

GENERAL INFORMATION

Name: Biola M. Javierre, PhD
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Carrer beaks: Two maternity leaves; 6 months in 2016 and 9 months in 2017



SUMMARY

Since I began my scientific career, I have been deeply interested in understanding how genetically complex diseases develop, in particular autoimmune diseases and blood cancers. Initially, during my PhD (CNIO, Madrid, Spain), I approached this from an epigenetic perspective (**Genome Res, 2010 & Mol Cancer Res, 2011**). Stimulated by the fact that most epigenetic, as well as genetic, alterations associated with these diseases affect non-coding regions, I joined Peter Fraser's group (Babraham Institute, Cambridge, UK) as a postdoc to understand the contribution of the non-coding genome to autoimmunity, based on the study of the spatial-temporal chromatin architecture (**Cell, 2016 & Nature Commun, 2021**). In addition, I am interested in the role of genome architecture regulated by epigenetic machinery (Polycomb) in cell differentiation and oncogenesis (**Nat Genet, 2015**). The Promoter Capture Hi-C (PCHi-C) method that I developed was fundamental to both projects (**J Vis Exp, 2018**). Now, as an independent group leader (IJC, Barcelona, Spain; <https://www.javierrelab.com>), I have decided to combine my expertise in cell differentiation, malignant transformation, epigenetics and genome architecture to better understand hematopoiesis, which is a key process that is closely associated with blood cancer and autoimmunity (**Trends Immunol, 2020 & Front Immunol, 2020**).

Despite of my scientific early-stage, I have an outstanding publication record, including **26 scientific papers, 5 reviews and 2 book chapters** (13, 2 and 3 of them as the first, last and corresponding author respectively), with an **h index of 19, 2136 citations** and an **average impact factor of 13.389** (according to WOS, Publons and JCR). I also have strong international networks and solid leadership capabilities, being currently one of the most promising Young Investigators, as the **L'Oréal-Unesco For Women in Science Research Award 2018** and the **International Rising Talents 2019 L'Oréal-UNESCO** reaffirm. I have been awarded with several fellowships and grants along my scientific career such as **Ramon y Cajal, La Caixa Junior Leader, postdoctoral FEBS fellowship, Plan Nacional, The European Hematology Association Advanced Research Grant, the German Leukemia Foundation Research Grant, the Lab AECC Grant and the Wellcome Leap-HOPE Program Grant** among others. I am lecturer of the Master Course on Biomedicine at the University of Barcelona and I have acted as thesis jury on several occasions and invited speaker in different academic and non-academic activities. In addition, I am directing six doctoral thesis and I have supervised five master theses. I am actively contributing to the shaping of the IJC, as organizer of the PhD Student Seminars and member of the Gender Equality Committee. In addition, I have extended reviewing activities as guest editor (Genes Journal), ad-hoc reviewer (Nature Communications, Genome Research, Genome Biology, Science Report, Genomics, proteomics & Bioinformatics, GigaScience or Genes among others), expert referee (European Research Council, Spanish State Research Agency, Dutch Cancer Society and Polish National Science Center) and jury member of the King Jaume I Award.

POSITIONS

2018-Present **Group Leader**, 3D Chromatin Organization Research Group, Josep Carreras Leukaemia Research Institute (IJC), Badalona, Barcelona, Spain.

- 2012-2017 **Postdoctoral Fellow**, Babraham Institute, University of Cambridge, UK.
Supervisor: P. Fraser.
- 2008 **Predoctoral Short-Term Stay**. Institute of Human Genetics, Christian Albrechts University, Kiel, Germany. Supervisor: R. Siebert.
- 2005-2006 **Research Student**. CIMA, Pamplona, Spain. Supervisor: A. Calvo.
- 2003-2006 **Research Student**, Department of Genetics, University of Navarra, Pamplona, Spain.

MAIN EDUCATION

- 2006-2011 **Ph.D., Molecular Biology**. Autonomous University of Madrid, Spain. 2006-2008, Spanish National Cancer Centre (CNIO), Madrid, Spain; 2008-2010, IDIBELL, Barcelona, Spain. Supervisors: M. Esteller and E. Ballestar.
- 2004-2006 **B.Sc., Biochemistry**. University of Navarra, Pamplona, Spain. Outstanding Average Mark with Special Award for Degree.
- 2001-2006 **B.Sc., Biology**. University of Navarra, Pamplona, Spain. Outstanding Average Mark with Special Award for Degree.

ADDITIONAL EDUCATION

- 2019 Training Course on Intellectual Property, World Intellectual Property Organization (WIPO), Geneva, Switzerland
- 2017 The LIBRA Career Development Compass Programme, Paris, France.
- 2013 EMBO Laboratory Management Course for Postdocs, Heidelberg, Germany.
- 2013 EnterpriseWISE Training Course, Centre for Entrepreneurial Learning, University of Cambridge, UK.
- 2013 MoT1-Marketing of Innovation Course, University of Cambridge, UK.
- 2012 MoT1-Finances Course, University of Cambridge, UK.
- 2012 MoT1-Enterprise & Business Course, University of Cambridge, UK.
- 2009 Degree on Animal Experimentation. Autonomous University of Barcelona, Spain.

FUNDING AND AWARDS

- 2022 **XXIV Children's Area Award of the Fundació Agrupació** [12.000€].
- 2021-2024 **Lab AECC Grant** [300.000€].
- 2021-2024 **Wellcome Leap, Human Organs, Physiology, and Engineering (HOPE) Grant**, in collaboration with Roser Vento-Tormo (UK), Kyung-Ho Roh (USA) (Australia) and Leonardo Morsut (USA) [\$ 3.915.965, \$ 993.717 Biola M. Javierre].
- 2021-2023 **European Hematology Association (EHA) Advance Research Grant** [160.000€].
- 2020 **EOI grant on regenerative medicine**, in collaboration with Cian Lynch (Manuel Serrano Group, IRB) and Meritxel Rovira (CMRB) [10.000€].
- 2019 **Top 10 Scientific Women Leaders in Spain and top 100 Women Leaders in Spain Awards**, Mujeres&Cia Foundation, which identifies the 10 best women scientists and 100 best women leaders in Spain.
- 2019 **L'Oréal-UNESCO International Rising Talents Award 2019**, which recognizes the fifteen most promising young women scientists worldwide from four disciplines (Life Sciences, Physical Sciences, Engineering and Formal Sciences) [15.000€].
- 2019-2022 **Plan Nacional Grant** (RTI2018-094788-A-I00) [145.000€ & FPI student]
- 2019-2022 **La Caixa Junior Leader Grant** (LCF/BQ/PI19/1169000) [305.100€].
- 2019-2022 **Deutsche Leukaemie-Stiftung Grant**, in collaboration with Björ Chapuy (Dana-Farber Cancer Institute/Harvard Medical School, USA^[1]_{SEP}) and University Medical Center Göttingen, Germany) [180.000€].

- 2018 **L'Oréal-UNESCO For Women in Science Research Award**, L'Oréal Foundation, Spain [15.000€].
- 2018-2023 **Ramon y Cajal Grant** (RYC-2016-19665), Spanish Ministry of Science, Innovation and University [208.600€].
- 2017 **LIBRA Career Development Compass for female scientists fellowship**.
- 2016 **Award to the finalists of the national STEM for BRITAIN competition**
- 2012-2014 **Postdoctoral FEBS fellowship**, Federation of European Biochemical Societies, European Union.
- 2013 **EnterpriseWISE Training Course Fellowship**, University of Cambridge.
- 2007-2011 **Predoctoral PFIS fellowship**, Carlos III Health Institute (ISCIII).
- 2007 **FPU and Ramon Areces fellowships** (declined due to incompatibility)
- 2005 **Introduction to Research for Young Researchers fellowship**, Spanish Society of Biochemistry and Molecular Biology (SEBBM).

SCIENTIFIC PRODUCTION [according to WOS & Publons, December 2021]

Total publications: 27 scientific papers, 6 reviews and 2 book chapters.

Total publication as first author: 13

Total publication as last author: 3

Total publication as corresponding author: 4

Number of citations: 2767

h-index: 24

Average impact factor (according to JCR): 13.389

PUBLICATIONS [* Equally contributed, # Corresponding Author]

Llabata P, Torres-Diz M, Gomez A, Tomas-Daza L, [...] **Javierre BM**, Zhang X, Sanchez-Céspedes M. *MAX-mutant small cell lung cancers exhibit impaired activities of MGA-dependent non-canonical polycomb repressive complex*. **Proc Natl Acad Sci U S A**. 2021 [JCR 11,205; 0 citations].

Watt S, Vasquez L, Walter K, [...] **Javierre BM** #, Spivakov M#, Soranzo N#. Genetic perturbation of PU.1 binding and chromatin looping at neutrophil enhancers associates with autoimmune disease. **Nat Commun**. 2021 doi: <https://doi.org/10.1101/620260> [JCR 14,919; 2 citations].

Roviroso L, Ramos-Morales A, **Javierre BM**#. *The Genome in a Three-Dimensional Context: Deciphering the Contribution of Noncoding Mutations at Enhancers to Blood Cancer*. **Front Immunol**. 2020 [JCR 7,561; 1 citations].

Madsen JGS, Madsen MS, Rauch A, Traynor S, Van Hauwaert EL, Haakonsson AK, **Javierre BM**, Hyldahl M, Fraser P, Mandrup S. *Highly interconnected enhancer communities control lineage-determining genes in human mesenchymal stem cells*. **Nat Genet**. 2020 [JCR 38,33; 7 citations].

Li T, Ortiz-Fernández L, Andrés-León E, Ciudad L, **Javierre BM**, et al. *Epigenomics and transcriptomics of systemic sclerosis CD4+ T cells reveal long-range dysregulation of key inflammatory pathways mediated by disease-associated susceptibility loci*. **Genome Med**. 2020 [JCR 11,117; 3 citations].

Azagra A, Marina-Zarate E, Ramiro AR, **Javierre BM** # and Parra M#. *From Loops to Looks: Transcription Factors and Chromatin Organization Shaping Terminal B Cell Differentiation*. **Trends Immunol**. 2019 [JCR 16,687; 8 citation].

Bueno-Costa A, Piñeyro D, Soler M, **Javierre BM** Raurel-Vila H, Subirana_Granés M, et al. *B-cell leukemia transdifferentiation to macrophage involves reconfiguration of DNA methylation for long-range regulation*. **Leukemia**. 2019 [JCR 11,528; 4 citations].

Miguel-Escalada I, Bonàs-Guarch S, Cebola I, Ponsa-Cobas J, Mendieta-Esteban J, Atla G, **Javierre BM**, et al. *Human pancreatic islet three-dimensional chromatin architecture provides insights into the genetics of type 2 diabetes*. **Nat Genet.** 2019 [JCR 27.603; 72 citations].

Schoenfelder S*#, **Javierre BM*#**, Furlan-Magaril M, Wingett SW & Fraser P#. *Promoter Capture HiC: High-resolution, Genome-wide Profiling of Promoter Interactions*. **J. Vis. Exp.** 2018 [JCR 1.108; 29 citations].

Choy M, **Javierre BM**, Williams SG, Baross SL, Liu Y, Wingett SW, Akbarov A, et al. *Promoter interactome of human embryonic stem cell-derived cardiomyocytes connects GWAS regions to cardiac gene networks*. **Nat Commun.** 2018 [JCR 11.878; 28 citations].

Beekman R, Chapaprieta V, Russiñol N, Vilarrasa-Blasi R, Verdaguer-Dot N, Martens JHA, Duran-Ferrer M, Kulis M, Serra F, **Javierre BM**, Wintgett SW, Clot G, Queirós AC, et al. *The reference epigenome and regulatory chromatin landscape of chronic lymphocytic leukemia*. **Nat Med.** 2018 [JCR 30.641; 77 citations].

Novo CL, **Javierre BM**, Cairns J, Segonds-Pichon A, Wingett SW, Freire-Pritchett P, et al. *Long-Range Enhancer Interactions Are Prevalent in Mouse Embryonic Stem Cells and Are Reorganized upon Pluripotent State Transition*. **Cell Rep.** 2018 [JCR 7.815; 52 citations].

Burren OS*, Rubio-García A*, **Javierre BM***, Rainbow DB*, Cairns J, Cooper NJ, et al. *Chromosome contacts in activated T cells identify autoimmune disease candidate genes*. **Genome Biol.** 2017 [JCR 13.214; 34 citations].

Petersen R*, Lambourne JJ*, **Javierre BM***, Grassi L*, Kreuzhuber R, Ruklisa D, Rosa IM, et al. *Platelet function is modified by common sequence variation in megakaryocyte super enhancers*. **Nat Commun.** 2017 [JCR 12.353; 27 citations].

Siersbæk R*, Madsen JGS*, **Javierre BM***, Nielsen R, Bagge EK, Cairns J, Wingett SW, et al. *Dynamic rewiring of promoter-anchored chromatin loops during adipocyte differentiation*. **Mol Cell.** 2017 [JCR 14.248; 88 citations].

Aymard F, Aguirrebengoa M, Guillou E, **Javierre BM**, Bugler B, Arnould C, Rocher V, et al. *Genome wide mapping of long range contacts unveils DNA Double Strand Breaks clustering at damaged active genes*. **Nat Struct Mol Biol.** 2017 [JCR 13.333; 118 citations].

Javierre BM, Burren OS, Wilder SP, Kreuzhuber R, Hill SM, Sewitz S, Cairns J, et al. *Lineage-Specific Genome Architecture Links Enhancers and Non-coding Disease Variants to Target Gene Promoters*. **Cell.** 2016 [JCR 30.410; 334 citations].

Stunnenberg HG; International Human Epigenome Consortium & Hirst M. *The International Human Epigenome Consortium: A Blueprint for Scientific Collaboration and Discovery*. **Cell.** 2016 [JCR 30.410; 166 citations].

Pancaldi V, Carrillo-de-Santa-Pau E, **Javierre BM**, Juan D, Fraser P, Spivakov M, et al. *Integrating epigenomic data and 3D genomic structure with a new measure of chromatin assortativity*. **Genome Biol.** 2016 [JCR 11.908; 20 citations].

Cairns J, Freire-Pritchett P, Wingett SW, Várnai C, Dimond A, Plagnol V, Zerbino D, Schoenfelder S, **Javierre BM**, Osborne C, Fraser P & Spivakov M. *CHiCAGO: robust detection of DNA looping interactions in Capture Hi-C data*. **Genome Biol.** 2016 [JCR 11.908; 158 citations].

Vento-Tormo R, Company C, Rodríguez-Ubreva J, de la Rica L, Urquiza JM, **Javierre BM**, et al. *IL-4 orchestrates STAT6-mediated DNA demethylation leading to dendritic cell differentiation*. **Genome Biol.** 2016 [JCR 11.908; 63 citations].

Schoenfelder S*, Sugar R*, Dimond A*, **Javierre BM***, Armstrong H*, Mifsud B, et al. *Polycomb repressive complex PRC1 spatially constrains the mouse embryonic stem cell genome*. **Nat Genet.** 2015 [JCR 31.616; 202 citations].

Nagano T, Várnai C, Schoenfelder S, **Javierre BM**, Wingett SW & Fraser P. *Comparison of Hi-C results using in-solution versus in-nucleus ligation*. **Genome Biol.** 2015 [JCR 11.313; 100

citations].

Schoenfelder S, Furlan-Magaril M, Mifsud B, Tavares-Cadete F, Sugar R, **Javierre BM**, et al. *The pluripotent regulatory circuitry connecting promoters to their long-range interacting elements*. **Genome Res.** 2015 [JCR 11.351; 220 citations].

Hernando H, Shannon-Lowe C, Islam AB, Al-Shahrour F, Rodríguez-Ubreva J, Rodríguez-Cortez VC, **Javierre BM**, Mangas C, Fernández AF, Parra M, Delecluse HJ, et al. *The B cell transcription program mediates hypomethylation and overexpression of key genes in Epstein-Barr virus-associated proliferative conversion*. **Genome Biol.** 2013 [JCR 10.465; 33 citations].

Javierre BM, Hernando H & Ballestar E. *Environmental triggers and epigenetic deregulation in autoimmune disease*. **Discov Med.** 2011 [JCR -; 73 citations].

Cordero P, Campion J, Milagro, Goyenechea E, Steemburgo T, **Javierre BM** & Martinez JA. *Leptin and TNF-alpha promoter methylation levels measured by MSP could predict the response to a low-calorie diet*. **J Physiol Biochem.** 2011 [JCR 1.711; 105 citations].

Javierre BM, Rodríguez-Ubreva J, Al-Shahrour F, Corominas M, Graña O, Ciudad L, et al. *Long-range epigenetic silencing associates with deregulation of Ikaros targets in colorectal cancer cells*. **Mol Cancer Res.** 2011 [JCR 4.288; 33 citations].

Javierre BM & Richardson B. *A new epigenetic challenge: systemic lupus erythematosus*. **Adv Exp Med Biol.** 2011 [JCR 1.093; 31 citations].

Javierre BM, Fernandez AF, Richter J, Al-Shahrour F, Martin-Subero JI, et al. *Changes in the pattern of DNA methylation associate with twin discordance in systemic lupus erythematosus*. **Genome Res.** 2010 [JCR 13,588; 421 citations].

Fernandez AF, Rosales C, Lopez-Nieva P, Graña O, Ballestar E, Ropero S, Espada J, Melo SA, Lujambio A, Fraga MF, Pino I, **Javierre BM**, et al. *The dynamic DNA methylomes of double-stranded DNA viruses associated with human cancer*. **Genome Res.** 2009 [JCR 11.342; 194 citations].

Javierre BM, Esteller M & Ballestar E. *Epigenetic connections between autoimmune disorders and haematological malignancies*. **Trends Immunol.** 2008 [JCR 9.910; 22 citations].

Catena R, Muniz-Medina V, Moralejo B, **Javierre B**, Best CJ, Emmert-Buck MR, Green JE et al. *Increased expression of VEGF121/VEGF165-189 ratio results in a significant enhancement of human prostate tumor angiogenesis*. **INT J Cancer.** 2007 [JCR 4.555; 38 citations].

BOOK CHAPTERS

Javierre BM, L. De La Rica & E. Ballestar. *Epigenetic basis of autoimmune disorders in humans*. In: T.O. Tollefsbol (ed.). *Epigenetics of Autoimmune Diseases*. **Elsevier**, 2012.

Javierre BM, Esteller M & Ballestar E. *DNA Methylation Alterations in Systemic Lupus Erythematosus*. In: Zouali, M. (ed.). *The Epigenetics of Autoimmune Diseases*. **Wiley-VCH Verlag GmbH & Co**, 2009.

TEACHING ACTIVITIES

Lecturer on the Master Course in Biomedicine, University of Barcelona (2019-2022).

Thesis director:

Laureano Tomas (since September 2018, co-directed by Alfonso Valencia).

Monica Cabrera (since September 2018, co-directed by Alfonso Valencia).

Llorenç Roviroso (since January 2019).

Paula López (since July 2021, co-directed by Alfonso Valencia).

Blanca Urmenenta (since September 2021).

Blanca Valero (since October 2021).

Supervisor of Master Students:

Sara Borghi (2012)
Andrea Nieto-Aliseda (2020)
Blanca Aguilà (2020)
Nuria Peregrín (2020)
Asier Ricardo Raffles (2021)
Alexandre Cosin (2021)
Álvaro Alcalde (2022).

Thesis Jury:

Mireia Ramos-Rodriguez (2020)
Julien Mendieta (2020)
Lucía Jimenez (2021)
Richard Norris (2021)
Luisa Delgado (2021)
Francesca Mugianesi (2022)

Other mentoring activity: Direct involvement in mentoring 16 PhD and Postdoctoral Fellows from the groups of Zwart (NKI, Netherlands), Ristaldi (IRGB, Italy), Stunnenberg (Radboudumc, Netherlands) and Mandrup (SDU, Denmark) Tubio (Santiago de Compostela University, Spain), F. Fraga (ISPA, Spain) among others.

REVIEWING ACTIVITIES

Ad-hoc reviewer for multiple journals, including Nature Communications, Genome Research, Genoe Biology, Scientific Reports, Genomics, proteomics & Bioinformatics, GigaScience, BMC Biology, Genes.

Expert or external referee:

European Research Council (Europe)
Spanish State Research Agency (Spain)
Polish National Science Center (Poland)
Dutch Cancer Society (Netherland)
La Caixa Foundation (Spain)

Jury member

King Jaume I Award, Medical Research category (Spain).
L'Oréal-UNESCO For Women in Science (Spain).

INSTITUTIONAL RESPONSABILITIES

Organizer of the PhD Student Seminars, IJC (2018-present).
Member of the Gender Equality Committee of the IJC (2019-present).

SELECTED CONFERENCE PARTICIPATION

2022 ISPA Series of conferences on cancer, Oviedo, Spain (Invited Speaker).
2021 International Workshop on Translational Cancer Research, Palma de Mallorca, Spain (Invited Speaker).
2021 46^o Annual SEBBM symposium, Barcelona, Spain (Invited Speaker).
2021 Seminar Serie Genome Organization Australia, virtual (Invited Speaker).
2019 Young Scientists Meeting 2019, Institute Curie and Instituto Gulbenkian de Ciência, Pedrogao Pequeno, Portugal (Keynote Speaker).
2019 Neuroscience meets 3D Genome Biology Workshop, Alicante, Spain
2018 VIII Annual Chromatin and Epigenetics symposium, Chromatin and Epigenetics section of the Catalan Society of Biology, Barcelona, Spain (Oral presentation).
2016 Dynamics of Genome Structure - ERC Synergy Project "4DGenome" Workshop, CRG, Barcelona, Spain (Poster Presentation).
2016 STEM for BRITAIN Exhibition of Posters by early-career research scientists, engineers and mathematicians, The Parliamentary, London, UK (Oral and Poster Presentation).

- 2015 B-debate, BCEC, Coding and non-coding functions of the genome, Barcelona, Spain (Oral presentation).
- 2015 Functional Genomics and Systems Biology: from model organisms to human health, Hinxton, UK (Invited Speaker).
- 2015 NetSciReg'15, Network Models in Cellular Regulation, Zaragoza, Spain (Oral presentation).
- 2014 Third Annual BLUEPRINT Consortium meeting, Rome, Italy (Oral presentation).
- 2014 EMBO conference: Chromatin and Epigenetics, Heidelberg, Germany (Poster Presentation).
- 2014 VII Congreso de la Asociacion Andaluza de Enfermedades Autoimunes, Almería, Spain (Invited Speaker).
- 2008 From Lymphoid Differentiation to Cancer Workshop, Madrid, Spain (Poster Presentation).
- 2008 7th European Lupus Meeting, Amsterdam, The Netherlands (Poster Presentation).
- 2006 III International Congress of Oncology for Students, Pamplona, Spain (Poster Presentation).
- 2005 28^o Annual SEBBM symposium. Zaragoza, Spain (Attendee).

Digitally signed: Dr. Biola M. Javierre

I am solely responsible for the accuracy and veracity of the contents here disclosed. All information here disclosed may be proved upon request.