CV date	11/10/2021

Part A. PERSONAL INFORMATION

First and Family name	Hidalgo, Andrés		
Social Security, Passport, ID number	50087387B	Age	51
Researcher codes	WoS Researcher ID *(*)*	L-5643-2014	
	SCOPUS Author ID*(*)*	7102781677	
	Open Researcher and Contributor ID (ORCID) **	0000-0001-5513-555X	

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

A.1. Current position

Name of University/Institution	Centro Nacional de Investigaciones Cardiovasculares Carlos III		
Department	Cell and Developmental Biology Area		
Address and Country	Melchor Fernández Almagro 3, 28029 Madrid (Spain)		
Phone number	+34914531200	E-mail	ahidalgo@cnic.es
Current position	Assistant Professor/Group Leader	From	December 2018
Key words	Immunity, Circadian, Inflammation, Myeloid cells		

A.2. Education

Degree	University	Year
BSc	Universidad Autónoma de Madrid	1993
PhD	Universidad Autónoma de Madrid	1999

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

- Number of thesis supervised: 4 (plus 4 in progress)
- No. publications: 112
- Total number of citations: 8683 (79.9 per document)
- Average number of citations in the last 5 years: From 2018 to 2022 the total number of documents received 5019 (1003.8 per year)
- Total number of publications in the first quartile (Q1): From the total 112 publications, 106 have an IF; 89 are in Q1 (94.34%) and 75% in D1
- H-Index: 46
- 87% of publications are original articles and reviews, 46% as main author

Data from Web of Science and JCR (March 2022)

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

My research interests focus on the molecular and cellular mechanisms by which innate immune cells contribute to organismal physiology and pathology. My early studies focused on leukocyte migration to sites of inflammation and of hematopoietic stem cells into the bone marrow, and later extended to understand how key immune and hematopoietic cells (neutrophil, macrophages and hematopoietic stem cells or HSC) contribute to inflammatory disease, including acute vascular injury and atherosclerosis.

As I became an independent group leader, I expanded these concepts to investigate how innate immune cells contribute to HSC dynamics and, more generally, how they contribute to homeostasis: we described a role for neutrophils as circadian regulators of bone marrow niches, and for platelets as triggers of intravascular inflammation. Most of our current efforts are centered in homeostasis, as I believe that dissecting the basic principles of a system is the right approach to understanding disease. We use animal models with impaired trafficking, high-end intravital microscopy, surgical models or cytokine-induced inflammation, myocardial infarction, stroke, acute lung injury and atherosclerosis to identify mechanisms, genes and molecules that can be potentially targeted in the clinic. A recent extension of our work is the study of clonal hematopoiesis, which extends the implications of our work to organismal aging, cancer and chronic inflammation.

I have successfully obtained continued funding since I started my own research in Spain from regional, national and European sources, as well as from the private sector. I have managed and used this financial support to train a new generation of scientists and to generate knowledge reflected in multiple high impact, peer-reviewed publications. While I am now based in Spain, I keep strong ties with North American fellows and in fact I currently share funding with scientists at Columbia, Harvard and Stanford through a Leducq Transatlantic Network. International recognition of our work has recently translated in my election to the editorial board of Blood, the leading journal of haematology (to start in January 2021).

Part C. RELEVANT MERITS (last 5 years)

C.1. Selected publications (including books)

1. Leiva M, Quintana JA, Ligos JM and **Hidalgo A**. Hematopoietic ESL-1 enables stem cell proliferation in the bone marrow by limiting TGFβ availability. **Nature Communications** 7:10222, 2016
2. Gonzalez-Terán B, et al.. p38γ and p38δ reprogram liver metabolism by modulating neutrophil infiltration. **EMBO Journal** 35(5): 536-552, 2016
3. Silvestre-Roig C, **Hidalgo A** and Soehnlein O. Neutrophil heterogeneity: implications for homeostasis and pathogenesis. **Blood**. 127 (18):2173-2181, 2016.
4. Adrover JM, Nicolas-Avila JA and **Hidalgo A**. Aging, a temporal dimension of neutrophils. **Trends in Immunology** 37(5): 334-345, 2016. Cover feature
5. Zhen S*, Evrard M*, et al. CXCR4 identifies transitional bone marrow pre-monocytes that replenish the mature monocyte pool for peripheral responses. **Journal of Experimental Medicine**, 213(11): 2293-2314, 2016
6. Rossaint J, et al. Directed transport of neutrophil-derived extracellular vesicles enables platelet-mediated innate immune response. **Nature Communications** 7:13464, 2016
7. Nicolás-Avila JA, Adrover JM and **Hidalgo A**. Neutrophils in homeostasis, immunity and cancer. **Immunity,** 46 (1): 15-28, 2017
8. García-Prieto J, et al. Neutrophil stunning by metoprolol reduces infarct size. **Nature Communications** 8: 14780, 2017
9. Soehnlein O, Steffens S, **Hidalgo A** and Weber C. Neutrophils as protagonists and targets in chronic inflammation. **Nature Reviews in Immunology** 17(4):248-262, 2017
10. A-Gonzalez N, et al. and **Hidalgo A**. Phagocytosis imprints heterogeneity in tissue-resident macrophages. **Journal of Experimental Medicine** 214(5):1281-1296, 2017
11. Duchene J, et al. Atypical chemokine receptor 1 regulates hematopoiesis. **Nature Immunology** 18 (7):753-761, 2017
12. Enamorado M, et al. Enhanced anti-tumor immunity requires the interplay between resident and circulating memory CD8+T cells. **Nature Communications** 8:16073, 2017
13. Li JL, Zarbock A and **Hidalgo A**. Platelets as autonomous drones for hemostatic and immune surveillance. **Journal of Experimental Medicine** 214(11): 2193-2204, 2017
14. Evrard M, et al. Developmental analysis of bone marrow neutrophils reveals populations specialized in expansion, trafficking and effector functions. **Immunity** 48(2): 364-379, 2018
15. Winter C., et al. Circadian oscillation of arterial myeloid cell recruitment instructed by CCL2 licenses specific therapeutic intervention. **Cell Metabolism** 28(1):175-182, 2018
16. Salas-Perdomo A, et al. Active P-selectin binding sites in CD4+ memory T cells prevent hemorrhagic transformation following severe ischemic stroke. **ATVB** 38(8): 1761-1771, 2018
17. Casanova-Acebes M, et al. and **Hidalgo A**. Neutrophils instruct homeostatic and pathological states in naïve tissues. **Journal of Experimental Medicine** 215(11): 2778-2795, 2018. Cover feature; Highlight in JEM's Year in Experimental Medicine 2018; Featured in F1000
18. Wang W, et al. Erythrophagocytosis and accelerated atherosclerosis in Jak2V617F mice. **Circulation Research**, 123(11): e35-47, 2018
19. Boeltz S et al.. Opinion article: To NET or not to NET: Current opinions and state of the science regarding the formation of neutrophil extracellular traps. **Cell Death and Differentiation** 26(3): 395-408, 2019.

20. Adrover JM, et al. and **Hidalgo A**. A neutrophil timer coordinates immune defense and vascular protection. **Immunity** 50(2): 390-402, 2019. Cover feature; Preview commentary (Immunity); Featured in F1000
21. Cossío I, Lucas D and **Hidalgo A**. Neutrophils as regulators of the hematopoietic niche. **Blood** Blood 133(20):2140–2148, 2019. Invited review
22. Ng LG, Ostuni R and **Hidalgo A**. Heterogeneity of neutrophils. In Press, **Nature Reviews in Immunology** 19(4): 255-265, 2019. Invited review
23. Silvestre-Roig C, et al. Externalized histone H4 orchestrates chronic inflammation by inducing lytic cell death. **Nature** 569(7755): 236-240, 2019
24. Welz PS, et al. BMAL1-driven tissue clocks respond independently to light to maintain homeostasis. **Cell** 177(6): 1436-1447, 2019
25. **Hidalgo A**, Summers C, Chilvers E and Koenderman L. The life cycle of neutrophils. **Trends in Immunology**, 40(7):584–597, 2019. Invited Review.
26. Culemann S, et al. Locally renewing resident synovial macrophages provide a protective barrier for the joint. **Nature** 572(7771): 670-675, 2019
27. Adrover JM, et al. and **Hidalgo A**. Programmed "disarming" of the neutrophil proteome reduces the magnitude of inflammation. **Nature Immunology** 21(2): 135-144, 2020.
News and views commentary in Nat Immunol 2020, and Science Trans. Medicine 2020.
28. Sanchez-Diaz M, Nicolás-Ávila JA, Cordero MD and **Hidalgo A**. Mitochondrial adaptations of the growing heart. **Trends in Endocrinology and Metabolism** 31(4): 308-319, 2020
29. Aroca-Crevillén A, Adrover JM and **Hidalgo A**. Circadian features of neutrophil biology. In Press, **Frontiers in Immunology** 2020.
30. Kwok I, et al. Combinatorial single-cell analyses of granulocyte-macrophage progenitor heterogeneity reveals an early uni-potent neutrophil progenitor. **Immunity** 53(2): 303-318, 2020
31. Nicolás-Ávila JA, et al. and **Hidalgo A**. A network of macrophages supports mitochondrial homeostasis in the heart. **Cell** 183(1):94-109, 2020
Cover issue Commentaries in Cell, Nat Rev Cardiol and Nat Rev Immunol
32. Rubio-Ponce A, **Hidalgo A** and Ballesteros I. How to bridle a neutrophil. In Press, **Current Opinion in Immunology**, 2020
33. Ballesteros I, et al. and **Hidalgo A**. Co-option of neutrophil fates by tissue environments. **Cell** 183(5): 1282-1297, 2020
34. Adrover JM, Pellico J, Fernandez-Barahona I, Martin-Salamanca S, Ruiz-Cabello J, **Hidalgo A** and Herranz F. Thrombo-tag, an in vivo formed nanotracer for the detection of thrombi in mice by fast pre-targeted molecular imaging. In Press, **Nanoscale** 2020
35. Crespo M, Gonzalez-Terán B, Tomas-Loba A, Rodriguez E, Mora A, Nikolic I, Leiva-Vega L, A-Gonzalez N, Caballero-Molano A, **Hidalgo A**, Matesanz N, Leiva M and Sabio G. Neutrophil infiltration reprograms circadian genes controling liver metabolism. In Press, **eLife** 2020
36. Palomino-Segura M and **Hidalgo A**. Circadian-immune circuits. **Journal of Experimental Medicine** 218(2): R828-830, 2021
37. Rubio-Ponce A, Ballesteros I, Solanas G, Benitah SA, **Hidalgo A*** and Sanchez-Cabo F* (equal contribution). CircaN, a statistical framework for accurate detection of circadian genes in mammals. **NAR Genomics and Bioinformatics** 3(2): lqab031, 2021.
38. Khoyratty T; Ai Z; Ballesteros I, Eames HL, Mathie S, Martín-Salamanca S, Wang L, Hemmings A, Willemsen N, von Werz V, Zehrer A, Walzog B, van Grinsven E, **Hidalgo A**, Udalova IA. Distinct transcription factor networks control neutrophil-driven inflammation. In Press, **Nature Immunology** 2021
39. Schafflick D, Wolbert J, Heming M, Thomas C, Hartlehnert M, Borsch AL, Ricci A, Martín-Salamanca S, Li X, Pawlak M, Minnerup J, Strecker JK, Seidenbecher T, Meuth S, **Hidalgo A**, Liesz A, Wiendl H and Meyer zu Horste G. B cells and their progenitors reside in homeostatic meninges. In Press, **Nature Neuroscience** 24(9): 1225-1234, 2021.
40. Hidalgo A and Casanova-Acebes M. Dimensions of neutrophil life and fate. Invited review for **Seminars in Immunology**, 2021. In Press
41. Crainiciuc G, Palomino-Segura M, Molina-Moreno M, Sicilia JE, Aragonés DG, Li JL, Adrover JM, Aroca-Crevillén A, Martin-Salamanca S, Serrano del Valle A, Castillo SD, Welch HCE, Soehnlein O, Graupera M, Sánchez-Cabo F, Zarbock A, Smithgall TE, Tharaux PL,

González SF, Ng LG, Calvo GF, González-Díaz I, Díaz-de-María F and Hidalgo A. Behavioral immune landscapes of inflammation. **Nature** 601(7893):415-421, 2022

C.2. Research projects and grants (ongoing)

1) “Clonal hematopoeisis and atherosclerosis”. The goal is to define clonality in common CH mutants and to assess inflammatory consequences. Role: European coordinator and PI. Leducq Foundation, Transatlantic network of excellence (TNE-18CVD04). 6.000.000 USD (700,000 USD for our group). Running from January 2019-December 2024

2) “Therapeutic targeting of the neutrophil clock in cardiovascular disease”. Fundación La Caixa (HR17_00527). 499,998€ (210,000€ for our group). Role: Coordinator (3 groups). Running from January 2019- December 2021

3) “Regulación circadiana del nicho hematopoyético”. The goal lis to define the molecular regulators of circadian time in the bone marrow niche. Role: PI. Ministerio de Ciencia, Innovación y Universidades (RTI2018-095497-B-I00). 363,000 €. Running from January 2019-December 2021

4) “NeutroCure: Development of “smart” amplifiers of reactive oxygen species specific to aberrant polymorphonuclear neutrophils for treatment of inflammatory and autoimmune diseases, cancer and myeloablation”. The goal is to implement inducible chemical amplifiers of ROS to improve neutrophil-mediated functions in vivo, both immune and non-immune. Role: Co-PI. European Commision, FET-OPEN (#861878). 3M € total, 400,000€ for our laboratory. Running from January 2020-December 2024

C.3. Contracts

None

C.4. Patents

“A method to enhance selectin ligand expression in cord blood-derived hematopoietic progenitor/stem cells”. Application No: US provisional patent application serial no. 60/494,317. Country of registration: United States.

“A Method to Inhibit Neutrophil Activity for the Prevention of Acute Lung Injury” (2008). Inventors (order of signing): Andres Hidalgo y Paul S. Frenette. Application No: Submission of Invention disclosure, docket no. 082003. Country of registration: United States.

“Antibodies and fragments thereof capable of binding the P-selectin glycoprotein ligand-1 (PSGL-1) for the treatment of thrombo-inflammatory disorders” (2014). Inventors (orden of signing): Vinatha Sreeramkumar and Andrés Hidalgo. Application No: EP14382425.8. Country of registration: Europe.

C.5. Awards and Honors

1993-1994	Graduate scholarship, Madrid Autonomous University
1994-1998	Graduate fellowship, Madrid Autonomous Region: Training of Research Personnel
2002-2004	Fellowship from the Cooley´s Anemia Foundation.
2004-Present	Fellowship from the Charles Revson Foundation
2004-2005	Fellowship from the National Blood Foundation (USA)
2007	Fellowship from the American Society of Hematology
2007	Programa Ramón y Cajal (Ramón y Cajal Program), Spanish Ministry of Science and Technology

2006	David B. Pall Prize for Innovative Research in Transfusion Medicine. National Blood Foundation (USA)
2007-2011	National Scientist Development Grant from the American Heart Association
2015	Finalist, Premio La Vanguardia de la Ciencia
2015-2018	Adjunct of the National Evaluation Agency (ANEP)
2016	Member of the Spanish Society of Immunology (SEI)
2018	Scientific Committee for the Spanish Society of Immunology
2018	Topic editor, Frontiers in Immunology
2019	Member, American Heart Association
2021-2024	*Blood*, editorial board member

C.6. Organization of R&D activities

1. Co-organizer, Inflammation MACS Day - CNIC. July 4th, 2017. Centro Nacional de Investigaciones Cardiovasculares, Madrid.
2. Co-organizer, First Symposium Neoplasbim B-cell malignancies: from the bench to the patient. Madrid, October 23-24, 2014.
3. Co-organizer, Phagocyte Workshop of the Annual Meeting of the European Society of Clinical Investigation 2015. Cluj-Napoca (Romania). May 27-30, 2015.
4. Co-organizer, CNIC Inflammation & Immunity Day. Centro Nacional de Investigaciones Cardiovasculares, Madrid. July 1st, 2016.
5. Co-organizer, CNIC Inflammation & Immunity Day. Centro Nacional de Investigaciones Cardiovasculares, Madrid. July 6th, 2018.
6. Co-organizer, CNIC Conferences. New concepts of age-related cardiovascular disease. Madrid, October 24-26, 2019.

C.7. Reviewer for scientific journals

Ad hoc reviewer for: Cell, Immunity, Cell Host Microbe, Cell Metabolism, Cell Reports, Cancer Cell, Developmental Cell, Science, Science Immunology, Nature Immunology, Nature Medicine, Nature Methods, Nature Communications, Nature Protocols, Nature Reviews Cancer, JCI Insight, JEM, Circulation, Circulation Research, Current Biology, eLife, Blood, PNAS, etc.

C.8. Congresses and symposia

Dr. Hidalgo has participated in over 80 national and international congresses and symposia, and has been an invited to give over 60 seminars.

C.9. Teaching experience (last 5 years)

1. Master class on Molecular Biomedicine. Code: BMM9: Universidad Autónoma de Madrid. Course 2014-2015, Session of lectures on “Frontiers in Cardiovascular Research”. Title of lecture: “Neutrophils scan for activated platelets to initiate inflammation”. January 2015.
2. Master class at Inserm UMR-S1149 / Inserm U1152. Course 2015-2016, Title of lecture: “Neutrophils in inflammation”. November 2015.
3. Master class at Universidad Pompeu Fabra (Biomedical Research UPF, Molecular Pathology of Systems; 5 credits). Course 2015-2016, Title of lecture: “The neutrophil in action”. November 2015.
4. Master class at Universidad Pompeu Fabra. Course 2016-2017, Title of lecture: “The parameter time in immunity”. November 2016.
5. Invited lecturer to a master’s degree course. Master class at Universidad Internacional Menéndez Pelayo-CIB. Course 2016-2017, Title of lecture: “Chronobiology of inflammation”. January 2017.
6. Master class at Universidad Pompeu Fabra. Course 2017-2018, Title of lecture: “Unexpected connections between Immunity and pathophysiology”. November 2017
7. Coordinator 2017-2018, Master BMM9 class at CNIC (Universidad Autónoma Madrid): Insights into cardiovascular pathology research: a comprehensive molecular, physiological, clinical and practical approach