

Parte A. PERSONAL INFORMATION

CV date	11/05/2023
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Name	Blanca Rosa Manzano Manrique		
Gender	Female		
e.mail	blanca.manzano@uclm.es		
	Researcher ID	L-4966-2014	
	Orcid Code	0000-0002-4908-4503	

A.1. Current position

Institution	University of Castilla-La Mancha (UCLM)		
Department	Química Inorgánica, Orgánica y Bioquímica		
Center	Facultad de Ciencias y Tecnologías Químicas		
Dirección	Avda Camilo José Cela 10, 13071, Ciudad Real.		
Telephone number	926295300		
Position	Full Professor	Initial date	19/04/2010
UNESCO codes	2303.21; 2303.07; 2210.01		
Keywords	Inorganic Chemistry, Organometallic Chemistry, Ruthenium, Platinum, Iridium, Anticancer metallodrugs, Photocatalysis		

A.2. previous positions

Period	Position/Institution/Country/
01/82-11/84	FPU Fellowship/University of Zaragoza/Spain
12/84-09/87	Ayudante de Facultad/Univ. Zaragoza /Spain
10/86-09/87	Postdoctoral Fellow/CNRS Toulouse/France
10/87	Prof. Titular Universidad interina/ Univ. Zaragoza /Spain
11/87-01/89	Prof. Titular Universidad interina/UCLM/Spain
01/89-04/10	Prof. Titular Universidad/UCLM/Spain

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Graduated in Chemistry	Universidad de Zaragoza/Spain	1981
PhD	Universidad de Zaragoza/Spain	1984

A.3. General indicators of the quality of the Scientific production

- 6 "sexenios" of research
- 13 PhD directed
- Number of total cites: 2822
- Cites/year : 141 (2018), 115 (2019), 130 (2020), 147 (2021), 107 (2022)
- Papers published in Q1 journals: 81
- Articles indexed in Web of Science: 112
- h index: 32 (web of Science)
- Book chapters: 2
- Patents: 2
- Communications to international and national Chemistry meetings: 213
- Oral presentations to international and national Chemistry meetings: 6

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

Graduate and PhD (maximum qualification with cum laude) in Chemistry at the U. of Zaragoza in 1981 and 1984, respectively. FPU Postdoctoral grant. One year postdoctoral stay in the Lab. Chimie Coordination (CNRS) in Toulouse (France) in the group of Prof. I. Tkatchenko. Short stays (3) of 1 month in the same centre in the group of Prof. B. Chaudret. 112 publications in international journals (3 in J. Am. Chem. Soc.), Covers in Inorg. Chem., Chem. Eur. J., Dalton, Cryst. Growth Des. and Eur. J. Inorg. Chem. Author of 2 book chapters (ed. Wiley and Società Chimica Italiana). I am the corresponding author in a high number of papers. Participation in 17 national projects (2 as IP), 5 regional projects (3 as IP) and 8 Int. projects with France and Austria, 4 as IP. 213 communications to international and national Chemistry meetings, including oral presentations or invited lecturers. I am habitual

reviewer of international journals. I have collaborated or currently collaborate with the groups of Profs J. Elguero (CSIC), R. Reau (CNRS), C. Claver (U. Rovira-Virgili), A. de la Hoz (UCLM), B. Chaudret (CNRS), P. Teixeira-Gomes (U. de Lisboa), D. Quiñonero (U. Illes Balears), R. Claramunt (UNED), A. Jiménez-López (U. Málaga), M. Moreno and A. Lledós (UAB), E. Diez-Barra (UCLM), T. Claridge (Oxford U.), J. Steed (Durham U.), R. Sanchez-Prieto (UCLM), B. García (UBU), P. J. Dyson (EPFL, Lausanne), J. C. Lima (U. NOVA de Lisboa) and A. L. Iglesias (U. Autónoma de Baja California). It is noticeable the long-lasting collaboration with the group of Dr. Walter Weissensteiner (Vienna Univ.).

I was the first person to initiate the research in the area of Inorganic Chemistry at the Faculty of Chemistry of the UCLM.

I have worked in the fields of coordination and organometallic chemistry, homogeneous catalysis, supramolecular chemistry, bioinorganic chemistry and sustainable photocatalysis. Except in my period of PhD and post-doctoral stay, my role has been direction, funding and writing of papers.

I consider that I have made important contributions to the knowledge of dynamic processes of palladium compounds. There have been especially referenced a paper relative to the restricted rotation of a coordinated H₂ molecule. We also reported an interesting case of Facile Ru-H₂ heterolytic activation and intramolecular proton transfer assisted by basic N-centers in the ligands. In the field of homogeneous catalysis, it is noticeable one of the first process of transfer hydrogenation of ketones in the absence of a basic medium and we also reported examples of asymmetric catalysis that were very well received by the scientific community. In the field of Supramolecular Chemistry, I have described a kind of metallic grid, non-previously reported, with ability to encapsulate anions and also the synergy between CH- π and anion- π interactions, studied for the first time.

The last ten years I have made contributions in the field of metallic drugs as anticancer agents and photocatalysis. In the first field, it is noteworthy the finding of Ru compounds with interesting resistance and selectivity factors or Pt(IV) compounds. In the field of Photodynamic Therapy (PDT), we have found biscyclometalated Ir(III) complexes that are mitochondria-targeted. In collaboration with the group of Anna Massaguer, we have got a lot of interesting results and even we have found a derivative whose anticancer activity is increased 1300 times after irradiation on using a kind of complexes never used in photochemotherapy. These results are under review in J. Medicinal Chemistry.

In the field of sustainable photocatalysis, I reported cases of selective photo-oxidation of different substrates (one article qualified as HOT PAPER) and the first case of a one-pot photocatalytic transformation of indolines into 3-thiocyanate indoles. We are currently working with extremely active photocatalyst that work even in air at atmospheric pressure and at very low concentrations. I have also made contributions of homogeneous catalysis of photo-production of H₂ from water.

I collaborated with the enterprise "REPSOL" in order to get heterogenous catalytic hydrogenation of different substrates, as models for the hydrogenation of aromatics of diesel. I have one patent and 2 under evaluation.

I have directed 13 PhD and numerous final works of master or similar. All the people that have got the PhD in our group is working in the field of chemistry or that of pharmaceutical compounds. 3 people are working at the University.

I have given lectures in Austria, Spain, Brazil and Mexico.

Interview of science dissemination in the field of chemotherapy: <http://cienciaes.com/entrevistas/2013/06/25/platino-contra-el-cancer/>. Notice of a local journal with an interview: bit.ly/41ock0q. I have participated in the "Week of the Science" and in activities in relation to the promotion of science between girls.

I am the president of the Committee of "Gender Equality" of the Faculty of Chemistry. During three years I was Vice-Dean at the Faculty of Chemistry of Ciudad Real.

Part C. RELEVANT MERITS

C.1. Publications (selection of 10 recent publications)

1.- J. Leal, G. Durá, F. A. Jalón, E. Zafon, A. Massaguer,* J. V. Cuevas, L. Santos, A. M. Rodríguez, B. R. Manzano. "Luminescent Cyclometallated Platinum Compounds with N-, P- and O[^]O ligands. DFT Studies and Analysis of the Anticancer Potential"

App. Organomet. Chem. 2023, 37, 2022e6983 (22 pages) (DOI:

<https://doi.org/10.1002/aoc.6983>) (Q1) Corresponding author

2.- A. R. Rubio, R. González, N. Busto, M. Vaquero, A. L. Iglesias, F. A. Jalón, G. Espino, A. M. Rodríguez, B. García, Blanca R. Manzano. Anticancer Activity of Half-sandwich Ru, Rh and Ir Complexes with Chrysin Derived Ligands: Strong Effect of the Side Chain in the Ligand and Influence of the Metal. **Pharmaceutics** 2021, 13 1540 (26 pages) 1344276 (DOI:10.3390/pharmaceutics13101540) (Q1) Corresponding author.

3.- J. Leal, L. Santos, D. M. Fernández-Aroca, J. V. Cuevas, M. A. Martínez, A. Massaguer, F. A. Jalón, M. J. Ruiz-Hidalgo, R. Sánchez-Prieto, A. M. Rodríguez, G. Castañeda, G. Durá, M. C. Carrión, S. Barrabés, B. R. Manzano. Effect of the aniline fragment in Pt(II) and Pt(IV) complexes as anti-proliferative agents. Standard reduction potential as a more reliable parameter for Pt(IV) compounds than peak reduction potential. **J. Inorg. Biochem.** 2021, 218, 111403 (20 pages) (DOI: 10.1016/j.jinorgbio.2021.111403) (Q1). Corresponding author.

4.- J. Sanz-Villafruela, C. Martínez, I. Echevarría, M. Vaquero, A. Carbayo, J. Fidalgo, A. M. Rodríguez, J. V. Cuevas-Vicario, J. C. Lima, A. J. Moro, B. R. Manzano, F. Angel Jalon, G. Espino. One-pot Photocatalytic Transformation of Indolines into 3-Thiocyanate Indoles with New Ir(III) Photosensitizers Bearing β -Carbolines. **Inorg. Chem. Frontiers** 2021,8, 1253-1270 (DOI: 10.1039/D0QI01307B) (Q1)

5.- M. Martinez-Alonso, P. Sanz, P. Ortega, G. Espino, F. A. Jalón, M. Martín, A. M. Rodriguez, J. A. López, C. Tejel, B. R. Manzano. Analysis of Ion-Pairing in Solid State and Solution in p-cymene ruthenium complexes. **Inorg. Chem** 2020, 59, 14171-14183 (DOI: 10.1021/acs.inorgchem.0c01951). (Q1). Corresponding author.

6.- N. Busto, M. C. Carrión, S. Montanaro, B. Diaz de Greñu, T. Biver, F. A. Jalón, B. R. Manzano, B. García. Targeting G-Quadruplex structures with Zn(II) terpyridine derivatives: a SAR study. **Dalton Trans.** 2020, 49, 13372-13385 (DOI: 10.1039/D0DT02125C). (Q1). Corresponding author.

7.- M. Vaquero, A. Ruiz-Riaguas, M. Martínez-Alonso, F. A. Jalón, B. R. Manzano, A. M. Rodríguez, G. García-Herbosa, A. Carbayo, B. García, G. Espino. Selective Photooxidation of Sulphides catalyzed by Biscyclometalated Ir(III) Photosensitizers Bearing 2,2'-dipyridylamine Based Ligands. **Chem. Eur. J.** 2018, 24, 10662-10671 (DOI: doi.org/10.1002/chem.201801173) **HOT PAPER**

8.- J. Fidalgo, M. Ruiz-Castañeda, G. García-Herbosa, A. Carbayo, F. A. Jalón, A. M. Rodríguez, B. R. Manzano, G. Espino, Versatile Rh- and Ir-Based Catalysts for CO₂ Hydrogenation, Formic Acid Dehydrogenation, and Transfer Hydrogenation of Quinolines. **Inorg. Chem.** 2018, 57, 14186-14198 (DOI: 10.1021/acs.inorgchem.8b02164). (Q1). Corresponding author.

9.- C. Pérez-Arnaiz, J. Leal, N. Busto, M. C. Carrion, A. R. Rubio, I. Ortiz, G. Barone, B. Díaz de Greñu, J. Santolaya, J. Leal, F. A. Jalón, M. Vaquero, B. R. Manzano, B. Garcia. Role of seroalbumin in the cytotoxicity of cis-dichloro Pt(II) complexes with (N^N)-donor ligands bearing functionalized tails. **Inorg. Chem.** 2018, 57, 6124-6134 (DOI: 10.1021/acs.inorgchem.8b00713) (Q1). Corresponding author.

10.- J. Torres, M. C. Carrión, J. Leal, F. A. Jalón, J. V. Cuevas, A. M. Rodríguez, G. Castañeda, B.R. Manzano. Cationic Bis(cyclometalated) Ir(III) Complexes with Pyridine–Carbene Ligands. Photophysical Properties and Photocatalytic Hydrogen Production from Water. **Inorg. Chem.** 2018, 57, 970-984 (DOI: 10.1021/acs.inorgchem.7b02289) (Q1). Corresponding author.

C.2. Research Projects

- Advanced Strategies in the Design of Metal-based Photosensitizers for Cancer treatment. Towards a Targeted, Precise and Efficient Photodynamic Therapy,
Financing entity: Ministerio de Ciencia, Innovación, Agencia Estatal de Investigación (PID2021-127187OB-C21). Proyectos de Generación del Conocimiento 2021. Universidad de Burgos and Universidad de Castilla-La Mancha.
From 01/09/2022 to 31/08/2026. Participation: Researcher. Amount: 145.200 euros

- New metallopharmaceuticals designed to increase selectivity in cancer treatments. Use of phototherapy and delivery with ligands directed at tumors. Financing entity: Agencia Estatal de Investigación. Ministerio de Ciencia, Innovación y Universidades (RTI2018-100709-B-C21). Universidad de Castilla-La Mancha and Universidad de Burgos. From 01/01/2019 to 30/09/2022. Participation: principal researcher. Amount: 125.745 euros.

- New strategies in the design of metal-organic compounds as anticancer drugs and catalysts. Study of the mechanism on DNA and proteins as possible biological targets. Financing entity: DGICYT del MINECO (CTQ2014-58812-C2-1-R) Universidad de Castilla-La Mancha y Universidad de Burgos
From: 01/01/2015 to 31/12/2017, Participation: principal researcher. Amount: 84.700 euros

- New ruthenium and iridium complexes active in photocatalysis and in selective photochemotherapy against cancer. Financing entity: Consejería de Educación, Cultura y Deportes de la Junta de Castilla-La Mancha, Dirección General de Universidades, Investigación e Innovación (SBPLY/19/180501/000260) Universidad de Castilla-La Mancha
From 2020 to september 2023. Participation: principal researcher. Amount: 125.745 euros.

C.3. Contracts, technological or transfer merits

Use of alcohol from wine waste as a hydrogenating source in the alcohol industry.
Company: Movialsa, S. A.
From: 1/05/99 to:31/12/99
Principal researcher: Dr. Félix Angel Jalón Sotés.

C.4. Patents

- COMPLEJOS DE IRIDIO(III) DE FÓRMULA GENERAL $[\text{Ir}(\text{C}^{\wedge}\text{N})_2(\text{N}^{\wedge}\text{O})]$ o $[\text{Ir}(\text{C}^{\wedge}\text{N})_2(\text{N}^{\wedge}\text{N}')]\text{A}$
Nº DE REGISTRO: ES2642114, 2018, ENTIDAD TITULAR: Universidad de Castilla-La Mancha, Universidad de Burgos. Country: España

- COMPLEJOS DE IRIDIO(III). Nº DE REGISTRO: P202031190. España. 15/12/2022. Universidad de Burgos, Universidad de Castilla-La Mancha y Universitat de Girona.

C-5. Others

Evaluator of the State Research Agency, both at the level of remote projects and in the annual evaluation panel.
Reviewer of different journals as Inorg. Chem., J. Med. Chem., Chem. Eur. J.; Dalton Trans., Eur. J. Inorg. Chem., App. Organomet. Chem., Organometallics, Cryst. Growth and Des, ChemCatChem., J. Organomet. Chme. Inorg. Chim. Acta, Molecules, Pharmaceuticals, ACS Omega, etc
President of the committee of "Gender equality" at the Facultad de Ciencias y tecnologías Químicas de Ciudad Real (UCLM).