**CURRICULUM VITAE (CVA)**

| **CV date** | 12/10/2023 |
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## Part A. PERSONAL INFORMATION

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|---|---|---|---|
| First name | Verónica | | |
| Family name | Ramos Mejía | | |
| e-mail | veronica.ramos@genyo.es<br><br>veronica.ramos@ugr.es | URL Web: https://www.genyo.es/research-groups/gene-regulation-stem-cells-and-development/?lang=en | |
| Open Researcher and Contributor ID (ORCID) (*) | 0000-0002-8013-4273 | | |

### A.1. Current position

| | | |
|---|---|---|
| Position | Principal Investigator | |
| Initial date | 05/01/2017 | |
| Institution | GENYO: Centre for Genomics and Oncological Research Pfizer - Universidad de Granada - Junta de Andalucía | |
| Department/Center | Genomic Oncology | |
| Position | Assistant Professor | |
| Initial date | 11/10/2023 | |
| Institution | Universidad de Granada | |
| Department | Cell Biology | |
| Key words | Human Pluripotent Stem Cells, Disease Models, Cancer | |

### A.2. Previous positions

| Period | Position/Institution/Country/Interruption cause |
|---|---|
| 2013 - 2017 | Miguel Servet Researcher (ISCIII), GENYO, Spain |
| 2011 - 2013 | Postdoctoral Researcher, GENYO, Spain |
| 2009 - 2011 | Marie Skłodowska-Curie Fellow (EU), Andalusian Stem Cell Bank, Spain |
| 2008 - 2009 | Postdoctoral Researcher, Andalusian Stem Cell Bank, Spain |
| 2006 - 2008 | Postdoctoral Researcher, McMaster University, Canada |
| 2005 - 2006 | Postdoctoral Researcher, Western Ontario University, Canada |

### A.3. Education

| PhD, Licensed | University/Country | Year |
|---|---|---|
| PhD In Biochemistry | National Autonomous University of Mexico (UNAM), México | 2004 |
| Pharmacobiologist Chemist Degree | National Autonomous University of Mexico (UNAM), México | 1994 |

## Part B. CV SUMMARY

I am a Stem Cell scientist at the Centre for Genomics and Oncological Research (GENYO, Granada) with 20 years of research experience. My research focuses on human Pluripotent Stem Cells (hPSCs) biology and their use as cellular models for human development and disease modeling. I performed my Ph.D. studies in developmental biology and received my Ph.D. degree from National Autonomous University of Mexico. During this time, I developed a transgenic mouse model to investigate the role of the pluripotency master gene *Pou5f1* (OCT3/4). In 2004, I moved to Ontario, Canada, and joined Dr. Mick Bhatia's laboratory, a pioneer research group in hPSCs biology and hematopoiesis. As a postdoctoral researcher, I investigated the role of Hedgehog signaling pathway in the developmental programming of human adult hematopoiesis using hPSCs models. Also, I participated in research on hPSC biology published in Nature, Nature Biotechnology and Cell Stem Cell. In September 2008, I started working at the Andalusian Stem Cell Bank (Granada, Spain), where I performed research on hPSC biology and hematopoietic development. In 2009, I obtained a Marie Curie

- International Incoming Fellowship and continued working with hPSCs as cellular models to study childhood leukemia. Additionally, I explored cellular reprogramming as a strategy to investigate oncogenic transformation. In 2013, I earned a Miguel Servet type I Contract of the National Institute of Health Carlos III (ISCIII, Spain) and continued my work on hematopoietic development and childhood leukemias. In 2017, I obtained the Miguel Servet type II Contract (ISCIII, Spain) and also became Principal Investigator of the Gene Regulation, Stem Cells and Development laboratory, in GENYO. Currently, I am leading research on modelling carcinogenesis with stem cells and pediatric leukemia. I am member of the Spanish Society of pediatric Hemato-Ongology (SEHOP), the European Society for Paediatric Oncology (SIOPE). Also, I am participating in the Mexican National Program on Childhood Leukemia (2019-2024, CONACYT, México) and in the "HARMONY Consortium" (Helathcare Alliance for Resourceful Medicines Offensive Against Neoplasm in Hematology) from the European Union-Innovative Medicines Initiative 2 ("IMI"). The main national and international collaborations of my laboratory include:

• Mexican Social Security Institute (IMSS), Oncoimmunology lab, México. Dr. Rosana Pelayo
• The Azrieli Center for Stem Cells and Genetic Research, Israel, Dr. Nissim Bensvenisty
• Stanford University, California, USA, Dr. Sean Bendall and Dr. Kara Lynn Davis
• Institute of Cellular Physiology, UNAM, México, Dr. Iván Velasco
• Josep Carreras Leukaemia Research Institute, Barcelona, Spain, Dr. Pablo Menéndez
• McMaster University, Canada. Prof. Mick Bhatia

I have participated in 52 peer-review publications, 10 of them as first author, 5 as last author and 12 as corresponding author, many of which in high-profile Journals. I have also contributed to four book chapters and more than 30 national and international meetings, 3 of them as guest speaker (2023, 2nd SRUK/CERU Cancer Research Networking Day, Madrid, Spain / 2011 and 2017, International Symposium on Stem Cells and Regenerative Medicine, Mexico). I have participated in 14 competitive funding projects (2 international), 7 of them as the Principal Investigator. Importantly, our work on pediatric cancer is being funded by 3 patients associations and public organizations.

I have participated in the development of new techniques for stem cells derivation, maintenance and differentiation that are registered under the patent numbers P201331568, P201030645 and P0201030512. In addition, I have extended experience in disseminating our research to the general public in events such as the European Researchers Night, the Science Week (Semana de la Ciencia) and "Café Con Ciencia", in press releases and online media, in dissemination talks for Patients' association, Schools, Colleges and Universities, and also I have participated in the in the science divulgation TV show "ConCiencia" from Canal Sur, Andalucia Televisión.

Since 2016, I have successfully mentored 1 Postdoctoral researcher, 1 PhD Student (University of Granada, UGR), 15 Master students (13 from UGR and two from University of Bologna) and 5-degree students (4 from UGR and 1 erasmus student from University of Berlin). I have also trained a Research Technician in the hPSC procedures who is currently working as lab manager in a Biotechnology Company in UK. Currently, I am supervising 1 master student, 1 PhD student and 2 Postdoctoral researchers. Since 2019, I participate as Invited Professor in the Master of Regenerative Biomedicine at University of Granada. I often participate as a reviewer and guest editor in JCR indexed journals, in grant review committees (national and international) and the abstract review committee for European Hematology Association meeting

## Part C. RELEVANT MERITS

### C.1. Publications

**(*)** *Corresponding author, (Position occupied by the applicant researcher)*

**1)** Domingo-Reinés J, Montes R, Garcia-Moreno A**… Ramos-Mejía V* (14/14).** 2023. The pediatric leukemia oncoprotein NUP98-KDM5A induces genomic instability that may facilitate malignant transformation. Cell Death Dis.;14(6):357. doi: 10.1038/s41419-023-05870-5. The fusion protein NUP98-KDM5A is exclusively found in very young pediatric

patients with unfavorable prognosis and high relapse rates. Here we demonstrate that NUP98-KDM5A promotes genomic instability and likely contributes to malignant transformation.

**2)** Domingo-Reinés J, Martínez-Navajas G, Montes R…**Ramos-Mejía V* (12/12).** 2022. Generation of a H9 Clonal Cell Line with Inducible Expression of NUP98-KDM5A Fusion Gene in the AAVS1 Safe Harbor Locus. Front Cell Dev Biol.; 10:846092. doi: 10.3389/fcell.2022.846092. Here we report that the expression of the fusion protein NUP98-KDM5A at different stages of in vitro hematopoietic differentiation had a different effect on the production of the hematopoietic progenitors and their further differentiation. This suggest that the cell subtype in which the genetic hit takes place determine the resulting AML.

**3)** Ayllón V, Vogel-González M, González-Pozas F, Domingo-Reinés J, Montes R, Morales-Cacho L, **Ramos-Mejía V* (7/7).** 2017. New hPSC-based human models to study pediatric Acute Megakaryoblastic Leukemia harboring the fusion oncogene RBM15-MKL1. Stem Cell Res.; 19:1-5. doi: 10.1016/j.scr.2016.12.019. Here we report the generation of hPSC cell lines that express the oncogenic fusion protein RBM15-MKL1, which appears exclusively in a group of pediatric patients with AML.

**4)** Domingo-Reines J, López-Ornelas A, Montes R….. **Ramos-Mejia V*(11/11).** 2017. Hoxa9 and EGFP reporter expression in human Embryonic Stem Cells (hESC) as useful tools for studying human development. Stem Cell Res.; 25:286-290. doi: 10.1016/j.scr.2017.08.004. We generated an H9-HoxA9-EGFP line to study the role of HoxA9 in a human model, and an H9-EGFP control line that resulted in a very efficient reporter line for cell tracking experiments, even in animal grafting experiments.

**5) Ramos-Mejía V***, Navarro-Montero O, Ayllón V, Bueno C, Romero T, Real PJ, Menendez P* **(1/7).** HOXA9 promotes hematopoietic commitment of human embryonic stem cells. Blood. 2014; 124(20):3065-75. doi: 10.1182/blood-2014-03-558825. We have demonstrated that HOXA9 enhance the differentiation of hESC-derived hemogenic progenitors and that plays multiple roles at various stages of differentiation.

**6)** McIntyre BA[1], **Ramos-Mejia V[1]**, Rampalli S, Mechael R, Lee JH, Alev C, Sheng G, Bhatia M* **(2/8, [1]co-first author).** Gli3-mediated hedgehog inhibition in human pluripotent stem cells initiates and augments developmental programming of adult hematopoiesis. Blood. 2013; 121(9):1543-52, doi: 10.1182/blood-2012-09-457747.Our study identified the role of Hh signal pathway in hPSCs that regulate early events in adult hematopoietic programming of blood cell fate. This is the first study to implicate a signaling pathway in embryonic versus adult hematopoietic control.

**7) Ramos-Mejía V***, Montes R, Bueno C, Ayllón V, Real PJ, Rodríguez R, Menendez P* **(1/7).** Residual expression of the reprogramming factors prevents differentiation of iPSC generated from human fibroblasts and cord blood CD34+ progenitors. PLoS One. 2012;7(4):e35824 doi: 10.1371/journal.pone.0035824. In this study we demonstrated that during the reprogramming process to pluripotency some putative iPSC clones failed to silence the expression of reprogramming factors and this residual expression resulted in an impaired differentiation potential.

**8) Ramos-Mejia V,** Fraga MF, Menendez P* **(1/3).** iPSCs from cancer cells: challenges and opportunities. Trends Mol Med. 2012;18(5):245-7. doi: 10.1016/j.molmed.2012.04.001.Here we discuss the utility of iPSC cells to understand oncogenic transformation. Reprogramming, pluripotency, and oncogenic transformation are connected processes that share many similarities as the same alterations that drive tumorigenesis robustly influence the reprogramming of non-cancer somatic cells.

**9) Ramos-Mejia V,** Muñoz-Lopez M, Garcia-Perez JL, Menendez P* **(1/4).** iPSC lines that do not silence the expression of the ectopic reprogramming factors may display enhanced propensity to genomic instability. Cell Res. 2010 ;20(10):1092-5. doi: 10.1038/cr.2010.125.We provided evidence the residual expression of the reprogramming factors predispose putative iPSCs lines to genomic instability and we encouraged scientists to set up the criteria that define fully reprogrammed, safe and stable iPSCs.

**10) Ramos-Mejia V*,** Melen GJ, Sanchez L…….Menendez P***(1/9).** Nodal/Activin signaling predicts human pluripotent stem cell lines prone to differentiate toward the hematopoietic lineage. Mol Ther. 2010;18(12):2173-81. doi: 10.1038/mt.2010.179. We

provided evidence that the upregulation of the Nodal signaling pathway may represent a reliable indicator to segregate hPSC lines according to their hematopoietic differentiation potential.

### C.3. Research projects

**1.** Modeling carcinogenesis with stem cells to find new immunotherapy targets (TARGETSTEM). Ministry of Science and Innovation. PID2021-128206NB-I00. PI: Verónica Ramos-Mejia. 01/10/2022 -31/09/2026. 199,650€.

**2.** Mexican National Program on Childhood Leukemia. The National Council for Science and Technology (CONACYT, México). Ref. 302994 / 302941. PI: Rosana Pelayo. 06/2020-31/12/2024.

**3.** Characterization of the tumor microenvironment and generation of new preclinical tools for the study and evaluation of pediatric Acute Myeloid Leukemia treatments. Health and Family Counseling - Regional Government of Andalusia. PI-0119-2019. PI: Rafael Díaz. 23/12/2019-23/12/2022. 59.990 €.

**4.** Study of pediatric Acute Myeloid Leukemia and development of new disease models. National Institute of Health Carlos III. PI17/01574, PI: Verónica Ramos-Mejia. 08/01/2018-31/12/2020. 123.420 €.

**5.** OH-0027-2018, Study of pediatric Acute Myeloid Leukemia and development of new disease models. FPS/ROCHE 2017 Oncología y oncohematología - Proyectos I+i - Proyectos de Investigación en Salud. PI: Verónica Ramos-Mejia. 01/02/2019- 31/07/2020. 50.000 €.

**6.** Optimization of Bone Marrow organoids for hematopoietic differentiation of human Pluripotent Stem Cells Health and Family Counseling - Regional Government of Andalusia. EF-0258-2018. PI: Verónica Ramos-Mejia. 10/06/2019-11/09/2019. 8.800 €.

**7.** Development of pediatric acute megakaryoblastic leukemia hPSC models to identify new therapeutic targets. National Institute of Health Carlos III. PI14/01412. PI: Verónica Ramos-Mejia. 01/2015-12/2017. 79.920 €.

**8.** Developing human pluripotent stem cell models of pediatric acute megakaryoblastic leukemia through the generation of chromosomal translocation using the CRISPR-CAS9 system. Fundación Inocente Inocente. PI: Verónica Ramos-Mejia. 01/09/2015 - 31/03/2017. 30.000 €.

**9.** Unraveling cellular and molecular mechanisms underlying MLL-rearranged Infant Acute Leukemia through the generation of MLL-rearranged patient specific induced pluripotent stem cells. National Institute of Health Carlos III. CP12/03175. PI: Verónica Ramos-Mejia. 2013 - 2015. 60.000 €.

**10.** Developmental Impact of MLLAF4 oncogene linked to infant ALL on Human Stem Cell Fate Marie Curie International Incoming Fellowship. FP7-PEOPLE-IIF-2008. PI: Verónica Ramos-Mejia/ Pablo Menéndez. 01/09/2009-31/08/2011. 219.298 €.

### C.4. Contracts, technological or transfer merits

**1.** Pablo Menéndez; Mario Delgado; René Rodríguez; Ruth Rubio; Gertrudis Ligero; Laura Sánchez; Iván Gutiérrez-Aranda; **Verónica Ramos-Mejía**; Clara Bueno. P201030645. Procedimiento para la obtención de células madre mesenquimales para uso biomédico Spain. 30/04/2010. FUNDACIÓN PÚBLICA ANDALUZA PROGRESO Y SALUD.

**2.** Pablo Menéndez; **Verónica Ramos-Mejía**; Clara Bueno; Pedro J Real; Gertrudis Ligero; Laura Sanchez; Ivan Gutierrez-Aranda. P0201030512. Uso de un medio de cultivo condicionado por células madre mesenquimales para la diferenciación de células madre pluripotentes humanas Spain. 08/04/2010. FUNDACIÓN PÚBLICA ANDALUZA PROGRESO Y SALUD