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	José Antonio		
Family name	Monreal Hermoso		

A.1. Current position

Position	Associate Professor
Initial date	21/12/2017
Institution	Universidad de Sevilla
Key words	Agrilculture, plant physiology, photosynthesis, plant nutrition, abiotic stress, gene editing, plant biochemistry, plant molecular biology

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

Period	Position/Institution/Country/Interruption cause
2013-2017	Profesor Contratado Doctor/Universidad de Sevilla/Spain
2009-2013	Profesor Ayudante Doctor/Universidad de Sevilla/Spain
2007-2009	Investigador Postdoctoral/University of Glasgow/UK
2003-2006	Becario Predoctoral/Universidad de Sevilla/Spain

A.3. Education

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

I did my PhD (2003-2007) in the group directed by Dr Cristina Echevarría (University of Sevilla) to study the effect of salt stress on the enzyme phosphoenolpyruvate carboxylase (PEPC) in the C_4 plant *Sorghum bicolor*. During my PhD, I published 7 research papers (3 as first author) and 3 chapters in books, and I did 4 short stays (3 months each) in foreign laboratories. In 2007, I defended my thesis obtaining the maximum qualification and the European Doctorate mention. My thesis was awarded with the "Premio Extraordinario de Doctorado" prize from the University of Sevilla. Later that year, I was granted a postdoctoral fellowship from the Spanish Government to work with Prof. Hugh Nimmo, University of Glasgow (UK), to study the circadian clock in the model plant *Arabidopsis thaliana*. During my postdoc in Glasgow, I published a paper in the prestigious journal ***Science*** (James et al., (2008) Science 322:1832-1835). In 2009, I gained a position as "Profesor Ayudante Doctor" and promoted to "Profesor Contratado Doctor" in 2013. Since 2017, I am Associate Professor.

Since my return back to Sevilla (2009-2022), I have published 16 research papers, 2 chapters in books, and participated in congresses with more than 50 communications in terms of posters, oral communications or invited conferences. In addition, I have done 6 more short stays in foreign universities (Amsterdam in 2010, 3 months; 2 times in Nicaragua in 2011 and 2012, 1 month each; Argentina in 2012, 1 month; Glasgow in 2015, 4 months; and Wageningen in 2019, 4 months). In resume, **4 thesis supervised,** all of them rated with the maximum qualification, **24 research publications** (8 D1, 12 Q1, 2 Q2,1 Q3 and 1 Q4), 7 as the first author and 3 as the corresponding author, and a ***h*-index of 14** (Scopus). I am **Review Editor** in the Plant Abiotic section in *Frontiers in Plant Sciences* (D1 in Plant Sciences), and **Guest Editor** in the Special Issue "Plant Protein Phosphorylation" in *Plants* (Q1 in Plant Sciences). I have participated in more than **20 research projects** with different degrees of responsibility. In 2016, Dr García-Mauriño and I got funded by the Spanish "Ministerio de Economía y Competitividad" to carry out the project entitled: "la fosfoenolpiruvato carboxilasa de sorgo en estrés y en semillas" (AGL2016-75413-P). The project that we are presenting here is, in part, the continuation of that previous project but focusing on the protein turnover using state-of-the-art techniques such as the use of transient protein silencing or the generation of a sorghum cDNA library. On September 2021.

During my career, I have collaborated with different **agricultural companies**. For a long period, I collaborated with the Andalusian company Resbioagro S.L helping to test biofertilizers based on plant growth promoting bacteria (PGPBs) on different crops (sorghum, strawberry, soja, tomato or rice). Within this collaboration, I participated in the project entitled "Microorganismos endofíticos como inductores de moléculas naturales de interés agronómico" (Proyecto IPT-2011-0989-060000)

(https://investigacion.us.es/sisius/sis_proyecto.php?idproy=21193), and I have recently published a paper as corresponding author (de la Osa et al. Plant growth-promoting rhizobacteria modulate the concentration of bioactive compounds in tomato fruits. Separations (2021) 8:223 https://doi.org/10.3390/separations8110223). Very recently, I have started to collaborate with the company Agrogenia Biotech (https://www.agrogenia.es/) in the development of biofertilizers, in a similar way that I used to do with Resbioagro, and with El Pinar S.L (https://elpinar.eu/), where I help raising the yield of different berries by setting a better nutrient and water management.

Among other activities of **divulgation**, in 2020 I edited the video entitled "La Agricultura del Futuro" https://www.youtube.com/watch?v=rjwNIy_4VLE&t=57s), financed by the Plan Anual de Divulgación Científica, University of Sevilla, where we dealt with the challenges that the future agriculture will face, and some strategies that are currently under study to surpass them. In addition, I have recently been interviewed by the journal "Diario de Sevilla" to talk about our research and how we can help solving the problems in the Andalusian agriculture (https://www.diariodesevilla.es/investigacion/investigacion-basica-aplicacion-agricola_0_1731427315.html).

Part C. RELEVANT MERITS

C.1. Publications

1. Pérez-López J, Gandullo J, de la Osa C, Feria AB, Echevarría C, **Monreal JA**, García-Mauriño S. (2023) Responses to aluminum and cadmium of a RNAi sorghum line with decreased levels of phosphoenolpyruvate carboxylase 3 (PPC3). **Environmental and Experimental Botany** 205: 105139. https://doi.org/10.1016/j.envexpbot.2022.105139. **JCR 6,028** (**23/239 in Plant Sciences, D1**).
2. de la Osa C, Pérez-López J, Feria AB, Baena G, Marino D, Coleto I, Pérez-Montaño F, Gandullo J, Echevarría C, García-Mauriño S, **Monreal JA** (2022) Knock-down of phosphoenolpyruvate carboxylase 3 negatively impacts growth, productivity and responses to salt stress in sorghum (Sorghum bicolor L.). **The Plant Journal** 111, 231–249. https://doi:10.1111/tpj.15789. **JCR 7,091** (**17/239 in Plant Sciences, D1**). Citations in Scopus: 2. **Premio a la publicación del mes de julio, y Premio al mejor póster divulgativo, de la Facultad de Biología de la Universidad de Sevilla, curso 2021-22.**
3. Gandullo J, **Monreal JA**, Álvarez R, Díaz I, García-Mauriño S, Echevarría C. (2019) Anionic phospholipids induce conformational changes in phosphoenolpyruvate carboxylase to increase sensitivity to cathepsin proteases. **Frontiers in Plant Science** 10:582. doi: 10.3389/fpls.2019.00582. **JCR 4,402** (**19/234 in Plant Sciences, D1**). Citations in Scopus: 5.
4. Arias-Baldrich C, de la Osa C, Bosch N, Ruiz-Ballesta I, **Monreal JA**, García-Mauriño S (2017) Enzymatic activity, gene expression and posttranslational modifications of photosynthetic and non-photosynthetic phosphoenolpyruvate carboxylase in ammonium-stressed sorghum plants. **Journal of Plant Physiology** 214:39-47. **JCR 2,833** (**46/222 en Plant Sciences, Q1**). Citations in Scopus: 18.
5. Feria AB, Bosch N, Sánchez A, Nieto-Ingelmo AI, de la Osa C, Echevarría C, García-Mauriño S, **Monreal JA**. (2016) Phosphoenolpyruvate carboxylase (PEPC) and PEPC-kinase (PEPC-k) isoenzymes in Arabidopsis thaliana: role in control and abiotic stress conditions. **Planta** 244:901-913. **JCR 3,239** (**32/209 in Plant Sciences, Q1**). Citations in Scopus: 20.
6. **Monreal JA**, Arias-Baldrich C, Perez-Montaño F, Gandullo J, Echevarria C, García-Mauriño S. (2013) Factors involved in the raise of phosphoenolpyruvate carboxylase-kinase activity caused by salinity in sorghum leaves. **Planta** 237(5): 1401-1413. **JCR 3,376** (**26/196 in Plant Sciences, Q1**). Citations in Scopus: 30.
7. **Monreal JA**, López-Baena FJ, Vidal J, Echevarría C, García-Mauriño S (2010) Involvement of Phospholipase D and Phosphatidic Acid in the light-dependent up-regulation of sorghum leaf Phosphoenolpyruvate carboxylase-kinase. **Journal of Experimental Botany** 61(10): 2819-2827. **JCR 4,818** (**12/188 en Plant Sciences, D1**). Citations in Scopus: 13.
8. **Monreal JA**, McLoughlin F, Echevarría C, García-Mauriño S, Testerink, C (2010) PEPC from C_4 leaves is selectively targeted for inhibition by anionic phospholipids. **Plant**

Physiology 152: 634-638. **JCR 6,451** (**8/188 en Plant Sciences, D1**). Citations in Scopus: 23.

9. James AB, **Monreal JA**, Nimmo GA, Kelly CL, Herzyk P, Jenkins GI, Nimmo HG (2008) The circadian clock in Arabidopsis roots is a simplified slave version of the clock in shoots. **Science** 322: 1832-1835. **JCR: 28,10** (**2/50 en Multidisciplinary Sciences, D1**). Citations in Scopus: 191.
10. **Monreal JA**, Jiménez ET, Remesal E, Morillo-Velarde R, García-Mauriño S, Echevarría C (2007) Proline content of sugar beet storage roots: response to water deficit and nitrogen fertilization at field conditions. **Environmental and Experimental Botany** 60: 257-267. **JCR: 3,16** (**22/173 en Plant Sciences, Q1**). Citations in Scopus: 86.

C.2. Congress

1. **Monreal JA**, de la Osa C, Gandullo J, Baena G, Pérez-López J, Feria AB, García-Mauriño S, Echevarría C. Phosphoenolpyruvate carboxylase (PEPC): one protein family for multiple plant responses. In "*XXIV Meeting of the Spanish Society of Plant Biology / XVII Spanish Portuguese Congress on Plant Biology* (BP2021)". Vigo (Spain), July 2021. **Invited Conference**, International Congress, online.
2. Pérez-López J, De la Osa C, Gandullo J, Feria A-B, García-Mauriño S, **Monreal JA**. RNAi silencing of SbPPC3, a non-photosynthetic PEPC, influences sorghum responses to phosphate deficiency. In: Abstract Book for the Plant Biology Europe Conference in Turin, p 534. Plant Biology Europe (PBE). Turín (Italy). July 2021. Poster, International Congress, online.
3. de la Osa C, Pérez-López J, Pérez-Montaño P, Hernández-Huertas L, Baena G, Gandullo J, Feria A-B, Echevarría C, García-Mauriño S, **Monreal JA**. Phosphoenolpyruvate carboxylase 3 (SbPPC3) silencing in sorghum plants (Sorghum bicolor L.) and its role in salt stress. In "XXIII Reunión de la SEFV-XVI Spanish Portuguese Congress of Plant Physiology". Pamplona (Spain), June 2019. **Oral Communication**, International Congress.
4. **Monreal JA**, Arias-Baldrich C, Ruiz-Ballesta I, Baena G, de la Osa C, Gandullo J, Feria AB, García-Mauriño S, Echevarría C. Post-translational modifications (PTMs) modulate phosphoenolpyruvate carboxylase (PEPC) activity in response to abiotic stress in sorghum (Sorghum bicolor). In "Plant Biology Europe 2018 (PBE)" Federation of European Societies of Plant Biology (FESPB) and European Plant Science Organization (EPSO). Copenhagen (Denmark), June 2018. Poster, International Congress.
5. De la Osa C, Pérez-Montaño F, Echevarría C, García-Mauriño S, **Monreal JA**. Phosphoenolpyruvate carboxylase kinase family protein from Sorghum bicolor plants (SbPPCK1-3): cloning and biochemical characterization. In "XXII Reunión de la SEFV-XV Spanish Portuguese Congress of Plant Physiology". Barcelona (Spain), June 2017. Poster, International Congress.
6. De la Osa C, Pérez-Montaño F, Feria AB, Echevarría C, García-Mauriño S, **Monreal JA**. Cloning and biochemical characterization of anaplerotic Phosphoenolpyruvate Carboxylase-Kinase 2 and 3 (SbPPCK2 and SbPPCK3) from Sorghum bicolor plants. In "Plant Biology Europe EPSO/FESPB 2016 Congress". Prague (Czech Republic), June 2016. Poster, International Congress.
7. **Monreal JA**, de la Osa C, Marcolino J, Arias-Baldrich C, Ingelmo-Nieto AI, Baena G, García-Mauriño S. Salinity increases calcium-dependent protein kinase (CDPK) gene expression in sorghum leaves. In "XXI Reunión de la SEFV-XIII Congreso Hispano-Luso". Toledo (Spain), June 2015. Poster, International Congress.
8. Arias C, Bosch N, **Monreal JA**, Echevarría C, García-Mauriño S. Effect of ammonium stress on sorghum PEPC: monoubiquitination as a novel mechanism of regulation. In "XX Reunión de la SEFV-XII Congreso Hispano-Luso". Lisboa (Portugal), July 2013. **Oral Communication**, International Congress.
9. Orozco I, Arias C, Echevarría C, García-Mauriño S, **Monreal JA**. Inhibition of Phosphoenolpyruvate Carboxylase (PEPC) by phosphatidic acid (PA) is modulated by nutrient availability in *Arabidopsis thaliana* plants. In "XIX Reunión de la SEFV-XI Congreso Hispano-Luso". Castellón (España), June 2011. **Oral Communication**, International Congress.
10. **Monreal JA**, Arias C, Rubio AE, Echevarría C, García-Mauriño S. Salinity enhances PEPC-kinase activity in sorghum leaves by decreasing the rate of degradation of the

protein: role of Nitric Oxide. In “XIX Reunión de la SEFV-XI Congreso Hispano-Luso”. Castellón (Spain), June 2011. **Oral Communication**, International Congress.

C.3. Research projects

1. 2021/00001266 “Nuevos aspectos de las funciones fisiológicas y del control post-traduccional de la fosfoenolpiruvato carboxilasa (PEPC) del sorgo: impacto sobre las respuestas a estrés y sobre la producción de semillas (NOVELSOR)”. **PI: José Antonio Monreal**. Proyectos Precompetitivos Universidad de Sevilla, Spain. 2021-2022. 5.000 €. **PI.**
2. US-1251626 “Impacto de la fosfoenolpiruvato carboxilasa sobre las características nutricionales y la tolerancia a la sequía del sorgo: estudio en líneas ARNi y en variedades naturales. (NUTRISORGO)”. PI: Sofía García-Mauriño and Ana Belén Feria. Proyectos I+D+i FEDER Andalucía, Junta de Andalucía (Consejería de Economía y Conocimiento), Spain. 2020-2022. 80.000 €. Researcher.
3. AGL2016-75413-P “Control Autofágico de Elementos Claves del Metabolismo: la Fosfoenolpiruvato Carboxilasa de Sorgo en Estrés y en Semillas”. **PI: José Antonio Monreal** and Sofía García-Mauriño. Proyectos de Excelencia, Ministerio de Economía y Competitividad, Spain. 2016-2020. 181.500 €. PI.
4. P12-FQM-489 “Reciclar o morir: autofagia, ubiquitina y PEPC (fosfoenolpiryuvato carboxilasa) en estrés nutricional, hídrico/salino y oxidativo”. PI: Sofía García Mauriño. Proyecto Excelencia Junta de Andalucía, Spain. 2014-2017. 168.804 €. Researcher.
5. AGL2012-35708 “Expresión de genes y regulación de proteínas PEPC, PEPC-quinasa y PEPC-proteasa: papel en el desarrollo y germinación de la semilla de sorgo y resistencia al estrés salino”. PI: Cristina Echevarría. Ministerio de Economía y Competitividad, Spain. 2013-2016. 128.700 €. Researcher.

C.4. Contracts, technological or transfer merits

1. Editor of the video: “La Agricultura del Futuro” https://www.youtube.com/watch?v=rjwNIy_4VLE&t=57s), financed by the Plan Anual de Divulgación Científica, University of Sevilla,2020.
2. IPT-2011-0989-060000 “Microorganismos endofíticos como inductores de moléculas naturales de interés agronómico”. PI: Manuel Megías. Proyect OPN-INNPACTO. Proyecto Ministerio de Investigación y Ciencia, Spain. 2011-2014. 231.506 €. Researcher.