



Part A. PERSONAL INFORMATION

CV date	31/01/2022
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First name	Teresa
Family name	Roldán Arjona

(*) Mandatory

A.1. Current position

Position	Full Professor (Catedrática de Universidad)
Institution	University of Córdoba
Department/Centre	Genetics Faculty of Sciences
Country	Spain
Keywords	DNA repair, Base Excision Repair, DNA glycosylases, Epigenetics, DNA demethylation, Epigenetic editing, CRISPR, <i>A. thaliana</i> .

A.2. Previous positions

Period	Position/Institution/Country
11/06/2011	Catedrática de Universidad (Universidad de Córdoba)
08/02/2006	Profesora Titular de Universidad (Universidad de Córdoba)
01/10/2004	Profesora Contratada Doctora (Universidad de Córdoba)
20/03/2002	Profesora Asociada (Universidad de Córdoba)
15/11/2001	Contratada del Programa Ramón y Cajal (Universidad de Córdoba)
01/01/2001	Becaria Postdoctoral (Universidad de Córdoba)
01/01/1998	Contratada de Reincorporación del MEC (Universidad de Córdoba)
01/01/1997	Becaria Marie Curie de la EU (Universidad de Córdoba).
21/04/1995	Contratada posdoctoral (Cancer Research UK).
21/06/1993	Becaria Marie Curie de la EU (Cancer Research UK).
01/01/1992	Becaria posdoctoral (Universidad de Córdoba)
02/09/1988	Becaria predoctoral FPI del MEC (Universidad de Córdoba)
01/11/1987	Becaria Predoctoral (Universidad de Córdoba)

A.3. Education

PhD, Graduate Degree	University/Country	Year
Biology	University of Córdoba	1986
PhD in Biology	University of Córdoba	1991

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

A total of 76 publications (60 papers, 47 of them in Q1 and 16 book chapters) in prestigious international journals including Cell, Molecular Cell, PNAS, Nucleic Acids research, Plant Journal, PloS Genetics, DNA Repair o Epigenetics. Total citations: 2939, average citations per publication in the last 5 years: 150 and H index: 27, according to Scopus. Total publication cited: 92,85%. **6** awarded “Sexenios”: **5 of “Research”** (last awarded period 2012-2017) plus **1 of “Knowledge Transfer and Innovation”**.

More relevant contributions/discoveries/achievements

1. *Obtention of relevant parameters for stablishing quantitative correlations to predict the carcinogenic potency of compound through their mutagenic potency.* The publications emerged from this line have received more than 150 citations.
2. *Identification and characterization of the first human DNA glycosylases implicated in the repair of oxidative DNA damage through base excision repair, as well as their homologs in other eukaryotic species.* This research provided the **first evidences** of this enzymes in humans and other eukaryotes. The publications emerged from this line have received more than 1000 citations.
3. *Study and characterization of mechanisms for genome maintenance in plants.* The knowledge generated has allowed to **understand novel, unknown aspects of DNA repair** and tolerance to DNA damage in plants. The publications emerged from this line have received more than 500 citations.

4. *Discovery, characterization and biotechnological applications of active DNA demethylation in plants.* The results obtained provided the **first genetic and biochemical evidences** for the existence of an active DNA demethylation pathway in plants and **opened new research lines** for the understanding of active demethylation processes in animals. The publications emerged from this line have received more than 1300 citations.

Training of young investigators:

9 Final Degree of Final Master works (3 more in progress) and 8 supervised theses (one more in preparation). (*for more details see the scientific/technical record of the research team*)

Activities for the communication and dissemination of science to society:

European Researchers' Night, International Day of Women and Girls in Science, TVE2 divulgation series "Sustainable Universe": Participation in to two chapters of this television TVE2 series, one related to cancer 2019 and the other one related to DNA conservation 2021. This is a TV programme produced with the collaboration of 27 Spanish Universities, TVE and the support of FECYT and Microsoft. The 2 of Spanish Television (TVE) broadcasts 'Sustainable Universe' framed within the program 'The Adventure of Knowledge'. *Funds specifically raised for dissemination of science to society:* Project financed by the European Union H2020 program for the celebration of the European night of researchers. H2020-MSCA-NIGHT-201. Marie Skłodowska Curie (MSCA) actions. IP: Teresa Roldán Arjona (Universidad de Córdoba). Budget: 10.736,00 € (from 01-04-2016 to 30-11-2017). *Science divulgation Publication:* Alberto Marinas, Carmen Michán, Teresa Roldán-Arjona, Manuel Blázquez. "Córdoba celebra la Química". (2012) *Anales de Química*. 2012, 108(3), 334–339. *Science divulgation press articles:* "Protegiendo el mensaje de la vida", "Epigenética: entre la estabilidad del genotipo y la plasticidad del fenotipo" and "Marcadas por la experiencia: Epigenética y adaptación en plantas"

Part C. RELEVANT MERITS (sorted by typology)

C.1. Publications (see instructions)

1. Jordano-Raya M, Beltrán-Melero C, Moreno-Recio MD, Martínez-Macías MI, Ariza RR, Roldán-Arjona T, Córdoba-Cañero D. (2021). Complementary Functions of Plant AP Endonucleases and AP Lyases during DNA Repair of Abasic Sites Arising from C:G Base Pairs. **Int J Mol Sci**. 16;22(16):8763. doi: 10.3390/ijms22168763.
2. Devesa-Guerra I, Morales-Ruiz T, Pérez-Roldán J, Parrilla-Doblas JT, Dorado-León M, García-Ortiz MV, Ariza RR, Roldán-Arjona T. (2020) DNA methylation editing by CRISPR-guided excision of 5-methylcytosine. **Journal of Molecular Biology**. pii: S0022-2836(20)30157-1. doi: 10.1016/j.jmb.2020.02.007.
3. Morales-Ruiz T, Romero-Valenzuela ÁC, Vázquez-Grande VM, Roldán-Arjona T, Ariza RR, Córdoba-Cañero D. (2018) Monitoring base excision repair in *Chlamydomonas reinhardtii* cell extracts. **DNA Repair**. 65:34–41. doi:10.1016/j.dnarep.2018.02.011
4. Barbado, C., Córdoba-Cañero, D., Ariza, R.R., and Roldán-Arjona, T. (2018). Nonenzymatic release of N7-methylguanine channels repair of abasic sites into an AP endonuclease-independent pathway in Arabidopsis. **Proc Natl Acad Sci USA** 115, E916-E924.
5. Córdoba-Cañero, D., Cognat, V., Ariza, R.R., Roldán-Arjona, T*, and Molinier, J. (2017). Dual control of ROS1-mediated active DNA demethylation by DNA damage-binding protein 2 (DDB2). **Plant J** 92, 1170-1181. ***Co-corresponding author.**
6. Parrilla-Doblas, J.T., Ariza, R.R., and Roldán-Arjona, T. (2017). Targeted DNA demethylation in human cells by fusion of a plant 5-methylcytosine DNA glycosylase to a sequence-specific DNA binding domain. **Epigenetics** 12, 296-303.
7. Li Y, Córdoba-Cañero D, Qian W, Zhu X, Tang K, Zhang H, Ariza RR, Roldán-Arjona T*, Zhu JK. (2015) An AP endonuclease functions in active DNA dimethylation and gene imprinting in arabidopsis. **PLoS Genet**. 11: e1004905. ***Co-corresponding author.**
8. Martínez-Macías, MI, Qian, W, Miki, D., Pontes, O., Liu, Y., Tang, K., Liu, R., Morales-Ruiz, T., Ariza, R.R., Roldán-Arjona, T*, and Zhu, J-K. (2012) A DNA 3' phosphatase functions in active DNA demethylation in Arabidopsis. **Mol Cell** 45, 357-370. ***Co-corresponding author.**
9. Morales-Ruiz, T., Ortega-Galisteo, A.P., Ponferrada-Marin, M.I., Martínez-Macías, M.I., Ariza, R.R., and Roldán-Arjona, T. (2006). DEMETER and REPRESSOR OF SILENCING 1 encode 5-methylcytosine DNA glycosylases. **Proc Natl Acad Sci USA** 103, 6853-6858.

10. Gong, Z., Morales-Ruiz, T., Ariza, R.R., Roldán-Arjona, T., David, L., and Zhu, J.K. (2002). ROS1, a repressor of transcriptional gene silencing in Arabidopsis, encodes a DNA glycosylase/lyase. **Cell** 111, 803-814.

C.2. Congresses

Dissemination of the results obtained through invited lectures/presentations at more than **120 national and international** scientific conferences. **The 5 more relevant in the last 5 years:**

1. Base excision repair: roles and functional significance (2021) Roldán-Arjona T., et al. EMBO Plant Genome Stability and Change Conference 2021. **Invited speaker, Chair and Co-organizer.** Leiden, The Netherlands
2. Base excision repair: from genome repair to epigenome regulation (2019) Roldán-Arjona T., et al. Society for Experimental Biology's (SEB) Annual Meeting. **Invited speaker.** Seville, Spain
3. Base excision: at the intersection between DNA repair and epigenetics (2018) Roldán-Arjona, T., et al. EMBO Plant Genome Stability and Change Conference 2018. **Invited speaker and Chair.** Gatersleben, Germany
4. Targeted DNA demethylation in human cells by 5-methylcytosine excision (2017) Parrilla-Doblas, J.T.; Morales-Ruiz, T.; Ariza, R. R.; Roldán-Arjona, T. EPICHEMIO and MUTALIG COST Meeting. **Speaker.** Porto, Portugal
5. La reparación por escisión de bases como mecanismo de control epigenético (2016) Córdoba-Cañero, D.; Martínez-Macías, M.I.; Parrilla-Doblas, J.T.; Ponferrada-Marín, M.I.; Morales-Ruiz, T.; García-Ortiz, M.V.; Barbado-García-Gil, C.; Devesa-Guerra, I.; Ricon, R.; Ariza, R. R.; Roldán-Arjona, T. XXXIX Congreso de la SEBBM. **Invited speaker.** Salamanca (Spain).

C.3. Research projects

1. Reparación de sitios abásicos inducidos por agentes metilantes de ADN en células vegetales y humanas: papel de una ruta independiente de AP endonucleasas. **MICIN Ref. PID2019-109967GB-I00.** IP: Teresa Roldán Arjona (University of Córdoba). 01/06/2020-End: 31/05/2023. Budget: 217.800 €
2. Edición epigenética mediante desmetilación activa del ADN guiada por ARN. **Junta de Andalucía: P20_00051.** IP: Teresa Roldán Arjona (University of Córdoba). 01/06/2021-31/012/2023. Budget: 100.000 €
3. Identificación de biomarcadores epigenéticos para diagnóstico temprano de Cáncer de pulmón en muestras mínimamente invasivas. **Ministerio de Ciencias de Colombia: Ref. BPIN 2020000100363.** IP: Adriana Patricia Rojas Moreno (Pontificia Universidad Javeriana, Colombia). Co-investigadora: Teresa Roldán Arjona (Universidad de Córdoba, España). 10/02/2021-09/02/2026. Budget: 407.380,43 € (1.818.629.184,00 Colombians Pesos)
4. Reparación de sitios abásicos inducidos por agentes metilantes antitumorales en células humanas: papel de una ruta AP liasa/ADN fosfatasa. Proyectos I+D+i, en el marco del Programa Operativo FEDER Andalucía 2014-2020. **Junta de Andalucía. Ref. UCO-1263875.** IP: Teresa Roldán Arjona (University of Córdoba). 01/01/2020-31/12/2021. Budget: 49.330 €
5. DNA base excision repair: from genome maintenance to epigenome editing. **MINECO BFU2016-80728-P.** IPI: Teresa Roldán Arjona (University of Córdoba). 01/01/2017-29/09/2020. Budget: 242.000 €
6. Active DNA demethylation mediated by 5-methylcytosine glycosylases. **MINECO (BFU2013-43269-P).** IP: Teresa Roldán Arjona (University of Cordoba). 01/01/2014-31/12/2016. Budget: 229.900 €
7. Molecular mechanisms of DNA demethylation and its applications to egigenome reprogramming. **Junta de Andalucía (Proyectos de Excelencia): P11-CVI-7576.** IP: Teresa Roldán Arjona. University of Cordoba. 6/03/2013-31/03/2018. Budget: 338.700,30 €
8. DNA demethylation: basic molecular mechanisms and relevance for reversal of epigenetic silencing. **MICINN BFU2010-18838.** IP: Teresa Roldán Arjona. (University of Cordoba). 01/01/2010-31/07/2014. Budget: 248.050,00 €
9. Epigenetic reprogramming through DNA demethylation. **Junta de Andalucía (Proyectos de Excelencia) P07-CVI-02770.** IP: Teresa Roldán Arjona (University of Cordoba). 01/04/2008-31/12/2012. Budget: 420.668,00 €
10. La escisión de 5-metilcitosina como mecanismo epigenético de control de la expresión génica. **MEC FU2007-60956.** IP: Teresa Roldán Arjona. (University of Cordoba). 01/10/2007 - 04/10/2010. Budget: 260.150 €

C.4. Technology/Knowledge transfer

C.4.1) Contracts

1. **Contract Art. 83 with GEICAM/2015-06 (COMETA-Breast):** Clinical Trial Fase II to analyse the Olaparib response in patients with methylation at the BRCA1 and/or BRCA2 promoter diagnosed of advanced breast cancer. Organization: Foundation Spanish Group of Research in Breast Cancer GEICAM). IP: Teresa Roldán Arjona (University of Cordoba). 02/05/2018 - 31/05/2021. Budget: **17.745,01 €**.
2. **Contract Art. 83 between SGS ICS Ibérica S.A. and the University of Cordoba.** IP: Teresa Roldán Arjona (University of Cordoba) 13-11-2015-12/12/2019. Budget: **7.260,00€**.
3. **Contract Art. 83: Preclinic evaluation of the preclinic efficacy of the CVX-785 compound in “in vitro” assays and murine models of psoriasis. (CVX-785).** Company: Canvax Biotech S.L. IP: Teresa Roldán Arjona. (IMIBIC/University of Cordoba). 20/9/2013-20/6/2015. Budget: **21.491,05 €**.
4. Tittle: **Innovative Public Procurement: Early detection of lung, colon, brest and prostate cancer.** Organization: MINECO. IP responsible of the epigenetics sub-project: Teresa Roldán Arjona. (IMIBIC/ University of Cordoba). 29/12/2011-31/12/2015. Budget: **5.079.105,84 €**.

C.4.2) Transfer of knowledge generating economic value

- Shareholder of «spin-off»: Company: **Canvax Biotech S.L.** 2001-Present.

C.5) Additional merits:

C.5.1) Institutional responsibilities:

- Vice-Dean of Research, International Relations and Mobility-Faculty of Sciences-UCO (2009-2014)
- General Director of Research-UCO (2014)
- Vice-chancellor of Research-UCO (2015-2018),
- Advisor of the Executive Committee of the Research Policy Working Group of CRUE (2015-2018),
- Member of the EUA (European University Association) Research Policy Working Group (2017-2019)
- Delegate for European Affairs-UCO (academically equivalent to Vice-chancellor) (2018-Present)
- Coordinator of Teaching Staff Evaluation Area at the Direction of Evaluation and Accreditation (DEVA) of the Andalusian Agency of Knowledge (AAC) (2020-2021).
- Coordinator of the University Evaluation and Accreditation Area at the Direction of Evaluation and Accreditation (DEVA) of the Andalusian Agency of Knowledge (AAC) (2021-present).

C.5.2) Memberships of scientific societies:

- President of the Spanish Society of Environmental Mutagenesis (SEMA)
- Councillor of the European Environmental Mutagenesis and Genomics Society (EEMGS)
- Member of the Spanish Genetics Society (SEG)
- Member of the Spanish Biochemistry and Molecular Biology Society (SEBBM)

C.5.3) Scientific and/or Academic Evaluation activities:

Member (Octubre 2009-Enero 2013) and Secretary (Febrero 2013-Septiembre 2015) of the ANECA Experimental Sciences Evaluation Committee. President of the Sciences Committee for the verification process at the Madrid+D Foundation (2019-2020). Member of the ANEP “Comisión base de Biología (Septiembre 2009-Present), Expert evaluator of the FP7, H2020 and Erasmus + KA1 EU programs. Collaborator of the ANEP, ISCIII, ACSUCyL, ACSUG, IKERBASQUE, French Agence Nationale de la Recherche (ABR), Slovak Republic Research Agency, Polish National Science Centre (NCN), Argentinian Agency for Science and Technology Promotion.