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	27/1/2025

First name	Rubén		
Family name	García Martín		
Gender (*)	Male	Birth date (dd/mm/yyyy)	18/9/1986
Social Security, Passport, ID number	47460516-Q		
e-mail	Ruben.Garcia@cnb.csic.es		
URL Web	https://www.cnb.csic.es/index.php/es/investigacion/departamentos-de-investigacion/inmunologia-y-oncologia/nuevas-formas-de-comunicacion-intercelular		
Open Researcher and Contributor ID (ORCID) (*)		0000-0003-2049-4960	

(*) Mandatory

A.1. Current position

Position	Group Leader, Científico Titular		
Initial date	11/1/2024		
Institution	Centro Nacional de Biotecnologia (CNB)		
Department/Center	Immunology and Oncology		
Country	Spain	Teleph. number	915854968
Key words	Metabolism, microRNAs, cellular communication, obesity, extracellular vesicles		

A.2. Previous positions (research activity interuptions, art. 13.2.b))

Period	Position/Institution/Country/Interruption cause
2023-2024	Junior Group Leader (RyC fellow) / Centro Nacional de Biotecnología (CNB) / Spain
2016-2022	Postdoctoral Fellow / Joslin Diabetes Center & Harvard Medical School / USA
2015-2016	Postdoctoral Fellow / Dresden University of Technology / Germany
2010-2015	PhD student / Dresden University of Technology/ Germany
2009-2010	Postgraduate Fellow / Ontario Cancer Institute & Univ.of Toronto / Canada
2007-2009	Undergraduate Student / Complutense University of Madrid / Spain
2016-2022	Postdoctoral Fellow / Joslin Diabetes Center & Harvard Medical School / USA

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
PhD in Metabolism	Dresden University of Technology	2015
Licenciatura in Biology	Complutense University of Madrid	2009

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

My research career extends for slightly above 15 years since I obtained my BSc/MSc in 2009. During all these years I have worked in **several top institutions** in **USA** (Joslin Diabetes Center/Harvard University), **Germany** (Dresden University of Technology/Max Planck Institute), **Canada** (Ontario Cancer Institute/ University of Toronto) and **Spain** (Complutense University of Madrid) where I was mentored by **top internationally renowned investigators (Dr. C. Ronald Kahn, Dr. Triantafyllos Chavakis, Dr. Minna Woo and Dr. Barja**, respectively). This provided me the expertise and knowledge that brought me to my own lab at one of the top research institutions in Spain, the Biotechnology National Research Center (CNB). Some of the features that have characterized my scientific career are:

-**Ability to conduct ground-breaking research**: so far, I have contributed to 24 publications, 7 of them as main author (first or contributing author) and 8 as second or third author. A large fraction of these was published in **highly-recognized journals** such as *Nature* (twice, one of them as first-author), *Cell Metabolism* (twice), *Nature Immunology*, *PNAS* (twice), *Hepatology*, *Stem Cells*, *Cell Reports* (twice), *MCB*, *Jbc*, etc. Thirteen of those 24 publications are as main author and/or without my PhD mentor, some of which are listed below. I have obtained **international visibility** by presenting oral talks (either invited or selected from abstract) in 6 internationally-recognized meetings such as Keystone symposia (twice), EASD meeting, Aegean Conference, RNA Medicine Conference and Nature Medicine Helmholtz Diabetes Conference. My current H-index is 18, with > 4,100 citations.

-**Creative independent thinking**: I have developed my independence since very early on in my career. During both my postdoctoral training and my PhD studies I worked high **independently** due to the big size of these labs (20-25 lab members), with **full capacity to explore my own ideas and projects**, manage my own funding and supervise other lab members. My proposals have been funded in top positions in several prestigious grants/fellowships such as Spanish Ramon y Cajal (2nd position, mark 99.8/100), Federation of European Biochemical Societies (FEBS) Excellence Award, Atraccion Talento grant, LaCaixa Junior Leader and Ibercaja National Research Grant, and German DFG (German Research Foundation) as main investigator/researcher, raising > 1 M €. In addition, I had major contributions (both experimentally and writing) to two R01 Grants (>$2.5 M each) obtained by my former mentor.

-**Expertise and leading capacity**: I am currently leading my own lab in my institution, CNB (Spain). Moreover, in my previous position, I was promoted to **Instructor in Harvard University** (USA). These achievements are fairly remarkable given my young age (38 y) and short time since my PhD defense date. In both institutions, I have supervised/mentored graduate, master and PhD students. Due to my work in multiple institutions, I have a **long list of collaborators in multiple research fields**.

I have built up my career along **my passion for a major scientific topic**: understanding how tissues communicate to each other to orchestrate a coordinated response to the metabolic stimuli that organisms face for adaptation and survival. Little pieces of this lifetime-lasting question have been addressed by my previous studies on hormonal crosstalk among brain, liver and adipose tissue, the hypoxia sensing capacity of adipocytes to promote endothelial cell growth, inflammatory cell recruitment to fat, and lately the first identification of interorgan communication in vivo through extracellular vesicles, their involvement in the development of metabolic disease in HIV patients and the mechanisms guiding miRNA and protein sorting. This has allowed me to gain a **unique broad expertise in the intersect of the fields of metabolism, RNA interference and extracellular vesicles** that perfectly fits with my aim of accomplishing a better **understanding of sEV-based dialogue and their potential applications**. I firmly believe that my great expertise in metabolism, RNA biology, extracellular vesicles and metabolic diseases together with my great motivation are the perfect ingredients to **generate ground-breaking and excellent science** in the coming years.

Part C. RELEVANT MERITS *(sorted by typology)*

C.1. Publications*: only highlighted top-10 most relevant in reverse chronological order.*

1. Diez-Roda P*, Perez-Navarro*, **Garcia-Martin R**, “Adipose tissue as a major launch spot for circulating microRNAs coordinating intertissue and systemic metabolism”, *Int. J. Mol. Sci*. 2024, 25(24), 13488; https://doi.org/10.3390/ijms252413488.

2. Das A, Mund C, Hagag E, **Garcia-Martin R**, Karadima E, Witt A, Grzybek M, Peitzsch M, Deussen A, Chavakis T, Noll T, Alexaki VI, "Adenylate cyclase 10 promotes brown adipose tissue thermogenesis", *iScience* 2025 (Article in press). Under review (2nd) in iScience.

3. Lino M, **Garcia-Martin R**, Rosetto-Muñoz V, Palermo Ruiz G, Nawaz A, Brandão BB, Dreyfuss J, Pan H, and Kahn CR, "Multistep Regulation of MicroRNA Expression and Exosomal Secretion by Insulin", *Cell Reports* 2024 Jul 11;43(7):114491. doi: 10.1016/j.celrep.2024.114491.

4. Rubin de Celis MF**, Garcia-Martin R**, Syed I, […] and Kahn BB (2/7), "PAHSAs reduce cellular senescence and protect pancreatic beta cells from metabolic stress through regulation of Mdm2/p53". *PNAS*, 2022, 119(47): e2206923119.

5. **Garcia-Martin R***, Brandao BB, Thomou T, Altindis E, Kahn CR (1*/5), "Tissue differences in the exosomal/small extracellular vesicle proteome and their potential as indicators of altered tissue metabolism". *Cell Reports*, 2022, 38(3):110277. *Equal contribution.

6. **Garcia-Martin R**, Wang G, Brandao BB, […] and Kahn CR (1/8), "MicroRNA sequence codes for small extracellular vesicle release and cellular retention", *Nature* 2022, 601(7893):446-451. Comment on *Cell*, 2022, by Amy H. Buck: "Cells choose their words wisely", Mar 31;185(7):1114-1116. doi: 10.1016/j.cell.2022.03.010.

7. Srinivasa S*, **Garcia-Martin R***, Torriani MD, Fitch KV, Carlson A, Kahn CR, Grinspoon SK (2*/7). Altered Pattern of Circulating miRNAs in HIV Lipodystrophy Perturb Key Adipose Differentiation and Inflammation Pathways. *JCI Insight* 2021, 6(18):e150399. doi: 10.1172/jci.insight.150399. * **Equal contribution**

8. Mori M, Ludwig R*****, **Garcia-Martin R***, Brandao BB*****, Kahn CR (3*/5). Extracellular miRNAs: From Biomarkers to Mediators of Homeostasis and Disease. *Cell Metabolism*, 2019. 30(4):656-673. doi: 10.1016/j.cmet.2019.07.011. * **Equal contribution**

9. Thomou T, Mori MA, Dreyfuss JM, Konishi M, Sakaguchi M, Wolfrum C, Rao TN, Winnay JN, **Garcia-Martin R**, Grinspoon SK, Gorden P, Kahn CR (9/12). Adipose-derived circulating miRNAs regulate gene expression in other tissues. *Nature* 2017 Feb 23; 542(7642): 450-455.

10. **García-Martín R**., Alexaki VI, Qin N, […] and Chavakis T (10/19). Adipocyte-specific HIF2 deficiency exacerbates obesity-induced brown adipose tissue dysfunction and metabolic dysregulation. *Mol Cell Biol* 2015;36(3):376-93. (Cover page).

11. Phieler J*, **Garcia-Martin R***, Lambris JD, Chavakis T. (2*/4).The role of the complement system in metabolic organs and metabolic diseases. *Semin Immunol*. 2013;25:47-53. ***Equal contribution**

12. Shi SY*, **Garcia Martin R***, Duncan RE, […] and Woo M. (2*/18) Hepatocyte-specific deletion of Janus kinase 2 (JAK2) protects against diet-induced steatohepatitis and glucose intolerance. *J Biol Chem*. 2012;287:10277-10288. ***Equal contribution**

The whole list of publications can be found in:
https://www.ncbi.nlm.nih.gov/sites/myncbi/1H_jfsrERoWwBN/collections/55265201/public/

C.2. Congress (all oral participation)

1. Insulin regulates expression and secretion of exosomal microRNAs in adipocytes", European Association for the Study of Diabetes 2024 (EASD2024), Madrid, Spain. September 2024.

2. Manipulation of microRNA distribution with EXO- and CELLmotifs as a novel approach against atherosclerosis. *6th Edition of Spanish Extracellular Vesicle Society (GEIVEX)*, 2022. Santiago de Compostela, Spain.

3. Defining the miRNA Codes Controlling Exosomal Secretion vs. Cellular Retention. *Keystone Symposia: Small Regulatory RNAs: From Bench to Bedside*. Keystone. 2022. NM, USA

4. Cell-type specific repertoire of exosomal cargo and its implications in metabolism. *Initiative for RNA Medicine.* Harvard Medical School. 2019. MA, USA.

5. Characterization of the exosomal proteins and their potential as regulators of systemic metabolism. *7th International Meeting of the International Society for Extracellular Vesicles.* International society of extracellular vesicles (ISEV). 2018. Spain.

6. Adipocyte HIF2 protects from whitening of the brown adipose tissue and metabolic dysregulation in the course of diet-induced obesity. *Diabetes and Metabolic Dysfunction, Keystone Symposia Conference. Keystone Symposia*. 2015. United States of America.

C.3. Research projects

1. Project title: Potentiation of miRNA/siRNA actions by CELLmotifs, Institution: Centro Nacional de Biotecnologia. Role: Principal Investigator. Funding Source: Federation of European Biochemical Societies (FEBS), FEBS Excellence Award. Dates: 1/4/2025-31/3/2028. Amount: 100.000 €

2. Project title: Deciphering novel communication systems of adipocytes for the control of systemic metabolism in vivo (AdipoTALK), Institution: Centro Nacional de Biotecnologia. Role: Principal Investigator. Funding Source: Spanish Ministry of Science, Proyectos Generación del Conocimiento 2022. Dates: 1/9/2023-30/8/2026. Amount: 250.000 € + FPI.

3. Project title: Ramon y Cajal. Institution: Centro Nacional de Biotecnologia. Role: Principal Investigator. Funding Source: Spanish Ministry of Science. Dates: 1/12/2022-30/11/2027. Amount: 236.350 €

4. Project title: *The role of circulating LDL-carried miRNAs in atherosclerosis development*. Institution: Centro Nacional de Biotecnologia. Role: Principal Investigator. Funding Source: Comunidad de Madrid. Dates: declined due to incompatibility with Ramon y Cajal grant. Amount: 337.255 €

5. Project title: *The role of LDL-carried miRNAs in the development, progression and regression of atherosclerosis*. Institution: Centro Nacional de Biotecnologia. Role: Principal Investigator. Funding Source: LaCaixa. Dates: declined due to incompatibility with Ramon y Cajal grant. Amount: 305.100 €

6. Project title: *Developmental genes, miRNAs and adipose tissue.* Institution: Joslin Diabetes Center / Harvard University. Role: Main Research Fellow. Funding Source: National Institute Health USA (NIH). Dates: 04/01/2019-31/03/2023. Amount: 2.505.826 €.

7. Project title: *Role of forkhead box K1 (FOXK1) in insulin signaling and adipose*. Institution: Joslin Diabetes Center / Harvard University. Role: Main Research Fellow. Funding Source: Deutsche Forchungsgemeinschaft (DFG, German Research Foundation). Dates: 01/04/2017-30/06/2019. Amount: 110.000 €.

8. Project title: *Estudio molecular de las causas de la diabetes I y II, sus complicaciones, así como sus implicaciones en el cáncer*. Institution: Ontario Cancer Institute / University of Toronto. Role: Main Research Fellow. Dates: 29/09/2009- 26/09/2010. Amount: 20.000 €.

C.4. Contracts, technological or transfer merits

1. Patent Inventors: Ruben Garcia Martin and C. Ronald Kahn. Institution: Joslin Diabetes Center / Harvard University. Patent Reference: PCT/US2019/043469. Title: Targeting Mirnas for Exosomal Delivery or Cellular Retention. Country: USA. Publication date: 30/01/2020.

C.5. Mentoring activity

- One supervised PhD thesis ongoing.

-One TFM supervised in 2023 and another one ongoing.