

## Part A. Personal Information

DATE	20/08/2024
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Surname(s)	Reyes	
Forename	Jose Carlos	
ID number	31843385T	
Sex	Man	
Age	57	
Researcher codes	WoS Researcher ID (*)	K-3699-2014
	SCOPUS Author ID(*)	7202553047
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(\*) At least one of these is mandatory

### A.1. Current position

Post/ Profes. Category	Director of Genome Biology Department CABIMER CSIC Scientific investigator	
UNESCO Code	2415 02	
Key Words	Transcription, Chromatin, Epigenetics, Genomics	
Name of the University/Institution	Centro Andaluz de Biología Molecular y Medicina Regenerativa (CABIMER). Spanish National Research Council (CSIC).	
	Department/Centre	Genome Biology
	Full Address	Av. Américo Vespucio s/n. 41092 Sevilla
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### A.2. Previous positions (research activity interruptions, indicate total months)

Period	Position/Institution/Country/Interruption cause
Since 2009	CSIC Research investigator. CABIMER. Sevilla. Spain
1999-2009	CSIC Tenured Scientist position/IBVF and CABIMER. Sevilla. Spain
1/7/1998-31/8/1998	Visiting scientist. NIH Bethesda, USA.
1/1/1998-30/4/1998	Postdoctoral Fondation Recherche Médicale. Pasteur Institute. France
1996-1997	Postdoctoral Huma-Frontiers fellow. Pasteur Institute. France
1995	Postdoctoral EMBO fellow. Pasteur Institute. France
1990-1994	PhD, IBFV, Universidad de Sevilla/CSIC. Sevilla, Spain

### A.3. Education (title, institution, date)

PhD, Licensed, Graduate	University/Country	Year
BSc Degree in Biology	University of Sevilla, Spain	1990
PhD in Biology	University of Sevilla, Spain	1994

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

I have a PhD in Biological Sciences from the University of Seville. I did my doctoral thesis at the Institute of Plant Biochemistry and Photosynthesis (IBVF, Seville) between 1990 and 1994. After that, I did a postdoctoral stay of 3.5 years at the Pasteur Institute in Paris in Moshe Yaniv's laboratory, where I began my studies on the SWI/SNF chromatin remodeling complexes in mammals. We discovered the association of BRG1 (SMARCA4) and BRM (SMARCA2) remodelers with an insoluble fraction of the nucleus, called at that time nuclear matrix, what latter on gave the name to this family of genes (SMARC, Swi/snf related, Matrix associated, Actin dependent Regulator of Chromatin) (**J Cell Biol**, 1997. About 280 cites in Google Scholar). In addition, we generated and studied the first knockout mouse model of an ATP-dependent chromatin remodeling enzyme, Brm (**EMBO J**, 1998. More than 500 cites). I then did a stay as visiting scientist at the National Institute of Health in Bethesda (USA) in Gordon Hager's laboratory, where we investigated the nuclear dynamics of GFP-fused chromatin remodelers. In 2000, I obtained a position at the CSIC and started my own laboratory at the IBVF where I began a line of research on chromatin remodeling in the model plant *Arabidopsis*

*thaliana*. We were the first to describe and characterize the existence and functions of the SWI/SNF and SWR1 complexes in plants (see for example **Development, 2004; Plant Mol Biol 2006; Plant J. 2008**). We discovered that *BRAHMA* mutations in *Arabidopsis* cause homeotic transformations as in *Drosophila*, which is an extraordinary example of convergent regulatory evolution. This activity was pioneering in the field of chromatin in plants, for which I was invited to publish 7 reviews on this topic (among others **Plant Phys, 2002; Semin Cell Dev Biol, 2003; Curr Opin Plant Biol, 2006; Mol Plant, 2009**). We also developed genomic studies that lead us to propose the phylogeny, nomenclature and division into subfamilies of the plant GATA transcription factors family that is currently used by the scientific community since then (**Plant Phys, 2004**. More than 460 cites). In 2002, I obtained the prize for Young Investigators from the Seville Academy of Sciences. In 2006, I transferred my laboratory to the Andalusian Center for Molecular Biology and Regenerative Medicine (CABIMER, Seville), of which I was Vice Director from July 2016 to December 2020, and I am currently Director of the Department of Genome Biology. In CABIMER, I develop research in chromatin regulation, genomics and epigenomics in animal cells, especially in the following research lines:

- Chromatin regulation of transcription elongation and mRNA processing (**EMBO Rep., 2010; NAR, 2015; PNAS, 2015; NAR, 2021**).
- Function of the chromatin remodeler and autism-associated protein CHD8 (**NAR, 2014; NAR, 2009; PLoS Genet., 2015; NAR, 2018; BioRxiv, 2022**).
- Chromatin factors involved in cell differentiation and cancer (**PNAS, 2012; Cell Death and Disease, 2018; 2019a; Scientific Report 2018; Theranostics, 2021**).
- Epigenetic regulation of epithelial to mesenchymal transition. Regulation of enhancers by TGFbeta (**Oncogene, 2015; Cell Death and Disease, 2019b; NAR, 2022; Nature Comm, 2020**).
- Regulation of enhancers (**Nature Comm, 2020; PLoS Comp Biol, 2017; Cell Rep 2024**).

I have published **80 papers**, most of them in prestigious international journals. I am among the **top 2%** of the most cited world scientists of all scientific fields in the ranking by Meta-Research Innovation Center (METRICS) at Stanford University (Editions 2019, 2020 and 2021) (**5162 Scopus cites, 7297 Google Scholar cites**), which gives an idea of the international impact of my research.

**My group combines genetic, molecular and computational biology methods to understand how chromatin of regulatory elements and gene bodies change during transcription, how these changes are regulated and inherited and what protein factors are responsible for them. We specially investigate how alteration of these chromatin mechanisms are implicated in human disease, particularly in cancer.** We belong to the AEI-MICINN Genomic Regulation Network (R2G), the CSIC Cancer-Connection and the Computational Biology and Bioinformatics Connection (HubBCB) networks. We have established collaborations with prestigious group leaders from national and international institutions including O. Elemento (Cornell University, USA), M. Beato (CRG, Barcelona), M. Esteller (IJC, Barcelona), M. Buschbeck (IJC, Barcelona), J.I. Martín-Subero (IDIBAPS, Barcelona), M. Martí-Renom (CRG, Barcelona), B.D. Strahl (The University of North Carolina, USA), M. Rodríguez-Paredes and F. Lyko (DKFZ, Heidelberg, Germany), X. Bustelo (CIC, Salamanca), M. Dosil (CIC, Salamanca), S. Mañes (CNB, Madrid), S. Chávez (US, Sevilla).

## Part C. RELEVANT MERITS

### C.1. Main Research Publications in the last 10 years (max. 10)

1. L. Basurto-Cayuela, J.A. Guerrero-Martínez, E. Gómez-Marín, E. Sanchez-Escabias, María Escaño-Maestre, M. Ceballos-Chávez, and **J.C. Reyes**. 2024. SWI/SNF-dependent genes are defined by their chromatin landscape. **Cell Reports**. 43(3):113855.
2. E. Gómez-Marín, M. Posavec-Marjanovic, (...) M. Buschbeck and **J.C. Reyes**. 2022. The high mobility group protein HMG20A cooperates with the histone reader PHF14 to modulate TGFβ and Hippo pathways. **Nucleic Acid Research**, 50(17):9838-9857.
3. J.A. Guerrero-Martínez, M. Ceballos-Chávez, F. Koehler, S. Peiró and **J.C. Reyes**. 2020. TGFβ Promotes Widespread Enhancer Chromatin Opening and Operates on Genome Regulatory Domains. **Nature Communications**. 11:6196.

4. S. Rivero, E. Gómez-Marín, J.A. Guerrero-Martínez, J. García-Martínez and **J.C. Reyes**. 2019. TBL1 is required for the mesenchymal phenotype of transformed breast cancer cells. **Cell Death and Disease**. 10(2):95.
5. M.E. Soler-Oliva, J.A. Guerrero-Martínez, V. Bachetti and **J.C. Reyes**. 2017. Analysis of the relationship between co-expression domains and chromatin 3D organization. **PLoS Computational Biology**. 13(9):e1005708.
6. S. Jimeno-González, L. Payán, A.M. Muñoz-Cabello, M. Guijo, G. Gutierrez, F. Prado, and **J.C. Reyes**. 2015. Defective histone supply causes changes in RNA polymerase II elongation rate and co-transcriptional pre-mRNA splicing. **Proc Natl Acad Sci USA**. 112(48):14840-14845.
7. S. Rivero, M. Ceballos-Chávez, S.S. Bhattacharya and **J.C. Reyes**. 2015. HMG20A is required for SNAI1-mediated Epithelial to Mesenchymal Transition. **Oncogene**. 34(41):5264-76.
8. M. Ceballos-Chávez, A. Subtil-Rodríguez, E. G. Giannopoulou, D. Soronellas, O. Elemento, M. Beato and **J.C. Reyes**. 2015. The chromatin remodeler CHD8 is required for activation of progesterone receptor-dependent enhancers. **PLoS Genetics**. 11(4):e1005174.
9. S. Jimeno-Gonzalez, M. Ceballos-Chávez, **J.C. Reyes**. 2015. A positioned +1 nucleosome enhances RNA polymerase II promoter proximal pausing in human cells. **Nucleic Acids Research**. 43(6):3068-78.
10. Subtil-Rodríguez, E. Vázquez-Chávez, M. Ceballos-Chávez, M. Rodríguez-Paredes, J.I. Martín-Subero, M. Esteller and **J.C. Reyes**. 2014. The chromatin remodeler CHD8 is required for E2F-dependent transcription activation of S phase genes. **Nucleic Acids Research**. 42:2185-96.

## C.2. Selected Research Projects and Grants

*Regulation of transcription by enhancers and silencers in a tridimensional genome (3DREG). Plan Nacional PID2023-149538NB-I00 (MICIU/AEI)*. 01-09-2024 to 31-8-2027. Budget: 310.000 € (included overheads). IP: J.C. Reyes

*Implementation of chromatin accessibility technologies at the single cell level in personalized medicine strategies. BIOT22\_00018\_2 (Junta de Andalucía)*. 2023 to 2025. Budget: 82.406,54 € (included overheads). IP: J.C. Reyes.

*Chromatin dynamics and regulation of enhancers. Plan Nacional PID2020-118516GB-I00 (MCIN/AEI)*. 01-09-2021 to 31-8-2024. Budget: 266.200€ (included overheads). IP: J.C. Reyes

*Bases moleculares del síndrome del espectro autista provocado por mutaciones en chd8. Proyectos de excelencia PY18-1962 (Junta de Andalucía)*. 01-01-2020 to 31-12-2022. Budget: 125.500 €. IP: José Carlos Reyes

*Epigenética del proceso de transición de epitelio a mesénquima y su reversión. Plan Nacional BFU2017-85420-R (MINECO)*. 01-01-2018 to 31-12-2020. Budget: 242.000,00 € (included overheads). IP: José Carlos Reyes

*Cooperación entre modificadores de la cromatina para regular la actividad de enhancers durante la diferenciación celular. Plan Nacional BFU2014-53543-P (MINECO)*. 01-01-2015 to 31-12-2018. Budget: 220.000,00 €. IP: José Carlos Reyes

*Nucleosomal positioning, DNA methylation and chromatin remodeling in transcription elongation and termination. Plan Nacional BFU2011-23442 (MINECO)*. 1-1-2012 to 31-12-2014. Budget: 275.880,00 €. IP: José Carlos Reyes

## C.3. Patents

Title: LSD1 INHIBITORS FOR USE IN THE TREATMENT OF TYPE 2 DIABETES.

Priority Date: 24/01/2019. International Application number: PCT/ES2020/051654.

International Publication number: WO2020/152280 A1.

Inventors: B. Gauthier, P.I. Lorenzo, E. Fuente-Martín, N. Cobo-Vuilleumier, J.M. Mellado-Gil, F.J. Bértudez-Silva, G. Rojo-Martínez, J.C. Reyes.

#### C.4. Scientific Awards

- 1995. Especial PhD award of the University of Sevilla.
- 1995. EMBO Postdoctoral fellowship.
- 1996. Human Frontiers Science Program fellowship.
- 2002. Young investigators award of the Academy of Science of Sevilla.

#### C.5. Research Supervision and Training

- 12 PhD theses directed: **L. López-Maury (2005), S. Farrona (2005), L. Hurtado Álvarez (2008), R. March-Díaz (2008), M. Rodríguez-Paredes (2009), E. Vazquez-Chaves (2013), T. Alfonso-Pérez (2014), M. Guijo-Molero (2017), N. Luna-Peláez (2019), J. A. Guerrero-Martínez (2021), L. Basurto-Cayueta (2023), E. Gómez-Marín (2024)**
- 3 ongoing PhD theses: **E. Sanchez-Escabias, P. Navarro-Cansino, L. García-Bernardo.**
- 17 Master students (Supervision of the Master's degree dissertation, TFM).
- 8 postdoctoral researchers supervised.

#### C.6. Institutional Positions and Member of Committees (only last five years)

- 2022-2024 Evaluation Scientific Committee of the Swiss National Science Foundation (SNSF) for Postdoctoral Fellowships.
- 2021, 2022 Evaluation commission of Fundamental Biology at the Andalusian Agency of Knowledge (DEVA).
- 2019, 2022 Evaluation commission of Fundamental Biology of the Spain's National Research Agency (AEI).
- Since 2021 Member of the Academic Commission of the Master's Degree "Omic Data Analysis and Systems Biology" in the U. of Seville and the Int. U. of Andalusia.
- 2020-2021 Member of the internal Quality Assurance Commission of the doctorate Program in Mol. Biol., Biomed. and Clinical Research of University of Sevilla.
- 2017-2020 Member of the Scientific Advisory Committee of the Spanish National Council for Research (CSIC).
- 2016-2020 Vicedirector of CABIMER.
- Since 2016 Director of the Genome Biology Department of CABIMER.
- 2016-2018 Representative of CSIC at the PhD commission of University of Sevilla.
- Since 2005 Member of the Editorial Board of *Biochimica et Biophysica Acta* (BBA - Gene Regulatory Mechanisms).

#### C.7. Selected lectures at institutions and invited talks in scientific meetings (last 5 years)

- "Regulation of enhancers and coexpression domains by TGF $\beta$ ". First virtual BMP forum. 27/04/22 (Webinar lecture series).
- "Regulation of enhancers and coexpression domains by TGF $\beta$ ". Centro de Biología Molecular Severo Ochoa (CBMSO) Special Seminar. Madrid. 24/10/19
- "Coexpression, coregulation and 3D nuclear organization". IX Barcelona Chromatin and Epigenetics Meeting. Societat Catalana de Biologia. Barcelona, 22th March, 2019.
- "Integrated analysis of genomic and physiopathological data from TCGA. Genomic Epidemiology of Cancer." Molecular biology, cancer and bioinformatics WorkShop. Pamplona. NavarraBiomed. 16th May, 2019.
- "Coexpression Domains in the Human Genome". DKFZ-ZMBH Alliance, German Cancer Research Center, Heidelberg, Germany. 29/08/18
- "Gene Coexpression Domains in the Human Genome". Institute for Research in Biomedicine-IRB. Barcelona. 21/02/18.

#### C8. Outreach and teaching

- Participation in outreach activities including guided visits to the CABIMER center, talks in schools and activities such as The Week of Science, European Night of Researchers, Pint of Science, and some talks and round tables in the media.
- Teaching in Master degrees: coordinator and teacher of one course per year within the *Máster en Análisis de Datos Ómicos y Biología de Sistemas* (University of Sevilla) since 2021.
- Invited teacher to talk about "Cancer Epigenetics" in *Master en Biología y Clínica del Cáncer* (University of Salamanca), every year since 2013.