

# MARIA CAROLINA FLORIAN

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**Nationality** Italian  
**Career breaks** 02/2008-12/2008 first maternity leave; 02/2013-10/2013 second maternity leave

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## CURRENT POSITIONS

Position **ICREA Research Professor**  
Initial date **01.02.2023**  
Institution Catalan Institution for Research and Advanced Studies (ICREA)

Position **Group Leader – Stem Cell Aging Lab**  
Initial date **01.01.2020**  
Institution Bellvitge Institute for Biomedical Research (IDIBELL)  
Department/Center Regenerative Medicine  
City/country Hospital Duran i Reynals, Gran Via de l'Hospitalet, 199-203, 08908  
L'Hospitalet de Llobregat (Barcelona), Spain  
Key words Stem cells, aging, epigenetics, niche, regeneration

## PREVIOUS POSITIONS

Period	Position/Institution/Country/Interruption cause
11.2018-12.2019	Group Leader – Stem Cell Aging Lab/Centre of Regenerative Medicine (CMRB)/Spain/Incorporation with IDIBELL
01.2016-10.2018	Emmy Noether Group leader- University of Ulm/Germany/This position was incompatible with my affiliation to CMRB (Spain). It was changed into a temporary Guest Group Leader position, which ended on 31.12.2020.

## EDUCATION

	University/Country	Year
Visiting Post Doc	Cincinnati Children's Hospital Medical Center, Cincinnati, USA	2011
Visiting Post Doc	Otto von Guericke University, Magdeburg, Germany	2010
Post Doc fellow	University of Ulm, Germany	2009-2015
PhD in Endocrinology	University of Milan, Italy	2004-2008
M.Sc Pharmaceutical Biotechnology	University of Milan, Italy	2002-2004
B.Sc Biotechnology	University of Milan, Italy	1999-2002

## CV SUMMARY

I established my research group in January 2016, after being awarded an extremely prestigious grant from the German Research Foundation (DFG, Emmy Noether Grant) dedicated to outstanding early-career researchers (total amount: 1.203.480 € for the first 3 years; renewal for the same amount, eventually declined based on incompatibility with the new appointment in Spain). This grant supported the setting up of my independent research group focused on Epigenetics of Stem Cell Aging at the University of Ulm (Germany).

At the end of 2018, I won a competitive selection based on the evaluation of an international committee and I obtained a tenure-track Group Leader position at the Centre for Regenerative Medicine in Barcelona (CMRB, now Program for advancing the Clinical Translation of Regenerative Medicine of Catalonia, P-CMR[C] [P-CMRC](#)) supported by the Catalan Government with a starting package of around 1.200.000 € for 5 years (2019-2023). In January 2020, P-CMR[C] eventually joined IDIBELL and I also became Group leader of the Stem Cell Aging Lab within the Program of Regenerative Medicine of IDIBELL ([IDIBELL](#)). Recently, I was selected as ICREA Research Professor, and I officially joined the prestigious Catalan Institution for Research and Advanced Studies in February 2023.

During my career as group leader, I have been able to win extremely competitive grants from the German, Spanish, and European funding agencies. Notably, beside the prestigious **Emmy Noether Grant** in 2016, I was awarded 2 other independent grants by the DFG for a total amount of 950.000 €. After moving to Spain, I won the prestigious **Ramón y Cajal** fellowship by the Spanish Ministry, which is aimed at promoting the incorporation of international researchers with an outstanding track record. Furthermore, I obtained funding to my research by the Spanish Ministry of Science (**MINECO** calls 2018 and 2021). Moreover, I also won very competitive calls as the **2020 LaCaixa Health Research Foundation Grant** (success rate of~3%) and the **2020 ERC Consolidator Grant** (success rate of~13%) by the European Research Council (total awarded amount >2.800.000 €). I am also participating to a European consortium with one project within the **TRANSCAN** network, I am one of the principal investigators that was awarded with the collaborative grant **FORTALECE-SALUD IIS 2023** (total awarded amount 2.500.000 €) and I recently obtained additional support by the Spanish Ministry of Science that awarded me 400.000 € through the **Consolidation Investigadora 2023** call. All these extremely competitive fundings provide a critical recognition of my scientific career as an innovative and independent investigator.

My team currently includes two research assistants, three post-docs, six PhD students and one bioinformatician. I am truly committed to not discriminate against candidates in any way based on gender, age, ethnic, national, or social origin, religion or belief, sexual orientation, language, disability, political opinion, social or economic condition. Now, my team is composed by scientists coming from different European countries (60% of non-Spanish scientists) and most of my team members are female scientists (10 females and 2 males). Our research aims at further growing our understanding of mechanisms driving stem cell aging. We focus mainly on epigenetic alterations and on the role of the microenvironment in affecting the function of aged somatic stem cells (hematopoietic, skeletal muscle, vascular endothelial and kidney stem cells). Our work aims at improving the regenerative capacity of aged somatic stem cells to preserve tissue homeostasis and eventually extend organism healthspan and lifespan. This represents for me an exciting field of research to develop new therapeutic strategies and foster clinical translation of stem cell-based therapies to improve tissue regeneration with age and to prevent aging-associated diseases. To pursue our research goals, we combine single-cell profiling (single cell RNAseq and ATACseq; single cell RNA/DNA FISH, single cell 3D immunofluorescence, single cell transplants) with molecular biology, flow cytometry and FACS sorting, advanced optical/confocal microscopy and analysis, whole-mount histology, *in vivo* mouse models, *in silico* computational modelling and deep learning strategies. Using these approaches and bridging knowledge from different fields (stem cell biology, aging, hematology, and epigenetics), we continue to provide key contributions to the stem cell aging field, which have led to several exciting findings (*see section Publications*).

## RESEARCH INTEREST

My research in the past years strongly challenged the concept that aging is an irreversible process. Since 2016, in my team we investigate the role of epigenetics and of the stem cell microenvironment in driving aging of somatic stem cells. Our scope is to define possibilities to target aging and functionally rejuvenate stem cells and tissues and to extend healthspan and lifespan. To pursue our pioneering research goals, we combine several cutting-edge technologies (see for example the recent *News&Views* authored by myself in *Nature*), and we bridge knowledge from interdisciplinary scientific fields.

For example, my team has shown that young hematopoietic stem cells (HSCs) establish epigenetic polarity (epi-polarity) based on H4K16ac distribution in the nucleus, while aged HSCs are mainly apolar. Epi-polarity underlies chromatin architecture changes with aging in stem cells that drive the functional impairments of aged HSCs (*see section Publications*). We investigated different small molecule inhibitors to target the chromatin architecture in aged stem cells and to restore epi-polarity. Treatment with some specific inhibitors can also restore function of aged HSCs and their epigenetic asymmetry during division. We have further explored treatments with these inhibitors to target aged skeletal muscle stem cells and to extend overall organism lifespan and healthspan (this work was *featured in Nature Volume 629, May 2024*). In addition, we showed that bone marrow sinusoids are the unique niche which preserves HSC regenerative capacity on aging. By deep learning approaches, we demonstrated that the localization within the bone marrow has predictive value to the function of stem cells, being able to discriminate young or old stem cells based on the distance to a set of specific niche cells. Moreover, we demonstrated that in aged mice chemotherapy exerts its negative side-effect primarily by disrupting the sinusoidal niche, which is not able to regenerate leading to myelosuppression and reduced survival (*see section Publications*). Altogether, our findings were published in prestigious scientific journals and are under further investigations now in my lab at IDIBELL for their translational potential in the improvement of stem cell regenerative capacity in the elderly in the context of chemotherapy and physiological aging. Our line of research is absolutely pioneering and cutting-edge, driven by the aim of developing new therapeutic strategies and foster clinical translation of stem cell-based therapies to improve tissue attrition with age, prevent aging-associated diseases and extend lifespan.

## ADDITIONAL SCIENTIFIC COMMITMENTS/ACTIVITIES

### Institutional responsibilities

- PhD Student Supervisor for the University of Barcelona, Spain ([Doctoral Program in Biomedicine](#))
- Member of the IDIBELL Seminar Series Committee and of the IDIBELL Teaching Committee: my duties involve the recruitment of international speakers and the organization of internal talks addressed to early career scientists
- Member of the Executive Committee of the Scientific and Technical Services (SCT) of IDIBELL: my duties include advise on strategic institutional investment into equipment and facilities to support and foster the scientific research within our biomedical institution.

### Supervision of graduate students and postdoctoral fellows

From 2018 to now (at IDIBELL, Spain): 3 Post-docs (Francesca Matteini, Surya Cayre, Rebecca Andersson); 4 PhD students (Barbara Walter *thesis defense July 2024*, Alba Ferrer Perez *ongoing*, Eleni Nikolopoulou *ongoing*, Laia Solè Castilla *ongoing*); 2 joint-PhD students (Chang Sun *ongoing*, SZBL, China; Pablo Ianez *ongoing*, ISGlobal, Barcelona, Spain); 4 visiting scientists (Rebecca Andersson from the University of Gothenburg, Sweden; Husne Sharif from The Hebrew University in Jerusalem, Israel; Adamcova Miroslava Kari from the Institute of Molecular Genetics, Prague, Czech Republic; Shyam Krishnan Murali from the Leibniz Institute on Aging, Fritz Lipmann Institute, Jena, Germany); 4 ERASMUS Master students; 2 ERASMUS+ fellows.

From 2014 to 2018 (at UniUlm, Germany): 3 Post-docs (Ani Grigoryan, Noelle J. Ali, Polina Zjablovskaja); 4 PhD students (co-supervision with Prof. H. Geiger; Mehmet Sacma: *thesis defense August 2019*, Katharina Sanger: *thesis defense November 2017*, Ani Grigoryan: *thesis defense August 2017*; Novella Guidi: *thesis defense May 2015*); 3 Master Students.

### **Lecturer activities**

- 2016-2018: Lecturer, within the International Graduate School in Molecular Medicine of Ulm University (IGradU). I was also actively involved in the recruitment of guest speakers for the international seminar series on “Stem cell aging” within the Graduate School and I organized Journal Clubs and scientific report meetings within the Institute of Molecular Medicine at Ulm University.
- 2005-2007: Laboratory supervisor and lecturer, course: Cell biology, Pharmaceutical Biotechnology, Faculty of Pharmacy, University of Milan, Italy
- 2005-2007: Laboratory supervisor and lecturer, course: Evolution and Biodiversity, Pharmaceutical Biotechnology, Faculty of Pharmacy, University of Milan, Italy

### **Reviewer/Examiner activities**

#### PhD thesis:

- 2024: External Examiner for the PhD School of Imperial College London (Department of Life Sciences), London, UK and for the University of Jena, Jena, Germany
- 2023: External Examiner for the PhD School of the University of Barcelona (Doctoral Program in Biomedicine) and for the École doctorale Hématologie, Oncogénèse et Biothérapies, Université Paris Cité, Paris, France
- 2022: External Examiner for the PhD School of The Hebrew University of Jerusalem, Israel; Internal Examiner for the PhD Thesis of 2 pre-doctoral candidates for the University of Barcelona (Doctoral Program in Biomedicine)
- 2021-External Examiner for the PhD School of CNIC, Madrid, Spain and for the PhD School of the Vienna BioCenter, Vienna, Austria; Internal Examiner for the PhD Thesis of 2 pre-doctoral candidates for the University of Barcelona (Doctoral Program in Biomedicine).
- 2019 and 2020-External Examiner for the PhD School of Cambridge, University of Cambridge, United Kingdom
- 2017-External Examiner for the PhD School of IFOM, European School of Molecular Medicine, Milan, Italy

Grant reviewer: for the German Research Foundation (DFG, Germany; year 2017, 2018, 2023, 2024), the Human Frontier Science Program (HFSP, year 2018) and the REWIRE program (Reinforcing Women in Research, University of Wien, Austria, year 2019), the Swiss Cancer League (KLS, Bern, Switzerland, year 2020, 2 grants), the Agence Nationale de la Recherche (ANR, France, year 2020, 2022), the Israel Science Foundation (ISF, year 2021), the Children Cancer-free Foundation (Stichting Kinderen Kankervrij, KiKa, The Netherlands, year 2021), the European Research Council (ERC-StG, year 2021, 2024), the European Hematology Association (EHA) (collaborative grant 2021, early research career 2023), the Swiss National Science Foundation Horizon Europe Transition Measures (consolidator grant 2024) and Ministry of Science and Innovation (Spain, 2023) .

External Committee Reviewer: program reviewer of the Scientific Quinquennial Review (QQR) of the MRC Molecular Haematology Unit at the University of Oxford, UK (2021); Member of the life science evaluation panel for the “Swiss National Science Foundation Horizon Europe Transition Measures” (2022, 2024); External expert opinion for the promotion at Tsinghua University, China and at Chongqing University, China. External reviewer for the position of Assistant Professor of “Molecular Cell Biology in Biomedicine” at The Institute of Medical Biochemistry at the University of Veterinary Medicine

Vienna (Austria). Member of the 2023 Institute Assessment Panel (IAP) for the quinquennial review of the Biotechnology and Biological Sciences Research Council's (BBSRC) strategically supported programmes at the Babraham Institute. Grant reviewer for DFG (Germany), EHA (Netherlands), MRC (UK) and Spanish Ministry of Science (Spain).

Journal reviewer for: Nature, Nature Medicine, Nature Review Molecular Biology, Aging Cell, Nature Cell Biology, Genome Biology, Stem Cell and Development, Scientific Reports, Journal of Gerontology, Haematologica, JoVe, Blood, Nature Communication, EMBO Journal, Nature Immunology, Nature Communication

I have also served as **Expert for the UNCAN initiative (2023)**, coordinated by the European Union. The launch of Europe's Beating Cancer Plan and the Horizon Europe's Mission on Cancer reflect the institutional commitment of the European Union (EU) to boost the strategy against cancer to improve the lives of citizens through better prevention, treatments, and quality of life. Consistent with this goal, the Mission's Board spurred the creation of a Europe-wide platform to UNderstand CANcer (UNCAN.eu) that intends to address the need for more investment on innovative research. UNCAN has engaged with cancer experts across Europe in a consultation process to define these research priorities. Following an open call, approximately 300 cancer experts across Europe were invited to join the Expert Working Groups (EWG) and to participate in a Delphi consensus process in the six research areas.

### **Major collaborations**

Prof. Paula Petrone (machine learning for image analysis; ISGlobal, Barcelona), Prof. Anna Bigas (topic: Hematopoietic stem cells and Notch; IMIM, Barcelona, Spain), Prof. Simon Mendez-Ferrer (topic: Hematopoietic stem cell niche; University of Cambridge, UK), Prof. Hiroshi Kimura (topic: epigenetics; TIT, Japan), Dr. Medhanie Mulaw (topic: bioinformatics and artificial intelligence; Cancer Center, Ulm, Germany), Prof. Hartmut Geiger (topic: Hematopoietic stem cells and aging; Uni Ulm, Germany), Prof. Yi Zheng (topic: Hematopoietic stem cells and small RhoGTPases; CCHMC, USA), Dr. Michael Milsom (topic: Hematopoietic stem cells; Hi-Stem, DKFZ, Germany), Prof. Jose Cancelas (topic: Hematopoietic stem cells; CCHMC, USA), Prof. Manuel Serrano (topic: Senescence and cell plasticity; IRB, Barcelona), Dr. Anna Sola (Topic: Regeneration of kidney progenitor cells; IDIBELL, Barcelona), Dr. Montserrat Arnan (Topic: Acute Myeloid Leukemia; Hematology ICO, Barcelona), Prof. Qin Peng (Topic: epigenetic targeting of hematopoietic stem cells; SZBL, China).

### **Networks**

- Biomedical applications of iPS cell technology - iPS4BioMed (2017 SGR 899) Agency: AGAUR 2017-2020. PI: Ángel Raya (2018-2021)
- CIBER: Bioingeniería, Biomateriales y Nanomedicina (CB06/01/1056) Agency Instituto de Salud Carlos III PI: Dr. Ángel Raya (2008-ongoing)
- Emerging Research Group on Regenerative Medicine - RegMed\_GRE (2021 SGR 00888) Agency: AGAUR. PI: M. Florian (2022-2024)

### **Innovation & translational activities**

I am currently exploring with different international and national investors the possibility of transferring the know-how generated in my lab for the translation of our findings into pre-clinical and clinical trials. Among others, I have a collaboration agreement (2023-2026) with MoglingBio (<https://www.moglingbio.com/>), a new biotech startup that is focusing on the development of new drugs for rejuvenating old stem cells. Moreover, I have been selected to present for the Accelerator Meeting Point, organized by IDIBELL Innovation Department to bridge scientific research and investors partners (Barcelona, in December 2021 and again in April 2024). I am also member of XarSmart (2021 XARDI 00008), an initiative that aims to promote the generation of medical technologies and new companies for

the Catalan life sciences and health ecosystem. The project is coordinated by IDIBELL's Innovation and Business Development Area and has the financial support from AGAUR.

### **Congress & meeting organization**

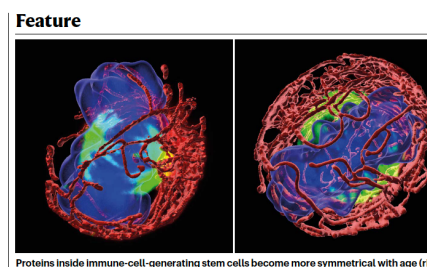
- RegenBell Symposium (2023, 2024): it features international and local speakers and aims to cover a wide range of topics, including stem cell biology, development, adult stem cells and clinical applications of regenerative medicine in order to discuss the recent advancements that have significantly expanded our understanding of stem cell biology in physiological conditions, aging and disease (<https://regenbellsymposium.idibell.cat/>).
- Hematology in Barcelona: Biology of Disease (2024): The event brought together 135 registered participants from the scientific community dedicated to the study of blood biology. The main objective of the conference was to present and discuss the current situation of research in hematology to improve the treatment of onco-hematological diseases.

## PUBLICATIONS

I have a total of 46 publications (full list in [ORCID](#)) in high impact factor journals including for example Nature, Cell, Nature Cell Biology, Cell Stem Cell, npj Regenerative Medicine, Genome Biology. Of these publications, 8 are as first author and 14 as corresponding author; 44 without my PhD supervisor. My total number of citations is 4003 (2489 since 2020). H-index: 25; i-index: 32 (ISI/[Google Scholar](#)). Below the most relevant publications.

*Publications as senior/corresponding authors:*

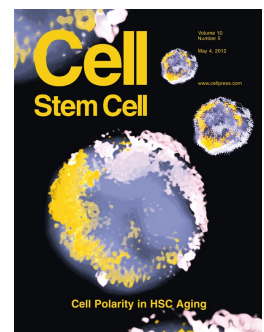
- **Florian, M.C.** (2024) Powerful microscopy reveals blood-cell production in bone marrow. *Nature* 627 (8005), 741-742 (*Invited News&Views*)
- Matteini, F., Montserrat-Vazquez, S., and **Florian, M.C.** (2024) Rejuvenating aged stem cells: therapeutic strategies to extend health and lifespan. *FEBS letters* (*Invited review*)
- Montserrat-Vazquez, S., Ali, N. J., Matteini, F., Lozano, J., Zhaowei, T., Mejia-Ramirez, E., Marka, G., Vollmer, A., Soller, K., Sacma, M., Sakk, V., Mularoni, L., Mallm, J. P., Plass, M., Zheng, Y., Geiger, H., and **Florian, M.C.** (2022) Transplanting rejuvenated blood stem cells extends lifespan of aged immunocompromised mice. *npj Regen Med* 7, 1–17  
Featured in Nature by Alison Abbott (Volume 629, May 2024). “How the immune system holds the key to ageing”
- Andersson, R., **Florian, M.C.** (2022) Living a longer life: unique lessons from the naked mole-rat blood system. *The EMBO Journal* 41 (15), e111759 (*Invited News&Views*)
- Matteini, F. and **Florian, M. C.** (2022) The gut-bone marrow axis: a novel player in HSC aging. *Blood* 139, 3–4
- Matteini, F., Mulaw, M.A., and **Florian, M.C.** (2021). Aging of the Hematopoietic Stem Cell Niche: New Tools to Answer an Old Question. *Frontiers in Immunology* 12, 4492. (*Invited review*)
- Grigoryan, A., Pospiech, J., Krämer, S., Lipka, D., Liehr, T., Geiger, H., Kimura, H., Mulaw, M.A., and **Florian, M.C.** (2021). Attrition of X Chromosome Inactivation in Aged Hematopoietic Stem Cells. *Stem Cell Reports* 16, 708–716.
- **Florian M.C.\***, Leins H., Gobs M., Han Y., Marka G., Soller K., Vollmer A., Sakk V., Nattamai K.J., Rayes A., Zhao X., Setchell K., Mulaw M., Wagner W., Zheng Y., Geiger H.\* (2020) Inhibition of Cdc42 activity extends lifespan and decreases circulating inflammatory cytokines in aged female C57BL/6 mice. *Aging Cell*. Sep;19(9):e13208. \*corresponding authors  
Featured in Nature by Alison Abbott (Volume 629, May 2024). “How the immune system holds the key to ageing”
- Sacma, M., Pospiech, J., Bogeska, R., de Back, W., Mallm, J. P., Sakk, V., Soller, K., Marka, G., Vollmer, A., Karns, R., Cabezas-Wallscheid, N., Trumpp, A., Mendez-Ferrer, S., Milsom, M. D., Mulaw, M. A., Geiger, H., and **Florian, M. C.** (2019) Haematopoietic stem cells in perisinusoidal niches are protected from ageing. *Nat Cell Biol* 21, 1309-1320.  
Cover of the Nat Cell Biol of November 2019 (Issue 11)
- Grigoryan, A., Guidi, N., Senger, K., Liehr, T., Soller, K., Marka, G., Vollmer, A., Markaki, Y., Leonhardt, H., Buske, C., Lipka, D. B., Plass, C., Zheng, Y., Mulaw, M. A., Geiger, H., and **Florian, M. C.** (2018) LaminA/C regulates epigenetic and chromatin architecture changes upon aging of hematopoietic stem cells. *Genome Biol* 19, 189
- **Florian, M. C.\***, Klose, M., Sacma, M., Jablanovic, J., Knudson, L., Nattamai, K. J., Marka, G., Vollmer, A., Soller, K., Sakk, V., Cabezas-Wallscheid, N., Zheng, Y., Mulaw, M. A., Glauche, I., and Geiger, H.\* (2018) Aging alters the epigenetic asymmetry of HSC division. *PLoS Biol* 16, e2003389\*corresponding authors
- Mejia-Ramirez, E., and **Florian, M. C.** (2020) Understanding intrinsic hematopoietic stem cell aging. *Haematologica* 105, 22-37 (*Invited review*)



- Zjablovskaja, P., and **Florian, M. C.** (2020) Acute Myeloid Leukemia: Aging and Epigenetics. *Cancers* 12 (Invited review)
- Mejia-Ramirez E., Geiger H., **Florian M.C.** (2020) Loss of epigenetic polarity is a hallmark of hematopoietic stem cell aging. *Hum Mol Genet.* Oct 20;29(R2):R248-R254. (Invited review)

*Original research articles as main author during postdoc and PhD training:*

- **Florian, M. C.**, Nattamai, K. J., Dorr, K., Marka, G., Uberle, B., Vas, V., Eckl, C., Andra, I., Schiemann, M., Oostendorp, R. A., Scharffetter-Kochanek, K., Kestler, H. A., Zheng, Y., and Geiger, H. (2013) A canonical to non-canonical Wnt signalling switch in haematopoietic stem-cell ageing. *Nature* 503, 392-396.  
Previewed by Verovskaya E. and de Haan G. in *Cell Stem Cell*. “Noncanonical Wnt comes of age in hematopoietic stem cells”
- **Florian, M. C.**, Dorr, K., Niebel, A., Daria, D., Schrezenmeier, H., Rojewski, M., Filippi, M. D., Hasenberg, A., Gunzer, M., Scharffetter-Kochanek, K., Zheng, Y., and Geiger, H. (2012) Cdc42 activity regulates hematopoietic stem cell aging and rejuvenation. *Cell Stem Cell* 10, 520-530.  
Cover of the *Cell Stem Cell* issue of May 2012 (Issue 5).  
Previewed by Carrillo-Garcia C. and Janzen V. in *Cell Stem Cell*. “Restoring Cell Polarity: An HSC Fountain of Youth”
- Geiger, H., de Haan, G., and **Florian, M. C.** (2013) The ageing haematopoietic stem cell compartment. *Nat Rev Immunol* 13, 376-389 (Invited review)
- **Florian, M. C.**, Klenk, J., Marka, G., Soller, K., Kiryakos, H., Peter, R., Herbolsheimer, F., Rothenbacher, D., Denking, M., and Geiger, H. (2017) Expression and Activity of the Small RhoGTPase Cdc42 in Blood Cells of Older Adults Are Associated With Age and Cardiovascular Disease. *J. Gerontol. A. Biol. Sci. Med. Sci.* 72, 1196-1200
- **Florian M.C.**, Geiger H. (2010) Concise review: polarity in stem cells, disease, and aging. *Stem Cells* 28: 1623-97.
- Evangelisti C.\*, **Florian M.C.\***, Massimi I., Dominici C., Giannini G., Galardi S., Bue M.C., Massalini S., McDowell H.P., Messi E., Gulino A., Farace M.G., Ciafre S.A. (2009) MiR-128 up-regulation inhibits Reelin and DCX expression and reduces neuroblastoma cell motility and invasiveness. *FASEB J* 23: 4276-87 \*equal contribution
- Messi E.\*, **Florian M.C.\***, Caccia C., Zanisi M., Maggi R. (2008) Retinoic acid reduces human neuroblastoma cell migration and invasiveness: effects on DCX, LIS1, neurofilaments-68 and vimentin expression. *BMC Cancer* 8: 30 \*equal contribution



*Additional significant scientific contributions:*

I am named **Inventor of an International Application** No. PCT/US2013/038912 (April 30, 2012) assigned to the University of Ulm, Germany. This patent involves the administration of CASIN to rejuvenate hematopoietic stem and progenitor cells, which has been renewed on May 29, 2018 (US9980942B2). I have also served as **Scientific Editor** of “Stem cell aging: Mechanisms, Consequences, Rejuvenation” together with Prof. Henrich Jasper (Buck Institute, Novato, CA, USA) and Prof. Hartmut Geiger, the first comprehensive book on stem cell aging and rejuvenation (book prepared for Springer DE, 2015).



## FELLOWSHIPS, AWARDS, HONORS AND MEMBERSHIP

<b>Ramon Y Cajal:</b> Spanish tenure-track program to attract emerging talents	<b>Barcelona, Spain</b> Jan. 2020
<b>Emmy Noether:</b> Grant from the German Research Foundation (DFG) awarded to outstanding early-career researchers to establish an independent group	<b>Ulm, Germany</b> Jan 2016
<b>ISEH-Travel Award</b> supported by the International Society for Experimental Hematology	<b>Kyoto, Japan</b> Sept. 2015
<b>Else Kröner-Fresenius Travel Award</b> EKF Symposium on Adult Stem Cells in Aging, Diseases and Cancer	<b>Erice, Italy</b> May. 2015
<b>Member of the International Society of Experimental Hematology (ISEH)</b>	Since 2015
<b>Betty Jean Ogawa Memorial Poster Award</b> recognizing most outstanding posters presented at ISSCR Annual Meeting	<b>Vancouver, Canada</b> Jun. 2014
<b>ISSCR-Travel Award</b> supported by the International Society for Stem Cell Research	<b>Vancouver, Canada</b> Jun. 2014
<b>Egon Macher Award</b> for the young investigator outstanding research contributions Supported by ADF (Arbeitsgemeinschaft Dermatologische Forschung)	<b>Köln, Germany</b> Mar. 2014
<b>Member of the German Stem Cell Network (GSCN)</b>	2013-2020
<b>Member of the German Society for Aging Research</b>	2013-2020
<b>ISSCR-Travel Award</b> supported by the International Society for Stem Cell Research	<b>Yokohama, Japan</b> Jun 2012
<b>Stem Cell Grant, sponsored by BD Biosciences Research Program</b> Project title: "Impact of cell polarity on hematopoietic stem cell division and aging"	<b>Ulm, Germany</b> Feb. 2012
<b>Young fellow start-up grant of the Department of Medicine, Ulm University</b> Project title: "The role of Wnt5a signalling in hematopoietic stem cell aging"	<b>Ulm, Germany</b> Jan. 2011
<b>ISSCR-Travel Award</b> supported by the International Society for Stem Cell Research	<b>San Francisco, USA</b> Jun 2010
<b>Member of the International Society for Stem Cell Research (ISSCR) since 2010</b>	Since 2010
<b>PhD Fellowship</b> awarded by the University of Milan, Italy	<b>Milan, Italy</b> Sept. 2004

## PRESENTATIONS (selected)

<b>Invited speaker</b> at 5 <sup>th</sup> Scientific Workshop on The Haematological Tumour Microenvironment and its Therapeutical Targeting	<b>London, UK</b> Feb. 2025
<b>Invited speaker</b> at 3 <sup>rd</sup> Translational Research Conference on Bone Marrow Failure and Leukaemia Predisposition Syndromes	<b>Paris, FR</b> Nov. 2024
<b>Invited speaker</b> at FASEB conference “Transcription, Chromatin, and Epigenetics in Aging”	<b>Florida, USA</b> Sep. 2024
<b>Invited speaker</b> at the 46. Congreso de la Sociedad Española de Bioquímica y Biología Molecular (SEBBM)	<b>A Coruña, ES</b> Sep. 2024
<b>Invited speaker</b> at the 38 <sup>th</sup> Congress of the International Society of Blood Transfusion (ISBT)	<b>Barcelona, ES</b> Jun. 2024
<b>Selected speaker</b> at the Gordon Meeting, System Aging 2024	<b>Barcelona, ES</b> Jun. 2024
<b>Invited speaker</b> at the Global Female Leader summit 2024	<b>Frankfurt, DE</b> May. 2024
<b>Invited speaker</b> at the 2023 ASH (American Society of Hematology) Annual Meeting Scientific Program	<b>San Diego, USA</b> Dec. 2023
<b>Keynote speaker</b> at the 2023 European Tissue Repair Society (ETRS) & Portuguese Society for Stem Cells and Cell Therapy (SPCE-TC) annual meeting	<b>Coimbra, PT</b> Oct. 2023
<b>Invited speaker</b> at the 2023 ISEH (International Society of Experimental Hematology) Annual Meeting	<b>New York, USA</b> Aug. 2023
<b>Invited speaker</b> at the FEBS Workshop on the Molecular and Cellular Pathways of Aging in Hematopoiesis	<b>Heraklion, GR</b> May, 2023
<b>Invited speaker</b> at the 43. Congress of the French Society of Hematology	<b>Paris, FR</b> Mar. 2023
<b>Selected speaker</b> at the Cell Symposium “Advances in Therapeutic Applications of Stem Cells”	<b>Los Angeles, USA</b> Dec. 2022
<b>Invited speaker</b> at the European Hematology Association research conference titled "Extrinsic signals and perturbations in normal and malignant hematopoiesis".	<b>Palermo, IT</b> Nov. 2022
<b>Invited speaker</b> at the CNIC Inflammation and Immunity Day	<b>Madrid, ES</b> Sep. 2022
<b>Invited speaker</b> at the 62. Congress of the Spanish Society of Geriatrics and Gerontology	<b>Madrid, ES</b> Jun. 2022
<b>Invited speaker</b> at the 17. Benjamin-von-Lipschütz-Symposium “Cell fate decisions in physiology and disease – implications for dermatology and beyond”	<b>Düsseldorf, DE</b> May. 2022
<b>Invited speaker</b> at the Molecular Haematopoiesis Conference, Francis Crick Institute	<b>London, UK</b> Nov. 2021

<b>Invited Faculty speaker</b> at 12th course on Developmental Biology, Insitut Curie	<b>Paris, France</b> Oct. 2021
<b>Invited speaker</b> at the 8th Annual Aging Research and Drug Discovery (ARDD) meeting	<b>Copenhagen, DK</b> Sep. 2021
<b>Invited Faculty speaker</b> at the “Club Hématopoïèse et Oncogènèse” (CHO-Hematopoiesis and Oncogenesis Club)	<b>Nice, France</b> Sep. 2021
<b>Invited Faculty speaker</b> at 2021 Virtual EHA Germany (Jun 2021)	<b>Frankfurt, Germany</b> Jun. 2021
<b>Invited speaker</b> at the symposium “Immune system in sickness and in health”, Josep Carreras Leukaemia Research Institute, Badalona, Spain (Mar 2021)	<b>Badalona, Spain</b> Mar. 2021
<b>Invited Faculty speaker</b> at the PhD symposium “INSIDE – The Dark Side of The Cell”, Vienna Biocenter and University of Vienna	<b>Vienna, Austria</b> Feb. 2021
<b>Invited speaker</b> at the 2020 ASH (American Society of Hematology) Annual Meeting Scientific Program	<b>San Diego, CA, USA</b> Dec. 2020
<b>Invited Keynote Speaker and co-chair</b> , Young EHA Research Meeting, pre-congress of the 25th Congress of EHA (European Haematology Association)	<b>Frankfurt, Germany</b> Jun. 2020
<b>Invited Faculty speaker</b> , Cologne Spring Meeting/3rd Aging Conference "From mechanism to disease", Cologne, Germany	<b>Cologne, Germany</b> Mar. 2020
<b>Invited speaker</b> , Sy-Stem Meeting, symposium focusing on the next generation of stem cell researchers organized jointly by the Research Institute of Molecular Pathology (IMP) and Institute of Molecular Biotechnology (IMBA), Vienna	<b>Vienna, Austria</b> Mar. 2019
<b>Invited speaker</b> , DCEXS-UPF Symposium 2018, University Pompeu Fabra, Barcelona	<b>Barcelona, Spain</b> Nov. 2018
<b>Invited Faculty speaker</b> , Sixth Annual Meeting of the Society of Hematologic Oncology (SOHO 2018)	<b>Huston, TX, USA</b> Sep. 2018
<b>Invited speaker</b> , International seminar series at the Department of Microbiology and Immunology, University of Gothenburg	<b>Göteborg, Sweden</b> Jun. 2018
<b>Invited speaker</b> , Max Planck Institute for Biology of Aging – Symposium: Epigenetics and metabolism in aging and age-related diseases	<b>Köln, Germany</b> Sept. 2017
<b>Oral Presentation</b> , Selected Abstract, 4 <sup>th</sup> Annual Conference of the German Stem Cell Network (GSCN)	<b>Hannover, Germany</b> Sept. 2016
<b>Invited Speaker</b> , “Stem cells, Cancer, Immunology and Aging”. Meeting organized by Gaslini Children’s Hospital.	<b>Genova, Italy</b> Feb. 2015
<b>Oral Presentation</b> , Selected Abstract, 24 <sup>th</sup> Annual Meeting of the German Society for Aging Research	<b>Köln, Germany</b> Dec. 2014
<b>Oral Presentation</b> , Selected Abstract, 1 <sup>st</sup> Annual Conference of the German Stem Cell Network (GSCN)	<b>Berlin, Germany</b> Nov. 2013



## GRANTS

Project Title	Funding source	Amount (Euros)	Period	Role of the PI
Notch signaling and the Niche for Clonal Hematopoiesis (NNCloHem)	Convocatoria 2023, Incentivación de la consolidación investigadora, Spanish Ministry of Science	399.784	2024-2026	Principal Investigator
Smart Health Community (Comunidad de Salud Inteligente)	PROGRAMA FORTALECE-SALUD IIS 2023, Spanish Ministry of Science	2.500.000 tot (411.400 to my project)	2023-2027	Principal Investigator
Emerging research Group on Regenerative Medicine	SGR-Cat (2021 SGR 00888) Generalitat of Catalunya	24.000	2021-2024	Project Coordinator
Rejuvenating superenhancers in aged hematopoietic stem cells by targeting Cdk8 (RejuSEageH)	Proyectos de Generación de Conocimiento (PID2021-123922NB-I00), Spanish Ministry of Science	193.600 (+ 1 PhD fellowship)	2022-2025	Principal Investigator
Profiling and functional analysis of the Immune environment of eXtramedullary leukemia rELapses (PIXEL)	TRANSCAN (AC22/00014 + TRANSCAN2021-111) European Commission, ISCIII, FAECC	174.845,00 € from ISCIII + 67.684,14 € from FAECC	2022-2025	Principal Investigator
Regeneration of Sinusoidal niches to preserve hematopoiesis after chemotherapy on Ageing (ReSinAge)	ERC Consolidator Grant (101002453) European Commission	1.997.000	2021-2026	Principal Investigator
Deep Learning to Dissect the Interaction between Leukemic Cells and the Ageing Niche	LaCaixa Health (HR20-00800) La Caixa Foundation,	817.045	2021-2024	Project Coordinator
Regenerating aged kidney function by targeting Cdc42 and senescent cells in human renal parietal epithelial cells (PECs)	Expression of Interest (EoI) for Collaborative Projects on Regenerative Medicine 2019 (Generalitat of Catalunya)	10.000	2020	Co-Principal Investigator
Project Ramon Y Cajal Stem Cell Aging	Ayudas Ramon y Cajal, (RYC2018-025979-I Spanish Ministry of Science),	208.600	2019-2024	Principal Investigator

Mechanics of Chromatin Architecture in Hematopoietic Stem Cell Aging	Proyectos de Generación de Conocimiento (PGC2018-102049-B-I00), Spanish Ministry of Science	127.050 (+ 1 PhD fellowship)	2019-2021	Principal Investigator
Alterations of H3K9me2 in hematopoietic stem cells: implications for aging and myeloid leukemogenesis	German Research Foundation (DFG), Germany	354.500	2017-2020	Principal Investigator
Checkpoint control in hematopoietic stem cells - contribution to genetic and epigenetic instability in leukemia	German Research Foundation (DFG), Germany	592.800	2016-2020	Co-Principal Investigator
Aging of hematopoietic stem cells and the epigenetic drift: a pathway to rejuvenation	German Research Foundation (DFG), Germany	1.203.480	2016-2018	Principal Investigator