged by the Spanish Agency CNEAI : 6. Last period approved: 2013-2018

Six-year knowledge transference period acknowledged by the Spanish Agency CNEAI: 1 (2019)

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

Born in Seville, I studied Chemistry at the University of Seville, where I was graduated in 1979 and received her doctorate in 1984 in the field of glycoconjugate synthesis. In 1987 I got a position as Lecturer of Organic Chemistry. She furthered her postdoctoral training at the Center for Nuclear Studies in Grenoble, France (1990 and 1995) where she acquired skills in supramolecular chemistry and synthesis of bioactive complex oligosaccharides. Upon her return to the University of Seville, she assumed the direction of the Group of Bioorganic Chemistry of Carbohydrates, being promoted to Full Professor of Organic Chemistry in 2009. Since 2019 she serves as Director of the Department of Organic Chemistry of the Faculty of Chemistry of the University of Seville, being since 2021 Commissioner of the Science Branch in the Research Commission at the same University. I has been Visiting Professor : at the École



Normale Supérieure de Cachan (Paris-Saclay University) and the University of Picardie in France and at the University of Hokkaido (Japan).

My field of work and the research lines of her group revolve around "Carbohydrates for health and well-being" with a clear focus on the development of new therapies, both for orphan diseases and global health problems. Recently, I has been the co-inventor of a patent on a new treatment for Alzheimer's disease and, in the context of the current Covid-19 pandemic, she has established a collaboration contract with the company BioNTech (Germany) for the development of a new generation of nucleic acid-based vaccines actin oas co-inventor of four new patents. In addition, she collaborates with Amicus Therapeutics (USA) in the development of new drugs for the treatment of Fabry disease. Although chemistry is the central axis, all these topics require multidisciplinary approaches that involve collaborations with national and international groups in areas such as pharmacology, physical chemistry, biophysics, biochemistry, immunology, medicine or food technology, among others.

The research activity has been complemented throughout her career with a clear vocation for teaching and training young researchers. I am the author of more than 250 articles in scientific publications, 10 chapters in books and 16 patents. I have supervised 23 Doctoral Theses (4 more in preparation) and 23 Master's Thesis. Her academic citation h-index is 52 (November 2022), making her one of the most cited researchers in her field in Spain. I have numerous interactions and contracts with companies, especially in the pharmaceutical and agri-food sectors, including Farmhispania, Herba Ricemills, Dosbio, Amicus Therapeutics and BioNTech. I has been awarded the Research Prize "University of Seville-Bruker" in three occasions and the "Premio Fama" for my research career and the "Knowledge Transfer Award", both from the University of Seville in the area of Science.

Part C. RELEVANT MERITS (sorted by typology)

C.1. Publications (see instructions)

1. I. Herrera-González, M. Thepaut, E.M. Sánchez-Fernández, ... **C. Ortiz Mellet (AC; 10/10). 2022**, Mannobioside biomimetics that trigger DC-SIGN binding selectivity. *Chem. Commun.* 58, 12086-12089. FI: 5.996 (Q2); DOI: <https://doi.org/10.1039/D2CC04478A>
2. M. González-Cuesta, P. Sidhu, R. Ashmus, ..., **C. Ortiz Mellet (AC; 12/13)**, D. J. Vocadlo. **2022**, Bicyclic picomolar OGA inhibitors enable chemoproteomic mapping of its endogenous post-translational modifications. *J. Am. Chem. Soc.*, 144, 832-844. FI: 16.383 (D1). DOI: [10.1021/jacs.1c10504](https://doi.org/10.1021/jacs.1c10504).
3. L. Gallego-Yerga, C. de la Torre, F. Sansone, A. Casnati, **C. Ortiz Mellet**, J. M. García Fernández, V. Ceña. **2021**. Synthesis, self-assembly and anticancer drug encapsulation and delivery properties of cyclodextrin-based giant amphiphiles. *Carbohydr. Polym.*, 252, 117135. FI: 10.723 (D1). DOI: [10.1016/j.carbpol.2020.117135](https://doi.org/10.1016/j.carbpol.2020.117135)
4. A. I. Carbajo Gordillo, J. L. Jiménez Blanco, J. M. Benito, ... **C. Ortiz Mellet (AC; 10/13)**, ... José M. García Fernández. **2020**. "Click" synthesis of size and shape-tunable star polymers with functional macrocyclic cores for synergistic DNA complexation and delivery. *Biomacromolecules*, 21, 5173-5188. FI :6.988 (D1); DOI: [10.1021/acs.biomac.0c01283](https://doi.org/10.1021/acs.biomac.0c01283).
5. P. Guillen-Poza, E. M. Sánchez-Fernández, G. Artigas, J. M. García Fernández, H. Hinou, **C. Ortiz Mellet (AC)**, S.-I. Nishimura, F. García Martín **2020**. "Amplified detection of breast cancer autoantibodies using MUC1-based Tn antigen mimics". *J. Med. Chem.* 63, 8524-8533. FI: 7.446 (D1); DOI: [10.1021/acs.jmedchem.0c00908](https://doi.org/10.1021/acs.jmedchem.0c00908).
6. A. Bermejo, C. D. Navo, J. Castro-López, .. **C. Ortiz Mellet (11/17)**, ... F. Corzana . **2020**. "Synthesis, Conformational Analysis and in vivo Assays of an Anti-cancer Vaccine that features an Unnatural Antigen based on a sp²-Iminosugar Fragment". *Chem. Sci.* 11, 3946-4006. FI: 9.825 (Q1); DOI: [10.1039/C9SC06334J](https://doi.org/10.1039/C9SC06334J).
7. I. Herrera-González, E. M. Sánchez-Fernández, A. Sau, C. Nativi, J. M. García Fernández, M. C. Galan, **C. Ortiz Mellet (AC)**. **2020**. "Stereoselective Synthesis of Iminosugar 2-Deoxy(thio)glycosides from Bicyclic Iminoglycal Carbamates Promoted by Cerium(IV) Ammonium Nitrate and Cooperative Brønsted Acid-Type Organocatalysis". *J. Org. Chem. Chem.* 85, 5038-5047. FI: 4.354 (Q1); DOI: [10.1021/acs.joc.0c00324](https://doi.org/10.1021/acs.joc.0c00324).
8. M. González-Cuesta, D. Goyard, E. Nanba, K. Higaki, J. M. García Fernández, O. Renaudet, **C. Ortiz Mellet (AC)**. **2019** . "Multivalent glycoligands with lectin/enzyme dual specificity: self-deliverable glycosidase regulators". *Chem. Commun.* 55, 12845-12848. FI: 5.996 (Q1); DOI: [10.1039/C9CC06376E](https://doi.org/10.1039/C9CC06376E).



9. E. M. Sánchez-Fernández, M. I. García-Moreno, A. I. Arroba,...**C. Ortiz Mellet (AC; 12/12). 2019.** "Synthesis of polyfluoroalkyl sp²-iminosugar glycolipids and evaluation of their immunomodulatory properties towards anti-tumor, anti-leishmanial and anti-inflammatory therapies". *Eur. J. Med. Chem.* 182, 111604. FI: 5.572 (D1); [DOI: 10.1016/j.ejmech.2019.111604](https://doi.org/10.1016/j.ejmech.2019.111604).

10. J.-F. Nierengarten, J. P. Schneider, T. M. N. Trinh,.. **C. Ortiz Mellet (AC; 10/11), P. Compain. 2018** "Giant Glycosidase Inhibitors: First- and Second-Generation Fullerodendrimers with a Dense Iminosugar Shell". *Chem. Eur. J.* 24, 2483-2492. FI: 5.160 (Q1); [DOI: 10.1002/chem.201705600](https://doi.org/10.1002/chem.201705600).

C.2. Congress, indicating the modality of their participation (invited conference, oral presentation, poster). Please visit <https://prisma.us.es/investigador/3098>

C.3. Research projects, indicating your personal contribution. In the case of young researchers, indicate lines of research for which they have been responsible.

. Ref: PID2019-105858RB-I00 Glycoconjugate mimetics: new glycomedicine strategies targeting neurological and immune system-related diseases. (Convocatoria 2019 Proyectos de I+D+i - RTI Tipo B). Ministerio de Ciencia e Innovación. **C. Ortiz Mellet (IP)**. June 2020 - May 2023. 139.150,00 €.

2. Ref: US-1380698. Crossed recognition between glycosidases and lectins: mechanisms and opportunities for the development of multitarget drugs. Junta de Andalucía. **C. Ortiz Mellet (IP)**. September 2021 – December 2022. 80.000,00 €.

3. Ref: SAF2016 76083R. Glycomimetic-based therapies for the treatment of protein folding diseases, inflammation and cáncer. Ministerio de Economía y Competitividad. **C. Ortiz Mellet (IP)**. January 2017 hasta December 2019. 169.400,00 €.

4. Ref. FP7-PEOPLE-2012-CIG. Glycodrugs: new strategies for controlling the activity of glycosidaseenzymes and their application in therapies for lysosomal storage diseases and cancer (GLYCODRUGS). 7º Programa Marco (Marie Curie Career Integration Grants, CIG. **C. Ortiz Mellet (IP)**. July 2013 - July 2017. 200.000 €.

5. Ref. SAF2013-44021R. Inhibitors, Chaperones and Nutraceuticals based on carbohydrates for biomedical applications in lysosomal storage disorders, cancer and Crohn disease. Ministerio de Economía y Competitividad. **C. Ortiz Mellet (IP)**. January 2014 - December 2016. 217.800,00 €.

C.4. Contracts, technological or transfer merits, Include patents and other industrial or intellectual property activities (contracts, licenses, agreements, etc.) in which you have collaborated. Indicate: a) the order of signature of authors; b) reference; c) title; d) priority countries; e) date; f) Entity and companies that exploit the patent or similar information, if any

1. Next generation mRNA-based vaccines. BioNTech SE. **C. Ortiz Mellet (IP)**. April 2021 to April 2024. 450.000,00€

2. Propiedades farmacocinéticas de la 6S-NBI-DGJ. AMICUS THERAPEUTICS. **C.Ortiz Mellet**. June 2018 to May 2019. 24.529,84€. **C. Ortiz Mellet (IP)**. April 2021 - April 2024. 450.000,00€.

3. INTERCONECTA. Experimental development of transformation proceses of lignocellulosic biomass. CENTRO DE ANÁLISIS AGROPECUARIO, S.L. -CANAGROSA. **C. Ortiz Mellet (IP)**. January 2012 to December 2014. 90.000,90€

4. Development of New products from rice and legume. Chemical Analysis. HERBA RICEMILLS, S.L. **C. Ortiz Mellet (IP)**. November 2010 to June 2012. 143.405,00€

5. (a) Investigation, preparation and possible use of cyclodextrin derivatives as muscle relaxants antagonists. FARMHISPANIA S. A. **C. Ortiz Mellet (IP)**. December 2011 - January 2012. 62.538,90€. (b) March 2012 to March 2013. 65.665,90€.

C.4. Patents (selected from 2017)

1. David Voadlo, J. M. García Fernández, **C. Ortiz Mellet**, et al. Glycosidase inhibitors and uses thereof. University of Simon Fraser (Canada) – CSIC – Universidad de Sevilla. US Provisional Patent Application 63/083,293, **2020**. País de prioridad: USA. 25/09/2020

2. J. M. García Fernández, **C. Ortiz Mellet**, et al. Multiantennary Glycolipid Mimetics and Uses Thereof. CSIC – Universidad de Sevilla – Academia Sinica (Taiwan). EP21382980.7, **2021**. PCT/EP2022/079553, **2022**.



3. J. M. García Fernández, **C. Ortiz Mellet**, et al. Anti-Inflammatory Glycolipid Mimetics and Uses Thereof. CSIC – Universidad de Sevilla – Academia Sinica (Taiwan). EP21382981.5, **2021**. PCT/EP2022/079912, **2022**.
4. J. Moreno Herrero, H. Haas, ... **C. Ortiz Mellet**, et al. Oligosaccharide compounds and complexes. EP21382958.3, **2021**. PCT/EP2022/079340, **2022**. Priority date: 21/10/2022. CSIC – University of Sevilla – BioNTech.
5. J. Moreno Herrero, H. Haas, ... **C. Ortiz Mellet**, et al. Oligosaccharide complexes and uses. EP21383082.1., **2021**. PCT/EP2022/079345, **2022**. Priority date: 21/10/2022. **CSIC – University of Seville – BioNTech**.
6. J. M. García Fernández, L. E. Atencio Genes, **C. Ortiz Mellet**, et al. ES/ P201530475, **2017**, PCT/ES **2017/070764**. Procedure for the preparation of caramels with a high content of prebiotic oligosaccharides. Spain. 30/03/2015. CSIC – Univ. of Seville– CNRS – Univ. of Poitiers.
7. J. M. García Fernández, **C. Ortiz Mellet**, et al. ES/ P201530475, PCT/ES**2016/070244**. Composition for the treatment of lysosomal diseases. Spain. 10/04/2015. CSIC – Univ. de Seville– Univ. Pablo de Olavide.

C.5 Supervised PhD (from 2015, 23 in total and 4 more in preparation).

1. Strategies of glycosidation with sp²-iminosugars. Synthesis of multivalent manooligosaccharide mimetics and study of their interactions with C-type lectins using spectroscopic, computational and biophysical techniques. Irene Herrera González. University of Seville. December **2022**
2. New strategies based on carbohydrates for the study and treatment of neurodegenerative diseases, regulation of immune system and nucleic acid delivery. doctorando: Manuel González Cuesta. University of Seville. June **2022**
3. Biomolecular transport systems based on cyclooligosaccharides and dendrimers. Ana Isabel Carbajo Gordillo. University of Seville. Enero **2021**.
4. Control of supramolecular properties of cyclodextrins based in the incorporation of aromatic clips. applications in gene material transport. Tania Neva Rodríguez. Univ. de Seville, **2019**.
5. Glycobiotics: Preparation of caramels with functional properties. Loyda Esther Atencio Genes. Univ. de Seville, **2017**.
6. Glycotherapies for cancer, leishmaniasis and lysosomal storage disorders. Rita Alexandra Gonçalves Pereira. Univ. of Seville, **2016**.
7. Amphiphilic Glycomimetics and glycoligands. Interactions with enzymes, receptors and nucleic acids. Julio Rodríguez Lavado. Univ. of Seville, **2015**.

C.6 Selected Prizes and others

- 1.- Awarded with the prize for the trajectory in transfer of knowledge-University of Seville (**2019**) and with the research prize FAMA-University of Seville for the trajectory in Natural Sciences (**2014**).
2. Awarded with the Research prize University of Seville-BRUKER (**2014, 2016** and **2021**).
3. Head of Research Group “Bioorganic Chemistry of Carbohydrates (FQM 308) financed by Junta de Andalucía from **2001**.
4. PhD supervisor of Gonzalo Rivero Barbarroja, M. Carmen Padilla Pérez and M^a José Puerto Madorrán.
5. Head of “Servicio de Criogenia de los Servicios Generales de Investigación de la Universidad de Sevilla” (CITIUS, from September 2011).
6. Reviewer for internationally recognized journals.
7. Project reviewer for the Spanish Fondo for the Ministerio de Ciencia e Innovación (MEC) and Ministerio de Economía y Competitividad (MINECO), the European Research Council (ERC projects), the Colombian Fondo para proyectos de Ciencia (COLCIENCIAS), Tecnología e Innovación the Argentinian Fondo for Investigación Científica y Técnica de Argentina (FONCYT), and the French Agence Nationale de la Recherche de Francia (ANR).
8. Expert reviewer of projects of European call H2020-FETOPEN-2014/2015 and Cross-read Vice-chair of European calls H2020-FETOPEN-2015, H2020-FETOPEN-2017, H2020-FETOPEN-2019, HORIZON-EIC-2021-PATHFINDEROPEN).