

Documento n.º 5
CURRICULUM VITAE ABREVIADO

SHORT CV

Part A. Personal Information		DATE	21/05/2020
Surname(s)	Pérez García		
Forename	María Teresa		
Social Security, ID number	12365002H		
Sex	Female		
Date of birth	27/04/1963		
Researcher codes	WoS Researcher ID (*)	F-5173-2015	
	SCOPUS Author ID(*)	7006094038	
	Contributor ID (ORCID)	0000-0001-8540-8117	

(*) At least one of these is mandatory

A.1. Current position

Professional Category	Full Professor		
UNESCO Code	Medical Sciences/ Cardiovascular Physiology		
Key Words	Ion channels, Vascular remodeling, hypertension, electrophysiology		
Name of the University/Institution	Universidad de Valladolid		
	Department/Center	Physiology	
	Full Address	c/Sanz y Forés 3, 47003 Valladolid, SPAIN	
	Email Address	tperez@ibgm.uva.es	
	Phone Number	+34 983184590	
Start date	11-09-1997		

A.2. Education (title, institution, date)

Year	University	Degree	Title
1987	Valladolid	First Degree	MD
1991	Valladolid	PhD	PhD in Physiology

A.3. Indicators of Quality in Scientific Production (See the instructions)

- "Sexenios de Investigación": 5 obtained, last one 31/12/2018
- PhD Thesis directed in the last 10 years: 8
- Statistic on the peer review articles (excluding peer-review abstracts)

	Total (since 1990)
Total number of publications (Publications/year)	60 (2)
Publications in Q1 (% of total)	50 (85%)
Publications in first decil (% of total)	30 (50 %)
Total number of cites (citations/year)	2265 (76)
Average citations/element	37,8
H index	29 (Scopus)

Part B. Free Summary of CV (Max. of 3.500 characters, including spaces)

My research activity has been focused in the field of the *physiology and the molecular biology of ion channels*. After obtaining my PhD degree in the group of chemoreceptors of Dr Constancio González (U. de Valladolid), I had a postdoctoral training for 3 years at the laboratory of Dr E. Marbán (Department of Medicine, Johns Hopkins University) dedicated to the study **of structure-function relationships of ion channels** and the characterization of the molecular determinants of their conductance and selective permeability. Upon return to Valladolid, I have been carrying out an autonomous line of research focused on the study of the **molecular identity of the oxygen-sensitive K⁺ channels of the carotid body** that led to the success in obtaining an independent MCYT project in 2001, and to the establishment of a large number of techniques optimized for the study of ion channels: electrophysiology, microfluorometry, real-time and single-cell qPCR, Western-blot, immunoprecipitation, immunocytochemistry and immunohistochemistry, gene expression manipulation with dominant-negatives, siRNAs and viral vectors,... In 2003 we applied for and obtained a project within the frame of cooperative networks of the ISCIII (HERACLES network) for the study of the expression and modulation of Kv channels in vascular smooth

muscle (VSMC) from normotensive and hypertensive patients. This project represented a landmark in my research activity, providing the framework to carry out a “technology transfer” to a new preparation. The network has also facilitated our incorporation in the new research area (molecular determinants of essential hypertension and vascular pathologies). **Some of the milestones achieved include:**

- Characterization of the expression pattern of 90 ion channel genes in the vasculature.
- Optimization of several preparations (dissociated VSMCs, primary cultures, lesion models, organ culture....) for functional and expression studies.
- Establishment of several models of proliferative VSMCs to study phenotypic modulation.
- The attainment of a patent on the use of Kv1.3 blockers against restenosis
- The set up of a pressure myography system for small vessels (100-300 μ m diameter).
- The building up of a collection of DNA, RNA, proteins and *cell lines* from human arteries
- The establishment of collaborations with internationally recognized groups in the field.

Part C. Relevant accomplishments

C.1. Most relevant publications (out of 60)

1. Arévalo-Martínez M, Ciudad P, García-Mateo N, Moreno-Estar S, Serna J, Fernández M, Swärd K, Simarro M, de la Fuente MA, López-López JR, Pérez-García MT. Myocardin-Dependent Kv1.5 Channel Expression Prevents Phenotypic Modulation..(2019). *Arterioscler Thromb Vasc Biol* 39(12): E273-E286. **Editorial Comment**
2. Alonso-Carbajo, L., Alpizar, Y.A., Startek, J.B., López-López JR, Pérez-García MT., Talavera, K. *Activation of the cation channel TRPM3 induces vasodilation of resistance arteries*, (2019) *J Mol Cell Cardiol*, 129: 219-230.
3. López-López, J.R., Ciudad, P., Pérez-García, M.T. *The secret life of ion channels: Kv1.3 potassium channels and proliferation*. *Am J Physiol Cell Physiol*. 2018 Jan 1;314(1):C27-C42.
4. Lordén, G. Sanjuán-García, I, de Pablo, N, Meana, C, Alvarez-Miguel, I, Pérez-García, MT, Pelegrín, P, Balsinde, J, Balboa, MA. *Lipin-2 regulates NLRP3 by affecting P2X7 activation* (2017) *J Exp Med*, 214:511-528. Cites: 35
5. Turczyńska, K.M., Swärd, K., Hien, T.T., Wohlfahrt, J., Mattisson, I.Y., Ekman, M., Nilsson, J., Sjögren, J., Murugesan, V., Hultgårdh-Nilsson, A., Ciudad, P., Hellstrand, P., Pérez-García, M.T., Albinsson, S. *Regulation of Smooth Muscle Dystrophin and Synaptopodin 2 Expression by Actin Polymerization and Vascular Injury*. (2015) *Arterioscler Thromb Vasc Biol*, 35 (6), pp. 1489-1497. Cites: 17.
6. Meseguer, V., Alpizar, Y.A., Luis, E., Tajada, S., Denlinger, B., Fajardo, O., Manenschijn, J.-A., Fernández-Peña, C., Talavera, A., Kichko, T., Navia, B., Sánchez, A., Señaris, R., Reeh, P., Pérez-García, M.T., López-López, J.R., Voets, T., Belmonte, C., Talavera, K., Viana, F. *TRPA1 channels mediate acute neurogenic inflammation and pain produced by bacterial endotoxins*. (2014) *Nature Communications*, 5, art. no. 3125. Cites: 166.
7. Ciudad, P., Jiménez-Pérez, L., García-Arribas, D., Miguel-Velado, E., Tajada, S., Ruiz-Mcdavitt, C., López-López, J.R., Pérez-García, M.T. *Kv1.3 channels can modulate cell proliferation during phenotypic switch by an ion-flux independent mechanism*. (2012) *Arterioscler Thromb Vasc Biol*, 32(5), pp.1299-1307. Cites: 42.
8. Miguel-Velado, E., Pérez-Carretero, F.D., Colinas, O., Ciudad, P., Heras, M., López-López, J.R. Pérez-García, M.T. *Cell cycle-dependent expression of Kv3.4 channels modulates proliferation of human uterine artery smooth muscle cells*. (2010) *Cardiovasc Res*, 86 (3), pp. 383-391. Cites: 20. **Editorial Comment**
9. Ciudad, P., Moreno-Domínguez, A., Novensá, L., Roqué, M., Barquín, L., Heras, M., Pérez-García, M.T., López-López, J.R. *Characterization of ion channels involved in the proliferative response of femoral artery smooth muscle cells* (2010) *Arterioscler Thromb Vasc Biol*, 30 (6), pp. 1203-1211. Cites: 38.
10. Miguel-Velado, E., Moreno-Domínguez, A., Colinas, O., Ciudad, P., Heras, M., Pérez-García, M.T., López-López, J.R. *Contribution of Kv channels to phenotypic remodeling of human uterine artery smooth muscle cells*. (2005) *Circ Res*, 97 (12), pp. 1280-1287. Cites: 40. **Editorial Comment**
11. Riesco-Fagundo, A.M., Pérez-García, M.T., González, C., López-López, J.R. *O₂ modulates large-conductance Ca²⁺-dependent K⁺ channels of rat chemoreceptor cells by a membrane-restricted and CO-sensitive mechanism* (2001) *Circ Res*, 89 (5), pp. 430-436. Cites: 122.
12. Pérez-García, M.T., López-López, J.R., Riesco, A.M., Hoppe, U.C., Marbán, E., González, C., Johns, D.C. *Viral gene transfer of dominant-negative Kv4 construct suppresses an O₂-sensitive K⁺ current in chemoreceptor cells*. (2000) *J Neurosci*, 20 (15), pp. 5689-5695. Cites: 41.
13. Pérez-García, M.T., López-López, J.R., González, C. *Kv β 1.2 subunit coexpression in HEK293 cells confers O₂ sensitivity to Kv4.2 but not to Shaker channels*. (1999) *J Gen Physiol*, 113 (6), pp. 897-907. Cites: 136.

14. Pérez-García, M.T., Chiamvimonvat, N., Marban, E., Tomaselli, G.F. Structure of the sodium channel pore revealed by serial cysteine mutagenesis. (1996) **Proc Nat Acad Sci USA**, 93 (1), pp. 300-304. Cites: 101.
15. Chiamvimonvat, N., Pérez-García, M.T., Ranjan, R., Marban, E., Tomaselli, G.F. *Depth asymmetries of the pore-lining segments of the Na⁺ channel revealed by cysteine mutagenesis* (1996) **Neuron**, 16(5),.1037-1047. Cites: 96

C.2. Research Projects and Grants (last five years)

07/2017-12/2019.Junta de Castilla y León (VA114P17) Nuevas terapias farmacológicas y génicas para ala prevención y el tratamiento de las enfermedades vasculares oclusivas. PI. MT Pérez García. 120.000 €

12/2016-12/2020.MINECO (BFU2016-75360-R) Smooth muscle ion channels as markers, targetts and effectors for remodeling. PI. MT Pérez García- PI. JR López-López. 278.300 €

01/2015-12/2017.Research Fund – Flanders FWO- G0C6815N. TRP cation channels in the arterial function. PI Karel Talavera Pérez. 444.000 €.

01/2014-12/2016.MINECO (BFU2013-45867-R) Smooth muslce ion channels as thera-peutical targets for vascular remodeling. PI. JR López-López-MT Pérez García. 246.000 €

02/2013-02/2017. Project of ISCIII (RD12/0042/0006) Cardiovascular Research Network-RIC- Program 7. PI. Magda Heras Fortuny (IDIBAPS). 102.350 €/year

C.4. Patents and other IPR

Title: Kv1.3 channel blocking substances for the treatment of diseases associated with intimal hyperplasia. PCT/EP09/63099 **Inventors:** M.Heras Fortuny / M.Roque Moreno / M T Perez Garcia / JR Lopez Lopez / P Ciudad Velasco (Universidad de Valladolid and Hospital Clinic Barcelona) **USPTO 08105518.8, granted 10.11.2011**

C.5. FELLOWSHIPS AND AWARDS

2012 Sabbatical fellowship of the Spanish Government (4 months) Dept of Physiology, Univ of Calgary (CA).

1995 Postdoctoral fellowship (reincorporation) of the Spanish Government. Department of Physiology. Universidad de Valladolid (12 months)

1992 Postdoctoral fellowship of the Fundación Ramón Areces. Dept of Cardiology. The Johns Hopkins University Baltimore (USA). Lab Dr Eduardo Marbán (24 months)

1987 Predoctoral fellowship of the Spanish Health Ministry (FIS). Dept of Physiology. U. de Valladolid (48 months)

C.6 TEACHING ACTIVITIES

1996 – pres Coordinator, Physiology for Optometrists (Cell physiology, Neurophysiology), **10,5 ECTS/yr.** UVa.

1996 – pres Lecturer in Physiology for medical students: (Cell and Cardiovascular Physiology)**8 ECTS/yr.** UVa.

2009 – pres Master students: Lecturer (Cell Physiology, Molecular Biology Vascular Physiology, Electrophysiology, qPCR. (**8 ECTS/year**). U. de Valladolid

C.7. INSTITUTIONAL RESPONSIBILITIES

2014 – 2019. Member of the Doctorate Committee, Univ. de Valladolid/ Spain

2012 – 2019. Member of the Executive Board of Doctorate School, Univ. de Valladolid

2009 – pres. Coordinator, PhD in Biomedical Research, UVa (**Excellence Award of the Spanish Government**)

2009 – pres. Coordinator of the Master in Biomedical Research, U.de Valladolid, Spain

2002 – 2005 Secretary of the Institute of Biology and Molecular Genetics (IBGM) U de Valladolid and CSIC.

1999 – 2003 Secretary and Executive Board member, Spanish Neuroscience Soc (SENC)

C.8. SUPERVISION OF GRADUATE STUDENTS

Supervisor of 12 PhD Students, 11 at U de Valladolid and 1Joint PhD with KLU (Belgium).**PhD Thesis:**

2006- Armenia Riesco Fagundo. (**APTO CUM LAUDE**)

2008- Olaia Colinas Miranda: (**APTO CUM LAUDE**)

2009- Alejandro Moreno Domínguez. **APTO CUM LAUDE, Excellence PhD Award**)

2013- Sendoa Tajada Esteban. (**APTO CUM LAUDE, International PhD, Excellence PhD Award**)

2013- Christian Ruiz McDavitt. (**APTO CUM LAUDE, International PhD**)

2015- Laura Jiménez Pérez. (**APTO CUM LAUDE, International PhD, Excellence PhD Award**).

2019. Inés Alvarez Miguel (**APTO CUM LAUDE, International PhD**).

2019. Lucía Alonso Carbajo (**Joint PhD with KLU, International PhD**).

2009 – 2019 Supervisor of 9 Master Students (Master Thesis, TFM) and 5 Grade Students (TFG) U. Valladolid.

C.9. COMMISSIONS OF TRUST

2015 – 2019 Commission II- Cardiovascular section. IUPS

2013 – PhD examination comiteee for the PhD Thesis “The physiological and pathophysiological role of voltage-gated Kv7 channels” co-examiner Profr David Brown. St George’s University of London, UK

2001 – 2010 Editorial Board, *Circulation Research*

2000 – pres. Scientific Evaluation of projects from international organisms: Welcome Trust, FWO (Belgium) FCT/MCT (Portugal), NSERC/CRSNG (Canada)

2008 – Scientific Evaluation of EU projects, 7FP

2000 – pres. Evaluation of projects for National and regional agencies (Plan Nacional, FIS...)

C.10. INVITED SPEAKER IN INTERNATIONAL CONFERENCES (last 10 years)

2018. Electrical remodeling in essential hypertension: Vascular ion channels redress the balance. **XXXIX Meeting of the Spanish Physiological Society – SECF**, Cádiz, 18-21 September. Z

2018. Integration where it counts: Vascular ion channel remodelling in hypertension **Summer Meeting of the Dansih Cardiovascular Academy**. Sandbjerg Estate (Denmark), 13-15 June 2018

2017 Kv channels in vascular remodeling. **28th Ion Channel Meeting** Sete (France) 10-13 September

2017 Kv1.3 channels as targets and effectors for vascular remodelling. **VI RECI** Santiago de Compostela Sept. 6-8

2016. Kv1.3 channels and VSMCsphenotypic modulation. **FASEB SRC Smooth Muscle**. Lisbon, 17-22 July.

2014. Rediscovering the interplay between Ca²⁺ and K⁺ channels in essential hypertension. **11th International Symposium on Resistance Arteries (ISRA)**. Banff, Canada. 7-11 September

2013. Potassium channels and phenotypic switch. SmArt Marie Curie network **Symposium** Lund, 11-13 June

2011. Role of ion channels in smooth muscle remodelling. **Annual Meeting of the Physiological Society**. Physiology 2011. Oxford. 11-15 July

2011. Mechanistic insights on the contribution of Kv1.5 to Kv1.3 switch to vascular proliferation. **Themed Meeting of The Physiological Society**, Vascular & Smooth Muscle Physiology Edinburgh, UK, 6-8 Dec.

2010. The role of potassium channels in oxygen sensing. **Themed Meeting of the Physiological Society**: Cardiac Respiratory Physiology, Birmingham UK, 1-3 September

C.11. CONFERENCES GIVEN (Last 10 years)

15/03/2019: Bloqueantes del canal Kv1.3 como terapia anti-restenosis. IMIM, Barcelona

08/03/2018: The other lives of ion channels: Kv1.3 channels and proliferation, IBIS, Sevilla

26/02/2018 Vascular ion channels remodeling in hypertension. Medical School, Washington University, St Louis, MO

16/05/2017. Potassium channels in vascular remodeling. Universidad del Pais Vasco (UPV-EHU), Bilbao, Spain

12/09/2014. Kv channels in vascular remodeling. Cardiovascular Institute of Alberta, Calgary, Canada

10/05/2013. *Electrical remodeling of vascular smooth muscle cells in hypertension*. Dept. de Fisiología, U la Laguna

30/08/2012 *Ion channels as new targets against restenosis*. Heart Institute. Cedars Sinai Med. Center, Los Angeles, USA.

18/03/2011. *Kv1.3 as a novel therapeutical target to prevent VSMC remodeling*, Universidad de Barcelona, Spain.

C.12. ORGANISATION OF SCIENTIFIC MEETINGS

2020. 13th Meeting, Society for Resistance Arteries (ISRA), USA. Scientific Comitee

2019. 6th Spanish Reunion of Ion Channels (**RECI-VI**). Cáceres, Spain. Scientific Committee

2018. 11th Word Congress of Microcirculation (WCM), Vacouver Canada. Scientific Committee

2017. 12th Meeting, Soc. for Resistance Arteries (ISRA), Manchester UK. Scientific Comitee

2016. FASEB Science Research Conferences on Smooth Muscle, Lisbon, Portugal. Organizing comitee

2009. Spanish Ion Channels (**RECI-II**). President of the Scientific /Organizing Committee, IBGM, Valladolid, Oct. 15-16.

2008. XVIIth meeting *Int. Soc. for Arterial Chemoreception (ISAC)*. Valladolid (Spain) Organizing Committee, July 1-5.

2007. Joint Meeting of the **SECF (XXXIV Congreso SECF)** and the Physiological Society), Valladolid . July 3-7

C.13. SCIENTIFIC SOCIETIES

International Society of Arterial Chemoreceptors (1989-), Sociedad Española de NeuroCiencias (1994-) Biophysical Society (1993-), American Heart Association (2001-), Society of General Physiologists (2005-), Physiological Society (2007-), American Physiological Society (2009-)