CV date	05/01/2023

Part A. PERSONAL INFORMATION

First and Family name	Luis Carlos López García		
ID number	45301479-N	Age	43
Researcher codes	Open Researcher and Contributor ID (ORCID)	0000-0003-3355-0298	
	SCOPUS Author ID	25954462600	
	WoS Researcher ID	L-5129-2014	

A.1. Current position

Name of University	Universidad de Granada		
Department	Fisiología / Centro de Investigación Biomédica		
Address and Country	CIBM, lab 131. Avenida del Conocimiento s/n. 18016, Granada , Spain		
Phone number	+34958241000 ex 20197	E-mail	luisca@ugr.es
Current position	Full Professor (Catedrático)	From	04/02/2022
Key words	Mitochondria, Coenzyme Q10, mitochondrial diseases, metabolism		

A.2. Education

PhD, Licensed, Graduate	University	Year
PhD in Biology	University of Granada	2005
Bachelor in Biology	University of Granada	2002

A.3. General indicators of quality of scientific production *(see instructions)*

- Three sexennial periods of research activity (2004 – 2021). I3 award (2016).
- 98 scientific articles (72 in Q1; 17 in Q2 and 9 in Q3).
- 6,875 cites. H-index = 53.
- Four research stays at Columbia University (NY, USA) for a total period of 45 months.
- Mentorship of PhD students: Laura García Corzo. She got a "Juan de la Cierva" postdoctoral fellow (Helena Mira's lab) - Marta Luna Sánchez. She got a "Ramón Areces" postdoctoral fellowship (Massimo Zeviani's lab) - Huayqui Volt Valdivia – Eliana Barriocanal Casado. She got a "Martín Escudero" postdoctoral fellowship (Quinzii's lab) – Agustín Hidalgo Gutiérrez. He got a "Marie Curie Global Fellowship (Hirano's lab).

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

As a graduate student, I studied the antioxidant, antinitrosative and antiinflamatory properties of melatonin in different conditions like sepsis, PD and aging. This work was extensively published and the results are being used for different **commercial and medical applications**. After I received my PhD, I moved to Columbia University (USA) to work in the laboratories of Dr. Hirano and Dr. DiMauro. In this period, I was a pioneer in identifying the molecular causes of CoQ_{10} deficiency. In fact, my article published in *Am J Hum Genet* on 2006 is the **most cited article** in the field of human CoQ_{10} deficiencies. Together with Dr. Quinzii, I was also a **pioneer** in performing *in vitro* studies to identify key pathomechanims of this syndrome, which were published in three articles and have been very well recognized for other scientists (among the most cited articles in the field). During those 3 years, I was also involved in the study of the mitochondrial deoxynucleoside salvage pathways through the generation and characterization of the double *Tymp/Upp1* knockout and the *Tk2* knockin mouse models. These were used to **demonstrate for the first time** that unbalance of nucleosides and nucleotides pools produces mtDNA instability *in vivo*, leading to mitochondrial diseases. These mouse models are used for therapeutic studies, and later on I collaborated in proposing a **new treatment** for Tk2 deficiency, which was published in *Embo Mol Med* and it is being used in patients (both in Europe and USA) as a compassionate use with very promising results.

As a group leader since 2012 **("Ramón y Cajal" researcher**), my group has generated and characterized the **first two mouse models** of mitochondrial encephalopathy and mitochondrial myopathy due to CoQ deficiency, discovering the **function of COQ9** (*PNAS*; in collaboration with Dr. Pagliarini) and identifying **new pathomechanisms**, such as the supercomplexes instability in symptomatic tissue (*Hum Mol Genet*; Senior Author [CA]), the indirect correlation in the efficacy of NMD and the severity of CoQ deficiency (*Embo Mol Med and Sci Rep*; CA) and the disruption in the sulfide oxidation pathway (*Embo Mol Med*; CA). We have also demonstrated the cause of the failure of CoQ_{10} supplementation (*BBA*; CA) and some novel mechanisms of action (*Hum Mol Genet*; [CA]), and

we have evaluated very **promising alternative treatments** for this syndrome (*Embo Mol Med, eBiomedicine* and *Redox Biol*; CA). I have/am **mentored/mentoring**: 1) one postdoc, who got an Assistant Professor position at UGR and four other postdocs currently working in my lab; 2) five **PhD students**, which have now **competitive postdoctoral positions** and three other PhD students currently working in my lab; 3) eight **master students** and two others currently studying in my lab; and 4) six international researchers who made research stays in my lab. I have established **collaborations** with reputed scientists around the world and with the industry. I have two patents and I have obtained international (FP7, NIH and MDA) and national **grants as a PI** with an overall budget of **more than 3 million € in the last 10 years**. I have been awarded with three of the most prestigious individual scientific programs, i.e., **Marie Curie, Ramón y Cajal and Fulbright**. I have extensive expertise in article's reviews and evaluation of project proposals, including my expertise as a **H2020 expert**.

Part C. RELEVANT MERITS

C.1. Publications

1. González-García P, Hidalgo-Gutiérrez A, Mascaraque C, Barriocanal-Casado E, Bakkali M, Ziosi M, Abdihankyzy UB, Sánchez-Hernández S, Escames G, Prokisch H, Martín F, Quinzii CM, **López LC** (2022). The Q-junction and the inflammatory response are critical pathological and therapeutic factors in CoQ deficiency. *Redox Biol. 55:102403.* (**corresponding author**). → IF: 10.787; 27/296 (D1), Biochemistry & Molecular Biology.

2. González-García P, Hidalgo-Gutiérrez A, Mascaraque C, Barriocanal-Casado E, Bakkali M, Ziosi M, Abdihankyzy UB, Sánchez-Hernández S, Escames G, Prokisch H, Martín F, Quinzii CM, **López LC** (2020). Coenzyme Q10 modulates sulfide metabolism and links the mitochondrial respiratory chain to pathways associated to one carbon metabolism. *Hum Mol Genet* 29(19):3296-3311 (**corresponding author**). → 10 cites. IF: 6.150; 23/176 (Q1), Genetics & Heredity.

3. Barriocanal-Casado E, Hidalgo-Gutiérrez A, Raimundo N, Gonzalez-García P, Acuña-Castroviejo D, Escames G, **López LC** (2019). Rapamycin Administration Is Not a Valid Therapeutic Strategy for Every Case of Mitochondrial Disease. *EBiomedicine* 42: 511-523 (**corresponding author**). → 19 cites. IF: 5.736; 18/138 (Q1), Medicine, Research & Experimental.

4. Hidalgo-Gutiérrez A, Barriocanal-Casado E, Bakkali M, Díaz-Casado ME, Sánchez-Maldonado L, Romero M, Sayed RK, Prehn C, Escames G, Duarte J, Acuña-Castroviejo D, **López LC** (2019). β-RA reduces DMQ/CoQ ratio and rescues the encephalopathic phenotype in *Coq9*^{R239X} mice. *EMBO molecular medicine* 11: e9466 (**corresponding author**). → 21 cites. IF: 8.821; 9/138 (D1), Medicine, Research & Experimental.

5. Shen YQ, Guerra-Librero A, Fernandez-Gil BI, Florido J, García-López S, Martinez-Ruiz L, Mendivil-Perez M, Soto-Mercado V, Acuña-Castroviejo D, Ortega-Arellano H, Carriel V, Diaz-Casado ME, Reiter RJ, Rusanova I, Nieto A**, López LC**, Escames G. (2018). Combination of melatonin and rapamycin for head and neck cancer therapy: Suppression of AKT/mTOR pathway activation, and activation of mitophagy and apoptosis via mitochondrial function regulation. *J Pineal Res. 64(3)*→ 107 cites. IF: 15.221; 5/145 (D1), Endocrinology & Metabolism.

6. Rodríguez-Hidalgo M, Luna-Sánchez M, Hidalgo-Gutiérrez A, Barriocanal-Casado E, Mascaraque C, Acuña-Castroviejo D, Rivera M, Escames G, **López LC** (2018). Reduction in the levels of CoQ biosynthetic proteins is related to an increase in lifespan without evidence of hepatic mitohormesis. *Sci Rep. 8(1): 14013* (**corresponding author**). → 4 cites. IF: 4.011; 15/69 (Q1), Multidisciplinary Sciences.

7. Luna-Sánchez M, Hildalgo-Gutiérrez A, Hildebrandt TM, Chaves-Serrano J, Barriocanal-Casado E, Santos-Fandila A, Romero M, Sayed RKA, Duarte J, Prokisch H, Schuelke M, Escames G, Acuña-Castroviejo D, **Lopez LC** (2017). CoQ Deficiency Causes Disruption of Mitochondrial Sulfide Oxidation, a new Pathomechanism Associated to this Syndrome. *EMBO molecular medicine* 9(1): 78-95 → 44 cites (**corresponding author**). IF: 10.293; 7/133 (D1), Medicine, Research & Experimental.

8. Luna-Sanchez M, Diaz-Casado E, Barca E, Tejada MA, Montilla-Garcia A, Cobos EJ, Escames G, Acuna-Castroviejo D, Quinzii CM, **López LC** (2015). The clinical heterogeneity of coenzyme Q10 deficiency results from genotypic differences in the Coq9 gene. *EMBO molecular medicine* 7(5):

670-87 → 56 cites (**corresponding author**). IF: 9.547; 7/124 (D1), Medicine, Research & Experimental.

9. Lohman DC, Forouhar F, Beebe ET, Stefely MS, Minogue CE, Ulbrich A, Stefely JA, Sukumar S, Luna-Sanchez M, Jochem A, Lew S, Seetharaman J, Xiao R, Wang H, Westphall MS, Wrobel RL, Everett JK, Mitchell JC, **López LC**, Coon JJ, Tong L, Pagliarini DJ (2014). Mitochondrial COQ9 is a lipid-binding protein that associates with COQ7 to enable coenzyme Q biosynthesis. *Proceedings of the National Academy of Sciences of the United States of America* 111: E4697-4705 → 84 cites (**international collaboration**). IF: 9.737; 4/56 (D1), Multidisciplinary Sciences.

10. Garcia-Corzo L, Luna-Sanchez M, Doerrier C, Ortiz F, Escames G, Acuna-Castroviejo D, **López LC** (2014). Ubiquinol-10 ameliorates mitochondrial encephalopathy associated with CoQ deficiency. *Biochimica et biophysica acta* 1842: 893-901 → 45 cites (**corresponding author**). IF: 4.882; 54/291 (Q1), Biochemistry & Molecular Biology.

C.2. Research projects

1. Reference: P20_00134
   Title: Descifrando los mecanismos de acción de los derivados del ácido hidroxibenzoico en la mitocondria: implicaciones para el tratamiento de enfermedades raras y comunes (Mito-HBAs)
   Agency: Junta de Andalucía, Proyectos de Excelencia 2020
   PI: Luis Carlos López García, Universidad de Granada
   From: 01/01/2021 To: 30/06/2023
   Funds: 177,334.00 € - Role: **PI**

2. Reference: RTI2018-093503-B-I00
   Título: Tratamiento de las deficiencias en Coenzima Q: potencial terapeútico de los precursores biosintéticos e importancia de las interacciones endocrinas
   Agency: MCIU, Retos Investigación: Proyectos I+D+i 2018
   PI: Luis Carlos López García, Universidad de Granada
   From: 01/1/2019 To: 30/06/2022
   Funds: 193,600.00 € - Role: **PI**

3. Reference: MDA- 602322
   Título: New therapeutic molecules for the treatment of mitochondrial diseases
   Agency: Muscular Dystrophy Association
   PI: Luis Carlos López García, Universidad de Granada
   From: 01/2/2019 To: 31/01/2023
   Funds: 289,865.00 $ - Role: **PI**

4. Reference: UCE-PP2017-05
   Título: Unidad de Excelencia para el Estudio de los Transtornos del Envejecimiento (UNETE)
   Agency: University of Granada
   PI: Luis Carlos López García, Universidad de Granada
   From: 01/11/2017 To: 31/10/2019
   Funds: 45,000.00 € - Role: **PI**

5. Reference: SAF2015-65786-R
   Título: Patogénesis y Tratamiento de la Deficiencia en Coenzima Q
   Agency: MINECO, Retos Investigación: Proyectos I+D+i 2015
   PI: Luis Carlos López García, Universidad de Granada
   From: 01/1/2015 To: 31/12/2018
   Funds: 181,500.00 € - Role: **PI**

6. Reference: P1
   Título: Targeting Nutrient-Sensing Signaling Pathways for the Treatment of Mitochondrial Diseases
   Agency: Todos somos raros, todos somos únicos
   PI: Luis Carlos López García, Universidad de Granada
   From: 01/03/2015 To: 28/02/2017
   Funds: 97,000.00 € - Role: **PI**

7. Reference: 1P01HD080642-01
   Title: Mitochondrial Encephalomyopathies: Approaches to Treatment

Agency: NIH / NICHD (USA)
PI: Salvatore Dimauro, Columbia University (NY, USA)
From: 30/09/2014 To: 31/05/2019
Funds: 106,000.00 $ to the subproject of the University of Granada - Role: subproject **PI**

8. Reference: SAF2013-47761-R
Title: Estudio preclínico para el tratamiento de la encefalopatía mitocondrial asociada a la deficiencia en Coenzima Q
Agency: MINECO, Retos Investigación: Proyectos I+D+i 2013
PI: Luis Carlos López García, Universidad de Granada
From: 01/01/2014 To: 31/12/2015
Funds: 85,000.00 € - Role: **PI**

C.3. Contracts, technological or transfer merits

- Contract "Altitud 1.080" - 4156, OTRI-UGR
- Service to Young Living Esential Oils (USA) in 2012.
- Material Transfer Agrement (MTA) signed in 2010 with Kaneka Corporation (Japan).

C.4. Patents

1. Application number: WO/2022/123103. Date: 11/12/2020. Compound to reduce the white adipose tissue and to treat the overweight and obesity.
2. Application number: PCT/ES2013/070817. Date: 26/11/2013. Anti-aging cream. This patent is being exploited in the product "Mel13" by the spin-off Pharmamel.

C.5. Commissions of Trust

2016 – H2020 expert (EX2006C158950). Evaluation of the Calls Topics INFRAIA-01-2016-2017, INFRAIA-02-2017, INFRADEV-01-2017, INFRAIA-02-2017, INFRAIA-2018-1 and ERC-PoC-2019, ERC-PoC-2020 and ER-PoC-2022.
2013 – Grant reviewer: Spanish Research Agency (nervous system panel), ANEP (Spanish Agency of Evaluation), Research Agency of Slovak Republic, Ataxia UK Foundation (UK) and Welcome Trust (UK).
2010 – Member of the evaluating commission of 8 Doctoral Thesis.
2009 – Journals' Reviewer: Live Sciences Alliance, Redox Biol, J Exp Med, Hum Genet, Neuromol Med, J Pharmacol Exp Therap, Eur J Pharmacol, Pharmacol Reports, Neurochem Int, BBA, Trends Cell Biol, J Inherit Metab Dis, Metab Brain Dis, Ess Biochem, Nutrients, Frontiers Physyiol, Antioxidants, Hum Mol Genet and Pharmacol Ther.

C.6. Institutional responsibilities

2010 – Advisor of Master and PhD Students; Coordinator of the subjects of Physiology; and grand rounds organizer.

C.7. Most Outstanding Conferences (only oral communications and invited presentations)

1. *1st Annual MDA Insights in Research Investor Summit (2021). USA.* **Invited**
2. *41th Meeting of the SEBBM (2018).* Santander, Spain. **Invited.**
3. *The 9th Conference of the International CoQ10 Association (2018).* New York, USA. **Invited.**
4. *Biomedicum Helsinki Seminars (2018).* Helsinki, Finland. **Invited.**
5. *11th MiP conference (2015).* Prague, Check Republic.
6. *The 7th Conference of the International CoQ10 Association (2012).* Seville, Spain. **Invited.**
7. *Euromit 8 (2011).* Zaragoza, Spain.
8. *176th European Neuromuscular Disorders Workshop (2010).* Naarden, Netherland. **Invited.**
9. *51th Meeting of the Spanish Society of Geriatric and Gerontology (2009).* Bilbao, Spain. **Invited.**
10. *Euromit 7 (2008).* Stockholm, Sweden.
11. *Mitochondrial Symposium 2008.* NIH, Bethesda, Maryland, USA. **Awarded.**
12. *AAN 59th Meeting (2007).* Boston, USA. **Selected in the top 5 % of the meeting program.**

C.7. Most important international collaborations as PI.

Dr. Hirano (Columbia University); Dr. Pagliarini (University of Wisconsin–Madison); Dr. Schuelke (Charité-Universitätsmedizin Berlin); Dr. Prokisch (Universität München); Dr. Hildebrandt (Leibniz Universität Hannover); Dr. Raimundo (University of Göttingen); and Dr. Fellman (University of Helsinki); Dr. Distelmaier (University Düsseldorf); Dr. Heck (University Utrecht).