

CV date 06-07-2021

Part A. PERSONAL INFORMATION

First and Family name	M. Pilar López-Alvarado Gutiérrez		
Social Security, Passport, ID number	07221422C	Age	55
Researcher numbers	Researcher ID	I-5184-2016	
	Orcid code	0000-0002-5773-2339	

A.1. Current position

Name of University	Universidad Complutense, Madrid		
Department	Química en Ciencias Farmacéuticas. U. D. Química Orgánica y Farmacéutica		
Address and Country	Facultad de Farmacia, plaza de Ramón y Cajal s.n.		
Phone number	91-3941823	E-mail	alvarado@ucm.es
Current position		From	03-2020
Espec. cód. UNESCO	2306, 2390		
Palabras clave	Multitarget molecules for therapy of neurodegenerative diseases. Domino and multicomponent reactions. Mecanochemistry reactions. Low molecular weight heparins.		

A.2. Education

PhD	University	Year
Doctorado en Farmacia	Complutense	1995
Academic Visitor	Imperial College, Londres (Donald Craig)	1996

A.3. JCR articles, h Index, thesis supervised...

- Co-author of more than 50 research and review articles in peer reviewed journals and book chapters.
- Number research articles in Q1 (JCR): 28
- Thesis supervised (last 5 years): 1 (co-directed)
- All Citations: 1106 (Google Scholar)
- Average of cites/year (2016-2021): 358
- h-Index: 19 (9 last 5 years); i10 index: 32 (9 last 5 years) (Google Scholar)
- Number of six-years research evaluated periods: 4 (last one: 2015).
- Number of six-years transfer of knowledge evaluated periods: 1 (2020)
- Member of (BIOHET) *Heterociclos de Interés Biológico y Terapéutico* group, (reference 920234). This group was rated "Excellent" by the process of external evaluation of the UCM research groups by of the National Agency of Investigation (31-7-2018), qualification that was achieved by approximately 16% of the groups.

Part B. CV SUMMARY (max. 3500 characters, including spaces)

Degree in Pharmacy (1989 in two specialtys, Sanitary and Industrial, UCM), Degree Award (1991). Special Degree (tesina): "Fused derivatives of imidazophenothiazines as potential anthelmintic agents" (January 1991) and Doctoral Thesis: synthesis of thymidylate synthase inhibitors related to the antibiotic diazaquinomycin A (1995) supervised by Dr. J. C Menéndez, Organic and Medicinal Chemistry Department. PhD thesis Award (1996). CAM Fellowship. Pre-doctoral stay "Istituto di Chimica Farmaceutica e Tecnica Farmaceutica de la Università degli Studi" in Perugia (Italy), Prof. Pellicciari group (1992): "Design of active molecules in the kinurenine metabolism or as antagonists or modulators of the EAA receptor". Post-doctoral stay in 1996 in the group of Prof. Craig, Imperial College of Science,

Technology and Medicine in London” (UK), MECD Fellowship: “Synthesis of precursors of the anti-tumor Taxol”.

Assistant Professor, 1996, I joined the group of Dr. C. Avendaño y J. C. Menéndez and I worked in analogues of natural products with antitumor activity, especially heterocyclic quinones, compounds related to natural antitumor from marine origin (triprostatis and tetrahydroisoquinoline alkaloids) and MDR reverters (welwistatin).

In 2002, I am Profesor Titular de Universidad in the Dept. of Organic and Medicinal Chemistry (UCM). I participate in the Interuniversity Doctorate program of Medicinal Chemistry that currently has a Label towards Excellence. I have participated in numerous research projects with public funding for the development of different lines of research related to the design and synthesis of heterocycles with potential activity, proposing at the same time a novel chemical methodology.

In 2006, I started to work in the independent research line of Prof. Menéndez in the application of domino and multicomponent reactions to the diversity oriented synthesis for the search of new bioactive skeletons, with funding from the National Plan. These projects is focused on the preparation of chemical libraries and diversity-oriented synthesis, including Diels-Alder hetero reactions, microwave-assisted organic synthesis and new domino and multicomponent reactions for the preparation of systems bicyclic and nitrogen heterocycles of biological interest. During these last years I worked in the field of diagnosis and treatment of neurodegenerative diseases. Since 2018, I participate in the ASL-Madrid program (CAM). I have participated in the Doctorate programs of Pharmacy and Medical Chemistry and in the Masters of Pharmaceutical Sciences and Discovery of Drugs (Interuniversity with the U. Alcalá de Henares and U. San Pablo CEU). I have participated in contracts with the pharmaceutical industry (Laboratorios Rovi) for years.

I have been Academic Secretary (2010-2014) Dept. of Organic and Pharmaceutical Chemistry and November of 2017 to February of 2018 of the Dept. of Chemistry in Pharmaceutical Sciences) and Director of the Dept. of Organic and Pharmaceutical Q. (2014-2017). In February 2016 I was granted accreditation as a University Full Professor.

Since 2020 I am full professor in the Dept. of Chemistry in Pharmaceutical Sciences (U.D. Organic and Medicinal Chemistry).

Number of publications (last 5 years): 5, articles: 4 (Q1) of J. Sci. Rep. and one teaching publications.

More than 20 communications to congresses in the last 5 years.

Part C. RELEVANT MERITS

C.1. Publications (including books)

1- Staderini, M., Piquero, M., Abengózar, M. A., Nachér-Vázquez, M., Romanelli, G., **López-Alvarado, P.**, L. Rivas, M. L. Bolognesi, J. C. Menéndez. Structure-activity relationships and mechanistic studies of novel 4-(polyamino)styrylquinoline derivatives active against Leishmania strains. *Eur. J. Med. Chem.* **2019**, 171, 38-53. doi: <https://doi.org/10.1016/j.ejmech.2019.03.007> (4,519; 4/60 (Chemistry, Medicinal), Q1, D1)

2- Chioua, M., Buzzi, E., Moraleda, I., Iriepa, I., Maj, M., Wnorowski, A., Giovannini, C., Tramarin, A., Portali, F., Ismaili, L., **López-Alvarado, P.**, Bolognesi, M.L., Józwiak, K., Menéndez, J.C., Marco-Contelles, J., Bartolini, M. **2018**, Tacripyrimidines, the first tacrine-dihydropyrimidine hybrids, as multi-target-directed ligands for Alzheimer's disease”, *Eur. J. of Med. Chem.*, 155: 839-846. DOI: 10.1016/j.ejmech.2018.06.044 (4,519; 4/60 JCR Chemistry, Medicinal, Q1, D1)

3- G. Bidaux, D. Gordienko, G. Shapovalov, V. Farfariello, A.-S. Borowiec, O. Iamshanova, L. Lemonnier, M. Gueguinou, R. Guibon, G. Fromont, M. Paillard, Y. Gouriou, C. Chouabe, E. Dewailly, D. Gkika, **P. López-Alvarado**, J. C. Menéndez, L. Hélot, C. Slomianny, N. Prevarskaya. **2018**, 4TM-TRPM8 channels are new gatekeepers of the ER-mitochondria

Ca²⁺ transfer. *Biochimica et Biophysica Acta - Molecular Cell Research*, 1865: 981-994. DOI:doi.org/10.1016/j.bbamcr.2018.04.007 (4,651; 55/292 JCR Biochemistry and Molecular Biology, Q1)

4- G. Giorgi, M.C. Bravo, C. Campo, P. Cledera, M. Fernández, **P. López-Alvarado**, J. C. Menéndez, M. L. Salazar, J. D. Sánchez, J. Ph. Guy. Empleo del campus virtual en docencia práctica. Una herramienta para una enseñanza universitaria en inglés e inclusiva. *Enseñanza de las Ciencias*, **2017**, n.º extraordinario, 1801-1806. ISSN (Digital): 2174-6486. (0,974, 13/224 (Educación), Q1, D1)

5- L. De Petrocellis, F. J. Arroyo, P. Orlando, A. Schiano Moriello, R. M. Vitale, P. Amodeo, A. Sánchez, C. Roncero, G. Bianchini, M. A. Martín, **P. López-Alvarado**, J. C. Menéndez. **2016**. Tetrahydroisoquinoline-derived urea and 2,5-diketopiperazine derivatives as selective antagonists of the transient receptor potential melastatin 8 (TRPM8) channel receptor and antiprostata cancer agents. *Journal of Medicinal Chemistry*, **59**: 5661-5683 y 7697. DOI:doi.org/10.1021/acs.jmedchem.5b01448 (6,259; 3/60 JCR Chemistry, Medicinal, D1, Q1).

6- López-Alvarado, P., Menéndez, J.C., Ramos, M.T. **2011**. Measurement of the pKa of phenols and its application to the determination of QSAR-related electronic parameters. Practical Studies for Medicinal Chemistry Students. An Integrating Approach for Developing Countries (A. Monge, C. R. Ganellin, R. Cattana eds.), capítulo III.5. ISBN 978-950-665-570-9, páginas 343-365. Editorial: Universidad Nacional de Río Cuarto.

7- Bolognesi, M.L., Ai Tran, H.N., Staderini, M., Monaco, A., López-Cobeñas, A., Bongarzone, S., Biarnés, X., **López-Alvarado, P.**, Cabezas, N., Caramelli, M., Carloni, P., Menéndez, J.C., Legname, G. **2010**. Discovery of a class of diketopiperazines as antiprion compounds, *ChemMedChem.*, **5** (9): 1324-1334. doi: 10.1002/cmdc.201000133. (3,306 JCR: 10/51 Chemistry, Medicinal, Q1). Top articles of *ChemMedChem* (18-10-2010).

8- My most cited article (186) is: **López-Alvarado, P.**, Avendaño, C., Menéndez, J.C. **1995**. New synthetic applications of aryllead triacetates. N-arylation of azoles. *The Journal of Organic Chemistry*, **60**, (17): 5678-5682. DOI: 10.1021/jo00122a060 (3,251; JCR 5/36 Chemistry, Organic, Q1).

C.2. Research projects and grants

1. Subproject associated with the project of the CENIT "Desarrollo de nuevos fármacos y alimentos funcionales para enfermedades de alto impacto social" (company: Zeltia, Rovi, Faes Farma, Lipotec y Dentrico). CDTI, 01-01-2006 a 31-12-2009 (46.400 €). Subproject Head, José Carlos Menéndez.

2. "Nuevas moléculas multidiana y teranósticas para el diagnóstico y terapia de enfermedades neurodegenerativas" Ministerio de Economía y Competitividad (MINECO) (CTQ2015-68380-R), 01-01-2016 to 31-12-2018 (154.880 € + 1 FPI contract), IP, José Carlos Menéndez.

3. "Compuestos multidiana innovadores para el diagnóstico y tratamiento de enfermedades neurodegenerativas. Ministerio de Ciencia, innovación y Universidades (MINECO) (RTI2018-097662-B-I00) 01-01-2019 to 31-12-2021 (185.009 €) IP, José Carlos Menéndez.

4. "Diseño y desarrollo de fármacos innovadores para el tratamiento de la esclerosis lateral amiotrófica" (consorcio ELA-Madrid, proyecto B2017/BMD-3813) Comunidad de Madrid. Actividades de I + D entre grupos de investigación en Biomedicina. 01-01-2018 a 31-12-2021 (767.395 €) IP: Ana Martínez Gil, network coordinator ELA-Madrid. IP of Subproject Head Biohet, José Carlos Menéndez.

5. "Heterociclos de Interés Biológico y Terapéutico Group". Director del grupo J. Carlos Menéndez. Ayudas para la financiación de grupos de investigación de la Universidad Complutense UCM-BSCH (Modalidad A: Grupos de investigación consolidados), GR35/10-A-920234. 1-1-2011 a 31-12-2011 (7541 €). HP, José Carlos Menéndez. Calification:

"Excellent" by the process of external evaluation of the UCM research groups by of the National Agency of Investigation (31-7-2018).

C.3. Contracts

- **26 Contract** Art. 83 L.O.U.: Uninterrupted annual contracts as Member of Research Group, (group head: José Carlos Menéndez) from 1996-2020 to date with **Laboratorios Farmacéuticos Rovi** (Research, plant in Madrid and plant in Granada) for the realization of research projects and for the provision of analytical services (33.000 €/year). This collaboration has also led to my participation in a project of the CENIT call (C.2.1).

C.5. Doctoral training capacity

- **Total PhD** supervised and presented research works co-directed with professor J. C. Menéndez: 5. One in the last 5 years.

Alberto López Cobeñas-July/**2008**, Giorgio Giorgi-May/**2010**, Míriam Ruiz Serrano-September-**2011**, Francisco José Arroyo Sierra-July/**2013**. Marta Piquero Martí-July/**2020**.

Doctoral Program: Medicinal Chemistry (Program with mention of excellence).

Financing: Three **scholarships** obtained in competitive calls (FPI-MEC y FPU-UCM).

Calification: 5 "Sobresaliente cum laude". Mention of European Thesis. Two of them Extraordinary PhD thesis **Awards**.

- **PhD in progress:**

Ph. D. student: **Alvaro Sarabia Vallejo**. Title: "Compuestos teranósticos multidiana contra la enfermedad de Alzheimer". Fac. Farmacia UCM. Supervisors: José Carlos Menéndez, Marta Piquero, Pilar López-Alvarado. Ph. D. Program: Química Médica. Financing: FPU of UCM. Defense date: In progress (start 2020, planned defense 2024).

Ph. D. student: **Olmo Martín Cámara**. Title: Nuevas estructuras híbridas relacionadas con el fasudil para el tratamiento de enfermedades neurodegenerativas. Supervisors: José Carlos Menéndez, Giorgio Giorgi, Pilar López-Alvarado. Fac. Farmacia UCM. Ph. D. Program: Química Médica. Financing: Contract for research support personnel associated with Article 83 contract (Laboratorios Rovi/ELA-Madrid-CAM). Defense date: In progress (start 9/2018; planned defense 2022)

- **M. Sc. Thesis** supervised and presented research works co-directed with professor J. C. Menéndez: 12 (four in the last 5 years). Master in Pharmaceutical Sciences and Master in Drug Discovery.

- **Final Undergraduate Projects** supervised: 16 (2015-2021). Degree of Pharmacy.

C.6. Institutional responsibilities

- Academic Secretary of the Department of Organic and Pharmaceutical Chemistry, UCM, - april 2010 to april **2014**.

- Head of the Department of Organic and Pharmaceutical Chemistry, UCM, april 2014 to 7-november **2017**.

- Academic Secretary of the Department of Organic and Pharmaceutical Chemistry, UCM, 8-november 2017 to 25-january **2018**.

C.7. Others merits

- Awards: Grade Awards: "Promoción de Farmacia 1959-1965". December **1991**.

PhD Award: "Abilio Rodríguez de Paredes". December **1996**.

FAES Award of the "Real Academia de Farmacia". December **2000**.