| **CV date** | 17-1-2023 |
|---|---|

## Part A. PERSONAL INFORMATION

| | | | |
|---|---|---|---|
| First and Family name | Cristina Hernández López de Munain | | |
| Social Security, Passport, ID number | | Age | |
| Researcher codes | WoS Researcher ID *(*)* | S-4389-2018 | |
| | SCOPUS Author ID*(*)* | | |
| | Open Researcher and Contributor ID (ORCID) ** | 0000-0002-6058-2458 | |

*(*) At least one of these is mandatory (**) Mandatory*

### A.1. Current position

| | | | |
|---|---|---|---|
| Name of University/Institution | Institute of Parasitology and Biomedicine "López-Neyra" – Spanish National Research Council (IPBLN-CSIC) | | |
| Department | Cellular Biology and Immunology | | |
| Address and Country | Avenida del Conocimiento 17; 18016-Granada | | |
| Phone number | +34958181646 | E-mail: chmunain@ipb.csic.es | |
| Current position | CSIC Scientist | From | 07/2005 |
| Key words | Transcription, enhancer, cellular development, chromatin, T lymphocytes | | |

### A.2. Education

| PhD | University | Year |
|---|---|---|
| Biological Sciences | Autonomous University of Madrid | 1991 |

### A.3. JCR articles, h Index, thesis supervised…

Number of sexeniums: 5 (last sexenium period: 2013-2018)
Total number of JCR publications: 56; Q1: 40
Number of publications of JCR last 5 years: 14; Q1: 11
Total number of citations: over 2000 (since 2000)
Cites per year during the last 5 years: 75
h index: 20
PhD Thesis: 3
Master Theses: 15

## Part B. CV SUMMARY *(max. 3500 characters, including spaces)*

My scientific interest is to understand the regulation of gene expression by enhancers. This interest began during my postdoctoral training in Duke University, USA (1992-1999), and continued during the next stages as independent researcher (Scientific Member at the Basel Institute of Immunology in Switzerland (1999-2001), "Ramón y Cajal" Scientist at the Center of Molecular Biology Severo-Ochoa and National Center for Biotechnology (CSIC) in Madrid (2002-2005), and CSIC Scientist at the IPBLN-CSIC in Granada from July 2005). From this last position, I lead a research group focused on the study of the regulation of expression of T-cell antigen receptor genes during development. This study is important to understand molecular processes that drive adaptive immunity, which can result in serious pathologies such as leukemia and immunodeficiency. In 2020, I have initiated a project on the repertoire of TCRαβ in memory $CD8^+$ T lymphocytes from COVID-19 elderly convalescent patients. My research activity includes experimentation using murine and human cells and mouse models, project management, supervision of Master and PhD students, evaluation of scientific projects and articles and control of shared services at the IPBLN-CSIC. I have supervised 3 PhD Theses and 15 Master Theses.

## Part C. RELEVANT MERITS (Last 5 years)

### C.1. Publications (including books chapters)

Rodríguez-Caparrós A, Tani-ichi S, Casal Á, López-Ros J, Suñé C, Ikuta K, Hernández-Munain C (2022) Interleukin-7 receptor signaling is crucial for enhancer-dependent TCRδ

germline transcription mediated through STAT5 recruitement. ***Front Immunol*** 13: 943510. PMID: 36059467. Impact factor: 8.786 (Open Access).

Rodríguez-Caparrós A, Álvarez-Santiago J, López-Castellanos L, Ruiz-Rodríguez C, Valle-Pastor MJ, López-Ros J, Angulo Ú, Andrés-León E, Suñé C, Hernández-Munain C (2022) Differently regulated gene-specific activity of enhancers located at the boundary of subtopologically associated domains: TCRα enhancer. ***J Immunol*** 208: 910-928. PMID: 35082160. Impact factor: 5.422.

Rodríguez-Caparrós A, Álvarez-Santiago J, Valle-Pastor MJ, Suñé C, López-Ros J, Hernández-Munain C (2020) Regulation of T-cell receptor gene expression by three-dimensional locus conformation and enhancer function. ***Int J Mol Sci*** 21:8478. PDMI: 33187197. Impact factor: 5.923 (Open Access).

Prieto-Sánchez S, Moreno-Castro C, Hernández-Munain C, Suñé C (2020) *Drosophila* Prp40 localizes to the histone locus body regulating gene transcription and development. ***J Cell Sci*** 133:jcs.239509. doi:10.1242/jcs.239509. PMID: 32094262. Impact factor: 4.517.

Suñé-Pou M, Limeres ML, Moreno-Castro C, Hernández-Munain C, Suñé-Negre JM, Cuestas ML, Suñé C (2020) Innovative therapeutic and delivery approaches using nanotechnology to correct splicing defects underlying disease. ***Front Genet*** 11:731. PDMI: 32760425. Impact factor: 3.789 (Open Access).

Hernández-Munain C* (Deputy coordinator), Estella C, García S, Reyes JC, Serrano E, Gutiérrez C* (Coordinator) (2020) The non-coding genome, chapter 3.4; *Scientific Challenges 2020 of Spanish Scientific Research Council* (Libro Blanco CSIC), Volume 3: Genome & Epigenomics, Montoliú L, Rada-Iglesias Á (Topic Coordinators), ***Digital CSIC***. URI: http:hdl.handle.net/10261/221155; doi:10.20350/digitalCSIC/12650.

Rodríguez-Caparrós A, García V, Casal Á, López-Ros J, Tani-Ichi S, Ikuta K, Hernández-Munain C (2019) Notch signaling controls transcription through the recruitment of RUNX1 and MYB to enhancers during T cell development. ***J Immunol*** 202:2460-2472. PMID: 30877169. Impact factor: 4.718. This paper was highlighted by the journal in “Issue highlights” as one of the top 10% papers published by the journal.

Moreno-Castro C, Sánchez-Prieto S, Sánchez-Hernández N, Hernández-Munain C, Suñé C (2019) Role for the splicing factor TCERG1 in Cajal body integrity and snRNP assembly. ***J Cell Sci*** 132:jcs232728. PMID: 31636114. Impact factor: 4.517.

Suñé-Pou M, Limeres MJ, Nofrerias I, Nardi-Ricart A, Prieto-Sánchez S, El-Yousfi Y, Pérez-Lozano P, García-Montoya E, Miñarro-Carmona M, Ticó JR, Hernández-Munain C, Suñé C, Suñé-Negre JM (2019) Improved synthesis and characterization of cholesteryl oleate-loaded cationic solid lipid nanoparticles with high transfection efficiency for gene therapy applications. ***Colloids Surf B Biointerfaces*** 180:159-167.PMID:31048241. Impact factor: 3.973.

Limeres MJ, Suñé-Pou M, Prieto-Sánchez S, Moreno-Castro C, Nusblat AD, Hernández-Munain C, Castro GR, Suñé C, Suñé-Negre JM, Cuestas ML (2019) Development and characterization of an improved formulation of cholesteryl oleate loaded solid-lipid nanoparticles as efficient non-viral gene delivery system. ***Colloids Surf B Biointerfaces*** 184:110533. PMID: 31593829. Impact factor: 3.973.

Suñé-Pou M, Prieto-Sánchez S, El Yousfi Y, Boyero-Corral S, Nardi-Ricart A, Nofrerias-Roig I, Pérez-Lozano P, García-Montoya E, Miñarro-Carmona M, Ticó J.R, Suñé-Negre JM, Hernández-Munain C, Suñé C (2018). Cholesteryl oleate-loaded cationic solid lipid

nanoparticles as carriers for efficient gene-silencing therapy. ***Int J Nanomedicine*** 13:3233-3233. PMID: 29881274. Impact factor: 4.370.

**C.2. Research projects and grants (Last 5 years)**

**1.** Transcriptional control at large distances by enhancers: *Tcra/Tcrd* locus (2017-2019). Spanish Ministry of Economy and Competition BFU2016-79699-P.139,150 €
**2.** Searching of new genomic sequences for transcriptional regulation of the unrearranged T-cell receptor α gene in mature cells (2019). Spanish Ministry of Science, Innovation and Universities PRX18/00587. Salvador de Madariaga Program. 11,000 €
**3.** Long distance transcripcional control by enhancers: locus *TCRA/TCRD* (2020). CSIC 2019AEP202. 22,948.88 €
**4.** Evaluation of TCRαβ response and repertoire in memory $CD8^+$ T cells against immunogenic peptides of SARS-CoV-2 (2020-2021). CSIC 202020E168. 140,000 €
**5.** Public TCR in COVID-19 (SGL2103033). Study of the immune response against infection and vacunation in COVID-19 (WP3-GPI+, CSIC)(2021-2022). 156,975 €
**6.** Public TCRαβ in COVID-19 and regulation of its expression (2021-2022), Government of Andalusia. P20_02071. 70,000.00 €.
**7.** Signaling mechanisms for the control of enhancer-dependent transcription of T-cell receptor α and δ genes during development (2022-2025). Spanish Ministry of Science and Innovation. SPID202100X128720IV0. 157,300.00 €

**C.3. Teaching**

• Lecturer in Methodology in Cellular and Molecular Biology. Master in Advances in Cellular and Molecular Immunology. University of Granada, Spain (2004-present)
• Professor of the PhD Program in Biomedicine of the University of Granada (2018-present)

**C.4. Thesis supervision (Last 5 years)**

**PhD Thesis:**
• Alonso Rodríguez Caparrós (DNI: 15425307N) Regulación transcripcional de los genes de las cadenas δ y γ del receptor de linfocitos T por la señalización mediada por Notch e interleuquina-7. PhD Program in Biomedicine, UGR. Defended on September 18th 2020 with the highest score (sobresaliente *cum laude*).

• Jesús Álvarez Santiago (DNI: 70266722C) "Papel del enhancer del gen de la cadena α del receptor de linfocitos T en la expresión del gen reordenado". PhD Program in Biomedicine, UGR. Defended on December 16th 2022 with the highest score (sobresaliente *cum laude*).

**Master Thesis:**
• Álvaro Molina Martín (DNI: 75572547K) Análisis del efecto de la ruta de NOTCH1 y las proteínas E en la actividad del enhancer del gen de la cadena α del receptor de linfocitos T en células Jurkat. Máster en Genética y Evolución, UGR (2018).

• Salvador Sampere Birlanga (DNI: 48827429Q) Análisis del papel las proteínas E en la actividad del enhancer del gen de la cadena α del receptor de linfocitos T en células Jurkat. Máster en Investigación y Avances en Inmunología Molecular y Celular, UGR (2019).

• María Jesús del Valle Pastor (DNI: 76138446M) Papel del enhancer del gen de la cadena α del receptor de linfocitos T en la regulación transcripcional de los genes situados 3´. Máster en Investigación y Avances en Inmunología Molecular y Celular, UGR (2020).

• Laura López Castellanos (DNI: 03963289K) Papel del enhancer del gen de la cadena α del receptor de linfocitos T en la activación transcripcional de otros genes. Máster en Investigación y Avances en Inmunología Molecular y Celular, UGR (2021).

• Candela Ruiz Rodríguez (DNI: 76642128X) La restitución del *enhancer* del gen *TCRA* en su localización natural rescata la transcripción del gen y la expresión del receptor de linfocitos T en células T αβ *knock-out*. Máster en Genética y Evolución, UGR (2021).

• Celia García Mañas (DNI: 76662529X) Estudio del papel de la enzima DNA-PK en la transcripción de los genes del TCR: TCRα. Máster en Genética y Evolución, UGR (2022).

• Víctor Castro Ruiz (DNI: 73448717B) Búsqueda de factores de transcripción que participen en la inhibición del enhancer del gen de la cadena TCRα mediada por NOTCH1. Máster en Investigación y Avances en Inmunología Molecular y Celular, UGR (2022).

**C.5. Institucional responsabilities (Last 5 years) as Responsible Scientist for Shared Services at IPBLN-CSIC**

• Services of Sterilization and Preparation of Media (2006-2022)
• Services of Cell Culture at IPBLN-CSIC (2014-2022)
• Service of Flow Cytometry at IPBLN-CSIC (2022-present)

**C.6. Memberships of scientific societies (Last 5 years)**

Member of the American Society of Immunology (2018-present)

**C.7. Revision of projects and articles (Last 5 years)**

• Referee for publications sent to peer-review international journals (2009-present)
• Referee for international, national and regional scientific projects (2006-present)

**C.8. Communication in Workshops and Conferences**

Rodríguez-Caparrós A et al. (2018) *Tcra* enhancer dependent requirements for transcription of the unrearranged and rearranged locus during the development of αβ T lymphocytes. Gordon Research Conference on Chromatin Structure & Function. Newry, Maine, USA.

Moreno-Castro C et al. (2018) *Drosophila* pre-mRNA processing factor Prp40 localizes to Histone Locus Body and regulates histone mRNA transcription. Gordon Research Conference on Chromatin Structure & Function. Newry, Maine, USA.

Moreno-Castro C et al. (2018) Effect of TCERG1 on Cajal body assembly and snRNP biogenesis. III Meeting RNA-LIFE Network (BFU2015-71978-REDT). Salamanca, Spain.

Prieto-Sánchez S et al. (2018) *Drosophila* pre-mRNA processing factor Prp40 localizes to Histone Locus Body and regulates histone mRNA transcription. III Meeting RNA-LIFE Network (BFU2015-71978-REDT). Salamanca, Spain.

El-Yousfi Y et al. (2018) Role of pre-mRNA processing factor 40 homolog B (PRPF40B) as a transcription factor in neuroblastoma cells. III Meeting RNA-LIFE Network (BFU2015-71978-REDT). Salamanca, Spain.

Suñé-Pou M et al. (2018) Characterization of and stability of chitosan-based nanoparticles as efficient non-viral gene delivery system. NanoBio&Med2018. Barcelona, Spain.

Moreno-Castro C et al. (2018) Effect of TCERG1 on Cajal body assembly and SNRNP Biogenesis. I Congress of PTS Investigators. Granada, Spain.

El-Yousfi et al. (2018) Role of pre-mRNA processing factor 40 homolog B (PRPF40B) as a transcription factor in neuroblastoma cells. I Congress of PTS Investigators. Granada, Spain.

Narváez-Narváez DA et al. (2021) Development of PEGylated solid lipid nanoparticles as vectors for gene therapy. 12th World Meeting on Pharmaceutics, Biopharmaceutics & Pharmaceutical Technology. Online.

Vargas R et al. (2022) Critical process parameters identification of the LNP microfluidic manufacturing process for siRNA delivery. 13th World Meeting on Pharmaceutics, Biopharmaceutics & Pharmaceutical (BPB) Technology. Rotterdam, The Nederlands.

Rodríguez-Caparrós A et al. (2022) Transcriptional regulation of γδ T cell antigen receptor. II Congress of PTS Investigators. Granada, Spain.

Moreno-Castro C et al. (2022) TCERG1 and NOLC1 interaction and its functional implication. II Congress of PTS Investigators. Granada, Spain.

Duarte-Ruiz M et al. (2022) RNA, epigenetics & neurodegenerative diseases. II Congress of PTS Investigators. Granada, Spain.

Rodríguez-Caparrós et al. (2022) Identification of the transcriptome and TCR repertoire against SARS-CoV-2 immunodominant peptides from elderly long-term convalescent COVID-19 patients. II Congress of PTI+ CSIC. Valencia, Spain.

Hernández-Munain C. (2023) Public TCR and COVID-19. Jornadas de Seguimiento Científico WP5-PTI+. Online

**C.9. Communication to Media**

TV program Canal Sur “Con-Ciencia”: 21-jun-2021 sobre el papel de los linfocitos T en memoria en COVID-19 y la investigación realizada en el laboratorio sobre este tema.

Press note: “IL-7 is crucial for the generation of defense cells against cancer” refers to the results described on the article published in Frontiers in Immunology (2022). This press note was published by many national and international news agencies 11/22.

Press article Ideal 13-dic-2022: “Un descubrimiento granadino que ayudará a mejorar el tratamiento contra el cáncer”.

TV program Canal Sur “Con-Ciencia” to explain the role of IL-7 on the expression of the TCRd chain and the generation of γδ T-cells, which are a promising strategy for cellular immunotherapy against cancer. To be televised in Feb-2023.