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 Javier		
Family name	García-Ceca Hernández		
Gender (*)	Male	Birth date (dd/mm/yyyy)	05/08/1978
Social Security, Passport, ID number			
e-mail	jgarciaceca@bio.ucm.es	URL Web	
Open Researcher and Contributor ID (ORCID) (*)		0000-0002-0940-455X	

(*) Mandatory

A.1. Current position

Position	Senior Lecturer			
Initial date	13/02/2023			
Institution	Complutense University of Madrid (UCM)			
Department/Center	Cell Biology	Faculty of Biological Sciences		
Country	Spain		Teleph. number	+34913944824
Key words	Development, Thymus, Thymic epithelial cells, T-cell development, Immune Tolerance			

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

Period	Position/Institution/Country/Interruption cause
2020-2023	Full-time Lecturer (Complutense University of Madrid/Spain
2017-2020	Full-time Lecturer (Interim)/Complutense University of Madrid/Spain
2010-2017	Part-time Lecturer (Interim)/Complutense University of Madrid/Spain
2010-2017	Post-Doctoral Researcher (Part-time)/Complutense University of Madrid/Spain
2007-2010	Post-Doctoral Researcher/Complutense University of Madrid /Spain
2002-2006	PhD student/Complutense University of Madrid/Spain

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Licensed in Biology	SEK University Segovia / Spain	2002
PhD	Complutense University of Madrid / Spain	2007

(Include all the necessary rows)

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

My research career began during the last year of my undergraduate studies (1997-2002). it has uninterruptedly since 2002, **studying the development and differentiation** of the two main cell subsets of the thymus, **thymic epithelial cells** (TECs) and **thymocytes**, during the fetal and adult stages. During my pre-doctoral training (2002-2007), I analyzed the role of EphB2 and EphB3 tyrosine kinase receptors in thymic biology. These studies demonstrated for the first time an autonomous role for these receptors in TEC organization and the

importance of EphB2 forward signaling, suggesting that the altered epithelial network could allow normal T cell differentiation. During this period, I had two short stays of 3 months each in the laboratory of Dr. Mark Henkemeyer (University of Texas at Dallas Southwestern Medical Center, Texas, USA).

As a postdoctoral and senior researcher, I continued to analyze the role of Eph/ephrin-A and -B signaling in the thymus. We confirmed that both EphB2 and EphB3 receptors are involved in TEC survival, which had not been previously described. I also investigated the significance of epithelial-free areas, whose thymic function was unclear, and confirmed that they were more extensive in the medulla than in the cortex and did not express markers associated with epithelial-mesenchymal transitions. In addition, we showed that EphB2 and EphB3 are involved in thymic aging, and I also showed, for the first time, that both thymocyte progenitors and Eph/ephrin-B signaling contribute to the early maturation of immature TECs. We also confirmed that both EphB2 and EphB3 receptors do not play redundant roles during TEC development, as has been observed in other systems. Thus, EphB2 is more important than EphB3 for the differentiation of medullary TECs, whereas EphB3 is involved in the development of cortical TECs. Finally, we have recently shown that the lack of EphA4 alters T-cell differentiation, presumably by affecting cell adhesion between TECs and T-TEC interactions. All these results, mainly those obtained in EphB-deficient mice and some others by different authors, have led us to wonder why significant alterations in the thymic epithelium, together with defects in thymocyte-TEC interactions, do not affect T-cell development or correlate with immunological deficiencies. In recent years, we have questioned the importance of a proper TEC organization and number to allow thymocyte differentiation for the acquisition of central immunological tolerance and proper peripheral T-cell function. We have therefore focused on whether the presence of a sufficient number of stromal cells, mainly TECs, that allow sufficient thymocyte-TEC interactions, allows the correct differentiation and functionality of thymocytes, and whether their absence can be compensated by other thymic cells (non-TECs) involved in T cell selection.

I have also collaborated with different researchers on different topics such as Eph signaling (Dr. Mark Henkemeyer, University of Texas), immunology (Dr. Joaquin Teixidó, CIB; Miguel Muñoz, UCM) or other systems (Dr. Antonio Bernad, CNB-CSIC). My research activity has been presented at national and international scientific congresses and published in various scientific journals in the field of cell biology or immunology. In total, I have contributed to the publication of **34 scientific papers** (original articles, reviews, opinions), **28 of them** in journals **indexed** in **JCR**. Later, **18 articles in Q1** (**5 are D1**), **8 in Q2** and **2 in Q3**, and I participated as **first author or co-author in 14** of them. My **h-index is 16,** and the **total number of citations** is **669** (Google Scholar). I have completed **three official six-year research periods** (2004-2021). Since 2002, I have participated as a researcher, among others, in **6 research projects** of the **National I+D+i Plan**, all related to the **thymus**. I have been a **reviewer** for the Aging Journal. From 2020 to 2023, I was the **Scientific Head** of the **RedLab84 laboratory** (Laboratory Networks and Infrastructures) of the Community of Madrid.

Finally, I am a **Senior Lecturer** in the Department of Cell Biology (Faculty of Biological Sciences, UCM), teaching **biology degree and** I participated in the **Masters in Genetics and Cell Biology and Immunology**. I have also been involved in the training of new researchers and undergraduate students. I **co-directed 1 Ph.D. thesis** in 2016 ("Role of the EphB2 and EphB3 receptors in early thymic development"), **1 Master thesis** in 2011 ("Role of EphB2 in the early differentiation of thymic epithelial populations") and **3 undergraduate theses** between 2019 and 2021 ("Morphofunctional characterization of thymus deficient in EphA4" (2019), "Role of EphB in the generation of central tolerance" and "Role of EphA4 in the adhesion and migration of thymocytes" (2021)).

Part C. RELEVANT MERITS *(sorted by typology)*

C.1. Publications *(see instructions)*

1. Montero-Herradón S*, García-Ceca J*, Villarejo-Torres M, Zapata AG (2024). Peripheral T-cell responses of EphB2- and EphB3-deficient mice in a model of collagen-induced arthritis. Cellular and Molecular Life Sciences, 81 (1): 159.

2. García-Ceca J*, Montero-Herradón S*, González A, Plaza R, Zapata AG. (2022). Altered thymocyte development observed in EphA4-deficient mice courses with changes in both thymic epithelial and extracellular matrix organization. Cellular and Molecular Life Sciences, 79 (11):583.

3. Montero-Herradón S*, García-Ceca J*, Zapata AG. (2021). How many thymic epithelial cells are necessary for a proper maturation of thymocytes? Frontiers in immunology, 12: 618216.

4. García-Ceca J, Montero-Herradón S, Zapata AG. (2020). Intrathymic selection and defects in the thymic epithelial cell development. Cells, 9: e2226.

5. García-Ceca J, Montero-Herradón S, Zapata AG (2020). Thymus aging in mice deficient in either EphB2 or EphB3, two master regulators of thymic epithelium. Developmental Dynamics, 249: 1243-1258.

6. Montero-Herradón S*, García-Ceca J*, Zapata AG. (2018). Altered maturation of mTEC in EphB-deficient thymi is recovered by RANK signaling stimulation. Frontiers in Immunology, section T Cell Biology, 9: 1020.

7. Montero-Herradón S*, García-Ceca J*, Zapata AG. (2017). EphB receptors, mainly EphB3, contribute to the proper development of cortical thymic epithelial cells. Organogenesis, 13(4): 192-211.

8. García-Ceca J, Montero-Herradón S, Alfaro D, Zapata AG. (2017). Increased epithelial-free areas in thymuses with altered EphB-mediated thymocyte-thymic epithelial cell interactions. Histochemistry and Cell Biology, 148(4): 381-394.

9. Montero-Herradón S*, García-Ceca J*, Sanchez del Collado B, Alfaro D, Zapata AG. (2016). Eph/ephrin-B-mediated cell-to-cell interactions govern MTS20+ thymic epithelial cell development. Histochemistry and Cell Biology, 146 (2): 167-182.

10. García-Ceca J, Jiménez E, Alfaro D, Cejalvo T, Chumley MJ, Henkemeyer M, Muñoz JJ, Zapata A (2009). On the role of Eph signalling in thymus histogenesis; EphB2/B3 and the organizing of the thymic epithelial network. International Journal of Developmental Biology, 53: 971-982.

C.2. Congress, indicating the modality of their participation (invited conference, oral presentation, poster)

1. Authors: García-Ceca J, Muñoz JJ, Montero S, Zapata A*. **Title:** The relevance of altered thymocytes-thymic epithelial cell interactions for thymus function. **Oral presentation**. **Congress:** IV Meeting of Thymus Transcriptome and Cell Biology. **Organization:** Ministério da Saúde, Fundación Oswaldo Cruz, Instituto Oswaldo Cruz. Río de Janeiro, Brazil. 2019, november 6-7.

2. Authors: Zapata A*, Montero-Herradon S, García-Ceca J, Alfaro D, Muñoz JJ. **Title:** Eph and Ephrins affect thymus biology by governing thymocyte-thymic epithelial cell interactions. **Oral presentation. Congress:** First Congress on the Eph/ephrin system. **Organization:** Università degli studi di Parma. Parma, Italia. 2016, may 5-6.

3. Authors: Zapata A*, Muñoz JJ, Alfaro D, García-Ceca J, Cejalvo T, Tobajas E, Montero S. **Title:** Eph/ephrin-mediated interactions govern functional maturation of developing thymocytes in the thymic epithelial 3D network. **Oral presentation. Congress:** 10th International Congress on Cell Biology and 16th Congress of the Brazilian Society for Cell Biology. **Organization:** The International Federation for Cell Biology (IFCB) and the Brazilian Society for Cell Biology (SBBC). Rio de Janeiro, Brazil. 2012, july 25-28.

4. Authors: García-Ceca J*, Alfaro D, Zapata A. **Title:** La señalización Eph/efrina B regula la maduración del epitelio tímico. **Oral presentation. Congress:** XXXV Congreso de la

Sociedad Española de Inmunología. **Organization:** Sociedad Española de Inmunología. San Sebastián, Spain. 2010, june 23-26.

C.3. Research projects, indicating your personal contribution. In the case of young researchers, indicate lines of research for which they have been responsible.

1. **Reference:** RD21/0017/0010. **Title:** Advanced Cell Therapy Network (TERAV). **Funding Entity:** Spanish Ministry of Science and Innovation. **Call:** Health Outcomes-Oriented Cooperative Research Networks (RICORS) **(**2021)**. Principal investigator:** Agustín G. Zapata (IP node 10, UCM). **Date:** 01/01/2022 - 31/12/2024. **Total amount:** 250622,90€. **Participation:** Researcher.

2. Reference: RTI2018-093938-B-I00. **Title:** A re-evaluation of the role of Foxn1 and the lymphoid component in the establishment of a functionally mature T system. **Funding Entity:** Spanish Ministry of Science, Innovation and Universities. **Call:** National Research Program I+D+I (2018). **Principal investigator:** Agustín G. Zapata (UCM). **Date:** 01/01/2019 - 30/06/2022. **Total amount:** 120000€. **Participation:** Researcher.

3. Reference: BFU2013-41112-R. **Title:** Development of the thymic epithelium: a molecular programme based on branching morphogenesis, stratification and three-dimensionalisation processes. **Funding Entity:** Spanish Ministry of Economy and Competitiveness. **Call:** National Research Program I+D+I (2013). **Principal investigator:** Agustín G. Zapata (UCM). **Date:** 01/01/2014 - 31/12/2018.**Total amount:** 180000€. **Participation:** Researcher.

4. Reference: BFU2010-18250. **Title:** Development and maturation of the thymic epithelium. A reassessment of the mechanisms involved. **Funding Entity:** Spanish Ministry of Science and Innovation. **Call:** National Research Program I+D (2010). **Principal investigator:** Agustín G. Zapata (UCM). **Date:** 01/01/2011 - 31/12/2013. **Total amount:** 240000€. **Participation:** Researcher.

5. Reference: BFU2007-65520. **Title:** Organization of the thymic epithelial network. Role of EphB2 and EphB3 and their ligands, ephrin B1 and ephrin B2, in their different phases. **Funding Entity:** Spanish Ministry of Education and Science. **Call:** National Research Program I+D (2007). **Principal investigator:** Agustín G. Zapata (UCM). **Date:** 01/10/2007 - 04/10/2010. **Total amount:** 240000€. **Participation:** Researcher.

6. Reference: BFU2004-03132. **Title:** Expression and function of Eph receptors and Eph family B ephrin ligands in the thymus. **Funding Entity:** Spanish Ministry of Education and Science. **Call:** National Research Program I+D (2004). **Principal investigator:** Agustín G. Zapata (UCM). **Date:** 13/12/2004 - 12/12/2007. **Total amount:** 200184€. **Participation:** Researcher.

7. Reference: BMC2001-2025. **Title:** Study of the role of the Eph family tyrosine kinase receptors and their ligands ephrins in thymus histogenesis and T-lymphocyte differentiation. **Funding Entity:** Spanish Ministry of Education and Science. **Call:** National Research Program I+D (2001). **Principal investigator:** Agustín G. Zapata (UCM). **Date:** 30/05/2002 - 29/05/2005. **Total amount:** 162237,20€. **Participation:** Researcher.

C.4. Contracts, technological or transfer merits, Include patents and other industrial or intellectual property activities (contracts, licenses, agreements, etc.) in which you have collaborated. Indicate: a) the order of signature of authors; b) reference; c) title; d) priority countries; e) date; f) Entity and companies that exploit the patent or similar information, if any