

Fernando García-Moreno

Ikerbasque Research Associate

Group Leader – Brain Development and Evolution Laboratory



PERSONAL DATA

Date of birth: March 26th, 1980

Place of Birth: Madrid (Spain)

Nationality: Spanish

Telephone: (+34) 688723175 / 946018139

Email: fernando.garcia-moreno@achucarro.org

Webpages: www.phylobrain.org

<http://www.dpag.ox.ac.uk/research/garcia-moreno-group>

https://www.researchgate.net/profile/Fernando_Garcia-Moreno

ORCID: [0000-0001-9048-4237](https://orcid.org/0000-0001-9048-4237)

CV SUMMARY

The advancement of my scientific curiosity has led me to a comprehensive view of the brain, now integrating **anatomy, physiology, molecular biology, and developmental biology**. During my Ph.D. at the historic Cajal Institute, I focused on the early stages of cortical neuron genesis in mouse embryos. We revolutionized the classical view of neurogenesis by discovering neurons that migrate across the brain to settle in distant regions. I published four influential articles (three as the first author) in prestigious journals (*Nature Neuroscience*, *Journal of Neuroscience*), contributed to five research projects, and participated in outreach activities and national and international conferences.

I later joined Prof. Molnár's group at the University of Oxford (UK). My research matured there, evolving from a postdoctoral student to a group leader, exploring my scientific passion—the evolutionary origins of the cerebral cortex—across different biological perspectives and animal species. Our findings are being published in a growing number of articles, currently 18 (five as corresponding author, four as first author), with two more in preparation. We have published in renowned journals such as *Development*, *Nature Neuroscience*, *PNAS*, *Cell Reports*, *Progress in Neurobiology*, and *Neuron*. I led an international project funded by HFSP and collaborated with several recognized international groups thanks to the scientific tools we developed, while also enjoying the opportunity to teach at the University of Oxford.

In 2016, I joined the Achucarro Basque Center for Neuroscience, supported by the Ikerbasque Foundation (co-funded by the EU), where I expanded my research to include reptile embryos. My group is growing, supported by four projects funded by the Spanish Ministry of Science and the Basque Government, as well as two international projects for specific equipment use. Since arriving at Achucarro, my group grew and I now lead a research group of 6-8 researchers at various career stages. Only now, after a 20-year career in developmental neurobiology, with a comprehensive view of neurobiology, am I at the ideal point of scientific maturity to tackle my planned multidisciplinary research line. **My main research focus is on the evolution of developmental processes in vertebrates that led to the emergence of the cerebral cortex**—a unique brain structure in mammals and highly specialized in humans. The cerebral cortex holds the most important position in the hierarchy of the central nervous system. Therefore, understanding how this structure develops and evolves is key to understanding the human brain. Indeed, our group's pioneering studies are already yielding results, with relevant publications and funding through grants and fellowships (Spanish Ministry's National Plan, Basque Government, MSCA-EU, EMBO).

My research lies at the crucial intersection of evolutionary biology and developmental biology (Evo-Devo). Understanding the development of the cerebral cortex will help decipher the normal and pathological conditions that enable its formation. Regarding human evolution, this research will expand our understanding of why our brain is unique, different, and ultimately, *why it makes us human*.

DEGREES

- **Ph.D. in Neurosciences** (June, 2008). Universidad Autónoma de Madrid, Spain.
- **Molecular Biology (Neurosciences) M. Sci.** (June 2005) Universidad Autónoma de Madrid, Spain
- **Bachelor´s degree (B.S.) in Biological Sciences** (June 2003). Universidad Complutense de Madrid, Spain. Masters in Neurobiology.
- **Home Office Personal Licence. Modules 1-4** (October 2010). University of Oxford (UK).
- **Home Office Project Licence. Module 5 (February 2015).** University of Oxford (UK).
- Certificate of training in animal experimentation, according to Ministerial Order ECC / 566/2015 **Function B + C (EU)** – June 2006 by the Facultad de Medicina; Universidad Autónoma de Madrid (UAM). **Function D (EU)** - July 2019) by *Animalaria*.
- “Pedagogical Skills Certificate” (June 2005). Facultad de Ciencias de la Educación. Universidad Complutense de Madrid, Spain.

ACADEMIC APPOINTMENTS

Sep 1 st 2021 – permanent position	<p>- Ikerbasque Research Associate Group leader of Brain Development and Evolution laboratory, Achucarro Basque Centre for Neuroscience; Bilbao (Spain)</p> <p>- Visiting Professor University of the Basque Country (UPV/EHU); Department of Neurosciences.</p>
Sep 1 st 2016 – up to 31 st Aug 2021	<p>- Ikerbasque Research Fellow Leader of Forebrain Evolution Research group (assoc. to Laboratory of Neural Stem Cells and Neurogenesis; Prof. Encinas) Achucarro Basque Centre for Neuroscience; Bilbao (Spain)</p> <p>- Visiting Professor University of the Basque Country (UPV/EHU); Department of Neurosciences.</p>
Apr 1 st 2013 – up to 31 st Aug 2016	<p>Junior Group Leader Forebrain Evolution Laboratory Dept. of Physiology, Anatomy and Genetics University of Oxford (UK)</p>
Sept 1 st 2011 – 31 st March 2013	<p>Postdoctoral Fellow (Human Frontiers Science Program) Cortical Development Laboratory (Prof. Molnár) Dept. of Physiology, Anatomy and Genetics University of Oxford (UK)</p>
July 15 th 2010 – 31 st Aug 2011	<p>Postdoctoral Fellow (Spanish <i>Ministerio de Educación</i>) Cortical Development Laboratory (Prof. Molnár) Dept. of Physiology, Anatomy and Genetics University of Oxford (UK)</p>
November 2009– July 2010	Sick leave (sorted problem; fully recovered)
September 2009- November 2009	<p>Postdoctoral Fellow (Alicia Koplowitz Foundation) Cortical Development Laboratory (Prof. Molnár) Dept. of Physiology, Anatomy and Genetics University of Oxford (UK)</p>
September 2008 - August 2009	<p>Postdoctoral associate (<i>part time</i>) Telencephalic Development Laboratory (Prof. De Carlos) Instituto Cajal (CSIC); Madrid (Spain)</p>
January 2004 - August 2008	<p>Graduate student (Spanish <i>Ministerio de Educación y Ciencia</i>) Telencephalic Development Laboratory (Prof. De Carlos)</p>

Instituto Cajal (CSIC); Madrid (Spain)
 January 2003 - December 2003 **Student Fellow**
 Telencephalic Development Laboratory (Prof. De Carlos)
 Instituto Cajal (CSIC); Madrid (Spain)

HONORS AND AWARDS

- Awarded **“FOTCIENCIA20 – 1st Prize General Category”**, at the national contest of scientific photography organized by CSIC (Spanish research council). December 2023.
- Awarded **“EMBL Corporate Partnership Registration Fee waiver”** for the EMBL Course: Single Cell RNA Sequencing course (Heidelberg, Germany). 15-18 May 2018.
- Awarded **“Travel Award of the JNSS”** to attend the international Japanese Neuroscience Society conference (Yokohama –Japan). 20-22 July 2016.
- Awarded **“Ikerbasque Research Fellow 2015”** to establish an independent research group in Achucarro Basque Centre for Neuroscience (Bilbao –Spain). Supported by 7th European Framework and Basque Government. 2016-2021.
- Awarded with the postdoctoral fellowship from **“Long-Term fellowship of the Human Frontiers Science Program Organization (HFSP) 2010”**. In: Cortical Development Laboratory. Department of Physiology, Anatomy and Genetics. University of Oxford (UK) 2011-2014
- Awarded with the postdoctoral fellowship from **“National programme of postdoctoral mobility 2009”**. Supported by Spanish *Ministerio de Educación*. In: Cortical Development Laboratory. Department of Physiology, Anatomy and Genetics. University of Oxford (UK)
- Awarded with a **“Short term fellowship for specialization and research on neurosciences 2009”**. Alicia Koplowitz Foundation. In: Cortical Development Laboratory. Department of Physiology, Anatomy and Genetics. University of Oxford (UK)
- **Postdoctoral contract** (September 2008 – August 2009; part time). In: Laboratory of Telencephalic Development, Cajal Institute
- **Predocctoral Fellowship (FPI)** supported by *Ministerio de Educación y Ciencia* (2004-2008). In: Laboratory of Telencephalic Development, Cajal Institute
- Student fellowship supported by the COIE (Orientation and Information Job Center of the Universidad Complutense de Madrid; 2003). In: Laboratory of Telencephalic Development, Cajal Institute

MANAGEMENT AS PI OF THE FOLLOWING RESEARCH GRANTS

The evolution of the thalamus in vertebrates: links between embryonic development, connectivity, and the transcriptome

Funding entity: Basque Government

Type of management: Management of R&D&I actions and projects **Roles performed:** Principal Investigator - Management of scientific activity and associated budget **Executing entity:** Achucarro Basque Center for Neuroscience

Start date: 08/11/2022 **Duration:** 2 years

Funding: 49,950€.

PhyloBrain: Conservation rules of the vertebrate phylotypic brain

Funding entity: MICINN

Type of management: Management of R&D&I actions and projects **Roles performed:** Principal Investigator - Management of scientific activity and associated budget

Executing entity: Achucarro Basque Center for Neuroscience **Type of entity:** Foundation

Start date: 09/01/2022 **Duration:** 3 years

Funding: 133,100€.

Neuronal age determines cell size and density in the vertebrate brain - Proposal ID: 20220191

Funding entity: Paul Scherrer Institute - SLS non-PX call 2022

Type of management: Management of R&D&I actions and projects **Roles performed:** *Principal Investigator* - Management of scientific activity and associated budget **Executing entity:** Achucarro Basque Center for Neuroscience **Type of entity:** Foundation
Start date: 01/01/2022 **Duration:** 6 months
Funding: use of personnel and specialized equipment, equivalent to 80.000€.

Neurogenes-ISS - Integrating neurogenic time into an in situ sequencing platform - PID14596

Funding entity: EASI-Genomics
Type of management: Management of R&D&I actions and projects **Roles performed:** *Principal Investigator* - Management of scientific activity and associated budget **Executing entity:** Achucarro Basque Center for Neuroscience
Start date: 10/01/2021 **Duration:** 6 months
Funding: use of personnel and specialized equipment, equivalent to 50.000€.

Single cell RNA-seq applied to the study of brain evolution

Funding entity: Basque Government
Type of management: Management of R&D&I actions and projects **Roles performed:** *Principal Investigator* - Management of scientific activity and associated budget **Executing entity:** Achucarro Basque Center for Neuroscience
Start date: 11/01/2020 **Duration:** 1 year
Funding: 27,800€

Evolution of sensory processing circuits in vertebrates

Funding entity: MICINN
Type of management: Management of R&D&I actions and projects **Roles performed:** *Principal Investigator* - Management of scientific activity and associated budget **Executing entity:** Achucarro Basque Center for Neuroscience **Type of entity:** Foundation
Start date: 01/01/2019 **Duration:** 3 years
Funding: 145,200€

Neuro-Hourglass. Conserved and divergent routes of vertebrate brain morphogenesis.

Europa Investigación EIN2019-103097 MICINN.
 Dates: 01/01/2019 - 31/12/2020 Funding: 10.000 €
 Principal Investigator: Fernando García-Moreno

Evolution of neural stem cells in vertebrates

IKERBASQUE Research Fellowship 2015
 Dates: 01/09/2016 - 31/08/2021 Funding: 189.000 €
 Principal Investigator: Fernando García-Moreno

Mechanisms underlying neocortical evolution

Human Frontiers Science Program fellowship LT000618/2011-L
 Dates: 01/04/2011 - 31/03/2014 Funding: 137.500€
 Principal Investigator: Fernando García-Moreno

PUBLICATIONS

Information extracted as for 28th Aug 2024.

35 publications

<i>Current h index (Scopus): 20</i>	<i>1901 citations</i>	<i>55 citations/article</i>
<i>Current h index (Google scholar): 22</i>	<i>2584 citations</i>	<i>74 citations/article</i>

RESEARCH ARTICLES* As corresponding author

* [Eneritz Rueda-Alaña](#), [Rodrigo Senovilla-Ganzo](#), Marco Grillo, Enrique Vázquez, Sergio Marco-Salas, [Tatiana Gallego-Flores](#), Artemis Ftara, [Laura Escobar](#), Alberto Benguría, Ana Quintas, Ana Dopazo, Miriam Rábano, María dM Vivanco, Ana María Aransay, Daniel Garrigos, Ángel Toval, José Luis Ferrán, Mats Nilsson, Juan Manuel Encinas, Maurizio De Pitta, [Fernando García-Moreno](#). Evolutionary convergence of sensory circuits in the pallium of amniotes. [bioRxiv 2024.04.30.591819](#); doi: <https://doi.org/10.1101/2024.04.30.591819>

* Bastienne Zaremba, Amir Fallahshahroudi, Céline Schneider, Julia Schmidt, Ioannis Sarropoulos, Evgeny Leushkin, Bianka Berki, Enya Van Poucke, Per Jensen, [Rodrigo Senovilla-Ganzo](#), Francisca Hervas-Sotomayor, Nils Trost,

- Francesco Lamanna, Mari Sepp, [Fernando García-Moreno*](#), Henrik Kaessmann*. Developmental origins and evolution of pallial cell types and structures in birds. **bioRxiv** 2024.04.30.591857; <https://doi.org/10.1101/2024.04.30.591857>. **Shared corresponding authorship.**
- * Sara Jiménez, Rodrigo Senovilla-Ganzo, Tatiana Gallego-Flores, Erise Pérez-Pascual, Aitor Ordeñana, Raquel Rayo-Morales, Fernando García-Moreno. Experimental neurogenesis in the embryos of the gecko *Paroedura picta*. **Under review in Methods in Molecular Biology (Neural Stem Cells: Methods and Protocols)**; Springer Nature.
- * Diez I*, [García-Moreno F*](#), Carral-Sainz N, Stramaglia S, Alicia Nieto-Reyes A, D'Amato M, Cortés JM and Bonifazi P. Neurogenesis time reversely shapes structural-functional networks' hubs and gene expression in the adult brain. Deposited to **bioRxiv**. *These authors contributed equally to the article. <https://www.biorxiv.org/content/10.1101/2022.04.01.486541v3>
- Adhara Gaminde-Blasco, [Rodrigo Senovilla-Ganzo](#), Uxue Balantzategi, [Fernando García-Moreno](#), Carlos Matute, Jimena Baleriola, Elena Alberdi. Amyloid- β increases MBP and MOBP translation in oligodendrocytes through dysregulation of hnRNP A2 dependent RNA dynamics. **bioRxiv** 2024.04.19.590214; doi: <https://doi.org/10.1101/2024.04.19.590214>
- Oihane Abiega, [Rodrigo Senovilla-Ganzo](#), Maroua El-Ouraoui, Teresa Muro-García, Lorena Ruiz-Clavijo, [Fernando García-Moreno](#), Carlos Fitzsimons, Soraya Martín-Suárez, Juan M. Encinas. Hippocampal reactive neural stem cells are able to phagocytose and have an immunological molecular signature. **bioRxiv** 2024.01.26.577346; doi: <https://doi.org/10.1101/2024.01.26.577346>
- Winkler CC, Tran LN, Milan EP, [García-Moreno F](#), Franco SJ. Unraveling the molecular pathways that drive oligodendrocyte fate downstream of Sonic hedgehog in the developing neocortex. Submitted to **Development**
- Lee, H, CM Langseth, SM Salas, A Metousis, E Rueda Alana, [F Garcia-Moreno](#), M Grillo, M Nilsson. 2023. Open-Source, High-Throughput Targeted in-Situ Transcriptomics for Developmental Biologists. **bioRxiv**, 1–9. <https://www.biorxiv.org/content/10.1101/2023.10.10.561689v1> **Accepted in Development**
- * Rueda-Alaña E, Marco Grillo, Enrique Vázquez, Sergio Marco Salas, Rodrigo Senovilla-Ganzo, Laura Escobar, Ana Quintas, Alberto Benguria, Ana María Aransay, Nora Bengoa-Vergniory, Ana Dopazo, Juan Manuel Encinas, Mats Nilsson, [Fernando García-Moreno](#) (2024). BirthSeq, a new method to isolate and analyze dated cells in different vertebrates. **Development** 151(13):dev202429. doi: 10.1242/dev.202429.
- Pastor-Alonso O, Syeda Zahra A, Kaske B, [García-Moreno F](#), Tetzlaff F, Bockelmann E, Grunwald V, Martín-Suárez S, Riecken K, Witte OW, Encinas JM, Urbach A (2024). Generation of adult hippocampal neural stem cells occurs in the early postnatal dentate gyrus and depends on cyclin D2. **EMBO J.** 43(3):317-338. doi: 10.1038/s44318-023-00011-2. Epub 2023 Dec 20.
- Paolino A, Haines EH, Bailey EJ, Black DA, Moey C, [García-Moreno F](#), Richards LJ, Suárez R, Fenlon LR (2023) Non-uniform temporal scaling of developmental processes in the mammalian cortex. **Nature Communications** 14, 5950; DOI 10.1038/s41467-023-41652-5
- Olazagoitia-Garmendia A*, Senovilla-Ganzo R*, [García-Moreno F](#), Castellanos-Rubio A (2023) Functional evolutionary convergence of long noncoding RNAs involved in embryonic development. **Communications Biology** 6, 908; DOI 10.1038/s42003-023-05278-z
- *Rueda-Alaña E and [García-Moreno F](#) (2022) Time in Neurogenesis: Conservation of the Developmental Formation of the Cerebellar Circuitry. **Brain, Behavior and Evolution.** 97 (1-2): 33–47. DOI: 10.1159/000519068
- Ratié L, Desmaris E, [García-Moreno F](#), Hoerder-Suabedissen A, Kelman A, Theil T, Bellefroid EJ, and Molnár Z (2019) Loss of Dmrt5 Affects the Formation of the Subplate and Early Corticogenesis. **Cerebral Cortex** 10:3296-3312 10.1093/cercor/bhz310.
- *Rueda-Alaña E, Martínez-Garay I, Encinas JM, Molnár M and [García-Moreno F](#) (2018) Dbx1-derived pyramidal neurons are originated locally in the developing murine neocortex. **Front. Neurosci.**, Vol 12; Art 792. doi:10.3389/fnins.2018.00792.
- Picco N, [García-Moreno F](#), Maini PK, Woolley TE and Molnár Z (2018) Mathematical Modeling of Cortical Neurogenesis Reveals that the Founder Population does not Necessarily Scale with Neurogenic Output. **Cerebral Cortex** 28, pp. 2540-2550.
- *[García-Moreno F](#), Anderton E, Królak M, Martínez-Garay I, Begbie J, Encinas JM, Irímia M and Molnár Z (2018) Absence of Tangentially Migrating Glutamatergic Neurons in the Developing Avian Brain. **Cell Reports** 22:96-109.

- Askew K, Liang Y, Olmos-Alonso A, García-Moreno F, Li K, Richardson P, Tipton T, Riecken K, Molnár Z, Cragg MS, Garaschuk O, Perry VH and Gomez-Nicola D (2017) Coupled proliferation and apoptosis maintain the rapid turnover of microglia in the adult brain. **Cell Reports** 18:391-405.
- Sacilotto N, Nikitenko L, Fischer K, Fritzsche M, Wallace MD, Payne S, Nornes S, García-Moreno F, Yao Lu W, Bridges E, Liu K, Biggs D, Ratnayaka I, P Herbert SP, Molnár Z, Harris AL, Davies B, Bond GL, Schwarz JJ, Bou-Gharios G and De Val S (2016) MEF2 transcription factors are master regulators of sprouting angiogenesis **Genes Dev** 30:2297-2309.
- *García-Moreno F and Molnár Z (2015) A subset of early radial glial cells selectively contribute to the development and evolution of callosal connecting neurons. **Proc Natl Acad Sci U S A**. 2015 Aug 25. pii: 201506377.
- Vasistha NA, García-Moreno F, Arora S, Cheung A, Arnold S, Robertson E and Molnár Z (2015) Tbr2 expressing intermediate progenitors contribute to all cortical layers in the developing brain. **Cereb Cortex**. 25:3290-302.
- *García-Moreno F, Vasistha NA, Begbie J, Molnár Z (2014) *CLoNe* is a new method to target single progenitors and study their progeny in mouse and chick. **Development** 141, 1589 – 1598. **Top 3 most-read articles of the journal in 2014.**
- Belgard TG, Montiel JF, Wang WZ, García-Moreno F, Margulies EH, Ponting CP, Molnár Z (2013) Adult pallium transcriptomes surprise in not reflecting predicted homologies across diverse chicken and mouse pallial sectors. **Proc Natl Acad Sci U S A** 110: 13150–13155.
- García-Moreno F, Vasistha NA, Trevia N, Bourne JA, Molnár Z (2012) Compartmentalization of cerebral cortical germinal zones in a lissencephalic primate and gyrencephalic rodent. **Cereb Cortex** 22:482-92
- Belgard TG, Marques AC, Oliver PL, Abaan HO, Sirey TM, Hoerder-Suabedissen A, García-Moreno F, Molnár Z, Margulies EH, Ponting CP (2012) A transcriptomic atlas of mouse neocortical layers. **Neuron** 71:605-16
- Oeschger FM, Wang WZ, Lee S, García-Moreno F, Goffinet AM, Arbonés ML, Rakic S, Molnár Z (2012) Gene expression analysis of the embryonic subplate. **Cereb Cortex** 22:1343-59
- Molnár Z, Vasistha NA, García-Moreno F (2012) Hanging by the tail: progenitor populations proliferate. **Nat Neurosci** 14:538-40
- Wang WZ, Oeschger F, Montiel JF, García-Moreno F, Hoerder-Suabedissen A, Krubitzer L, Joakim Ek C, Saunders N, Reim K, Villalón A, Molnár Z (2011) Comparative aspects of subplate zone studied with gene expression in vertebrate pallia. **Cereb Cortex** 21:2187-203
- Hoerder-Suabedissen A, Kousha O, García-Moreno F, Molnár Z (2011) GFP-expression in subplate cells in the Edg2-GFP and CTGF-GFP mouse. **J Anat** 218:353-354
- Miquelajáuregui A, Varela-Echavarría A, Ceci ML, García-Moreno F, de Carlos JA, Hoang K, Ricaño I, Tamariz E, Westphal H, Zhao Y (2010) LIM-homeobox gene *Lhx5* is required for normal development of Cajal-Retzius cells in the mouse forebrain **J Neurosci** 30:10551-10562
- García-Moreno F, Pedraza M, Di Giovannantonio L G, Di Salvio M, López-Mascaraque L, Simeone A and De Carlos JA (2010) A neuronal migratory pathway crossing from diencephalon to telencephalon populates amygdala nuclei. **Nat Neurosci** 13:680-689
- García-Moreno F, López-Mascaraque L and De Carlos JA (2008) Early telencephalic migration topographically converging in the olfactory cortex. **Cereb Cortex** 18:1239-1252
- García-Moreno F, López-Mascaraque L and De Carlos JA (2007) Origins and migratory routes of murine Cajal-Retzius cells. **J Comp Neurol** 500: 419-432

BOOK CHAPTERS AND REVIEWS

- * Senovilla-Ganzo R, García-Moreno F. The Phylotypic Brain of Vertebrates, from Neural Tube Closure to Brain Diversification. **Brain Behav Evol**. 2024;99(1):45-68. doi: 10.1159/000537748. Epub 2024 Feb 9.
- Araújo SJ, Almudi I, Bozal-Basterra L, Casares F, Casas-Tintó S, Escalante A, García-Moreno F, Losada-Pérez M, Maeso I, Marcon L, Ocaña OH, Pampliega O, Rada-Iglesias Á, Rayon T, Sharpe J, Sutherland JD, del Campo CV and Barrio R (2021) Virtual meeting, real and sound science: Report of the 17th Meeting of the Spanish Society for Developmental Biology (SEBD-2020) **International Journal of Developmental Biology**, 52. 10.1387/IJDB.210005RB
- *García-Moreno F and Molnár Z (2020) Variations of telencephalic development that paved the way for neocortical evolution. **Progress in Neurobiology**, 194, 101865.

- Bruguier H, Suarez R, Manger P, García-Moreno F, Molnár Z. (2020) In Search of Common Developmental and Evolutionary Origin of the Claustum and Subplate. **J Comp Neurol**. 1-22 doi:10.1002/cne.24922
- *García-Moreno F and Molnár Z (2020) The Impact of Different Modes of Neuronal Migration on Brain Evolution. Book chapter in: “*Comprehensive Developmental Neuroscience Series, 2nd Edition*”. (In press) **Elsevier**
- Martínez-Cerdeño V, García-Moreno F, Tosches MA, Csillag A, Manger PR, Molnár Z (2018). Update on forebrain evolution: From neurogenesis to thermogenesis. **Seminars in Cell and Developmental Biology** 76:15-22
- Montiel JF, Vasistha NA, García-Moreno F and Molnár Z (2016) From sauropsids to mammals and back: New approaches to comparative cortical development. **J Comp Neurol** 524:630-645
- Martínez-Garay I, García-Moreno F, Vasistha N, Marques-Smith A, Molnár Z (2015). In utero electroporation methods in the study of cerebral cortical development. In: “*Prenatal and Postnatal Determinants of Brain Development – Recent Studies and Methodological Advances*”. **Springer Book DOI: 10.1007/978-1-4939-3014-2_2**
- Montiel JF, Wang WZ, Oeschger FM, Hoerder-Suabedissen A, Tung WL, García-Moreno F, Holm IE, Villalón A, Molnár Z (2010) Hypothesis on the dual origin of the mammalian subplate. Review article for **Frontiers in Neuroanatomy**. Special Issue on “*Adaptive function and brain evolution*” ECCN6
- De Carlos JA and García-Moreno F (2009) Tangential cell movements during early telencephalic development. In: “*From development to degeneration and regeneration of the nervous system*”. Charles E. Ribak, Carlos Aramburo de la Hoz, Edward G. Jones, Jorge A. Larriva-Sahd and Larry W. Swanson (Eds.). **Oxford University Press**.

INVITATIONS TO CONFERENCES

- “Avian brains revolutionize our view about brain evolution, again” **Instituto de Neurociència UB** 4th July 2024, Barcelona, Spain
- “Neurogenesis and transcriptomics provide a new understanding of brain evolution” **Institut de Recerca Biomèdica de Lleida (IRBLleida)**, 3rd July 2024, Lleida, Spain.
- “Developmental convergence in the evolution of sensory circuits”. **3rd Cortical Evolution Conference**, 21st – 23rd June 2023, Burgos, Spain (International).
- “Mosaic evolutionary history of brain circuits through the lens of neurodevelopment” 2022 at **European Conference on Comparative Neurobiology (10ECCN)**. 22-24 Jun 2022 – Prague, Czech Republic (International).
- “Mosaic evolutionary history of brain circuits through the lens of neurodevelopment” 2022. **Australian Developmental Neurobiology Forum - Symposium XVIII**, 26th May 2022, Virtual. Brisbane – Australia.
- “Mosaic evolutionary history of brain circuits through the lens of neurodevelopment” 2021. **19th SENC Meeting**, 5th November 2021, Lleida – Spain.
- Mosaic evolutionary history of brain circuits through the lens of neurodevelopment. **3rd Latin American School & Symposium on Brain & Mind Evolution**. 22nd October 2021. Virtual. Santiago de Chile – Chile.
- “Conservation of the developmental formation of the cerebellar circuitry” 2021. **XII Meeting of the Red NeuroEvoDevo Pedro Ramón y Cajal (PRAMON-2021)**. Satellite meeting of the 19th SENC Meeting, November 2021, Lleida – Spain.
- “Conservation and divergent heterochronies giving rise to vertebrate brain diversity”. 2020 Karger Workshop *Heterochrony in Comparative Neurodevelopment, a one-day symposium on comparative / evolutionary neurobiology organized by members of the J.B. Johnston Club (JBJC)*. Virtual. **Washington DC**, October 22nd 2020.
- “Chronological construction of telencephalic sensory processing circuits in amniotes” **18th SENC Meeting**. 5th September 2019. Santiago de Compostela – Spain
- “Developmental divergences that promoted the evolutionary origin of the neocortex” at **CABD (Sevilla)**. 20 September 2019 - Madrid – Spain.
- “Developmental convergence of high order sensory circuits in the amniote pallium” at **European Conference on Comparative Neurobiology (9ECCN)**. 24-26 Apr 2019 – Murcia, Spain (International).
- “Developmental divergences that promoted the evolutionary origin of the neocortex” at **BCBL (San Sebastián)**. 28 February 2019 - Madrid – Spain.
- “Changes in Brain Development that Promoted the Evolutionary Origin of the Neocortex” at **Facultad de Medicina, Universidad Autónoma de Madrid**. 19 November 2018 - Madrid – Spain.

- “Changes in brain development that propelled the evolution of the neocortex” at **FENS Brain Conference on Cortex Evolution and Development**, 24-27 September 2017 - Copenhagen, Denmark (International).
- “Lack of tangentially migrating glutamatergic neurons in the developing avian brain” at **Cortical Development meeting**, 17-20 May 2017 - Chania Greece (International).
- “Changes in brain development that propelled the evolution of the neocortex” at **Kyoto Prefectural University of Medicine**. 25 Jul 2016 – Kyoto, Japan.
- “Substantial lack of pallial tangential migration during avian brain development” at **European Conference on Comparative Neurobiology (8ECCN)**. 7-9 Apr 2016 – Munich, Germany (International).
- “Development and evolution of the corpus callosum” at **Cortical Evolution Conference**. 18-20 May 2015 – Toledo, Spain (International).
- “Divergent neurogenesis and neuronal migration during the evolution of the neocortex” at **Neural Circuits symposium, Sussex Neuroscience**. 6 May 2015 – Brighton, United Kingdom (National).
- “Evolution of cortical development” at **Development, Functions and Disorders of the Nervous System – 20th International Society of Developmental Neuroscience (ISDN)**. 19-24 July 2014 – Montreal, Canada (International).
- “CLoNe is a new method to target single progenitors and study their progeny in mouse and chick” at **14th Human Frontiers Science Program (HFSP) Awardees Meeting**. 6-9 July 2014. Lugano, Switzerland (International).
- “Increased diversity of neocortical stem progenitors” at **Oxford Stem Cells Institute (OSCI) Annual Symposium**. 20th March 2014. Oxford, United Kingdom (National).
- “Understanding the evolution of the neocortex through transcriptomic and clonal analyses” at **Christmas Meeting 2013**. 19th December 2013. Instituto de Neurociencias de Alicante, Spain (International).

SELECTED ABSTRACTS (2012-2024)

- Senovilla-Ganzo R, Rueda-Alaña E, Kaessmann and García-Moreno F (2024) The conserved brain bauplan sheds light on evo-devo constraints. **1st SEBiBC congress**, 16-18 October 2024 - Valencia, Spain (National). Oral presentation and congress organizer (RSG-Spain Satellite).
- Gallego-Flores T, Senovilla-Ganzo R, García-Moreno F (2024) Tools to decipher the developmental changes that diversified the thalamus of amniotes. **EuroEvoDevo24**, 25-28 June 2024 - Helsinki, Finland (international).
- Senovilla-Ganzo R, Rueda-Alaña E, Kaessmann H and García-Moreno F (2024) The conserved brain bauplan sheds light on evo-devo constraints. **EuroEvoDevo24**, 25-28 June 2024 - Helsinki, Finland (International). Oral presentation.
- Jiménez S & García-Moreno F (2024) Evolution of the general temporal transcriptional code in the vertebrate brain. **EuroEvoDevo24**, 25-28 Jun 2024 - Helsinki, Finland (International).
- Gallego-Flores T, Senovilla-Ganzo R, García-Moreno F (2023) Developmental trends that led thalamocortical co-evolution. **3rd Cortical Evolution meeting**, 21-23 June 2023 - Burgos, Spain (National)
- Senovilla-Ganzo R, Rueda-Alaña E and García-Moreno F (2023) Conserved cell types in the early embryonic brain across vertebrates. **3rd Cortical Evolution conference**, 21-23 June 2023 – Burgos, Spain (International). Poster presentation.
- Senovilla-Ganzo R, Rueda-Alaña E and García-Moreno F (2022) Conserved cell types in the early embryonic brain across vertebrates. **10th ECCN conference**, 22-24 June 2022 – Prague, Czech Republic (International). Oral presentation.
- Senovilla-Ganzo R, Rueda-Alaña E and García-Moreno F (2022) Conserved cell types in the early embryonic brain across vertebrates. **Neurogune**, 1 July 2022 - Iruña, Spain (National). Poster presentation.
- Senovilla-Ganzo R, Rueda-Alaña E and García-Moreno F (2022) Conserved cell types in the early embryonic brain across vertebrates. **1st Single Cell Genomics Symposium**, 24-25 March 2024 – Barcelona, Spain (International). Poster presentation.
- Senovilla-Ganzo R, Rueda-Alaña E and García-Moreno F (2021) Conserved cell types in the early embryonic brain across vertebrates. **19th SENC Meeting**, 3-5 Nov 2021 - Lleida, Spain (National).
- Rueda-Alaña E, Encinas JM and García-Moreno F (2020) Evolution of pallial high-order sensory processing circuits. **17th SEBD Meeting** – Virtual. Oct 2020. National.
- Rueda-Alaña E, Encinas JM and García-Moreno F (2019) Evolution of pallial high-order sensory processing circuits. **18th SENC Meeting**. September 2019. Santiago de Compostela – Spain (National).
- García-Moreno F, Rueda-Alaña E, Ftara A, Gallego-Flores T, and Encinas JM (2019) Developmental convergence of high order sensory circuits in the amniote pallium. **EDBC2019**. October 2019- Alicante – Spain (International).
- Rueda-Alaña E, Encinas JM, García-Moreno F (2018) “Birth-seq, a new method to isolate dividing or dated cells” at **Neurogune 2018**, 7 Sept 2018 – Vitoria, Spain (National).
- Ftara A, Gallego-Flores T, Rueda-Alaña E, Encinas JM, García-Moreno F (2018) “Chronological construction of high order sensory

processing circuits in embryonic birds” at **Cortical Evolution Conference**. 4-6 Jun 2018 – Las Palmas, Spain (International).

Garcia-Moreno F, Anderton E, Krolak M, Martinez-Garay I, Molnar Z (2016) Crucial tangential contributions for the developing neocortex are lacking in avian brains. 39th International Japanese Neuroscience Society (JNSS) conference (Yokohama –Japan). International.

Garcia-Moreno F, Anderton E, Krolak M, Martinez-Garay I, Molnar Z (2016) Substantial lack of pallial tangential migration during avian brain development. 21st International Society of Developmental Neuroscience (ISDN). Nice (France). International.

Garcia-Moreno F, and Molnar Z (2014) Selective contribution of a subset of Emx2-expressing early radial glial cells to the development of the murine upper cortical layers. Cortical Development Conference 2014 - Neural Stem Cells to Neural Circuit. Chania (Greece). International.

Garcia-Moreno F, Begbie J and Molnar Z (2013) Comparisons of clones derived from single pallial progenitors in chick and mouse. 7th European Conference on Comparative Neurobiology (7ECCN). Budapest (Hungary). International.

Garcia-Moreno F, Molnar Z (2012) A novel lineage tracing method from single cortical progenitors in vivo based on multiple arrested fluorophores and Cre-recombinase. 8th FENS Forum of Neuroscience, Barcelona (Spain). International.

DOCTORAL THESES SUPERVISED

- **Doctoral Candidate:** Eneritz Rueda-Alaña
University: University of the Basque Country (UPV/EHU)
Department/Doctoral Program: Neurosciences
Supervisors: Fernando García-Moreno and Juan Manuel Encinas
Status: Defended on February 12, 2024, *Sobresaliente Cum Laude*
Years: 2018-2023
Title: Evolution of Pallial High-Order Sensory Processing Circuits.
- **Doctoral Candidate:** Rodrigo Senovilla-Ganzo
University: University of the Basque Country (UPV/EHU)
Department/Doctoral Program: Neurosciences
Supervisors: Fernando García-Moreno
Status: In progress
Years: 2021-2025
Title: The Phylotypic Brain of Vertebrates
- **Doctoral Candidate:** Raquel Rayo Morales
University: University of the Basque Country (UPV/EHU)
Department/Doctoral Program: Neurosciences
Supervisors: Fernando García-Moreno
Status: In progress
Years: 2024-2028
Title: The Evolution of the Basal Ganglia in Amniotes
- **Doctoral Candidate:** Aitor Ordeñana-Manso
University: University of the Basque Country (UPV/EHU)
Department/Doctoral Program: Neurosciences
Supervisors: Fernando García-Moreno
Status: In progress
Years: 2024-2028
Title: The Evolution of the Tectal Mesencephalon in Amniotes

TEACHING AND MENTORING EXPERIENCE

- Supervision of PhD student Miss Eneritz Rueda-Alaña, funded by Gobierno Vasco Predoctoral Fellowship (2018-2021) and Rodrigo Senovilla-Ganzo, funded by Tatiana Perez de Guzman el Bueno Foundation (2020-2024), at Achucarro Basque Center for Neuroscience (Bilbao – Spain).
- Supervision of Postdoctoral researchers: Dr. Maria Tatiana Gallego Flores 2022-onwards (EMBO postdoctoral fellowship and MSCA 2023 fellowship) and Dr. Sara Jiménez Álvarez 2022-onwards (IKUR Initiative).

- Supervision of International student Miss Rosana Reyes Pinto, from Universidad de Chile, in a 3-month research visit at Achucarro BCN (Bilbao – Spain).
- Supervision of Masters in Neurosciences (UPV/EHU) students Ms Artemida Ftara, (2016-2017) and Ms Macarena Erviti Lara (2018-2019), Ms Erise Pérez Pascual (2022-23) at Achucarro BCN.
- Supervision of Masters in Molecular Biology and Biomedicine (UPV/EHU) student Ms. Alba María Diego (2020-21) and Mr. Aitor Ordeñana-Manso (2023-24) at Achucarro BCN.
- Supervision of Masters in Scientific Illustration (UPV/EHU) student Ms. Elena Andreu-Rubert (2020-21) at Achucarro BCN.
- Supervision of TFG (Trabajo de Fin de Grado; UPV(EHU) students: Ms Erise Pérez Pascual (2021-22), Mr. Aitor Ordeñana-Manso (2022-23), Elisa Ovejero Mayoral and Izaro Lizartza Elustondo (2023-24)
- Laboratory supervision of Erasmus students Marta Krolak (from Warsaw, Poland) and Elia Sanchez (From Universidad de Barcelona – Spain).
- Supervision of Mr. Edward Anderton (Oriell College), undergraduate Research Project for Biochemistry projects (Part II). “*The role of Dbx1 and the ventral pallium in the evolution of the forebrain*”; Univ. Oxford. Mr Anderton is currently a PhD researcher at the Buck Institute for Research of University South California (United States).
- Supervision of Miss. Rosina Savisaar (St Cross College), Masters in Neuroscience Wellcome Trust Research Project 2013 “*Looking for migrating interneurons in the embryonic chick forebrain*”; University of Oxford. Miss. Savisaar is currently a PhD student in University of Bath (United Kingdom).
- Supervision of Mr. Miklos Perenyi (Queens College), undergraduate Research Project for the 2012 Final Honour Schools in Medical Sciences and Biomedical Sciences (Neuroscience or Cell & Systems Biology) “*The Inner Fibre Layer in pig embryonic brains*”; University of Oxford.
- Supervision of graduate and undergraduate students from Univ. Jiao Tong, People’s Republic of China. “*In ovo electroporation of chick embryos*”. 2012.
- Supervision of undergraduate Final Research Projects for Universidad Complutense de Madrid (Spain):
 - Dr Ana Benito-González (2004-2005, current Postdoctoral fellow at Johns Hopkins University, Baltimore, Maryland, United States).
 - Ángel Bardasco Blázquez (2007-2008).
 - Dr María Pedraza Botí (2008-2009) (current Postdoctoral fellow on Prof. Milos Pekny’s laboratory, University of Gotheburg, Sweden).
- Eventual participation in Final Honour School Lectures “Evolutionary developmental biology” (2011-14); 3rd year Medical school - University of Oxford.
- Teaching assistant at practical sessions of Human Neuroanatomy (2015); 2nd year Medical School – Univ. Oxford
- Contribution to several local meetings and symposia such as *Development and Reproduction Meeting* (16th October 2013) “Clonal analysis of forebrain progenitors during evolution”; Department of Physiology, Anatomy and Genetics; University of Oxford.

FUNDING OBTAINED BY RESEARCH MEMBERS OF THE GROUP

- **Eneritz Rueda Alaña** - (Predoctoral Researcher): PhD Fellowship from the *Basque Government* (Jan 2018- Dec 2021).
- **Rodrigo Senovilla Ganzo** - (Predoctoral Researcher): PhD Fellowships *Fundación Tatiana Pérez de Guzmán el Bueno* (Dec 2020 – Nov 2024).
- **Rosana Patricia Reyes Pinto** - (Predoctoral Researcher): short international predoctoral stay funded by Universidad de Chile (Chile). Oct 2018 – Jan 2019.
- **Tatiana-Gallego-Flores** – (Postdoctoral Researcher): Long term postdoctoral fellowship of the European Molecular Biology Organization (EMBO). Aug 2023 – Jul 2025)
- **Tatiana-Gallego-Flores** – (Postdoctoral Researcher): MSCA-Marie Sklodowska Curie Action 2023, postdoctoral fellowship Aug 2025 – Jul 2027.

MANAGEMENT AND DISSEMINATION ACTIVITIES

- Organizing committee for the 4th Cortical Evolution Conference. 2026 – Bilbao, Spain (International).
- Scientific committee for the 11th European Conference on Comparative Neurobiology (ECCN 11). 2025 – Alicante, Spain (International).
- Management and organization of the symposium “*Developmental rules limiting diversity - classic question, new approaches*” in EuroEvoDevo24 Conference (Helsinki, Finland; 26th June 2024). <https://www.helsinki.fi/en/conferences/euroevodevo-2024> Funded by *The Company of Biologists* and *International Society for Developmental Neurosciences*.
- Management and organization of the symposium “*Brain evolution from the lens of contemporary neurobiology*” in 11th IBRO 2023 - IBRO World Congress of Neuroscience (Granada, Spain; 9th – 13th September 2023). <https://ibro2023.org>
- Scientific committee for the 10th European Conference on Comparative Neurobiology (ECCN 10). 21-23 Jun 2022 – Prague, Czech Republic (International). <https://web.natur.cuni.cz/eccn10/>
- Organization of the satellite symposium “*XII Meeting of the Red NeuroEvoDevo Pedro Ramón y Cajal*” in 19th SENC Biannual Conference (Lleida, Spain; 3rd November 2021).
- Management and scientific organization of the national meeting of the 17th Spanish Society for Developmental Biology (SEBD20), Bilbao (Spain) but in virtual format. <https://2020.sebd.es/meeting-sebd-2020/>
- Management and organization of the symposium “*New views on the development and evolution of the forebrain*” in 18th SENC Biannual Conference (Santiago de Compostela, Spain; 5th September 2019). <https://www.congresosenc.es> Funded by *The Company of Biologists* and *International Society for Developmental Neurosciences*.
- Organization of the satellite symposium “*XI Meeting of the Red NeuroEvoDevo Pedro Ramón y Cajal*” in 18th SENC Biannual Conference (Santiago de Compostela, Spain; 4th September 2019).
- Organization and presentation of Cajal Institute’s research to the general public in “Madrid Semana de la Ciencia”, 2006-2008 (Spain, “*Madrid Week for the Science*”). <http://www.madrimasd.org/SemanaCiencia/2013/que-es-semana-ciencia/default.aspx>
- Divulging seminars to high school students in Madrid (Spain), 2006-2008: “*Get to know your brain*” and “*The effects of drugs on your brain*”.

PRESS COVERAGE

- FOTCIENCIA20 1st prize in *General* category: Examples: [KutxaKultur](#), [EuropaPress](#), [Noticias de Álava](#), [20Minutos](#), o [ElConfidencial](#). The awarded photograph and my research were specifically covered by this article in [El Heraldo de Aragón](#).
- Radio interview – La Mecánica del Caracol EITB <https://www.eitb.eus/es/radio/radio-euskadi/programas/la-mecanica-del-caracol/detalle/5329033/ciencia-que-es-ritmo-circadiano-neurona-migratorias/>
- SCIENCE, featured article 19 January 2018 • Vol 359 Issue 6373 page 287
- La Sexta https://www.lasexta.com/tecnologia-tecnoplora/sinc/neuronas-migratorias-fueron-clave-desarrollo-cerebro-humano_201801185a6068ec0cf22d7f92e6d68d.html
- Agencia SINC. <https://www.agenciasinc.es/Noticias/Las-neuronas-migratorias-fueron-clave-en-el-desarrollo-del-cerebro-humano>
- Madri+d <https://www.madrimasd.org/notiweb/noticias/las-neuronas-migratorias-fueron-clave-en-desarrollo-cerebro-humano>
- Neurología.com <https://www.neurologia.com/noticia/6576/las-neuronas-migratorias-claves-en-el-desarrollo-del-cerebro-humano>
- FMC - Formación Medica Continuada <https://www.fmc.es/es-noticia-las-neuronas-migratorias-fueron-clave-28681>
- Magazine *Qué Mayor* <https://www.qmayor.com/salud/neuronas-migratorias-cerebro/>

PARTICIPATION IN THE FOLLOWING RESEARCH GRANTS

2020-23 Plan Nacional - MICINN - Retos PID2019-104766RB-C21 (Collaborator) – PI: Juan M. Encinas	189.970€
2016-19 Saint John’s College (Thematic Research Grant; UK) – PIs: Zoltán Molnár and Philipp Maini	120.000€
2008-10 Autonomous Community of Castilla La Mancha FISCAM. PI 2007/66 (Spain)	
2007-10 Red de Excelencia. Comunidad de Madrid S-SEM-0255-2006-02 (Spain)	
2007-09 Spanish Ministry of Science and Education BFU2007-60351/BFI (Spain)	

2006-07 Spanish Ministry of Science and Education BFU2006 (Spain)

2003-06 Spanish Ministry of Science and Technology BFI 2003-00139 (Spain)

PAST AND CURRENT MEMBERSHIPS TO PROFESSIONAL SOCIETIES

- EuroEvoDevo society (EED)
- Spanish Society for Neurosciences (SENC)
- Spanish Society of Developmental Biology (SEBD) – Member of the Scientific Committee for the 17th Biennial meeting of the society (Nov 2020)
- British Society for Developmental Biology (BSDB)
- Human Frontiers Science Program Organization (HFSP)
- Society for Neurosciences (SfN)
- Federation of European Neuroscience Societies (FENS)
- The J. B. Johnston Club (JBJC).