MINISTERIO DE CIENCIA E INNOVACIÓN

Cofinanciado por la Unión Europea

AGENCIA ESTATAL DE INVESTIGACIÓN

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	22-01-2024

First name	JAVIER		
Family name	ALVAREZ MARTIN		
Gender (*)	MALE	Birth date (dd/mm/yyyy)	04/04/1958
Social Security, Passport, ID number	12241826F		
e-mail	javier.alvarez.martin@uva.es		
Open Researcher and Contributor ID (ORCID) (*)		0000-0003-0636-5521	

(*) Mandatory

A.1. Current position

Position	Catedrático de Universidad		
Initial date	29-08-2002		
Institution	Universidad de Valladolid		
Department/Center	Bioquímica y Biología Molecular y Fisiología		
Country	SPAIN	Teleph. number	983184844
Key words	Ca^{2+} homeostasis, signaling, C. elegans, aging, neurodegenerative diseases		

A.2. Previous positions (research activity interuptions, art. 14.2.b))

Period	Position/Institution/Country/Interruption cause
10/1981 to 9/1982	Profesor Ayudante, Univ. Valladolid
10/1982 to 9/1987	Profesor Colaborador, Univ. Valladolid
10/1985 to 8/1987	Postdoctoral Researcher, RFH School of Medicine, London
10/1987 to 2/1988	Profesor Ayudante LRU, Univ. Valladolid
3/1988 to 8/2002	Profesor Titular de Universidad
10/1994 to 9/1995	Sabbatical stay Univ. Padua, Italy

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Degree in Medicina y Cirugía	Valladolid	1981
Degree in Ciencias Físicas	Valladolid	1983
Doctor in Medicina	Valladolid	1984

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

My research experience started in the period 1981-1984, during which I carried out my Doctoral Thesis on the mechanisms of regulation of the calcium-dependent potassium channel of erythrocytes, under the direction of Drs. Javier García-Sancho and Benito Herreros in the Department of Biochemistry and Physiology of the University of Valladolid. Then, between 1985 and 1987, I did a postdoctoral stay at the Royal Free Hospital School of Medicine, London, under the direction of Dr. Dennis Chapman. During this period I used several novel biophysical techniques to study the structure of the glucose transporter.

After returning to the University of Valladolid, in 1988 I obtained the position of “Profesor Titular” of Biochemistry and Molecular Biology and joined the group of Professor Javier García Sancho, who at that time was implementing novel techniques for measuring intracellular calcium in single cells and cell populations, using fluorescent dyes such as fura-2. During this period, together with Professor García Sancho, we set up the first imaging system in Spain to measure intracellular Ca^{2+} dynamics. We also both directed Maria Teresa Montero's thesis, studying the control of Ca^{2+} permeability of the plasma membrane by the level of filling of the intracellular Ca^{2+} stores, channels today known as store-operated channels or SOC, a nomenclature that we first proposed in 1993.

In the 1994-1995 academic year I made a sabbatical stay at the Department of Biomedical Sciences, University of Padova, Italy, during which I collaborated, together with Dr. Mayte Montero, with Professors Tullio Pozzan and Rosario Rizzuto, working on the new technique for measuring intracellular Ca^{2+} with targeted aequorin that they had developed. Then, after returning to Spain, Dr. Montero and I implemented the technique of Ca^{2+} measurement in organelles with targeted aequorin in our laboratory in Valladolid. In the period 1996-99 we obtained for the first time dynamic Ca^{2+} measurements in the endoplasmic reticulum of intact cells and were able to monitor from the ER the mechanism of Ca^{2+} induced Ca^{2+} release (CICR). In addition, using mitochondria-targeted aequorin, we demonstrated in 2000 that physiological stimulation of chromaffin cells produces mitochondrial Ca^{2+} elevations close to the millimolar range, and that this enormous Ca^{2+} uptake allowed control of catecholamine secretion. These results have been seminal to the current conception of mitochondria as a regulator of high-calcium microdomains.

Since then, we have formed a strong research group dedicated to studying Ca^{2+} signaling mechanisms at the subcellular level. In the period 2001-2014, our group has used all these tools to investigate the regulation of calcium fluxes in mitochondria, endoplasmic reticulum and also in other compartments such as secretory vesicles. In addition, we have generated new aequorin probes with different affinities for calcium to improve measurements in compartments with high calcium levels.

In 2015 we initiated a new research line by studying Ca^{2+} signaling in the nematode *C. elegans* in vivo and its relationship with aging. This line has been subsequently extended to study the effects of modulators of Ca^{2+} signaling in aging and in models of neurodegenerative diseases in C. elegans. This line has already produced 8 papers from 2016 to now, most of them Q1. We have been able to monitor Ca^{2+} dynamics in cytosol and mitochondria of living worms, and we have found a clear connection between modulation of Ca^{2+} signaling and longevity, which is the basis of the present project.

I have been recognized for 6 consecutive six-year periods. I am the author of 106 scientific articles indexed in WOS. Of these, I am first author of 18, corresponding mainly to my first stage, up to 1992, and I am last and corresponding author of 53, published from 1993 onwards. I have an h-index of 38, with 4.768 total citations (WOS). Altogether, I have been involved in research for 42 years, 27 of them as group leader. I have participated in 25 Research Projects, 16 of them National, and I have been PI of National projects continuously since 1996.

I have supervised 11 PhD students, who did their thesis in my laboratory. Most of them then continued their training through postdoctoral stays abroad, in some cases for very long periods of time. This is the case of Jaime Santo Domingo, who read his thesis in 2008 and has returned to my laboratory this year with a senior postdoctoral contract, after 12 years of stay in several leading international laboratories. Also our 2014 PhD student Sergio de la Fuente, who has been in Philadelphia for 7 years, has recently returned and obtained a position in our Department. And our 2020 PhD student Paloma García-Casas obtained a Margarita Salas grant that will allow her to stay in Italy for 2 years and then return to our laboratory. Thanks to all this new blood, we hope to strengthen our research group in the coming years.

Part C. RELEVANT MERITS

C.1. Publications selected from last 10 years.

1. Romero-Sanz S, Caldero-Escudero E, Álvarez-Illera P, Santo-Domingo J, Fonteriz RI, Montero M, **Álvarez J.**
SERCA inhibition improves lifespan and healthspan in a chemical model of Parkinson disease in Caenorhabditis elegans.
Front. Pharmacol. 14:1182428 (2023), **Q1** in Pharmacology & Pharmacy (45/277, 83,9%).

2. García-Casas P, Alvarez-Illera P, Gómez-Orte E, Cabello J, Fonteriz RI, Montero M, **Alvarez J.**
The Mitochondrial Na^+/Ca^{2+} Exchanger Inhibitor CGP37157 Preserves Muscle Structure and Function to Increase Lifespan and Healthspan in Caenorhabditis elegans.
Front Pharmacol. 12, 695687 (2021), **Q1** in Pharmacology & Pharmacy (85,69%)

3. García-Casas P, Alvarez-Illera P, Fonteriz RI, Montero M, **Alvarez J.**
Mechanism of the lifespan extension induced by submaximal SERCA inhibition in C. elegans.
Mech Ageing Dev. 196, 111474 (2021), **Q1** in Geriatrics & Gerontology (78,30%)

4. Alvarez-Illera, P., García-Casas, P., Fonteriz, R.I., Montero, M. and **Alvarez, J.**
Mitochondrial Ca^{2+} dynamics in MCU knockout C. elegans worms.
Int. J. Mol. Sci. 21, 8622 (2020), **Q1** in Biochemistry & Molecular Biology (77,46%)

5. García-Casas, P., Arias-Del-Val, J., Alvarez-Illera, P., Wojnicz, A, de los Ríos, C., Fonteriz, R.I., Montero, M. and **Alvarez, J.**
The neuroprotector benzothiazepine CGP37157 extends lifespan in C. elegans worms.
Front. Aging Neurosci. 10:440 (2019), **Q1** in Geriatrics & Gerontology (83,33%)

6. García-Casas, P., Arias-Del-Val, J., Alvarez-Illera, P., Fonteriz, R.I., Montero, M. and **Alvarez, J.** Inhibition of Sarco-Endoplasmic Reticulum Ca2+ ATPase Extends the Lifespan in C. elegans Worms.
Front Pharmacol. 9:669 (2018), **Q1** in Pharmacology & Pharmacy (78,09%)

7. Matesanz-Isabel, J., Arias-Del-Val, J., Alvarez-Illera, P., Fonteriz, R.I., Montero, M. and **Alvarez, J.** Functional roles of MICU1 and MICU2 in mitochondrial Ca^{2+} uptake.
Biochim Biophys Acta-Biomembranes 1858, 1110-1117 (2016) **Q2** in Biophysics (74,66%)

8. Alvarez-Illera, P., Sanchez-Blanco, A., Lopez-Burillo, S., Fonteriz, R.I., **Alvarez, J.** and Montero, M. Long-term monitoring of Ca^{2+} dynamics in C. elegans pharynx: an in vivo energy balance sensor. **Oncotarget** 7, 67732-67747 (2016), **Q1** in Oncology (79,95%)

9. Montero, M., de la Fuente, S., Fonteriz, R.I., Moreno, A. and **Alvarez, J.**
Effects of long-term feeding of the polyphenols resveratrol and kaempferol in obese mice.
PLoS One 9, e112825 (2014), **Q1** in Multidesciplinary Sciences (85,09%)

10. de la Fuente, S., Matesanz-Isabel, J., Fonteriz, R.I., Montero, M. and **Alvarez, J.**
Dynamics of mitochondrial Ca^{2+} uptake in MICU1-knockdown cells.
Biochem. J., 458, 33-40 (2014), **Q1** in Biochemistry & Molecular Biology (77,07%)

C.3. Research projects from last 10 years.

1. Reference of the project: PID2021-122239OB-I00
Title: Señalización por Ca^{2+}: una nueva diana para actuar sobre el envejecimiento y las enfermedades neurodegenerativas. **Duration**: (1/9/2022-31/08/2026)
Principal investigators: Javier Alvarez Martín y Mª Teresa Montero Zoccola
Funding Entity: Plan Nacional I+D+I, Ministerio de Economía y Competitividad
Financial support received: 191.180 euro.

2. Reference of the project: BFU2017-83509-R
Title: Role of Ca^{2+} signaling in longevity and neuroprotection in the *Caenorhabditis elegans* model. **Duration**: (1/1/2018-31/12/2021, extended until 9/2022)
Principal investigators: Javier Alvarez Martín y Mª Teresa Montero Zoccola
Funding Entity: Plan Nacional I+D+I, Ministerio de Economía y Competitividad
Financial support received: 217.800 euro.

3. Reference of the project: BFU2014-55731-R
Title: Aging, longevity and calcium signaling in the *Caenorhabditis Elegans* model.
Duration: (1/1/2015-31/12/2017).
Principal investigators: Javier Alvarez Martín y Mª Teresa Montero Zoccola
Funding Entity: Plan Nacional I+D+I, Ministerio de Economía y Competitividad
Financial support received: 193.600 euro.

4. Reference of the project: BFU2011-25763
Title: Role of calcium dynamics in intracellular compartments in cellular function.
Duration: (1/1/2012-31/12/2014).
Principal investigator: Javier Alvarez Martín
Funding Entity: Plan Nacional I+D+I, Ministerio de Ciencia y Tecnología
Financial support received: 197.230 euro.

C.5. Scholarships

Fleming Fellowship, Royal Free Hospital School of Medicine (London), 10/1985 to 9/1986.
Wellcome Trust Fellowship, RFH School of Medicine (London), 10/1986 to 9/1987.
Fellowship MEC (PR94-230, 28-4-94), Univ. of Padua. October 1994-December 1994.
Human Capital and Mobility Scholarship, Univ. of Padua. January 1995-September 1995.

C6. Teaching and research coordination activities.

Director of a Recognized Research Group of the University of Valladolid.
Director of the Group of Excellence GR105 of the Junta de Castilla y León.
Coordinator from 1996 to 2010 of the IBGM Doctoral Program, "Biotechnology: Biomedical Applications", with Mention of Quality.
Secretary of the Spanish Biophysics Society, July 2010- July 2012.
Vice-President of the Spanish Biophysics Society, July 2012- July 2014.
Director of the Department of Biochemistry & Molecular Biology & Physiology, 2012-2021.

C7. Evaluation activities.

Evaluator of National Plan, FIS and Infrastructure Projects, since 2004.
Evaluator of ANECA, since 2008.
National Coordinator of the evaluation of FPU Biomedicine grants, 2014-2017.
Evaluator of research papers in multiple journals

C8. PhD student direction. Thesis in the last 10 years:

- Sergio de la Fuente Pérez, Fecha Lectura 2014, 7 publications from its thesis
- Jessica Matesanz Isabel, Fecha Lectura 2016, 3 publications from its thesis
- Pablo Montenegro Escudero, Fecha Lectura 2016, 1 publication from its thesis
- Pilar Alvarez Illera. Fecha Lectura 2018, 5 publications from its thesis
- Jessica Arias del Val. Fecha Lectura 2018, 6 publications from its thesis
- Paloma García Casas. Fecha Lectura 2020. 6 publications from its thesis