

PERSONAL INFORMATION

Family name, First name: Méndez-Ferrer, Simón

Researcher unique identifier(s): [Scopus ID 6506497771](#); [Google Scholar ID](#); [orcid.org/0000-0002-9805-9988](#); [Researcher ID L-8088-2014](#) URL for web site: <https://www.stemcells.cam.ac.uk/people/pi/mendez-ferrer>

EDUCATION AND EMPLOYMENT**CURRENT POSITIONS**

Distinguished Investigator (ATRAE), University of Seville, Spain

Professor of Experimental Haematology, Department of Haematology, University of Cambridge, UK

Principal Investigator, Wellcome Trust-MRC Cambridge Stem Cell Institute, UK

Principal Investigator, NHS Blood and Transplant, Cambridge, UK

EDUCATION

PhD in Medical Physiology, Medical Physiology Dep, Seville University, Spain 2004

Masters in Cellular and Molecular Biology, Seville University, Spain 2002

B.Sc. in Biological Sciences, Seville University, Spain 1998

OTHER EXPERIENCE**ORGANISATION OF SCIENTIFIC MEETINGS** (selected)

VII IBiS-UIMP School of Biomedicine. The tumour microenvironment. Seville, Spain. October. 2023

Scientific Committee on Hematopoiesis. Chair 2021. American Society of Hematology (ASH). 2015-2021

Cambridge Cancer Centre. Training Lead. 2017-

Scientific Committee. European School of Hematology (ESH). 2016-2019

ESH Biannual International Conference: 'The tumour microenvironment in the haematological malignancies and its therapeutic targeting'. Co-Organiser 2015-

REVIEWING ACTIVITIES

eLife – Reviewing Editor 2021-

Experimental Hematology – Associate Editor 2022-

Haematologica – Associate Editor 2018-2020

Editorial Board Member of Current Stem Cell Reports and Hemasphere

Ad hoc reviewer for scientific journals: Nature, Science, Cell, Nat Med, Nat Cell Biol, Nat Commun, Nat Immunol, Nat Rev Clin Oncol, Nat Rev Mol Cell Biol, Nat Materials, Cancer Cell, Cell Stem Cell, Dev Cell, Blood, ...

CLINICAL TRIALS. Our translational research has fructified into two Phase-II multicenter clinical studies currently testing the possible redeployment of mirabegron (a beta3-adrenergic agonist) and tamoxifen to modulate haematopoietic progenitors and their bone marrow stem-cell niches in myeloproliferative neoplasms.

HONORS AND AWARDS

CRUK Programme Foundation Award. Cancer Research UK. 2018-2024

International Early Career Scientist. Howard Hughes Medical Institute. 2012-2017

New Investigator Award. International Society for Experimental Hematology 2014

Ministry of Education and Science, Spain, Postdoctoral Fellowship 2010-2015

ASH Scholar Award, American Society of Hematology 2009-2010

Joanne Levy, MD, Memorial Award for Outstanding Achievement. 2009

Merit Award. American Society of Hematology, 50th Annual Meeting. S. Francisco (USA). 2008

Award, Mount Sinai Immunology Institute retreat. White Plains, New York (USA). 2008

Merit Award. American Society of Hematology, 49th Annual Meeting. Atlanta (USA). 2007

Ministry of Education and Science, Spain, Postdoctoral Fellowship 2004-2006

Health Institute Carlos III, Ministry of Health and Consumer, Spain, BEFI Fellowship. 2003-2004

Ministry of Science and Technology, Spain, Predoctoral FPI Fellowship. 1999-2002

Ministry of Foreign Affairs and Cooperation, Spain, Intercampus Fellowship. 1998

Ongoing Research Support

EHA Bilateral Collaborative Grant (with P. Apostolova). 320,000 €. 2024-2026

MPN Research Foundation (with J.A. Perez-Simón). USA. \$199,975. 2024-2027

ATRAE Program. Government of Spain. €843,125. 2024-2029

HORIZON Doctoral Network. MSCA-2023-DN-01-01.101167512 (co-I). 2,693,764 €. 2024-2028

Cancer Research Horizons. £29,127.67. 2024-2025

LLS SCOR. Leukemia and Lymphoma Society (PI, G. Vassiliou). \$4,250,000. 2024-2029

NHS-Blood and Transplant, UK. 50% salary of PI and 0.5 FTE PA. 2024-2029

Previous Research Support

CRUK Programme Foundation Award. Cancer Research UK. £895,954.	2018-2024
NHS-Blood and Transplant. WP15-10. £1,579,000.	2015-2024
Isaac Newton Trust. £26,066.	2023-2024
Ramón y Cajal Programme Grant. Spain. 192,480 €.	2010-2015
Marie Curie Career Integration Grant FP7-PEOPLE-2011-CIG-294262. 100,000 €.	2002-2015
Comunidad de Madrid. Spain. P2010-BMD-2342. 81,772 €.	2012-2015
Institute of Health Carlos III. Spain. 73,500 €.	2013-2015
ASH Scholar Award. American Society of Hematology. \$100,000.	2009-2010

TOP PUBLICATIONS

Total Citations = 13,600; h-index = 44, i10-index = 70 (Google Scholars)

1. Khatib-Massalha E, Di Buduo CA, Chédeville AL, Ho Y-H, Zhu Y, Grockowiak E, Date Y, Khuat LT, Fang Z, Quesada-Salas J, Carrillo-Félez E, Migliavacca M, Montero I, Pérez-Simón JA, Balduini A and **Méndez-Ferrer S**. *Defective neutrophil clearance in JAK2^{V617F} myeloproliferative neoplasms drives myelofibrosis via immune checkpoint CD24*. **Blood** (in press).
2. Lisi-Vega LE, Pievani A, García-Fernández M, Forte D, Williams TL, Serafini M and **Méndez-Ferrer S**. *Bone marrow mesenchymal stromal cells support translation in refractory acute myeloid leukemia*. **Cell Rep** 2025 Jan 28;44(1):115151. doi: 10.1016/j.celrep.2024.115151).
3. Fang Z, Fattori G, McKerrell T, Boucher R, Jackson A, Fletcher R, Forte D, Martin J-E, Fox S, Roberts J, Glover R, Harris E, Bridges H, Grassi L, Rodriguez-Meira A, Mead A, Knapper S, Ewing J, Butt N, Jain M, Francis S, Clark F, Coppell J, McMullin M, Wadelin F, Narayanan S, Milojkovic D, Drummond M, Sekhar M, ElDaly H, Hirst J, Paramor M, Baxter E, Godfrey A, Harrison C, **Méndez-Ferrer S** (2023). *Tamoxifen for the treatment of myeloproliferative neoplasms: A Phase II clinical trial and exploratory analysis*. **Nat Commun** 2023 Nov 25;14(1):7725. doi: 10.1038/s41467-023-43175-5. PMID: 38001082.
4. Grockowiak E, Korn C, Rak J, Hallou A, Lysenko V, Panvini FM, Fieding C, Williams M, Khatib-Massalha E, Fang Z, García-García A, Korshed RA, González-Antón S, Li J, Baxter EJ, Kusumbe A, Wilkins BS, Green A, Simons BD, Harrison CN, Green AR, Lo Celso C, Theoccarides APA and **Méndez-Ferrer S**. *Different niches for mutant stem cells carrying the same oncogenic driver affect pathogenesis and therapy response in myeloproliferative neoplasms*. **Nature Cancer** 4(8):1193-1209. doi: 10.1038/s43018-023-00607-x. PMID: 37550517. Issue cover.
5. Gadowski S, Fielding C, García-García A, Korn C, Kapeni C, Ashraf S, Villadiego J, del Toro R, Domingues O, Skepper JN, Michel T, Zimmer J, Sendtner R, Dillon S, Poole K, Holdsworth G, Sendtner M, Toledo-Aral JJ, De Bari C, McCaskie AW, Robey RG and **Méndez-Ferrer S**. *A cholinergic neuroskeletal interface promotes bone formation during postnatal growth and exercise*. **Cell Stem Cell** 29, 2022; doi: 10.1016/j.stem.2022.02.008. PMID: 35276096.
6. Fielding C, García-García A, Korn C, Gadowski S, Fang Z, Reguera JL, Pérez-Simón JA, Göttgens B and **Méndez-Ferrer S**. *Cholinergic signals preserve haematopoietic stem cell quiescence during regenerative haematopoiesis*. **Nat Commun**. 2022 Jan 27;13(1):543. doi: 10.1038/s41467-022-28175-1. PMID: 35087060.
7. Forte D, García-Fernández M, Sánchez-Aguilera A, Stavropoulou V, Fielding C, Martín-Pérez D, López JA, Costa ASH, Tronci L, Nikitopoulou E, Barber M, Gallipoli P, Marando L, Fernández de Castillejo CL, Tzankov A, Dietmann S, Cavo M, Catani L, Curti A, Vázquez J, Frezza C, Huntly BJ, Schwaller J and **Méndez-Ferrer S**. *Bone marrow mesenchymal stem cells support acute myeloid leukemia bioenergetics and enhance antioxidant defense and escape from chemotherapy*. **Cell Metabolism**. 2020 Nov 3;32(5):829-843.e9. doi: 10.1016/j.cmet.2020.09.001. PMID: 32966766.
8. Ho YH, Del Toro R, Rivera-Torres J, Rak J, Korn C, García-García A, Macías D, González-Gómez C, Del Monte A, Wittner M, Waller AK, Foster HR, López-Otín C, Johnson RS, Nerlov C, Ghevaert C, Vainchenker W, Louache F, Andrés V and **Méndez-Ferrer S**. *Remodelling of bone marrow hematopoietic stem cell niches promotes myeloid cell expansion during premature or physiological aging*. **Cell Stem Cell** 2019 Sep 5;25(3):407-418.e6.
9. García-García A, Korn C, García-Fernández M, Domingues O, Villadiego J, Martín-Pérez D, Isern J, Bejarano-García JA, Zimmer J, Pérez-Simón JA, Toledo-Aral JJ, Michel T, Airaksinen MS, **Méndez-Ferrer S**. *Dual cholinergic signals regulate daily migration of hematopoietic stem cells and leukocytes*. **Blood**. 2019 Jan 17;133(3):224-236. doi: 10.1182/blood-2018-08-867648 (Commentary by O'Leary HE in the same issue).
10. Del Toro R, Chèvre R, Rodríguez C, Ordóñez A, Martínez-González J, Andrés V and **Méndez-Ferrer S**. *Nestin+ cells direct inflammatory cell migration in atherosclerosis*. **Nat Commun** 2016 Sep 2;7:12706. doi: 10.1038/ncomms12706.
11. Arranz L, Sánchez-Aguilera A, Martín-Pérez D, Isern J, Langa X, Tzankov A, Lundberg P, Muntión S, Tzeng Y-S, Lai D-M, Schwaller J, Skoda RC and **Méndez-Ferrer S**. *Neuropathy of haematopoietic stem cell niche is essential for myeloproliferative neoplasms*. **Nature** 2014;512:78-81. 468 citations.
12. Sánchez-Aguilera A, Arranz L, Martín-Pérez D, García-García A, Stavropoulou V, Kubovcakova L, Isern J, Martín-Salamanca S, Langa X, Skoda RC, Schwaller J and **Méndez-Ferrer S**. *Estrogen signaling selectively induces apoptosis of hematopoietic progenitors and myeloid neoplasms without harming steady-state hematopoiesis*. **Cell Stem Cell** 2014;15:791-804.

13. **Méndez-Ferrer S**, Lucas D, Battista M and Frenette PS. *Haematopoietic stem cell egress is regulated by circadian oscillations*. **Nature** 2008;452:442-447. 1,432 citations.
14. **Méndez-Ferrer S**[§], Michurina TV, Ferraro F, Mazloom AR, MacArthur BD, Lira SA, Scadden DT, Ma'ayan A, Enikolopov GN and Frenette PS[§]. *Mesenchymal and haematopoietic stem cells form a unique bone marrow niche*. **Nature** 2010;466:829-834 ([§]corresponding authors; Top Ten list F 1000-Medicine; 3,780 citations).

OTHER ORIGINAL PUBLICATIONS

15. Drexler B, Passweg JR, Tzankov A, Bigler M, Theoharides APA, Cantoni N, Keller P, Stussi G, Ruefer A, Benz R, Favre G, Lundberg P, Nienhold R, Fuhrer A, Biaggi C, Manz MG, Bargetzi M, **Méndez-Ferrer S**, Skoda RC; Swiss Group for Clinical Cancer Research (SAKK). *The sympathomimetic agonist mirabegron did not lower JAK2-V617F allele burden, but restored nestin-positive cells and reduced reticulin fibrosis in patients with myeloproliferative neoplasms: results of phase 2 study SAKK 33/14*. **Haematologica**. 2019 Apr;104(4):710-716. doi: 10.3324/haematol.2018.200014.
16. **Méndez-Ferrer S**[§], García-Fernández M and de Castillejo CLF. *Convert and conquer: the strategy of chronic myelogenous leukemic cells*. **Cancer Cell** 2015 May 11;27(5):611-3. doi: 10.1016/j.ccell.2015.04.012. [§]Corresponding author.
17. Isern J, García-García A, Martín AM, Arranz L, Martín-Pérez D, Torroja C, Sánchez-Cabo F and **Méndez-Ferrer S**. *The neural crest is a source of mesenchymal stem cells with specialized hematopoietic stem cell niche function*. **eLife** 2014 Sept 25; 3:e03696. Doi: 10.7554/eLife.03696 (highlighted with a preview by Moore KA et al. in eLife).
18. Isern J, Martín-Antonio B, Ghazanfari R, Martín AM, del Toro R, Sánchez-Aguilera A, Arranz L, Martín-Pérez D, López JA, Suárez-Lledó M, Marín P, Van Pel M, Vázquez J, Fibbe WE, Scheding S, Urbano-Ispizúa A and **Méndez-Ferrer S**. *Self-renewing human mesospheres promote hematopoietic stem cell expansion*. **Cell Rep** 2013;3(5):1714-24. DOI 10.106/j.celrep.2013.03.01.
19. Ferraro F, Lymperi S, **Méndez-Ferrer S**, Saez B, Spencer JA, Yeap BY, Masselli E, Graiani G, Prezioso L, Rizzini EL, Mangoni M, Rizzoli V, Sykes SM, Lin CP, Frenette PS, Quaini F and Scadden DT. *Diabetes impairs hematopoietic stem cell mobilization*. **Sci Translat Med** 2011;3(104):104ra101.
20. Chow A, Lucas D, Hidalgo A, **Méndez-Ferrer S**, Hashimoto D, Battista M, Leboeuf M, Prophete C, van Rooijen N, Merad M and Frenette PS. *Bone marrow CD169+ macrophages promote the retention of hematopoietic stem and progenitor cells*. **J Exp Med** 2011;208: 261-71.
21. Shi C, Jia T, **Méndez-Ferrer S**, Hohl TM, Serbina NV, Lipuma L, Leiner I, Li MO, Frenette PS and Pamer EG (2011). *Bone marrow mesenchymal stem induce monocyte emigration in response to circulating TLR-ligands*. **Immunity** 34:590-601.
22. **Méndez-Ferrer S** and Frenette PS. *Ga_s uncouples haematopoietic stem cell homing and mobilisation*. **Cell Stem Cell** 2009;4:379-80.
23. Toledo-Aral JJ[§], **Méndez-Ferrer S**^{*}, Pardo R, Echevarría M and López-Barneo J[§]. *Trophic restoration of the nigro-striatal dopaminergic pathway in long-term carotid body grafted parkinsonian rats*. **J Neurosci** 2003;23(1):141-148. (^{*}equal contribution; [§]PhD supervisors).

SELECTED REVIEWS/PERSPECTIVES

1. **Méndez-Ferrer S**. *AI model of transplantation risk for myelofibrosis*. **Blood** (2025).
2. **Méndez-Ferrer S**^{*}, Bonnet D, Steensma DP, Hasslerian RP, Ghobrial IM, Gribben JG, Andreeff, Krause DS. *Bone marrow niches in hematological malignancies*. **Nat Rev Cancer**. 2020 May;20(5):285-298. ^{*}Corresponding author. Perspective Article, JIF = 60.716.
3. **Méndez-Ferrer S**. *RIG-Ing out BMSCs for hematopoietic recovery after transplantation*. **Blood**. 2022 May 26;139(21):3107-3109. doi: 10.1182/blood.2022016099. PMID: 35616989
4. Lisi-Vega LE, **Méndez-Ferrer S**. *Stem cells "aclymatise" to regenerate the blood system*. **EMBO J**. 2022 Apr 19;41(8):e110942. doi: 10.15252/embj.2022110942. Epub 2022 Mar 11. PMID: 35274751.
5. **Méndez-Ferrer S**. *HSCs revive their niche after transplantation*. **Blood** 2020 Dec 3;136(23):2597-2598.
6. **Méndez-Ferrer S**. *Molecular interactome between HSCs and their niches*. **Blood**. 2019 Oct 10;134(15):1197-1198. doi: 10.1182/blood.2019002615.
7. **Méndez-Ferrer S**. *Human and mouse leukocytes: different clockwork*. **Blood**. 2017 Nov 2;130(18):1860-61. doi: 10.1182/blood-2017-09-805374.
8. del Toro R and **Méndez-Ferrer S**. *Autonomic regulation of haematopoiesis and cancer*. **Haematologica** 2013;98(11):1663-6.
9. Arranz L, Urbano-Ispizúa A and **Méndez-Ferrer S**. *Mitochondria underlie different metabolism of hematopoietic stem and progenitor cells*. **Haematologica** 2013;98(7):993-5.
10. Zaidi M and **Méndez-Ferrer S**. *Cell biology: tumour stem cells in bone*. **Nature** 2013;499(7459):414-6. Doi:10.1038/nature12412.

KEYNOTE LECTURES

1. Special Lecture. International Union of Physiological Sciences (IUPS) Annual joint Meeting with Europhysiology. Frankfurt, Germany. 11-14 Sept 2025.
2. Plenary Speaker. 6th Annual Meeting. French Society for Stem Cell Research. Paris, France. Jan 2024.
3. Keynote Speaker. 13th Guangzhou International Conference on Stem Cell and Regenerative Medicine. Guangzhou, China. 16-18 Dec 2023.

4. Plenary Session. Annual Meeting, French stem cell in vivo network (GdR2147). Paris, France. 8 Nov 2023.
5. Flagship 20th Anniversary Conference. Lund Stem Cell Center. 17-19 April 2023.
6. XVI course of the European Bone Marrow Working Group. Barcelona, Spain. **Keynote Lecture**. 13-15 April 2023.
7. Meeting on clonal hematopoiesis. 4th ARCH meeting. Keynote speaker. 29-30 Sept 2022. Madrid, Spain.
8. Plenary Session. 2019 Annual Meeting. Spanish Cell Therapy Network (TerCel). Santiago de Compostela, Spain. 29-30 November 2019.
9. Plenary Session. 2019 Annual Meeting, European Society for Clinical Cell Analysis (ESCCA). Bergen, 2019.
10. Plenary Session. 2019 Annual Meeting, European Hematology Association (EHA). Stockholm. June 2019.
11. Selected Oral Abstract and Achievement Award. 2018 ASH Annual Meeting. San Diego, USA.
12. Plenary Session. 2018 Annual Meeting. Italian Society of Hematology. Rimini, 17-19 Oct 2018.
13. Plenary Session. Annual Meeting. Spanish Society for Gene and Cell Therapy (SETGyC). Mallorca, Spain. 14-16 March 2018.
14. Plenary Session. ISRASTEM 2016 and 6th International Meeting of Israel Stem Cell Society. 6th April 2016. Title: Blood stem cells in space and time.
15. Plenary Session. Annual Meeting. European Society of Gene and Cell Therapy. Title: The bone marrow stem-cell niche as a therapeutic target in myeloproliferative neoplasias. San Sebastian, Spain. 4-6 Nov 2015.
16. Plenary Session. International Conference on Frontiers in Basic Cancer Research (AACR). Tumor Microenvironment and Inflammation. Philadelphia, USA. 23rd Oct 2015.
17. Plenary Session. Annual Meeting. International Society for Cellular Therapy (ISCT). Las Vegas, USA. 2015.
18. New Investigator Lecture. Annual Meeting. International Society of Experimental Hematology (ISEH). Montreal, Canada. 21-24 August 2014.
19. Plenary session. Annual Meeting. International Society for Stem Cell Research (ISSCR). Vancouver, 2014.
20. Plenary session. Annual Meeting. European Society of Gene and Cell Therapy. Madrid, Spain. Oct 2013.
21. Plenary Session. 38th Annual Meeting. European Group for Blood and Marrow Transplantation. Geneva, Switzerland. 4th April 2012.
22. Plenary Session. 16th Annual Meeting. European Hematology Association. London, UK. 11th June 2011.
23. Plenary Session. 51st Annual Meeting. American Society of Hematology. New Orleans. USA. 6th Dec 2009.
24. Plenary Session. 50th Annual Meeting. American Society of Hematology. San Francisco. USA. 7th Dec 2008.

PATENTS

1. 'Multipotent nestin-positive cells'. PCT/ES/2010/070682, WO2011048253A1. 22/10/2010.
2. 'Neuro-regenerative/neurocompensatory therapy for the treatment of myeloproliferative neoplasms' and
3. 'Compounds suitable for the treatment of myeloproliferative neoplasms as well as methods for the diagnosis/prognosis of myeloproliferative neoplasms'. PCT/EP2014/059678. 10/05/2013.
4. 'Selective estrogen receptor modulators for the treatment of myeloproliferative disorders'. PCT/ES2014/070417. 21/05/2013.
5. 'Anti-CD24 antibodies – myelofibrosis and thrombosis'. GB2316777.8. PCT/GB2024/052780. 1 November 2023.

BIOSKETCH

My multidisciplinary training in neuroscience, physiology and stem cells has allowed me to develop a unique research field. I gained my PhD in 2004 from The Department of Medical Physiology at the University of Seville in Spain. My Thesis characterised properties of the carotid body of potential interest for neuroregenerative strategies, which were translated into clinical studies in Parkinson's disease. From 2004-9, I worked as a post-doc at New York Medical College and Mount Sinai School of Medicine, where I trained in stem cells in the cardiovascular and haematopoietic systems and discovered a connection between the bone marrow, the brain and other systemic signals, which regulate the behavior of blood stem cells and immune cells. I found that the sympathetic nervous system regulates daily oscillations in stem cells, which could impact the yields available for regenerative medicine. These findings served as steppingstones for the emerging fields of neuroimmunology and inter-organ communication. My subsequent work identified mesenchymal stem cells that relay signals from the nervous system and have a crucial role in the haematopoietic stem cell niche. I moved to Cambridge in 2015, where I am Professor at the Department of Hematology (University of Cambridge), Group Leader at the Wellcome-MRC Cambridge Stem Cell Institute and PI at NHS Blood and Transplant. From 2024, I have established a research group at the Institute of Biomedicine of Seville (IBiS), University of Seville, thanks to an ATRAE grant from the Government of Spain. Blood stem cells reside in specialised niches, which allows them to self-renew, proliferate, differentiate and migrate according to the organism's requirements. My research has revealed multisystem regulatory mechanisms by which the haematopoietic stem cell niche fulfils these complex functions and how the deregulation of these mechanisms contributes to haematological disorders. My work has been recognised with 20 Plenary presentations, >200 invited talks, international awards (ASH Scholar Award, Joanne Levy Memorial Award, HHMI International Early Career Scientist, CRUK Programme Foundation Award, ERC Consolidator grant, etc), publications in top journals and 4 patent applications. I have served at ASH and ESH committees and am co-PI of an EHA Bilateral Collaborative Award in allogeneic HSCT and co-I of a Marie Curie Doctoral Network (MIRACLE) targeting minimal residual disease. Together with José Antonio Pérez-Simón, I have received a 2024 MPN Challenge Award from the MPN Research Foundation (USA) to investigate the immunogenic clearance of senescent neutrophils to prevent pathogenic cell-cell interactions in MPN. My translational research led to two Phase-II multicenter clinical studies testing the redeployment of drugs to modulate the bone marrow stem-cell niche in myeloproliferative neoplasms. Ongoing efforts in my lab are targeting the microenvironment to improve bone marrow transplantation procedures and as a complementary therapeutic target for the treatment of myeloid malignancies.