

CURRICULUM VITAE ABREVIADO (CVA)

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

Part A. PERSONAL INFORMATION

First name	Manuel
Family name	Vázquez-Carrera

A.1. Current position

Position (Categoría profesional)	Professor (Catedrático Universidad)
Institution (Universidad de procedencia)	University of Barcelona (Universidad de Barcelona)

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

Period	Position/Institution/Country/Interruption cause
1995-1996	Postdoctoral stay (European Science Foundation grant)/University of Lausanne/Switzerland

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Bachelor's degree in Pharmacy	University of Barcelona/Spain	1990
PhD in Pharmacy	University of Barcelona/Spain	1994

(Include all the necessary rows)

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

In 1991, after receiving a grant from the *Generalitat de Catalunya*, I began my PhD at the Department of Pharmacology and Therapeutic Chemistry (UB), obtaining a doctorate in 1994. The PhD, which aimed to study the mechanism of action of fibrates, resulted in six original articles [*FEBS Letters*, *Biochemical Pharmacology* (2), *British Journal of Pharmacology* (2), *Life Sciences*]. In 1994, I obtained a grant from the *European Science Foundation* to perform a postdoctoral stay at the *Institut de Biologie Animale* of the University of Lausanne, Switzerland, under the supervision of Dr. Walter Wahli. During this postdoctoral period, I dedicated my efforts to studying PPAR α endogenous ligands and their relationship with the inflammatory process. This allowed me to obtain publications in *Nature* and the *Journal of Biological Chemistry* (2). I returned to the Pharmacology Unit at the Department of Pharmacology and Therapeutic Chemistry at the UB, where I became an associate professor in 1997 and started my scientific career as a principal investigator (PI) of the research group "Pharmacological targets in inflammation and metabolic diseases". Since then, I have led this research group, aiming to study the role of inflammation as a trigger for the development of insulin resistance, type 2 diabetes mellitus, metabolic alterations of the heart, especially diabetic cardiomyopathy, and metabolic dysfunction-associated steatotic liver disease (MASLD). During this period, I have supervised **15 theses**. In 2007, our research group was incorporated into the *Red de Diabetes y Metabolismo* (REDIMET) and later became one of the 30 groups of the *CIBER de Diabetes y Enfermedades Metabólicas Asociadas* (**CIBERDEM**). Our group is one of the highest performing research groups of the *Generalitat de Catalunya* (2021 SGR 01106).

In recent years, I have collaborated with Dr. S. Vázquez Cruz from the Medicinal Chemistry Unit of our Department to develop first-in-class new HRI activators for the treatment of type 2 diabetes mellitus. From this collaboration, we have published several studies (*Diabetes*, 2016; *Molecular Metabolism*, 2018; *British Journal of Pharmacology*, 2019, and *Trends in Pharmacological Sciences*, 2020), received financial support from **CaixaImpulse** to develop

new compounds of this family, and obtained **two patents**. In addition, this collaboration has allowed the development of inhibitors (*Journal of Medicinal Chemistry* 2021) or **PROTACs** (*Biomedicine & Pharmacotherapy* 2023) targeting soluble epoxide hydrolase for the treatment of metabolic diseases. More recently, we have reported that GDF15 activates AMPK and that the upregulation of this stress-responsive cytokine by PPAR β/δ agonists is required for their antidiabetic effects (*Cell Reports*, 2021). Furthermore, we have demonstrated that a positive feedback loop between AMPK and GDF15 promotes metformin antidiabetic effects (*Pharmacological Research* 2023) and that GDF15 activates AMPK and inhibits gluconeogenesis and fibrosis in the liver by attenuating the TGF- β 1/SMAD3 pathway (*Metabolism* 2024). Our group has a strong background in the study of the effects of PPAR β/δ and we have explored its role in liver fibrosis (*Biomedicine & Pharmacotherapy* 2023) and diabetic cardiomyopathy (*Pharmacological Research* 2024).

During my scientific career, I have been involved in 35 research projects, at public and private institutions, being the PI on 24 of these projects. As a result of this research activity, I have published 181 articles (*Journal Citation Reports*). Among these publications, I would like to highlight those from the last 10 years included in the **first decile** of its category: *Metabolism* (3), *Signal Transduction and Targeted Therapy*, *Diabetes*, *Diabetologia*, *Trends in Pharmacological Sciences* (3), *Trends in Endocrinology & Metabolism* (3), *British Journal of Pharmacology*, *Pharmacological Research* (2), *Biomedicine & Pharmacotherapy* (2), *Progress in Lipid Research*, and *Molecular Metabolism*. In addition, we have established national (Dr. S. Vázquez Cruz, Dr. A. Valverde, Dr. A. Gumà, Dr. J. Balsinde, Dr. F. Blanco-Vaca, Dr. L. Ibáñez, Dr. S. Fernández-Veledo, and Dr. F. Villarroja) and international (Dr. Bruce Hammock, University of California, Davis; Dr. Jianli Dai, University of the Chinese Academy of Sciences, China; Dr. Arthur M. Feldman, USA; Dr. Mercy M. Davidson, Columbia University, USA; Dr. P.J. Meakin and Dr. Michael L.J. Ashford, University of Dundee, UK; Dr. Walter Wahli, University of Lausanne, Switzerland and Nanyang Technological University, Singapore) collaborations.

In summary, during my scientific career I have published **181 articles**, with a sum of times cited of 8,739, a **H-index of 50** (Web of Science, Thomson Reuters) and I have been the PI on 24 competitive research projects.

Part C. RELEVANT MERITS (sorted by typology)

C.1. Publications (see instructions)

1. Jurado-Aguilar J, Wahli W, Palomer X, Vázquez-Carrera M (10/10). (2024). GDF15 activates AMPK and inhibits gluconeogenesis and fibrosis in the liver by attenuating the TGF- β 1/SMAD3 pathway. *Metabolism* 2024 Mar;152:155772. IF2023: 10.8. **Q1/D1**.
2. Rostami A, Palomer X,Wahli W, Vázquez-Carrera M (11/11) (2024). PPAR β/δ prevents inflammation and fibrosis during diabetic cardiomyopathy. *Pharmacol Res.* 2024 Nov 20;210:107515. IF2023: 9.1. **Q1/D1**.
3. Barroso E, Jurado-Aguilar J, Wahli W, Palomer X, Vázquez-Carrera M (5/5). (2024). Increased hepatic gluconeogenesis and type 2 diabetes mellitus. *Trends Endocrinol Metab.* 35:1062-1077, 2024. doi: 10.1016/j.tem.2024.05.006. IF2023: 11.4. **Q1/D1**.
4. Peyman M, Palomer X, Galdeano C, Vázquez S, Vázquez-Carrera M (14/14). (2023) Soluble epoxide hydrolase-targeting PROTAC activates AMPK and inhibits endoplasmic reticulum stress. *Biomed Pharmacother.* 168:115667. IF2023: 6.9. **Q1/D1**.
5. Aguilar-Recarte D ...Valverde ÁM, Wahli W, Vázquez-Carrera M (10/10). (2023). A positive feedback loop between AMPK and GDF15 promotes metformin antidiabetic effects. *Pharmacol Res.* 187:106578. IF2023: 9.3. **Q1/D1**.
6. Aguilar-Recarte D ...Vázquez-Carrera M (5/5). (2022). Knocking on GDF15's door for the treatment of type 2 diabetes mellitus. *Trends Endocrinol Metab.* 33:741-754. IF2022: 10.9. **Q1/D1**.
7. Aguilar-Recarte D, Vázquez-Carrera M (9/9). (2021). GDF15 mediates the metabolic effects of PPAR β/δ by activating AMPK. *Cell Reports* 36:109501. IF2021: 9.9. **Q1**.
8. Palomer X, Román-Azcona MS, Pizarro-Delgado J, Vázquez-Carrera M. (15/15). (2020). SIRT3-mediated inhibition of FOS through histone H3 deacetylation prevents cardiac fibrosis and inflammation. *Signal Transduction and Targeted Therapy* 5:14. IF2023: 18.1. **Q1/D1**.

9. Zarei M, Pujol E, Quesada-López T, Vázquez-Carrera M. (9/9) (2019). Oral administration of a new HRI activator as a new strategy to improve high-fat-diet-induced glucose intolerance, hepatic steatosis, and hypertriglyceridaemia through FGF21. **British Journal of Pharmacology** 176:2292-2305. IF2019: 7.7. **Q1/D1**.
10. Zarei M, Palomer X, ... Vázquez-Carrera M. (18/18) (2018). Hepatic regulation of VLDL receptor by PPAR β/δ and FGF21 modulates non-alcoholic fatty liver disease. **Molecular Metabolism** 8: 117-31. IF2018: 6.1. **Q1/D1**.
11. Botteri G, Montori M, Vázquez-Carrera M. (11/11). (2017). VLDL and apolipoprotein CIII induce ER stress and inflammation and attenuate insulin signalling via Toll-like receptor 2 in mouse skeletal muscle cells. **Diabetologia** 60: 2262-2273. IF2017: 6.0. **Q1/D1**.
12. Zarei M,... Vázquez-Carrera, M. (15/15) (2016). Heme-Regulated eIF2 α Kinase Modulates Hepatic FGF21 and Is Activated by PPAR β/δ Deficiency. **Diabetes** 65: 3185-99. IF2016: 8.6. **Q1/D1**.

C.2. Congress, indicating the modality of their participation (invited conference, oral presentation, poster)

1. Aguilar-Jurado J... Vázquez-Carrera M. GDF15 activates AMPK and inhibits gluconeogenesis and fibrosis by attenuating the SMAD3 pathway. EASL Congres. Milan, June 5-8, 2024. Póster.
2. Vázquez-Carrera M. Soluble epoxide hydrolase-targeting PROTAC activates AMPK and inhibits ER stress. IBUB Research Day. October 6, 2023. **Invited conference**.
3. Vázquez-Carrera M. GDF15 es un nuevo mediador de los efectos antidiabéticos de la metformina. XXXIV Congreso Nacional de la Sociedad Española de Diabetes 2023. Valencia, April 19-21, 2023. **Invited conference**.
4. Rostami A...Vázquez-Carrera, M. Study of the effect of PPAR β/δ activation on diabetic cardiomyopathy. 83rd American Diabetes Association. San Diego, June 23-26, 2023. Póster.
5. Vázquez-Carrera, M. GDF15 is a new player in the activation of AMPK. 8th European Virtual Congress of Pharmacology (EPHAR). December 6, 2021. **Invited conference**.
6. Vázquez-Carrera, M. GDF15 is a new player in the activation of AMPK. State of the art lecture. CIBERDEM 12th Annual Meeting. Mataró. November 3-4, 2021. **Invited conference**.
7. Vázquez-Carrera, M. Mecanismos implicados en el desarrollo de la esteatohepatitis. Controversias en Endocrinología y Nutrición. Congreso Nacional de la Sociedad Española de Endocrinología y Nutrición (SEEN). Madrid, October 25-27, 2018. **Invited conference**.
8. Vázquez-Carrera, M. Inflamación, resistencia a la insulina y otras enfermedades metabólicas. Santander Biomedical Lectures. Santander, October 26, 2017. **Invited conference**.
9. Vázquez-Carrera, M. New potential targets to prevent cardiac inflammation. Minisymposium (IBUB) on Advances in Molecular Cardiology. Barcelona, March 3, 2017. **Invited conference**.
10. Vázquez-Carrera, M. Emerging issues in diabetes/obesity I. Targeting endoplasmic reticulum stress in insulin resistance. Lilly Diabetes Scientific Community. Barcelona, December 4, 2015. **Invited conference**.
11. Vázquez-Carrera, M. Targeting inflammation to treat insulin resistance. 17th World Congress of Basic & Clinical Pharmacology. Cape Town, South Africa, July 17, 2014. **Invited conference**.

C.3. Research projects, indicating your personal contribution. In the case of young researchers, indicate lines of research for which they have been responsible.

1. **Title:** Targeting the PPAR β/δ -GDF15 pathway for the treatment of insulin resistance and type 2 diabetes mellitus (PPAR β/δ -GDF15). **Project reference number:** PID2021-122116OB-I00. From 01/09/2022 until 30/09/2025. **Financing entity:** Ministerio de Ciencia e Innovación. **Funding:** 290.400 €. **Principal Investigator:** Manuel Vázquez-Carrera and F. Javier Palomer.
2. **Title:** New HRI activators for the treatment of type 2 diabetes mellitus. **Project reference number:** CI180006. From: 01/10/2018 until 31/12/2019. **Financing entity:** CaixaImpulse. **Funding:** 100.000 €. **Principal Investigator:** Manuel Vázquez-Carrera.
3. **Title:** Activación de PPAR β/δ y HRI: explorando nuevos mecanismos compensatorios para el tratamiento de la inflamación, la resistencia a la insulina y la esteatosis no alcohólica.

Project reference number: RTI2018-093999-B-I00 From: 01/01/2019 until 31/12/2021
Financing entity: Ministerio de Economía y Competitividad. **Funding:** 240.000 €. **Principal Investigator:** Manuel Vázquez-Carrera and F. Javier Palomer Tarridas.

4. Title: Inflamación, resistencia a la insulina y cardiomiopatía diabética: evaluación de los agonistas PPARbeta/delta y del ácido oleico. **Project reference number:** SAF2015-64146-R. From 01/01/2016 until 31/12/2018. **Financing entity:** Ministerio de Economía y Competitividad **Funding:** 229.900 €. **Principal Investigator:** Manuel Vázquez-Carrera

5. Title: Diabetic cardiomyopathy: searching for a therapeutic target. **Project reference number:** 20154230. From 01/01/2016 until 31/12/2018. **Financing entity:** Fundació La Marató de TV3. **Funding:** 159.000 €. **Principal Investigator:** Manuel Vázquez-Carrera

6. Title: CIBER-CIBERDEM Centro de Investigación Biomédica en Red de Diabetes y Enfermedades Metabólicas Relacionadas. **Project reference number:** CB07/08/0003. From 2008-2025. **Financing entity:** Ministerio de Sanidad y Consumo, Instituto de Salud Carlos III. **Principal Investigator:** Dr. Manuel Vázquez-Carrera.

C.4. Contracts, technological or transfer merits, Include patents and other industrial or intellectual property activities (contracts, licenses, agreements, etc.) in which you have collaborated. Indicate: a) the order of signature of authors; b) reference; c) title; d) priority countries; e) date; f) Entity and companies that exploit the patent or similar information, if any.
. **Contract. Title:** Effect of VBT-0011 on PPAR mice energetic metabolism. From 22/11/2018 until 07/03/2019. **Financing entity:** Valbiotis – France. **Funding:** 21.000 €. **Principal investigator:** Manuel Vázquez Carrera.

. **Contract. Title:** Síntesis y evaluación farmacológica de nuevas moléculas con propiedades antidiabéticas. From 01/07/2014 until 01/07/2016 **Financing entity:** ACCIÓ. Agència de Suport a l'Empresa Catalana. **Funding:** 92.406 €. **Principal investigator:** Santiago Vázquez

. **Patent.** Inventors: Vázquez Cruz, S; Valverde Murillo, E.; Leiva Martínez, R; Vázquez Carrera, M.; Codony Gispert, S. Publication Number: WO2017017048. Title: Analogs of adamantylureas as soluble epoxide hydrolase inhibitors. Countries of priority: ESP. Countries of extension: AUS, BR, CH, CN, CA, JP, EU, US, IN, KR, MX, ID, SG. Date: 28/07/2015. Owner: University of Barcelona.

. **Patent.** Inventors: Zarei, M; Vázquez-Carrera, M; Vázquez-Cruz, S; Leiva Martínez, R; Pujol Bech, E. Publication number: WO2018010856. Title: HRI Activators useful for the treatment of metabolic diseases. Countries of priority: ESP. Date: 13/07/2016. Owner: University of Barcelona.