



CURRICULUM VITAE (CVA)

IMPORTANT – The Curriculum Vitae cannot exceed 4 pages. Instructions to fill this document are available in the website.

Part A. PERSONAL INFORMATION

CV date 25-01-2022

First name	José Manuel		
Family name	García-Heredia		
Gender (*)	Male	Birth date (dd/mm/yyyy)	24-04-1980
Social Security, Passport, ID number	48819152L		
e-mail	jmgheredia@us.es	URL Web	
Open Researcher and Contributor ID (ORCID) (*)		0000-0003-3095-0050	

(*) Mandatory

A.1. Current position

Position	Associate profesor, Senior Lecturer (Profesor Titular de Universidad)		
Initial date	12-12-2019		
Institution	University of Seville		
Department/Center	Vegetal Biochemistry and Molecular Biology	Faculty of Biology	
Country	Spain	Teleph. number	
Key words	MAP17, NUMB, cancer, cancer stem cells, Cell Biology; Molecular Biology; Oncology		

A.2. Previous positions (research activity interruptions, art. 14.2.b))

Period	Position/Institution/Country/Interruption cause
15-08-2008 to 30-04-2009	Higher Degree contract/University of Seville/Spain
01-05-2009 to 31-08-2009	Interim substitute professor/University of Seville/Spain
01-09-2009 to 06-11-2009	Higher Degree contract/University of Seville/Spain
10-11-2009 to 25-11-2010	Assistant Lecturer/University of Seville/Spain
26-11-2010 to 25-11-2015	Assistant Professor/University of Seville/Spain
26-11-2015 to 17-07-2018	Interim Contracted Professor Doctor/University of Seville/Spain
18-07-2018 to 11-12-2019	Contracted Professor Doctor/University of Seville/Spain
12-12-2019 to present	Associate professor/University of Seville/Spain
01/09/2018	First Child birth
14/01/2021	Second Child birth

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Degree in Biology	University of Seville/Spain	2003
Ph.D. in Biology	University of Seville/Spain	2008

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

My research activity focuses on three lines of work: molecular biology, cell biology and biochemistry. Among the main achievements of my research are the discovery that MAP17 protein is capable, on the one hand, of sequestering NUMB, allowing the activation of the Notch pathway and, on the other hand, of being secreted in exosomes, being able to de-differentiate other cells, which affects the tumorigenic process. Both works have been published in journals

included in JCR (Refs 1, 5, see below). Previously, I also worked in various areas, such as Biophysics or Structural Biology, when characterizing the effects that mitochondrial cytochrome *c* nitration has on its stability and functionality. At present, my research work is focused on the characterization of the role that different proteins may have in the acquisition of properties similar to those of stem cells, such as a higher proliferative rate and a certain cellular dedifferentiation.

I have carried out research stays at the Institute of Chemical and Biological Technology (Oeiras, Portugal), at the Príncipe Felipe Research Center (Valencia, Spain) and at the MRC Clinical Sciences Center (Imperial College, London, UK). In addition, I have collaborated with other research groups, such as those of Dr. Peter Hildebrandt (TU Berlin), Dr. Antonio Donaire (University of Murcia), Dr. Malu Martínez-Chantar (CIC bioGUNE) or Dr. María Martínez-Ballesteros (University of Seville).

I am a regular reviewer of different scientific journals (BMC Cancer, Cancers, Cellular Oncology, and others), as well as scientific projects in competitive calls from other countries (Argentina, Estonia, Saudi Arabia, United Kingdom). In the same way, I participated in the selection committee of fellows for the Young Scientist Program held in Taiwan in 2014.

Finally, throughout my career, I have participated in more than 20 research projects, obtained through competitive calls. For one of them, entitled “Looking for the connection between hypoxia and cell immortalization: contribution to cancer (PI0096-2014)”, I was the Principal Investigator. The results of the research in which I have participated have been published in 28 articles in prestigious journals, 22 in the first quartile and another 4 in the second quartile. At present, we have already published three articles focused on the role of NUMB and NUMBL (Publications 5, 6 and 9), allowing to indicate my suitability to appear as principal investigator of the project that is requested.

Regarding teaching activities, I have taught in a total of 12 graduate and master's degree subjects in the area of Biochemistry since the 2004/05 academic year, with more than 1300 hours taught. In addition, related to my tasks as a professor at the university, I have been the director of 15 final degree projects (TFG) and 3 Master's Final Projects (TFMs). In addition, for one of my TFG students (E. Pérez Castejón), I was the tutor of an introductory research grant. As a result of her work, she also appears as the author of one of my research articles (number 1, see below). Furthermore, I have also coordinated other doctoral students (E. Verdugo-Sivianes, A. Lucena-Cacace, B. Felipe-Abrio and D. Otero-Albiol) to carry out some experiments related to my research, appearing as authors of my research articles. At present, I am directing a PhD and a TFM.

In management activities, I have participated in the organization of 4 conferences, being the scientific secretary of 2 of them.

Part C. RELEVANT MERITS (sorted by typology)

C.1. Publications (see instructions)

In the last 12 years I have accumulated a total of 26 publications, of which, due to lack of space and limitation according to the instructions, I only indicate 10 of them, in my opinion, the most relevant ones:

1. **J.M. García-Heredia**, D. Otero-Albiol, M. Pérez, E. Pérez-Castejón, S. Muñoz-Galván, A. Carnero. **2020**. Breast tumor cells promote the horizontal propagation of EMT, stemness and metastasis by transferring the MAP17 protein between subsets of neoplastic cells. *Oncogenesis*, 9(10), 96. Impact index: 7.485. 1° Quartile. Scopus (4); WOS (3).
2. **J.M. García-Heredia**, A. Carnero. **2020**. Role of mitochondria in cancer stem cell resistance. *Cells*, 9, 7. Impact index: 6.663. 2° Quartile. Scopus (21); WOS (21).
3. M. Pérez, **J.M. García-Heredia**, B. Felipe-Abrio, S. Muñoz-Galván, J. Martín-Broto, A. Carnero. **2020**. Sarcoma stratification by combined pH2AX and MAP17 (PDZK1IP1) levels for a better outcome on doxorubicin plus olaparib treatment. *Signal*

- Transduction and Targeted Therapy*, 5(1), 195. Impact index: 18.187. 1° Quartile. Scopus (4); WOS (4).
4. L. Macías-García, M. Martínez-Ballesteros, J.M. Luna-Romera, **J.M. García-Heredia**, J. García-Gutiérrez, J.C. Riquelme-Santos. **2020**. Autoencoded DNA methylation data to predict breast cancer recurrence: Machine learning models and gene-weight significance. *Artificial Intelligence in Medicine*, 110, 101976. Impact index: 5.326. 1° Quartile. Scopus (6); WOS (3).
 5. **J.M. García-Heredia**, A. Carnero. NUMB and NUMBL differences in gene regulation. *Oncotarget*, **2018**, 9: 9219-9234. Impact index: 5.178. 1° Quartile. Scopus (5); WOS (4).
 6. **J.M. García-Heredia**, A. Lucena-Cacace, E.M. Verdugo-Sivianes, M. Perez, A. Carnero. The cargo protein MAP17 (PDZK1IP1) regulates the cancer stem cell pool activating the Notch pathway by abducting NUMB. *Clinical Cancer Research*, **2017**, 23: 3871-3883. Impact index: 9.619. 1° Quartile. Scopus (32); WOS (27).
 7. **J.M. García-Heredia**, A. Carnero. **2018**. Dr. Jekyll and Mr. Hyde: MAP17's up-regulation, a crosspoint in cancer and inflammatory diseases. *Molecular Cancer*, 17: 80. Impact index: 6.204. 1° Quartile. Scopus (8); WOS (8).
 8. **J.M. García-Heredia**, A. Carnero. **2017**. The cargo protein MAP17 (PDZK1IP1) regulates the immune microenvironment. *Oncotarget*, 8: 98580-98597. Impact index: 5.178. 1° Quartile. Scopus (11); WOS (10).
 9. **J.M. García-Heredia**, E.M. Verdugo-Sivianes, A. Lucena-Cacace, S. Molina-Pinelo, A. Carnero. Numb-Like (NumbL) downregulation increases tumorigenicity, cancer stem cell-like properties and resistance to chemotherapy. *Oncotarget*, **2016**, 7: 63611-63628. Impact index: 5.008. 1° Quartile. Scopus (29); WOS (27).
 10. **J.M. García-Heredia**, A. Carnero. Decoding Warburg's hypothesis: tumor-related mutations in the mitochondrial respiratory chain. *Oncotarget*, **2015**, 6: 41582-41599. Impact index: 6.36. 1° Quartile. Scopus (30); WOS (29).

The rest of the research results published in this period correspond to:

- Publications of my first phase, in the group of Dr. Miguel Ángel de la Rosa (7 articles), in various journals in the Biochemistry area, such as *Biochimica et Biophysica Acta: Bioenergetics* or *FEBS Letters*;
- Publications of my postdoctoral period in the group of Dr. Amancio Carnero (6 articles), mostly collaborations with other researchers of the group, with articles in journals such as *Journal of Experimental & Clinical Cancer Research* and *Oncotarget*;
- A collaboration with researchers in the data mining area, published in *Information Fusion* in 2017, a first quartile journal.

C.2. Congress

Poster: Dynamics of nitrotyrosines in haemproteins. XI SBE Congress, Murcia (Spain), 2011.

Poster: Tyrosine phosphorylation turns alkaline transition into a biologically relevant process and makes human cytochrome *c* behave as an anti-apoptotic switch. 36th FEBS Congress, Torino (Italy), 2012.

Oral Communication: A non-damaging method to analyze the configuration and dynamics of nitrotyrosines in proteins. XII SBE Congress, Barcelona (Spain), 2012.

Scientific secretary of the Young Scientists Program (YSP) 2012, as part of the "22nd IUBMB & 37th FEBS Congress: From Single Molecules to Systems Biology".

Poster: Construction of a mimetic mutant of cytochrome *c* phosphorylated at tyrosine 48 to further study its biological role in the transition from cell life to death. YSP 2012, Cádiz (Spain), 2012.

Congress Organizing Committee of the "22nd IUBMB & 37th FEBS Congress: From Single Molecules to Systems Biology", celebrated from September 4 to 9, 2012.

Poster: High spin nitrated cytochrome *c* is specifically degraded inside the cells. 22nd IUBMB & 37th FEBS Congress: From Single Molecules to Systems Biology, Sevilla (Spain), 2012.

Oral Communication: Regulation of cytochrome *c* function by phosphorylation. XXXVI SEBBM Congress, Madrid (Spain), 2013.

Oral Communication: How redox proteins form transient complexes in photosynthesis and respiration. 9th EBSA Congress, Lisbon (Portugal), 2013.

Member of the fellowship selection committee for the Congress "15th IUBMB- 24th FAOBMB-TSBMB Young Scientists Program" held in Taiwan in 2014.

Poster: Conditional transgenic expression of PIM1/PIM2 kinases in hormone-dependent tissues induces mammary gland tumors. 15th ASEICA international congress, Sevilla (Spain), 2015.

Oral Communication: NUMB-Like (NumbL) downregulation increases tumorigenicity, cancer stem cell-like properties and resistance to chemotherapy. XIII Foro de investigadores IBIS. Sevilla (Spain), 2016.

Oral Communication: The Cargo Protein MAP17 (PDZK1IP1) regulates the cancer stem cell pool activating the Notch pathway by abducting NUMB. XIV Foro de investigadores IBIS. Sevilla (Spain), 2017.

C.3. Research projects

1. Unveiling new protein networks that interact with cytochrome *c*: structural and functional comparative analysis (BFU2012-31670). **Funding entity:** Ministerio de Economía y Competitividad. **Project call:** 2012. **Budget:** 188.000 €. **Role:** Researcher. **From** 01/01/2013 to 31/12/2015.

2. Cellular senescence and aging. Transfer from basic research to the clinic (CTS1848). **Funding entity:** Junta de Andalucía. Consejería de Economía, innovación, ciencia y empleo. **Project call:** 2014. **Budget:** 180.100 €. **Role:** Researcher. **From** 01/01/2014 to 31/12/2017.

3. Looking for the connection between hypoxia and cell immortalization: contribution to cancer (PI0096-2014). **Funding entity:** Fundación Progreso y Salud (Junta de Andalucía). **Project call:** 2014. **Budget:** 37.689 €. **Role:** Principal Investigator. **From** 01/08/2015 a 31/08/2017.

4. Identification and characterization of genetic and physiological factors involved in cellular senescence. Clinical relevance in cancer (PI15/00045). **Funding entity:** FIS, Ministerio de Economía y competitividad. **Project call:** 2015. **Budget:** 195.415 €. **Role:** Researcher. **From** 01/01/2016 to 31/12/2018.

5. Definition of key mechanisms of multi-resistance of head and neck tumors to chemotherapy and radiotherapy treatments. Identification of new individualized antitumor drugs. **Funding entity:** AECC. **Project Call:** Grupos Coordinados Estables 2016. **Role:** Researcher. **From** 01/01/2017 to 31/12/2020.

C.4. Contracts, technological or transfer merits.

Title of the national patent: Genetic Construction that Encodes for Cytochrome *c* and Obtaining Procedure. **Authors:** M.A. De la Rosa, B. De la Cerda, F.P. Molina Heredia, V. Rodríguez Roldán, M. Hervás, **J.M. García Heredia**, J.A. Navarro Carruesco. **Application date:** 16/03/2009. **Application Number:** P200402723. **Managing entity:** Universidad de Sevilla and CSIC.