



<b>PERSONAL INFORMATION</b>		<b>CV date</b>		29-11-2019
First and Family name	Carlos Félix SANCHEZ FERRER			
Social Security, Passport, ID number	00790371E	Age	61	
Researcher numbers	Researcher ID	J-8493-2014		
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### Current position

Name of University/Institution	Universidad Autónoma de Madrid			
Department	Departamento de Farmacología. Facultad de Medicina			
Address and Country	Calle Arzobispo Morcillo 4, 28029-Madrid			
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Current position	Catedrático de Universidad (Full Professor) Chairman of Department		From	13/06/2005 10/05/2013
Espec. cód. UNESCO	320808, 320704			
Key words	Diabetic vasculopathy, vascular ageing, obesity, adipokines, vascular inflammation, endothelial dysfunction			

### A.2. Education

Degree	University	Year
Licenciado en Medicina y Cirugía (MD)	Autónoma de Madrid	1981
Doctor en Medicina y Cirugía (PhD)	Autónoma de Madrid	1884

### A.3. JCR articles, h Index, thesis supervised in the last 10 years.

Six periods of Six Years for research evaluation, the last one between 2012-2017 (June 6, 2012). Total PhD co-adviser, 18; 8 PhD Thesis in the last 10 years (3 with European or International Mention and 2 with Extraordinary Doctorate Award); 4 PhD Thesis in progress. Total publications: 13 book chapters, 115 in papers cited in the Science Citation Index (52 at Q1), and 38 articles for science dissemination. Publications since 2007: 30 papers cited in Science Citation Index (24 at Q1). Received total citations: 2635 (58% in the last 10 years). Mean citation per year (2013-17): 150. H index: 30. Invited presentations in National and International Meetings: 33.

### Part B. CV SUMMARY

Since 1996 is leading a research group at the Department of Pharmacology, in the School of Medicine of Universidad Autónoma de Madrid (UAM), with five to ten members, including professors, pre- and postdoctoral fellows, and technicians. The acronym FARMAVASM (Vascular Pharmacology and Metabolism; <http://www.uam.es/farmavas>) names an official research group in UAM, which is led by Profs. Sánchez Ferrer and Peiró, including the research team for obesity and diabetes mellitus from directed by Dr. Raffaele Carraro in the Endocrinology Service of HU La Princesa. This group has been obtaining continuous private and public funding during the last 20 years. Public funding is mainly derived from competitive calls from National, Local, or European sources. The research activity is mostly focussed in the biopathology and pharmacology of the vascular wall and adipose tissue, by different methodological approaches. In the last years, a clear enrichment of the group occurs with the incorporation of two additional clinical researchers, such as Dr. Jorge Gómez Cerezo (HU Infanta Sofía, Madrid) and Dr. Fernando Rivilla Parra (HU Ramón y Cajal, Madrid). At present, the research lines are: (1) Mechanisms for vascular damage in diabetes mellitus; (2) Mechanisms of human vascular ageing; (3) Obesity, adipokines, insulin resistance, and vascular dysfunction; and (4) Role for the angiotensin-(1-7)/Mas receptor axis on vascular function and inflammation. At present, the following collaborations are established:

1. Prof. Salvador Moncada, Institute Director of Cancer Sciences, Faculty of Medical and Human Sciences, University of Manchester, UK.



2. Prof. Jorge D. Erusalimsky, Professor of Biomedical Sciences, Cardiff School of Health Sciences, University of Wales Institute, Cardiff, UK.
3. Dra Helena Domínguez, Department of Biomedical Sciences and Cardiology Department, Bispebjerg-Frederiksberg Hospital, University of Copenhagen, Denmark
4. Profs. Ramaroson Andriantsitohaina & M<sup>a</sup> Carmen Martinez. INSERM UMR 1063 Stress oxydant et pathologies métaboliques, UNIV Angers, Université Bretagne Loire, France.
5. Prof. Guillermo Díaz Araya. Departamento de Química Farmacológica y Toxicológica Facultad de Ciencias Químicas y Farmacéuticas. Universidad de Chile, Chile.
6. Prof. Carlos Hermenegildo Caudevila, Departamento de Fisiología, Facultad de Medicina, Universidad de Valencia. España.

## Part C. RELEVANT MERITS

### C.1. More relevant publications in the last 10 years.

1. ROMERO A, SAN HIPOLITO-LUENGO A, VILLALOBOS L, VALLEJO S, MICHALSKA P, LEON R, BARTHA JL, SANZ MJ, ERUSALIMSKY J, SANCHEZ-FERRER CF, ROMACHO T, PEIRO C. The angiotensin-(1-7)/Mas receptor axis protects from endothelial cell senescence via klotho and Nrf2 activation. *Aging Cell*: e12913, 2019. doi: 10.1111/accel.12913. IF: 7.627. D1
2. OLIVARES-SILVA F, LANDAETA R, BOLIVAR S, HUMERES D, ANFOSSI R, VIVAR R, BOZA P, MUÑOZ C, PARDO V, PEIRÓ C, SÁNCHEZ-FERRER CF, DÍAZ-ARAYA G. Heparan sulfate potentiates leukocyte adhesion on cardiac fibroblasts by enhancing VCAM-1 and ICAM-1 adhesion. *Biochemical and Biophysical Acta-Molecular Basis of Disease*, 1864 831-842, 2018. doi: 10.1016/j.bbadis.2017.12.002. IF: 5.108. Q1
3. DOMINGUEZ H, SANCHEZ-FERRER, CF: Editorial Comment: New findings about the role of glycosylated proteins on cardiovascular diabetic complications. *J Am Coll Cardiol*. 70: 2020-2021, 2017. IF: 16.834. Q1. D1.
4. ESPINOSA C, MIGUEL V, VALLEJO S, SANCHEZ FJ, SANDOVAL E, BLANCO E, CANNATA P, PEIRO C, SANCHEZ-FERRER CF, LAMAS S. Role of glutathione biosynthesis in endothelial dysfunction and fibrosis. *Redox Biology* 14: 88-99, 2017. doi: 10.1016/j.redox.2017.08.019. IF: 7.126. Q1
5. SANCHEZ-FERRER CF, CARRARO R, LORENZO O, PEIRO C. IL-1 $\beta$  inhibition in cardiovascular complications associated to diabetes mellitus. *Front Pharmacol*. 8:363, 2017. doi: 10.3389/fphar.2017.00363. PMID: 28659798. IF: 3.831. Q1.
6. SOBRINO A, VALLEJO S, NOVELLA S, LAZARO M, MOMPEON A, BUENO-BETI C, WALTHER T, SANCHEZ-FERRER CF, PEIRO C, HERMENEGILDO C. Mas receptor is involved in the estrogen-receptor induced nitric oxide-dependent vasorelaxation. *Biochem Pharmacol*, pii: S0006-2952(17)30042-4, 2017. doi: 10.1016/j.bcp.2017.01.012. PMID: 28131844. IF: 4.235. Q1.
7. VILLALOBOS L, SAN HIPOLITO A ROMACHO T, RAMOS-GONZALEZ M, CERCAS E, VALLEJO S, ROMERO A, CARRARO R, SANCHEZ-FERRER CF, PEIRO C. The angiotensin-(1-7) counteracts angiotensin II-dependent and -independent pro-inflammatory signaling in human vascular smooth muscle cells via Mas receptors. *Front Pharmacol*. 15; 7: 482, 2016. doi: 10.3389/fphar.2016.00482. PMID: 28018220. IF: 4.400. Q1.
8. PEIRO C, ROMACHO T, AZCUTIA V, VILLALOBOS L, FERNANDEZ E, BOLAÑOS JP, MONCADA S, SANCHEZ-FERRER CF. Inflammation, glucose, and vascular damage: the role of pentose phosphate pathway. *Cardiovasc Diabetol*. 1;15: 82, 2016. doi: 10.1186/s12933-016-0397-2. PMID: 27245224. IF: 4.752. Q1.
9. ROMACHO T, VALLEJO S, VILLALOBOS LA, WRONKOWITZ N, INDRAKUSUMA I, SELL H, ECKEL J, SANCHEZ-FERRER CF, PEIRO C. Soluble dipeptidyl peptidase 4 induces microvascular endothelial dysfunction through protease-activated receptor-2 and thromboxane A<sub>2</sub> release. *J Hypertens*. 34: 869-76, 2016. doi: 10.1097/HJH.0000000000000886. PMID: 26895560. IF: 4.085. Q1.
10. VALLEJO S, PALACIOS E, ROMACHO T, VILLALOBOS LA, PEIRO C, SANCHEZ-FERRER CF. The antagonist of interleukin-1beta receptor anakinra improves endothelial



- dysfunction in streptozotocin-induced diabetic rats. *Cardiovasc Diabetology* 13:158, 2014. doi: 10.1186/s12933-016-0397-2. PMID: 25518980. IF: 4.015. Q1.
11. MOYES A, RAYOMAND KHAMBATA R, VILLAR I, BUBB K, BALIGA R, LUMSDEN N, XIAO F, GANE P, REBSTOCK AS, WORTHINGTON R, SIMONE M, QUINTEIRO F, RIVILLA F, VALLEJO S, PEIRO C, SANCHEZ FERRER CF, DJORDJEVIC S, CAULFIELD M, MACALLISTER R, AHLUWALIA A, SELWOOD D, HOBBS A. Endothelial C-type natriuretic peptide maintains vascular homeostasis. *J Clin Invest.* 124: 4039-51, 2014. doi: 10.1172/JCI74281. doi: 10.1172/JCI74281. PMID: 251053365; IF: 13.215, Q1. D1.
  12. WRONKOWITZ N, GÖRGENS SW, VILLALOBOS LA, SANCHEZ-FERRER, CF, PEIRO C, SELL H, ECKEL J. Soluble DPP4 Induces Inflammation and Proliferation of Human Smooth Muscle Cells via Protease-Activated Receptor 2. *Biochem Biophys Acta - Mol Basis Dis*, 1842: 1613-21, 2014. doi: 10.1016/j.bbadis.2014.06.004. PMID: 24928308; IF: 4.882, Q1.
  13. VILLALOBOS LA, URYGA A, ROMACHO T, LEIVAS A, SANCHEZ-FERRER CF, ERUSALIMSKY JD, PEIRO C. Visfatin/Nampt induces telomere damage and senescence in human endothelial cells. *Int J Cardiol.* 175: 573-5, 2014. doi: 10.1016/j.ijcard.2014.05.028. PMID: 24874905, IF: 4.036, Q1
  14. ROMACHO T, VILLALOBOS LA, CERCAS E, CARRARO R, SÁNCHEZ-FERRER CF, PEIRÓ C. Visfatin as a novel mediator released by inflamed human endothelial cells. *PLoS One.* 2013 Oct 10;8(10):e78283, 2013. doi: 10.1371/journal.pone.0078283. PMID: 24130902, IF: 3.534, Q1.
  15. PEIRO C, VALLEJO S, GEMBARDT F, PALACIOS E, RODRÍGUEZ-MAÑAS L, SANCHEZ-FERRER CF, WALTHERT: Complete blockade of the vasorelaxant effects of angiotensin-(1-7) and bradykinin in murine microvessels by antagonists of the receptor Mas. *J Physiol.* 591: 2275-85, 2013. doi: 10.1113/jphysiol.2013.251413. PMID: 23459756, IF: 4.544, Q1
  16. EL ASSAR DE LA FUENTE M, ANGULO J, VALLEJO S, PEIRÓ, VALLEJO C, SÁNCHEZ-FERRER CF AND RODRÍGUEZ-MAÑAS L. Mechanisms involved in the aging-induced vascular dysfunction. *Front Physiol.* 3: 132. doi:10.3389/fphys.2012.00132, 2012. PMID: 22783194. IF: 3.435. Q1.
  17. ANGULO J, VALLEJO S, EL ASSAR M, GARCIA-SEPTIEM J, SANCHEZ-FERRER CF, RODRIGUEZ-MAÑAS L. Age-related differences in the effects of  $\alpha$  and  $\gamma$  peroxisome proliferator-activated receptor subtype agonists on endothelial vasodilation in human microvessels. *Exp Gerontol* 47:734-40, 2012. PMID: 22776133, IF: 3.911, Q1.
  18. VALLEJO S, ROMACHO T, ANGULO J, VILLALOBOS L. CERCAS E, LEIVAS A, BERMEJO E, CARRARO R, SANCHEZ-FERRER CF, PEIRO C. Visfatin impairs endothelium-dependent relaxation in rat and human mesenteric microvessels through nicotinamide phosphoribosyltransferase activity. *PLoS ONE.* 6 (11): e27299. doi:10.1371/journal.pone.0027299, 2011. PMID: 22073309, IF: 4.092, Q1.
  19. PEIRO C, ROMACHO T, CARRARO R, SANCHEZ-FERRER CF: Visfatin/PBEF/Nampt: a new cardiovascular target? *Front Pharmacol* 1:135, 2010. doi: 10.3389/fphar.2010.00135. PMID: 21833174. IF: 3.802. Q2.
  20. AZCUTIA V, ABU-TAHA M, ROMACHO T, VAZQUEZ-BELLA M, MATESANZ N, LUSCINSKAS FW, RODRIGUEZ-MAÑAS L, SANZ MJ, SANCHEZ-FERRER CF, PEIRO C: Inflammation determines the pro-adhesive properties of high extracellular D-glucose in human endothelial cells *in vitro* and rat microvessels *in vivo*. *PLoS One.* 2010; 5: e10091. doi: 10.1371/journal.pone.0010091. PMID: 20386708, IF: 4.351, Q1
  21. ROMACHO T, AZCUTIA V, VAZQUEZ-BELLA M, MATESANZ, CERCAS E, NEVADO J, CARRARO R, RODRIGUEZ-MAÑAS L, SANCHEZ-FERRER CF, PEIRO C: Extracellular PBEF/Nampt/visfatin activates pro-inflammatory signaling in human vascular smooth muscle cells through nicotinamide phosphoribosyltransferase activity. *Diabetologia* 52: 2455-2463, 2009. doi: 10.3389/fphar.2010.00135. PMID: 19727662, IF: 6.551, Q1. D1.
  22. RODRIGUEZ-MAÑAS L, EL-ASSAR M, VALLEJO S, LOPEZ-DORIGA P, SOLIS J, PETIDIER R, MONTES M, NEVADO J, CASTRO M, GOMEZ-GUERRERO C, PEIRO C, SANCHEZ-FERRER CF. Endothelial dysfunction in aged humans is related with oxidative stress and vascular inflammation. *Aging Cell.* 8: 226-38, 2009. doi: 10.3389/fphar.2010.00135. PMID: 19245678, IF: 7.554, Q1. D1.

## C.2. Research projects and grants in the last 10 years

### Principal researcher:

1. Adquisición de Equipamiento Científico-Técnico. Subprograma Estatal de Infraestructuras de Investigación y Equipamiento Científico-Técnico. Citómetro Separador Sorter. Principal researcher. EQC2018-005059-P. 306.250 €. 12 months Ministerio de Ciencia, Innovación y Universidades. Plan Estatal de I+D+I, 2017-2020.
2. Adipoquinas: nuevas dianas farmacológicas para prevenir el envejecimiento vascular. Co-principal researcher together with Prf. Concepción Peiró. SAF2017-84776-R. 181.500 €. 36 months. Ministerio de Economía y Competitividad, Plan Nacional de I+D+i, 2018-2020.
3. Proinflammatory cell mechanisms in cardiovascular diseases: targets for pharmacological interference. CEAL-AL72017-22, 12.570 €. 10ª Convocatoria de Proyectos de Cooperación Interuniversitaria UAM-Santander con América Latina 2017-2018, España, 2017-18.
4. Adipoquinas y envejecimiento vascular: mecanismos implicados y modulación farmacológica. SAF2014-52762-R. 193.600 €. Ministerio de Economía y Competitividad, Plan Nacional de I+D+i, 2015-2017.
5. Mecanismos inductores de daño vascular en diabetes mellitus y envejecimiento: sinergismo entre inflamación y D-glucosa. 96.800 €. Ministerio de Ciencia e Innovación Plan Nacional de I+D+I (SAF2011-24648), 2012-2014.
6. Mecanismos de daño vascular en la Diabetes Mellitus. Interacción entre inflamación e hiperglucemia. 181.500 €. Ministerio de Ciencia e Innovación Plan Nacional de I+D+I (SAF2008-00942), 2009-2011.
7. The role of Nrf2 in diabetic vasculopathy, oxidative stress, and inflammation. 75.000 €. Marie Curie International Reintegration Grants. European Commission 7th Framework Programme (Proposal Nº 224861, Acronym: Nrfdiabvasc). Investigador Principal: Luis Villacorta Pérez/Carlos F. Sánchez Ferrer, 2008-2011.
8. Disfunción endotelial diabética: interacción entre factores pro-oxidantes y pro-inflamatorios. 119.000 €. Plan Nacional de I+D+I (SAF2005-1405), 2006-08.

### Colaborador:

1. Resolvins D1 and E1 novel pharmacological targets to prevent hypertension-dependent cardiac fibrosis: a focus on cardiac fibroblast pro-inflammatory role. Investigador Principal: Guillermo Antonio Díaz Araya. Fondo Nacional de Desarrollo Científico y Tecnológico FONDECYT-1170425, Chile, 2017-21.
2. Adipose tissue inflammation and vascular dysfunction. DFG-: SE 1922/2-1 Investigador Principal: Dr. Henrike Sell. ProjekFörderung der Deutschen Forschungsgemeinschaft (DFG). 2013-2014
3. Gasotransmitters: from basic science to therapeutic applications. COST Action BM1005 (ENOG: European Network on Gasotransmitters). Chair: Andreas Papapetropoulos, European Cooperation in Science and Technology, 2011-2015
4. Red Temática De Investigación Cooperativa en Envejecimiento y Fragilidad (RETICEF) Investigador Principal: Dr. Leocadio Rodríguez Mañas. Fondo de Investigación Sanitaria RD06/0013, 2007-2012.

## C.3. Contracts in the last 10 years

### Principal researcher:

1. Endothelial dysfunction induced by the adipokine dipeptidyl peptidase 4 (DPP-4) in human mesenteric microvessels and its prevention by linagliptin. 14.000 €. Boehringer Ingelheim España, 2015-16.
2. Dipeptidyl peptidase 4 (DPP-4) as a new adipokine linking obesity and metabolic syndrome with vascular endothelial dysfunction. BI IIS-1-036-SP, 10.000 €. Boehringer Ingelheim España, 2013.

## C.5. Institutional responsibilities, memberships of scientific societies...)

1. Correspondant member of Real Academia Nacional de Medicina de España since 2002
2. Member of Instituto de Investigación Sanitaria Hospital Universitario La Paz (IdiPAZ) since 2016.