CURRICULUM ABREVIADO (CVA) (Extensión máxima 4 páginas)

Fecha del CVA	05-10-2023

Parte A. DATOS PERSONALES

Nombre y apellidos	JUAN MANUEL PEREZ RUIZ		
DNI/NIE/pasaporte		Edad	
Núm. identificación del/de la investigador/a	WoS Researcher ID *(*)*	K-9238-2017	
	SCOPUS Author ID*(*)*	55924560100	
	Open Researcher and Contributor ID (ORCID) **	0000-0002-9992-497X	

(*) Al menos uno de los dos es obligatorio
(**) Obligatorio

A.1. Situación profesional actual

Organismo	UNIVERSIDAD DE SEVILLA		
Dpto./Centro	BIOQUIMICA VEGETAL Y BIOLOGÍA MOLECULAR		
Dirección	Avda. Américo Vespucio 49, Sevilla, Spain		
Teléfono		correo electrónico	jperez4@us.es jmperez@ibvf.csic.es
Categoría profesional	PROFESOR TITULAR DE UNIVERSIDAD	Fecha inicio	12-12-2019
Palabras clave	chloroplast, photosynthesis, redox regulation, peroxiredoxin, thio-redoxin,		

A.2. Formación académica *(título, institución, fecha)*

Doctorado	Universidad	Año
BS in Biology BS in Biochemistry	Universidad de Sevilla	1999 2001
PhD Biochemistry	Universidad de Sevilla	2007

A.3. General indicators of quality of scientific production

Six-year research period:
Cites: **1595 (WOS); 1681 (Scopus); 2230 (Google Scholar)**
Cites/year (last 5 years): **201**
Publications: **28**
Publications in Q1: **25**
H index: **20 (SCOPUS)**
Supervised PhD theses: **1**
Ongoing PhD thesis: **3**
Supervised Master theses: **6**
Supervised Final degree projects: **13**

Part B. CV SUMMARY

My scientific career has focused on the study of the molecular mechanisms underlying the metabolic plasticity of chloroplasts, the site of photosynthesis in plants, through an interdisciplinary approach combining genetics, biochemistry, cell biology, transcriptomics and proteomics. I have published 28 JCR articles (26 in Q1, 17 as first, last or corresponding author), having participated

in several research projects (Spain and USA). After completing my Bachelor of Sciences in Biology (1999) and Biochemistry (2001), I was awarded with a FPU fellowship from the Spanish Ministry of Education (MEC) to carry out my PhD thesis at the Instituto de Bioquímica Vegetal y Fotosintesis (IBVF) (US-CSIC) in Seville. My main achievement during this period (2002-2007) was the identification and characterization of a novel redox enzyme, which we named NTRC, an atypical thioredoxin (TRX) bearing its own TRX-reductase domain. Our results, published in high impact journals (JBC, Plant Cell, etc) established that NTRC localizes to chloroplasts where it transfers reducing equivalents from NADPH to 2-Cys peroxiredoxins (2-Cys PRXs), an antioxidant enzyme involved in hydrogen-peroxide detoxification. These findings have had a remarkable impact in the redox biology field as uncovered a relevant role for NADPH in chloroplast redox homeostasis, questioning the long-standing paradigm of redox regulation strictly linked to TRXs fuelled by photosynthetically-produced reducing equivalents. After obtaining my PhD, I joined the Joanne Chory´s Plant Molecular and Cellular Biology Laboratory at SALK Institute (San Diego, USA). During my post-doctoral training (2007-2011), firstly supported by a postdoctoral MEC grant then appointed as a research associate, I focused on the mechanisms that coordinate the activities of the nuclear and chloroplast genomes, a process known as retrograde signalling, which is essential not only for chloroplast function, but also for initiating stress responses. The results obtained, published in prestigious journals (Current Biology, Plant Journal, etc.) uncovered that plastid-produced heme functions as a retrograde signalling molecule modulating the expression of photosynthetic nuclear genes. Afterwards I returned to IBVF, firstly as a Juan de la Cierva fellow (2012-2014) later becoming assistant, associate professor (tenured) and since end of 2019 holding an associate professor (civil servant) position at the US. During this period, I continued working in the redox biology field, focusing on the functional relationship between chloroplast redox systems, NTRC and TRXs. Our main contribution has been the finding that redox homeostasis is achieved by the concerted action of both redox systems, functionally integrated by the activity of 2-Cys PRXs. Moreover, we have proposed a mechanism to explain the long-lasting question of the rapid inactivation of chloroplast enzymes upon darkness. These relevant results, recently published in high-profile journals (Plant Physiology, Redox Biology, PNAS or Molecular Plant), led us to redefine the classical model of chloroplast redox regulation, opening fundamental questions. Our short-term goal is to understand the mechanisms coordinating the reductive and oxidative components of chloroplast redox regulation as well as their effects on the biogenesis and stability of the organelle at early stages of plant development.

Part C. RELEVANT MERITS (Last ten years)
C.1. Publications

Casatejada A, Puerto-Galán L, **Pérez-Ruiz JM ***, Cejudo FJ* (2023). The contribution of glutathione peroxidases to chloroplast redox homeostasis in Arabidopsis. **Redox Biology,** 10.1016/j.redox.2023.102731. **(Cites: -; IF: 10,787; Rank: 27/297, D1, Biochemistry and Molecular Biology)**

Gallardo-Martínez AM, Jiménez-López J, Hernández ML, **Pérez-Ruiz JM**, Cejudo FJ (2023). Plastid 2-Cys peroxiredoxins are essential for embryogenesis in Arabidopsis. **Redox Biology,** doi: 10.1016/j.redox.2023.102645. **(Cites: -; IF: 10,787; Rank: 27/297, D1, Biochemistry and Molecular Biology)**

Ojeda V, Jiménez-López J, Romero-Campero FJ, Cejudo FJ, **Pérez-Ruiz JM** (2021) A chloroplast redox relay adapts plastid metabolism to light and affects cytosolic protein quality control. ***Plant Physiology***, kiab246, https://doi.org/10.1093/plphys/kiab246 **(Cites: 6; IF: 8,005; Rank: 12/239, D1, Plant Sciences)**

Duan L, **Pérez-Ruiz JM**, Cejudo FJ, Dinneny JR (2021) Characterization of CYCLOPHILLIN38 shows that a photosynthesis-derived systemic signal controls lateral root emergence, ***Plant Physiology***, 185: 503-518 **(Cites: 6; IF: 8,005; Rank: 12/239, D1, Plant Sciences)**

Cejudo FJ, González MC, **Pérez-Ruiz JM.** (2021) Redox regulation of chloroplast metabolism. Plant Physiol. 2021 May 27;186(1):9-21. doi: 10.1093/plphys/kiaa062. **(Cites: 25; IF: 8,005; Rank: 12/239, D1, Plant Sciences)**

Jurado-Flores A, Delgado-Reqerey V, Gálvez-Ramírez A, Puerto-Galán L, **Pérez-Ruiz JM ***, Cejudo FJ * (2020) Exploring the functional relationship between y-type thioredoxins and 2-Cys peroxiredoxins in Arabidopsis chloroplasts. ***Antioxidants*** 9, 1072; doi:10.3390/antiox9111072 **(Cites: 3; IF: 6,313; Rank: 60/295, Q1, Biochemistry and Molecular Biology)**

Ojeda, V., **Pérez-Ruiz J.M.***, and Cejudo, F.J. * (2018) 2-Cys peroxiredoxins participate in the oxidation of chloroplast enzymes in the dark. ***Molecular Plant*** 11: 1377-1388 **(Cites: 31; IF: 10,812; Rank: 4/228, D1, Plant Sciences)**

Ojeda, V. *, **Pérez-Ruiz J.M.***, and Cejudo, F.J. (2018) The NADPH-Dependent Thioredoxin Reductase C-2-Cys Peroxiredoxin Redox System Modulates the Activity of Thioredoxin x in Arabidopsis Chloroplasts. ***Plant Cell & Physiology*** 59: 2155-2164 **(Cites: 9; IF: 4,454; Rank: 18/222, D1, Plant Sciences)**

Pérez-Ruiz J.M., Naranjo, B., Ojeda, V., Guinea, M. and Cejudo, F.J.* (2017) NTRC-dependent redox balance of 2-Cys peroxiredoxins is needed for optimal function of the photosynthetic apparatus. ***Proceedings of the National Academy of Sciences*** 114: 12069-12074 **(Cites: 50; IF: 9, 661; Rank: 5/64, D1, Multidisciplinary)**

Ojeda, V., **Pérez-Ruiz J.M.***, González, M., Nájera, V.A., Sahrawy, M., Serrato, A.J., Geigenberger, P., and Cejudo, F.J.* (2017) NADPH thioredoxin reductase C and thioredoxins act concertedly in seedling development. ***Plant Physiology*** 174: 1436-1448 **(Cites: 28; IF: 6,456; Rank: 11/223, D1, Plant Sciences)**

Puerto-Galán, L., **Pérez-Ruiz, J.M.**, Guinea, M. and Cejudo F. J. (2015) The contribution of NADPH thioredoxin reductase C (NTRC) and sulfiredoxin to 2-Cys peroxiredoxin overoxidation in Arabidopsis thaliana chloroplasts ***Journal of Experimental Botany*** 66: 2957-2966 **(Cites: 24; IF: 5,677, Rank: 12/209, D1, Plant Sciences)**

Pérez-Ruiz JM, Guinea M, Puerto-Galán L, Cejudo FJ. (2014) NADPH thioredoxin reductase C is involved in redox regulation of the Mg-chelatase I subunit in *Arabidopsis thaliana* chloroplasts. ***Molecular Plant*** 7: 1252-1255 **(Cites: 42; IF: 6,337, Rank: 9/204, D1, Plant Sciences)**

C.2. Research projects

Ref.: FEDER_US-1380582: Relevancia de modificaciones post-traduccionales en la optimización del rendimiento fotosintético en plantas. Junta de Andalucía. PI: Francisco Javier Cejudo; **coIP: Juan Manuel Pérez Ruiz**). **Funding: 80.000** €. **From 01-01-2022 to 31-12-2022**.

Ref.: PID2020-115156GB-I00: Desentrañando el componente oxidativo de la regulación redox del cloroplasto. Ministerio de Ciencia e Innovacion. PI: Francisco Javier Cejudo; **coIP: Juan Manuel Pérez Ruiz**). **Funding: 254.100** €. **From 01-09-2021 to 01-09-2024**.

Ref.: P20_00567: Efecto del Balance Redox del Cloroplasto Sobre la Eficiencia del Proceso Fotosintético en Plantas. Junta de Andalucía. PI: Francisco Javier Cejudo (US). **Funding: 108.000** €. **From 01-01-2021 to 31-12-2022**. **Research team member**.

Ref.: BIO2017-85195-C2-1-P: Regulación redox del metabolismo fotosintético del cloroplasto. Ministerio de Economía, Industria y Competitividad. PI: Francisco Javier Cejudo (US). **Funding: 259.093** €. **From 01-01-2018 to 31-12-2020**. **Research team member**.

Ref.: BIO2013-43556-P: "Función de NTRC en la regulación redox de cloroplastos: relación con el sistema dependiente de ferredoxinas e implicaciones en señalización de plantas". Ministerio de Economía y Competitividad. PI: Francisco Javier Cejudo (US). **Funding: 195.000 €. From 01-01-2014 to 31-12-2016**. **Research team member**.

Ref.: BIO2010-15430: "Integrating redox signals in plants: the role of NTRC". Ministerio de Ciencia e Innovación. PI: Francisco Javier Cejudo. **Funding: 248.050,00 €. From: 1-1-2011 to 31-12-2014. Research team member**.

C.3. Scientific meetings and conferences

- XVI Reunión Biología Molecular de Plantas, Sevilla, 2022. -
- XV Reunión Biología Molecular de Plantas, Málaga, 2020.
- XIV Reunión Biología Molecular de Plantas, Salamanca, 2018.
- ESF-EMBO Symposium "Thiol oxidation in toxicity and signaling ", Sant Feliu, 2017.
- XIII Reunión Biología Molecular de Plantas, Oviedo, 2016.
- ESF-EMBO Symposium "Thiol-based Redox switches in Life Sciences", Sant Feliu, 2015.

C.4. Formation of young researchers (PhD theses & Master theses)

- Valle Ojeda Servián (2015-2019). Title: Relación de los sistemas redox NTRC y FTR/Trxs de cloroplastos de Arabidopsis. Qualification: Sobresaliente "cum laude" (Doctorado Internacional).
- Antonia M. Gallardo Martínez (2019- expected to be completed by 2023). Title: Regulación redox del metabolismo fotosintético del cloroplasto.
- Azahara Casatejada Perez (2019- expected to be completed by 2023). Title: Implicación de la homeostasis redox del cloroplasto en la respuesta a estrés hídrico en plantas.
- Fernando Rodríguez Marín (2021- expected to be completed by 2025). Title: Identificación de procesos regulados por el sistema redox NTRC-2-Cys Prxs del cloroplasto.
Supervised Master theses: **6**

C.5. Evaluation and Management

Deputy Scientific Director of Instituto de Bioquímica Vegetal y Fotosíntesis (IBVF, US-CSIC) (2022-present).
I have served as reviewer for different journals in the field (Plant Physiology, New Phytologist, Philosophical Transactions of The Royal Society B or Scientific Reports). I am also review editor within the section Plant Physiology in Frontiers in Plant Sciences.