Part A. PERSONAL INFORMATION

First name	Alfonso		
Family name	Rubio Navarro		
e-mail	arubionavarro@ugr.es	URL Web	
Open Researcher and Contributor ID (ORCID) (*)		0000-0001-5677-3123	

A.1. Current position

Position	"Ramon y Cajal" Researcher	
Initial date	01/09/2024	
Institution	University of Granada	
Department/Center	Biochemistry, Molecular Biology III and Immunology	Faculty of medicine
Country	Spain	
Key words	Metabolism, inflammation, pancreas biology, diabetes, obesity, cancer, multiomics technology.	

A.2. Previous positions (research activity interuptions, indicate total months)

Period	Position/Institution/Country/Interruption cause
2023-2024	Investigador AECC/ibs.GRANADA/Spain
2022-2023	Postdoctoral associated/University of Granada/Spain
2017-2022	Postdoctoral associated/Weill Cornell Medicine/USA
2016-2017	Postdoctoral associated/IIS-FJD/Spain
2013-2016	PhD Student/Autonoma University of Madrid/Spain
2011-2012	Master Student/Autonoma University of Madrid /Spain

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
PhD in Pharmacology and Physiology	Autonoma University of Madrid	2016
Master in Pharmacological Research	Autonoma University of Madrid	2012
Licensed in Pharmacy	University of Granada	2011

A.4. General quality indicators of scientific production

H-index (Google Scholar): 26; i10-index (Google Scholar): 29
Citations counts (Google Scholar): 2272
Number of publications (PubMed): 34
Complete List of Published Work in MyBibliography: https://www.ncbi.nlm.nih.gov/myncbi/alfonso.rubio-navarro.1/bibliography/public/

Part B. CV SUMMARY

After finishing my Degree in Pharmacy by the University of Granada in 2011, I moved to Madrid to study a Master in Pharmacological Research at the Autonomous University of Madrid. I carried out my master's thesis under the supervision of Dr. Oscar Lorenzo (Department of Medicine) investigating the Role of sitagliptin and GLP-1 in the cardiac hypertrophy induced by Type 2 Diabetes (T2D). In 2012, I joined the Vascular, Renal and Diabetes Laboratory (IIS- FJD-Autonomous University of Madrid) under the supervision of Prof. Jesús Egido and Dr. Juan Antonio Moreno. In 2013, I was awarded a Conchita Rabago Fellowship to pursue a PhD. During this period, I explored the underlying inflammatory mechanisms of renal and vascular pathologies. Specifically, I studied the role of CD163-macrophages avoiding pro-inflammatory and pro-oxidants deleterious effects associated to heme accumulation in the context of 1) abdominal aortic aneurysm (**Rubio-Navarro et al. Int J Cardio, 2015**) and 2) rhabdomyolysis- induced acute kidney injury (**Rubio-Navarro et al. Theranostics, 2016**). Additionally, I made key contributions to better understand the pathophysiological processes of pathologies with massive intravascular hemolysis by identifying podocyte injury as a cellular mechanism associated to kidney injury in these patients (**Rubio-Navarro et al, J Pathol, 2018**). In addition, my expertise in renal diseases and inflammation gave me the opportunity to collaborate with other research groups and clinicians increasing the impact of my scientific career.

In 2017, I joined Dr. Lo's laboratory at Weill Cornell Medicine in New York as a postdoctoral researcher. My research focused on understanding the initiation and progression of metabolic diseases

such as Diabetes *Mellitus*. In my main project, I explored the obesity-induced effects on changes in β cell heterogeneity and gene expression using single-cell RNA sequencing technologies. In this sense, I identified and functionally characterized a specific subset of β cells with increased metabolic activity and enhanced insulin secretion which distribution is perturbed in T2D in mice and humans (**Rubio-Navarro A, et al. Nature Cell Biology, 2023**). This work has the potential to alter how we think about β cell dysfunction in T2DM allowing the development of novel therapeutic approaches to preserve this β cell subset. Additionally, I have carried out a study in collaboration with Prof. Redenti from The City University of New York (CUNY) and Columbia University investigating the proteome of extracellular vesicles from patients with Diabetic Retinopathy (**Mighty J*, Rubio-Navarro A*, et al. Front Endocrinology 2023**). Furthermore, I have also actively collaborated in other research projects (**Gómez-Banoy, N, et. al. Nat Med 2019; Reiterer M, et al. Cell Metab 2021; Ma L, et al. JCI Insight 2024; Cortada E, et al. Communications Biology 2024; Matsui M, et al. Nat Commun; Homan EA, et al. Elife 2025**). I also continued collaborating with my PhD supervisors, which in turn gave me the opportunity to publish one of my original ideas as a corresponding author (**Rubio-Navarro et al. Front Pharmacol, 2019; co-corresponding author**). During this period, I have gained expertise in the fields of metabolism and pancreas biology and learned new techniques, including proteomics, transcriptomic, single-cell technologies, and big data analysis.

In 2021 I was awarded a Maria Zambrano grant for the attraction of international talent to continue my career at the University of Granada. This research grant has provided me with the opportunity to establish my own research line, centered on exploring pathophysiological mechanisms linked to metabolic and inflammatory disorders, such as obesity and cancer. In 2023, I received the prestigious grant by the Spanish Association Against Cancer, allowing me to progress in my career at the Research Institute ibs.GRANADA. In addition, in September of 2024 I started a Ramon y Cajal contract (Spanish Ministry of Science), enabling me to further develop my independent career at the University of Granada in the fields of metabolism, inflammation and cancer.

In summary, during my scientific career **I have authored 34 publications in scientific journals** (9 of them as first-author / 2 as corresponding author) and **29 disseminations in national and international scientific meetings**. (**H-index: 26 (Google Scholar); 2272 citations (Google Scholar)**. In addition, I have tutorized 11 Master Students and currently tutorizing a PhD student. Finally, I have attended as committee of a PhD thesis at the Autonomous University of Madrid and 32 Master thesis at the UGR. I have also served as reviewer for several scientific journals and as a guest editor in Frontiers in Pharmacology and International Journal of Molecular Sciences.

Part C. RELEVANT MERITS

C.1. Selected publications

1. Homan EA, Gilani A, **Rubio-Navarro A**, et al. Lo JC (3/9). Complement 3a receptor 1 on macrophages and Kupffer cells is not required for the pathogenesis of metabolic dysfunction- associated steatotic liver disease. Elife. 2025 Jan 8;13:RP100708. doi: 10.7554/eLife.100708.

2. Cortada E, Yao J, Xia Y, et al. Lo JC. (7/15) Cross-species single-cell RNA-seq analysis reveals disparate and conserved cardiac and extracardiac inflammatory responses upon heart injury. Commun Biol. 2024 Dec 3;7(1):1611. doi: 10.1038/s42003-024-07315-x.

3. Matsui M, Lynch LE, Distefano I, et al. Pitt GS. (14/21) Multiple beta cell-independent mechanisms drive hypoglycemia in Timothy syndrome. Nat Commun. 2024 Oct 17;15(1):8980. doi: 10.1038/s41467-024-52885-3.

4. Ma L, Gilani A, **Rubio-Navarro A**, Cortada E, Li A, Reilly SM, Tang L, Lo JC (3/8). Adipsin and adipocyte-derived C3aR1 regulate thermogenic fat in a sex-dependent fashion. JCI Insight. 2024 May 7;9(11):e178925. doi: 10.1172/jci.insight.178925.

5. **Rubio-Navarro A**, Gómez-Banoy N, Stoll L; et al. Lo JC. (1/25). A beta cell subset with enhanced insulin secretion and glucose metabolism is reduced in type 2 diabetes. Nat Cell Biol. 2023 Mar 16. DOI: 10.1038/s41556-023-01103-1.

6. Mighty J*; **Rubio-Navarro A***; Shi C; et al. Redenti S (1/11). 2022. Extracellular vesicles of human diabetic retinopathy retinal tissue and urine of diabetic retinopathy patients are enriched for the junction plakoglobin protein. Front Endocrinol (Lausanne). 2023 Jan 6;13:1077644. DOI: 10.3389/fendo.2022.1077644. *First author.

7. Reiterer M; Rajan M; Gómez-Banoy N; et al. Lo JC. (15/ 28). Hyperglycemia in acute COVID-19 is characterized by insulin resistance and adipose tissue infectivity by SARS-CoV-2. Cell Metabolism. 2021 Nov 2;33(11):2174-2188.e5. DOI: 10.1016/j.cmet.2021.09.009.

8. Gómez-Banoy N; Guseh JS; Li Gl; et al; Lo JC. (4/ 25). 2019. Adipsin preserves beta cells in diabetic mice and associates with protection from type 2 diabetes in humans. Nature Medicine. 25, pp.1739-1747. ISSN 1078-8956. DOI: 10.1038/s41591-019-0610-4.

9. **Rubio-Navarro A (AC)**; Vázquez-Carballo C; Guerrero-Hue M; et al; Moreno JA. (1/20). 2019. Nrf2 Plays a Protective Role Against Intravascular Hemolysis-Mediated Acute Kidney Injury.Frontiers in pharmacology. 10, pp.740. DOI: 10.3389/fphar.2019.00740

10. **Rubio-Navarro A**; Sanchez-Niño MD; Guerrero-Hue M; et al; Moreno JA. (1/19). 2017. Podocytes are new cellular targets of haemoglobin-mediated renal damage.The Journal of pathology. 244, pp.296-310. ISSN 0022-3417.

11. Martín Fernández, B.; **Rubio Navarro, A.;** Cortegano, I.; et al; Moreno, JA.(2/13). 2016. Aldosterone Induces Renal Fibrosis and Inflammatory M1-Macrophage Subtype via Mineralocorticoid Receptor in Rats.PloS one. 11-1, pp.e0145946. ISSN 1932-6203.

12. **Rubio-Navarro A**; Carril M; Padro D; et al; Moreno JA. (1/ 15). 2016. CD163-macrophages are involved in rhabdomyolysis-induced kidney injury and may be detected by MRI with targeted gold-coated iron oxide nanoparticles Theranostics. 6-6, pp.896-914.

13. **Rubio-Navarro A**; Guerrero-Hue M; Martín-Fernandez B; et al; Moreno JA. (1/11). 2016. Phenotypic Characterization of Macrophages from Rat Kidney by Flow Cytometry.Journal of visualized experiments: JoVE.

14. **Rubio Navarro, A**.; Amaro Villalobos, JM.; Lindholt, JS.; et al; Moreno, JA.(1/11). 2015. Hemoglobin induces monocyte recruitment and CD163-macrophage polarization in abdominal aortic aneurysm.International journal of cardiology. 201, pp.66-144. ISSN 1874-1754.

15. Sastre, C.; **Rubio Navarro, A.;** Buendía, I.; et al; Moreno, JA.(2/ 10). 2013. Hyperlipidemia-associated renal damage decreases Klotho expression in kidneys from ApoE knockout mice.PloS one. 8-12, pp.e83713. ISSN 1932-6203.

C.2. Research projects, indicating your personal contribution. In the case of young researchers, indicate lines of research for which they have been responsible.

1. Desarrollo de sensores fluorescentes y teranósticos para patologías con sobreexpresión enzimática: un enfoque integral y pionero. (PIs: José Manuel Paredes Martínez and Eva María Talavera Rodríguez). 01 September 2024 to 31 December 2027. Work team.

2. Efectos sobre la prevención de la toxicidad cardiovascular relacionada con el cáncer de mama de un programa diariamente adaptado e individualizado con soporte una aplicación móvil. (PI: Irene Cantarero Villanueva) Instituto de Salud Carlos III. 01 January 2024 to 31 December 2026. (Work Team).

3. Medicina personalizada mediante la aplicación de terapia génica dirigida para la mejora del diagnóstico y el tratamiento de la Osteogénesis Imperfecta. XXI Convocatoria de Ayudas a la Investigación en Salud de la Fundación Mutua Madrileña para su financiación. Houria Boulaiz (200.000 €). Team Member

4. Alternative Complement Pathway Regulation of Beta Cell Homeostasis. COVID-19 competitive revision supplement to define the mechanism of hyperglycemia in COVID-19 (3R01DK121140-01A1S1) National Institute of Health (NIH)/National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). James C. Lo. (Weill Cornell Medicine. Cornell Univesity). 24/08/2020-30/11/2020. $372.799. Team member.

5. Alternative Complement Pathway Regulation of Beta Cell Homeostasis (R01DK121140) NIH/NIDDK. James C. Lo. (Weill Cornell Medicine. Cornell Univesity). 06/01/2020-30/11/2023. $805.125/ year. Team member.

6. An Obesity-Induced Kinase that Regulates Adipose Homeostasis and Metabolic Diseases (R01DK121844) NIH/NIDDK. James C. Lo. (Weill Cornell Medicine. Cornell Univesity). 30/04/2020-30/04/2024. $843.925/year. Team member.

7. Transcriptional regulation of pancreatic beta cell failure by single cell RNA-Seq Columbia Diabetes Research Center. Domenico Accili & James C. Lo. (Weill Cornell Medicine. Cornell University). 06/07/2018-31/01/2023. Postdoctoral Researcher.

8. Estudio de nuevos mecanismos y dianas terapéuticas implicadas en el daño renal agudo y crónico en patologías asociadas a acumulación renal de hemoglobina. Instituto de Salud Carlos III. Juan Antonio Moreno Gutiérrez. (IIS-Fundación Jiménez Díaz). 01/01/2018-31/12/2020. 105.270 €. Team member.

9. Estudio de mediadores inflamatorios y de estrés oxidativo asociados a daño renal en pacientes con crisis hemolíticas severas. Sociedad Española de Nefrología. 01/01/2018-31/12/2019. 24.000 €.

10. Centro de Investigación Biomédica en Red en Enfermedades Cardiovasculares (CIBERCV) Luis Miguel Blanco Colio. (IIS-Fundación Jiménez Díaz). 2013-2017. Team member.

11. Nuevos mecanismos moleculares implicados en el daño renal por hemoglobina. Aplicaciones diagnósticas, pronósticas y terapéuticas. PI14/00883. Instituto de Salud Carlos III. Juan Antonio Moreno Gutiérrez. (IIS-Fundación Jiménez Díaz). 01/01/2015-31/12/2017. 120.400 €. Team member.

12. Diabetes Cancer Connect: Targeting common inflammatory markers and signaling pathways in diabetes mellitus and cancer Instituto de Salud Carlos III. Jesus Egido. (Fundación Jiménez Díaz). 01/01/2014-30/06/2017. 860.000 €. Team member.

13. Caracterización y modulación terapéutica del proceso de diferenciación de macrófagos en patología vascular y renal. PI13/00802 Juan Antonio Moreno Gutiérrez. (IIS-Fundación Jiménez Díaz). 01/01/2014-31/12/2015. 39.325 €. Team member.

14. Efecto del tipo de alimentación sobre la activación de leucocitos circulantes durante el estado postprandial en pacientes con síndrome metabólicos. 2013. Spanish Society of Arteriosclerosis. PI: Juan Antonio Moreno. Team member

15. Fighting Aneurysmal Disease. FP7 European collaborative project. PI: Jesus Egido. 01/02/2012-30/04/2012. Employed PhD student

C.3. Obtained grants and scholarships

1. Ramon y Cajal Aid program. Ministry of Science, Innovation and Universities. Spain. 2024-2029

2. Investigador AECC. Spanish Association Against Cancer (AECC). 2023-2028.

3. María Zambrano fellowship for the attraction of international talent. Ministry of Universities. Spain. 2022 – 2023.

4. Conchita Rábago Fellowship. Conchita Rábago Foundation. 2013 - 2015.

C.4. Contracts, technological or transfer merits.

1. Transfer contract: Extract methodology and medical and non-medical applications of the bioactive components from pineapples, avocados and pomegranates .Company FDM Holdings Limited. 16/04/2024 – 15/09/2025. 422,722 €. Team member.
2. BioFab i3D Lab- Biofabrication and 3D (bio)printing Singular Laboratory. PI: Juan Antonio Marchal Corrales. Team Member.
3. Integrated Islet Distribution Program (IIDP); (CA, USA) PI: James C. Lo 2018-2022. Team Member.
4. Effect of Budesonide Treatment on Hb-associated renal biomarkers in patients with IgA nephropathy Pharmalink AB. PI: Juan Antonio Moreno. 2017-present. 4.000 €. Team member
5. Role of TWEAK/Fn14 in rhabdomyolysis-induced kidney injury. Biogen Idc. Juan Antonio Moreno Gutierrez. From 2015. Team member.
6. ImmunoTools Award 2013. Role of M2 Macrophage and Th2 immune response in renal fibrosis. PI

C.5. Co-operation networks and scientific societies membership

1. Member of European Association for Cancer Research (EACR). 2024 - present
2. Member of Spanish Association for Cancer Research (ASEICA). 2024 - present
3. Member of Boston Ithaca Islet Club. 2019- 2022
4. Member of New York Academy of Sciences. 2018-2022.
5. CIBERCV. Centro de Investigación Biomédica en Red. Enfermedades cardiovasculares. CB16/11/00333. Instituto de Salud Carlos III. 2017-2020. Team member
6. DiabetesCancerConnect Consortium. Instituto de Salud Carlos III. 2014-2017. Team member.
7. Red Temática de Investigación Cooperativa en Enfermedades Cardiovasculares (RECAVA). RD12/0042/0038. 2013-2016. Team member.
8. Member of Spanish Society of Arteriosclerosis (SEA). 2013-present.